# **CN2510 Async Server User's Manual**

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www.moxa.com/product



# **CN2510 Async Server User's Manual**

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Welcome to Moxa CN2510 Async Server. Models are available with 8 or 16 asynchronous RS-232 ports, and all models come with one 10/100 Mbps Ethernet LAN port. CN2510 Async Server is used to connect terminals, modems, printers, and other asynchronous serial devices to LAN hosts. CN2510 complies with TCP/IP and IEEE 802.3 specifications using standard Ethernet 10/100BaseT and twisted pair 10/100BaseTX cable as the data transmission medium.

The following topics are covered in this chapter:

#### Product Features

- Hardware
- Software
- Package Checklist
- Front Panel
- Rear Panel

## **Product Features**

#### Hardware

- 1 LAN port (auto-detecting 10/100 Mbps Ethernet)
- Surge protection for each serial port
- 4 MB RAM, 2 MB Flash ROM
- Tx/Rx LED for each serial port
- System Status LEDs
- Ethernet Status LEDs
- 8 or 16 RJ45 RS-232 serial ports, with up to 921.6 Kbps transmission speed

#### Software

- ASCII/Binary terminal modes with up to 8 Telnet and Rlogin sessions
- Point to Point Protocol (PPP and PPPD)
- Serial Line Internet Protocols (SLIP and SLIPD)
- Dynamic auto-recognition of Terminal, SLIP, or PPP
- Dial-on-demand, Dial-out
- Remote serial or parallel printing (RLP)
- CN2510 Async Server Proprietary Protocol (ASPP) for TCP/IP socket programming
- RAW mode for transparent data transmission
- Reverse Telnet
- SNMP Agent for network management
- Network protocols: TCP/IP, UDP, ICMP, NetBEUI, DHCP
- Application protocols: Telnet, Rlogin, Rtelnet, RAW TCP, RAW UDP, RCP, WINS, LPD, DNS, Multi-Host
- Security protocols: RADIUS, Dial-back, PAP, CHAP, Local user/password
- Real COM port driver for Windows 95/98/ME/NT/2000/XP/2003
- Fixed TTY: SCO Open Server5, SCO UnixWare 7, Linux 2.4.x, 2.6.x, 3.x, 4.x
- Static Routing, RIP I/II protocols
- Windows-like administrative CONSOLE utility from a fixed console port, or by Telnet from a networked host
- Password protection and extensive user verification functions
- Easy firmware upgrade via Flash ROM

# **Package Checklist**

CN2510 Async Server products are shipped with the following items:

- CN2510 Async Server
- ac power Cord (for AC Model only)
- Documentation and Software CD-ROM
- Quick Installation Guide (English and Simplified Chinese versions)
- RJ45 Loopback Tester
- Product Warranty Booklet
- Rackmount Kit (includes 2 brackets and 8 screws)
- Desktop Kit (includes 4 pads)

# **Front Panel**

LCM displa	y panel	Push butto	ns Serial po	ort indicators		
						-
		CN2510-16	Terminal Server			
			Port 1 2 3 4 5 6 7x • • • • • •	7 4 9 10 11 12 13 34 15 16		
	Reset •		Neady 5x • • • • • •	LAN ·	• P007	
						-
	Reset b	outton	Ready LED	I AN/Powe	I er indicator	
	Record	Jutton				
Feature	Descrip	tion				
Reset Button	Press the	e Reset butto	on for 5 second	ls to load facto	ry defaults. CN2510 will t	peep twice when
	the configuration has been reset.					
Push Buttons	Used for	configuring	the IP address	s and other pa	rameters.	
Ready LED	Red	Indicate	s that CN2510	is receiving p	ower	
	Green	Indicate	s that CN2510	's OS is ready		
Serial Tx	Green	Indicate	s serial port tr	ansmission		
Serial Rx	Yellow	Indicate	s serial port re	eception		

# **Rear Panel**



Socket / Port	Description
AC Power Input	CN2510-8 and CN2510-8:
	Automatic detection of 100-240V, 47-63 Hz AC power supply
DC Power Input CN2510-8-48V and CN2510-8-48V:	
	Automatic detection of 48 VDC or -48 VDC power supply
Power On/Off Switch	I indicates power on; O indicates power off (AC models only)
Console	8-pin RJ45 RS-232 port for console terminal connection
LAN	8-pin RJ45 auto-detectable 10/100 Mbps UTP port
Serial Ports	8 or 16 8-pin RJ45 ports for DCE modem-type connections

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# **Getting Started**

This chapter includes instructions on where and how to install CN2510 Async Server. Both basic and advanced software configuration instructions are given.

