UDP Mode for NPort

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About Moxa

Moxa is a leading provider of edge connectivity, industrial computing, and network infrastructure solutions for enabling connectivity for the Industrial Internet of Things. With 35 years of industry experience, Moxa has connected more than 82 million devices worldwide and has a distribution and service network that reaches customers in more than 80 countries. Moxa delivers lasting business value by empowering industry with reliable networks and sincere service for industrial communications infrastructures. Information about Moxa's solutions is available at www.moxa.com.

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This Tech Note applies to the following NPort device server models:

- NPort DE-211
- NPort DE-311
- NPort DE-311M
- NPort 5100 Series
- NPort 5200 Series
- NPort 5400 Series
- NPort 5600 Series
- NPort IA5150
- NPort IA5250
- NPort 6000 Series
- NPort W2150
- NPort W2150 Plus
- NPort W2250
- NPort W2250 Plus
- NPort 2150A and NPort 2250A Series
- NPort W2150A-W4/W2250A-W4 Series

1   What is UDP Server/Client Mode?

UDP is a network socket communication protocol that is faster and more efficient than TCP. In UDP Mode, you can unicast or multi-unicast data from a serial device to one or multiple host computers. The serial device can also receive data from one or multiple host computers. These traits make UDP Mode especially suited for message display applications.
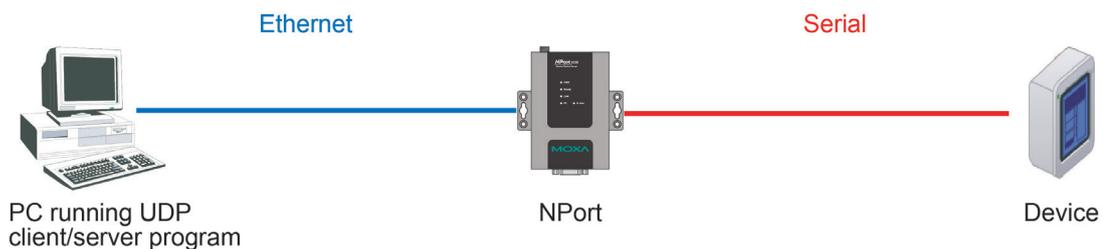
2   Configuring the NPort DE-211, NPort DE-311, and NPort DE-311M for UDP Mode

Before performing the following steps, restore the NPort's default settings by holding down the reset button for 10 seconds.

Also, please note that for NPort Wireless Plus models, only one network interface (WLAN or Ethernet) can be active at a time. To use the Ethernet interface, make sure the network cable is plugged in before powering on the NPort. To use the WLAN interface, make sure the network cable is unplugged when the NPort is powered on.

1. Turn the NPort on. The Ready LED should turn green.

2. Make sure that DIP switch 1 is set to OFF (DE-211 and DE-311).

3. Modify the DIP switch settings for serial communication as required for your device.

4. Make sure that the NPort and the host PC are properly connected to the network.

5. Adjust the NPort's IP settings as necessary so that it is in the same network as your PC. You may also need to modify the host PC's IP configuration. Make sure you can ping the NPort from your host PC.

    Remember, the IP addresses of the NPort and the PC must be on the same subnet. If one IP address is modified, you may need to modify the other IP address.

6. On the host PC, connect to the NPort's Telnet console by entering **telnet** <NPort's IP address> at the command prompt. For example, if your NPort's IP address is 192.168.127.254, enter **telnet 192.168.127.254** at the command prompt.

7. In the Telnet console under **[OP_mode]**, set **Application** to UDP Server/Client. Under **More settings**, enter the UDP local listening port (4001 by default). Enter IP addresses as necessary for serial-to-Ethernet transmission and for Ethernet-to-serial transmission. If no IP address is entered for Ethernet-to-serial transmission, data will be accepted from any UDP program.

8. In the main menu under **[Serialport]**, adjust the communication parameters as necessary for your serial device, such as 115200, N, 8, 1.

9. In the main menu, select **[Restart]** to restart the NPort with the new settings activated.

3   Configuring the NPort 5000, NPort W2150, and NPort W2250 for UDP Mode

Before performing the following steps, restore the NPort's default settings by holding down the reset button for 10 seconds.

1. Turn the NPort on. The Ready LED should turn green.

2. Make sure that the NPort and the host PC are properly connected to the network.

3. Adjust the NPort's IP settings as necessary so that it is in the same network as your PC. You may also need to modify the host PC's IP configuration. Make sure you can ping the NPort from your host PC.

   Remember, the IP addresses of the NPort and the PC must be on the same subnet. If one IP address is modified, you may need to modify the other IP address.

