PPP Mode for NPort 6000: Dial-in
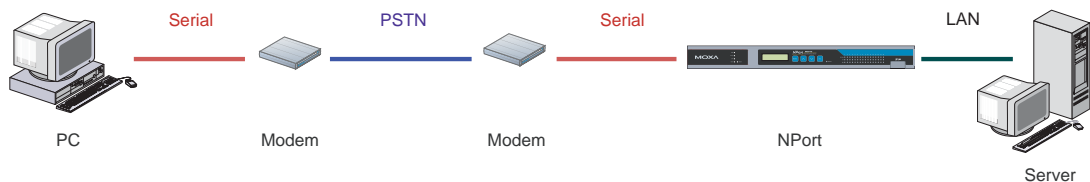
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This Tech Note applies to the NPort 6000 device server. The following models are included:

- NPort 6150
- NPort 6250
- NPort 6450
- NPort 6650
- NPort 6610

What is PPP Mode?

The NPort 6000 provides dial-in/dial-out access for ISPs and enterprises that need a remote access solution. With PPP mode, a remote modem connection is established to a PPP server on a network. For PPP dial-out, the NPort is connected to a modem that dials out to the PPP server. The NPort will establish the modem connection to the PPP server, allowing other attached devices to access the network. For PPP dial-in, the NPort is connected to a modem or modems that receive dial-in connection requests from remote devices. The NPort itself acts as the PPP server and can authenticate users through its own user table or through a RADIUS server.

Configuring the NPort 6000 for Dial-in PPP Mode

Before performing the following steps, restore the NPort 6000 default settings by holding the reset button down for 5 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. Run "NPort Search Utility". This can be installed from the NPort Document and Software CD.

4. In NPort Search Utility, use **Search** or **Search IP** to find your NPort on the network.

5. Select your NPort and click the console icon to open its web console. From this point forward, you will be submitting changes to the NPort's settings. Once all the changes have been submitted, you will restart the NPort with the new settings.

6. In the web console under **Basic Settings**, modify the server name and time settings if desired. Remember to submit any changes that are made.

7. In the web console under **Network Settings** > **Basic Network Settings**, modify the NPort's IP address, netmask, gateway, and other IP parameters as necessary. You must set the NPort 6000's IP address 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.

8. In the web console under **Advanced Network Settings**, set the **Routing Protocol** to RIP-1.

9. In the web console under **Serial Port Settings**, select the serial port that will be set to PPP Mode. Under **Operation Modes**, set **Application** to Dial in/out and **Mode** to PPP. New parameters should become available, and they should be modified as follows:
   - **Destination IP Address**: the IP address to assign to the remote client
   - **Source IP Address**: the IP address of this serial port
   - **IP Netmask**: 255.255.255.255
   - **Incoming PAP check**: select the desired form of user authentication (None, Local, User Table, or RADIUS)
   - **Disconnect By**: DCD-Off
   - **Communication Parameters**: adjust as necessary for your modem (RS-485 2 Wire is not supported for PPP)

10. Make sure the modem attached to the NPort is enabled and adjust its settings appropriately. Set the modem to auto-answer by setting its initial string to "AT&S0=1".

11. In the web console under **System Management** > **Misc. Network Settings**, adjust the following parameters:

- **Route Table**: add routing parameters if necessary
- **Gateway**: the IP address of this NPort 6000
- **Destination**: the IP address assigned to the remote client
- **Netmask**: set as necessary for the dial-in IP
- **Iface**: set to LAN

12. In the web console under **System Management** > **User Table**, add a user account entry for the remote client.

13. If **Incoming PAP check** is set to "Local", the NPort will verify the user account in the user table and will then call the user back using the corresponding phone number.

14. Make sure all changes have been submitted. In the web console, select **Save/Restart** to restart the NPort with the new settings activated.

Testing PPP Mode for the NPort 6000
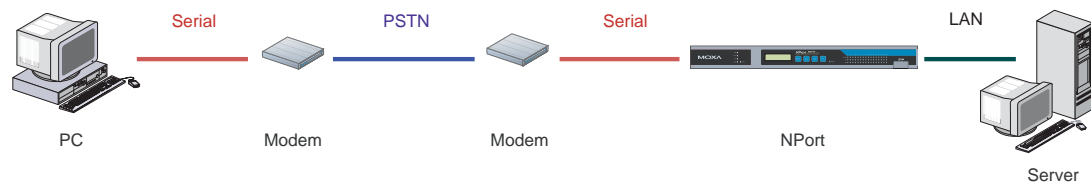
1. Connect or install a modem in your PC and connect the phone line. Note the phone number for that line (12345 in this example).

2. Set the PC's IP address to 192.168.127.1.

3. Connect Port 1 on the NPort to another modem and connect the phone line. Note the phone number for that line (54321 in this example).

4. Set the NPort's IP address to 192.168.127.2.

5. On the NPort, set Port 1 as follows:
   - **Application**: Dial in/out
   - **Mode**: PPP
   - **Destination IP Address**: 192.168.128.1 (remote client IP)
   - **Source IP Address**: 192.168.128.2 (NPort's IP)
   - **IP Netmask**: 255.255.255.0
   - **Incoming PAP Check**: Local
   - **Disconnect By**: DCD-Off
   - **Baudrate**: 115200
   - **Parity**: N
   - **Data Bits**: 8
   - **Stop Bits**: 1
   - **Flow Control**: RTS/CTS
   - **Serial Interface**: RS-232

6. Make sure the modem attached to the NPort is enabled and adjust its settings appropriately. Set the modem's initial string to AT&S0=1

7. In the NPort's web console under **System Management > Misc. Network Settings** > **Route Table**, add an entry as follows:
   - **Gateway**: 192.168.127.2 (NPort's IP)
   - **Destination**: 192.168.128.0 (dial-in IP)

- **Netmask**: 255.255.255.0 (for this routing)
- **Iface**: LAN

8. In the NPort's web console under **System Management > Misc. Network Settings** > **User Table**, add a user name called "test" with password of "test". Set the phone number to the number connecting to the modem on the PC (12345 in this example).

9. In the NPort's web console, submit and save changes and restart the NPort.

10. Disconnect the PC from the Ethernet network.

11. Create a "Network Connection" on the PC. Use "test" for the login/username and "test" for the password.

12. Initiate the network connection by dialing the number to the NPort (54321 in this example).

13. After the NPort accepts the dial-in connection, it will disconnect and initiate a callback connection to the PC for authentication purposes. Once the callback connection has been established, the PC will have access to the network through the NPort.

14. You can verify the connection from the PC by pinging the NPort's IP address from a command prompt. Enter "ping 192.168.128.2".

If either the PC or the NPort are installed on local LANs, you may need to add additional routing entries in order for the PC to gain access to the NPort's network.

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