The following topics are covered in this chapter:

#### Hardware Installation

- Desktop
- Rackmount
- > Wiring Requirements
- Connecting CN2510-8/16's Power
- Connecting CN2510-8/16-48V's Power
- Grounding CN2510-8/16-48V
- > Connecting to the Network
- > Connecting to a Serial Device
- > Connecting to the Console Port

#### Accessing the Console Utility

- Configuration Checklist
- > Accessing the Console from a Telnet Terminal
- > Accessing the Console from a Console Terminal

#### Configuring CN2510—The Server Menu

- ➢ Server Configuration—Info.
- Server Configuration—LAN
- Server Configuration—Adv.
- Server Configuration—Host\_table
- Server Configuration—Route\_table
- Server Configuration—User\_table
- □ Save
- Restart

## **Hardware Installation**

## Desktop

Place your CN2510 on a clean, flat, well-ventilated desktop. For better ventilation, attach the 4 pads from the desktop kit to the bottom of the unit, and leave some space between the CN2510 and other equipment. Do not place equipment or objects on top of the unit, as this might damage the server.

		,Pads
Bottom of CN2510 ——	0	0
Bollom of CN2510	0	0

## Rackmount

CN2510 is designed to be mounted on a standard 19-inch rack. Use the enclosed pair of L-shaped metal brackets and screws to fasten your CN2510 to the rack cabinet. Each L-shaped bracket has 6 holes, leaving two outer or inner holes available for other uses. You have two options. You can lock either the front or rear panel of the CN2510 to the front of the rack. Locking the front panel is shown in the following figure.



## **Wiring Requirements**



#### ATTENTION

#### Safety First!

Be sure to disconnect the power cord before installing and/or wiring your CN2510.

#### Wiring Caution!

Calculate the maximum possible current in each power wire and common wire. Observe all electrical codes dictating the maximum current allowable for each wire size.

If the current goes above the maximum ratings, the wiring could overheat, causing serious damage to your equipment.

#### Temperature Caution!

Be careful when handling CN2510. When plugged in, CN2510's internal components generate heat, and consequently the board may feel hot to the touch.

You should also observe the following common wiring rules:

Use separate paths to route wiring for power and devices. If power wiring and device wiring paths must ٠ cross, make sure the wires are perpendicular at the intersection point.

NOTE: Do not run signal or communication wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately.

- You can use the type of signal transmitted through a wire to determine which wires should be kept separate. The rule of thumb is that wiring that shares similar electrical characteristics can be bundled together.
- Keep input wiring and output wiring separate.
- Where necessary, it is strongly advised that you label wiring to all devices in the system.

#### Connecting CN2510-8/16's Power

Connect CN2510's 100-240 VAC power line to its AC connector. If the power is properly supplied, the "Ready" LED will show a solid red color until the system is ready, at which time the color changes to green.

#### Connecting CN2510-8/16-48V's Power

To connect CN2510-8/16-48V's power cord to its terminal block, follow the steps given below:



- 1. Loosen the screws on the V+ and V- terminals of CN2510-8/16-48V's terminal block.
- 2. Connect the power cord's 48 VDC or -48 VDC wire to the terminal block's V+ terminal, and the power cord's DC Power Ground wire to the terminal block's V- terminal, and then tighten the terminal block screws.

(Note: CN2510-8/16-48V will still operate properly if the 48V/-48V and DC Power Ground wires are reversed.)