4. On the host PC, connect to the NPort's Telnet console by entering **telnet** <NPort's IP address> at the command prompt. For example, if your NPort's IP address is 192.168.127.254, enter **telnet 192.168.127.254** at the command prompt.

5. In the Telnet console under **(4) Operating Settings**, select the serial port you wish to configure.

6. Select **(1) Operating mode** and **(3) UDP Client/Server Mode**.

7. Select **(7) Destination IP address 1 ~ (a) Destination IP address 4** and enter IP addresses for serial-to-Ethernet transmission. Also, enter the UDP local listening port (4001 by default).

8. In the main menu under **(3) Serial settings**, select the serial port you wish to configure. Adjust the communication parameters as necessary for your serial device, such as 115200, N, 8, 1.

9. In the main menu, select **(s) Save/Restart** to restart the NPort with the new settings activated.

4   Configuring the NPort 6000, NPort 2150 Plus/A/-W4 and NPort 2250 Plus/A/-W4 for UDP Mode

Before performing the following steps, restore the NPort's default settings by holding down the reset button for 10 seconds.

Also, please note that for NPort Wireless Plus models, only one network interface (WLAN or Ethernet) can be active at a time. To use the Ethernet interface, make sure the network cable is plugged in before powering on the NPort. To use the WLAN interface, make sure the network cable is unplugged when the NPort is powered on.

1. Turn the NPort on. The Ready LED should turn green.

2. Make sure that the NPort and the host PC are properly connected to the network.

3. Adjust the NPort's IP settings as necessary so that it is in the same network as your PC. You may also need to modify the host PC's IP configuration. Make sure you can ping the NPort from your host PC.

   Remember, the IP addresses of the NPort and the PC must be on the same subnet. If one IP address is modified, you may need to modify the other IP address.

4. On the host PC, connect to the NPort's Telnet console by entering **telnet** <NPort's IP address> at the command prompt. For example, if your NPort's IP address is 192.168.127.254, enter **telnet 192.168.127.254** at the command prompt.

5. In the Telnet console under **[Port]**, select **[Modes]** and then select the serial port you wish to configure. Under **Application**, select **Socket** and under **Mode** select **UDP**.

6. Under **Description/more settings**, enter the UDP local listening port (4001 by default). Enter IP addresses as necessary for serial-to-Ethernet transmission.

7. In the main menu, select **[Port]** and then **[Line]**. Adjust the communication parameters as necessary for your serial device, such as 115200, N, 8, 1.

8. In the main menu, select **[Restart]** to restart the NPort with the new settings activated.

5   Testing UDP Client Mode for the NPort

Ethernet   Serial

PC running UDP   NPort   Device
client/server program
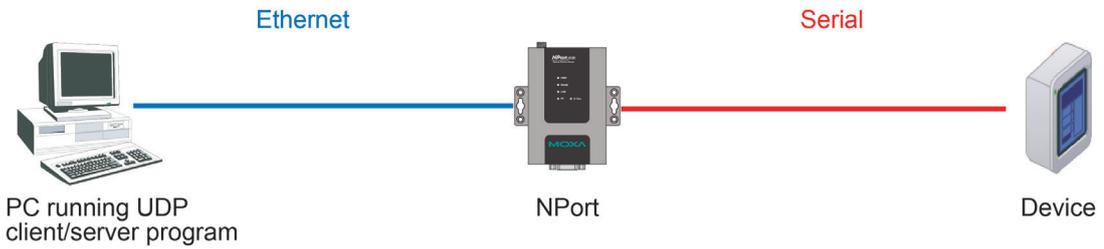
1. Run a UDP client or server program on your PC.

2. Open a Telnet console to the NPort and configure the serial parameters as needed for your device.

    a. For the NPort DE-211, DE-311, or DE-311M, select **[Serialport]**.

    b. For the NPort 5000, select **(3) Serial settings**.

    c. For the NPort 6000, NPort W2150 Plus/A/-W4 and NPort W2250 Plus/A/-W4, select **[Port]** and then **[Line]**.

    d. For the NPort W2150 or NPort W2250, select **(3) Serial Port Settings** and then **(2) Communication Parameters**.

3. Send data from the serial device. The UDP client or server program should receive the data.

6   Cable Wiring

RS-232 Cable Wiring

NPort	Device
TxD	RxD
RxD	TxD
RTS	CTS
CTS	RTS
DTR	DSR
DSR	DTR
DCD	DCD
GND	GND

4 wire RS-422/485 Cable Wiring

NPort	Device
Tx (+)	Rx (+)
Tx (−)	Rx (−)
Rx (+)	Tx (+)
Rx (−)	Tx (−)
GND	GND

2 wire RS-485 Cable Wiring

NPort	Device
D (+)	D (+)
D (−)	D (−)
GND	GND