NPort 5000 Series User's Manual

NPort 5000/5000A/IA5000/IA5000A Series

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NPort 5000 Series User's Manual

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

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

Getting Started

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

NPort products support the following configuration options:

- Windows Utilities: NPort Administrator; Device Search Utility and Windows Driver Manager
- Web Console
- Quick Setup Wizard*
- Serial Console**
- Telnet Console
- * Does not support 5100/5200/IA5000 series
- ** Only available for NPort Series that has RS-232 interface.

The following topics are covered in this chapter:

- Installing Your NPort Device Server
- Configuration by Windows Utility
- Configuration by Web Console
- Account Management
- System Log Settings
- Configuration by Telnet Console
- Configuration by Serial Console
- Testing Your NPort

Installing Your NPort Device Server

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

Wiring Requirements



ATTENTION

Safety First!

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

Wiring Caution!

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

Temperature Caution!

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

You should observe the following:

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

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

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

Connecting the Power

Connect the power line with the NPort's power input. If the power is properly supplied, the "Ready" LED will show a solid red color until the system is ready, at which time the "Ready" LED will change to a green color.

Grounding the NPort Device Server

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

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



WARNING

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

| Type of Power Terminal Block | Shielded Ground (SG) | Applicable Products |
|--|--|------------------------|
| | The Shielded Ground (sometimes called | NPort IA5000 Series |
| | Protected Ground) contact is the left most | |
| | contact of the 7-pin power terminal block | |
| 0 0 0 0 0 0 0 | connector when viewed from the angle | |
| | shown here. Connect the SG wire to an | |
| | appropriate grounded metal surface. | |
| PWR2 PWR1 PWR1 | The Shielded Ground (sometimes called | NPort IA5000A Series |
| | Protected Ground) contact is the left most | |
| | contact of the 8-contact power terminal | |
| | block connector when viewed from the | |
| | angle shown here. Connect the SG wire to | |
| <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> <u></u> | an appropriate grounded metal surface. | |
| | | |
| SG | The Shielded Ground (sometimes called | NPort 5200/5400 Series |
| | Protected Ground) contact is the left most | NPort 5200A Series |
| 0000 | contact of the 3-pin power terminal block | |
| | connector when viewed from the angle | |
| NPor | shown here. Connect the SG wire to an | |
| | appropriate grounded metal surface. | |
| | | |
| | The Shielded Ground (sometimes called | NPort 5600 Series |
| ABBBAB | Protected Ground) contact is the second | |
| V+ V- 😑 | contact from the right of the 5-pin power | |
| | terminal block connector located on the | |
| $\sim \gamma$ | rear panel of NPort 5600 VDC models. | |
| 3G | Connect the SG wire to the earth ground. | |

Connecting to the Network

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

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



ATTENTION

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

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

Connecting to a Serial Device

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

LED Indicators

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

NPort 5100/5100A/P5150A Series

NPort 5200/5200A/5400 Series

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

NPort 5600 Series (Rackmount)

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

NPort 5600-8-DT/DTL Series

| LED Name | LED Color | LED Function | |
|-------------|------------|---|--|
| PWR | Red | Power is on. | |
| | Off | Power is off. | |
| Ready | Green | Steady on: The NPort is operational. | |
| | | Blinking: The NPort is responding to NPort Administrator's Location | |
| | | function, or the NPort is being reset to factory defaults. | |
| | Off | Power is off, or power error condition exists. | |
| Fault | Red | Indicates an IP conflict, or the DHCP or BOOTP server did not respond | |
| | | properly. | |
| | Off | No fault condition detected. | |
| | Off | Blinking: Network is connected, data is being transmitted. | |
| ETH 1, ETH2 | Green | Steady on Network is connected, no data is being transmitted. | |
| | Off | Blinking Network is connected, data is being transmitted. | |
| In Use | Green | Serial port has been opened by server side software. | |
| (P1 to P8) | Off | Serial port is not currently opened by host side software. | |
| Tx/Rx | Green (Tx) | Serial device is transmitting data. | |
| (P1 to P8) | Orange(Rx) | Serial device is receiving data. | |
| | Off | No data is flowing to or from the serial port. | |

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

NPort 5000AI-M12 Series

NPort IA5000/IA5000A Series

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

*Only applies to NPort IA5000 fiber models.

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

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

Configuration by Windows Utility



ATTENTION

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

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

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

In this section, we will cover only the "configuration of general settings" using NPort Administrator. For more detailed information on how to use this suite of useful utilities, refer to **Chapter 6**.

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

Installing NPort Administrator

Download and run the setup program from Moxa's support website (<u>https://www.moxa.com/support/</u>). You may find it in the **Resource** section under your product page. Run NPort Administrator when the installation has been completed.

Searching for Device Servers over a LAN

The **Broadcast Search** function is used to locate all NPort 5400 device servers that are connected to the same LAN as your computer. Since the **Broadcast Search** function searches by MAC address and not IP address, all NPorts connected to the LAN will be located, regardless of whether or not they are part of the same subnet as the host.

| Elle Eunction Configuration | | | | | | | | |
|--|------------|-------------|-------------|---------------|-------------|-------------|--------|--|
| Exit Search Search | hIP Locale | Configure \ | //eb | | | | | |
| Function | | | | Configuration | - 0 NPort(s |) | | |
| Protet Prot Prot | | Model | MAC Address | IP Address | IP Addess2 | Server Name | Status | |
| Message Log · 0 Monitor Lo |) < | | | | | | | |
| No Time | g-ul | Description | | | | | | |
| | | Description | | | | | | |

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

| <u>File</u> <u>Func</u> | ction <u>Configuration</u> | n ⊻iew <u>H</u> e | qle | | | | | | |
|-------------------------|--|---|---|-------------------|-----------------|-------------|--------------|--------|---|
| Exit | search Search | IP Locate | Configure We | | | | | | |
| Fu | nction | | | Co | nfiguration - | 1 NPort(s |) | | |
| NPo | rt | No / Model MAC Address IP Address IP Address2 Ser | | | | Server Name | Status | | |
| N N N | Configuration Monitor Pott Monitor COM Mapping IP Address Report | 1 | NPort 52504 | 00:90:E8:63:50:FD | 192,168,127,254 | | NP5250A_7162 | Unlock | |
| | | < | | | | | | | 1 |
| Message Lo | og - 9 Monitor Log | 0-0 | | | | | | | |
| No | Time | | Description | | | | | | ^ |
| 5 6 7 8 9 | 3/21/2019 4:5 3/21/2019 4:5 3/21/2019 4:5 3/21/2019 4:5 3/21/2019 4:5 3/21/2019 4:5 | 4:28 PM 4:33 PM 7:07 PM | Uesception Unlock Fait: NPort 5650-9-D T J (00:90:E8:00:00:99) Found NPort(s) 1 Unlock Oit: NPort 5250A (00:90:E8:63:50:FD) Found NPort(s) 1 Found NPort(s) 1 | | | | | | |

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

Before configuring the NPort, you will need to unlock the NPort first. Right-click the unit in the Configuration screen and select **Unlock** in the pop-up menu. Before configuring the NPort, you will need to unlock it first. Right-click the unit in the Configuration screen and select **Unlock** in the pop-up menu.

The default login is:

Username: admin

Password: moxa

For the NPort 5100, 5200, and IA5000 Series, only the password is required to log in.

Adjusting General Settings

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

Also, For the NPort 5100, 5200, and IA5000 Series, only the password is required to log in.

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

| essible IP |
|------------|
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |

Static IP Addresses

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

Dynamic IP Addresses

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

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

Verifying Network Settings

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

Configuring Device Port Operation Mode

This section covers configuration of a device port's operation mode. The operation mode determines how the device port will interact with the network. Which operation mode you select will depend on your specific application. Refer to the chart at the end of this section for guidance on selecting the most appropriate operation mode. For additional information on each operation mode, refer to **Chapter 4** and **Chapter 5**.

Adjusting Operation Mode Settings

The operation mode parameters for each device port can be configured through NPort Administrator. Open your device server's configuration window using the same method you used to adjust the network

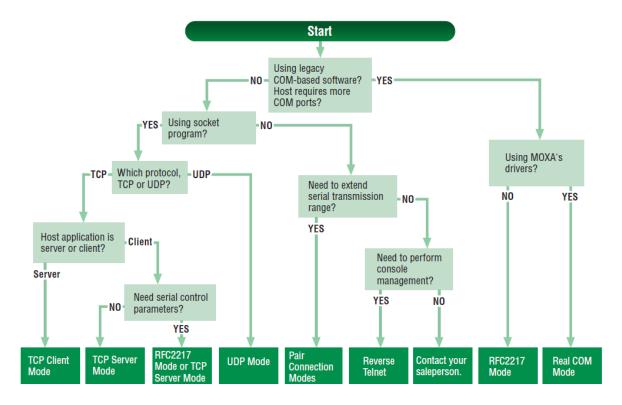
parameters. On the **Operating Mode** screen, select the **Modify** check box and then select the device port that you wish to configure. Click **Settings** to configure the selected device port.

| — [M | odify — | | , | |
|-------|---------|--------------------------------|---|---|
| Port | Alias | OP Mode | | |
| 1 | | Real COM Mode Real COM Mode | | _ |
| - | | 110010011111000 | | |
| | | | | _ |
| | | | | |
| | | | | _ |
| | | | | |
| | | | | _ |
| | | | | |
| | | | | - |

Set the operating mode and associated parameters as needed. Refer to **Chapter 4** and **Chapter 5** for additional information on operating modes and advanced settings. When you are ready to restart the device server with the new settings, click **OK**.

| Operating Mode | Real COM Mode | | |
|------------------------|----------------------|------------------|------------------|
| Max. Connection | 1 | • | |
| Misc (Optional) | | | |
| TCP Alive Check T 7 | imeout (0-99 min) | | |
| Allow Driver Co | ntrol | | |
| Ignore Jammed | IP | | |
| – Data Packing (Option | nal) | | |
| Delimiter 1 | 00 (0-ff, Hex) | Force Tx Timeout | 0 (0-65535 ms) |
| Delimiter 2 | 00 (0-ff, Hex) | Packing Length | 0 (0-1024 bytes) |
| Delimiter Process | Do Nothing 🗸 👻 | | |
| | | | |
| | | | |

Operation Mode Selection Chart



Configuring Serial Communication Parameters

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

Serial Parameter Review

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

| Parameter | Setting | Factory | Description | Necessity |
|-----------|------------------------|------------|-----------------------------------|-----------|
| | | Default | | |
| Baudrate | Support standard | 115200 bps | The data transmission rate to and | Required |
| | baudrates (bps): | | from the attached serial device. | |
| | 50/ 75/ 110/ 134/ 150/ | | | |
| | 300/ 600/ 1200 1800/ | | | |
| | 2400/ 4800/ 7200/ | | | |
| | 9600/ 19200/ 38400/ | | | |
| | 57600/ 115200/ | | | |
| | 230.4k/ 460.8k/ | | | |
| | 921.6k | | | |
| | * The NPort | | | |
| | 5110/5210/5230/52321 | | | |
| | Series, and IA 5000 | | | |
| | Series are as low as | | | |
| | 110 bps, and up to | | | |
| | 230.4 kbps | | | |
| Data bits | 5, 6, 7, 8 | 8 | The size of each data character. | Required |
| Stop bits | 1, 1.5, 2 | 1 | The size of the stop character. | Required |

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

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

Adjusting Serial Parameters

| Operating Mode | Accessible IPs |
|----------------|---------------------|
| | |
| | |
| | |
| | - |
| S/CTS | |
| S/CTS | |
| | - |
| | - |
| | |
| | - |
| | - |
| | |
| | |
| | - |
| C-W | 1 |
| w Settings | |
| | |
| | |
| | w Settings Settings |

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

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

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

Mapping COM Port to Device (only required when operation

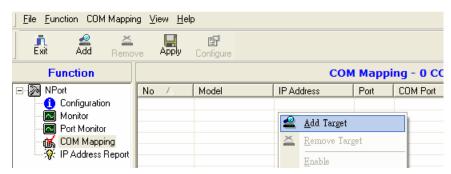
mode is set to Real COM or RFC2217)

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

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

Specifying the Target Device Server

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



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

| j <u>F</u> ile <u>F</u> unction COM Mapping <u>V</u> iew <u>H</u> elp | | | | | | |
|---|------|-----------------|-----------------|----------|----------|--|
| Exit Add Remo | | Configure | | | | |
| Function | | | COM Mappir | ng - 8 C | ом | |
| 🔊 NPort | No 🛆 | Model | IP Address | Port | COM Port | |
| Configuration | 1 | NPort 5610-8-DT | 192.168.127.254 | 1 | COM5 | |
| Monitor | 2 | NPort 5610-8-DT | 192.168.127.254 | 2 | COM6 | |
| Port Monitor | 3 | NPort 5610-8-DT | 192.168.127.254 | 3 | COM7 | |
| COM Mapping | 4 | NPort 5610-8-DT | 192.168.127.254 | 4 | COM8 | |
| P Address Report | 5 | NPort 5610-8-DT | 192.168.127.254 | 5 | COM9 | |
| ma γ ₀ , π Address hepoit | 6 | NPort 5610-8-DT | 192.168.127.254 | 6 | COM10 | |

Assigning COM Port Number to Device Port

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

| <u>File</u> Eunction COM Mappir | ng <u>V</u> iew <u>H</u> elj | p | | | | | | |
|---------------------------------|------------------------------|---------------|----------------|----------|-----------------------|----------|---------------------------|------------------|
| Exit Add Remo | ve Apply | Configure | | | | | | |
| Function | COM Mapping - 16 COM | | | | | | | |
| ⊡- 🔊 NPort | No 🛆 | Model | IP Address | Po | rt | COM Port | Mode | Parameter |
| Configuration | 1 | NPort 5650-16 | 192.168.16.130 | 1 | | COM5 | Lu: Performance, FIFO Ena | 9600, None, 8, 1 |
| Monitor | 2 | NPort 5650-16 | 192.168.16.130 | 2 | <u>A</u> dd 1 | Carget | Performance, FIFO Ena | 9600, None, 8, 1 |
| Port Monitor | 3 | NPort 5650-16 | 192.168.16.130 | - | <u>R</u> emove Target | | Performance, FIFO Ena | 9600, None, 8, 1 |
| | 4 | NPort 5650-16 | 192.168.16.130 | ۲ | | | Performance, FIFO Ena | 9600, None, 8, 1 |
| COM Mapping | 5 | NPort 5650-16 | 192.168.16.130 | | Enabl | ٥ | Performance, FIFO Ena | 9600, None, 8, 1 |
| W. II Address hepott | 6 | NPort 5650-16 | 192.168.16.130 | | - | | Performance, FIFO Ena | 9600, None, 8, 1 |
| | 7 | NPort 5650-16 | 192.168.16.130 | | Disab | le | Performance, FIFO Ena | 9600, None, 8, 1 |
| | 8 | NPort 5650-16 | 192.168.16.130 | -51 | | AL | Performance, FIFO Ena | 9600, None, 8, 1 |
| | 9 | NPort 5650-16 | 192.168.16.130 | P | COM | Settings | Performance, FIFO Ena | 9600, None, 8, 1 |
| 1 | 10 | NID-A ECEO 1C | 100 100 10 100 | | | | | 0000 Nata 0 1 |

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

| COM Port Settings | × |
|---|---|
| Port Number: 2 Port(s) Selected. 1st port is Port 1 | ĺ |
| Basic Settings Advanced Settings Serial Parameters COM Groupin | 9 |
| COM Number COM7 + | |
| Auto enumerating COM number for selected ports. | |
| Grouping selected port(s) together. | |
| | |
| V DK X Cancel |] |

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

| Basic Settings Adv | vanced Settings | Serial Parameters CO | M Grouping |
|----------------------|-----------------|----------------------|------------|
| Baud Rate | 9600 | | |
| Parity | None | - | |
| Data Bits | 8 | • | |
| Stop Bits | 1 | • | |
| Flow Control | None | - | |
| Apply All Se | ected Ports | | |

Advanced Settings

(See Chapter 6 for detailed information about NPort Administrator's Advanced Settings.)

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

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

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

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

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

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

Apply Change

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

| Eile Eunction COM Mappir | | | | | | |
|---------------------------------------|----------|-----------------|-----------------|----------|----------|--------------------------|
| Exit Add Remo | ve Apply | Configure | | | | |
| Function | | | COM Mappi | ng - 8 (| сом | |
| ⊡- 🔊 NPort | No 🛆 | Model | IP Address | Port | COM Port | Mode |
| 🔂 Configuration | 1 | NPort 5610-8-DT | 192.168.127.254 | 1 | COM5 | Hi-Performance, FIFO Ena |
| 🚾 Monitor | 2 | NPort 5610-8-DT | 192.168.127.254 | 2 | COM6 | Hi-Performance, FIFO End |
| - Port Monitor | 3 | NPort 5610-8-DT | 192.168.127.254 | 3 | COM7 | Hi-Performance, FIFO End |
| COM Mapping | 4 | NPort 5610-8-DT | 192.168.127.254 | 4 | COM8 | Hi-Performance, FIFO End |
| IP Address Report | 5 | NPort 5610-8-DT | 192.168.127.254 | 5 | COM9 | Hi-Performance, FIFO En- |
| Mr. II Address Heport | 6 | NPort 5610-8-DT | 192.168.127.254 | 6 | COM10 | Hi-Performance, FIFO En- |
| | 7 | NPort 5610-8-DT | 192.168.127.254 | 7 | COM11 | Hi-Performance, FIFO En- |
| | 8 | NPort 5610-8-DT | 192.168.127.254 | 8 | COM12 | Hi-Performance, FIFO Ena |
| | | | | | | |
| | | | | | | |
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| · · · · · · · · · · · · · · · · · · · | | | | |) | |
| Message Log - 28 Monitor Lo | g-0 | | | | | |

Configuration by Web Console

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

Opening Your Browser

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

| Internet Options | ? X Security Settings ? X |
|--|---|
| General Security Content Connections Programs Advanced | Settings: |
| Select a Web content zone to specify its security settings. | Cookies Cookies Allow cookies that are stored on your computer O Disable Enable |
| Internet | Prompt Allow per-session cookies (not stored) |
| This zone contains all Web sites you sites | Disable Disable Enable Prompt |
| Security level for this zone Move the slider to set the security level for this zone. - - Medium - Safe browsing and still functional Prompts before downloading potentially unsafe content - Unsigned ActiveX controls will not be downloaded Appropriate for most Internet sites | t Downloads Disable Disable Enable Enable |
| Custom Level Default Level | Reset custom settings Reset to: Medium Reset |
| OK Cancel App | ply OK Cancel |

- 2. Type 192.168.127.254 in the **Address** input box (use the correct IP address if different from the default), and then press **Enter**.
- 3. For the overall NPort 5000 Series, you will be prompted to enter the username and password to access the NPort web console. Before configuring the NPort, you will need to unlock it first. Right-click the unit in the Configuration screen and select **Unlock** in the pop-up menu. The default username and password are **admin** and **moxa**, respectively.For the NPort 5100, 5200, and IA5000 Series, only the password is required to log in.

| | the NPort 5100, 5200, and IA5000 Series Only |
|---------------------|--|
| Input Password - | Microsoft Internet Explorer |
| File Edit View | Favorites Tools Help |
|] <= Back → → → (| 🎱 🚰 🚮 🔯 Search 🚯 Favorites 🎲 History 🛛 🖏 🗸 🤅 |
| Address 🙋 http://19 | 92.168.127.254/ |
| Input password | |
| Password : | skok |
| Submit | |
| Web Interface for t | the Overall NPort 5000 Series |
| ΜΟΧΛ° | Total Solution for Industrial Device Networking WWW.moxa.com |
| | |
| | Username: Password: Login |



ATTENTION

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

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

| rt Web Console - Microsoft I | | | 00, and IA5000 Series Only | | | |
|--|--|--|---|--|--|--|
| Edit View Favorites Tools | | | | | | |
| Back 🔹 💮 🖌 💌 💋 🦿 | 🏠 🔎 Search 👷 Favorites | : 😢 Media 🔗 🔗 🎍 | | | | |
| ss 🕘 http://192.168.127.254/h | iome.htm?Password=731a9e0a41ba | a3bb0a27ca8b330c239db85ubmit= | -Submit | | | |
| MOXA | www.n | moxa.com | | | | |
| lain Menu) Overview | Welcome to N | IPort's web coi | nsole ! | | | |
| Basic Settings | Model Name | NPort IA-525 | 50 | | | |
| Network Settings | MAC Address | 00:90:E8:52 | | | | |
| Serial Settings Operating Settings | Serial No. | 525016 | | | | |
| Accessible IP Settings | Firmware Version | 1.0 | | | | |
| Auto Warning Settings | System Uptime | 0 days, 00h: | | | | |
| Monitor | NPort's web console prov | vide the following functio | in groups. | | | |
| Change Password Load Factory Default Save/Restart | Basic Settings Server name, real time clock, time server IP address, and Web console, Telnet console Enable, Disable function. | | | | | |
| | | isk, default gateway, stat | tic IP or dynamic IP, DNS, SNMP, IP location report. | | | |
| | | its, data bits, stop bits, f | flow control, UART FIFO. | | | |
| | Operation mode, T | Operating Settings Operation mode, TCP alive check, inactivity, delimiters, force transmit timeout. | | | | |
| | | | | | | |
| | Accessible IP Settin "Accessible IP or A | | ble to accept all IP's connection. | | | |
| | "Accessible IP or A | Accessible IP group". Disa | ble to accept all IP's connection. | | | |
| | "Accessible IP or A Auto Warning Setti | Accessible IP group". Disa | | | | |
| | "Accessible IP or A Auto Warning Setti | Accessible IP group". Disa | | | | |
| b Interface | "Accessible IP or A Auto Warning Setti | Accessible IP group". Disa tings ail, SNMP Trap server IP a | address, Relay Output. | | | |
| eb Interface | "Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa tings ail, SNMP Trap server IP a | address, Relay Output. | | | |
| eb Interface | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa tings ail, SNMP Trap server IP a rall NPort 5 | address, Relay Output. | | | |
| eb Interface | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa tings ail, SNMP Trap server IP a rall NPort 5 | address, Relay Output. | | | |
| | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group ¹ . Disa ings ail, SNMP Trap server IP : erall NPort 5 7elcome to NP | address, Relay Output. | | | |
| eb Interface Verview Quick Setup | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group ¹ . Disa ings ail, SNMP Trap server IP / erall NPort 5 7elcome to NP Model | address, Relay Output. 6000 Series ort web console NPort IA5450AI | | | |
| verview luick Setup asic Settings | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group", Disa ings all, SNMP Trap server IP : Parall NPort 5 Yelcome to NP Model Name | address, Relay Output. 5000 Series ort web console NPort IA5450AI NPIA5450AI_11625 | | | |
| verview uick Setup asic Settings stwork Settings | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group", Disa ings ail, SNMP Trap server IP + rall NPort 5 7elcome to NP Model Name Serial NO. | address, Relay Output. 6000 Series ort web console NPort IA5450AI | | | |
| verview uick Setup asic Settings twork Settings Serial Settings | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa ings ail, SNMP Trap server IP : erall NPort 5 Velcome to NP Model Name Serial NO. Firmware | address, Relay Output. 30000 Series ort web console NPGt (A6450A) NPIA5450AL_11625 11625 1.6 Build 19013022 | | | |
| verview Jick Setup asic Settings vork Settings Serial Settings Operating Settings | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group", Disa ings ail, SNMP Trap server IP + rall NPort 5 7elcome to NP Model Name Serial NO. | address, Relay Output. 5000 Series ort web console NPort IA5450AI NPIA5450AI_11625 11625 | | | |
| verview uick Setup saks Settings etwork Settings Serial Settings Operating Settings coessible IP Settings | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa ings ail, SNMP Trap server IP : erall NPort 5 Velcome to NP Model Name Serial NO. Firmware | address, Relay Output. 30000 Series ort web console NPGt (A6450A) NPIA5450AL_11625 11625 1.6 Build 19013022 | | | |
| verview iick Setup sis: Settings etrail Settings berail settings Operating Settings cessible IP Settings dministration | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa ings ail, SNMP Trap server IP : erall NPort 5 Velcome to NP Model Name Serial NO. Firmware IP | address, Relay Output. 0000 Series ort web console NPi45450AI NPi45450AI 11625 11625 16 Build 19013022 192.168.127.254 | | | |
| vervlew tuick Setup asic Settings Serial Settings Operating Settings coessible IP Settings Administration Backup/Restore | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group*, Disa ings all, SNMP Trap server IP : Perall NPort 5 Velcome to NP Model Name Serial NO. Firmware IP Mac Address Up Time | address, Relay Output. 50000 Series ort web console NPot IA5450AI NPIA5450AI_11625 11625 11625 1684D149130222 192.168.127.254 00.90.E8.4D.A9.6F 0 days 01h:18m:37s | | | |
| Verview Juick Setup Iasic Settings Serial Settings Operating Settings coessible IP Settings Administration Backup/Restore tystem Log Settings | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group", Disa ings ail, SNMP Trap server IP + Parall NPort 5 Velcome to NP Model Name Serial NO. Firmware IP Mac Address Up Time Serial Port 1 | address, Relay Output. 30000 Series ort web console NPort IA5450AI NPIA5450AI_11625 162 16 Build 19013022 192.168.127.254 00.90.58.4D.A26F 0 days 01h:18m:37s 115200.None.8,1 | | | |
| Vverview Juick Setup asic Settings letwork Settings Operating Settings Occessible IP Settings Administration Backup/Restore ystem Log Settings Auto Warning Settings | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group*, Disa ings all, SNMP Trap server IP : Prall NPort 5 Velcome to NP Model Name Serial NO. Firmware IP Mac Address Up Time Serial Port 1 Serial Port 2 | address, Relay Output. 30000 Series Ort web console NPIA450AI_11625 11625 16 Buld 19013022 122.188.127.254 00.90.284.03.96F 0 days 01h:18m:37s 115200.None.8.1 115200.None.8.1 | | | |
| Vverview Aulck Setup Iaslic Settings Serial Settings Operating Settings Operating Settings Administration Backup/Restore tystem Log Settings Auto Warning Settings System Log Settings | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa ings ail, SNMP Trap server IP : crall NPort 5 Velcome to NP Model Name Serial NO. Firmware IP Mac Address Up Time Serial Port 1 Serial Port 2 Serial Port 3 | address, Relay Output. 2000 Series ort web console NPot IA5450AI NPIA5450AL_11625 11625 1.6 Build 19013022 192.168.127.254 0.990:E4:0D.49.6F 0. days 01h:18m:37s 115200,None.8,1 115200,None.8,1 | | | |
| Verview Juick Setup lasic Settings Serial Settings Operating Settings Operating Settings Administration Backup/Restore Hystem Log Settings Auto Warning Settings System Log Settings System Log Net settings | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group*, Disa ings all, SNMP Trap server IP : Prall NPort 5 Velcome to NP Model Name Serial NO. Firmware IP Mac Address Up Time Serial Port 1 Serial Port 2 | address, Relay Output. 30000 Series Ort web console NPIA450AI_11625 11625 16 Buld 19013022 122.188.127.254 00.90.284.03.96F 0 days 01h:18m:37s 115200.None.8.1 115200.None.8.1 | | | |
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| verview uick Setup asic Settings etwork Settings Serial Settings Operating Settings Coessible IP Settings Administration Backup/Restore system Log Settings Auto Warning Settings System Log Event settings E-mail and SNMP Trap Event Type pgrade Firmware | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa ings ail, SNMP Trap server IP : crall NPort 5 Velcome to NP Model Name Serial NO. Firmware IP Mac Address Up Time Serial Port 1 Serial Port 2 Serial Port 3 | address, Relay Output. 2000 Series ort web console NPot IA5450AI NPIA5450AL_11625 11625 1.6 Build 19013022 192.168.127.254 0.990:E4:0D.49.6F 0. days 01h:18m:37s 115200,None.8,1 115200,None.8,1 | | | |
| Verview Juick Setup lasic Settings Serial Settings Operating Settings Operating Settings Administration Backup/Restore Hystem Log Settings Auto Warning Settings System Log Settings System Log Net settings | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa ings ail, SNMP Trap server IP : crall NPort 5 Velcome to NP Model Name Serial NO. Firmware IP Mac Address Up Time Serial Port 1 Serial Port 2 Serial Port 3 | address, Relay Output. 2000 Series ort web console NPot IA5450AI NPIA5450AL_11625 11625 1.6 Build 19013022 192.168.127.254 0.990:E4:0D.49.6F 0. days 01h:18m:37s 115200,None.8,1 115200,None.8,1 | | | |
| Verview Juick Setup Lasic Settings Serial Settings Operating Settings occessible IP Settings Administration Backup/Restore lystem Log Settings Auto Warning Settings System Log Event settings Event Type Event Type Event Type Event Type Line | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa ings ail, SNMP Trap server IP : crall NPort 5 Velcome to NP Model Name Serial NO. Firmware IP Mac Address Up Time Serial Port 1 Serial Port 2 Serial Port 3 | address, Relay Output. 2000 Series ort web console NPot IA5450AI NPIA5450AL_11625 11625 1.6 Build 19013022 192.168.127.254 0.990:E4:0D.49.6F 0. days 01h:18m:37s 115200,None.8,1 115200,None.8,1 | | | |
| Iverview tuick Setup asic Settings letwork Settings Serial Settings Operating Settings ccessible IP Settings Administration Backup/Restore yatem Log Settings Auto Warning Settings System Log Event settings E-mail and SNMP Trap Event Type Ipgrade Firmware Monitor Line Async | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa ings ail, SNMP Trap server IP : crall NPort 5 Velcome to NP Model Name Serial NO. Firmware IP Mac Address Up Time Serial Port 1 Serial Port 2 Serial Port 3 | address, Relay Output. 2000 Series ort web console NPot IA5450AI NPIA5450AL_11625 11625 1.6 Build 19013022 192.168.127.254 0.990:E4:0D.49.6F 0. days 01h:18m:37s 115200,None.8,1 115200,None.8,1 | | | |
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| Dverview Julick Setup Lasic Settings Serial Settings Operating Settings Operating Settings Administration Backup/Restore System Log Settings Auto Warning Settings Auto Warning Settings System Log Event settings Event Type Event Type Event Type Line Line Asyroc Settings Relay Output System Log | *Accessible IP or A Auto Warning Setti Auto warning E-Ma | Accessible IP group". Disa ings ail, SNMP Trap server IP : crall NPort 5 Velcome to NP Model Name Serial NO. Firmware IP Mac Address Up Time Serial Port 1 Serial Port 2 Serial Port 3 | address, Relay Output. 2000 Series ort web console NPot IA5450AI NPIA5450AL_11625 11625 1.6 Build 19013022 192.168.127.254 0.990:E4:DA9.6F 0. days 01h:18m:37s 115200,None.8,1 115200,None.8,1 | | | |
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ATTENTION

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

Remember to use NPort Administrator (for NPort 5000 and NPort IA5000 Series) to export the configuration file when you have finished the configuration. After using the **Reset** button to load factory defaults, your configuration can be easily reloaded into NPort by using the NPort Administrator Import function. Refer to **Chapter 5** for details about using the Export and Import functions

Quick Setup (excluding the NPort 5100, 5200, and IA5000 Series)

Quick Setup streamlines configuration of your NPort into three basic and quick steps that cover the most commonly-used settings. While in Quick Setup, you may click the **Back** button at any time to return to the

previous step, or click the **Cancel** button to reverse all settings. For more detailed settings, refer to the **Basic Settings**, **Network Settings**, **Serial Settings**, and **Operating Settings** sections later in this chapter

Step 1/3

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

:• Step 1/3

| Server name | NPIA5450AI_6671 | |
|------------------|-----------------|--|
| Network Settings | | |
| IP settings | Static 🔹 | |
| IP address | 192.168.127.135 | |
| Netmask | 255.255.255.0 | |
| Gateway | | |

Step 2/3

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

| Operation Mode Settings | |
|--|---|
| Real COM | |
| PC communicate with serial device through COM port. | |
| Remember to install Real COM/TTY driver on PC. | . For detail information please refer to User's Manua |
| Отср | |
| PC communicate with serial device through TCP port. | |
| Device is TCP client | |
| | Port 4001 |
| Destination IP address | |
| | |
| UDP PC communicate with serial device through UDP port. | |

Step 3/3

• Step 3/3

In Step 3/3, modify the Serial Settings.

| Serial Settings | |
|-----------------|---------------|
| aud rate | 115200 🔻 |
| ata bits | 8 💌 |
| top bits | 1 • |
| arity | None v |
| terface | RS-232 V |

Finish Settings

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

Finish Settings

| Server name | NPIA5450AI_6671 | |
|------------------------|--|--|
| Network Settings | | |
| IP settings | Static | |
| IP | 192.168.127.135 | |
| Netmask | 255.255.255.0 | |
| Gateway | | |
| Operation Mode Setting | is l | |
| Mode | RealCOM | |
| Parameters | | |
| Serial Settings | | |
| Baudrate | 115200 | |
| Parameters | Data bits: 8, Stop bits: 1, Parity: None | |
| Interface | RS-232 | |

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

Export/Import (Excluding the NPort 5100, 5200, and IA5000 Series)

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

- -

| | | n mport |
|----------------|---------------------------|--|
| | Configuration Import | |
| ip ings | Select configuration file | Choose File No file chosen |
| | | |
| gs | IP configuration | Import all configurations including IP configurations. |
| gs ettings | | |
| P Settings | Submit | |
| tion | | |
| store | | |
| d Key | | |
| tion Import | | |
| on Export | | |
| Settings | | |
| ng Settings | | |
| nware | | |
| | | |
| sword | | |
| / Default t | | |
| | | |
| ew | Configuration Fu | |
| w etup | Configuration Ex | aport |
| tings | | |
| ettings | Developed | |
| • | Download | |
| ettings | | |
| Settings | | |
| IP Settings | | |
| ation | | |
| estore | | |
| red Key | | |
| ation Import | | |
| ation Export | | |
| g Settings | | |
| ning Settings | | |
| irmware | | |
| | | |
| assword | | |
| ory Default | | |
| tart | | |
| | | |
| | | |

The exported configuration file can be encrypted for security purposes with a user-specified export password (the default password is **moxa**), which you may assign in **Pre-shared Key**. Click **Download** to write all configuration data to a fixed file name as follows: **<Servername>.txt**.