If the power is properly supplied, the "Ready" LED will show a solid red color until the system is ready, at which time the color changes to green.

NOTE Use 8 kg-cm of screw torque and 22-14 AWG electric wire to connect CN2510-8/16-48V's power cord to its terminal block.

## Grounding CN2510-8/16-48V



Grounding and wire routing helps limit the effects of noise due to electromagnetic interference (EMI). Run the ground connection from the ground screw to the grounding surface prior to connecting serial devices to CN2510.

The Shielded Ground (sometimes called Protected Ground) contact is the second contact from the right of the 5-pin power terminal block connector located on the rear panel of CN2510-8/16-48V. Connect the SG wire to the Earth ground.



#### ATTENTION

CN2510-8/16-48V should be mounted to a well-grounded surface, such as a metal panel.

#### **Connecting to the Network**

Connect one end of the Ethernet cable to CN2510's 10/100M Ethernet port and the other end of the cable to the Ethernet network. There are 2 LED indicators located on the top left and right corners of the Ethernet connector. If the cable is properly connected, CN2510 will indicate a valid connection to the Ethernet in the following ways:



The top right corner LED indicator maintains a solid green color when the cable is properly connected to a 100 Mbps Ethernet network.

The top left corner LED indicator maintains a solid orange color when the cable is properly connected to a 10 Mbps Ethernet network.

### **Connecting to a Serial Device**

Use appropriately wired serial data cables to connect serial devices to CN2510's serial ports.

#### **Connecting to the Console Port**

A console is a combination of keyboard and monitor that is used to configure settings and monitor the status of your system. The console port can be used if a network is unavailable, or you do not know CN2510's IP address. To connect to the console port, use a PC running UNIX, or a PC with terminal emulation software (e.g., HyperTerminal or PComm by Moxa; parameter settings are: baud rate = 115200 bps, parity check = None, data bits = 8, stop bits = 1, terminal type = VT100). Use an RJ45-to-DB25 or RJ45-to-DB9 cable to connect the terminal to the console port.

## Accessing the Console Utility

The Console Utility is the main application used to set up the server, configure the ports, and run utilities (ping, diagnosis, monitor, and upgrade). There are two ways to access the Console Utility—with terminal emulation from a console terminal, or with Telnet from a network terminal.

**NOTE** If your network is already set up, telnet over the network to CN2510's IP address to access the Console Utility. If your network environment is not set up, use Moxa PComm Terminal to establish a direct serial console connection.

## **Configuration Checklist**

You will need the following information to configure CN2510. Check with your network administrator if you do not know all of the required information.

Basic CN2510 Information:

Name	
Location	
LAN1 IP address	
LAN1 IP netmask	
LAN1 default gateway IP address	
Domain server 1 IP address	
Domain server 2 IP address	
WINS server IP address	
Console password	

### Accessing the Console from a Telnet Terminal

Connect CN2510 to your LAN and then turn on the power. Use the Moxa Windows Utility to find CN2510's IP address, and then telnet to the IP address to enter the CN2510 console.

#### **CN2510 Windows Utility**

The CN2510 Utility is a convenient Windows utility that can be used to find both the name and IP address of your CN2510. Once you know the IP address, you can telnet CN2510 over the network to complete the configuration process and to gather information about all servers on the network.

 Run upgrade.exe, located in the \Software\Firmware\ folder on the CN2510 Documentation and Software CD, or run NPort Tool → Firmware Utility from the Start menu.

🖬 NPort Tool 🔹 🕨	<u></u> 92	Diagnostic
×	*	Firmware Utility
	$\mathbf{\overline{\mathbf{M}}}$	Monitor
		Version info

2. The CN2510 Utility will search for all CN2510s on the network.

Search all NPort Servers	×
Please wait while system is searching all available NPort Servers	
Cancel	]

3. The CN2510 Utility lists all available servers on the network. Note that servers in grey are password

protected. Double click the server's name, or click on in from the menu bar to see the server settings.

