

**Flow control**

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

**FIFO**

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

**Interface**

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

**Data Buffering / Log**

**MOXA®** NPort W2x50A www.moxa.com

■ **Model** - NPortW2250A    ■ **IP** - 192.168.126.254    ■ **MAC Address** - 00:90:E8:22:00:00  
 ■ **Name** - NPortW2250A\_4    ■ **Serial No.** - 4    ■ **Firmware** - 1.0 Build 12  
 ■ **Location** -

### Data Buffering/Log

**- Main Menu**

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- Serial Port Settings
- Operation Modes
- Communication Parameters
- Data Buffering/Log**
- System Management

| Port      | Port buffering (10M) | Serial data logging (64K) |
|-----------|----------------------|---------------------------|
| Port 1    | Disable ▼            | Disable ▼                 |
| Port 2    | Disable ▼            | Disable ▼                 |
| All Ports | Disable ▼            | Disable ▼                 |

**Submit**

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

**Port buffering**

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

**Serial data logging(64K)**

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

# Web Console: System Management

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The following topics are covered in this chapter:

- ❑ **Overview**

- ❑ **System Management**

- Misc. Network Settings
- Auto Warning Settings
- Maintenance
- Certificate

# Overview

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

## System Management

### Misc. Network Settings

#### Accessible IP List

**MOXA®** Total Solution for Industrial Device Networking

■ Model - NPortW2250A ■ IP - 192.168.126.254  
 ■ Name - NPortW2250A\_6923 ■ Serial No. - 6923  
 ■ Location -

**Accessible IP List**

☐ Enable the accessible IP list ( "Disable" will allow all IP's connection request)

| No. | Active                   | IP | Netmask |
|-----|--------------------------|----|---------|
| 1   | <input type="checkbox"/> |    |         |
| 2   | <input type="checkbox"/> |    |         |
| 3   | <input type="checkbox"/> |    |         |
| 4   | <input type="checkbox"/> |    |         |
| 5   | <input type="checkbox"/> |    |         |
| 6   | <input type="checkbox"/> |    |         |
| 7   | <input type="checkbox"/> |    |         |
| 8   | <input type="checkbox"/> |    |         |
| 9   | <input type="checkbox"/> |    |         |
| 10  | <input type="checkbox"/> |    |         |

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  - User Table
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  - System Log Settings
- Auto Warning Settings
- Maintenance
- Certificate

The **Accessible IP List** page is located under **Misc. Network Settings** in the **System Management** folder. This page is used to restrict access to the NPort by IP address. Only IP addresses on the list will be allowed access to the NPort. You may add a specific address or range of addresses by using a combination of IP address and netmask, as follows:

#### To allow access to a specific IP address

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

#### To allow access to hosts on a specific subnet

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

#### To allow access to all IP addresses

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

Refer to the following table for more configuration examples.

| Desired IP Range               | IP Address Field | Netmask Field   |
|--------------------------------|------------------|-----------------|
| Any host                       | Disable          | Disable         |
| 192.168.1.120                  | 192.168.1.120    | 255.255.255.255 |
| 192.168.1.1 to 192.168.1.254   | 192.168.1.0      | 255.255.255.0   |
| 192.168.0.1 to 192.168.255.254 | 192.168.0.0      | 255.255.0.0     |
| 192.168.1.1 to 192.168.1.126   | 192.168.1.0      | 255.255.255.128 |
| 192.168.1.129 to 192.168.1.254 | 192.168.1.128    | 255.255.255.128 |

## SNMP Agent Settings


NPort W2x50A

|                 |                 |                   |                   |                    |  |
|-----------------|-----------------|-------------------|-------------------|--------------------|--|
| <b>Model</b>    | - NPortW2250A   | <b>IP</b>         | - 192.168.126.254 | <b>MAC Address</b> |  |
| <b>Name</b>     | - NPortW2250A_4 | <b>Serial No.</b> | - 4               | <b>Firmware</b>    |  |
| <b>Location</b> | -               |                   |                   |                    |  |

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- System Monitoring
- Restart

### SNMP Agent Settings

**Configuration**

**SNMP** Enable ▼

**Contact name**

**Location**

**Read community string**

**Write community string**

**SNMP agent version** V1, V2c, V3 ▼

**Read only user name**

**Read only authentication mode** Disable ▼

**Read only password**

**Read only privacy mode** Disable ▼

**Read only privacy**

**Read/write user name**

**Read/write authentication mode** Disable ▼

**Read/write password**

**Read/write privacy mode** Disable ▼

**Read/write privacy**

Submit



Best viewed with IE 5 above at resolution 1024 x 768

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

### SNMP

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

### Contact Name

|                    |                                                                                                                              |
|--------------------|------------------------------------------------------------------------------------------------------------------------------|
| <b>Default</b>     |                                                                                                                              |
| <b>Options</b>     | free text (e.g., "J Smith")                                                                                                  |
| <b>Description</b> | This is an optional free text field that can be used to specify the SNMP emergency contact name, telephone, or pager number. |

### Location

|                    |                                                                                                                 |
|--------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Default</b>     |                                                                                                                 |
| <b>Options</b>     | free text (e.g., "Building XYZ")                                                                                |
| <b>Description</b> | This is an optional free text field that can be used to specify the location for SNMP agents such as the NPort. |

### Read Community String

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

**Write Community String**

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

**SNMP Agent Version**

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

**Read Only User Name**

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

**Read Only Authentication Mode**

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

**Read Only Password**

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

**Read Only Privacy mode**

|                    |                                                                                    |
|--------------------|------------------------------------------------------------------------------------|
| <b>Default</b>     | Disable                                                                            |
| <b>Options</b>     | Disable                                                                            |
| <b>Description</b> | This field specifies whether data encryption will be used during read-only access. |

**Read Only Privacy**

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

**Read / Write User Name**

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

**Read / Write Authentication Mode**

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

**Read / Write Password**

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

**Read / Write Privacy mode**

|                    |                                                                                     |
|--------------------|-------------------------------------------------------------------------------------|
| <b>Default</b>     | Disable                                                                             |
| <b>Options</b>     | Disable, DES, AES                                                                   |
| <b>Description</b> | This field specifies whether data encryption will be used during read/write access. |

**Read / Write Privacy**

|                    |                                                                                                   |
|--------------------|---------------------------------------------------------------------------------------------------|
| <b>Default</b>     |                                                                                                   |
| <b>Options</b>     | free text (e.g., "read write key")                                                                |
| <b>Description</b> | This field specifies the encryption key for read/write access, if read-/write privacy is enabled. |

**User Table**

| No. | User Name            | Password             |
|-----|----------------------|----------------------|
| 1   | <input type="text"/> | <input type="text"/> |
| 2   | <input type="text"/> | <input type="text"/> |
| 3   | <input type="text"/> | <input type="text"/> |
| 4   | <input type="text"/> | <input type="text"/> |
| 5   | <input type="text"/> | <input type="text"/> |
| 6   | <input type="text"/> | <input type="text"/> |
| 7   | <input type="text"/> | <input type="text"/> |
| 8   | <input type="text"/> | <input type="text"/> |
| 9   | <input type="text"/> | <input type="text"/> |
| 10  | <input type="text"/> | <input type="text"/> |