To import the configuration file, you will need to be sure that the pre-shared key stored in the system is the same as the configuration file (which is assigned when exporting the configuration file) in order to successfully import the configuration file.

If the firmware is not up to the version below, you many need to key in the password manually.

NPort 5100A Series Firmware v1.5

NPort 5200A Series Firmware v1.5

NPort 5150AI Series Firmware v1.4

- NPort 5250AI Series Firmware v1.4
- NPort 5450AI Series Firmware v1.4

NPort 5600 Series Firmware v3.9

NPort 5600 DT Series Firmware v2.6

NPort 5600 DTL Series Firmware v1.5

NPort IA5150A Series Firmware v1.4

NPort IA5450A Series Firmware v1.6

NOTE The configuration encrypting function is not available in the NPort 5100, NPort 5200, and NPort IA5000 Series.

| | -Pre-shared Key |
|------------------------|--|
| Overview | |
| Quick Setup | Pre-shared Key |
| Basic Settings | Cipher key for encrypting the configuration file |
| Network Settings | |
| - Serial Settings | Submit |
| - Operating Settings | |
| Accessible IP Settings | |
| - Administration | |
| - Backup/Restore | |
| Pre-shared Key | |
| Configuration Import | |
| Configuration Export | |
| System Log Settings | |

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

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

Basic Settings

| | ; Help | | |
|---|-------------------|--|--|
| dk • 🕥 - 💌 😰 🦿 | 👌 🔎 Search 🥎 | 📩 Favorites 🛛 🚷 | Media 🚱 🍰 + 😓 🖂 |
| (a) http://192.168.127.254/h | ome.htm?Password= | 731a9e0a41ba3bb0a27 | 7ca8b330c239db8Submit=Submit |
| MOXA | | | |
| | - wi | ww.mo> | xa.com |
| in Menu | Basic Settir | ng | |
| Overview Basic Settings | Server name | | NPIA-5250_525016 |
| Network Settings | Server fiame | | Time |
| Serial Settings | Time zone | | (GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London V |
| Operating Settings | | | 2005 / 8 / 31 5 56 36 |
| Accessible IP Settings Auto Warning Settings | Local time | | Modify |
| Monitor | Time server | | |
| Change Password | | | Settings |
| oad Factory Default | Web console | | C Enable C Disable |
| Save/Restart | Telnet consol | e | C Enable C Disable |
| | Reset button | protect | € No C Yes |
| | | | (management) |
| | | | Submit |
| nterface for the Basic Setti | | IPort Series | 5 |
| Server Settings | | | |
| Basic Setti | | NPIA5450AI_11625 | |
| Server Settings | | | |
| Server Settings | | NPIA5450AI_11625 | |
| Server Settings Server name Time Settings | | NPIA5450AI_11625 | 5 Mean Time: Dublin, Edinburgh, Lisbon, London ¢ |
| Server Settings Server name Time Settings Time zone | | NPIA5450AI_11625 (GMT)Greenwich N | 5 Mean Time: Dublin, Edinburgh, Lisbon, London ¢ |
| Server Settings Server name Time Settings Time zone Time | | NPIA5450AI_11625 (GMT)Greenwich N | 5 Mean Time: Dublin, Edinburgh, Lisbon, London ¢ |
| Server Settings Server name Time Settings Time zone Time | | NPIA5450AI_11625 (GMT)Greenwich N | 5 Mean Time: Dublin, Edinburgh, Lisbon, London ¢ |
| Server Settings Server name Time Settings Time zone Time Time server | | NPIA5450AI_11625 (GMT)Greenwich N | 5 Mean Time: Dublin, Edinburgh, Lisbon, London ¢ |
| Server Settings Server name Time Settings Time zone Time Time server Console Settings | | NPIA5450AI_11625 (GMT)Greenwich N 2019 / 2 / 19 | Mean Time: Dublin, Edinburgh, Lisbon, London 16 : 6 : 28 Modify |
| Server Settings Server name Time Settings Time zone Time Time server Console Settings HTTP console | | NPIA5450AI_11625 (GMT)Greenwich N 2019 / 2 / 19 • Enable | Mean Time: Dublin, Edinburgh, Lisbon, London 🛊) 16 : 6 : 28 Modify Disable |
| Server Settings Server name Time Settings Time zone Time Time server Console Settings HTTP console HTTPS console | | NPIA5450AI_11625 (GMT)Greenwich N 2019 / 2 / 19 • Enable • Enable | 5 Mean Time: Dublin, Edinburgh, Lisbon, London ¢ 16 : 6 : 28 Modify Disable Disable |
| Server Settings Server name Time Settings Time zone Time Time server Console Settings HTTP console HTTPS console Telnet console | | NPIA5450AI_11625 (GMT)Greenwich N 2019 / 2 / 19 Enable Enable Enable Enable | 5 Mean Time: Dublin, Edinburgh, Lisbon, London ¢ 16 : 6 : 28 Modify Disable Disable Disable |
| Server Settings Server name Time Settings Time zone Time Time server Console Settings HTTP console HTTPS console Telnet console Serial console | ings | NPIA5450AI_11625 (GMT)Greenwich N 2019 / 2 / 19 • Enable | 5 Mean Time: Dublin, Edinburgh, Lisbon, London 🔄 16 : 6 : 28 Disable Disable Disable Disable Disable |
| Server Settings Server name Time Settings Time zone Time Time server Console Settings HTTP console HTTPS console Serial console Serial console Moxa Service | ings | NPIA5450AI_11625 (GMT)Greenwich N 2019 / 2 / 19 • Enable • Enable | Mean Time: Dublin, Edinburgh, Lisbon, London 🛊) 16 : 6 : 28 Modify Disable Disable Disable Disable Disable Disable Disable |

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

| Parameter | Setting | Factory Default | Description | Necessity |
|-------------|----------------------|-----------------|--------------------------------------|-----------|
| Server name | 1 to 39 characters | NP[model | This option is useful for specifying | Optional |
| | | name]_[Serial | the location or application of | |
| | | No.] | different NPorts. | |
| Time zone | User selectable time | GMT (Greenwich | N/A | Required |
| | zone | Mean Time) | | |

| Parameter | Setting | Factory Default | Description | Necessity |
|--------------|-----------------------|-----------------|-------------------------------------|-----------|
| Local time | User adjustable time | GMT (Greenwich | Click the Modify button to open | Required |
| | (1900/1/1- | Mean Time) | the Modify time settings window to | |
| | 2037/12/31) | | input the correct local time. | |
| Time server | IP or Domain address | None | NPorts use SNTP (RFC-1769) for | Optional |
| | (E.g., 192.168.1.1 or | | auto time calibration. Input the | |
| | time.stdtime.gov.tw | | correct Time server IP address or | |
| | or time.nist.gov) | | domain name. Once the NPort is | |
| | | | configured with the correct Time | |
| | | | server address, the NPort will | |
| | | | request time information from the | |
| | | | Time server every 10 minutes. | |
| Web console | Enable or Disable | Enable | The Disable option for "Web | Required |
| | | | Console", "Telnet Console", "Serial | |
| | | | Console", and "Moxa Service" is | |
| Telnet | Enable or Disable | Enable | included for security reasons. In | Required |
| console | | 2110010 | some cases, you may want to | |
| | | | disable one or both of these | |
| Serial | Enable or Disable | Enable | console utilities as an extra | Required |
| Consoles | | | precaution to prevent unauthorized | |
| | | | users from accessing your NPort. | |
| Moxa Service | Enable or Disable | Enable | Please refer to Chapter 3 | Required |
| | | | "Cybersecurity Considerations" for | |
| | | | detailed suggestions. | |
| Reset button | No or Yes | No | Select the Yes option to allow | Required |
| protect | | | limited use of the Reset Button. In | |
| | | | this case, the Reset Button can be | |
| | | | used for only 60 seconds; 60 s. | |
| | | | after booting up, the Reset Button | |
| | | | will be disabled automatically. | |
| LCM read- | Writeable/Read-only | Writeable | The NPort 5000 front panel, known | Optional |
| only | | | as the LCM (Liquid Crystal | |
| protection | | | Module), may be configured for | |
| | | | read-only or writeable access. | |
| | | | Read-only access allows settings to | |
| | | | be viewed but not changed. | |
| | | | Writeable access allows users in | |
| | | | the Administration group to | |
| | | | change the setting. This setting is | |
| | | | only available for the model that | |
| | | | has a font panel. | |



ATTENTION

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

Network Settings

| WWW.MICK Settings Image: Seting Settings Seting Settings Seting Settings Image: Seting Settings Image: Seting Settings Image: Seting Settings Image: Seting Setting Se | Web Interface for the | NPort 5100, NPort 5200, a | nd NPort IA5 | 000 Series Only |
|--|-----------------------|----------------------------------|------------------|-------------------------|
| Presidential settings Style Presidential settings Presidential settings Presidential settings Presidential settings Presidential settings Preside | MOXA | www.moxa | .com | |
| Paddress 192168127254 Network Settings Poesting Settings Poesting Settings Accessible Settings Accessible Settings Notion Server 1 DNS server 1 DNS server 2 Save Press Notion Settings Save Press Notion Settings Network Settings Network Settings Network Settings Network Settings Network Settings Network Settings IP address Report Auto report to IP Auto report to IP Auto report to IP Auto report State State P address IP address | | Network Settings | | |
| Image: Series | | IP address | 192.168.127.254 | |
| Service Settings Context Settings Context Settings Context Settings Context Settings Context Settings Save/Restart Save/R | | | | |
| Accessible IP Settings Accessible IP Settings Montor I Change Password Lade Factor Default Save/Restart MMIP P Enable Community name Public Contact Location IP Address report Auto report to IP Auto report to TCP port 4002 Auto report to TCP port 4002 Auto report to TCP port 4002 Auto report to TCP port 4002 Auto report to IP Auto report to TCP port 4002 Auto report to Sectings Network Settings IP address P address P address IP a | | | | |
| P Address Pastings P address 192168.127.254 Network Settings 192.168.127.254 Network Settings 192.168.127.254 P address Report 10 ONS server 1 10 State report to IP 10 Auto report to TCP port 1002 Auto report to IP 10 Auto report to IP 1 | | | Static | |
| Web Interface for the Overall NPort 5000 Series, excluding the NPort 1A5000A Series Veb Interface for the Overall NPort 5000 Series, excluding the NPort 1A5000A Series Veb Interface for the Overall NPort 5000 Series, excluding the NPort 1A5000A Series Veb Interface for the Overall NPort 5000 Series, excluding the NPort 1A5000A Series Veb Interface for the Overall NPort 5000 Series, excluding the NPort 1A5000A Series Vetwork Settings IP address IP Address Report Auto report to IP Auto report to IP Auto report to IP Autor report Period IP Address IP Address IP Address Report Auto report to IP Auto report Berlings <th></th> <th></th> <th></th> <th></th> | | | | |
| Load Factory Default SWAP SwaP setting SWAP Prable Cormunity name public Contact Location IP Address report Auto report to IP Auto report to TCP port 4002 Auto report to TCP port 905 Sovers Settings IP address 192.168.127.254 Network Settings IP address 192.168.127.254 Netmask 255.255.0 Gatoway IP configuration Static e DNS server 1 DNS server 2 IP Address Report Auto report to UDP port 4002 Bable Disable Message Transmit Interval | | | | |
| Save/Restart SNMP | | DNS server 2 | ļ | |
| Contact Location IP Address report Auto report to IP Auto report period ID seconds Web Interface for the Overall NPort 5000 Series, excluding the NPort IAS000A Series Web Interface for the Overall NPort 5000 Series, excluding the NPort IAS000A Series Web Interface for the Overall NPort 5000 Series, excluding the NPort IAS000A Series IVeb Interface for the Overall NPort 5000 Series, excluding the NPort IAS000A Series IVeb Interface for the Overall NPort 5000 Series, excluding the NPort IAS000A Series IVeb Interface for the Overall NPort 5000 Series, excluding the NPort IAS000A Series IP address IP address IP 2525255250 Gatoway IP configuration Static e IP Address Report Auto report to IP Auto report to UDP port Auto report to UDP port Auto report period ID (0-99 secs) LLDP Enable Disable Message Transmit Interval I Enable Disable Message Transmit Interval | 🗋 🗀 Save/Restart | SNMP | - | |
| Contact Location P Address report Auto report to IP Auto report period 10 submit Web Interface for the Overall NPort 5000 Series, excluding the NPort I A5000A Series Seconds Submit Web Interface for the Overall NPort 5000 Series, excluding the NPort I A5000A Series Network Settings Pr address IP address IP address IP configuration Static et DNS server 1 DNS server 2 IP Address Report Auto report to IP Auto report to UDP port 4002 Auto report period 10 (0-99 secs) LLDP Settings LLDP Settings | | Community name | public | |
| Location IP Address report Auto report to 1P Auto report to TCP port 10 seconds Submit Web Interface for the Overall NPort 5000 Series, excluding the NPort 1A5000A Series Settings P address 192.168.127.254 Network Settings 19 configuration Static 10 co-99 secs) LLDP Settings LLDP Settings LLDP Settings | | | | |
| Image: Constraint of the constraint o | | | | |
| Veb Interface for the Overall NPort 5000 Series, excluding the NPort IA5000A Series Web Interface for the Overall NPort 5000 Series, excluding the NPort IA5000A Series Image: | | | IP | Address report |
| Auto report to TCP port 1002 Auto report period 10 seconds Web Interface for the Overall NPort 5000 Series, excluding the NPort 1A5000A Series Wetwork Settings Network Settings IP address 192.168.127.254 Netmask 255.255.0 Gateway IP configuration Static DNS server 1 DNS server 2 IP Address Report Auto report to IDP Auto report to IDP port 4002 Auto report to IDP port 4002 Auto report period 10 (0-99 secs) LLDP Settings LLDP Settings | | Auto report to IP | | |
| Auto report period Submit Web Interface for the Overall NPort 5000 Series, excluding the NPort 1A5000A Series Settings IP address IP address 192.168.127.254 Network Settings IP configuration Static ONS server 1 DNS server 2 IP Address Report Auto report to IP Auto report to IP Auto report period 10 (0-99 secs) LLDP Settings LLDP Message Transmit Interval 30 | | | 4002 | |
| Submit Submit Web Interface for the Overall NPort 5000 Series, excluding the NPort 1A5000A Series · Network Settings IP address 192.168.127.254 Network Settings IP address IP address 192.168.127.254 Network Settings IP configuration Static • DNS server 1 IP configuration DNS server 2 IP Address Report Auto report to IP 4002 Auto report to UDP port 4002 Auto report period 10 (0-99 secs) LLDP Settings LLDP Message Transmit Interval 30 (5~32768 secs) | | | 10 seconds | |
| Web Interface for the Overall NPort S000 Series, excluding the NPort IA5000A Series Server Settings IP address IP address IP address IP address IP configuration Static DNS server 1 DNS server 2 IP Address Report Auto report to IP Auto report to UDP port 4002 Auto report period 10 (0-99 secs) LLDP Settings LLDP Enable Message Transmit Interval 30 (5-32768 secs) | | | In seconds | |
| In etwork Settings IP address IP address IP address IP configuration Static IP configuration Static IP configuration Static IP Address Report Auto report to IP Auto report to IDP port Auto report period 10 0-99 secs) LLDP Enable Disable Message Transmit Interval | | | | Submit |
| Network Settings IP address 192.168.127.254 Netmask 255.255.255.0 Gateway IP configuration Static DNS server 1 DNS server 2 IP Address Report Auto report to IP Auto report to UDP port 4002 Auto report to UDP port 4002 Auto report period 10 (0-99 secs) LLDP Message Transmit Interval | Web Interface for the | Overall NPort 5000 Series | excluding th | e NPort I A5000A Series |
| Netmask Gateway IP configuration Static + DNS server 1 DNS server 2 IP Address Report Auto report to IP Auto report to UDP port 4002 Auto report period 10 (0-99 secs) LLDP Settings LLDP Message Transmit Interval 30 (5-32768 secs) | i and a second | | | |
| Gateway IP configuration Static DNS server 1 DNS server 2 IP Address Report Auto report to IP Auto report to UDP port Auto report to UDP port 4002 Auto report period 10 (0-99 secs) LLDP ELLDP Message Transmit Interval | IP address | 19 | 2.168.127.254 | |
| IP configuration IP configuration Static DNS server 1 DNS server 2 IP Address Report Auto report to IP Auto report to UDP port 4002 Auto report period 10 (0-99 secs) LLDP Settings LLDP PEnable Disable Message Transmit Interval 0 (5-32768 secs) | Netmask | 25 | 5.255.255.0 | |
| IP configuration IP configuration Static DNS server 1 DNS server 2 IP Address Report Auto report to IP Auto report to UDP port 4002 Auto report period 10 (0-99 secs) LLDP Settings LLDP PEnable Disable Message Transmit Interval 0 (5-32768 secs) | Gateway | | | |
| DNS server 1 DNS server 2 IP Address Report Auto report to IP Auto report to UDP port 4002 Auto report period 10 (0-99 secs) LLDP Settings LLDP P P Enable Disable 30 (5-32768 secs) | IP configuration | S | atic 🔹 | |
| DNS server 2 | | | | |
| IP Address Report Auto report to IP Auto report to UDP port Auto report period 10 (0~99 secs) LLDP Settings LLDP Message Transmit Interval 30 (5~32768 secs) | | | | |
| Auto report to IP Auto report to UDP port Auto report period 10 (0~99 secs) LLDP Settings LLDP Message Transmit Interval 30 (5~32768 secs) | DNS server 2 | | | |
| Auto report to UDP port 4002 Auto report period 10 (0~99 secs) LLDP Settings LLDP Message Transmit Interval 30 (5~32768 secs) | IP Address Rep | port | | |
| Auto report period 10 (0~99 secs) LLDP Settings LLDP Enable Disable Message Transmit Interval 30 (5~32768 secs) | Auto report to IP | | | |
| Auto report period 10 (0~99 secs) LLDP Settings LLDP Enable Disable Message Transmit Interval 30 (5~32768 secs) | Auto report to U | DP port 400 |)2 | |
| LLDP Image: Constraint of the second sec | | | | |
| LLDP O Enable O Disable Message Transmit Interval 30 (5~32768 secs) | Auto Topolit polit | | (0 00 0000) | |
| Message Transmit Interval 30 (5~32768 secs) | LLDP Settings | | | |
| | LLDP | 0 | Enable O Disable | e |
| Submit | Message Transm | nit Interval 30 | (5~32768 | 3 secs) |
| | Submit | | | |

| • Network Se | ttings | |
|---|---|---|
| Network Settings | | _ |
| LAN1 IP address | 192.168.127.254 | |
| LAN1 Netmask | 255.255.255.0 | |
| LAN1 Gateway | | |
| LAN1 IP configuration | Static \$ | |
| Multi-LAN mode | Switch | |
| LAN2 IP address | 192.168.126.254 | |
| LAN2 Netmask | 255.255.255.0 | |
| LAN2 Gateway | | |
| LAN2 IP configuration | Static \$ | |
| DNS server 1 | | |
| DNS server 2 | | |
| IP Address Report Auto report to IP Auto report to IP (LAN2) Auto report to UDP port Auto report period | 4002 10 (0~99 secs) | |
| LLDP Settings | | |
| LLDP | Enable Disable | |
| Message Transmit Interval | 30 (5~32768 secs) | |

You must assign a valid IP address to the NPort before it will work in your network environment. Your network system administrator should provide you with an IP address and related settings for your network. The IP address must be unique within the network (otherwise, the NPort will not have a valid connection to the network). You can choose from four possible **IP configuration** modes—Static, DHCP, DHCP/BOOTP, and BOOTP—located under the web console screen's IP configuration dropdown box.

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

Network Settings

| Parameter | Setting | Factory Default | Description | Necessity |
|------------|-------------------|---------------------|--|-----------|
| IP Address | E.g., 192.168.1.1 | 192.168.127.2 54 | An IP address is a number assigned to a network device (such as a computer) as a | Required |

Getting Started

| Parameter | Setting | Factory Default | Description | Necessity |
|----------------------------|---------------------------------------|--------------------|--|-----------|
| | | | permanent address on the network. Computers use the IP address to identify and talk to each other over the network. Choose a proper IP address that is unique and valid in your network environment. | |
| Netmask | E.g., 255.255.255.0 | 255.255.2 | A subnet mask represents all of the network hosts at one geographic location, in one building, or on the same local area network. When a packet is sent out over the network, the NPort will use the subnet mask to check whether the desired TCP/IP host specified in the packet is on the local network segment. If the address is on the same network segment as the NPort, a connection is established directly from the NPort. Otherwise, the connection is established through the given default gateway. | Required |
| Gateway | E.g., 192.168.1.1 | None | A gateway is a network gateway that acts as an entrance to another network. Usually, the computers that control traffic within the network or at the local Internet service provider are gateway nodes. The NPort needs to know the IP address of the default gateway computer in order to communicate with the hosts outside the local network environment. For correct gateway IP address information, consult with your network administrator. | Optional |
| IP Configuration | Static DHCP DHCP/BOOTP BOOTP | Static | N/A | Required |
| Multi-LAN mode (for the | Switch Redundant LAN | Switch | Dual LAN can be used as a redundant connection or dual | Optional |

Getting Started

| Parameter | Setting | Factory Default | Description | Necessity |
|---------------|-------------------|--------------------|---|-----------|
| NPort IA5000A | Dual IP | | IP. The scenario for | |
| Series only) | | | redundancy is the NPort will | |
| | | | automatically switch to working | |
| | | | connection in case the other | |
| | | | one lose connectivity (due to | |
| | | | failed network component in | |
| | | | the NPort, port at the | |
| | | | switch/router stop working, | |
| | | | etc.). As for dual IP scenario, | |
| | | | each port will have its own IP | |
| | | | address, but both will have the | |
| | | | same MAC address, as it is | |
| | | | convenient to connect the NPort to different network. | |
| | | | NPOIL to different network. | |
| DNS server 1/ | E.g., 192.168.1.1 | None | In order to use the NPort's DNS | Optional |
| DNS server 2 | | | feature, you need to configure | |
| | | | the DNS server. Doing so | |
| | | | allows the NPort to use a host's | |
| | | | domain name to access the | |
| | | | host. The NPort provides DNS | |
| | | | server 1 and DNS server 2 | |
| | | | configuration items to | |
| | | | configure the IP address of the | |
| | | | DNS server. DNS Server 2 is | |
| | | | included for use when DNS | |
| | | | server 1 is unavailable. | |
| | | | The NPort plays the role of | |
| | | | DNS client, in the sense that | |
| | | | the NPort will actively query | |
| | | | the DNS server for the IP | |
| | | | address associated with a | |
| | | | particular domain name. | |
| LLDP Settings | Enable or Disable | Enable | Not available for the NPort | Optional |
| U U | | | 5600DT Rev 1.5 or earlier | - |



ATTENTION

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

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

| Web Interface for th | Web Interface for the Overall NPort 5000 Series | | | | | |
|-------------------------|---|------------------|--|--|--|--|
| | SNMP Agent Se | ettings | | | | |
| Overview Quick Setup | Configuration | | | | | |
| Basic Settings | SNMP | Enable O Disable | | | | |
| Network Settings | Read community string | public | | | | |
| - Serial Settings | Contact name | | | | | |
| - Operating Settings | Location | | | | | |
| Accessible IP Settings | | | | | | |
| - Administration | SNMP agent version | 🖸 v1 🗹 v2 | | | | |
| - Account Management | | | | | | |
| Notification Message | Submit | | | | | |
| User Account | | | | | | |
| Password & Login Policy | | | | | | |
| SNMP Agent | | | | | | |
| - Backup/Restore | | | | | | |
| System Log Settings | | | | | | |

SNMP Settings

| Parameter | Setting | Factory | Description | Necessity |
|------------|---------------------------|---------|--|-----------|
| | | Default | | |
| Community | 1 to 39 characters | public | A community name is a plain-text | Optional |
| Name | (E.g., MOXA) | | password mechanism that is used to | |
| | | | weakly authenticate queries to agents | |
| | | | of managed network devices. | |
| Contact | 1 to 39 characters | None | The SNMP contact information usually | Optional |
| | (E.g., Support, 886- | | includes an emergency contact name | |
| | 89191230 #300) | | and telephone or pager number. | |
| Location | 1 to 39 characters | None | Specify the location string for SNMP | Optional |
| | (E.g., Floor 1, office 2) | | agents, such as the NPort. This string | |
| | | | is usually set to the street address | |
| | | | where the NPort is physically located. | |
| SNMP Agent | V1, V2 | V1, V2 | Select the version according to your | Optional |
| Version | | checked | environmental needs. Please note that | |
| | | | the NPort 5000 Series only supports | |
| | | | 'Get', but not 'Set'. | |

IP Address Report

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

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

- 1. Use Device Server Administrator's **IP Address Report** function.
- Auto IP report protocol, which can receive the Auto IP report automatically on a regular basis, is also available to help you develop your own software. Refer to Appendix E for details about the Auto IP report protocol.

| Parameter | Setting | Factory | Description | Necessity |
|----------------|----------------------|---------|---|-----------|
| | | Default | | |
| Auto report to | E.g., 192.168.1.1 or | None | Reports generated by the Auto report | Optional |
| IP | URL | | function will be automatically sent to | |
| | | | this IP address. In multiple-LAN model | |
| | | | version, two IPs can be set for Auto | |
| | | | report. The report will be sent to each | |
| | | | IP when generated. | |

| Auto report UDP port | to E.g., 4001 | 4002 | In multiple-LAN model version, two IPs can be set for Auto report. Report will be sent to each IP when generated. | Optional |
|-------------------------|----------------------------|------|--|----------|
| Auto report period | Time interval (in seconds) | 10 | NA | Optional |

Serial Settings

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

| | 1OX | ^ | www. | moxa | .com | | | | | | |
|-----------|-------------------------|-----------------|---|-----------|------------------------|--------------------------|---------------------------------|---------|--------|---------|--------|
| Main | | | | | | | | | | | |
| | erview | Serial Settings | | | | | | | | | |
| Basic Se | | | Alias Baud rate Data bits Stop bits Parity FIFO Flow ctrl Interface | | | | | | | | |
| | twork Settings | Port 1 | | | 115200 | 8 | 1 | None | Enable | RTS/CTS | RS-232 |
| | rial Settings Port 1 | Port 2 | | | 115200 | 8 | 1 | None | Enable | RTS/CTS | RS-232 |
| | Port 2 | Port 3 | 1 | | 115200 | 8 | 1 | None | Enable | RTS/CTS | RS-232 |
| 1.000 | Port 3 | Port 4 | 1 | | 115200 | 8 | 1 | None | Enable | RTS/CTS | RS-232 |
| | Port 4 | Port 5 | | | 115200 | 8 | 1 | None | Enable | RTS/CTS | RS-232 |
| 1000 | Port 5 | Port 6 | | | 115200 | 8 | 1 | None | Enable | RTS/CTS | RS-232 |
| 1000 | Port 6 | Port 7 | | | 115200 | 8 | 1 | None | Enable | RTS/CTS | RS-232 |
| 1000 | Port 7 | Port 8 | | | 115200 | 8 | 1 | None | Enable | RTS/CTS | RS-232 |
| | ntorfaco fo | r the Ov | erall NPo | ort 5000 | Series | | | | | | |
| | Serial S | Baud rate | Data bits | Stop bits | Parity | FIFO | Flow ctrl | Interfa | ce | | |
| Port | | Baud rate | Data bits | Stop bits | Parity | FIFO | | | ce | | |
| | Serial S | | Data bits 8 | | Parity None None | FIFO Enable Enable | Flow ctrl RTS/CTS RTS/CTS | RS-232 | ce | | |
| Port 1 | Serial S | Baud rate | 8 | 1 | None | Enable | RTS/CTS | RS-232 | ce | | |

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

| Veb Interface for | the NPort 5100 |), 5200, and IA5000 Series Only | | | | |
|-------------------------------|--|---------------------------------|--|--|--|--|
| | www.n Serial Settings | noxa.com | | | | |
| Overview | Port 1 | | | | | |
| Network Settings | Port alias | | | | | |
| 🔁 Serial Settings | Serial Parameters | | | | | |
| Port 1 | Baud rate | 115200 💌 | | | | |
| Dort 2 | Data bits | 8 🛩 | | | | |
| Port 3 | Stop bits | 1 • | | | | |
| Port 5 | Parity | None 🗸 | | | | |
| Dort 6 | Flow control | RTSATS | | | | |
| Port 7 | FIFO | ⊙ Enable ○ Disable | | | | |
| Port 8 Operating Settings | Interface | RS-232 v | | | | |
| Accessible IP Settings | Apply the above settings to all serial ports | | | | | |
| Auto Warning Settings | Ladbh an and here an and here | | | | | |
| Monitor | | Submit | | | | |
| | | | | | | |

| -Serial Settin | gs | | | |
|-----------------------------|---|-----------|------|--|
| Port 1 | | | | |
| Port alias | | | | |
| Serial Settings | | | | |
| Baud rate | 115200 \$ | | | |
| Data bits | 8 \$ | | | |
| Stop bits | 1 🗘 | | | |
| Parity | None ¢ | | | |
| Flow control | RTS/CTS \$ | | | |
| FIFO | Enable Disable | | | |
| Interface | RS-232 | | | |
| Apply the above settings to | ✓ P1☐ P2☐ All ports | P3 | _ P4 | |



ATTENTION

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

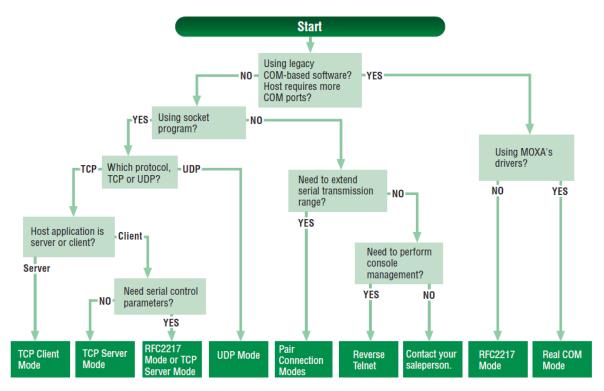
| Parameter | Setting | Factory | Description | Necessity | |
|------------|--------------------|------------|--|-----------|--|
| | | Default | | | |
| Port Alias | 1 to 15 characters | None | Port Alias is specially designed to allow easy | Optional | |
| | (E.g., PLC-No.1) | | identification of the serial devices that are | | |
| | | | connected to the NPort's serial port. | | |
| Baud rate | Support standard | 115200 bps | The rate of data transmission to and from | Required | |
| | baudrates (bps): | | the attached serial device. | | |
| | 50/ 75/ 110/ 134/ | | | | |
| | 150/ 300/ 600/ | | | | |
| | 1200 1800/ 2400/ | | | | |
| | 4800/ 7200/ | | | | |
| | 9600/ 19200/ | | | | |
| | 38400/ 57600/ | | | | |
| | 115200/ 230.4k/ | | | | |
| | 460.8k/ 921.6k | | | | |
| | * The NPort | | | | |
| | 5110/5210/ | | | | |
| | 5230/52321 | | | | |
| | Series, and IA | | | | |
| | 5000 series are as | | | | |
| | low as 110 bps, | | | | |
| | and up to 230.4 | | | | |
| | kbps | | | | |
| Data bits | 5, 6, 7, 8 | 8 | When Data bits is set to 5 bits, the stop bits | Required | |
| | | | setting will automatically change to 1.5 | | |
| | | | bits. | | |
| Stop bits | 1, 1.5, 2 | 1 | The size of the stop character. | Required | |

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

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

Operating Settings

Operating Settings is where each device port's operation mode and associated parameters are configured. Use the chart provided below to select the operation mode that is most suitable for your application and refer to **Chapters 4 and 5** for a detailed explanation of different operating modes and parameters.



