# TCP Server Mode for NPort

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This Tech Note applies to the NPort device servers. The following models are included:

- 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

What is TCP Server Mode?

In TCP Server mode, the serial port on the NPort is assigned a port number which must not conflict with any other serial port on the NPort. The host computer initiates contact with the NPort, establishes the connection, and receives data from the serial device. This operation mode also supports up to 8 simultaneous connections, enabling multiple hosts to collect data from the same serial device at the same time. The whole system should connect like this:
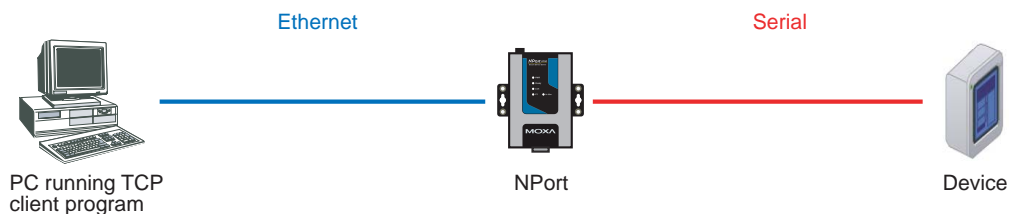
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About Moxa

Moxa manufactures one of the world's leading brands of device networking solutions. Products include serial boards, USB-to-serial hubs, media converters, device servers, embedded computers, Ethernet I/O servers, terminal servers, Modbus gateways, industrial switches, and Ethernet-to-fiber converters. Our products are key components of many networking applications, including industrial automation, manufacturing, POS, and medical treatment facilities.

How to Contact Moxa

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Configuring the NPort DE-211, NPort DE-311, and NPort DE-311M for TCP Server Mode

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

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 TCP Server. Under **More settings**, enter the TCP client's IP address and listening port. If no IP address is entered for **Destination IP addr.**, data will be accepted from any TCP client 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.

Configuring the NPort 5000, NPort W2150, and NPort W2250 for TCP Server Mode

Before performing the following steps, restore the NPort device server's default settings by holding the reset button down 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 that you wish to configure.

6. Select **(1) Operating mode** and **(2) TCP Server Mode.**

7. Select **(a)** to assign a local TCP listening port (4001 by default) and **(b)** to assign a command port (966 by default).

8. In the main menu under **(3) Serial settings**, select the serial port that 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.

Configuring the NPort 6000, NPort W2150 Plus, and NPort W2250 Plus for TCP Server Mode

Before performing the following steps, restore the NPort device server's default settings by holding the reset button down 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 that you wish to configure. Under **Application**, select **Socket** and under **Mode** select **TCP Server**.

6. Under **Description/more settings**, enter the TCP server listening port (4001 by default) and command port (966 by default). For NPort 6000 servers, up to 8 TCP clients can connect.

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.

Testing TCP Server Mode for the NPort

Ethernet   Serial

PC running TCP   NPort   Device
client program
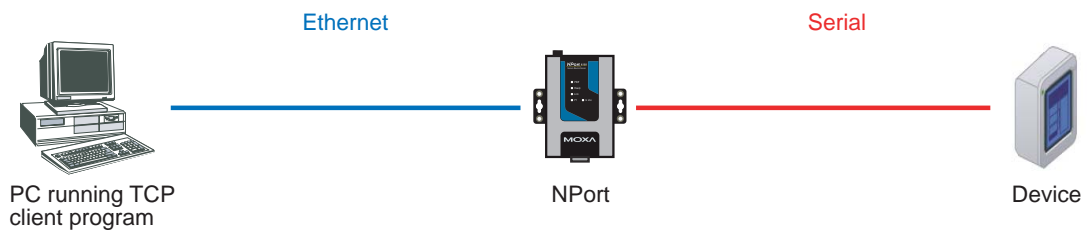
1. Run a TCP client program on your PC.

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, or NPort W2250 Plus, 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 TCP client program should receive the data.

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