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

**Authentication Server**

**RADIUS**

RADIUS server:

RADIUS key:

UDP port: 1645

RADIUS accounting: Disable

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

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

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

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

## System Log Settings

**MOXA®** NPort W2x50A www.moxa.com

■ **Model** - NPortW2250A    ■ **IP** - 192.168.126.254    ■ **MAC Address** - 00:90:E8:22:50:88  
 ■ **Name** - NPortW2250A\_4    ■ **Serial No.** - 4    ■ **Firmware** - 1.0 Build 12041115  
 ■ **Location** -

**System Log Settings**

| Event Group | Local Log                | Summary                                                                                                                                                               |
|-------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System      | <input type="checkbox"/> | System Cold Start, System Warm Start                                                                                                                                  |
| Network     | <input type="checkbox"/> | DHCP/BOOTP Get IP/Renew, Mail Fail, NTP Connect Fail, IP Conflict, Network Link Down                                                                                  |
| Config      | <input type="checkbox"/> | Login Fail, IP Changed, Password Changed, Firmware Upgrade, SSL Certificate Import, Config Import, Config Export, Wireless Certificate Import, Serial Data Log Export |
| OpMode      | <input type="checkbox"/> | Connect, Disconnect, Restart                                                                                                                                          |

**Submit**

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

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

## Auto Warning Settings

### Event Settings

**MOXA®** NPort W2x50A

■ **Model** - NPortW2250A    ■ **IP** - 192.168.126.254    ■ **MAC Address** - 00:90:E8:22:50:88  
 ■ **Name** - NPortW2250A\_4    ■ **Serial No.** - 4    ■ **Firmware** - 1.0 Build 12041115  
 ■ **Location** -

**System Event Settings**

**System Event**

|                   |                               |                               |
|-------------------|-------------------------------|-------------------------------|
| <b>Cold start</b> | Mail <input type="checkbox"/> | Trap <input type="checkbox"/> |
| <b>Warm start</b> | Mail <input type="checkbox"/> | Trap <input type="checkbox"/> |

**Config Event**

|                                          |                               |                               |
|------------------------------------------|-------------------------------|-------------------------------|
| <b>Console(web/text) login auth fail</b> | Mail <input type="checkbox"/> | Trap <input type="checkbox"/> |
| <b>IP changed</b>                        | Mail <input type="checkbox"/> |                               |
| <b>Password changed</b>                  | Mail <input type="checkbox"/> |                               |

**Submit**

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      - Serial Event Settings

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

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

## Serial Event Settings

**MOXA** NPort W2x50A www.moxa.com

Model - NPortW2250A IP - 192.168.126.254 MAC Address - 00:90:E8:22:50:80  
 Name - NPortW2250A\_4 Serial No. - 4 Firmware - 1.0 Build 120411  
 Location -

### Serial Event Settings

| Serial Port Event | DCD changed                   |                               | DSR changed                   |                               |
|-------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Port 1            | Mail <input type="checkbox"/> | Trap <input type="checkbox"/> | Mail <input type="checkbox"/> | Trap <input type="checkbox"/> |
| Port 2            | Mail <input type="checkbox"/> | Trap <input type="checkbox"/> | Mail <input type="checkbox"/> | Trap <input type="checkbox"/> |
| All Ports         | Mail <input type="checkbox"/> | Trap <input type="checkbox"/> | Mail <input type="checkbox"/> | Trap <input type="checkbox"/> |

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

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



### ATTENTION

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

## E-mail Alert

**MOXA®** NPort W2x50A WW

|          |                 |            |                   |             |                     |
|----------|-----------------|------------|-------------------|-------------|---------------------|
| Model    | - NPortW2250A   | IP         | - 192.168.126.254 | MAC Address | - 00:08:00:00:00:00 |
| Name     | - NPortW2250A_4 | Serial No. | - 4               | Firmware    | - 1.0.0             |
| Location | -               |            |                   |             |                     |

**E-Mail Alert**

**Mail settings**

Mail server (SMTP)

☐ My server requires authentication

User name

Password

From e-mail address

To e-mail address 1

To e-mail address 2

To e-mail address 3

To e-mail address 4

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



### ATTENTION

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

### Mail Server (SMTP)

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

### From e-mail address

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

### To e-mail address 1 to 4

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

## SNMP Trap

**MOXA®** NPort W2x50A www.moxa.com

■ **Model** - NPortW2250A    ■ **IP** - 192.168.33.21    ■ **MAC Address** - 00:90:E8:22:50:88  
 ■ **Name** - NPortW2250A\_4    ■ **Serial No.** - 4    ■ **Firmware** - 1.0 Build 12041115  
 ■ **Location** -

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    - SNMP Trap

### SNMP Trap

SNMP Trap

SNMP trap server IP or domain name

Trap version ☐ v2c ☒ v1

Trap community

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

### SNMP Trap Server IP

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

### Trap Version

|                    |                                                    |
|--------------------|----------------------------------------------------|
| <b>Default</b>     | v1                                                 |
| <b>Options</b>     | v1, v2c                                            |
| <b>Description</b> | This field specifies the SNMP trap version to use. |

### Trap Community

|                    |                                               |
|--------------------|-----------------------------------------------|
| <b>Default</b>     |                                               |
| <b>Options</b>     | free text (e.g., "public access")             |
| <b>Description</b> | This field specifies the SNMP trap community. |

# Maintenance

## Console Settings

The screenshot shows the 'Console Settings' page in the NPort web console. The sidebar on the left has a 'Main Menu' with options: Overview, Wizard, Basic Settings, Network Settings, Serial Port Settings, System Management, Misc. Network Settings, Auto Warning Settings, Maintenance, Console Settings (highlighted with a red circle), and Ping. The main content area is titled 'Console Settings' and contains a 'Configurations' section. This section has five dropdown menus for enabling or disabling different console types: HTTP console, HTTPS console, Telnet console, SSH console, and Serial console. All are currently set to 'Enable'. There is also a 'Reset button' dropdown set to 'Always enable'. A green 'Submit' button is located at the bottom right of the configuration area.

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

### HTTP Console

|                    |                                                                  |
|--------------------|------------------------------------------------------------------|
| <b>Default</b>     | Enable                                                           |
| <b>Options</b>     | Enable, Disable                                                  |
| <b>Description</b> | This field enables or disables access to the HTTP (web) console. |

### HTTPS Console

|                    |                                                                   |
|--------------------|-------------------------------------------------------------------|
| <b>Default</b>     | Enable                                                            |
| <b>Options</b>     | Enable, Disable                                                   |
| <b>Description</b> | This field enables or disables access to the HTTPS (web) console. |

### Telnet Console

|                    |                                                              |
|--------------------|--------------------------------------------------------------|
| <b>Default</b>     | Enable                                                       |
| <b>Options</b>     | Enable, Disable                                              |
| <b>Description</b> | This field enables or disables access to the Telnet console. |

### SSH Console

|                    |                                                           |
|--------------------|-----------------------------------------------------------|
| <b>Default</b>     | Enable                                                    |
| <b>Options</b>     | Enable, Disable                                           |
| <b>Description</b> | This field enables or disables access to the SSH console. |