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

| One | rating Settings | | | | | | | | |
|---|---|----------------|------------------------------|--|---|---|--------------|-------------------------------|----------------|
| spc. | and beenings | | | | | | | | |
| 1 | | | | Operating Se | ttings | | | | |
| Port | Operating mode | | Packing length | Delimiter 1 | Delimiter 2 | Delimiter p | rocess | Force transmit | |
| 1 1 | | 0 | 1 28 3 | 0 (Disable) 0 | (Disable) | Do Nothing | | 0 | |
| L. | Real COM Mode | 1.00 | CP alive che ax connectio | | | | | | |
| | | 0 | i (i | 0 (Disable) 0 | (Disable) | Do Nothing | | 0 | |
| 2 | Real COM Mode | 1.33 | CP alive che | N N N N N N N N N N N N N N N N N N N | | | | | |
| | | Ma | ax connection | on: 1 | | | | | |
| e b | Interface for th | יO פו | | | ies | | | | |
| | | ne Or | | Port 5000 Seri | ies | | | | |
| Overvi | ew | ne Or Port | | ation Modes | | Delimiter 2 | De | limiter Process | Force Transmit |
| Overvi Quick : | ew | Port | • Operating Mod | tion Modes Packing Length 0 | Delimiter 1 0 (Disable) | 0 (Disable) | | limiter Process Nothing | Force Transmit |
| Overvi Quick 3 Basic 5 Netwol | ew Setup Settings rk Settings | | :•Opera | ation Modes | Delimiter 1 0 (Disable) time: 7 | 0 (Disable) | | | |
| Overvi Quick S Basic S Netwol | ew Setup Settings rk Settings I Settings | Port | • Operating Mod | tion Modes Packing Lengtl 0 TCP alive check | Delimiter 1 0 (Disable) time: 7 | 0 (Disable) | Do | | |
| Overvi Quick 3 Basic 5 Netwol | ew Setup Settings K Settings I Settings | Port | • Operating Mod | ie Packing Lengt 0 TCP alive check Max connection: | Delimiter 1 0 (Disable) time: 7 0 (Disable) time: 7 | 0 (Disable) | Do | Nothing | 0 |
| Overvie Quick : Basic : Networ - Seria Port | ew Setup Settings rk Settings Settings Settings 2 | Port 1 | Operating Mod | ie Packing Length 0 TCP alive check Max connection: 0 TCP alive check | Delimiter 1 0 (Disable) time: 7 0 (Disable) time: 7 | 0 (Disable) | Do I | Nothing | 0 |
| Overvie Quick 3 Basic 5 Networ - Seria Port Port Port | ew Setup Settings rk Settings I Settings 1 Settings 1 2 3 | Port 1 | Operating Mod | te Packing Lengtl 0 TCP alive check Max connection: 0 TCP alive check Max connection: | Delimiter 1 0 (Disable) time: 7 0 (Disable) time: 7 0 (Disable) time: 7 1 0 (Disable) 1 0 (Disable) 1 1 | 0 (Disable) 0 (Disable) 0 (Disable) | Do I | Nothing | 0 |
| Overvii Quick 3 Basic 3 Networ - Seria Port Port Port - Opera | ew Setup Settings I Settings 1 2 3 4 | Port 1 2 | Coperating Mod RealCOM | tion Modes Packing Lengt 0 TCP alive check Max connection: 0 TCP alive check Max connection: 0 TCP alive check TCP alive check | Delimiter 1 0 (Disable) time: 7 0 (Disable) time: 7 0 (Disable) time: 7 1 0 (Disable) 1 0 (Disable) 1 1 | 0 (Disable) 0 (Disable) 0 (Disable) | Do I Do I | Nothing | 0 |
| Overvia Quick : Basic S Networ - Seria Port Port - Opera Access | ew Setup Settings I Settings I Settings I 3 4 4 ating Settings | Port 1 2 | Coperating Mod RealCOM | ie Packing Length 0 TCP alive check Max connection: 0 TCP alive check Max connection: 0 TCP alive check Max connection: 1 CP alive check Max connection: | n Delimiter 1 0 (Disable) time: 7 0 (Disable) time: 7 0 (Disable) time: 7 0 (Disable) time: 7 0 (Disable) | 0 (Disable) 0 (Disable) 0 (Disable) 0 (Disable) 0 (Disable) 0 (Disable) | Do I Do I | Nothing Nothing Nothing | 0 |

For each mode, the default settings should work for most applications. Modify these settings only if absolutely necessary for your application. The operation mode and related parameters can be configured through the web console. The same parameters can also be configured using NPort Administrator, the Telnet console, or serial console. Refer to **Chapters 4 and 5** for details.

| and a second | Operating Settings | |
|-------------------------|--------------------------|---|
| Main Menu J Overview | operating securitys | |
| Basic Settings | | Port=1 |
| Network Settings | Operation mode | TCP Server Mode |
| Serial Settings | TCP alive check time | 7 (0 - 99 min) |
| Port 2 | Inactivity time | 0 (0 - 65535 ms) |
| Operating Settings | Max connection | 1 |
| Port 1 Port 2 | Ignore jammed IP | @ No C Yes |
| Accessible IP Settings | Allow driver control | @ No @ Yes |
| Auto Warning Settings | | Data Packing |
| Monitor | Packing length | 0 (0 - 1024) |
| Change Password | Delimiter 1 | 0 (Hex) 🗆 Enable |
| Save/Restart | Delimiter 2 | 0 (Hex) T Enable |
| | Delimiter process | Do Nothing 🔄 (Processed only when Packing length is 0) |
| | Force transmit | 0 (0 - 65535 ms) |
| | | TCP Server Mode |
| | Local TCP port | 4001 |
| | Command port | 966 |
| | Apply the above settings | to all serial ports (Local listen port will be enumerated automatically). |
| | | |

| • Operation Mo | des | | | | |
|--------------------------------|-------------------|-----------------------|-------------------|----|--|
| Port 1 | | | | | |
| Operation mode | RealCOM | \$ | | | |
| TCP alive check time | 7 (0 - 99 min) | | | | |
| Max connection | 1 🖨 | | | | |
| Ignore jammed IP | No Yes | | | | |
| Allow driver control | No Yes | | | | |
| Data Packing Packing length | 0 (0 - 1024) | | | | |
| Delimiter 1 | 00 (Hex) 🗌 Enable | • | | | |
| Delimiter 2 | 00 (Hex) Enable | | | | |
| Delimiter process | Do Nothing 🔶 (Pr | ocessed only when pac | king length is 0) | | |
| Force transmit | 0 (0 - 65535 ms | ;) | | | |
| | ✓ P1 | P2 | □ P3 | P4 | |

Accessible IP Settings

| and all of a second | | able the accessible IP | | "Enable" will | provide the second s | onnect.) |
|---------------------------------------|------|------------------------|------------|---------------|---|----------|
| Serial Settings Operating Settings | | Activate the rule | IP Address | | Netmask | - |
| Port 1 Port 2 | | | | | | - |
| ccessible IP Settings | _ | Г. | | | J | |
| ito Warning Setting: onitor | _ | | | | | - |
| hange Password | - 35 | | | | | - |
| ad Factory Default we/Restart | | - | 1 | | J | - |
| a cy i co o con c | | | | | | - |
| | | - | 1 | | [| - |
| | | | 1 | | <u> </u> | - |
| | - | - | 1 | | <u> </u> | - |
| | 10 | E | | | | |
| | | | | | | |

| | :• A | ccessible I | P List | | |
|---|------|----------------------------|--------------------------------|--|--|
| Overview | Act | tivate the accessible IP | list (Operation modes are NO | T allowed for the IPs NOT on the list) | |
| Quick Setup | | | | | |
| Basic Settings | | ply additional restriction | ns (All device services are NC | T allowed for the IPs NOT on the list) | |
| Network Settings | No. | Activate the rule | IP Address | Netmask | |
| - Serial Settings - Operating Settings | | | II Address | Houmuon | |
| Accessible IP Settings | 1 | | | | |
| - Administration | 2 | | | | |
| - Backup/Restore | 3 | | | | |
| Pre-shared Key | 4 | | | | |
| Configuration Import | 5 | | | | |
| Configuration Export | 6 | | | | |
| System Log Settings | 7 | | | | |
| | 8 | | | | |
| - Auto Warning Settings | 9 | | | | |
| Upgrade Firmware - Monitor | | | | | |
| | 10 | | | | |
| Change Password | 11 | | | | |
| Load Factory Default | 12 | | | | |
| Save/Restart | 13 | | | | |
| Logout | 14 | | | | |
| | 15 | | | | |
| | 16 | | | | |

Accessible IP Settings allow you to add or block remote host IP addresses to prevent unauthorized access. Access to the NPort is controlled by an IP address. That is, if a host's IP address is in the accessible IP table, then the host will be allowed to access the NPort. Three setting types are described below:

Activate the Accessible IP list

Operation modes are NOT allowed for IPs NOT on the list. IPs that are not on the list will not be granted when communicating with NPort via Operation mode

Apply additional restrictions

All device services are NOT allowed for IPs NOT on the list. Services will not be granted for IPs that are not on the list. Please note that all IPs will still have access if the IP list is empty, even though the function is enabled.

Tip: For exact IP identification, the netmask needs to be 255.255.255.255.

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

Any host can access the NPort

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

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

Account Management

The Account Management setting provides administrators the authority to add/delete/modify an user account, grant access to the device users for specified function groups, and manage password and login policy to ensure device is used by a proper set of people.

Notification Message

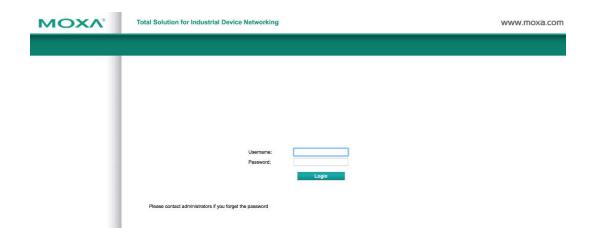
As an administrator, you are allowed to customize your **Login Message** and the **Login Authentication Failure Message** to notify users with information you would like to provide.

: Notification Message

| Notification Message | Welcome to NPort | |
|------------------------------------|--|---|
| ogin Message | | |
| | Please contact administrators if you forget the password | 16 characters/Maximum 240 characters |
| gin Authentication Failure Message | | |
| | | 56 characters/Maximum 240 characters |

The message will appear on the log-in page at the time of a successful login or login failure. Examples are shown below.

| Total Solution for Industrial Device Networking | www.moxa.com |
|---|---------------------------------|
| | |
| Usemame: Password: Login | |
| | Username: Password: Login |



User Account

In the NPort 5000 Series, the main function groups are highly correlated with the **User Level** set by the administrator(s). Administrators are allowed to add user accounts to the NPort 5000 device by clicking the **Add** button on the **User Account** page. You may also click on the current user to **Edit** or Delete the selected account.

| :•Use | r Account | |
|--------------|------------------------|----------------------|
| User Acco | unt | |
| | 🔁 Add 💉 Edit 🏢 D | elete 🖹 Save/Restart |
| Active | Account Name | User Level |
| \checkmark | admin | Read Write |
| | guest | Read Only |
| Your chang | es will take effect af | ter save and restart |

The **Add Account (Edit Account)** page will show up for you to enter (modify) account information and assign password to this user. Also, the Administrator(s) are allowed to assign proper **User Level** to this user to limit his/her privileges of using NPort 5000.

| User | Account |
|------|---------|
| | |

| Active | |
|------------------|---------------|
| Account Name | |
| Password | |
| Confirm Password | |
| User Level | Read Write \$ |

Password and Login Policy

A user with an administrator role is authorized to determine the password and login policy of the NPort 5000 device.

-Account Password and Login Management

| Account Password Policy | |
|--|-------------------------------|
| Password minimum length | 4 (4-16) |
| Password complexity strength check | 🔵 Enable 🧿 Disable |
| At least one digit (0~9) | Enable Disable |
| Mixed upper and lower case letters (A~Z, a~z) | Enable Disable |
| At least one special character (~!@#\$%^&* ;:,.<>[[{}()) | Enable Disable |
| Password lifetime | 0 (0 - 180 day; 0 for Disable |
| Account Login Failure Lockout | |
| Account login failure lockout | C Enable O Disable |
| Retry failure threshold | 5 (1 - 10 retry) |
| Lockout Time | 5 (1-60 min) |

Account Password Policy

Submit

| Parameter | Setting | Default | Description |
|------------------------------|-----------------|---------|---|
| Password minimum length | 4-16 characters | 4 | Define the minimum length of login password |
| Password complexity strength | Enable/Disable | Disable | Enable password complexity strength check |
| check: | | | will enforce the password combination setting |
| At least one digit (0-9) | Enable/Disable | Disable | The password must contain at least one |
| | | | number (0-9) when enabling this parameter |
| Mixed upper and lower case | Enable/Disable | Disable | The password must contain an upper and a |
| letters (A~Z, a~z) | | | lower case letter when enabling this |
| | | | parameter |
| At least one special | Enable/Disable | Disable | The password must contain at least one |
| characters (~!@#\$%^&*- | | | special character when enabling this |
| _ ;:,.<>[]{}()) | | | parameter |
| Password lifetime | 0-180 days | 90 days | A password lifetime can be specified and a |
| | (0 for disable) | | system notification message will show up to |
| | | | remind users to change the password if the |
| | | | option is enabled. |

Account Login Failure Lockout

| Parameter | Setting | Default | Description |
|-------------------------------|----------------|---------|--|
| Account Login Failure Lockout | Enable/Disable | Disable | An account login failure lockout rule can be |
| | | | defined and enforced when enabled. |
| Retry failure threshold | 1-10 retry | 5 if | Number of retries can be determined prior to |
| | | enabled | the lockout |
| Lockout time | 1-60 minute(s) | 5 if | Lockout duration can be specified to |
| | | enabled | determine time until next retry. |

Auto Warning Settings

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

Auto warning: E-mail and SNMP trap

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

| Web Interface for the | NPort 5100, 5200, IA5000 Se | ries |
|--|------------------------------------|-------------------|
| мохл | www.moxa.co | om |
| 🔄 Main Menu | Auto warning: Email and SNMP | trap |
| Overview | | |
| Basic Settings | | Mail server |
| Network Settings | Mail server | |
| 🖻 🔄 Serial Settings | My server requires authentication | |
| Port 1 | User name | |
| Port 2 | | |
| Coperating Settings | Password | |
| Port 1 | From E-mail address NPIA-5250 | _525016@moxa.com |
| Port 2 | E-mail address 1 | • |
| 🕾 🔄 Auto Warning Settings | E-mail address 2 | |
| 😑 E-mail and SNMP Trap | | |
| Event Type | E-mail address 3 | |
| Monitor Change Password | E-mail address 4 | |
| Load Factory Default | [| SNMP trap server |
| Save/Restart | SNMP trap server IP or | |
| | domain name | |
| | | Submit |
| | | Oddrink |
| Web Interface for the | Overall NPort 5000 Series | |
| web Interface for the | Overall NPOIL 5000 Series | |
| | -E-mail and SNMI | P Trap Settings |
| Overview | Mail Server | |
| Quick Setup | | |
| Basic Settings Network Settings | Mail server | |
| - Serial Settings | My server requires authentication | |
| - Operating Settings | User name | |
| Accessible IP Settings | Password | |
| - Administration | From E-mail address | NPort@moxa |
| - Backup/Restore | E-mail address 1 | |
| System Log Settings - Auto Warning Settings | E-mail address 2 | |
| System Log Event settings | E-mail address 3 | |
| E-mail and SNMP Trap | E-mail address 4 | |
| Event Type | E-Indi dutress 4 | |
| Upgrade Firmware | | |
| - Monitor | SNMP Trap Server | |
| Line | SNMP trap server IP or domain name | |
| Async | Trap version | ○ v1 ○ v2c |
| Async-Settings | Trap community | public |
| Relay Output | | k |
| System Log Change Password | Submit | |
| Change Password | | |

Mail Server

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

SNMP Trap Server

| Parameter | Setting | Factory | Description | Necessity |
|------------------|---------------|---------|--|-----------|
| | | Default | | |
| SNMP trap server | IP address or | None | Selecting the version based on your | Optional |
| IP or domain | Domain | | environmental needs. We strongly suggest to | |
| name | Name | | that you change the community name from | |
| | | | the default public to another name; it is for | |
| | | | security prevention reasons. | |



ATTENTION

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

Event Type

| Event Type | | | |
|------------------------|--------|-------------|----------------|
| Cold start | 🗖 Mail | Trap | |
| Warm start | 🗆 Mail | Г Тгар | |
| Authentication failure | 🗖 Mail | Trap | |
| IP address changed | 🗆 Mail | | |
| Password changed | Mail | | |
| Power failure | 🗆 Mail | | 🗖 Relay Output |
| Ethernet1 link down | 🗖 Mail | Trap | Relay Output |
| Ethernet2 link down | 🗖 Mail | 🗖 Тгар | Relay Output |
| | D | CD changed | |
| Port 1 | 🗖 Mail | Trap | T Relay Output |
| Port 2 | T Mail | T Trap | 🗖 Relay Output |
| | D |)SR changed | |
| Port 1 | I Mail | Trap | Relay Output |
| Port 2 | 🗖 Mail | Trap | Relay Output |

| | -Event Setting | gs | | |
|--|------------------------|--------|--------------------------|----------------------------------|
| verview uick Setup | System Event | | | |
| sic Settings | Cold start | 🗆 Mail | Trap | |
| etwork Settings Serial Settings | Warm start | 🗆 Mail | Trap | |
| operating Settings cessible IP Settings | Config Event | | | |
| dministration | Authentication failure | Mail | Trap | |
| ackup/Restore | IP changed | Mail | | |
| stem Log Settings uto Warning Settings | Password changed | Mail | | |
| System Log Event settings | Power failure | Mail | | Relay output |
| E-mail and SNMP Trap | Ethernet1 link down | Mail | Trap | Relay output |
| Event Type grade Firmware | Ethernet2 link down | Mail | Trap | Relay output |
| lonitor | DCD Changed | | | |
| Line Async | _ | | | |
| Async-Settings | Port 1 | 🗆 Mail | Trap | Relay output |
| Relay Output | Port 2 | Mail | Trap | Relay output |
| System Log | Port 3 | 🗆 Mail | Trap | Relay output |
| ange Password ad Factory Default | Port 4 | 🗌 Mail | 🗌 Trap | Relay output |
| ve/Restart | DSR Changed | | | |
| gout | Port 1 | Mail | 🗌 Trap | Relay output |
| | Port 2 | 🗌 Mail | Trap | Relay output |
| | Port 3 | 🗆 Mail | Trap | Relay output |
| | Port 4 | 🗆 Mail | Trap | Relay output |

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

Cold start

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

Warm start

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

Authentication failure

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

IP address changed

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

Password changed

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

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

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

| MOX/ | | | |
|--|--|-----------------------|---|
| | | om | |
| Main Menu Overview | Monitor Relay Output | | |
| Basic Settings | | Relay Output Status | |
| Network Settings | Power failure | | Acknowledge Event |
| Serial Settings | Ethernet1 link down | | Acknowledge Event |
| Operating Settings Accessible IP Settings | Ethernet2 link down | | Acknowledge Event |
| Auto Warning Settings | DCD changed (Port 1) | | Acknowledge Event |
| Monitor | DCD changed (Port 2) | | Acknowledge Event |
| | DSR changed (Port 1) | | Acknowledge Event |
| Async Async-Setting | DSR changed (Port 2) | | Acknowledge Event |
| Relay Output | por changes (i or i of | | |
| Overview | Dout Status | | |
| Quick Setup | | | |
| Basic Settings | Power failure | | Acknowledge Event |
| Network Settings - Serial Settings | Ethernet1 link down | - | Acknowledge Event |
| - Operating Settings | Ethernet2 link down | | Acknowledge Event |
| Accessible IP Settings | DCD changed (Port 1) | - | Acknowledge Event |
| - Administration | DSR changed (Port 1) | | |
| , and a contract of the second s | bort changed (Fort 1) | - | Acknowledge Event |
| - Account Management | DCD changed (Port 2) | - | Acknowledge Event Acknowledge Event |
| - Account Management SNMP Agent | - · · · | - | |
| - Account Management SNMP Agent - Backup/Restore | DCD changed (Port 2) | - | Acknowledge Event |
| - Account Management SNMP Agent | DCD changed (Port 2) DSR changed (Port 2) | | Acknowledge Event Acknowledge Event |
| - Account Management SNMP Agent - Backup/Restore System Log Settings | DCD changed (Port 2) DSR changed (Port 2) DCD changed (Port 3) | - - - - - | Acknowledge Event Acknowledge Event Acknowledge Event |
| - Account Management SNMP Agent - Backup/Restore System Log Settings - Auto Warning Settings | DCD changed (Port 2) DSR changed (Port 2) DCD changed (Port 3) DSR changed (Port 3) | | Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event |
| Account Management SNMP Agent Backup/Restore System Log Settings Auto Warning Settings System Log Event settings E-mail and SNMP Trap Event Type | DCD changed (Port 2) DSR changed (Port 2) DCD changed (Port 3) DSR changed (Port 3) DCD changed (Port 4) | | Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event |
| Account Management SNMP Agent Backup/Restore System Log Settings Auto Warning Settings System Log Event settings E-mail and SNMP Trap Event Type Upgrade Firmware | DCD changed (Port 2) DSR changed (Port 2) DCD changed (Port 3) DSR changed (Port 3) DCD changed (Port 4) | | Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event |
| Account Management SNMP Agent Backup/Restore System Log Settings Auto Warning Settings System Log Event settings E-mail and SNMP Trap Event Type | DCD changed (Port 2) DSR changed (Port 2) DCD changed (Port 3) DSR changed (Port 3) DCD changed (Port 4) | | Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event |
| - Account Management SNMP Agent - Backup/Restore System Log Settings - Auto Warning Settings System Log Event settings E-mail and SNMP Trap Event Type Upgrade Firmware - Monitor | DCD changed (Port 2) DSR changed (Port 2) DCD changed (Port 3) DSR changed (Port 3) DCD changed (Port 4) | | Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event |
| - Account Management SNMP Agent - Backup/Restore System Log Settings - Auto Warning Settings System Log Event settings E-mail and SNMP Trap Event Type Upgrade Firmware - Monitor Line | DCD changed (Port 2) DSR changed (Port 2) DCD changed (Port 3) DSR changed (Port 3) DCD changed (Port 4) | | Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event |
| - Account Management SNMP Agent - Backup/Restore System Log Settings - Auto Warning Settings System Log Event settings E-mail and SNMP Trap Event Type Upgrade Firmware - Monitor Line Async | DCD changed (Port 2) DSR changed (Port 2) DCD changed (Port 3) DSR changed (Port 3) DCD changed (Port 4) | | Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event |
| - Account Management SNMP Agent - Backup/Restore System Log Settings - Auto Warning Settings System Log Event settings E-mail and SNMP Trap Event Type Upgrade Firmware - Monitor Line Async Async-Settings | DCD changed (Port 2) DSR changed (Port 2) DCD changed (Port 3) DSR changed (Port 3) DCD changed (Port 4) | | Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event Acknowledge Event |

Ethernet link down

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

DCD changed

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

DSR changed

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

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

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

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



ATTENTION

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

Monitor

Monitor Line

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

| MOXA | V | www.moxa.com | | | | | | | |
|---|--------------|--------------------|-----------------|-------------|-----|----------|--|--|--|
| Main Menu | Monitor Line | | | | | | | | |
| Overview | | | | | | | | | |
| Basic Settings | Dent | P Mode | IP1 | Line IP2 | IP3 | IP4 | | | |
| Network Settings | | eal COM Mode | Listen | IP2 | IP3 | 194 | | | |
| Serial Settings | | eal COM Mode | Listen | | | | | | |
| Operating Settings | | eal COM Mode | Listen | | - | | | | |
| Accessible IP Settings Auto Warning Settings | | eal COM Mode | Listen | | | | | | |
| Monitor | | | | | ., | | | | |
| Dverview | | :• Monito | r Line | | | | | | |
| Quick Setup | Po | ort Operation Mode | Connections | | | | | | |
| Basic Settings | 1 | RealCOM | [Listen] | [] | [] | [] | | | |
| Network Settings | | RealCOM | [] | [] | [] | [] | | | |
| - Serial Settings | 2 | RealCOM | [Listen] | [] | [] | [] | | | |
| Port 1 | | | [] | [] | [] | [] | | | |
| Port 2 | 3 | RealCOM | [Listen] | | [] | | | | |
| Port 3 | | | [] [Listen] | | | [] [] | | | |
| Port 4 | 4 | RealCOM | [] | [] | [] | [] | | | |
| - Operating Settings | | | | | | | | | |
| Port 1 | | | | | | | | | |
| | | | | | | | | | |
| Port 2 | | | | | | | | | |
| Port 2 Port 3 | | | | | | | | | |
| | | | | | | | | | |
| Port 3 Port 4 | | | | | | | | | |
| Port 3 | | | | | | | | | |
| Port 3 Port 4 Accessible IP Settings - Administration | L | | | | | | | | |
| Port 3 Port 4 Accessible IP Settings Administration Backup/Restore | L | | | | | | | | |
| Port 3 Port 4 Accessible IP Settings Administration Backup/Restore System Log Settings | L | | | | | | | | |
| Port 3 Port 4 Accessible IP Settings - Administration - Backup/Restore System Log Settings | L | | | | | | | | |
| Port 3 Port 4 Accessible IP Settings - Administration - Backup/Restore System Log Settings - Auto Warning Settings | l | | | | | | | | |
| Port 3 Port 4 Accessible IP Settings Administration Backup/Restore System Log Settings Auto Warning Settings System Log Event settings | l | | | | | | | | |
| Port 3 Port 4 Accessible IP Settings - Administration - Backup/Restore System Log Settings - Auto Warning Settings System Log Event settings E-mail and SNMP Trap Event Type | l | | | | | | | | |
| Port 3 Port 4 Accessible IP Settings - Administration - Backup/Restore System Log Settings - Auto Warning Settings System Log Event settings E-mail and SNMP Trap | l | | | | | | | | |

Monitor Async

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

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

| | | :•Mon | itor Asy | nc | | | | | | |
|-------------------------|------|---------|----------|------------|------------|-----|-----|-----|-----|-----|
| Main Menu | Dest | Turcent | RxCnt | TuTatalCat | DuTatalCut | DCD | DTD | DTC | OTO | Dep |
| Overview | Port | TxCnt | | TxTotalCnt | RxTotalCnt | DSR | | RTS | CTS | DCD |
| Quick Setup | 1 | 0 | 0 | 0 | 0 | • | | | ۰ | |
| Export/Import | 2 | 0 | 0 | 0 | 0 | • | | ۲ | ۹ | |
| Basic Settings | | | | | | | | | | |
| Network Settings | | | | | | | | | | |
| - Serial Settings | | | | | | | | | | |
| - Operating Settings | | | | | | | | | | |
| Accessible IP Settings | | | | | | | | | | |
| - Auto Warning Settings | | | | | | | | | | |
| Upgrade Firmware | | | | | | | | | | |
| - Monitor | | | | | | | | | | |
| Line | | | | | | | | | | |
| Asynd | | | | | | | | | | |

Monitor Async-Settings

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

| MOXA | | wv | vw.m | oxa. | com | | | | | | |
|---|--------|--------|----------|-----------|-----------|-----------|--------------------|-------------|---------|--------|--------------|
| Main Menu | Monito | or Asy | nc-Setti | ngs | | | | | | | |
| Overview | | | | | | | 0-11 | | | | |
| Basic Settings | Port | Ba | ud rate | 0 | ata bits | Stop bits | -Setting Parity | FIFO | RTS/C | TE VON | XOFF DTR/DSR |
| Network Settings | 1 | | 5200 | 8 | | 1 | None | Enable | OFF | OFF | OFF |
| Serial Settings Operating Settings | 2 | | 5200 | 8 | | 1 | None | Enable | OFF | OFF | OFF |
| Accessible IP Settings | 3 | | 5200 | 8 | | 1 | None | Enable | OFF | OFF | OFF |
| Auto Warning Settings | 4 | | 5200 | 8 | | 1 | None | Enable | OFF | OFF | OFF |
| Monitor | | | | | | | | | | | |
| | | | | | | | | | | | |
| eb Interface for t | he O | vera | II NPo | rt 5000 | Series | ; | | | | | |
| | | | | | | | | | | | |
| | | | - Mo | nitor A | Asvnc- | -Setti | ngs | | | | |
| | | | | | | | | | | | |
| Overview | | 1 | | 1 | | | | | | | I |
| Quick Setup | | Port | Baud | Data Bits | Stop Bits | Parity | | Flow Contro | | FIFO | Interface |
| Basic Settings | | | Rate | | | | RTS/CTS | XON/XOFF | DTR/DSR | | |
| Network Settings | | 1 | 115200 | 8 | 1 | None | OFF | OFF | OFF | Enable | RS-232 |
| - Serial Settings | | 2 | 115200 | 8 | 1 | None | ON | OFF | OFF | Enable | RS-232 |
| Port 1 | | 3 | 115200 | 8 | 1 | None | ON | OFF | OFF | Enable | RS-232 |
| Port 2 | | 4 | 115200 | 8 | 1 | None | ON | OFF | OFF | Enable | RS-232 |
| Port 3 | | | | | | | | | | | |
| Port 4 | | | | | | | | | | | |
| - Operating Settings | | | | | | | | | | | |
| Port 1 | | | | | | | | | | | |
| Port 2 | | | | | | | | | | | |
| Port 3 | | | | | | | | | | | |
| Port 4 | | | | | | | | | | | |
| | | | | | | | | | | | |
| Accessible IP Settings | | | | | | | | | | | |
| - Administration | | | | | | | | | | | |
| - Backup/Restore | | | | | | | | | | | |
| System Log Settings | | | | | | | | | | | |
| Auto Warning Settings | | | | | | | | | | | |
| System Log Event settings | | | | | | | | | | | |
| E-mail and SNMP Trap | | | | | | | | | | | |
| Event Type | | | | | | | | | | | |
| Upgrade Firmware | | | | | | | | | | | |
| - Monitor | | | | | | | | | | | |
| Line | | | | | | | | | | | |
| Async | | | | | | | | | | | |
| Async | | | | | | | | | | | |
| Async-Settings | | | | | | | | | | | |

System Log Settings

System Log Settings

| Event Group | Local Log | Summary |
|-------------|-----------|--|
| System | | System Cold Start, System Warm Start |
| Network | | DHCP/BOOTP Get IP/Renew, NTP, Mail Fail, NTP Connect Fail, IP Conflict, Network Link Up, Network Link Down |
| Config | | Login Fail, IP Changed, Password Changed, Config Changed, Firmware Upgrade, Config Import, Config Export |
| OpMode | | Connect, Disconnect |

NOTE The NPort 5100, NPort 5200, and NPort IA5000 Series don't support this function.

