Real TTY Driver for NPort

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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 W2150A and NPort W2250A Series
- NPort W2150A-W4/W2250A-W4 Series

1   What is the Real TTY Driver for NPort?

The Real TTY driver for the NPort allows a Linux PC to treat NPort serial ports as local TTY ports. Similar to the Fixed TTY driver for UNIX PCs, a transparent data tunnel is established to the NPort's serial port. However, the Real TTY driver also supports IO control of the TTY port, such as setting the baudrate, pulling RTS/DTR high, and checking line status for CTS, DSR, and DCD signals.
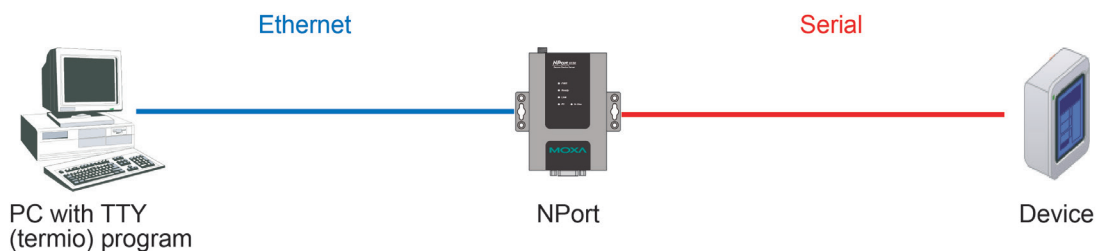
2   Installing the Real TTY Driver

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. Modify the NPort's IP address and other IP parameters 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. Configure the NPort to Real COM mode. Please refer to instructions in the NPort's Quick Installation Guide or User's Manual.

5. Log into Linux as a superuser (root).

6. Execute "cd /tmp" to change to the root directory.

7. Copy the driver file "npreal2xx.tgz" to the " /tmp" directory.

8. Execute "tar xvfz npreal2xx.tgz" to copy all files into the system.

9. Execute "/tmp/moxa/mxinst". For Red Hat AS/ES/WS and Fedora Core1, add an extra argument as follows: "/tmp/moxa/mxinst SP1"

10. Change to the "/usr/lib/npreal2/driver" directory.

11. Execute "mxaddsvr" to map TTY ports to NPort serial ports, as follows:

    /mxaddsvr [NPort IP address] [total ports] ([data port] [command port])

    For example:

    # cd /usr/lib/npreal2/driver
    # ./mxaddsvr 192.168.127.254 16

    In this example, 16 TTY ports, /dev/ttyr00 through /dev/ttyr15, will be created. All TTY ports are mapped to the NPort at 192.168.127.254. The TCP data ports are designated from 950 to 965, and the command ports are designated from 966 to 981.

3   Testing Real TTY Ports

1. After installing the Real TTY driver as described above, enter the following command to verify that a TTY port is available:

   # sty –a < /dev/ttyp1

2. If the system responds with some serial parameter(s), the TTY port is available and can be accessed by other programs.

4   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