### Serial Console

|                    |                                                              |
|--------------------|--------------------------------------------------------------|
| <b>Default</b>     | Enable                                                       |
| <b>Options</b>     | Enable, Disable                                              |
| <b>Description</b> | This field enables or disables access to the serial console. |

### Reset Button

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

## Ping

The screenshot shows the Moxa NPort W2x50A Web Console interface. At the top, the Moxa logo and device name 'NPort W2x50A' are displayed. Below this is a status bar with the following information:

|          |                 |            |                   |             |  |
|----------|-----------------|------------|-------------------|-------------|--|
| Model    | - NPortW2250A   | IP         | - 192.168.126.254 | MAC Address |  |
| Name     | - NPortW2250A_4 | Serial No. | - 4               | Firmware    |  |
| Location | -               |            |                   |             |  |

The left sidebar contains a menu with the following items:

- Misc. Network Settings
  - Accessible IP List
  - SNMP Agent
  - System Log Settings
- Auto Warning Settings
  - Event Settings
  - Serial Event Settings
  - E-mail Alert
  - SNMP Trap
- Maintenance
  - Console Settings
  - Ping**
  - Firmware Upgrade

The main content area is titled 'Ping Test'. It features a 'Ping Destination' section with a 'Destination' input field and an 'Activate' button.

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

## Firmware Upgrade

The screenshot shows the Moxa NPort W2x50A Web Console interface. At the top, the Moxa logo and device name 'NPort W2x50A' are displayed. Below this is a status bar with the following information:

|          |                 |            |                 |             |                      |
|----------|-----------------|------------|-----------------|-------------|----------------------|
| Model    | - NPortW2250A   | IP         | - 192.168.33.21 | MAC Address | - 00:90:E8:22:50:88  |
| Name     | - NPortW2250A_4 | Serial No. | - 4             | Firmware    | - 1.0 Build 12041115 |
| Location | -               |            |                 |             |                      |

The left sidebar contains a menu with the following items:

- Main Menu
  - Overview
  - Wizard
  - Basic Settings
  - Network Settings
  - Serial Port Settings
  - System Management
    - Misc. Network Settings
      - Accessible IP List
      - SNMP Agent
      - System Log Settings
    - Auto Warning Settings
    - Maintenance
      - Console Settings
      - Ping
      - Firmware Upgrade**

The main content area is titled 'Firmware Upgrade'. It features a '!!! Warning !!!' section with a note: 'Note: Upgrade firmware will discard your un-saved configuration changes and restart the system!'. Below this is a 'Select firmware file' section with a file input field and a 'Browse...' button. At the bottom is a 'Submit' button.

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

## Configuration Import

The screenshot shows the Moxa NPort W2x50A Web Console interface. At the top, the Moxa logo is on the left, 'NPort W2x50A' is in the center, and 'www.moxa.com' is on the right. Below this is a status bar with the following information:

|          |                 |            |                 |             |                      |
|----------|-----------------|------------|-----------------|-------------|----------------------|
| Model    | - NPortW2250A   | IP         | - 192.168.33.21 | MAC Address | - 00:90:E8:22:50:88  |
| Name     | - NPortW2250A_4 | Serial No. | - 4             | Firmware    | - 1.0 Build 12041115 |
| Location | -               |            |                 |             |                      |

On the left is a 'Main Menu' sidebar with the following items: Overview, Wizard, Basic Settings, Network Settings, Serial Port Settings, System Management, Misc. Network Settings, Accessible IP List, SNMP Agent, System Log Settings, Auto Warning Settings, Maintenance, Console Settings, Ping, Firmware Upgrade, Configuration Import (highlighted in red), and Configuration Export.

The main content area is titled 'Configuration Import'. It contains a section 'Configuration Import' with a 'Select configuration file' label, a text input field, and a 'Browse...' button. Below this is a checkbox labeled 'IP configuration' with the text 'Import all configurations including IP configurations.' and a 'Submit' button.

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

## Configuration Export

The screenshot shows the Moxa NPort W2x50A Web Console interface. At the top, the Moxa logo is on the left, 'NPort W2x50A' is in the center, and 'www.moxa.com' is on the right. Below this is a status bar with the following information:

|          |                 |            |                   |             |   |
|----------|-----------------|------------|-------------------|-------------|---|
| Model    | - NPortW2250A   | IP         | - 192.168.126.254 | MAC Address | - |
| Name     | - NPortW2250A_4 | Serial No. | - 4               | Firmware    | - |
| Location | -               |            |                   |             |   |

On the left is a 'Main Menu' sidebar with the following items: Misc. Network Settings, Accessible IP List, SNMP Agent, System Log Settings, Auto Warning Settings, Event Settings, Serial Event Settings, E-mail Alert, SNMP Trap, Maintenance, Console Settings, Ping, Firmware Upgrade, Configuration Import, and Configuration Export (highlighted in red).

The main content area is titled 'Configuration Export'. It contains a section 'Configuration Export' with a large 'Export' button.

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

## Load Factory Default

The screenshot shows the Moxa NPort W2x50A Web Console interface. The top header includes the Moxa logo, the device name 'NPort W2x50A', and the website 'www.moxa.com'. Below the header is a status bar with the following information:

|          |                 |            |                 |             |                      |
|----------|-----------------|------------|-----------------|-------------|----------------------|
| Model    | - NPortW2250A   | IP         | - 192.168.33.21 | MAC Address | - 00:90:E8:22:50:88  |
| Name     | - NPortW2250A_4 | Serial No. | - 4             | Firmware    | - 1.0 Build 12041115 |
| Location | -               |            |                 |             |                      |

The left sidebar contains a navigation menu with the following items:

- System Management
  - Misc. Network Settings
    - Accessible IP List
    - SNMP Agent
    - System Log Settings
  - Auto Warning Settings
    - Event Settings
    - Serial Event Settings
    - E-mail Alert
    - SNMP Trap
  - Maintenance
    - Console Settings
    - Ping
    - Firmware Upgrade
    - Configuration Import
    - Configuration Export
    - Load Factory Default

The main content area is titled 'Load Factory Default'. It contains the following text:

Click on **Submit** to reset all settings, including the console password, to the factory default values. To leave the IP address, netmask, gateway and WLAN profile settings unchanged, make sure that **Keep IP Settings** is enabled.

Below the text is a section titled 'Reset to Factory Default' with a checkbox labeled 'Keep IP settings' and a 'Submit' button.

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

## Change Password

The screenshot shows the Moxa NPort W2x50A Web Console interface. The top header includes the Moxa logo, the device name 'NPort W2x50A', and the website 'www.moxa.com'. Below the header is a status bar with the following information:

|          |                 |            |                   |             |  |
|----------|-----------------|------------|-------------------|-------------|--|
| Model    | - NPortW2250A   | IP         | - 192.168.126.254 | MAC Address |  |
| Name     | - NPortW2250A_4 | Serial No. | - 4               | Firmware    |  |
| Location | -               |            |                   |             |  |

The left sidebar contains a navigation menu with the following items:

- Misc. Network Settings
  - Accessible IP List
  - SNMP Agent
  - System Log Settings
- Auto Warning Settings
  - Event Settings
  - Serial Event Settings
  - E-mail Alert
  - SNMP Trap
- Maintenance
  - Console Settings
  - Ping
  - Firmware Upgrade
  - Configuration Import
  - Configuration Export
  - Load Factory Default
  - Change Password
- Certificate

The main content area is titled 'Change Password'. It contains the following text:

**Password**

Account name:  (dropdown menu with options: admin, user)

Old password:

New password:

Confirm password:

Below the fields is a 'Submit' button.