System Log Settings allow NPort users to customize network events that are logged by the NPort 5000. Events are grouped into four categories, known as event groups, and the user selects which groups to log as Local Log (on NPort 5000). The actual system events that would be logged for each system group are listed under the column "Summary". For example, if **System** was enabled, then System Cold Start events and System Warm Start events would be logged.

| Local Log | Keep the log in the flash of NPort 5000 up to 512 items. |
|-----------|--|
|-----------|--|

System

| System Cold Start | NPort 5000 cold start. |
|-------------------|------------------------|
| System Warm Start | NPort 5000 warm start. |

Network

| DHCP/BOOTP/PPPoE Get | IP of the NPort 5000 is refreshed. |
|----------------------|--|
| IP/Renew | |
| NTP | Time synchronization successful. |
| NTP Connect Fail | The NPot 5000 failed to connect to the NTP Server. |
| Mail Fail | Failed to deliver the email. |
| IP Conflict | There is an IP conflict on the local network. |
| Network Link Down | LAN 1 Link is down. |

Config

| Login Fail | |
|--|--------------------------------|
| IP Changed | Static IP address was changed. |
| Password Changed Administrator Password was changed. | |
| Config Changed The NPort 5000's configuration was changed. | |
| Firmware Upgrade | Firmware was upgraded. |
| SSL Certificate Import | SSL Certificate was impoted. |
| Config Import | Config was impoted. |
| Config Export | Config was expoted. |

OpMode

| Connect | Op Mode is in use | | | |
|---------------------|---|--|--|--|
| Disconnect | Op Mode switched from in use to disconnect. | | | |
| Authentication Fail | The Authentication failed in terminal; reverse terminal; or dial in/out operation | | | |
| | modes | | | |
| Restart | Serial port was restarted. | | | |

Change Password

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

| Web Interface for t | he NPort 5100, 5200, IA5000 Series Only |
|---|--|
| ΜΟΧΛ | www.moxa.com |
| Overview Basic Settings Network Settings Serial Settings | Change password : |
| Web Interface for t | he Overall NPort 5000 Series |
| | - Change Password |
| Overview Quick Setup Basic Settings Network Settings - Serial Settings Port 1 Port 2 Port 3 Port 1 Port 2 Port 3 Port 4 - Operating Settings Port 1 Port 2 Port 3 Port 4 Accessible IP Settings - Administration - Backup/Restore System Log Settings - Auto Warning Settings System Log Settings E-mail and SNMP Trap Event Type Upgrade Firmware - Monitor Line Async Async-Settings Relay Output System Log Change Password Load Factory Default | Password More password Retype password Submt |



ATTENTION

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

Load Factory Default

Web Interface for the NPort 5100, 5200, and IA5000 Series Only



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

Configuration by Telnet Console

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

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

| Run | ? 🔀 |
|-------|--|
| - | Type the name of a program, folder, document, or Internet resource, and Windows will open it for you. |
| Open: | telnet 192. 168. 127. 254 |
| | OK Cancel Browse |

3. When the Telnet window opens, you will be prompted to input the Console password (the default username is **admin** and password is **moxa**; for the NPort 5100/5200/IA5000, it only requires the default password **moxa**); input the password and then press **Enter**.

| Trying 192.168.127.254 | |
|-----------------------------------|--|
| Connected to 192.168.127.254. | |
| Escape character is '^]'. | |
| Model name : NPort 5250A | |
| (Please keyin your username:admin | |
| Please keyin your password:**** | |
| | |

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

| lodel name | |
|---------------------------|------------------------|
| | : 00:90:E8:63:50:FD |
| Serial No. | |
| | n : 1.5 Build 19013022 |
| System uptime | : 0 days, 01h:59m:07s |
| < Main menu >> | |
| (1) Basic set | tings |
| (2) Network se | ettings |
| (3) Serial set | ttings |
| <pre>(4) Operating</pre> | settings |
| <pre>(5) Accessible</pre> | e IP settings |
| (6) Account Ma | anagement |
| (7) Auto warn: | ing settings |
| (8) Monitor | |
| (9) Ping | |
| (a) Change pag | ssword |
| (b) Load fact | bry default |
| <pre>(v) View sett:</pre> | ings |
| (s) Save/Resta | art |
| (q) Quit | |