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

**ATTENTION**

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

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

## Certificate

### Ethernet SSL Certificate Import

**MOXA®** NPort W2x50A

| Model         | Name            | Location | IP                | Serial No. | MAC Address | Firmware |
|---------------|-----------------|----------|-------------------|------------|-------------|----------|
| - NPortW2250A | - NPortW2250A_4 | -        | - 192.168.126.254 | - 4        |             |          |

SNMP Trap  
- Maintenance  
  Console Settings  
  Ping  
  Firmware Upgrade  
  Configuration Import  
  Configuration Export  
  Load Factory Default  
  Change Password  
- Certificate  
  Ethernet SSL Certificate Import (circled in red)  
  WLAN SSL Certificate Import

### Ethernet SSL Certificate Import

**Installed Certificate**

|           |                            |
|-----------|----------------------------|
| Issued to | 192.168.126.254            |
| Issued by | 192.168.126.254            |
| Valid     | from 2012/4/19 to 2072/4/4 |

Select SSL certificate/key file

The **Ethernet SSL Certificate Import** page is located under **Certificate** in the **System Management** folder. This is where you can load the Ethernet SSL certificate. Select or browse for the certificate file in the **Select SSL certificate / key file** field. The NPort only supports the PEM format of the certificate so far. If your file is in another format, for example DER or PFX, please convert it to PEM first.

## WLAN SSL Certificate Import

The screenshot shows the Moxa NPort W2x50A Web Console interface. At the top, the Moxa logo and device name 'NPort W2x50A' are displayed. Below this is a status bar with fields for Model, Name, Location, IP, Serial No., MAC Address, and Firmware. The main navigation menu on the left includes options like Accessible IP List, SNMP Agent, System Log Settings, Auto Warning Settings, Event Settings, Serial Event Settings, E-mail Alert, SNMP Trap, Maintenance, Console Settings, Ping, Firmware Upgrade, Configuration Import, Configuration Export, Load Factory Default, Change Password, Certificate, Ethernet SSL Certificate Import, and WLAN SSL Certificate Import (highlighted in red). The main content area is titled 'WLAN SSL Certificate Import' and contains a section for 'Installed Certificate'. This section shows fields for 'Issued to', 'Issued by', and 'Valid' (from Not installed to Not installed). Below these is a 'Select SSL certificate/key file' field with a 'Browse...' button and a 'Submit' button.

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

## WPA Server Certificate Import

The screenshot shows the Moxa NPort W2x50A Web Console interface. At the top, the Moxa logo and device name 'NPort W2x50A' are displayed. Below this is a status bar with fields for Model, Name, Location, IP, Serial No., MAC Address, and Firmware. The main navigation menu on the left includes options like Accessible IP List, SNMP Agent, System Log Settings, Auto Warning Settings, Event Settings, Serial Event Settings, E-mail Alert, SNMP Trap, Maintenance, Console Settings, Ping, Firmware Upgrade, Configuration Import, Configuration Export, Load Factory Default, Change Password, Certificate, Ethernet SSL Certificate Import, WLAN SSL Certificate Import, and WPA Server Certificate Import (highlighted in red). The main content area is titled 'WPA Server Certificate Import' and contains a section for 'Installed Certificate'. This section shows fields for 'Issued to', 'Issued by', and 'Valid' (from Not installed to Not installed). Below these is a 'Select WPA server certificate file' field with a 'Browse...' button and a 'Submit' button.

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

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

## WPA User Certificate Import

**MOXA®** NPort W2x50A

|          |                 |            |                   |             |
|----------|-----------------|------------|-------------------|-------------|
| Model    | - NPortW2250A   | IP         | - 192.168.126.254 | MAC Address |
| Name     | - NPortW2250A_4 | Serial No. | - 4               | Firmware    |
| Location | -               |            |                   |             |

**WPA User Certificate Import**

**Installed Certificate**

Issued to: Not installed

Issued by: Not installed

Valid from: Not installed to: Not installed

Select WPA user certificate file:

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

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

## WPA User Key Import

**MOXA®** NPort W2x50A

|          |                 |            |                   |             |
|----------|-----------------|------------|-------------------|-------------|
| Model    | - NPortW2250A   | IP         | - 192.168.126.254 | MAC Address |
| Name     | - NPortW2250A_4 | Serial No. | - 4               | Firmware    |
| Location | -               |            |                   |             |

**WPA User Key Import**

**Installed Certificate**

Key length: Not install!!

Select SSL certificate/key file:

Password for private key:

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

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

## Certificate / Key Delete

**MOXA®** NPort W2x50A

| Model         | Name            | Location | IP                | Serial No. | MAC Address | Firmware |
|---------------|-----------------|----------|-------------------|------------|-------------|----------|
| - NPortW2250A | - NPortW2250A_4 | -        | - 192.168.126.254 | - 4        |             |          |

**Certificate/Key Delete**

**Installed Certificate**

| SSL certificate                                                    | WPA server certificate    | WPA user certificate/private key      |
|--------------------------------------------------------------------|---------------------------|---------------------------------------|
| <input type="radio"/> Delete <input checked="" type="radio"/> Keep | No certificate installed! | No certificate/private key installed! |

**Submit**

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

## Web Console: System Monitoring

---

The following topics are covered in this chapter:

- ❑ **Overview**
- ❑ **System Monitoring**
  - Serial Status
  - System Status

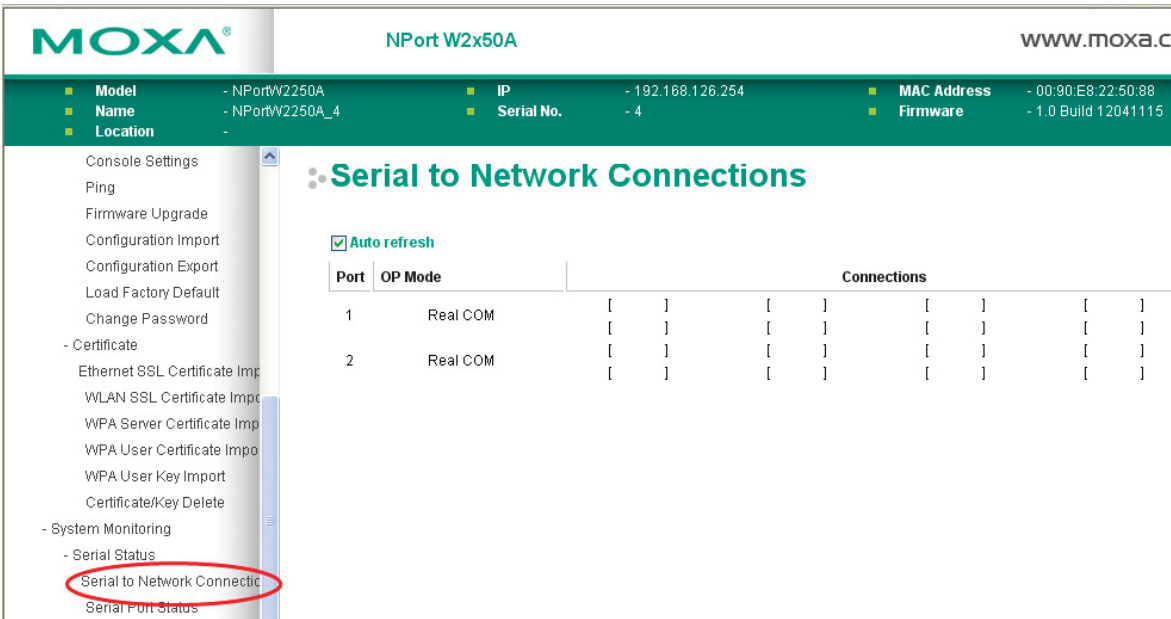
# Overview

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

## System Monitoring

### Serial Status

#### Serial to Network Connections



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

## Serial Port Status

**MOXA®** NPort W2x50A www.moxa.com

■ **Model** - NPortW2250A    ■ **IP** - 192.168.126.254    ■ **MAC Address** - 00:90:E8:22:50:88  
 ■ **Name** - NPortW2250A\_4    ■ **Serial No.** - 4    ■ **Firmware** - 1.0 Build 12041115  
 ■ **Location** -

**Serial Port Status**

☒ Auto refresh

| Port | TxCnt | RxCnt | TxTotalCnt | RxTotalCnt | DSR | DTR | RTS | CTS | DCD |
|------|-------|-------|------------|------------|-----|-----|-----|-----|-----|
| 1    | 0     | 0     | 0          | 0          | ●   | ●   | ●   | ●   | ●   |
| 2    | 0     | 0     | 0          | 0          | ●   | ●   | ●   | ●   | ●   |

Console Settings  
 Ping  
 Firmware Upgrade  
 Configuration Import  
 Configuration Export  
 Load Factory Default  
 Change Password  
 - Certificate  
   Ethernet SSL Certificate Imp  
   WLAN SSL Certificate Impo  
   WPA Server Certificate Impo  
   WPA User Certificate Impo  
   WPA User Key Import  
   Certificate/Key Delete  
 - System Monitoring  
   - Serial Status  
     Serial to Network Connecti  
     **Serial Port Status**  
     Serial Port Error Count

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

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

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

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

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

## Serial Port Error Count

**MOXA®** NPort W2x50A www.moxa.com

■ **Model** - NPortW2250A    ■ **IP** - 192.168.126.254    ■ **MAC Address** - 00:90:E8:22:50:88  
 ■ **Name** - NPortW2250A\_4    ■ **Serial No.** - 4    ■ **Firmware** - 1.0 Build 12041115  
 ■ **Location** -

**Serial Port Error Count**

☒ Auto refresh

| Port | ErrCnt |        |         |       |
|------|--------|--------|---------|-------|
|      | Frame  | Parity | Overrun | Break |
| 1    | 0      | 0      | 0       | 0     |
| 2    | 0      | 0      | 0       | 0     |

Console Settings  
 Ping  
 Firmware Upgrade  
 Configuration Import  
 Configuration Export  
 Load Factory Default  
 Change Password  
 - Certificate  
   Ethernet SSL Certificate Imp  
   WLAN SSL Certificate Impo  
   WPA Server Certificate Impo  
   WPA User Certificate Impo  
   WPA User Key Import  
   Certificate/Key Delete  
 - System Monitoring  
   - Serial Status  
     Serial to Network Connecti  
     Serial Port Status  
     **Serial Port Error Count**

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

## Serial Port Settings

**MOXA®** NPort W2x50A www.moxa.com

■ **Model** - NPortW2250A      ■ **IP** - 192.168.126.254      ■ **MAC Address** - 00:90:E8:22:50:88  
 ■ **Name** - NPortW2250A\_4      ■ **Serial No.** - 4      ■ **Firmware** - 1.0 Build 12041115  
 ■ **Location** -

### Serial Port Settings

☒ Auto refresh

| Port | Baud Rate | Data Bits | Stop Bits | Parity | Flow Control |          | FIFO   | Interface |
|------|-----------|-----------|-----------|--------|--------------|----------|--------|-----------|
|      |           |           |           |        | RTS/CTS      | XON/XOFF |        |           |
| 1    | 19200     | 8         | 1         | None   | OFF          | OFF      | Enable | RS-232    |
| 2    | 9600      | 8         | 1         | None   | OFF          | OFF      | Enable | RS-232    |

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

## System Status

## Network Connections

**MOXA®** NPort W2x50A www.moxa.com

■ **Model** - NPortW2250A      ■ **IP** - 192.168.126.254      ■ **MAC Address** - 00:90:E8:22:50:88  
 ■ **Name** - NPortW2250A\_4      ■ **Serial No.** - 4      ■ **Firmware** - 1.0 Build 12041115  
 ■ **Location** -

### Network Connections

☒ Auto refresh

| Protocol | Recv-Q | Send-Q | Local Address      | Foreign Address     | State       |
|----------|--------|--------|--------------------|---------------------|-------------|
| TCP      | 0      | 0      | *:4900             | *:0                 | LISTEN      |
| TCP      | 0      | 0      | *:966              | *:0                 | LISTEN      |
| TCP      | 0      | 0      | *:967              | *:0                 | LISTEN      |
| TCP      | 0      | 0      | *:80               | *:0                 | LISTEN      |
| TCP      | 0      | 0      | *:950              | *:0                 | LISTEN      |
| TCP      | 0      | 0      | *:22               | *:0                 | LISTEN      |
| TCP      | 0      | 0      | *:951              | *:0                 | LISTEN      |
| TCP      | 0      | 0      | *:23               | *:0                 | LISTEN      |
| TCP      | 0      | 0      | *:443              | *:0                 | LISTEN      |
| TCP      | 0      | 0      | 192.168.126.254:80 | 192.168.126.11:3891 | TIME_WAIT   |
| TCP      | 0      | 0      | 192.168.126.254:80 | 192.168.126.11:3892 | TIME_WAIT   |
| TCP      | 0      | 0      | 192.168.126.254:80 | 192.168.126.11:3898 | TIME_WAIT   |
| TCP      | 0      | 0      | 192.168.126.254:80 | 192.168.126.11:3888 | TIME_WAIT   |
| TCP      | 0      | 0      | 192.168.126.254:80 | 192.168.126.11:3878 | TIME_WAIT   |
| TCP      | 0      | 0      | 192.168.126.254:80 | 192.168.126.11:3884 | TIME_WAIT   |
| TCP      | 0      | 0      | 192.168.126.254:80 | 192.168.126.11:3863 | TIME_WAIT   |
| TCP      | 0      | 1275   | 192.168.126.254:80 | 192.168.126.11:3908 | ESTABLISHED |
| TCP      | 0      | 0      | 192.168.126.254:80 | 192.168.126.11:3873 | TIME_WAIT   |
| TCP      | 0      | 0      | 192.168.126.254:80 | 192.168.126.11:3883 | TIME_WAIT   |
| TCP      | 0      | 0      | 192.168.126.254:80 | 192.168.126.11:3897 | TIME_WAIT   |

goahead  
**WEB SERVER**  
 Best viewed with IE 5 above at resolution 1024 x 768

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

## Serial Data Log

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

The screenshot shows the Moxa NPort W2x50A Web Console interface. The top status bar displays the device name 'NPort W2x50A' and a table of system information:

| Model         | Name            | Location | IP                | Serial No. | MAC Address | Firmware |
|---------------|-----------------|----------|-------------------|------------|-------------|----------|
| - NPortW2250A | - NPortW2250A_4 | -        | - 192.168.126.254 | - 4        |             |          |

The sidebar menu on the left lists various configuration and monitoring options. The main content area is titled 'Serial Data Log' and contains the following elements:

- Download Serial Data Log**: A section header for the log download functionality.
- Serial port**: A dropdown menu currently set to 'Port1'.
- Download format**: Radio buttons for 'ASCII' (selected) and 'HEX'.
- Clear log** and **Download**: Two buttons at the bottom of the section.

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

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

## System Log

The screenshot shows the Moxa NPort W2x50A Web Console interface. At the top, the Moxa logo and device name 'NPort W2x50A' are displayed. Below this is a status bar with fields for Model, Name, Location, IP, Serial No., MAC Address, and Firmware. The main menu on the left includes options like Firmware Upgrade, Configuration Import/Export, Load Factory Default, Change Password, Certificate management, System Monitoring, Serial Status, Serial to Network Connection, Serial Port Status, Serial Port Error Count, Serial Port Settings, System Status, Network Connections, Serial Data Log, and System Log. The 'System Log' page is active, showing a large empty log area with 'Clear log' and 'Refresh' buttons at the bottom.

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

## WLAN Log (This function is supported by firmware V1.10 or above)

The screenshot shows the Moxa NPort W2250A Web Console interface. At the top, the Moxa logo and device name 'NPort W2250A' are displayed. Below this is a status bar with fields for Model, Name, Location, IP, Serial No., and MAC Address. The main menu on the left includes options like Overview, Wizard, Basic Settings, Network Settings, Serial Port Settings, System Management, System Monitoring, Serial Status, System Status, Network Connections, Serial Data Log, System Log, WLAN Log, WLAN Status, and Restart. The 'WLAN Log' page is active, showing a list of WLAN events with timestamps and details. At the bottom, there are 'Clear log', 'Download', and 'Refresh' buttons.

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

## WLAN Status

**MOXA®** NPort W2x50A

|          |                 |            |                   |             |  |
|----------|-----------------|------------|-------------------|-------------|--|
| Model    | - NPortW2250A   | IP         | - 192.168.126.254 | MAC Address |  |
| Name     | - NPortW2250A_4 | Serial No. | - 4               | Firmware    |  |
| Location | -               |            |                   |             |  |

### WLAN Status

☒ Auto refresh

| Information         |        |
|---------------------|--------|
| Active profile name | N/A    |
| IP configuration    | static |
| IP address          | N/A    |
| Netmask             | N/A    |
| Gateway             | N/A    |
| Network type        | N/A    |
| Operation mode      | N/A    |
| SSID                | N/A    |
| Channel             | N/A    |
| Authentication      | N/A    |
| Encryption          | N/A    |
| Region              | CN     |
| Signal strength     | N/A    |
| Connection speed    | N/A    |

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

## Web Console: Restart

---

The following topics are covered in this chapter:

- ▣ **Overview**

- ▣ **Restart**

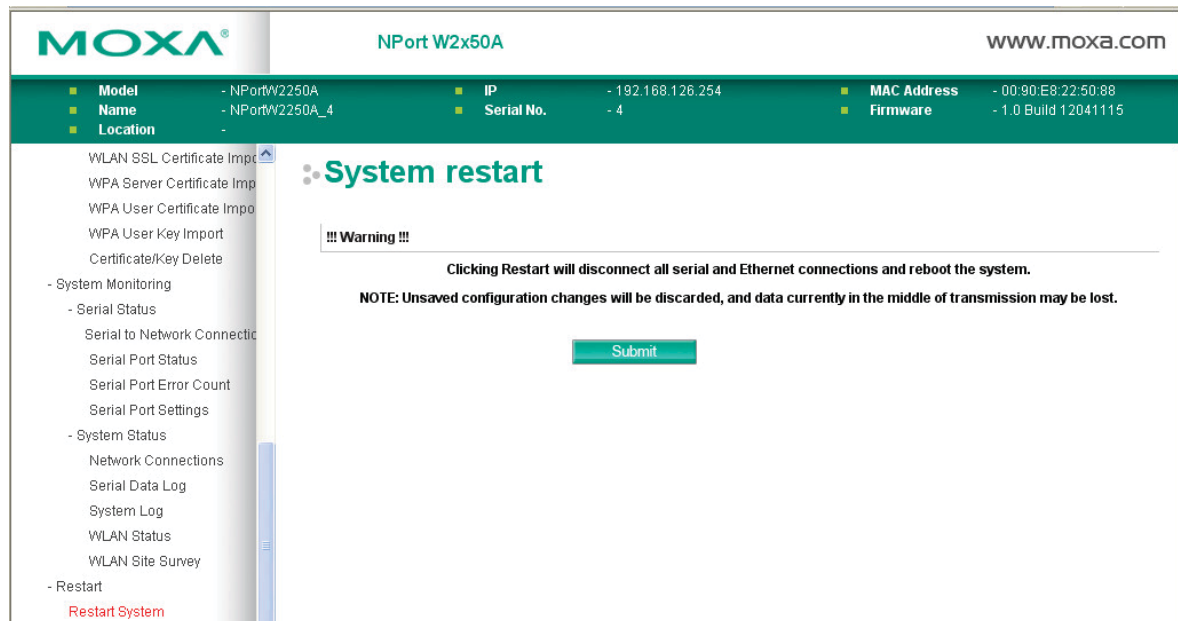
- Restart System
- Restart Ports

# Overview

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

## Restart

### Restart System



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

## Restart Ports

The screenshot displays the Moxa NPort W2x50A Web Console interface. The top header shows the Moxa logo and the device model 'NPort W2x50A'. Below the header, a table provides device details:

| Model         | Name            | Location | IP                | Serial No. | MAC Address | Firmware |
|---------------|-----------------|----------|-------------------|------------|-------------|----------|
| - NPortW2250A | - NPortW2250A_4 | -        | - 192.168.126.254 | - 4        |             |          |

The left sidebar contains a menu with the following items: WLAN SSL Certificate Import, WPA Server Certificate Import, WPA User Certificate Import, WPA User Key Import, Certificate/Key Delete, - System Monitoring, - Serial Status, Serial to Network Connection, Serial Port Status, Serial Port Error Count, Serial Port Settings, - System Status, Network Connections, Serial Data Log, System Log, WLAN Status, WLAN Site Survey, - Restart, Restart System, and Restart Ports (circled in red).

The main content area is titled 'Restart Ports'. It includes a 'Select Ports' section with checkboxes for 'Port 1' and 'Port 2'. A green 'Submit' button is located below the checkboxes.