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

```
<< Main menu->Network settings >>
  (1) IP address
(2) Netmask

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

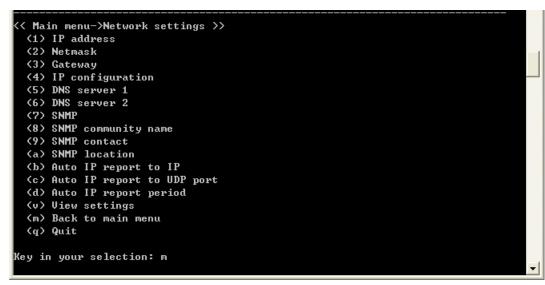
6. Use the **Backspace** key to erase the current IP address, type in the new IP address, and then press **Enter**.

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

7. Press any key to continue...

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

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



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

| MAC address Serial No. Firmware version | : NPort IA5450AI : 00:90:E8:12:34:57 : 2 : 1.0 Build 10032318 : 0 days, 00h:06m:48s | |
|---|---|---|
| << Main menu >> | | |
| (1) Basic setti | ngs | |
| (2) Network set | ings | |
| (3) Serial sett | ings | |
| (4) Operating s | | |
| (5) Accessible | | |
| (6) Auto warnin | y settings | |
| (7) Monitor | | |
| (8) Ping | | |
| (9) Change pass | | |
| (a) Load factor | • | |
| (v) View settin (s) Saue/Restar | | |
| (g) Quit | | |
| ւմչ ձայր | | |
| Key in your selec | ion: s | |
| | | - |

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

| Save change? | |
|--------------------------|---|
| (y) Yes | |
| (n) No | |
| Key in your selection: y | - |

Configuration by Serial Console

Serial Console (19200, n, 8, 1)

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

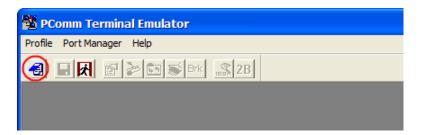


ATTENTION

The serial console port is an RS-232 port.

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

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



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

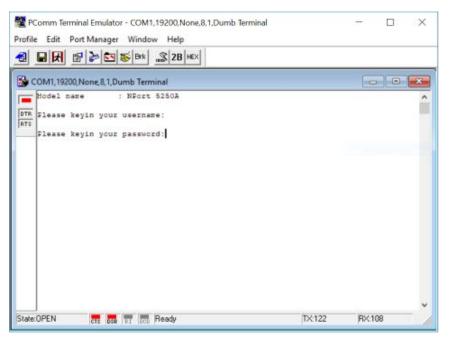
| Property | X |
|------------------------|--|
| Communication Paramete | r Terminal File Transfer Capturing |
| COM Options | |
| Ports : | COM1 - |
| Baud Rate : | 19200 💌 |
| Data Bits : | 8 💌 |
| Parity : | None |
| Stop Bits : | 1 • |
| Flow Control | Output State DTR I ON C OFF RTS I ON C OFF |
| | OK Cancel |

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



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

8. The default username is **admin**, and the password is **moxa**.



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

| 💆 PComm Terminal Emulator - COM1,19200,None,8,1,Dumb Terminal | <u>84</u> | | × |
|--|-----------|----|------|
| Profile Edit Port Manager Window Help | | | |
| 🚭 🖬 🕅 😰 📚 🖼 😹 Brk 🔐 28 HEX | | | |
| S COM1, 19200, None, 8, 1, Dumb Terminal | | | × |
| Model name : NFort 5250A MAC address : 00:90:E8:63:50:FD DTR Serial No. : 7162 RTS Firmware version : 1.5 Build 19013022 : System uptime | | | ^ |
| << Main menu >> (1) Basic settings (2) Network settings (3) Serial settings (4) Operating settings (5) Accessible IP settings (6) Account Management (7) Auto warning settings (8) Monitor (9) Fing (a) Change password (b) Load factory default (v) View settings (s) Save/Restart (q) Quit | | | |
| Key in your selection: | | | ~ |
| State:OPEN CTS DSR RI DCD Ready TX:137 | RX:85 | 95 | - // |

Testing Your NPort

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

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

Cybersecurity Considerations

With cyberattacks growing in number and sophistication, network device vendors are adding functions geared towards protecting sensitive business and personal information. Moxa has dedicated itself in this area by developing measure to make sure all the products can and will meet the security standard, so customers will use Moxa's product without too much to worry about. There are certain details that Moxa cannot do alone; customers and Moxa need to work together to build up a much secured environment to defend against all kinds of cyberthreats. This chapter introduces the essential steps to enhance the cybersecurity of Moxa's products. Customers may need to refer to other sections in the user manual for exact settings or commands. The following topics are covered in this chapter:

- Updating Firmware
- Turn Off Unused Service and Ports
 - > Turn Off Moxa Service After Installation
 - Turn On Services That Are Necessary
- Limited IP Access
- Account and Password
- System Log
- Testing the Security Environment

Updating Firmware

When a customer buys a product from Moxa or reseller, Moxa may have already pushed out a newer version of firmware and that is likely to have enhanced the security features included. It is suggested to always update to latest firmware. Please check with Moxa's support website for further details.

Turn Off Unused Service and Ports

Imagine living in a house that has many entrances. If all the doors and windows are left unlocked or even open, it sends a message of welcoming to intruders out there. It is always recommended to turn off services and ports that are not in use to reduce the chances of being attacked.

Turn Off Moxa Service After Installation

Moxa Service is extremely helpful for first-time installation as it helps the device to be discovered in a local area network (LAN). Once the installation is completed, this service should be turned off for safety reasons; however, once it is turned off, a utility such as Moxa's DSU (Device Search Utility) is no longer seeking for the device, and only by the IP and login with username and password will have the access to the product.

Turn On Services That Are Necessary

There are services that were designed some while ago, but then cybersecurity wasn't much of an issue, therefore the design's considerations didn't quite cover cybersecurity. Below is a list of services that are recommended to turn on only when necessary:

- HTTP/HTTPS: If the web console is required to access the product, it is recommend to use HTTPS over HTTP
- · Telnet: Only enable Telnet if command line is required to manage the product
- SNMP: If using Simple Network Management Protocol for remote device monitoring and management, this should be turned on. It is strongly advised to change the default community name once enabled and also set SNMP to send a trap if authentication failures happen.
- **NOTE** Once all the settings are configured according to your needs, remember to save and restart the device so that all the new settings are effective.

NOTE If all HTTP/HTTPS/Telnet/SSH/Serial consoles are turned off, then there is no other route to access the product. The only way to recover it is to reset the device and start from the beginning. Please refer to the user manual on how to reset the device

Limited IP Access

Limiting the number of IP addresses that can access the product is one of the most effective way of blocking unwanted intruders. If there are only limited desktop/notebook/mobile devices that would access the product, grant those IPs access.

Account and Password

- There is a default username and password for first-time installation; it is strongly suggested to change the password after installation has been done.
- Use your own passwords for users of the devices. If possible, also change the default name of the account, for example, don't name admin group "admin" before the device is deployed.
- Use strong passwords. The devices support a function to check if the passwords are strong enough. You can enable the function to help you check whether the passwords are strong enough.
- Use account login failure lockout feature to prevent unwelcome access

System Log

System log can contain all kinds of activities that are happening on your NPort, such as Login Fail, IP Changed, Password Changed, Config Changed, etc. Check the log periodically to examine any abnormal behavior.

Testing the Security Environment

Besides these devices that support those protective functions, network managers can follow a number of recommendations to protect their network and devices.

To prevent unauthorized access to a device, follow these recommendations:

- Testing tools for cybersecurity environment checks are available. Some may provide limited free use, for example, Nessus. These tools help identify possible security leaks in the environment.
- The device should be operated inside a secure network, protected by a firewall or router that blocks attacks via the Internet.
- · Control access to the serial console as with any physical access to the device.
- Avoid using insecure services such as Telnet and TFTP; the best way is to disable them completely.
- · Limit the number of simultaneous Web Server, Telnet, and SSH sessions allowed.
- Periodically, change the passwords.
- Backup the configuration files periodically and compare the configurations to make sure the devices work
 properly.
- Audit the devices periodically to make sure they comply with these recommendations and/or any internal security policies.
- If there is a need to return the unit to Moxa, make sure encryption is disabled and that you had already backup the current configuration before returning it.
- **NOTE** DISCLAIMER: Please note that above information and guide (the "information") are for the purpose of your reference only. We do no guarantee a cyberthreat-free environment; these guidelines are to increase security level to defend against cyberintrusions and do not guarantee that the above information will meet your specific requirements. Furthermore, the above information is provided "as is", and we make no warranties, express, implied or otherwise, regarding its accuracy, completeness, or performanc

Choosing the Proper Operation Mode

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

The following topics are covered in this chapter:

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

Overview

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

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

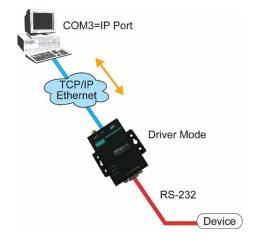
An NPort serial device server is an external IP-based network device that allows you to expand the number of serial ports for a host computer on demand. As long as your host computer supports the TCP/IP protocol, you won't be limited by the host computer's bus limitation (such as ISA or PCI), or lack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

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

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

Real COM Mode

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





ATTENTION

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

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



ATTENTION

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

RFC2217 Mode

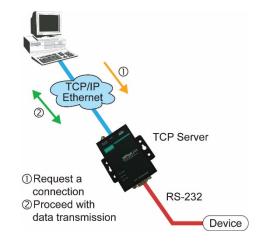
RFC2217 Mode is only supported by the NPort 5000A, NPort 5000AI-M12, NPort IA5000A, NPort 5600, and NPort 5600-8-DT/DTL Series.

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

TCP Server Mode

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

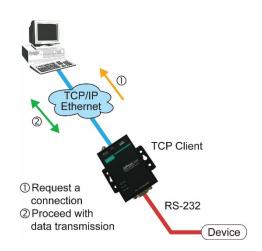
- 1. The host requests a connection from the NPort configured for TCP Server Mode.
- Once the connection is established, data can be transmitted in both directions—from the host to the NPort, and from the NPort to the host.



TCP Client Mode

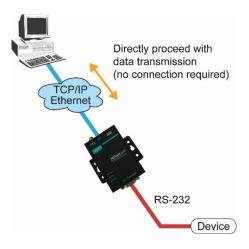
In TCP Client Mode, the NPort can actively establish a TCP connection with a pre-determined host computer when serial data arrives. After the data has been transferred, the NPort can disconnect automatically from the host computer by using the **TCP alive check time** or **Inactivity time** settings.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

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



UDP Mode

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



Pair Connection Mode

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

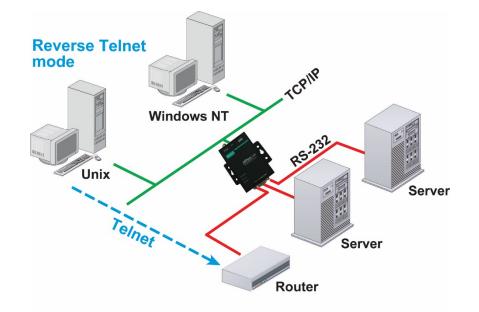
Ethernet Modem Mode

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

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

Reverse Telnet Mode

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



PPP Mode

PPP Mode is only supported by the NPort 5600 Series.

The NPort 5000 provides dial-in access for ISPs and enterprises that need a remote access solution. When a user at a remote site uses a PPP dial-up connection to access the NPort 5600, the NPort 5600 plays the role of a dial-up server, but also ensures that the user has legal access to the network by verifying the user's identity with the NPort 5600 User Table.

Disabled Mode

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

Advanced Operation Mode Settings

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

The following topics are covered in this chapter:

Overview

- List of Parameters
- > When to Make Adjustments

Using Pair Connection Modes

Parameter Summary

- Connection Management Parameters
- > Data Packing Parameters
- > Other Parameters
- Web Console

Overview

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

List of Parameters

| Real COM Mode | TCP Server Mode | TCP Client Mode | UDP Mode | Reverse Telnet Mode | Pair Connection Mode | RFC2217 Mode | |
|---------------|-----------------|-----------------|----------------------------------|---------------------|----------------------|--------------|---|
| | | | | | | | Connection Management Parameters |
| ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | TCP alive check time |
| | ✓ | ✓ | | ✓ | | | Inactivity time |
| ✓ | ✓ | ✓ | | | | | Max connection |
| ✓ | ✓ | ✓ | | | | | Ignore jammed IP |
| ✓ | ✓ | | | | | | Allow driver control |
| | | | | | | | Data Packing Parameters |
| ✓ | ✓ | ✓ | ✓ | | | ✓ | Packing length |
| ✓ | ✓ | ✓ | ~ | | | ✓ | Delimiter 1 and 2 |
| ✓ | ~ | ✓ | ~ | | | ✓ | Delimiter process |
| ✓ | > | ✓ | > | | | ✓ | Force transmit |
| | | | | | | | Other Parameters |
| | ~ | | | > | ✓ | | Local TCP port |
| | | | | | | | Commendation |
| | ✓ | | | | | | Command port |
| | ✓ | | | | ✓ | | Destination IP address |
| | ✓ | ✓ | ~ | | ✓ | | |
| | ✓ | ✓ ✓ | ✓ | | ✓ | | Destination IP address |
| | ✓ | | ✓ ✓ | | ✓ | | Destination IP address Destination IP address 1 through 4 |
| | ✓ | | | | ✓ | | Destination IP address Destination IP address 1 through 4 Designated local port 1 through 4 |

When to Make Adjustments

٠

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

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

Adjust Delimiters 1 and 2 and Delimiter process.

• Multiple hosts will simultaneously access the attached device.

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

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

Adjust Destination IP 1 through 4.

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

Adjust Local TCP port and Destination IP Address

Using Pair Connection Modes

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

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

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

Parameter Summary

Connection Management Parameters

| ✓ | ✓ ✓ | | ✓ | ✓ | ✓ | | Inactivity time |
|---------------|-------------------|----------|---------------------|----------------------|--------------|----------|--|
| Real COM Mode | TCP Server Mode < | UDP Mode | Reverse Telnet Mode | Pair Connection Mode | RFC2217 Mode | PPP Mode | Inactivity timeSetting Options: 0 to 99 minutesDefault: 7 minutesDescription: Specifies the time limit for keeping the connection open ifno data flows to or from the serial device. If there is no activity for thespecified time, the connection will be closed. A setting of 0 means thatthe connection will remain open even if data is never received.For many applications, the serial device may be idle for long periods oftime, so 0 is an appropriate setting. If you wish to use Inactivity timewith TCP Client mode, you must set Connection Control to AnyCharacter/Inactivity Time (see Connection Control).When adjusting Inactivity time, make sure that it is greater than theForce transmit time. Otherwise, the TCP connection may be closedbefore data in the buffer can be transmitted. |

| | ✓ | ✓ | | ✓ | | | ✓ | Inactivity time |
|------------|--------------|--------------|-------|------------------|-------------------|-----------|-------|--|
| de | de | de | de | de | de | de | de | Setting Options: 0 to 65535 ms |
| Mode | Mode | Mode | Mode | Mode | Mode | Mode | Mode | Default: 0 |
| Real COM N | TCP Server N | TCP Client N | UDP N | Reverse Telnet N | Pair Connection N | RFC2217 N | N ddd | Description: Specifies the time limit for keeping the connection open if no data flows to or from the serial device. If there is no activity for the specified time, the connection will be closed. A setting of 0 means that 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. If you wish to use Inactivity time with TCP Client mode, you must set Connection Control to Any |
| | | | | | | | | Character/Inactivity Time (see Connection Control). When adjusting Inactivity time, make sure that it is greater than the Force transmit time. Otherwise, the TCP connection may be closed before data in the buffer can be transmitted. |

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

| ✓ | ✓ | √ | | | | | | Ignore jammed IP |
|------|------|-------|------|-------|--------|-------|------|--|
| de | de | de | de | de | de | de | de | Setting Options: Yes or No |
| Mode | Mode | Mode | Mode | Mode | Mode | Mode | Mode | Default: No |
| COM | ver | lient | UDP | elnet | ection | C2217 | ЬРР | Description: This field specifies how an unresponsive IP address is |
| | Ser | CII | ر | Tel | ect | 023 | | handled when there are simultaneous connections to the device port |
| Real | CP 3 | Ъ | | se | Conne | RF | | (see Max connection). Yes means that transmission to the other hosts |
| | тс | TC | | 'ers | ပိ | | | will not be suspended if one IP address becomes unresponsive. No |
| | | | | Rev | air | | | means that all transmission will be suspended if one IP address |
| | | | | - | ٩ | | | becomes unresponsive, and will resume when all hosts have |
| | | | | | | | | responded. Yes is the recommended setting when Max connection is 2 |
| | | | | | | | | or more. |

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

Data Packing Parameters

| ✓ | ✓ | ✓ | √ | | | ✓ | | Packing length |
|------|------|-------|------|------|--------|---------|-----|--|
| de | de | de | de | de | de | de | de | Setting Options: 0 to 1024 |
| Mode | Mode | Mode | Mode | Mode | Mode | Mode | Moe | Default: 0 |
| COM | ver | lient | UDP | net | ion | RFC2217 | ЬРР | Description: Controls data packing by the amount of data received. |
| | Ser | Cli | | Teln | onnect | C22 | | Serial data accumulates in the device port's buffer until it reaches the |
| Real | | СР | | se | uu | RF | | specified length. When the specified amount of data has accumulated |
| Ľ. | тср | Ĕ | | /ers | ပိ | | | in the buffer, the data is packed for network transmission. A setting of |
| | | | | Rev | Pair | | | 0 means that data will not be packed until the buffer is full. 0 is the |
| | | | | | Ч | | | recommended setting, unless your application has a specific need to |
| | | | | | | | | limit packet sizes or improve response times. |

| ✓ | ✓ | ~ | ~ | | | ✓ | | Delimiter 1 and 2 |
|------|--------|--------|------|---------|------------|---------|------|--|
| de | de | de | de | de | de | de | de | Setting Options: Enable, 0 to FF |
| Mode | Mode | Mode | Mode | Mode | Mode | Mode | Mode | Default: Disable |
| COM | Server | Client | UDP | elnet | Connection | RFC2217 | ррр | Description: Controls data packing using special delimiter character(s). |
| Real | Se | | | F | nec | EC. | | Serial data accumulates in the device port's buffer until the delimiter |
| Re | тср | тср | | Reverse | no | 2 | | character(s) are received, after which the data is packed for network |
| | - | - | | eve | air C | | | transmission. If only one delimiter character is needed, be sure to |
| | | | | Å | Ра | | | enable Delimiter 1 only. If both Delimiter 1 and 2 are enabled, both |
| | | | | | | | | characters must be received in sequence for data packing to occur. For |
| | | | | | | | | example, the carriage return character could be used as a delimiter in |
| | | | | | | | | order to transmit each sentence or paragraph in a separate packet. |
| | | | | | | | | Data is packed according to the Delimiter process parameter. |
| | | | | | | | | Delimiters must be incorporated into the data stream at the software or |
| | | | | | | | | device level. |



ATTENTION

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

| ✓ | ✓ | ✓ | ✓ | | | ✓ | | Delimiter process |
|---------------|-----------------|-----------------|----------|---------------------|----------------------|--------------|----------|--|
| Real COM Mode | TCP Server Mode | TCP Client Mode | UDP Mode | Reverse Telnet Mode | Pair Connection Mode | RFC2217 Mode | PPP Mode | Setting Options: Do Nothing, Delimiter + 1, Delimiter + 2, Strip Delimiter Default: Do Nothing Description: Controls how data is packed when delimiter characters are received. Note that this field has no effect if delimiters are not enabled (see Delimiters 1 and 2). "Do nothing" will pack the accumulated data including delimiters. "Delimiter + 1" will wait for an additional character before packing the accumulated data. "Delimiter + 2" will wait for two additional characters before packing the accumulated data. "Strip Delimiter" will pack the accumulated data but will not include the delimiter characters in the packet. |

| ✓ | ~ | ✓ | ✓ | | | ✓ | | Force transmit |
|---------------|-----------------|-----------------|----------|---------------------|----------------------|--------------|----------|---|
| Real COM Mode | TCP Server Mode | TCP Client Mode | abom qau | Reverse Telnet Mode | Pair Connection Mode | RFC2217 Mode | abom qqq | Setting Options: 0 to 65535 ms Default: 0 ms Description: Controls data packing by the amount of time that elapses between bits of data. As serial data is received, it accumulates in the device port's buffer. If serial data is not received for the specified amount of time, the data that is currently in the buffer is packed for network transmission. A setting of 0 means that data in the buffer will not be automatically packed when additional data is not received from the device. When using this field, make sure Inactivity time is disabled or set to a larger value. Otherwise, the connection may be closed before the data in the buffer can be transmitted. |

Other Parameters

| | ✓ | | | ✓ | ✓ | | | Local TCP port |
|---------------|-----------------|-----------------|----------|---------------------|----------------------|--------------|----------|---|
| Real COM Mode | TCP Server Mode | TCP Client Mode | UDP Mode | Reverse Telnet Mode | Pair Connection Mode | RFC2217 Mode | PPP Mode | Setting Options: 1 to 65535 Default: 4001 for port 1, 4002 for port 2, etc. Description: Specifies the TCP port number for communicating with the attached device. Socket applications will need to use this port number to refer to the device. For Pair Connection modes, this field specifies the slave's port number, and the same value must be used for the master's Destination IP parameter. |
| [] | | 1 | 1 | 1 | 1 | | | |
| | ✓ | | | | | | | Command port |
| Real COM Mode | TCP Server Mode | TCP Client Mode | UDP Mode | Reverse Telnet Mode | Pair Connection Mode | RFC2217 Mode | aboM qqq | Setting Options: 1 to 65535 Default: 966 Description: Specifies the TCP port number for Moxa IP-Serial Library commands. You do not need to reference this port number in your application when using the Moxa IP-Serial Library, since the library automatically obtains the number from the device server. Only change this setting if there is a port number conflict with another application or device. |
| | | | | | | | | |
| | | | | | ✓ | | ✓ | Destination IP address |
| Real COM Mode | TCP Server Mode | TCP Client Mode | UDP Mode | Reverse Telnet Mode | Pair Connection Mode | RFC2217 Mode | PPP Mode | Setting Options: N/A Default: none Description: Specifies the IP address for the slave end of a pair connection. |
| | | | | | | | | |
| | | ✓ | ✓ | | | | | Destination IP address 1 through 4 |
| A Mode | r Mode | t Mode | o Mode | t Mode | Mode r | 7 Mode | Mode | Setting Options: N/A Default: none |

| de | de | de | qe | qe | qe | - Be | e e | Setting Options: N/A |
|------------|--------------|--------------|-------|------------------|-----------------|---------|-------|---|
| Mode | Moe | Mod | Mod | Mod | Moe | Mo | Mode | Default: none |
| Real COM I | TCP Server I | TCP Client I | I dan | Reverse Telnet I | Pair Connection | RFC2217 | l ddd | Description: Specifies the network host(s) that will access the device. Serial data will be transmitted to every address listed, and network data will be sent to the device on a first-in-first-out basis. |
| | | | | | | | | |

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

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

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

Web Console

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

| | Operating mode al COM Mode al COM Mode | 0 TCP Max 0 TCP | okina | able) 0 (Disab e: 7 1 | | elimiter process othing | Force transmit | |
|---------------------------|--|-----------------------------|--|--|------------------|----------------------------|-------------------|--------------|
| 1 Rea | al COM Mode | 0 TCP Max 0 TCP | alive check tim connection: | able) 0 (Disab e: 7 1 | | | | |
| 2 Rea | | TCP Max 0 D TCP | alive check tim connection: 0 (Dis | e: 7 1 | le) Do N | othing | 0 | |
| 2 Rea | | Max 0 0 TCP | connection: | 1 | | | | |
| | al COM Mode | TCP | 1 . | able) 0 (Disab | | | | |
| | al COM Mode | | alling all and the | | le) Do N | othing | 0 | |
| /eb Int | | A dames - | alive check tim connection: | e: 7 1 | | | | |
| Overview | | Port | • Operating Mode | on Modes | Delimiter 1 | Delimiter 2 | Delimiter Process | Force Transm |
| Quick Setu | | | | 0 | 0 (Disable) | 0 (Disable) | Do Nothing | 0 |
| Basic Setti Network Se | iettings | 1 | RealCOM | TCP alive check time Max connection: | 7 | | | |
| - Serial Sel Port 1 | aungs | 2 | RealCOM | 0 TCP alive check time Max connection: | 0 (Disable) 7 | 0 (Disable) | Do Nothing | 0 |
| Port 2 | | | | 0 | 0 (Disable) | 0 (Disable) | Do Nothing | |
| Port 3 | | | | | | | Do Nothing | 0 |
| | g Settings | 3 | RealCOM | TCP alive check time Max connection: | : 7 1 | | Do Nothing | 0 |

Real COM Mode

| rview | | |
|---|--------------------------|--|
| ic Settings | | Port=01 |
| norn occurigo | Operation mode | Real COM Mode |
| A MARKET AND A MARKET A | TCP alive check time | 7(0 - 99 min) |
| rating Settings ort 1 | Max connection | 1 🗙 |
| | Ignore jammed IP | No Yes |
| ort 3 | Allow driver control | No Yes |
| ort 4 | | Data Packing |
| essible IP Settings Warning Settings | Packing length | 0 (0 - 1024) |
| itor | Delimiter 1 | 0 (Hex) Enable |
| 2.2.1.2 | Delimiter 2 | 0 (Hex) Enable |
| | Delimiter process | Do Nothing Y (Processed only when Packing length is 0) |
| e/Restart | Force transmit | 0 (0 - 65535 ms) |
| | Apply the above settings | to all serial ports |
| | | Submit |
| | | |
| | | |

| • Operation Mo | des | | | | |
|--------------------------------|-------------------|-----------------------|-------------------|------|--|
| Port 1 | | | | | |
| Operation mode | RealCOM | \$ | | | |
| TCP alive check time | 7 (0 - 99 min) | | | | |
| Max connection | 1 🛊 | | | | |
| Ignore jammed IP | No Yes | | | | |
| Allow driver control | No Yes | | | | |
| Data Packing Packing length | 0 (0 - 1024) | | | | |
| Delimiter 1 | 00 (Hex) C Enable | I. | | | |
| Delimiter 2 | 00 (Hex) Enable | I. | | | |
| Delimiter process | Do Nothing \$ (Pr | ocessed only when pac | king length is 0) | | |
| Force transmit | 0 (0 - 65535 ms |) | | | |
| Apply the above settings to | ✓ P1 All ports | □ P2 | □ P3 | □ P4 | |

| Parameter | Setting | Factory | Description | Necessity |
|------------|-------------|---------|--|-----------|
| | | Default | | |
| TCP Alive | 0 to 99 min | 7 min | 0 min: TCP connection is not closed due to an | Optional |
| Check Time | | | idle TCP connection. | |
| | | | 1 to 99 min: The NPort automatically closes | |
| | | | the TCP connection if there is no TCP activity | |
| | | | for the given time. After the connection is | |
| | | | closed, the NPort starts listening for another | |
| | | | Real COM driver connection. | |
| Max | 1, 2, 3, 4 | 1 | Max connection is set to 2, 3, or 4 when the | Required |
| Connection | | | user needs to receive data from different hosts | |
| | | | simultaneously. The factory default only allows | |
| | | | 1 connection at a same. When Max Connection | |
| | | | is set to 1, the Real COM driver on the specific | |
| | | | host has full control. | |
| | | | Max. Connection 1: Allows only 1 host's Real | |
| | | | COM driver to open the specific NPort serial | |
| | | | port. | |
| | | | Max Connection 2 to 4: Allows 2 to 4 host's | |
| | | | Real COM drivers to open the specific NPort | |
| | | | serial port, at the same time. When multiple | |
| | | | hosts' Real COM drivers open the serial port at | |
| | | | the same time, the COM driver only provides a | |
| | | | pure data tunnel without control ability. That is, | |
| | | | this serial port parameter will use the | |
| | | | firmware's settings, not the settings of your | |
| | | | application program (AP). | |
| | | | Application software that is based on the COM | |
| | | | driver will receive a driver response of | |
| | | | "success" when the software uses any of the | |
| | | | Win32 API functions. The firmware will only | |
| | | | send the data back to the driver on the host. | |
| | | | Data will be sent first-in-first-out when data | |

| | | | comes into the NPort from the Ethernet | |
|----------------|-----------|------|---|----------|
| | | | interface. | |
| Ignore | No or Yes | No | No: When Max connections > 1, and the serial | Optional |
| jammed IP | | | device is transmitting data, if any one of the | |
| | | | connected hosts is not responding, it will wait | |
| | | | until the data has been transmitted successfully | |
| | | | before transmitting the second group of data to | |
| | | | all hosts. | |
| | | | Yes: If you select Yes for "Ignore jammed IP," | |
| | | | the host that is not responding will be ignored, | |
| | | | but the data will still be transmitted to the | |
| | | | other hosts. | |
| Packing length | 0 to 1024 | 0 | 0: The Delimiter Process will be followed, | Optional |
| | | | regardless of the length of the data packet. | |
| | | | Greater than 0: If the data length (in bytes) | |
| | | | matches the configured value, the data will be | |
| | | | forced out. | |
| Delimiter 1 | 00 to FF | None | Once the NPort receives both delimiters | Optional |
| | | | through its serial port, it immediately packs all | |
| Delimiter 2 | 00 to FF | None | data currently in its buffer and sends it to the | Optional |
| | | | NPort's Ethernet port. | |

| Parameter | Setting | Factory | Description | Necessity |
|-----------|-----------------|---------|--|-----------|
| | | Default | | _ |
| Delimiter | Do nothing, | Do | [Delimiter + 1] or [Delimiter + 2]: The data | Optional |
| process | Delimiter + 1, | nothing | will be transmitted when an additional byte (for | |
| | Delimiter + 2, | | Delimiter +1), or an additional 2 bytes (for | |
| | Strip Delimiter | | Delimiter +2) of data is received after receiving | |
| | | | the Delimiter. | |
| | | | [Strip Delimiter]: When the Delimiter is | |
| | | | received, the Delimiter is deleted (i.e., | |
| | | | stripped), and the remaining data is | |
| | | | transmitted. | |
| | | | [Do nothing]: The data will be transmitted | |
| | | | when the Delimiter is received. | |
| Force | 0 to 65535 ms | 0 ms | 0: Disable the force transmit timeout. | Optional |
| Transmit | | | 1 to 65535: Forces the NPort's TCP/IP protocol | |
| | | | software to try to pack serial data received | |
| | | | during the specified time into the same data | |
| | | | frame. | |
| | | | This parameter defines the time interval during | |
| | | | which the NPort fetches the serial data from its | |
| | | | internal buffer. If data is incoming through the | |
| | | | serial port, the NPort stores the data in the | |
| | | | internal buffer. The NPort transmits data stored | |
| | | | in the buffer via TCP/IP, but only if the internal | |
| | | | buffer is full or if the force transmit time | |
| | | | interval reaches the time specified under Force | |
| | | | Transmit timeout. | |



ATTENTION

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

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

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

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

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

RFC2217 Mode

| Main Menu | Operating Settings | |
|--|----------------------|--|
| Overview Basic Settings | | Port 1 |
| Network Settings | Operation mode | RFC 2217 Mode |
| Serial Settings | TCP alive check time | 7 (0 - 99 min) |
| Operating Settings | | Data Packing |
| Port 1 | Packing length | 0 (0 - 1024) |
| Port 2 | Delimiter 1 | 0 (Hex) Enable |
| Port 4 | Delimiter 2 | (Hex) Enable |
| Dort 5 | | |
| Dort 6 | Delimiter process | (Processed only man rocking length is of |
| Port 7 | Force transmit | 0 (0 - 65535 ms) |
| Accessible IP Settings | Apply the above sett | ings to all serial ports |
| Accessible IP Settings PPP User Table Settings | | Submit |
| Auto Warning Settings | | Summ |
| Monitor | | |
| 📔 Change Password | | |
| Load Factory Default | | |
| Save/Restart | | |

| b Interface for the | Overall I | NPort 5000 | Series | |
|--|---|--------------------|------------------------|------|
| • Operation M | lodes | | | |
| Port 1 | | | | |
| Operation mode TCP alive check time Local TCP port | RFC2217 7 (0 - 99 min 4001 | ¢) | | |
| Data Packing | | | | |
| Packing length | 0 (0 - 102 | 4) | | |
| Delimiter 1 | 00 (Hex) | Enable | | |
| Delimiter 2 | 00 (Hex) | Enable | | |
| Delimiter process | Do Nothing | (Processed only v) | when packing length is | s 0) |
| Force transmit | 0 (0 - 65 | 535 ms) | | |
| Apply the above settings to | P1 All ports | P2 | □ P3 | P4 |
| Submit | | | | |
| | | | | |

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

| Force | 0 to 65535 ms | 0 ms | 0: Disable the force transmit timeout. | Optional |
|----------|---------------|------|--|----------|
| Transmit | | | 1 to 65535: Forces the NPort's TCP/IP protocol | |
| | | | software to try to pack serial data received | |
| | | | during the specified time into the same data | |
| | | | frame. | |
| | | | This parameter defines the time interval during | |
| | | | which the NPort fetches the serial data from its | |
| | | | internal buffer. If data is incoming through the | |
| | | | serial port, the NPort stores the data in the | |
| | | | internal buffer. The NPort transmits data stored | |
| | | | in the buffer via TCP/IP, but only if the internal | |
| | | | buffer is full or if the force transmit time | |
| | | | interval reaches the time specified under Force | |
| | | | Transmit timeout. | |

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

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

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

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

| Web Interface for | the NPort 5100, 5 | 5200, and IA5000 Series Only |
|--|---|--|
| ΜΟΧΛ | www.mo | xa.com |
| Main Menu Overview Basic Settings Network Settings Serial Settings Operating Settings Port 1 Port 2 Port 3 Port 4 Accessible IP Settings Monitor Change Password Load Factory Default Save/Restart | Operating Settings Operation mode TCP alive check time Inactivity time Max connection Ignore jammed IP Allow driver control Packing length Delimiter 1 Delimiter 2 Delimiter 2 Delimiter process Force transmit Local TCP port Command port | Port=01 TCP Server Mode Image: Colspan="2">Image: Colspan="2" Image: Cols |
| | | Submit |

TCP Server Mode

| • Operation N | lodes |
|-----------------------------|--|
| Port 1 | |
| Operation mode | TCP Server |
| TCP alive check time | 7 (0 - 99 min) |
| Inactivity time | 0 (0 - 65535 ms) |
| Max connection | 1¢ |
| Ignore jammed IP | ⊙ No ◯ Yes |
| Allow driver control | ⊙ No ◯ Yes |
| Local TCP port | 4001 |
| Command port | 966 |
| Data Packing | |
| Packing length | 0 (0 - 1024) |
| Delimiter 1 | 00 (Hex) Enable |
| Delimiter 2 | 00 (Hex) Enable |
| Delimiter process | Do Nothing (Processed only when packing length is 0) |
| Force transmit | 0 (0 - 65535 ms) |
| Apply the above settings to | P1 P2 P3 P4 All ports |

| Parameter | Setting | Factory | Description | Necessity |
|------------|---------------|---------|--|-----------|
| | | Default | | |
| TCP Alive | 0 to 99 min | 7 min | 0 min: TCP connection is not closed due to an | Optional |
| Check Time | | | idle TCP connection. | |
| | | | 1 to 99 min: The NPort automatically closes | |
| | | | the TCP connection if there is no TCP activity | |
| | | | for the given time. After the connection is | |
| | | | closed, the NPort starts listening for another | |
| | | | Real COM driver connection. | |
| Inactivity | 0 to 65535 ms | 0 ms | 0 ms: TCP connection is not closed due to an | Optional |
| Time | | | idle serial line. | |
| | | | 0-65535 ms: The NPort automatically closes | |
| | | | the TCP connection if there is no serial data | |
| | | | activity for the given time. After the connection | |
| | | | is closed, the NPort starts listening for another | |
| | | | TCP connection. | |
| | | | This parameter determines when the TCP | |
| | | | connection is in Closed or Listen status. The | |
| | | | connection is closed if there is no incoming or | |
| | | | outgoing data through the serial port during the | |
| | | | specific Inactivity time. | |
| | | | If the inactivity time is set to 0, the current TCP | |
| | | | connection is maintained until there is a | |
| | | | connection close request. Although inactivity | |
| | | | time is disabled, the NPort will check the | |
| | | | connection status between the NPort and | |
| | | | remote host by sending "keep alive" packets | |
| | | | periodically. If the remote host does not | |
| | | | respond to the packet, it assumes that the | |
| | | | connection was closed down unintentionally. | |

| Parameter | Setting | Factory | Description | Necessity |
|----------------|------------|---------|--|-----------|
| | | Default | | |
| | | | The NPort will then force the existing TCP | |
| | | | connection to close. | |
| Max | 1, 2, 3, 4 | 1 | Max connection is set to 2, 3, or 4 when the | Required |
| Connection | | | user needs to receive data from different hosts | |
| | | | simultaneously. The factory default only allows | |
| | | | 1 connection at a same. When Max Connection | |
| | | | is set to 1, the Real COM driver on the specific | |
| | | | host has full control. | |
| | | | Max. Connection 1: Allows only 1 host's Real | |
| | | | COM driver to open the specific NPort serial | |
| | | | port. | |
| | | | Max Connection 2 to 4: Allows 2 to 4 host's | |
| | | | Real COM drivers to open the specific NPort | |
| | | | serial port, at the same time. When multiple | |
| | | | hosts' Real COM drivers open the serial port at | |
| | | | the same time, the COM driver only provides a | |
| | | | pure data tunnel without control ability. That is, | |
| | | | this serial port parameter will use firmware's | |
| | | | settings, not the settings of your application | |
| | | | program (AP). | |
| | | | Application software that is based on the COM | |
| | | | driver will receive a driver response of | |
| | | | "success" when the software uses any of the | |
| | | | Win32 API functions. The firmware will only | |
| | | | send the data back to the driver on the host. | |
| | | | Data will be sent first-in-first-out when data | |
| | | | comes into the NPort from the Ethernet | |
| | | | interface. | |
| Ignore | No or Yes | No | No: When Max connections > 1, and the serial | Optional |
| jammed IP | | | device is transmitting data, if any one of the | |
| | | | connected hosts is not responding, it will wait | |
| | | | until the data has been transmitted successfully | |
| | | | before transmitting the second group of data to | |
| | | | all hosts. | |
| | | | Yes: If you select Yes for "Ignore jammed IP," | |
| | | | the host that is not responding will be ignored, | |
| | | | but the data will still be transmitted to the | |
| | | | other hosts. | |
| Allow Driver | No or Yes | No | If "max connection" is greater than 1, the NPort | Optional |
| Control | | | will ignore driver control commands from all | |
| | | | connected hosts. However, if you set "Allow | |
| | | | driver control" to Yes, control commands will be | |
| | | | accepted. Note that since the NPort may get | |
| | | 1 | | |
| | | | configuration changes from multiple hosts, the | |
| | | | configuration changes from multiple hosts, the most recent command received will take | |
| | | | most recent command received will take | |
| Packina lenath | 0 to 1024 | 0 | most recent command received will take precedence. | Optional |
| Packing length | 0 to 1024 | 0 | most recent command received will take precedence. 0: The Delimiter Process will be followed, | Optional |
| Packing length | 0 to 1024 | 0 | most recent command received will take precedence.0: The Delimiter Process will be followed, regardless of the length of the data packet. | Optional |
| Packing length | 0 to 1024 | 0 | most recent command received will take precedence.0: The Delimiter Process will be followed, regardless of the length of the data packet.Greater than 0: If the data length (in bytes) | Optional |
| Packing length | 0 to 1024 | 0 | most recent command received will take precedence.0: The Delimiter Process will be followed, regardless of the length of the data packet. | Optional |

| Parameter | Setting | Factory | Description | Necessity |
|----------------|-----------------|---------|--|-----------|
| | | Default | | |
| Delimiter 2 | 00 to FF | None | Once the NPort receives both delimiters | Optional |
| | | | through its serial port, it immediately packs all | |
| | | | data currently in its buffer and sends it to the | |
| | | | NPort's Ethernet port. | |
| Delimiter | Do nothing, | Do | [Delimiter + 1] or [Delimiter + 2]: The data | Optional |
| process | Delimiter + 1, | nothing | will be transmitted when an additional byte (for | |
| | Delimiter + 2, | | Delimiter +1), or an additional 2 bytes (for | |
| | Strip Delimiter | | Delimiter +2) of data is received after receiving | |
| | | | the Delimiter. | |
| | | | [Strip Delimiter]: When the Delimiter is | |
| | | | received, the Delimiter is deleted (i.e., | |
| | | | stripped), and the remaining data is | |
| | | | transmitted. | |
| | | | [Do nothing]: The data will be transmitted | |
| | | | when the Delimiter is received. | |
| Force | 0 to 65535 ms | 0 ms | 0: Disable the force transmit timeout. | Optional |
| Transmit | | | 1 to 65535: Forces the NPort's TCP/IP protocol | |
| | | | software to try to pack serial data received | |
| | | | during the specified time into the same data | |
| | | | frame. | |
| | | | This parameter defines the time interval during | |
| | | | which the NPort fetches the serial data from its | |
| | | | internal buffer. If data is incoming through the | |
| | | | serial port, the NPort stores the data in the | |
| | | | internal buffer. The NPort transmits data stored | |
| | | | in the buffer via TCP/IP, but only if the internal | |
| | | | buffer is full or if the force transmit time | |
| | | | interval reaches the time specified under Force | |
| | | | Transmit timeout. | |
| Local TCP port | 1 to 65535 | 4001 | The TCP port that the NPort uses to listen to | Required |
| | | | connections, and that other devices must use | |
| | | | to contact NPort. To avoid conflicts with well- | |
| | | | known TCP ports, the default is set to 4001. | |
| Command | 1 to 65535 | 966 | The command port is a listen TCP port for IP- | Optional |
| port | | | Serial Lib commands from the host. In order to | |
| | | | prevent a TCP port conflict with other | |
| | | | applications, the user can adjust the command | |
| | | | port to another port if needed. | |



ATTENTION

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



ATTENTION

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

TCP Client Mode

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

| Interface for the • Operation M | Overall NPort 5000 Series | 5 | | |
|------------------------------------|---|-----------------|------|--|
| Port 1 | | | | |
| Operation mode | TCP Client | | | |
| TCP alive check time | 7 (0 - 99 min) | | | |
| Inactivity time | 0 (0 - 65535 ms) | | | |
| Ignore jammed IP | 💿 No 🔵 Yes | | | |
| Destination IP address 1 | | Port 400 | 1 | |
| Destination IP address 2 | | Port 400 | 1 | |
| Destination IP address 3 | | Port 400 | 1 | |
| Destination IP address 4 | | Port 400 | 1 | |
| Designated local port 1 | 5011 | | | |
| Designated local port 2 | 5012 | | | |
| Designated local port 3 | 5013 | | | |
| Designated local port 4 | 5014 | | | |
| Connection control | Startup/None | | | |
| Data Packing | | | | |
| Packing length | 0 (0 - 1024) | | | |
| Delimiter 1 | 00 (Hex) 🗌 Enable | | | |
| Delimiter 2 | 00 (Hex) Enable | | | |
| Delimiter process | Do Nothing \$ (Processed only when packing | ig length is 0) | 1 | |
| Force transmit | 0 (0 - 65535 ms) | | | |
| Apply the above settings to | ✓ P1 → P2 → All ports | P3 | 🗆 P4 | |

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

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

| Parameter | Setting | Factory Default | Description | Necessity |
|----------------|----------------|--------------------|---|-----------|
| | | | in the buffer via TCP/IP, but only if the internal | |
| | | | buffer is full or if the force transmit time interval | |
| | | | reaches the time specified under Force Transmit | |
| | | | timeout. | |
| Destination IP | IP address or | None | Allows the NPort to connect actively to the | Required |
| address 1 | Domain Name | | remote host (up to 4 hosts) whose IP address is | |
| | (E.g., | | set by this parameter. | |
| Destination (D | 192.168.1.1) | | The "Destination IP address" parameter can use | |
| Destination IP | | | either IP address or Domain Name. For some | |
| address 2/3/4 | | | applications, the user may need to send the | |
| | | | data actively to the remote destination domain | |
| | | | name. | |
| Designated | TCP Port No. | 5011 (Port | N/A | Required |
| Local Port | | 1) | | |
| 1/2/3/4 | | 5012 (Port | | |
| | | 2) | | |
| | | 5013 (Port | | |
| | | 3) | | |
| | | 5014 (Port | | |
| | | 4) | | |
| Connection | Startup/None, | Startup/Non | The meaning of each of the above settings is | Required |
| control | Any Character/ | е | given in the table below. In general, both the | |
| | None, | | Connect condition and Disconnect condition are | |
| | Any Character/ | | given. | |
| | Inactivity | | | |
| | Time, | | | |
| | DSR ON/ | | | |
| | DSR OFF, | | | |
| | DSR ON/None, | | | |
| | DCD ON/ | | | |
| | DCD OFF, | | | |
| | DCD ON/None | | | |

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



ATTENTION

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

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

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



ATTENTION

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

UDP Mode

| Web Interface for | the NPort 5100, 5200 | D, and IA5000 Series Only |
|---|--|--|
| ΜΟΧΛ | www.moxa | .com |
| Main Menu Overview Basic Settings Serial Settings Serial Settings Port 1 Port 2 Port 3 Port 4 | Operating Settings Operation mode Packing length Delimiter 1 Delimiter 2 | Port=01 UDP Mode Data Packing 0 (0 - 1024) 0 (Hex) Enable 0 (Hex) Enable |
| Accessible IP Settings Auto Warning Settings Monitor Change Password | Delimiter process Force transmit | Do Nothing ✓ (Processed only when Packing length is 0) 0 (0 - 65535 ms) UDP Mode Begin End |
| Load Factory Default Save/Restart | Destination IP address 1 Destination IP address 2 Destination IP address 3 Destination IP address 4 | |
| | Local Listen port | 4001 erial ports (Local listen port will be enumerated automatically). Submit |

| • Operation N | lodes | | | | | |
|-----------------------------|---------------------|----------------|-------------------------|-----------|---|--|
| Port 1 | | | | | | |
| Operation mode | UDP | \$ | | | | |
| | Begin | End | Port | | | |
| Destination IP address 1 | | | : 4001 | | | |
| Destination IP address 2 | | | : 4001 | | | |
| Destination IP address 3 | | | : 4001 | | | |
| Destination IP address 4 | | | : 4001 | | | |
| Local listen port | 4001 | | | | | |
| Data Packing | | | | | _ | |
| Packing length | 0 (0 - 1024) | | | | | |
| Delimiter 1 | 00 (Hex) Enable | | | | | |
| Delimiter 2 | 00 (Hex) Enable | | | | | |
| Delimiter process | Do Nothing \$ (Prod | essed only whe | en packing length is 0) | | | |
| Force transmit | 0 (0 - 65535 ms) | | | | | |
| | ✓ P1 | P2 | P3 | P4 | | |
| Apply the above settings to | All ports | | | | | |

| Parameter | Setting | Factory | Description | Necessity |
|----------------|-----------------|------------|--|-----------|
| | | Default | | |
| Packing length | 0 to 1024 | 0 | 0: The Delimiter Process will be followed, | Optional |
| | | | regardless of the length of the data packet. | |
| | | | Greater than 0: If the data length (in bytes) | |
| | | | matches the configured value, the data will | |
| | | | be forced out. | |
| Delimiter 1 | 00 to FF | None | Once the NPort receives both delimiters | Optional |
| | | | through its serial port, it immediately packs | |
| Delimiter 2 | 00 to FF | None | all data currently in its buffer and sends it to | Optional |
| | | | the NPort's Ethernet port. | |
| Delimiter | Do nothing, | Do nothing | [Delimiter + 1] or [Delimiter + 2]: The | Optional |
| process | Delimiter + 1, | | data will be transmitted when an additional | |
| - | Delimiter + 2, | | byte (for Delimiter +1), or an additional 2 | |
| | Strip Delimiter | | bytes (for Delimiter +2) of data is received | |
| | | | after receiving the Delimiter. | |
| | | | [Strip Delimiter]: When the Delimiter is | |
| | | | received, the Delimiter is deleted (i.e., | |
| | | | stripped), and the remaining data is | |
| | | | transmitted. | |
| | | | [Do nothing]: The data will be transmitted | |
| | | | when the Delimiter is received. | |
| Force | 0 to 65535 ms | 0 ms | 0: Disable the force transmit timeout. | Optional |
| Transmit | | | 1 to 65535: Forces the NPort's TCP/IP | |
| | | | protocol software to try to pack serial data | |
| | | | received during the specified time into the | |
| | | | same data frame. | |
| | | | This parameter defines the time interval | |
| | | | during which the NPort fetches the serial data | |
| | | | from its internal buffer. If data is incoming | |

| Parameter | Setting | Factory | Description | Necessity |
|----------------|--------------|--------------|---|-----------|
| | | Default | | |
| | | | through the serial port, the NPort stores the | |
| | | | data in the internal buffer. The NPort | |
| | | | transmits data stored in the buffer via TCP/IP, | |
| | | | but only if the internal buffer is full or if the | |
| | | | force transmit time interval reaches the time | |
| | | | specified under Force Transmit timeout. | |
| Destination IP | IP address | Begin: Empty | N/A | Required |
| address 1 | range | End: Empty | | |
| Destination IP | E.g., Begin: | Port: 4001 | N/A | Optional |
| address 2/3/4 | 192.168.1.1 | | | |
| | End: | | | |
| | 192.168.1.10 | | | |
| Local listen | 1 to 65535 | 4001 | The UDP port that the NPort listens to, and | Required |
| port | | | that other devices must use to contact the | |
| | | | NPort. To avoid conflicts with well-known UDP | |
| | | | ports, the default is set to 4001. | |

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

UDP Multicast

A multicast is a packet sent by one host to multiple hosts. In multicast mode, each host that belongs to a specific multicast group will receive multicast packets for that group. For a host to be configured as a multicast receiver over the Internet, the must inform the routers on its LAN. The Internet Group Management Protocol (IGMP) is used to communicate group membership information between hosts and routers on a LAN. The NPort 5000 Series supports IGMP version 2. The NPort 5100, NPort 5200, IA5000 Series do not support IGMP function.

| Operation mode | UDP | \$ | | | |
|---|---|-----------------------------|-----------------|-------------|------|
| | Begin | End | | Port | |
| Destination IP address 1 | 239.1.1.1 | | : | 4001 | |
| Destination IP address 2 | | | : | 4001 | |
| Destination IP address 3 | | | : | 4001 | |
| Destination IP address 4 | | | : | 4001 | |
| Local listen port | 4001 | | | | |
| Data Packing | | | | | |
| Data Packing | | | | | |
| Data Packing Packing length | 0 (0 - 1024) | | | | |
| Data Packing Packing length | 0 (0 - 1024) | able | | | |
| Data Packing Packing length Delimiter 1 | 0 (0 - 1024) 00 (Hex) En | able | | | |
| Data Packing Packing length Delimiter 1 Delimiter 2 | 0 (0 - 1024) 00 (Hex) En 00 (Hex) En | | vhen packing le | ength is 0) | |
| Data Packing Packing length Delimiter 1 Delimiter 2 Delimiter process | 0 (0 - 1024) 00 (Hex) En 00 (Hex) En | able) (Processed only v | when packing le | ength is 0) | |
| | 0 (0 - 1024) 00 (Hex) En 00 (Hex) En Do Nothing \$ | able) (Processed only v | vhen packing le | ength is 0) | _ P4 |

:•Operation Modes

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

Pair Connection Mode

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

Pair Connection Master Mode

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

| Web Interface for | the NPort 5100, 520 | 00, and IA5000 Series (| Only | | | |
|---|-------------------------|-------------------------------|--------|--|--|--|
| MOX/ | www.moxa | a.com | | | | |
| Main Menu Overview | Operating Settings | | | | | |
| Basic Settings | | Port=1 | | | | |
| Network Settings Serial Settings | Operation mode | Pair Connection Master Mode 💌 | | | | |
| Coperating Settings | TCP alive check time | 7 (0 - 99 min) | | | | |
| Port 1 | Destination IP address | 192.168.1.1 | : 4001 | | | |
| Accessible IP Setting | Apply the above setting | is to all serial ports | | | | |
| Auto Warning Setting | 9 | | | | | |
| Monitor Change Password | | Submit | | | | |
| Load Factory Default | | | | | | |

| • Operation M | lodes | | | | |
|-----------------------------|----------------|-------------|---------|------|--|
| Port 1 | | | | | |
| Operation mode | Pair Connectio | on Master 🛊 | | | |
| TCP alive check time | 7 (0 - 99 mir | 1) | | | |
| Destination IP address | | | Port 40 | 001 | |
| Apply the above settings to | ✓ P1 All ports | P2 | P3 | _ P4 | |

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

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

Pair Connection Slave Mode

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

| Web Interface for | r the NPort 5100, 5200, and IA5000 Series Only | |
|----------------------------------|--|--|
| MOX/ | www.moxa.com | |
| Main Menu | Operating Settings | |
| Basic Settings | Port=1 | |
| Network Settings Serial Settings | Operation mode Pair Connection Slave Mode - | |
| G Operating Settings | TCP alive check time 7 (0 - 99 min) | |
| Port 1 | Local TCP port 4001 | |
| 🗀 Accessible IP Setting | Apply the above settings to all serial ports | |
| Auto Warning Setting Monitor | | |
| 🗀 Change Password | Submit | |

| Web Interface for the Overall NPort 5000 Series |
|---|
| |
| Operation Modes |

| Operation mode | Pair Connection | Slave 🛊 | | | |
|-----------------------------|-------------------------------|---------|------|------|--|
| TCP alive check time | 7 (0 - 99 min) | | | | |
| Local TCP port | 4001 | | | | |
| Apply the above settings to | ✓ P1 | P2 | □ P3 | □ P4 | |
| Apply the above settings to | All ports | | | | |

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

Ethernet Modem Mode (for the NPort IA5000/IA5000A, NPort

5000A, NPort 5000AI-M12, NPort 5100 Series only)

| MOXA | www.moxa. | om | | | |
|---|--|----------------------------------|---|--|--|
| I Main Menu | Operating Settings | | | | |
| Overview Basic Settings | | Port=01 | | | |
| Network Settings | Operation mode | Ethernet Moder 💌 | | | |
| Serial Settings | TCP alive check time | 7 (0 - 99 min) | | | |
| Operating Settings Port 1 | Local TCP Port | 4001 | | | |
| Accessible IP Settings Auto Warning Settings | Accessible IP Settings Auto Warning Settings Submit | | | | |
| | | | | | |
| eb Interface for th | e NPort IA5000A, 50 | 000A, and 5000AI-M12 Series Only | , | | |
| eb Interface for th | | 000A, and 5000AI-M12 Series Only | | | |
| | | 000A, and 5000AI-M12 Series Only | | | |
| • Operation I | | 000A, and 5000AI-M12 Series Only | | | |
| • Operation I | Modes | 00A, and 5000AI-M12 Series Only | | | |
| Port 1 | Ethernet Modem | 000A, and 5000AI-M12 Series Only | | | |
| Port 1 Operation mode TCP alive check time | Ethernet Modem \$ 7 (0 - 99 min) 4001 P2 | DOOA, and 5000AI-M12 Series Only | | | |

Dial-in

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

ATS0=0 (default):

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

ATS0≥0:

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

Dial-out

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

Disconnection Request from the Local Site

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

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

Disconnection Request from the Remote Site

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

AT Commands

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

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

S Registers

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

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

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

Reverse Telnet Mode

| Web Interface for | the NPort 5100, 5200, | and IA5000 Series Only |
|-----------------------------------|-----------------------------------|------------------------|
| ΜΟΧΛ | www.moxa | com |
| Main Menu | Operating Settings | |
| Basic Settings | | Port=01 |
| Network Settings | Operation mode | Reverse Telnet Mode |
| 🖲 🧰 Serial Settings | TCP alive check time | 7 (0 - 99 min) |
| Operating Settings Port 1 | Inactivity time | 0 (0 - 65535 ms) |
| Port 2 | Local TCP port | 4001 |
| Port 3 | Map <cr-lf></cr-lf> | CR-LF |
| Port 4 Accessible IP Settings | Apply the above settings to all s | erial ports |
| Auto Warning Settings Monitor | | Submit |

| • Operation M | lodes | | | |
|-----------------------------|------------------|------|------|--|
| Port 1 | | | | |
| Operation mode | Reverse Telnet | | | |
| TCP alive check time | 7 (0 - 99 min) | | | |
| Inactivity time | 0 (0 - 65535 ms) | | | |
| Local TCP port | 4001 | | | |
| Map <cr-lf></cr-lf> | CR-LF \$ | | | |
| Apply the above settings to | P1 P2 All ports | _ P3 | □ P4 | |

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

PPPD Mode

| | | | | | >>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>> |
|--|---|--|------|-------------|--|
| A Main Menu | Operation Modes | | | | |
| Network Configuration | Port 1 | | | | |
| Gerail Port Configuration Port 1 Operation Modes Communication Parameters Data Buffering/Log Modem Settings Operation Port 2 Port 3 Vert Table Vert Table Vystem Configuration Administration Common Settings Change Password Save Configuration | Application Mode Destination IP address Source IP address IP netmask TCP/IP compression Inactivity time Link quality report Username Password Authentication type Try next type on authentication denied Disconnect by Apply the above settings to | Dial in/out PPPD Control Co | = P2 | 8 P3 | = P4 |
| Restart | Submit | | | | |

PPPD (PPP on demand) is used for dial-in services, since it provides PPP services only when receiving a request from a remote PC.

Destination IP address: This is the IP address of the remote dial-in/ dial-out server.

Source IP address: The Source IP address is IP address assigned to this serial port.

IP netmask: The IP netmask defines the netmask, also known as the subnet mask, for the PPP connection

TCP/IP compression (default=Disable): The setting of this field depends on whether the remote user's application requests compression.

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

Link quality report (default=Disable): Setting this field to **Enable** allows the NPort 5000 to disconnect a connection if the link noise exceeds a certain threshold.

Username: This is the dial-out user ID account.

Password: This is the dial-out user password.

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 |
|---------------|--|
| Local | Verify the ID against the NPort 5000 User Table. |
| RADIUS | Verify the ID against the external RADIUS server. |
| RADIUS-Local | Radius authentication is tried first, switching to Local if unsuccessful. |
| Local-RADIUS | Authentication is performed locally first, switching to Radius if unsuccessful |
| TACACS+ | Verify the ID against the external TACACS+ server. |
| TACACS+-Local | TACACS+ authentication is tried first, switching to Local if unsuccessful. |
| Local-TACACS+ | Authentication is performed locally first, switching to Radius if unsuccessful |
| None | Authentication is not required. |

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

Disconnect by (default=None): If this field is set as **DCD-off**, the connection will be disconnected when the DCD signal is off. If this field is set as **DSR-off**, the connection will be disconnected when the DSR signal is off.

Disabled Mode

| MOXA | | moxa. | SO III | | |
|------------------------------------|--------------------|-------------------|----------------|--------|--|
| ain Menu Ol | perating Setting | gs | | | |
| Overview | | | D | ort=01 | |
| Basic Settings Network Settings | peration mode | | Disabled | v | |
| notwork occurrys | Apply the above se | ettinos to all se | rial ports | | |
| Operating Settings | | | and particular | | |
| Port 1 | | | | Submit | |
| | | | | | |
| Interface for th | a Overall NC | lart E000 | Samiaa | | |
| Interface for th | e Overall NF | ort 5000 | Series | | |
| | | Port 5000 | Series | | |
| • Interface for th • Operation | | Port 5000 | Series | | |
| | | Port 5000 | Series | | |
| | | Port 5000 | Series | | |
| • Operation 1 | | Port 5000 | Series | | |
| • Operation | Modes Disable | ¢ | | P4 | |
| • Operation | Disable | | Series | P4 | |

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

Configuring NPort Administrator

The following topics are covered in this chapter:

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

COM Mapping

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

COM Grouping

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

Overview

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



ATTENTION

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

Installing NPort Administrator

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



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

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

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

| 🕞 Setup - NPort Administration Suite |
|---|
| Select Start Menu Folder Where should Setup place the program's shortcuts? |
| Setup will create the program's shortcuts in the following Start Menu folder. |
| NPort Administration Suite Browse |