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

## Android API Instructions

---

The following topics are covered in this chapter:

- ❑ **Overview**

- How to Start MxNPortAPI

- ❑ **MxNPortAPI Function Groups**

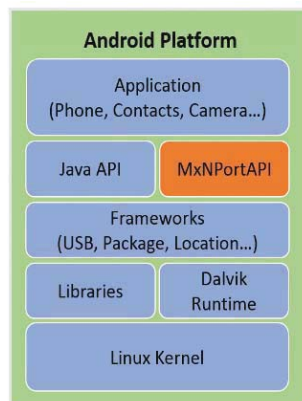
- ❑ **Example Program**

# 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 similar to MOXA Driver Manager. For more details about the provided functions, please refer to the “MxNPortAPI Function Groups” section.

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

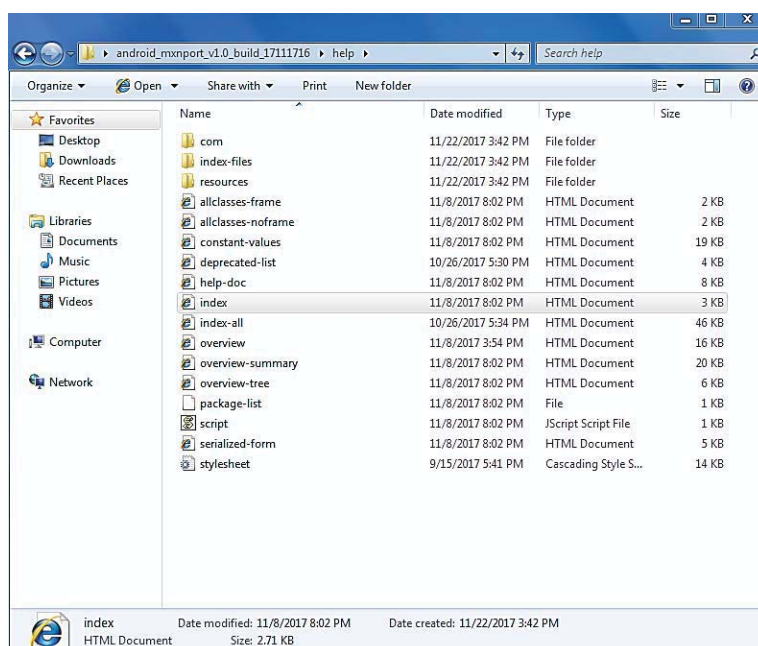


## How to Start MxNPortAPI

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

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

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.

The screenshot shows the MxNPortAPI documentation page. The left sidebar lists 'All Classes' including MxException, MxException.ErrorCode, MxNPort, MxNPort.FlowCtrl, MxNPort.IoctlMode, MxNPort.LineError, MxNPort.ModemStatus, MxNPort.Service, and Version. The main content area has a title 'Overview' and a description of the MxNPortAPI. Below the description is a diagram of the Android Platform architecture.

**Android Platform**

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

## MxNPortAPI Function Groups

The supported functions in this API are listed below:

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

## Example Program

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

```
Thread thread = new Thread()
{
    @Override
    public void run() {
        /* Enumerate and initialize NPorts on system */
        List<MxNPort> NPortList = MxNPortService.getNPortInfoList();
        if(NPortList!=null){
            MxNPort.IoctlMode mode = new MxNPort.IoctlMode();
            mode.baudRate = 38400;
            mode.dataBits = MxNPort.DATA_BITS_8;
            mode.parity = MxNPort.PARITY_NONE;
            mode.stopBits = MxNPort.STOP_BITS_1;

            MxNPort mxNPort = NPortList.get(0); /* Get first NPort device */
            try {
```

```
byte[] buf = {'H','e','l','l','o',' ','W','o','r','l','d'};
mxNPort.open(); /*open port*/
mxNPort.setIoctlMode(mode); /*serial parameters setting*/
mxNPort.write(buf, buf.length); /*write data*/
mxNPort.close(); /*close port*/
} catch (MxException e){
    /*Error handling*/
}
}
}
};
thread.start();
```

# SNMP Agents with MIB II & RS-232-Like Groups

---

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

## RFC1213 MIB-II Supported SNMP Variables

### System MIB

|             |             |             |
|-------------|-------------|-------------|
| SysDescr    | SysContact  | SysServices |
| SysObjectID | SysName     |             |
| SysUpTime   | SysLocation |             |

### Interfaces MIB

|               |                   |                 |
|---------------|-------------------|-----------------|
| ifNumber      | ifOperStatus      | ifOutOctets     |
| ifIndex       | ifLastChange      | ifOutUcastPkts  |
| ifDescr       | ifInOctets        | ifOutNUcastPkts |
| ifType        | ifInUcastPkts     | ifOutDiscards   |
| ifMtu         | ifInNUcastPkts    | ifOutErrors     |
| ifSpeed       | ifInDiscards      | ifOutQLen       |
| ifPhysAddress | ifInErrors        | ifSpecific      |
| ifAdminStatus | ifInUnknownProtos |                 |

### IP MIB

|                   |                |                         |
|-------------------|----------------|-------------------------|
| ipForwarding      | ipOutDiscards  | ipAdEntIfIndex          |
| ipDefaultTTL      | ipOutNoRoutes  | ipAdEntNetMask          |
| ipInreceives      | ipReasmTimeout | ipAdEntBcastAddr        |
| ipInHdrErrors     | ipReasmReqds   | ipAdEntReasmMaxSize     |
| ipInAddrErrors    | ipReasmOKs     | IpNetToMediaIfIndex     |
| ipForwDatagrams   | ipReasmFails   | IpNetToMediaPhysAddress |
| ipInUnknownProtos | ipFragOKs      | IpNetToMediaNetAddress  |
| ipInDiscards      | ipFragFails    | IpNetToMediaType        |
| ipInDelivers      | ipFragCreates  | IpRoutingDiscards       |
| ipOutRequests     | ipAdEntAddr    |                         |

## ICMP MIB

|                    |                     |                      |
|--------------------|---------------------|----------------------|
| IcmpInMsgs         | IcmpInTimestamps    | IcmpOutRedirects     |
| IcmpInErrors       | IcmpTimest ampReps  | IcmpOutEchos         |
| IcmpInDestUnreachs | IcmpInAddrMasks     | IcmpOutEchoReps      |
| IcmpInTimeExcds    | IcmpOutMsgs         | IcmpOutTimestamps    |
| IcmpInParmProbs    | IcmpOutErrors       | IcmpOutTimestampReps |
| IcmpInSrcQuenchs   | IcmpOutDestUnreachs | IcmpOutAddrMasks     |
| IcmpInRedirects    | IcmpOutTimeExcds    | IcmpOutAddrMaskReps  |
| IcmpInEchos        | IcmpOutParmProbs    |                      |
| IcmpInEchoReps     | IcmpOutSrcQuenchs   |                      |

## UDP MIB

|                |                 |
|----------------|-----------------|
| UdpInDatagrams | UdpOutDatagrams |
| UdpNoPorts     | UdpLocalAddress |
| UdpInErrors    | UdpLocalPort    |

## Address Translation

|               |              |
|---------------|--------------|
| AtIfIndex     | AtNetAddress |
| AtPhysAddress |              |