| |
| |
| < <u>B</u> ack <u>N</u> ext> Cancel |

4. Click Install to proceed with the installation.

| 1 ^[2] Setup - NPort Administration Suite | |
|---|--------|
| Ready to Install Setup is now ready to begin installing NPort Administration Suite on your computer. | |
| Click Install to continue with the installation, or click Back if you want to review or change any settings. | |
| Destination location: C:\Program Files\NPortAdminSuite | |
| Start Menu folder: NPort Administration Suite | |
| | |
| | |
| <u>×</u> | |
| < <u>B</u> ack Install | Cancel |

5. The $\ensuremath{\text{Installing}}$ window reports the progress of the installation.

| 🗊 Setup - NPort Administration Suite | |
|---|--------|
| Installing Please wait while Setup installs NPort Administration Suite on your computer. | |
| Extracting files C:\WINDOWS\system32\nport.dll - | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| l | Cancel |

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

| 🔂 Setup - NPort Administration Suite | |
|--|----------|
| Information Please read the following important information before continuing. | |
| When you are ready to continue with Setup, click Next. | |
| NPort Administration Suite: | <u> </u> |
| 1. Component List 1. Utilities 2. Real Com Mode Support Package 3. IP Serial Lib Package 2. Utilities Provides Configure, Monitor, and COM mapping administration utilities for NPort. 3. Real Com Mode Support Package Provides a misc lib for Real COM management. 4. IP Serial Lib Package Provides a misc lib for Real COM management. | |
| Next > | |

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

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

Configuration

The Administrator-Configuration window is divided into four parts.

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

| Eile Eunction Configuratio | n ⊻iew <u>H</u> e | | | | | | | _ | |
|---|----------------------------|-------------|-------------|------------|-------------|-------------|--------|---|---|
| 👖 🚅 🙎 Exit Search Searc | | E Configure | Meb. | | | | | | |
| Function | Configuration - 0 NPort(s) | | | | | | | | |
| Ornfiguration Ornfiguration Onnitor Port Monitor On Mapping On Address Report | <u>No/</u> | Model | MAC Address | IP Address | IP Address2 | Server Name | Status | | |
| | < | | | | | | | | |
| tessage Log ∘0 Monitor Lo No ITime | g-0 | Le la | | | | | | | _ |
| | | Description | | | | | | | _ |

Broadcast Search

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

1. Position the cursor in the right middle section of the **Administrator** window and then click right-click, or click the **Search** button on the toolbar.

| Exit Search Search | | Configure \ | | Configuration - 0 NPort(s) | | | | | |
|--|------|-------------|-------------------------------------|---------------------------------------|-------------|-------------|--------|--|--|
| NPort Ornito Configuration Monitor Det Monitor Det Monitor Off Mapping Off Mapping Off IP Address Report | No / | Model | MAC Address | IP Address | IP Address2 | Server Name | Status | | |
| | | | | dcast Search ify by IP Address | | | | | |
| | | | 堂 Locs 열 Unio 団 Cont 夏 Web | ck igure | | | | | |
| | | | 🖉 Upgr | ade Firmware | - | | | | |
| | < | | | rt Configuration ort Configuration | _ | | | | |
| Message Log - 0 Monitor Lo | g.0] | | Assig | in IP Address | | | | | |
| No Time | | Description | | | | | | | |

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

| | for NPort NPort(s), remain tin | neout = 3 second(s) | Stop |
|----|-----------------------------------|---------------------|-----------------|
| No | Model | MAC Address | IP Address |
| 1 | NPort 5250A | 00:90:E8:63:50:FD | 192.168.127.254 |
| < | | | |

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

| nfiguration | | | | | |
|-----------------------------|--|---|---|--|---|
| n <u>V</u> iew <u>H</u> elp | | | | | |
| 道 IIP Locate | Configure Web | | | | |
| | | Configuration - | 1 NPort(s) | | |
| No 🛆 | Model | MAC Address | IP Address | Server Name | Status |
| 1 | NPort 5250A | 00:90:E8:66:32:52 | 192.168.127.254 | NP5250A_52 | Lock |
| | | | | | |
| | | | | | |
| | | | | | |
| L | | | | | |
| | i <u>V</u> iew <u>H</u> elp ∰ Locate | n <u>V</u> iew <u>H</u> elp IP IPCocate Configure Web | n Yiew Help IP Locate Configure Web Configuration - No △ Model MAC Address | n View Help IP IP Locate Configure Web Configuration - 1 NPort(s) No △ Model MAC Address IP Address | n View Help IP Locate Configure Web Configuration - 1 NPort(s) No △ Model MAC Address IP Address Server Name |



ATTENTION

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

Unlock Password Protection

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

| Епот | |
|------|--|
| 8 | Target is password protected. Please [Unlock] first. |
| | OK |

NOTE Only the NPort 5100/5200/IA5000 Series requires a password.

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

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



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

| Password | × | | |
|--------------|---|-------------|-------|
| User Name | | Information | × |
| Password | | | k ok. |
| ✓ OK X Cance | 4 | ОК | |

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

| Elle Eunction Configur | | | | | | | | _ |
|---|----------------------------|--|----------------|-----------------|-------------|--------------|--------|---|
| 🚊 🚅 Exit Search Se | 💁 🚊 arch IP Local | | | | | | | |
| Function | | | Co | nfiguration - | 1 NPort(s |) | | |
| NPort | No / | Model | MAC Address | IP Address | IP Address2 | Server Name | Status | 1 |
| Configuration Monitor Monitor COM Mapping ································· | 1 | NPort 5250A | 00.90£863:50FD | 192.168.127.254 | | NP5250A_7162 | Lock | |
| Message Log - 2 Monito | < | | | | | | | |
| No Time | | Description | | | | | | |
| | 10:57:22 AM 10:57:43 AM | Found NPort(s): 1 Found NPort(s): 1 | | | | | | |

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

Lock

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

Unlock

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

Blank

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

Fixed

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

Lock Fixed

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

Unlock Fixed

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

Configuring NPort

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

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

| 🔚 Programs 🕨 🕨 | 6 | Accessories | ► | | |
|----------------|---|------------------------------|---|----|-------------------------|
| | 6 | Startup | ► | | |
| | 6 | UC Finder | ► | | |
| | Ē | NPort Administration Suite | ► | 8 | IP Serial Lib Reference |
| | 6 | NPort Windows Driver Manager | ► | Ś. | NPort Administrator |
| | | ¥ | | ۶ | Version info |

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

| Eile Eunction Configuration | View <u>H</u> el | p | | | | | | | |
|---|----------------------------------|------------|---|---|-----------------|-------------|--------------|--------|---|
| 👖 🔮 😫 Exit Search Search | IP Locate | Configur | re Web | N | | | | | |
| Function | | | | C | onfiguration | - 1 NPort(s |) | | |
| NPort | No / Model | | | MAC Address | IP Address | IP Address2 | Server Name | Status | _ |
| Configuration Configuration Antor Control Contro Control Cont | | | Broad Froad | :k | 192.168.127.254 | | NP5250A_7162 | Unlock | |
| | < | | | | | | | 2 | |
| fessage Log - 5 Monitor Log | -0 | | | | | | | | |
| No Time | | Descriptio | | | | | | | |
| 1 3/27/2019 10: 2 3/27/2019 10: 3 3/27/2019 11: 4 3/27/2019 11: 5 3/27/2019 11: 5 3/27/2019 11: | 57:43 AM 02:07 AM 02:07 AM | Unlock Fa | Port(s): 1 figuration f ait: NPort 5 | ail: NPort 5250A (00.9) 250A (00.90.E.8.63.50.) 250A (00.90.E.8.63.50.) | FD) | | | | |

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

| Processing | × |
|--------------|---|
| Please wait | |
| | |
| 9 / 46 , 19% | |
| | |
| | |

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

| CT T T T T T T T T T T T T T T T T T T | Account Management Configuration Pre-shared Key System Log Settings Auto Warn |
|--|--|
| Model Name NPort 5250A | Basic Network IP Address Report Serial Operating Mode Accessible I |
| MAC Address 00:90:E8:63:50:FD | Network Setting SNMP Setting |
| Serial Number 7162 | IP Address 192.168.127.254 Netmask 255.255.0 IP Configuration Static |
| Firmware Version Ver 1.5 | Gateway |
| System Uptime 0 days, 00h:01m:39s | DNS Server 1 DNS Server 2 |
| | ☐ Modify |



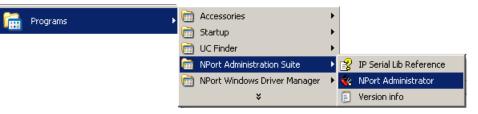
ATTENTION

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

Upgrading the Firmware

Follow these steps to upgrade the firmware of an NPort.

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



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

| Exit | nction Configuration | * | P 1 | eb. | | | | | |
|-----------------------|--|----------------------------------|------------------|---------------|--|-------------|--------------|--------|--|
| F | unction | | - | | Configuration | - 1 NPort(s |) | | |
| B 🔊 NF | | No / | Model | MAC Address | IP Address | IP Address2 | Server Name | Status | |
| | Configuration Monitor Port Monitor COM Mapping | 1 | NPort 5250A | 00:90:68:63:5 | Broadcast Search Specify by IP Address | ess | NP5250A_7162 | Unlock | |
| - | | | | | ▲ Locate ☑ Unlock ☑ Configure ☑ Web | | | | |
| | | | | | 🏙 Upgrade Firmware | <u> </u> | | | |
| | | | | | Export Configuration | | | | |
| | | | | | Assign IP Address | 12 | | | |
| | | < | | | - | | | | |
| Message | Log - 5 Monitor Log | -0 | | | | | | | |
| No | Time | | Description | | | | | | |
| 1 2 3 4 5 | 3/27/2019 10:5 3/27/2019 10:5 3/27/2019 11:0 3/27/2019 11:0 3/27/2019 11:0 | 57:43 AM 02:07 AM 02:07 AM | Unlock Fail: NPo | | | | | | |

3. Select the correct ROM file to download.

| Select File | > | × |
|---------------------------|---------------------------------------|---|
| Select File File Name: | D:\\NP52004_Ver1.5_Build_19013022.rom | |
| | Browse | |
| | V DK X Cancel | |

4. Wait while the Upgrade Firmware action is processed.

| Processi | ng, please wait | | | | 🗙 Cancel |
|----------|-----------------|-----------------|---------------|---------------|----------------|
| ١o | Model | MAC Address | IP Address | IP Address2 | Status |
| | NPort 5250A | 00:90:E8:63:50: | 192.168.127.2 | 192.168.127.2 | Transmit - 30% |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |



ATTENTION

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

Export Configuration

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

If you are using the NPort 5100 Series, NPort 5200 Series, or NPort IA5000 Series and Administration Suite v1.22 or above, to export the configuration of an NPort, right-click **NPort**, select **Export Configuration**. An Export Password window will pop up for the user to assign a password for the exported configuration file. The exported configuration file will be encrypted for security purpose. You will need the same password you use for the exported file to import the same file back into the NPort.

| 📠 🚅 🧟 Exit Search Search | IP Locate | Configure Wet |) | | | |
|------------------------------------|-----------|---------------|------------------------|---------------|-------------|-------|
| Function | | | Configuration - | 1 NPort(s) | | |
| NPort | No / | Model | MAC Address | IP Address | Server Name | Statu |
| Configuration Monitor | 1 | NPort 5630-8 | 00:90:E8:09:9D:86 | 192.168.34.68 | NP5630-8_40 | |
| ∰ COM Mapping (P Address Report | | Enter Export | Password | Cancel | | |

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

| Select File | x |
|----------------------------|--------|
| ⊤Select File File Name: | Browse |
| | Cancel |

For the overall NPort 5000 Series with security enhanced firmware version, export configuration encryption will be based on the Pre-shared key defined in the NPort (default is empty password, and you may configure the password in **Configuration -> Configuration Pre-shared Key**. So when you are exporting the configuration file, you are only required to select the output file location. You may refer to page 2-21 for the security firmware version for your NPort.

Import Configuration

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

| Sele | ct File | |
|------|-------------|--------|
| | Select File | |
| | File Name: | [|
| | | Browse |
| | | Cancel |
| | | |

For the NPort 5100 Series, NPort 5200 Series, or NPort IA5000 Series and with NPort Administration Suite v1.22 or above, an **Import Password** window will pop up, and you will need to enter the password that is unique to the configuration file (which is assigned when exporting the configuration file) in order to successfully import the configuration file.

| NPort Administrator-Co File Function Configuration File Eurotion Configuration Exit Search Search Exit Search Search | ı ⊻iew <u>H</u> elp ≚ | Configure Web | | | | × |
|--|---------------------------------|---|------------------------|---------------|-------------|--------|
| Function | | | Configuration - | 1 NPort(s) | | |
| □ → NPort | No Z | Model | MAC Address | IP Address | Server Name | Status |
| Configuration Monitor COM Mapping Mit P Address Report | | NPort 5630-8 t Password ter Import Password | 00:90:E8:09:9D:86 | 192.168.34.68 | NP5630-8_40 | |

For the overall NPort 5000 Series with a security enhanced firmware version, importing configuration decryption will be based on the pre-shared key defined in the NPort. If the pre-shared key does not match, you will see an error dialogue box on the screen.

| Error | > |
|-------|--|
| ۲ | Import Configuration failed! Check sum error. The configure file was modified or import password is wrong. |
| | ОК |

You will then need to modify the pre-shared key in **Configuration** to match the encryption password of the configuration file before you can begin to import.

NOTE If you do not remember the password of the encrypted configuration file, there is no alternative way to decrypt the file.

| Information Model Name | Accessible IPs | | IP Address Report | Password | | | |
|--------------------------------------|----------------|-------------------------|-----------------------------|---------------|--|--|--|
| NPort 5630-8 | Basic | Network | Serial O | perating Mode | | | |
| MAC Address | Modify | | | | | | |
| 00:90:E8:09:9D:86 | Server Name | NP5630-8_40 | | | | | |
| Serial Number | Modify | | | | | | |
| 40 | Time Zone | (GMT) Greenwich Mean Ti | ime: Dublin, Edinburgh, Lis | bon, London 💌 | | | |
| Firmware Version | Local Date | 1999/12/31 | | | | | |
| Ver 3.6 | Local Time | 上午 12:00:00 | | <u>.</u> | | | |
| | Time Server | | | | | | |
| System Uptime 0 days, 00h:36m:11s | - V Modify | | | | | | |
| | Enable W | eb Console | | | | | |
| | Enable Te | | | | | | |
| | | | | | | | |
| | 1 | | | | | | |

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

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

| 🐇 NPort Administrator-Co | onfiguration | | | | | x |
|--------------------------|-----------------------------|---------------|-------------------|---------------|-------------|--------|
| | n <u>V</u> iew <u>H</u> elp | | | | | |
| 👖 🚅 🖴 | n IP Locate | Configure Web | | | | |
| Function | | | Configuration - | 1 NPort(s) | | |
| □ NPort | No / | Model | MAC Address | IP Address | Server Name | Status |
| Configuration | 1 | NPort 5630-8 | 00:90:E8:09:9D:86 | 192.168.34.68 | NP5630-8_40 | |
| | I | nformation | X | | | |
| IP Address Report | | | OK | | | |
| | • [| | m | | | • |

Messagelog. 2 Manual -- 01

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

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

| Model Name | Firmware version supporting encrypted configuration files. | | | | | |
|--------------------------|---|--|--|--|--|--|
| NPort 5600-8-DT Series | Firmware v2.4 and up with NPort Administration Suite v1.22 and up | | | | | |
| NPort 5600-8-DTL Series | Firmware v1.3 and up with NPort Administration Suite v1.22 and up | | | | | |
| NPort 5600 Series | Firmware v3.7 and up with NPort Administration Suite v1.22 and up | | | | | |
| | NPort 5000A/IA5000A Series | | | | | |
| NDant 51004 Carries | Firmware v1.3 and up (Support with both web console and NPort | | | | | |
| NPort 5100A Series | Administration Suite v1.22 or above) | | | | | |
| NPort 5200A Series | Firmware v1.3 and up (Support with both web console and NPort | | | | | |
| NPOLT 5200A Series | Administration Suite v1.22 or above) | | | | | |
| NPort 5x50AI-M12 Series | Firmware v1.2 and up (Support with both web console and NPort | | | | | |
| NPOIL 5X50AT-WITZ Series | Administration Suite v1.22 or above) | | | | | |
| NPort IA5150A, NPort | Firmware v1.3 and up (Support with both web console and NPort | | | | | |
| IA5250A | Administration Suite v1.22 or above) | | | | | |
| NDort LAE 4E0A | Firmware v1.4 and up (Support with both web console and NPort | | | | | |
| NPort IA5450A | Administration Suite v1.22 or above) | | | | | |



ATTENTION

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

Monitor

Use the following method to start the Monitor function.

Broadcast Search \rightarrow Monitor \rightarrow Add Target

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

| 🐝 NPo | 🔹 NPort Administrator-Configuration | | | | | | | | | |
|----------|--------------------------------------|------------------|--------|----------------------------|-------------------|-----------------|-------------|--------|--|--|
| <u> </u> | Ele Eunction Configuration View Help | | | | | | | | | |
| j | <u>0</u> | onfiguration | L 🛎 | Configure Web | | | | | | |
| E: | 🔁 M | <u>f</u> onitor | Locate | Configure Web | | | | | | |
| | Pe 🖸 | ort Monitor | | Configuration - 1 NPort(s) | | | | | | |
| | 💰 വ | OM Mapping | Δ | Model | MAC Address | IP Address | Server Name | Status | | |
| | N IF | ? Address Report | | NPort 5250A | 00:90:E8:66:32:52 | 192.168.127.254 | NP5250A_52 | Unlock | | |

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

| e <u>F</u> unction Monitor | | | | | | | | |
|----------------------------|-------------------------|-----------------|------------|-------|--------------|-------------|-------------------|------------------|
| Eule A | dd Target | | | | Add NPort | | | |
| | emove Target | | 1 0 10 10 | | Add APOT | | | |
| | oad Configured COM Port | Monitor - Stopp | | - | _ | | | |
| | ettings - | MAC Address | IP Address | Alive | Select From | List | Rescan Sele | st All Clear All |
| Port Monito | 0 | | | | | | | |
| Port N St | top | | | | No | Model | MAC Address | IP Address |
| COM L | not | | | | ⊡ 1 | NPort 5250A | 00:90:E8:66:32:52 | 192.168.127.254 |
| W. II Address fiel | port | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | 1 | | | |
| | | | | | | | | |
| | | | | | 🔘 Input Manu | ally i | P Address | |
| | | | | | | ŀ | fodel NPor | 5110 |
| | | | | | | | | |
| | | | | | | | | |
| | | | 6-14 | | | | | |

Once the Monitor function is running:

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

| 🔹 NPort Administrator-Monitor | | | | | | | | | |
|---|------|-------------|-------------------|-----------------|-----------|--|--|--|--|
| Eile <u>F</u> unction Monitor <u>V</u> iew <u>H</u> elp | | | | | | | | | |
| Exit Add Remove Go Stop | | | | | | | | | |
| Function | | I | Monitor - Stoppe | d - 1 NPort(s) | | | | | |
| ⊡- 🔊 NPort | No Z | Model | MAC Address | IP Address | Alive | | | | |
| Configuration C | 1 | NPort 5250A | 00:90:E8:66:32:52 | 192.168.127.254 | Not Alive | | | | |

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

| 🐝 NPort Administrator-Ma | onitor | | | | | | |
|---|----------------|-------------|----------|-----------------------|-----------------|-----------|--|
| <u>] F</u> ile <u>F</u> unction Monitor ⊻ie | w <u>H</u> elp | | | | | | |
| Exit Add Remo | ve Go | Stop | | | | | |
| Function | | | Mor | nitor - Stopped | d - 1 NPort(s) | | |
| 🖃 🔊 NPort | No 🛆 | Model | | MAC Address | IP Address | Alive | |
| Configuration | 1 | NPort 5250A | | 00-90-E8-66-32-52 | 192 168 127.254 | Not Alive | |
| Monitor | | | 2 | <u>A</u> dd Target | | | |
| Port Monitor | | | <u>~</u> | <u>R</u> emove Target | | | |
| COM Mapping | | | | Load Configured C | OM Port | | |
| | | | F | <u>S</u> ettings | | | |

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

| Monitor Settings | | | | | |
|--|--|----------|--|--|--|
| Monitor Settings Monitor Items General Settings De-selected Items Server Name COM Number | Advanced Settings Selected Items Model MAC Address IP Address Alive | × | | | |
| Load Default | ОК | X Cancel | | | |

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

| Mo | nitor | Settings | | | |
|----|-------|--------------------------|------------------------|-----------|--------|
| | Mor | nitor Items General Sett | ings Advanced Settings | | 1 |
| | | Refresh Rate: | 3 | Second(s) | |
| | | Auto save monito | ored NPort list. | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | 🗸 ОК 🛛 🗶 | Cancel |

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

| Mo | nitor Settings | |
|----|---|----|
| | Monitor Items General Settings Advanced Settings Monitor and Port Monitor Message Box Setting Display warning message for new event. Play warning music for new event. C:\WINDOWS\Media\notify.wav Browse | |
| | V OK X Canc | el |

6. Right click in the NPort list section and select ${\bf Go}$ to start Monitoring the NPort.

| 🐝 NPort . | Administrator-Mo | nitor | | | | | | |
|-------------------------|----------------------------------|----------------|-------------|-----------------|-----------------------|-----------------|-----------|--|
| <u> </u> | nction Monitor ⊻ie | w <u>H</u> elp | | | | | | |
| Exit Add Remove Go Stop | | | | | | | | |
| Function | | | Mor | nitor - Stopped | l - 1 NPort(s) | | | |
| 🖃 🔊 NP | ort | No | Model | 1 | MAC Address | IP Address | Alive | |
| | Configuration | 1 | NPort 5250A | | 00:90:E8:66:32:52 | 192.168.127.254 | Not Alive | |
| | Monitor | | | 2 | <u>A</u> dd Target | | | |
| | Port Monitor | | | \ge | <u>R</u> emove Target | | | |
| - * | COM Mapping IP Address Report | | | | Load Configured (| COM Port | | |
| | | | | P | Settings | | | |
| | | | | • | <u>G</u> o | | | |

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

| 🔹 NPort Administrator-Monitor | | | | | | |
|---|----------------|-------------|-------------------|-----------------|-------|--|
| <u>F</u> ile <u>F</u> unction Monitor <u>V</u> ie | w <u>H</u> elp | | | | | |
| Exit Add Remove Go Stop | | | | | | |
| Function | | M | onitor - Running | g - 1 NPort(s) | | |
| ⊡- NPort | No 🛆 | Model | MAC Address | IP Address | Alive | |
| Configuration | 1 | NPort 5250A | 00:90:E8:66:32:52 | 192.168.127.254 | Alive | |
| - Monitor | | | | | | |
| Port Monitor | | | | | | |
| COM Mapping | | | | | | |
| 🛛 😽 IP Address Report | | | | | | |

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

| Alert | × |
|--|---|
| Alert New Monitor Event : 1 Event(s) Please check Monitor message window for more information. | |
| 2010/7/11 下午 07:37:32 NPort 5250A (192:168:127:254) is lost connection. | |
| | |
| × | |
| | |
| 👖 Close | |

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

| 🔹 NPort Administrator-Monitor | | | | | | |
|---|-----------------|-------------|------------------|----------------|-----------|--|
| <u>File F</u> unction Monitor <u>V</u> ie | ew <u>H</u> elp | | | | | |
| Exit Add Remove Go Stop | | | | | | |
| Function | | M | onitor - Running | j - 1 NPort(s) | | |
| 🖃 🌆 NPort | No 🛆 | Model | MAC Address | IP Address | Alive | |
| Configuration | 1 | NPort 5250A | 00:90:E8:66:3 | 192.168.127 | Not Alive | |
| Monitor | L | | | | | |
| Port Monitor | L | | | | | |
| COM Mapping | L | | | | | |
| IP Address Report | | | | | | |

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

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

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

| 🐝 NPort Administrator-Me | 🔹 NPort Administrator-Monitor | | | | | |
|---|-------------------------------|-------------|-------------------|-----------------|-------|--|
| <u>File F</u> unction Monitor <u>V</u> ie | ew <u>H</u> elp | | | | | |
| Exit Add Remove Go Stop | | | | | | |
| Function | | м | onitor - Running | g - 1 NPort(s) | | |
| 🖃 🌆 NPort | No 🛆 | Model | MAC Address | IP Address | Alive | |
| Configuration | 1 | NPort 5250A | 00:90:E8:66:32:52 | 192.168.127.254 | Alive | |
| Monitor | | | | | | |
| Port Monitor | - | | | | | |
| 🛛 🔣 🔣 📶 🔣 | | | | | | |
| COM Mapping | - | | | | | |

Port Monitor

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

| 🍓 NPort Administrator-Po | rt Monitor | | | | | | |
|---|--|-------------|-------------------|-----------------|------|---------------|--|
| <u>File Function</u> Port Monitor | Eile <u>F</u> unction Port Monitor <u>V</u> iew <u>H</u> elp | | | | | | |
| Exit Add Remove Go Stop | | | | | | | |
| Function | | Por | t Monitor - Stop | ped - 2 Port(s |) | | |
| - 🔊 NPort | No 🛆 | Model | MAC Address | IP Address | Port | OP Mode | |
| Configuration | 1 | NPort 5250A | 00:90:E8:66:32:52 | 192.168.127.254 | 1 | Real COM Mode | |
| Monitor | 2 | NPort 5250A | 00:90:E8:66:32:52 | 192.168.127.254 | 2 | Real COM Mode | |
| Port Monitor | | | | | | | |
| - of the term of term | | | | | | | |
| W: IP Address Report | | | | | | | |

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

| Monitor Settings | Σ |
|---|--|
| Remote IP Serial Line Status 2 Tx/Rx after Conn. Tx/Rx after Mon Tx/Rx Throu. Tx/Rx Intv Throu. COM Number Server Name Alias | Selected Items Model MAC Address IP Address Port OP Mode Alive |
| Load Default | |
| | V OK X Cancel |

COM Mapping

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

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

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

Use the following procedure to map COM ports:

1. On-line COM Mapping:

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

2. Off-line COM Mapping:

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

On-line COM Mapping

1. Broadcast Search for NPort units on the network.

| 🐝 NPort Administrator-Co | nfiguration | | | | | [| . 🗆 🛛 |
|--|-----------------------------|-------------|-----------------|---|------------|-------------|--------|
| <u>File Function Configuration</u> | n <u>V</u> iew <u>H</u> elp | | | | | | |
| 👖 🙅 🔮 Exit Search Search | ilP Locate | Configure \ | . Veb | | | | |
| Function | | | | Configuration - | 0 NPort(s) | | |
| - 🔊 NPort | No 🛆 | Model | | MAC Address | IP Address | Server Name | Status |
| Configuration Monitor Port Monitor COM Mapping You IP Address Report | | | | Broadcast Search Specify by IP Address | | | |

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

| 🐝 NPort Administrator-CC |)М Марј | ing | | | | | |
|---------------------------------|---------|--------------|------------|-------------|----------|------|--|
| <u>File</u> Function COM Mappir | ng ⊻iew | <u>H</u> elp | | | | | |
| Exit Add Remo | we Ap | Configure | | | | | |
| Function | | | COM Ma | pping - O (| сом | | |
| □ → Dert NPort | No Z | Model | IP Address | Port | COM Port | Mode | |
| Configuration | | | | | | | |
| Monitor | L | | | | | | |
| Port Monitor | L | | | | | | |
| COM Mapping | - | | | | | | |
| IP Address Report | | | | | | | |

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

| 🐝 NPort Administrator-CC |)M Mapping | | | | | | X |
|--------------------------|----------------------|----------------------|-------------|----------|----------|------|---|
| Eile Eunction COM Mappir | ng ⊻iew <u>H</u> elp |) | | | | | |
| Exit Add Remo | | Configure | | | | | |
| Function | | | COM Mappir | ng - 0 C | юм | | |
| ⊡- NPort | No 🛆 | Model | IP Address | Port | COM Port | Mode | _ |
| Configuration | | | | | | | |
| Monitor | | 🔬 <u>A</u> dd | Target | | | | _ |
| COM Mapping | | <u>A</u> <u>R</u> en | nove Target | | | | |

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

| ld NPo | ort | | | | | | | |
|--------|---------------|-------------|----|--------|-------|---------|-------|-------------|
| ۲ | Select From L | ist | Re | scan |] [| Select | All | Clear All |
| | No | Model | | MACIA | ddre | ss | IP Ad | ddress |
| E | v 1 | NPort 5250A | | 00:90: | E8:66 | 6:32:52 | 192.1 | 168.127.254 |
| | | | | | | | | |
| | | | | | | | | |

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

| 🐝 NPort Administrator-CO | M Mappin; | g | | | | | |
|--|-------------------------|-------------|----------|-----------------------|----------|----------|--------------------------|
| <u>File</u> Eunction COM Mappin | g <u>V</u> iew <u>H</u> | elp | | | | | |
| Exit Add Remove | e Apply | Configure | | | | | |
| Function | | | | COM Mappir | ng - 2 C | юм | |
| ⊡- 🔊 NPort | No 🛆 | Model | 1 | P Address | Port | COM Port | Mode |
| 🚺 Configuration | 1 | NPort 5250A | 1 | 192.168.127.254 | 1 | COM8 + | Hi-Performance, FIFO Ena |
| Monitor | 2 | NPort 5250A | 2 | <u>A</u> dd Target | | COM9 + | Hi-Performance, FIFO Ena |
| COM Mapping | | | ~ | <u>R</u> emove Target | | | |
| ······································ | | | | <u>E</u> nable | | | |
| | | | - | Disable | | | |
| | | | S | <u>C</u> OM Settings | | | |

6. Select the COM Number.

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

| COM Port Settings | COM Port Settings |
|---|---|
| Port Number: 2 Port(s) Selected. 1st port is Port 1 Basic Settings Advanced Settings Serial Parameters COM Grouping | Port Number: 1 Port(s) Selected. 1st port is Port 1 Basic Settings Advanced Settings Serial Parameters COM Grouping |
| COM Number COM7 Auto enumerating COM number for selected ports. Grouping selected port(s) together. | COM Number COM4 (current) (assigned) COM4 (current) (assigned) COM5 (in use) COM6 COM7 COM7 COM8 COM9 Grouping selec COM10 COM11 V |
| OK X Cancel | ✓ 0K X Cancel |

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

Under **classical mode**, the driver will not notify the user's program that Tx is completed until all Tx data has been sent out from the NPort 5200A; this mode will cause lower throughput. If you want to ensure that all data is sent out before further processing, classical mode is recommended.

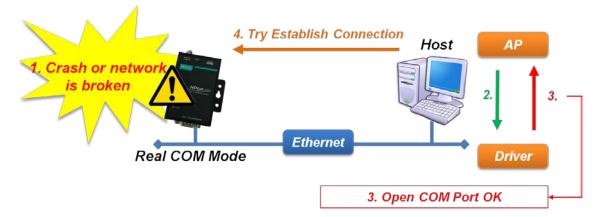
Enable/Disable Tx/Rx FIFO. If disabled, the NPort 5200A will send one byte each time the Tx FIFO becomes empty; and an Rx interrupt will be generated for each incoming byte. This will result in a faster response and lower throughput. If you want to use XON/XOFF flow control, we recommend setting FIFO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

Fast Flush (only flush local buffer)

- We have added one optional Fast Flush function to Moxa's new NPort Real COM driver. **NPort Administrator Suite for NPort** adds it after version 1.2.
- For some applications, the user's program will use the Win32 "PurgeComm()" function before it reads or writes data. With our design, after the program uses this Purge Comm() function, the NPort driver will keep querying the NPort's firmware several times to make sure there is really no data queued in the NPort firmware buffer, rather than just flushing the local buffer. This kind of design is used because of some special considerations. However, it might take more time (on the order of several hundred milliseconds) than a native COM1, because it needs to work via Ethernet. That's why the native COM ports on the motherboard can work fast with this function call, but the NPort requires much more time. In order to accommodate other applications that require a faster response time, the new NPort driver implements a new "Fast Flush" option. Note that by default, this function is disabled.

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

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



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

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

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

| COM Port Settings | | |
|--------------------|------------------|--------------------------------|
| Port Number: | 1 Port(s) Select | ed. 1st port is Port 1 |
| Basic Settings Adv | anced Settings | Serial Parameters COM Grouping |
| Baud Rate | 9600 | |
| Parity | None | • |
| Data Bits | 8 | • |
| Stop Bits | 1 | • |
| Flow Control | None | • |
| 🔄 Apply Ali Sel | ected Ports | |
| | | |
| | | |
| | | |
| | | V OK X Cancel |

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

| 🐝 NPort Administrator-CO | OM Mapping | s | | | | |
|--------------------------------|-----------------------------|-------------|-----------------|--------|----------|--------------------------|
| <u>File Function</u> COM Mappi | ing <u>V</u> iew <u>H</u> (| elp | | | | |
| Exit Add Remov | /e Apply | Configure | | | | |
| Function | | | COM Mappir | ng - 2 | сом | |
| ⊡ 🔊 NPort | No 🛆 | Model | IP Address | Port | COM Port | Mode |
| Configuration | 1 | NPort 5250A | 192 168 127 254 | 1 | COM11 + | Hi-Performance, FIFO Ena |
| Monitor | 2 | NPort 5250A | 🔮 Add Target | | COM12 + | Hi-Performance, FIFO Ena |
| Port Monitor | | | <u> </u> | | | |
| IP Address Report | L | | <u>E</u> nable | | | |
| | | | Disable | | | |
| | | | COM Settings | | | |
| | | | 📕 Apply Change | | | |

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

| 🐝 NPort Administrator-C | OM Mapping | | | | | | |
|--|-------------------------------|-------------|----------|-----------------------|----------|----------|--------------------------|
| <u>File</u> Function COM Mappi | ing <u>V</u> iew <u>H</u> elp |) | | | | | |
| Exit Add Remov | /e Apply (| Configure | | | | | |
| Function | | | | COM Mappir | ng - 2 C | юм | |
| ⊡- 🔊 NPort | No 🛆 | Model | | IP Address | Port | COM Port | Mode |
| 🚺 Configuration | 1 | NPort 5250A | | 192.168.127.254 | 1 | COM11 + | Hi-Performance, FIFO Ena |
| - 🖂 Monitor | 2 | NPort 5250A | 2 | <u>A</u> dd Target | | COM12 + | Hi-Performance, FIFO Ena |
| Port Monitor COM Mapping ································· | | | ~ | <u>R</u> emove Target | | | |
| | | | | <u>E</u> nable | | | |
| | | | | <u>D</u> isable | | | |
| | | | P | <u>C</u> OM Settings | | | |
| | | | H | Apply Change | | | |
| | | | | Discard Change | | | |

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

| 🔹 NPort Administrator-CC |)M Mapping | | | | | |
|---|------------------------------|----------------------------|---|----------|----------------|--|
| <u>] File</u> Eunction COM Mappir | ng <u>V</u> iew <u>H</u> elj | P | | | | |
| 📄 🔮 🎽 Exit Add Remov | e Apply I | Configure | | | | |
| Function | | | COM Mappir | ng - 2 (| сом | |
| ⊡ 🔊 NPort | No 🛆 | Model | IP Address | Port | COM Port | Mode |
| Configuration Monitor Port Monitor OM Mapping Yok IP Address Report | 2 | NPort 5250A NPort 5250A | 192.168.127.254 <u>A</u> dd Target <u>R</u> emove Target <u>E</u> nable <u>D</u> isable <u>C</u> OM Settings <u>Apply Change</u> <u>D</u> iscard Change <u>Export COM Map</u> | ping | COM11 COM12 | Hi-Performance, FIFO Ena Hi-Performance, FIFO Ena |

Off-line COM Mapping

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

| Select Fro | om List | Rescan | Selec | t All Clear All |
|-------------|---------|------------|---------|-----------------|
| No | Model | MAC Ad | dress | IP Address |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| 🖲 Input Mar | nually | IP Address | 192.16 | 68.127.254 |
| | , | Model | | 5250A |
| | | Ports | 2 Port(| |

2. Modify the port settings as needed.

| 🐝 NPort Administrator-CO |)M Mapping | | | | | | | | | | |
|--------------------------------------|------------|-------------|----------|-----------------------|----------|----------|--------------------------|--|--|--|--|
| _File_Function_COM_Mapping_⊻iew_Help | | | | | | | | | | | |
| Exit Add Remove Apply Configure | | | | | | | | | | | |
| Function | | | | COM Mappir | ng - 2 (| сом | | | | | |
| ⊡ 🔊 NPort | No 🛆 | Model | | IP Address | Port | COM Port | Mode | | | | |
| Configuration | 1 | NPort 5250A | | 192 168 127 254 | 1 | COM4 + | Hi-Performance, FIFO Ena | | | | |
| - 🚾 Monitor | 2 | NPort 5250A | 2 | <u>A</u> dd Target | | COM6 + | Hi-Performance, FIFO Ena | | | | |
| COM Mapping | | | × | <u>R</u> emove Target | | | | | | | |
| | | | - | <u>E</u> nable | | | | | | | |
| | | | | <u>D</u> isable | | | | | | | |
| | | | S | <u>C</u> OM Settings | | | | | | | |

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

| 🔹 NPort Administrator-COI | M Mapping | | | | | | | | | |
|-------------------------------------|-----------|-------------|----------------|-----------------------|----------|----------|--------------------------|--|--|--|
| Eile Eunction COM Mapping View Help | | | | | | | | | | |
| Exit Add Remove Apply Configure | | | | | | | | | | |
| Function | | | | COM Mappir | ng - 2 C | юм | | | | |
| □ → Depoint NPort | No 🛆 | Model | IP | Address | Port | COM Port | Mode | | | |
| 🔢 🔂 Configuration | 1 | NPort 5250A | 19 | 2 168 127 254 | 1 | COM4 + | Hi-Performance, FIFO Ena | | | |
| 🔤 Monitor | 2 | NPort 5250A | 2 | Add Target | | COM6 + | Hi-Performance, FIFO Ena | | | |
| Port Monitor | | | <u>~</u> | <u>R</u> emove Target | | | | | | |
| COM Mapping | | | <u>E</u> nable | | | | | | | |
| | | | | <u>D</u> isable | | | | | | |
| | | | P | <u>C</u> OM Settings | | | | | | |
| | | | H | Apply Change | | | | | | |

COM Grouping

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

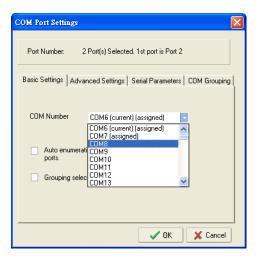
Creating a COM Group

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

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

| 🔹 NPort Administrator-CO |)M Mapping | | | | | | | | | |
|--|------------------------------|-------------|----------|-----------------------|----------|----------|--------------------------|--|--|--|
| <u>File</u> <u>F</u> unction COM Mappi | ng <u>V</u> iew <u>H</u> elj | p | | | | | | | | |
| Exit Add Remove Apply Configure | | | | | | | | | | |
| Function | | | | СОМ Маррії | ng - 3 C | юм | | | | |
| ⊡ NPort | No 🛆 | Model | IF | ^o Address | Port | COM Port | Mode | | | |
| Configuration | 1 | NPort 5150A | | 92.168.127.254 | 1 | COM4 | Hi-Performance, FIFO Ena | | | |
| Monitor | 2 | NPort 5110A | | 92.168.127.253 | 1 | COM6 + | Hi-Performance, FIFO Ena | | | |
| Port Monitor | 3 | NPort 5110A | | 92.168.127.252 | 11 | COM7 + | Hi-Performance, FIFO Ena | | | |
| COM Mapping | L | | 2 | <u>A</u> dd Target | | | | | | |
| IP Address Report | | | ~ | <u>R</u> emove Target | | | | | | |
| | | | | <u>E</u> nable | | | | | | |
| | | | | Disable | | | | | | |
| | | | P | <u>C</u> OM Settings | | | | | | |
| | | | H | Apply Change | | | | | | |
| | | | | Discard Change | | | | | | |
| | | | | Export COM Ma | pping | | | | | |
| | < | | - | Import COM Ma | pping | | > | | | |

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

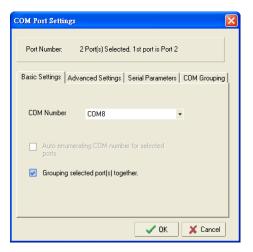




ATTENTION

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

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



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

| ¢ | :01 | l Port Settings | | | | | | | × |
|---|-----|------------------------------------|---------|----------|-----------------------|-----------|------------|----------|---|
| | F | Port Number: 2 | Port(s) | Selected | l. 1st port i | is Port 2 | | | |
| | Ba | sic Settings Adva | nced S | ettings | Serial Para | ameters | сом с | irouping | |
| | | Serial ports: | Port | Read | Write | Signal | Status | | |
| | | 192.168.127.253 192.168.127.252 | | V V | 2 | Г | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | ✓ | OK | X (| Cancel | |

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

| 🐝 NPort Administrator-CC |)M Mappin | g | | | | |
|--------------------------|--------------------------|-------------|-----------------|----------|--------------|------------------------|
| Eile Eunction COM Mappir | ng <u>V</u> iew <u>H</u> | lelp | | | | |
| Exit Add Remove | | Configure | | | | |
| Function | | | COM Mappi | ng - 3 (| сом | |
| | No 🛆 | Model | IP Address | Port | COM Port | Mode |
| 🗌 🚺 Configuration | 1 | NPort 5150A | 192.168.127.254 | 1 | COM4 | Hi-Performance, FIFO E |
| - Monitor | 2 | NPort 5110A | 192.168.127.253 | 1 | COM8 (Group) | Hi-Performance, FIFO E |
| Port Monitor | 3 | NPort 5110A | 192.168.127.252 | 1 | COM8 (Group) | Hi-Performance, FIFO E |
| K COM Mapping | | | | | | |
| COM Mapping | | | | | | |

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

| Inform | ition | × |
|--------|---------------------------------|-----|
| (į) | Do you want to apply the change | es? |
| | Yes Cancel | |

Deleting a COM Group

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

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

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

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

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

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

| 🐝 NPort Administrator-CC | 🛠 NPort Administrator-COM Mapping | | | | | | | | | | |
|-------------------------------------|-----------------------------------|-------------|-----------------|----------|----------|------------------------|--|--|--|--|--|
| Eile Eunction COM Mapping View Help | | | | | | | | | | | |
| | Exit Add Remove Apply Configure | | | | | | | | | | |
| Function | | | COM Mappir | ig - 3 (| сом | | | | | | |
| 🄊 NPort | No 🛆 | Model | IP Address | Port | COM Port | Mode | | | | | |
| Configuration | 1 | NPort 5150A | 192.168.127.254 | 1 | COM4 | Hi-Performance, FIFO E | | | | | |
| - 🖾 Monitor | 2 | NPort 5110A | 192.168.127.253 | 1 | COM9 | Hi-Performance, FIFO E | | | | | |
| - R Port Monitor | 3 | NPort 5110A | 192.168.127.252 | 1 | COM10 | Hi-Performance, FIFO E | | | | | |
| COM Mapping | | | | | | | | | | | |
| COM Mapping | | | | | | | | | | | |
| | | | | | | | | | | | |
| | L | | | | | | | | | | |

4. Finally, click Yes to confirm.



Adding a Port to a COM Group

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

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

| 🐝 NPort Administrator-CC |)M Ma | pping | | | | | | | | |
|--|-------|-------|-------------|-----------------|----------|---------------|--------------|--------------------------|--|--|
| <u>File</u> <u>F</u> unction COM Mapping <u>V</u> iew <u>H</u> elp | | | | | | | | | | |
| Exit Add Remove Apply Configure | | | | | | | | | | |
| Function | | | | СОМ Маррі | ing | - 5 C | ОМ | | | |
| | No | Δ | Model | IP Address | P | ort | COM Port | Mode | | |
| Configuration | 1 | | NPort 5150A | 192.168.127.254 | 1 | | COM4 | Hi-Performance, FIFO Ena | | |
| - 🖾 Monitor | 2 | | NPort 5110A | 192.168.127.253 | 1 | | COM8 (Group) | Hi-Performance, FIFO Ena | | |
| Port Monitor | 3 | | NPort 5110A | 192.168.127.252 | 1 | | COM8 (Group) | Hi-Performance, FIFO Ena | | |
| COM Mapping | 4 | | NPort 5210A | 192.168.127.250 | 1 | | COM6 | Hi-Performance, FIFO Ena | | |
| P Address Report | 5 | | NPort 5210A | 192.168.127.250 | 2 | | LCOM7 | Hi-Performance, FIFO Ena | | |
| All II Hadross Hopert | L | | | | 2 | <u>A</u> dd (| Farget | | | |
| | - | | | | * | <u>R</u> emo | ve Target | | | |
| | | | | | | Enabl | e | | | |
| | | | | | | <u>D</u> isab | le | | | |
| | | | | | S | <u>C</u> OM | Settings | | | |
| | | | | | H | Apply | / Change | | | |
| | | | | | | Disca | rd Change | | | |

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

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

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

| 😵 NPort Administrator-CC | 🔹 NPort Administrator-COM Mapping | | | | | | | | | | |
|-------------------------------------|-----------------------------------|-------------|-----------------|----------|--------------|------------------------|--|--|--|--|--|
| Eile Eunction COM Mapping View Help | | | | | | | | | | | |
| Add Remove Apply Configure | | | | | | | | | | | |
| Function | | | COM Mappir | ng - 5 C | ом | | | | | | |
| 🖃 🔊 NPort | No 🛆 | Model | IP Address | Port | COM Port | Mode | | | | | |
| Configuration | 1 | NPort 5150A | 192.168.127.254 | 1 | COM4 | Hi-Performance, FIFO E | | | | | |
| Monitor | 2 | NPort 5110A | 192.168.127.253 | 1 | COM8 (Group) | Hi-Performance, FIFO E | | | | | |
| Port Monitor | 3 | NPort 5110A | 192.168.127.252 | 1 | COM8 (Group) | Hi-Performance, FIFO E | | | | | |
| | 4 | NPort 5210A | 192.168.127.250 | 1 | COM6 | Hi-Performance, FIFO E | | | | | |
| COM Mapping | 5 | NPort 5210A | 192.168.127.250 | 2 | COM8 (Group) | Hi-Performance, FIFO E | | | | | |
| | | | | | | | | | | | |

4. Finally, click Yes to confirm.



Removing a Port from a COM Group

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

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

| 🐝 NPort Administrator-CC |)M Mapping | | | | | | | |
|--------------------------|------------------------------|-------------|-----------------|----|---------------|--------------|------------------------|--|
| <u><u> </u></u> | ng <u>V</u> iew <u>H</u> elj | р | | | | | | |
| Exit Add Remo | ve Apply | Configure | | | | | | |
| Function | Function COM Mapping - 5 COM | | | | | | | |
| >>> NPort | No 🛆 | Model | IP Address | Po | rt | COM Port | Mode | |
| Configuration | 1 | NPort 5150A | 192.168.127.254 | 1 | | COM4 | Hi-Performance, FIFO E | |
| Monitor | 2 | NPort 5110A | 192.168.127.253 | 1 | | COM8 (Group) | Hi-Performance, FIFO E | |
| Port Monitor | 3 | NPort 5110A | 192.168.127.252 | 1 | | COM8 (Group) | Hi-Performance, FIFO E | |
| COM Mapping | 4 | NPort 5210A | 192.168.127.250 | 1 | | COM6 | Hi-Performance, FIFO E | |
| P Address Report | 5 | NPort 5210A | 192.168.127.250 | 12 | | COM8 (Group) | Hi-Performance, FIFO E | |
| After in Address Hopole | | | | 2 | <u>A</u> dd | Target | | |
| | | | | ≚. | <u>R</u> emo | ove Target | | |
| | | | | | Enab | le | | |
| | | | | | <u>D</u> isab | le | | |
| | | | | đ | COM | l Settings | | |
| | | | | | Apply Change | | | |
| | | | | _ | Disca | rd Change | | |

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

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

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

| 🔹 NPort Administrator-COM Mapping | | | | | | | | |
|-------------------------------------|--------|-------------|-----------------|----------|--------------|--------------------------|--|--|
| Eile Eunction COM Mapping View Help | | | | | | | | |
| Exit Add Remov | е Арру | Configure | | | | | | |
| Function | | | COM Mappir | ng - 5 C | ом | | | |
| | No 🛆 | Model | IP Address | Port | COM Port | Mode | | |
| Configuration | 1 | NPort 5150A | 192.168.127.254 | 1 | COM4 | Hi-Performance, FIFO Ena | | |
| - 🖾 Monitor | 2 | NPort 5110A | 192.168.127.253 | 1 | COM8 (Group) | Hi-Performance, FIFO Ena | | |
| - R Port Monitor | 3 | NPort 5110A | 192.168.127.252 | 1 | COM8 (Group) | Hi-Performance, FIFO Ena | | |
| | 4 | NPort 5210A | 192.168.127.250 | 1 | COM6 | Hi-Performance, FIFO Ena | | |
| COM Mapping | 5 | NPort 5210A | 192.168.127.250 | 2 | COM7 | Hi-Performance, FIFO Ena | | |

4. Finally, click Yes to confirm.

| Informa | tion 🔀 |
|---------|-----------------------------------|
| į) | Do you want to apply the changes? |
| | Yes Cancel |

Modify Ports in a COM Group

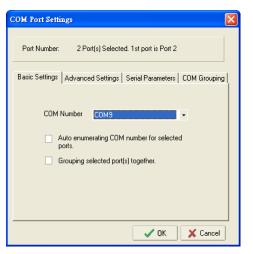
In the following subsections we examine three ways in which the serial ports in a COM Group can be modified:

Changing the COM Number of a COM Group

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

| 🐝 NPort Administrator-CC | M Mapping | | | | | | | | | |
|--------------------------|------------------------------|---------------------|---|-----------------------|------|--------------|--------------------------|--|--|--|
| Eile Eunction COM Mappir | ng <u>V</u> iew <u>H</u> elp |) | | | | | | | | |
| Exit Add Remo | ve Apply | Configure | | | | | | | | |
| Function | | COM Mapping - 3 COM | | | | | | | | |
| ⊡ → → NPort | No 🛆 | Model | | P Address | Port | COM Port | Mode | | | |
| Configuration | 1 | NPort 5150A | | 192.168.127.254 | 1 | COM4 | Hi-Performance, FIFO Ena | | | |
| - 🖾 Monitor | 2 | NPort 5110A | | 192.168.127.253 | 1 | | Hi-Performance, FIFO Ena | | | |
| - 🖂 Port Monitor | 3 | NPort 5110A | | 192 168 127 252 | 1 | COM8 (Group) | Hi-Performance, FIFO Ena | | | |
| COM Mapping | | | 2 | <u>A</u> dd Target | | | | | | |
| IP Address Report | | | ~ | <u>R</u> emove Target | | | | | | |
| | | | | <u>E</u> nable | | | | | | |
| | | | | Disable | | | | | | |
| | | | đ | <u>C</u> OM Settings | | | | | | |
| | | | H | Apply Change | | | | | | |
| | | | | Discard Change | | | | | | |

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



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

| COM Port Settings | × |
|---|---|
| Port Number: 2 Port(s) Selected, 1st port is Port 2 | |
| Basic Settings Advanced Settings Serial Parameters COM Grouping | |
| COM Number COM9 - | |
| Auto enumerating COM number for selected ports. | |
| Grouping selected port(s) together. | |
| | |
| | |
| V DK X Cancel | |

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

| 🔹 NPort Administrator-COM Mapping | | | | | | | | |
|---------------------------------------|------|----------------|-----------------|----------|--------------|--------------------------|--|--|
| Eile Eunction COM Mapping View Help | | | | | | | | |
| Exit Add Remo | | Appy Configure | | | | | | |
| Function | | | COM Mappir | ng - 3 C | ом | | | |
| ⊡-≫ NPort | No 🛆 | Model | IP Address | Port | COM Port | Mode | | |
| 🗌 🚺 Configuration | 1 | NPort 5150A | 192.168.127.254 | 1 | COM4 | Hi-Performance, FIFO Ena | | |
| Monitor | 2 | NPort 5110A | 192.168.127.253 | 1 | COM9 (Group) | Hi-Performance, FIFO Ena | | |
| - 🖾 Port Monitor | 3 | NPort 5110A | 192.168.127.252 | 1 | COM9 (Group) | Hi-Performance, FIFO Ena | | |
| 🔣 📶 COM Mapping | | | | | | | | |
| ──mic COM Mapping ○ IP Address Report | | | | | | | | |

5. Finally, click Yes to confirm.



Changing Advanced Settings and Serial Parameters of the COM Group

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

| с | OF | f Port Settings | | | | | | | × |
|---|----|------------------------------------|-----------|------------|-------------------|-----------|--------|----------|-------|
| | F | Port Number: | 2 Port(s) |) Selected | d. 1st port i | is Port 2 | | | |
| | | isic Settings Adv Serial ports: | anced S | ettings | Serial Par | ameters | COM | àrouping | inné. |
| | | IP Address | Port | Read | Write | Signal | Status | | |
| | | 192.168.127.253 192.168.127.252 | 1 | | Write ₩ ₩ | | Status | 1 | |
| _ | | | | | | OK | × | Cancel |] |

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

| 🐝 NPort Administrator-CO |)M Mapping | | | | | | | |
|--------------------------|-------------------------------------|-------------|---|-------------------------|----------|--------------|--------------------------|--|
| <u> </u> | Eile Eunction COM Mapping View Help | | | | | | | |
| 📄 🔮 🎽 Exit Add Remo | ve Apply | Configure | | | | | | |
| Function | | | | COM Mappir | ng - 3 C | юм | | |
| 🖃 🌆 NPort | No 🛆 | Model | | IP Address | Port | COM Port | Mode | |
| 1 Configuration | 1 | NPort 5150A | | 192.168.127.254 | 1 | COM4 | Hi-Performance, FIFO Ena | |
| 🔤 Monitor | 2 | NPort 5110A | _ | 192.168.127.253 | 1 | COM8 (Group) | Hi-Performance, FIFO Ena | |
| 🛛 💽 Port Monitor | 3 | NPort 5110A | 2 | <u>A</u> dd Target | | COM8 (Group) | Hi-Performance, FIFO Ena | |
| COM Mapping | | | ~ | <u>R</u> emove Target | | | | |
| | L | | | Enable | | | | |
| | | | - | <u>D</u> isable | | | | |
| | | | P | <u>C</u> OM Settings | | | | |
| | | | H | Apply Change | | | | |
| | | | | D <u>i</u> scard Change | | | | |

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

| COM Port Settings | | | COM Port Settings | | | X |
|-------------------------|----------------------------------|------------|----------------------------|-------------------|---------------|----------|
| Port Number: 1 Port | (s) Selected. 1st port is Port 2 | | Port Number: 1 Port(s) | Selected. 1st por | t is Port 2 | |
| Basic Settings Advanced | Settings Serial Parameters COM | M Grouping | Basic Settings Advanced Se | ettings Serial Pa | arameters COM | Grouping |
| Tx Mode | Hi-Performance - | | Baud Rate | 9600 | • | |
| FIFO | Enable 🔹 | | Parity | None | • | |
| N | | | Data Bits | 8 | • | |
| Network Timeout | 5000 (500-20000 m | isj | Stop Bits | 1 | • | |
| 📃 Fast flush (on | y flush local buffer) | | Flow Control | None | • | |
| Apply all selec | ted ports | | Apply all selected | l ports | | |
| | | | | | | |
| | | | | | | |
| | 🗸 OK 🔰 | Cancel | | | 🖊 ОК 🛛 🗙 | Cancel |

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

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

| 😵 NPort Administrator-CO | M Mapping | | | | | |
|----------------------------------|---------------------|-------------|-----------------------|----------|--------------|--------------------------|
| <u>File Function</u> COM Mapping | g ⊻iew <u>H</u> elp |) | | | | |
| Exit Add Remov | /e Apply | Configure | | | | |
| Function | | | СОМ Маррі | ng - 3 C | юм | |
| 🖃 🔊 NPort | No 🛆 | Model | IP Address | Port | COM Port | Mode |
| 🚺 🗌 Configuration | 1 | NPort 5150A | 192.168.127.254 | 1 | COM4 | Hi-Performance, FIFO Ena |
| Monitor | 2 | NPort 5110A | 192.168.127.253 | 1 | COM8 (Group) | Hi-Performance, FIFO Ena |
| 🔤 Port Monitor | 3 | NPort 5110A | 🔮 Add Target | | COM8 (Group) | Hi-Performance, FIFO Ena |
| COM Mapping | | | <u>R</u> emove Target | | | |
| | | | <u>E</u> nable | | - | |
| | | | Disable | | | |
| | | | 🛐 🖸 COM Settings | | | |
| | | [| 🚽 Apply Change | | | |
| | | | Discard Change | | | |

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

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

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

| ¢ | :0M | f Port Settings | | | | | | | X |
|---|-----|---------------------------------------|-----------|--------------------------------|---------------|-----------|--------|---------|---|
| | F | ⁹ ort Number: | I Port(s) | Selected | l. 1st port i | is Port 2 | | | |
| | | isic Settings Adva Serial ports: | inced S | ettings : | Serial Pari | ameters | СОМ О | àroupir | g |
| | | IP Address | Port | Read | Write | Signal | Status | | |
| | | 192.168.127.253 192.168.127.252 | | | | Г ▼ | | | |
| | _ | | | | | OK | × | Cancel | |

IP Address Report

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

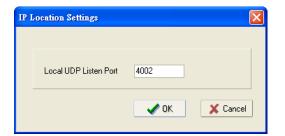
1. Configure the NPort with Dynamic IP settings (DHCP, BOOTP, or DHCP/BOOTP). Assign the remote Auto IP report server's IP address and UDP port.

| Configuration | | × |
|---|--|------|
| Information Model Name NPort 5250A MAC Address 00:90:E8:66:32:52 Serial Number 52 Firmware Version Ver 1.0 System Uptime | Accessible IPs Auto Warning IP Address Report Password Basic Network Serial Operating Mode Modify IP Address 192.168.127.254 Modify Netmask 255.255.255.0 Gateway IP Configuration DHCP DNS Server 1 DNS Server 2 | |
| 0 days, 00h:34m:02s | Click the "Modify" check box to modify configuration | ncel |

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

| 🐝 NPort Administrator-IP | 🗱 NPort Administrator-IP Address Report | | | | | | | |
|--|---|--------------|---|-------------|------------|-------|---------------|--|
| <u>File</u> Eunction <u>IP</u> Address R | eport ⊻iew | <u>H</u> elp | | | | | | |
| Exit Settings Go | Stop | | | | | | | |
| Function | | | IP Address Report - Stopped - Port:4002 - 0 | | | | | |
| ⊡- 🔊 NPort | No 🛆 | Model | | MAC Address | IP Address | Count | Previous Time | |
| Configuration | | | 🗗 <u>S</u> e | ettings | | | | |
| Port Monitor | | | • <u>G</u> | 0 | | | | |
| COM Mapping | | | Si Si | op | | | | |
| | | | <u>C</u> | lear | | | | |

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



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

| Address Rep | ort | | | | |
|---------------------|--------------|--------------------------------|---|--|--|
| Report <u>V</u> iew | <u>H</u> elp | | | | |
| Stop | | | | | |
| | IP Addre | ess Report - Sto | pped - Port:40 | 02 - 0 | |
| No 🛆 | Model | MAC Address | IP Address | Count | Previous Time |
| L | | | | | |
| | P | Settings | | | |
| <u> </u> | • | Go | | | |
| | | Stop | | | |
| | | Clear | | | |
| | Report View | Stop IP Addre No 🛆 Model | Report View Help Stop IP Address Report - Sto No / Model MAC Address Settings Go Stop | Report View Help Stop IP Address Report - Stopped - Port:40 No / Model MAC Address IP Address Stop Go Stop | Report View Help Stop IP Address Report - Stopped - Port:4002 - 0 No Model MAC Address IP Address Count Image: Settings Image: Stop Image: Stop Image: Stop Image: Stop Stop Image: Stop Image: Stop |

NPort CE Driver Manager for Windows CE

NPort CE Driver Manager for Windows CE applies to the NPort 5000 and NPort 1A5000 Series only.

The following topics are covered in this chapter:

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

Overview



ATTENTION

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

Installing NPort CE Driver Manager

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

| Install Default Company Name NP | 🗈 💣 🧱 🗰 ? OK 🗙 |
|---------------------------------|----------------|
| 🔍 \Program Files | |
| Command Prompt | |
| Name: NPortCab Type: | 7 |

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

Using NPort CE Driver Manager

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

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

| N | Port CE D | ок 🗙 | | | | | | |
|---|-------------------------------|----------------|----------|------------|--|--|--|--|
| C | COM Setting COM Mapping About | | | | | | | |
| | СОМ | IP Addr | Data/Cmd | Delete All | | | | |
| | | | | Delete | | | | |
| | | | | | | | | |
| | | | | - | | | | |
| | Settings — | | | 1 | | | | |
| | T× Mode | | Save | | | | | |
| | FIFO | - | | | | | | |
| | 0 COM port | (s) was found. | | | | | | |

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

| NPort CE Drive | | OK × | | | | | | |
|-------------------------------|---|--------|------------|--|--|--|--|--|
| COM Setting COM Mapping About | | | | | | | | |
| Model | Model IP Addr Ports | | | | | | | |
| NPort 5110 | 192.168.127.254 | 1 | Stop | | | | | |
| | | | Modify IP | | | | | |
| | | | Search | | | | | |
| Port Index | | _ | Completed. | | | | | |
| | Add | | | | | | | |
| | Select the of NPort th want to ad | at you | | | | | | |
| | | | | | | | | |

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

| NPort CE Drive | ок 🗙 | | |
|---------------------|---|------------|----------------------|
| COM Setting | | | |
| Model NPort 5110 | IP Addr 192.168.127.254 | Ports 1 | Search Stop |
| | | | Modify IP |
| Port Index | | | Search Completed. |
| Port1 (950/9 | 66) Add | | |
| | Select the of NPort ti want to ad | • | |
| NPort 5110 (192 | .168.127.254) is sele | ected. | |

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

| NPort CE D | | ОК 🗙 | | | | | |
|-------------------------------|-----------------|----------|--|------------|--|--|--|
| COM Setting COM Mapping About | | | | | | | |
| СОМ | IP Addr | Data/Cmd | | Delete All | | | |
| COM2 | 192.168.127.254 | 950/966 | | Delete | | | |
| | | | | | | | |
| | | | | | | | |
| Settings — | | | | | | | |
| T× Mode | • | Save | | | | | |
| FIFO | |] | | | | | |
| 1 COM port | (s) was found. | | | | | | |

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

| NPort CE D | Driver Manager | | ок 🗙 | | | | | |
|-------------|-------------------------------|---------------------|----------------------|--|--|--|--|--|
| COM Settin | COM Setting COM Mapping About | | | | | | | |
| COM COM2 | IP Addr 192.168.127.254 | Data/Cmd 950/966 | Delete All Delete | | | | | |
| Settings — | | | | | | | | |
| T× Mode | e Hi-performance | - Save | | | | | | |
| FIFO | Enable | · | | | | | | |
| COM2 is sel | ected. | | | | | | | |

Tx Mode

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

FIFO

If FIFO is disabled, the NPort server will transmit one byte each time the Tx FIFO becomes empty, and an Rx interrupt will be generated for each incoming byte. This will result in a faster response and lower throughput.

Linux Real TTY Drivers

The following topics are covered in this chapter:

- Basic Procedures
- Hardware Setup
- □ Installing Linux Real TTY Driver Files
- Mapping TTY Ports
 - Mapping tty ports automatically
 - Mapping tty ports manually
- Removing Mapped TTY Ports
- Removing Linux Driver Files

Basic Procedures

To map an NPort 5000 serial port to a Linux host's tty port, follow these instructions:

1. Set up the NPort 5000. After verifying that the IP configuration works and you can access the NPort 5000 (by using ping, telnet, etc.), configure the desired serial port on the NPort 5000 to Real COM mode.

- 2. Install the Linux Real tty driver files on the host
- 3. Map the NPort serial port to the host's tty port

Hardware Setup

Before proceeding with the software installation, make sure you have completed the hardware installation. Note that the default IP address for the NPort 5000 is 192.168.127.254.

NOTE After installing the hardware, you must configure the operating mode of the serial port on your NPort 5000 to Real COM mode.

Installing Linux Real TTY Driver Files

NOTE The newest information, please refer to readme.txt on Linux Real TTY Driver

- 1. Obtain the driver file from Moxa's website, at <u>http://www.moxa.com</u>. You may find it in the **Resource** section under your product page.
- 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.
- 6. Execute /tmp/moxa/mxinst.

For RedHat AS/ES/WS and Fedora Core1, append an extra argument as follows: # /tmp/moxa/mxinst SP1

The shell script will install the driver files automatically.

- 7. After installing the driver, you will be able to see several files in the /usr/lib/npreal2/driver folder:
- > mxaddsvr (Add Server, mapping tty port)
- > mxdelsvr (Delete Server, unmapping tty port)
- > mxloadsvr (Reload Server)
- > mxmknod (Create device node/tty port)
- > mxrmnod (Remove device node/tty port)
- > mxuninst (Remove tty port and driver files)
- At this point, you will be ready to map the NPort serial port to the system tty port.

Mapping TTY Ports

Make sure that you set the operation mode of the desired NPort 5000 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. Modifies npreal2d.cf.
- 2. Creates tty ports in directory /dev with major & minor number configured in npreal2d.cf.
- 3. Restarts the driver.

Mapping tty ports automatically

To map tty ports automatically, you may execute mxaddsvr with just the IP address and

the 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. Modify 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. To do this, you only need to enter the directory /usr/lib/npreal2/driver, then 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.

9 IP Serial LIB

The following topics are covered in this chapter:

Overview

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

Overview

What is IP Serial Library?

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

Why Use IP Serial Library?

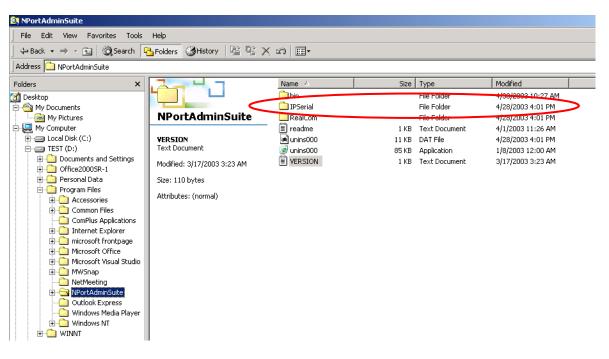
For programmers familiar with serial communication, IP Serial Library provides well-designed function calls that have the same style as Moxa's PComm Library.

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

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

How to Install IP Serial Library

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



IP Serial LIB Function Groups

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

Example Program

```
char NPort 5100A-Nip="192.168.1.10";
char buffer[255];
int port = 1;
int portid;
nsio_init();
portid = nsio_open(NPort 5100Aip, port);
nsio_ioctl(portid, B9600, (BIT_8 | STOP_1 |
P_NONE) );
sleep(1000);
nsio_read(port, buffer, 200);
nsio_close(portid);
nsio_end();
```

```
/*data buffer, 255 chars */
/*lst port */
/* port handle */
/*initial IP Serial Library */
/*lst port, NPort 5100A IP=192.168.1.10
*/
/*set 9600, N81 */
/* wait for 1000 ms for data */
/* read 200 bytes from port 1 */
/* close this serial port */
/* close IP Serial Library */
```

10

Android API Instructions

The following topics are covered in this chapter:

Overview

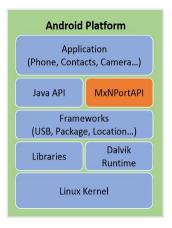
- How to Start MxNPortAPI
- MxNPortAPI Function Groups
- Example Program

Overview

If you want to remote control your serial devices on an Android platform, then the MxNPortAPI is a simple application programming tool that 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 similiar to MOXA Driver Manager. For more details of the provided functions, please refer 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.



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 may find it in the **Resource** section under your product page.)

(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>).

| Organize 🔻 🛛 🏉 Ope | n ▼ Share with ▼ Print New folder | | 1 | | (|
|--------------------|-----------------------------------|--------------------|---------------------|-------|---|
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| 💹 Recent Places | resources | 11/22/2017 3:42 PM | File folder | | |
| | 🔊 allclasses-frame | 11/8/2017 8:02 PM | HTML Document | 2 KB | |
| 🧊 Libraries | 🔊 allclasses-noframe | 11/8/2017 8:02 PM | HTML Document | 2 KB | |
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| 🁌 Music | 💋 deprecated-list | 10/26/2017 5:30 PM | HTML Document | 4 KB | |
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| | 💋 index-all | 10/26/2017 5:34 PM | HTML Document | 46 KB | |
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| | package-list | 11/8/2017 8:02 PM | File | 1 KB | |
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| | erialized-form | 11/8/2017 8:02 PM | HTML Document | 5 KB | |
| | atylesheet | 9/15/2017 5:41 PM | Cascading Style S | 14 KB | |
| | | | | | |
| | | | | | |

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

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

| All Classes | JavaScript is disabled on your browser. |
|---|---|
| McException | DIRINER, PACHAGE CLASS THEE NOEX HELP |
| Mt/Exception.EmorCode Mt/NPort | PREV NEXT FRAMES ALL CLASSES |
| Mit/Port.FlowDat Mit/Port.IsetRivole Mit/Port.IsetRivol Mit/Port.ModemStatus Mit/PortService Vention | This document is the programming guide for the MuNPortAPI. See: Description |
| | Packages |
| | Paskage Description |
| | com moxa mxnportapi |
| | This document is the programming guide for the MaNPortAPI. You can get information about how to code with the MaNPortAPI quickly and how to link the MaNPortAPI Library into your program. Android Platform Application (Phone, Contacts, Camera) Java API MaNPortAPI (USS, 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 | read | getBaud | setBreak |
| close | write | getFlowCtrl | |
| setIoctIMode | | getloctlMode | |
| setFlowCtrl | | getLineStatus | |
| setBaud | | getModemStatus | |
| setRTS | | getOQueue | |
| setDTR | | | |
| 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.loctlMode mode = new MxNPort.loctlMode();
        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.setIoctIMode(mode); /*serial parameters setting*/
           mxNPort.write(buf, buf.length); /*write data*/
           mxNPort.close(); /*close port*/
        } catch (MxException e){
             /*Error handling*/
         }
      }
   }
};
thread.start();
```

Introduction to LCM Display

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

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

The following topics are covered in this chapter:

- Basic Operation
- Detailed Menu Options

Basic Operation

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

| N | Ρ | 5 | 4 | 1 | 0 | _ | б | 1 | 4 | 0 | 5 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| 1 | 9 | 2 | | 1 | 6 | 8 | | 1 | 2 | 7 | | 2 | 5 | 4 | |

This is where

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

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

| Button | ton Name Action | | | |
|--------------------|-----------------|---|--|--|
| menu | menu | activates the main menu, or returns to a lower level | | |
| \bigtriangleup | up cursor | scrolls up through a list of items shown on the LCM panel's second line | | |
| \bigtriangledown | down cursor | scrolls down through a list of items shown on the LCM panel's second line | | |
| sel | select | selects the option listed on the LCM panel's second line | | |