## TCP MIB

|                 |                     |                   |
|-----------------|---------------------|-------------------|
| tcpRtoAlgorithm | tcpEstabResets      | tcpConnLocalPort  |
| tcpRtoMin       | tcpCurrEstab        | tcpConnRemAddress |
| tcpRtoMax       | tcpInSegs           | tcpConnRemPort    |
| tcpMaxConn      | tcpOutSegs          | tcpInErrs         |
| tcpActiveOpens  | tcpRetransSegs      | tcpOutRsts        |
| tcpPassiveOpens | tcpConnState        |                   |
| tcpAttemptFails | tcpConnLocalAddress |                   |

## SNMP MIB

|                         |                    |                       |
|-------------------------|--------------------|-----------------------|
| snmpInPkts              | snmpInTotalReqVars | snmpOutGenErrs        |
| snmpOutPkts             | snmpInTotalSetVars | snmpOutGetRequests    |
| snmpInBadVersions       | snmpInGetRequests  | snmpOutGetNexts       |
| snmpInBadCommunityNames | snmpInGetNexts     | snmpOutSetRequests    |
| snmpInASNParseErrs      | snmpInSetRequests  | snmpOutGetResponses   |
| snmpInTooBig            | snmpInGetResponses | snmpOutTraps          |
| snmpInNoSuchNames       | snmpInTraps        | snmpEnableAuthenTraps |
| snmpInBadValues         | snmpOutTooBig      |                       |
| snmpInReadOnly          | snmpOutNoSuchNames |                       |
| snmpInGenErrs           | snmpOutBadValues   |                       |

# RFC1317: RS-232 MIB Objects

## Generic RS-232-like Group

rs232Number

## RS-232-like General Port Table

rs232PortTable  
rs232PortEntry  
rs232PortIndex  
rs232PortType  
rs232PortInSigNumber  
rs232PortOutSigNumber  
rs232PortInSpeed  
rs232PortOutSpeed

## RS-232-like Asynchronous Port Group

|                     |                     |                        |
|---------------------|---------------------|------------------------|
| rs232AsyncPortTable | rs232AsyncPortIndex | rs232AsyncPortStopBits |
| rs232AsyncPortEntry | rs232AsyncPortBits  | rs232AsyncPortParity   |

## The Input Signal Table

|                 |                     |                 |
|-----------------|---------------------|-----------------|
| rs232InSigTable | rs232InSigPortIndex | rs232InSigState |
| rs232InSigEntry | rs232InSigName      |                 |

## The Output Signal Table

|                  |                      |                  |
|------------------|----------------------|------------------|
| rs232OutSigTable | rs232OutSigPortIndex | rs232OutSigState |
| rs232OutSigEntry | rs232OutSigName      |                  |

## Well-Known Port Numbers

---

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

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

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

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

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

| UDP Socket | Application Service                   |
|------------|---------------------------------------|
| 0          | reserved                              |
| 2          | Management Utility                    |
| 7          | Echo                                  |
| 9          | Discard                               |
| 11         | Active Users (sysstat)                |
| 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 (TFTP)      |
| 70         | Gopher Protocol                       |
| 79         | Finger Protocol                       |
| 80         | World Wide Web HTTP                   |
| 107        | Remote Telnet Service                 |
| 111        | Sun Remote Procedure Call (Sunrpc)    |
| 119        | Network News Transfer Protocol (NNTP) |
| 123        | Network Time Protocol (NTP)           |
| 161        | (Simple Network Mail Protocol (SNMP)  |
| 162        | SNMP Traps                            |
| 213        | IPX (Used for IP Tunneling)           |

# Ethernet Modem Commands

---

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

## Dial-in Operation

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

**ATSO=0:** The NPort will temporarily accept the TCP connection and then send the **"RING"** signal out through the serial port. The serial controller must reply with **"ATA"** within 2.5 seconds to accept the connection request, after which the NPort enters data mode. If no **"ATA"** command is received, the NPort will disconnect after sending three **"RING"** signals.

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

## Dial-out

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

## Disconnection Request from Local Site

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



### ATTENTION

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

## Disconnection Request from Remote Site

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

# AT Commands

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

| No. | Command                  | Description                                                                                                                        | Remarks           |
|-----|--------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1   | ATA                      | Answer manually                                                                                                                    |                   |
| 2   | ATD                      | Dial up specified IP address and port number<br>ATD 192.168.1.1:950 (example)                                                      |                   |
| 3   | ATE                      | ATE0=Echo OFF<br>ATE1=Echo ON (default)                                                                                            |                   |
| 4   | ATH                      | ATH0=On-hook (default)<br>ATH1=Off-hook                                                                                            |                   |
| 5   | ATI, ATI0,<br>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<br>ATV0 for digit code,<br>ATV1 for text code (default)<br>0=OK<br>1=connect<br>2=ring<br>3=No carrier<br>4=error |                   |
| 14  | ATZ                      | Reset (disconnect, enter command mode and restore the flash settings)                                                              |                   |
| 15  | AT&C                     | Serial port DCD control<br>AT&C0=DCD always on<br>AT&C1=DTE detects connection by DCD on/off (default)                             |                   |
| 16  | AT&F                     | Restore manufacturer's settings                                                                                                    |                   |
| 17  | AT&G                     | Select guard time                                                                                                                  | reply "OK" only   |
| 18  | AT&R                     | Serial port RTS option command                                                                                                     | reply "OK" only   |
| 19  | AT&S                     | Serial port DSR control                                                                                                            | reply "OK" only   |
| 20  | AT&V                     | View settings                                                                                                                      |                   |
| 21  | AT&W                     | Write current settings to flash for next boot up                                                                                   |                   |

## S Registers

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

# Federal Communication Commission Interference Statement

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## **CAUTION:**

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

## **FCC RF Radiation Exposure Statement**

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body.

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.

## **Labeling requirements**

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.

## **RF exposure warning**

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

## **End Product Labeling**

This transmitter module is authorized only for use in a device where the antenna may be installed such that 20cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: SLE-W2X50A "

**Information for the OEMs and Integrators**

The following statement must be included with all versions of this document supplied to an OEM or integrator, but should not be distributed to the end user.

1. This device is intended for OEM integrators only.
2. Please see the full Grant of Equipment document for other restrictions.

This radio transmitter FCCID: SLE-W2X50A has been approved by FCC to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

**Antenna List**

| No. | Manufacturer | Model No.      | Antenna Type | Peak Gain                                                                                                                                             |
|-----|--------------|----------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | KINSUN       | ANT-WDB-ARM-02 | Dipole       | 2.04 dBi for 2.4GHz<br>0.81 dBi for 5.150-5.250 GHz<br>0.38 dBi for 5.250-5.350 GHz<br>-1.39 dBi for 5.470-5.725 GHz<br>-0.39 dBi for 5.725-5.850 GHz |

# FCC Warning 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.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## **CAUTION:**

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. The operation frequency of the device is in the 5150-5250 MHz band and is for indoor use only.

## **Prohibition of Co-location**

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

## **Safety Information**

To maintain compliance with FCC's RF exposure guidelines, when installing and/or operating this equipment, you should maintain a minimum distance of 20 cm between the transmitter and your body. Use only the supplied antenna. Unauthorized antennae, modifications, or attachments could damage the transmitter and may violate FCC regulations.