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

Detailed Menu Options

The best way to explain all of the NPort's LCM functions is to refer to the tree graph shown in the next page. There are three main levels—1, 2, and 3—with each level represented by a separate column. The first thing to remember is that the menu button is used to move back and forth between the LCM panel's default screen, and main menu screen:



In addition, you only need to remember to:

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

As you use the buttons to operate the LCM display, you will notice that with very few exceptions, moving up one level causes the bottom line of the display to move to the top line of the display. You will also notice that the bottom three options in level 2, and all of the options in level 3 have either a C or D attached. The meaning is as follows:

• C = configurable

- I.e., you are allowed to change the setting of this option
- D = display only

I.e., the setting for this option is displayed, but it cannot be changed (This does NOT necessarily mean that the number does not change; only that you cannot change it)

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

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

The first type involves entering numbers, such as IP addresses, Netmasks, etc. In this case, you change the number one digit at a time. The up cursor (\triangle) is used to decrease the highlighted digit, the down cursor (\bigtriangledown) is used to increase the highlighted digit, and the SEL button is used to move to the next digit. When the last digit has been changed, pressing SEL simply enters the number into the NPort's memory. The second type of configurable option is when there are only a small number of options from which to choose (although only one option will be visible at a time). Consider the PARITY attribute under PORT SETTING as an example. Follow the tree graph to arrive at the following PARITY screen. The first option, NONE, is displayed, with a down arrow all the way to the right. This is an indication that there are other options from which to choose.

| P | a | r | i | t | Y | |
|-------|---------|--------|----------|--------|---------------------------------------|--------------|
| N | 0 | n | е | | | \downarrow |
| Press | the dow | n curs | or butto | n once | e to see Odd as the second option. | |
| P | а | r | i | t | Y | \uparrow |
| 0 | d | d | | | | \downarrow |
| Press | the dow | n curs | or butto | n aga | in to see Even as the third option. | |
| P | а | r | i | t | Y | \uparrow |
| Ε | v | е | n | | | \downarrow |
| Press | the dow | n curs | or butto | n aga | in to see Space as the fourth option. | |
| P | а | r | i | t | Y | \uparrow |
| Μ | а | r | k | | | \downarrow |
| Press | the dow | n curs | or butto | n yet | again to see the last option, Space. | |
| P | а | r | i | t | Y | \uparrow |
| S | р | а | C | Е | | |

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

A

Pinouts and Cable Wiring

The following topics are covered in this appendix:

Port Pinout Diagrams

- Ethernet Port Pinouts
- Serial Port Pinouts

Cable Wiring Diagrams

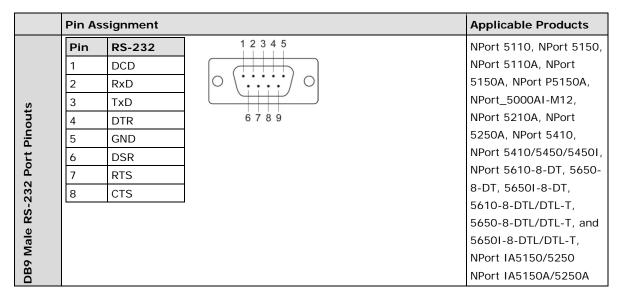
- Ethernet Cables
- Serial Cables

Port Pinout Diagrams

Ethernet Port Pinouts

| Ethern | net RJ45 | | Ethern | et M12 (| (For NPc | rt 5000AI-M12 o | only) |
|--------|----------|--|---------|---------------|----------|-----------------|-------|
| Pin | Signal | | Ethern | et M12: | | | |
| 1 | Tx+ | | PIN | ТΧ | | | |
| 2 | Tx- | | | | | | |
| 3 | Rx+ | | 1 | TD+ | 2 | 7 3 | |
| 6 | Rx- | | 2 | RD+ | - (10 | | |
| | | | 3 | TD- | 10 | 24 | |
| | | | 4 | RD- | | - 4 | |
| | | | Housing | g: shield | | | |
| | | | Power | M12· | | | |
| | | | 3 | 2 | PIN | Description | |
| | | | 1. | • | 1 | Input V+ | |
| | | | ((. | 1 - 5) | 2 | Not assigned | |
| | | | 4 | 21 | 3 | Input V- | |
| | | | - | · · | 4 | Not assigned | |
| | | | ; | 5 | 5 | Function ground | |

Serial Port Pinouts



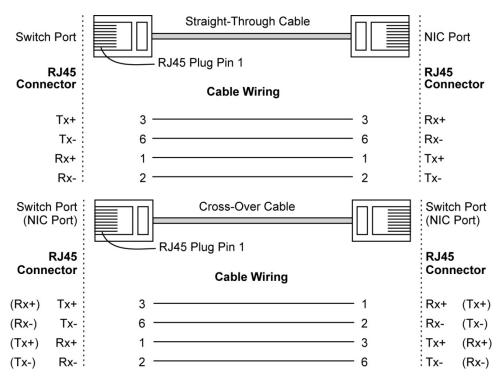
| | Pin | RS-422 / 4-wi | re 2-wire RS- | 485 1 2 3 4 5 | NPort 5130, NPort 5150, |
|--|-----------------|--|--|--|-----------------------------------|
| s | | RS-485 | | | NPort 5130A, NPort |
| out | 1 | TxD-(A) | _ | \circ (·····) \circ | 5150A, NPort P5150A, |
| Pin | | TxD+(B) | _ | | NPort_5000AI-M12, |
| t | | RxD+(B) | Data+(B) | 6789 | NPort 5250A, NPort |
| PG | | RxD-(A) | Data-(A) | | 5450/5450I, 5650-8-DT, |
| 485 | | GND | GND | | 5650I-8-DT, 5650-8- |
| 5/1 | | _ | _ | | DTL/DTL-T, and |
| -42 | | _ | _ | | 5650I-8-DTL/DTL-T, |
| RS | | _ | _ | | NPort IA5150/5250, |
| ale | | | | | NPort IA5250A |
| DB9 Male RS-422/485 Port Pinouts | Note: signal | | 150A Series's D | B9 ports only support RS-232 | |
| | Pin | RS-232 | | | NPort 5210/5210I, |
| t | 1 | DSR | | 8 | NPort 5610-8-DT-J, |
| 8-pin RJ45 RS-232 Port Pinouts | 2 | RTS | | | NPort 5610, NPort 5650- |
| 232 | 3 | GND | | | 8-DT-J |
| SS-S | 4 | TxD | | | |
| ы Ц | 5 | RxD | | | |
| RJ4 S | 6 | DCD | | | |
| 8-pin R. Pinouts | 7 | CTS | | | |
| 8-p Pin | 8 | DTR | | | |
| t | Pin | RS-422 4-wire RS- | 2-wire RS- 485 | | NPort 5630 |
| Ро | | 485 | | | |
| 185 | 1 | | | _ | |
| 5/1 | 2 | | | _ | |
| 42 | 3 | TxD+ | | _ | |
| RS- | 4 | TxD- | | _ | |
| 45 | 5 | RxD- | Data- | _ | |
| n RJ45 RS-422/485 Port outs | 6 | RxD+ | Data+ | 4 | |
| 8-pin RJ Pinouts | 7 | GND | GND | 4 | |
| | | | | | |
| ∞ ∟ | 8 | | | | |
| | Pin | RS-232 | RS-422 4-wire RS-485 | 2-wire RS- 485 | NPort 5650, NPort 5650- 8-DT-J |
| | | | | 2-wire RS- 485 | |
| | Pin | RS-232 | 4-wire RS-485 | 485 | |
| | Pin | RS-232 | 4-wire RS-485 | 485 | |
| | Pin 1 2 | RS-232 DSR RTS | 4-wire RS-485 TxD+ | 485 | |
| | Pin 1 2 3 | RS-232 DSR RTS GND | 4-wire RS-485 TxD+ GND | 485 GND | |
| | Pin 1 2 3 4 | RS-232 DSR RTS GND TxD | 4-wire RS-485 TxD+ GND TxD- | 485 GND | |
| | Pin 1 2 3 4 5 | RS-232 DSR RTS GND TxD RxD | 4-wire RS-485 TxD+ GND TxD- RxD+ | 485 GND Data+ | |
| 8-pin RJ45 RS-232/422/ 485 8 Port Pinouts P | Pin 1 2 3 4 5 6 | RS-232 DSR RTS GND TxD RxD DCD | 4-wire RS-485 TxD+ GND TxD- RxD+ RxD+ RxD- | 485 GND Data + Data- | |

| Terminal Block RS-232 & RS-422/485 Pinouts | Serial Device Signals NPo RxD I TxD I TxD I CTS I GND I Rx+ I Rx- I Tx+ / Data+ I GND I GND I | Tx Rx Rx RTS GND T+ T- R*/D+ 485/4222 GND GND H/D+ 485/4222 GND H/D+ 485/4222 H/D+ 485/4222 H | NPort 5230 |
|--|---|--|--|
| Terminal Block RS-422/ 485 Port Pinouts | Pin 2-wire RS-485 1 - 2 - 3 Data+(B) 4 Data-(A) 5 GND | RS-422, 4-wire RS-485 TxD+(B) TxD-(A) RxD+(B) RxD-(A) GND | NPort 5230A, NPort IA5150, NPort IA5150A |
| Terminal Block RS- | Serial Device Signals Rx+ Rx- Tx+ / Data+ GND Serial Device Terminal E Terminal E C Terminal E C C C C C C C C C C C C C C C C C C C | | NPort 5430/5430I |
| Console Port Pinouts | RJ45 Connector | Pin RS-232 1 DSR 2 RTS 3 GND 4 TxD 5 RxD 6 DCD 7 CTS 8 DTR | Applies only to DT models. |

| Power Input and Relay Output Pinouts | 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | сю о о | o | | | | | NPort IA5150/5250 |
|---|--|-----------------------|---------------|----------|--------|------------|-------------|-------------------|
| Power Input ar Output Pinouts | щ | V2+ | V2- | Г | t l | V1+ | V1- | |
| r In It Pi | Shielded | DC | DC | Relay | Relay | DC | DC | |
| wei | Ground | Power | Power | output | output | Power | Power | |
| Po | | input 1 | input 1 | | | input 2 | input 2 | |
| Power Input and Relay Output Pinouts | r | V2- DPWR2 NO D L L | NPort IA5000A | | | | | |
| Inpu ts | Ŧ | PWR | 1 | PWR2 | REL | AΥ | | |
| Power I Pinouts | Shielded | DC P | ower | DC Power | Norm | nal Open/C | lose, Relay | |
| Por | Ground | Input | | Input | outp | ut | | |

Cable Wiring Diagrams

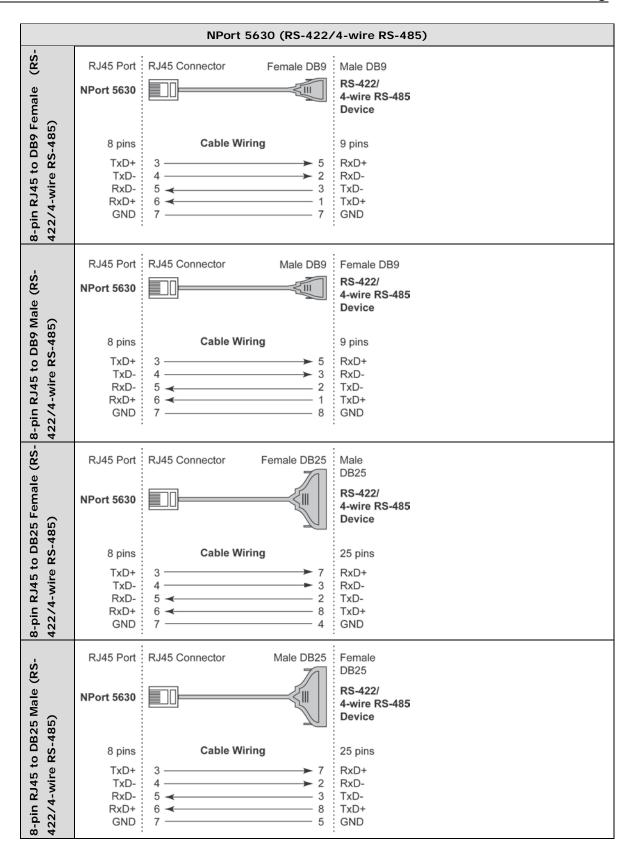
Ethernet Cables

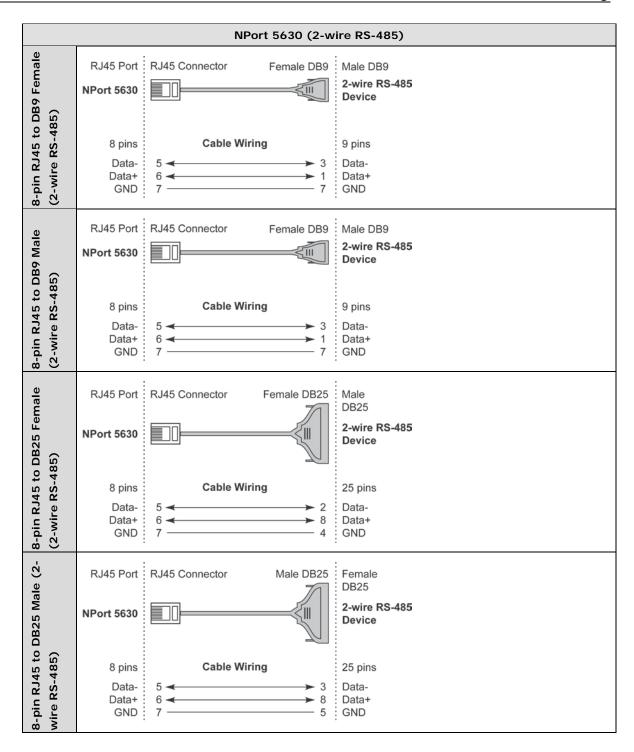


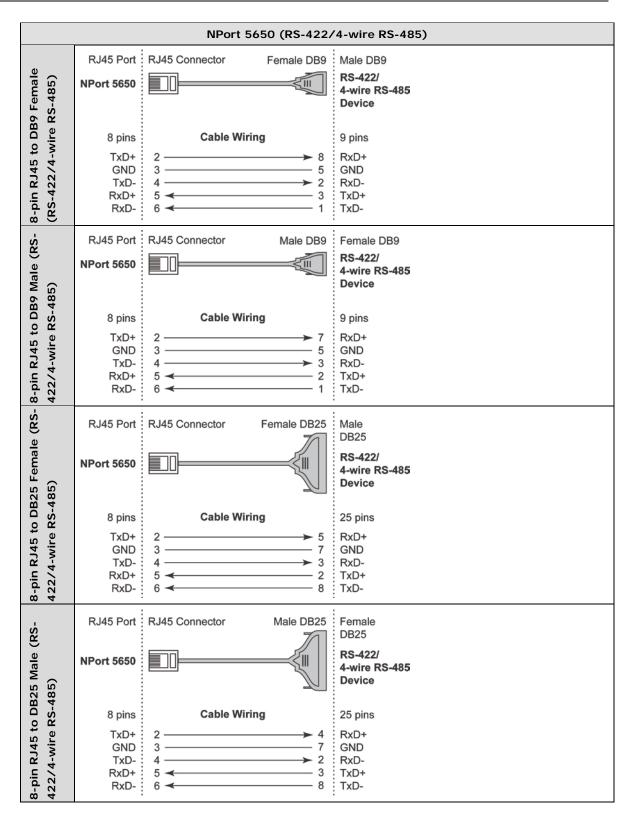
Serial Cables

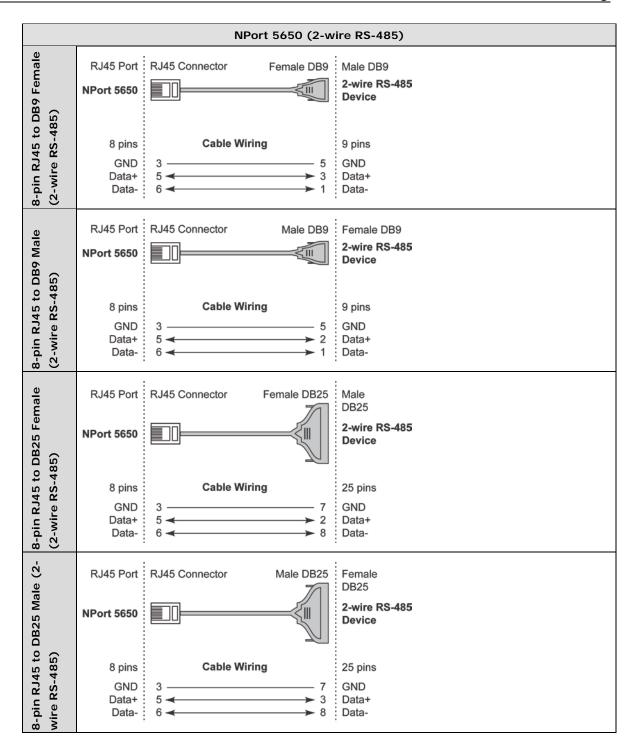
| | Serial Cab | ble Wiring Diagrams | | |
|-------------------------|--|---|---|--|
| | Male DB9 | Female DB9 Male | e DB9 | Female DB9 |
| (RS-232) | NPort | | | RS-232 Device |
| DB9 | 9 pins | Cable Wiring | | 9 pins |
| Female DB9 to Male DB9 | DCD RxD TxD DTR GND DSR RTS CTS | $ \begin{array}{cccccccccccccccccccccccccccccccccccc$ | - 2 - 3 - 4 - 5 - 6 - 7 | DCD TxD RxD DSR GND DTR CTS RTS |
| 5) | Male DB9 | Female DB9 Male | DB25 | Female DB25 |
| 25 (RS-232) | NPort | | | RS-232 Device |
| DB | 9 pins | Cable Wiring | | 25 pins |
| Female DB9 to Male DB25 | DCD RxD TxD DTR GND DSR RTS CTS | 1 2 2 3 3 | - 3 - 2 - 20 - 7 - 6 - 4 | DCD TxD RxD DSR GND DTR CTS RTS |

| | | NPort 5210, NPort 5610/56 | 50 (RS-232) |
|---------------------------------------|------------|---|----------------|
| | RJ45 Port | RJ45 Connector Female DB9 | Male DB9 |
| -rs- | NPort | | RS-232 |
| 8-pin RJ45 to DB9 Female (RS- 232) | | | Device |
| ema | 8 pins | Cable Wiring | 9 pins |
| 9 Fe | DSR | 1 < 4 2 8 | DTR |
| DB | RTS GND | 2 | CTS GND |
| 5 to | TxD | 4 ─── 2 | RxD |
| RJ4 | RxD DCD | 5 < 3 6 < 1 | TxD DCD |
| 2) 2 | CTS | 7 - 7 | RTS |
| 8-F 23. | DTR | 8 | DSR |
| 5) | RJ45 Port | RJ45 Connector Male DB9 | Female DB9 |
| -23 | NPort | | RS-232 |
| (RS | | | Device |
| 8-pin RJ45 to DB9 Male (RS-232) | 8 pins | Cable Wiring | 9 pins |
| M 63 | DSR | $\begin{array}{c}1 \\ 4 \\ 2 \\ \hline \end{array} \begin{array}{c}6 \\ 7 \\ 7 \end{array}$ | DTR |
| DB | RTS GND | 3 5 | CTS GND |
| 5 to | TxD | 4 ─── > 3 | RxD |
| RJ4 | RxD DCD | 5 ~ 2 6 ~ 1 | TxD DCD |
| pin | CTS | 7 - 8 | RTS |
| -8 | DTR | 8 | DSR |
| | RJ45 Port | RJ45 Connector Female DB25 | Male |
| (32) | | 7 | DB25 |
| S-2 | NPort | | RS-232 |
| e (F | | | Device |
| Female (RS-232) | 8 pins | Cable Wiring | 25 pins |
| 5 Fe | DSR | 1 🔫 20 | DTR |
| 0B2 | RTS GND | 2 | CTS GND |
| to [| TxD | 4> 3 | RxD |
| 145 | RxD | 5 < 2 6 < 8 | TxD |
| n RJ | DCD CTS | 7 🗲 4 | DCD RTS |
| 8-pin RJ45 to DB2 | DTR | 8 6 | DSR |
| | | | i |
| | RJ45 Port | RJ45 Connector Male DB25 | Female DB25 |
| 32) | | | RS-232 |
| S-2 | NPort | | Device |
| е (R | 8 pins | Cable Wiring | 25 pipe |
| 8-pin RJ45 to DB25 Male (RS-232) | DSR | | 25 pins DTR |
| 325 | RTS | 2 4 | CTS |
| o DI | GND TxD | $3 \xrightarrow{} 7 \\ 4 \xrightarrow{} 2$ | GND RxD |
| 45 ti | RxD | 5 \prec 3 | TxD |
| RJ | DCD | 6 ≺ 8 7 ≺ 5 | DCD |
| pin | CTS DTR | $\begin{array}{c}7 \\ 8 \end{array} \xrightarrow{5} 20$ | RTS DSR |
| å | Dire | 20 | · · |







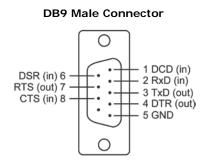


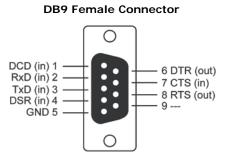
| | Serial C | able W | iring Diag | rams | | | | |
|---------------------------------|----------|--------|------------|-----------------------|--------|---------|---------|---------------|
| | NPort | | | | | | | Serial Device |
| | | RJ45 | DB9(F) | | DB9(M) | DB25(M) | DB25(F) | |
| | DSR | 1 | 6 | ◄ | 4 | 6 | 20 | DTR |
| | RTS | 2 | 7 | \longrightarrow | 8 | 4 | 5 | CTS |
| | GND | 3 | 5 | | 5 | 7 | 7 | GND |
| les | TxD | 4 | 3 | \longrightarrow | 2 | 2 | 3 | RxD |
| Cab | RxD | 5 | 2 | ◄ | 3 | 3 | 2 | TxD |
| RS-232 Cables | DCD | 6 | 1 | ◄ | 1 | 8 | 8 | DCD |
| -23 | CTS | 7 | 8 | ◄ | 7 | 5 | 4 | RTS |
| RS | DTR | 8 | 4 | \longrightarrow | 6 | 20 | 6 | DSR |
| RS-422, 4-wire RS-485 Cables | NPort | | | | | | | Serial Device |
| ŝ | | RJ45 | DB9(F) | | DB9(M) | DB25(M) | DB25(F) | |
| vire | TxD+ | 2 | 2 | \longrightarrow | 3 | 3 | 2 | RxD+ |
| 4-v | GND | 3 | 5 | | 5 | 7 | 7 | GND |
| s 12 | TxD- | 4 | 1 | > | 1 | 8 | 8 | RxD- |
| RS-422 Cables | RxD+ | 5 | 3 | ◄ | 2 | 2 | 3 | TxD+ |
| RS Cal | RxD- | 6 | 4 | ◄ | 6 | 20 | 6 | TxD- |
| 85 | NPort | | | | | | | Serial Device |
| 5-4 | | RJ45 | DB9(F) | | DB9(M) | DB25(M) | DB25(F) | |
| S K | GND | 3 | 5 | | 5 | 7 | 7 | GND |
| 2-wire RS-485 Cables | Data+ | 5 | 3 | \longleftrightarrow | 2 | 2 | 3 | Data+ |
| 2-wire Cables | Data- | 6 | 4 | \longleftrightarrow | 6 | 20 | 6 | Data- |

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

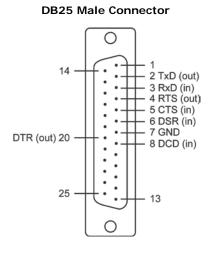
Pin Assignments for DB9 and DB25 Connectors

Pin Assignments for DB9 Male and Female Connectors

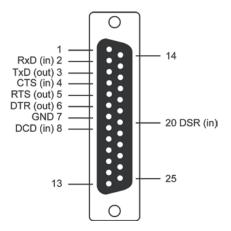




Pin Assignments for DB25 Male and Female Connectors



DB25 Female Connector



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

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



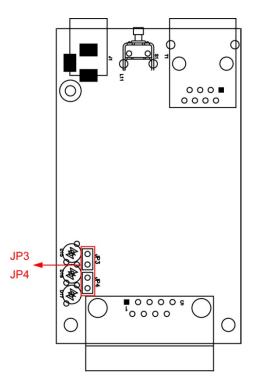
ATTENTION

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

NPort 5130/5150 Series (Jumpers)

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

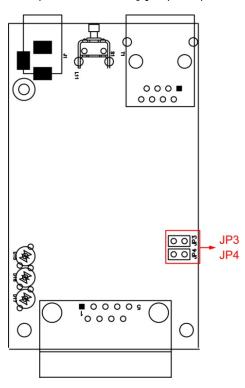
To set a termination resistor to 1 k Ω , make sure that the two jumpers (JP3 and JP4) assigned to the serial port are shorted by jumper caps.



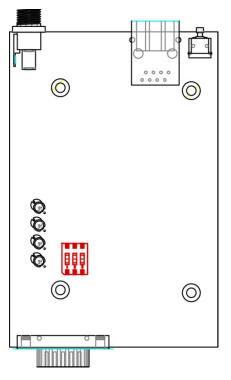
NPort 5130A/5150A (Jumpers)

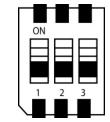
To set a pull high/low resistor to 150 k Ω , make sure that the two jumpers (JP3 and JP4) assigned to the serial port are not shorted by jumper caps. This is the default setting.

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



NPort P5150A (DIP Switches)





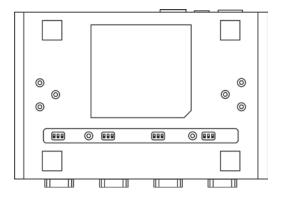
| SW | 1 | 2 | 3 |
|-----|-----------|----------|------------|
| | Pull-high | Pull-low | Terminator |
| | resistor | resistor | |
| ON | 1 kΩ | 1 kΩ | 120 Ω |
| OFF | 150 kΩ* | 150 kΩ* | -* |

* Default

NPort 5400 Series (DIP Switches)

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

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



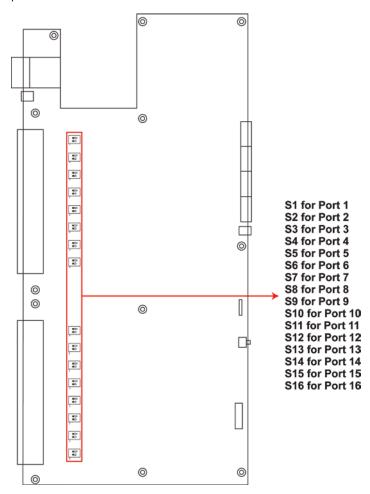
Pull high/low resistors for the RS-485 Port

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

NPort 5650 Series (DIP Switches)

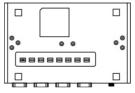
To set the pull high/low resistors to 150 K Ω , make sure both of the assigned DIP switches are in the OFF position. This is the default setting.

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

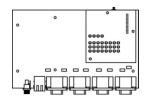


NPort 5600-8-DT/DTL Series (DIP Switches)

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



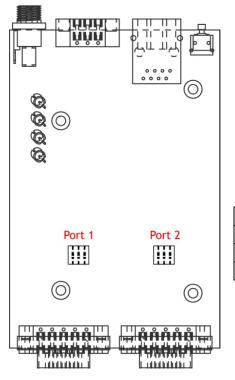
• **NPort 5600-8-DTL:** Remove the top cover to access the DIP switches used to configure each device port's pull high/low resistors (note that SW4 is reserved for future use).



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

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

NPort 5230A/5250A (DIP Switches)

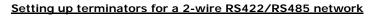


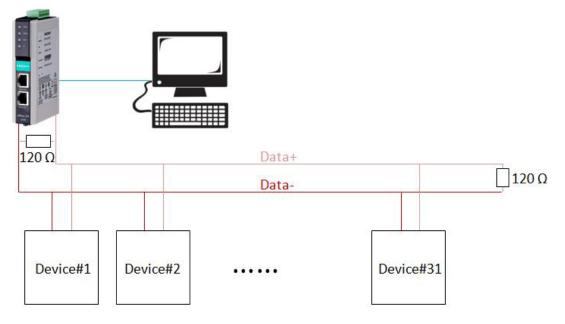
| 011 | | |
|-----|-----------|-----------|
| | \square | \square |
| | | |
| 1 | 2 | 3 |
| | | |

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

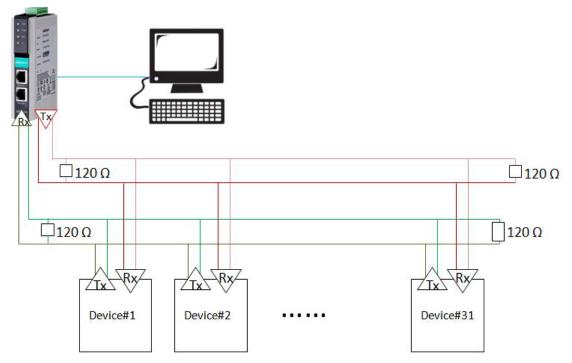
NPort IA5000 Series

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



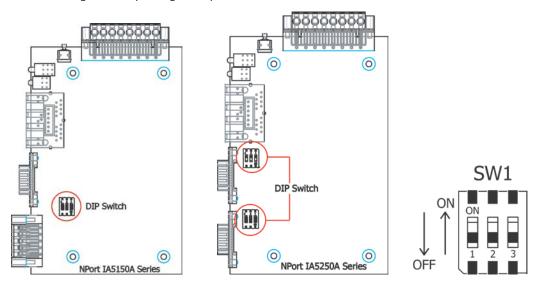


Setting up terminators for a 4-wire RS485 network



NPort IA5000A Series (DIP Switches)

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



Well-Known Port Numbers

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

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

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

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

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

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

D

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

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

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

RFC1213 MIB-II Supported SNMP Variables:

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

RFC1317: RS-232 MIB objects

| Generic RS-232-like Group | RS-232-like General Port | RS-232-like Asynchronous Port |
|---------------------------|--------------------------|-------------------------------|
| Generic K3-232-like Group | Table | Group |
| rs232Number | rs232PortTable | rs232AsyncPortTable |
| | rs232PortEntry | rs232AsyncPortEntry |
| | rs232PortIndex | rs232AsyncPortIndex |
| | rs232PortType | rs232AsyncPortBits |
| | rs232PortInSigNumber | rs232AsyncPortStopBits |
| | rs232PortOutSigNumber | rs232AsyncPortParity |
| | rs232PortInSpeed | |
| | rs232PortOutSpeed | |

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

Auto IP Report Protocol

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

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

Network Settings

| LAN1 IP address | 192.168.127.254 |
|--------------------------|--------------------|
| | |
| LAN1 Netmask | 255.255.255.0 |
| LAN1 Gateway | |
| LAN1 IP configuration | Static \$ |
| Multi-LAN mode | Switch \$ |
| LAN2 IP address | 192.168.126.254 |
| LAN2 Netmask | 255.255.255.0 |
| LAN2 Gateway | |
| LAN2 IP configuration | Static \$ |
| | |
| DNS server 1 | |
| DNS server 2 | |
| IP Address Report | |
| Auto report to IP (LAN2) | |
| | 1000 |
| Auto report to UDP port | 4002 |
| Auto report period | 10 (0~99 secs) |
| LLDP Settings | |
| | |
| LLDP | 💿 Enable 🔵 Disable |

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

Auto IP Report Format

| "Moxa", 4 bytes | Info[0] | Info[1] | | Info[n] |
|-----------------|---------|---------|--|---------|
|-----------------|---------|---------|--|---------|

Info [n]

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

ID List

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

AP ID & Hardware ID Mapping Table

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

| AP ID | Device ID | Product |
|------------|-----------|---------------|
| 0x80015100 | 0x511A | NPort 5110A |
| 0x80015100 | 0x513A | NPort 5130A |
| 0x80015100 | 0x515A | NPort 5150A |
| 0x80015200 | 0x521A | NPort 5210A |
| 0x80015200 | 0x523A | NPort 5230A |
| 0x80015200 | 0x525A | NPort 5250A |
| 0x80005110 | 0x5110 | NPort 5110 |
| 0x80005100 | 0x5130 | NPort 5130 |
| 0x80005100 | 0x5150 | NPort 5150 |
| 0x80005000 | 0x0504 | NPort 5410 |
| 0x80005000 | 0x0534 | NPort 5430 |
| 0x80005000 | 0x1534 | NPort 5430I |
| 0x80000312 | 0x0312 | NPort 5230 |
| 0x80000312 | 0x0322 | NPort 5210 |
| 0x80000312 | 0x0332 | NPort 5232 |
| 0x80000312 | 0x1332 | NPort 52321 |
| 0x80005610 | 0x5618 | NPort 5610-8 |
| 0x80005610 | 0x5613 | NPort 5610-16 |
| 0x80005610 | 0x5638 | NPort 5630-8 |
| 0x80005610 | 0x5633 | NPort 5630-16 |
| 0x80015100 | 0x5157 | NPort P5150A |

AP ID & Hardware ID Mapping Table

Compliance Notice



CE Warning

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

Federal Communications Commission Statement

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



FCC Warning

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