👗 NPort Server firmware upgrade utility						
Server Tool Help						
1 🖆 😫 🚍 😫	8					
General Info.	Model	IP Address	Serial No	MAC address	Firmware Ver.	
CN2510-8_5631	CN2510-8	192.168.127.254	5631	00:90:E8:00:56:31	2.0	

4. The server's general information is shown in the **NPort Server General Info.** window. If necessary, change the settings, and then click on **OK** to accept the change.

NPort Server Genera	al Info.	×
You may change Se NPort Server.	erver Name or IP Address for selected	
Server Name:	CN2510-8_5631	
IP Address:	192.168.127.254	
Model:	CN2510-8	
Serial No:	5631	
MAC address:	00:90:E8:00:56:31	
Firmware Version:	2.0	
	OK Cancel	

If you can't find the server in the list, double-check the server's power and network connections, and then use search is to try locating the server again.

#### **Using Telnet**

1. Telnet over the network to the server's IP address.



2. Type 1 to choose ansi/vt100, and then press Enter.

📕 Telnet 192.168.127.254	
Async Server CN2510-8 Console terminal type (1: ansi/vt100,	2: vt52) : 1

3. CN2510's **MAIN MENU** will open, as shown below.

🗾 Telnet 192.	168.127.254	
CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server node/table configuration	
Enter: select	ESC: previous menu	

Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

## Accessing the Console from a Console Terminal

If you do not know the CN2510's IP address, or it is not possible to use Telnet, you can use a direct console connection to enter the CN2510 console. Use a terminal emulation program for the console PC, such as HyperTerminal or Moxa PComm Terminal Emulator.

 If you are using Windows 9x/ME/NT, run PComm26.exe from the Win9xNT directory. If you are using Windows 2000/XP/2003, run PComm2K.exe , as shown in the figure below, from the Win2kXP2003directory.



2. Click on Next to Continue.



3. Select the I Agree option and then click on Next.



4. Select a directory in which to install the CN2510 Utility, and then click on Next.

🙀 PComm Lite 2000/XP Ver 1.2	
Select Installation Folder	
The installer will install PComm Lite 2000/XP Ver 1.2 in the following folder.	
To install in this folder, click "Next". To install to a different new or existing below or click "Browse".	folder, enter one
Eolder: F\Program Files\PCommLt12\	<u>B</u> rowse
You can install the software on the following drives:	
Volume	Disk 🔺
	51'
	<sup>65</sup> -
	Disk Cost
<u>Cancel</u> <u>Previous</u>	Next

5. Click on **Next** to continue.



6. Wait while the PComm Lite software is installed.

🙀 PComm Lite 2000/XP Ver 1.2	
Installing PComm Lite 2000/XP Ver 1.2	
PComm Lite 2000/XP Ver 1.2 is being installed.	
Please wait	
<b><u>Cancel</u></b> <u>Previous</u>	<u>N</u> ext

7. Click on **Close**.



 When the installation is complete, select Start → Programs → PComm Terminal Emulator to run PComm Terminal Emulator.

<b>E</b>	PComm Lite 2000(XP) Ver 1.2	۲	Library Programming Guide
		۲	Library Reference
		<u> </u>	PComm Diagnostic
		₫ <sup>®</sup>	PComm Monitor
		-	PComm Terminal Emulator

9. Use an RJ45 to DB25 female cable to connect to the CN2510 console port. Start PComm Terminal, and then click on the left-most icon to open a new connection.



 Click on the Communication Parameter tab, select the COM port (COM2 in this example) for console connection, 115200 for Baud Rate, 8 for Data Bits, None for Parity, and 1 for Stop Bits.

Property	×
Communication Parameter	Terminal File Transfer Capturing
COM Options	
Ports :	COM1
Baud Rate :	115200 💌
Data Bits :	8 🔽
Parity :	None 🔻
Stop Bits :	1
Flow Control	Output State DTR I ON I OFF RTS I ON I OFF
	OK Cancel

11. Click on the Terminal tab and select VT100 for terminal type. Press Enter to confirm.

P	roperty		×
	Communication Parameter	Terminal File Transfer	Capturing
	Terminal Type :	VT100	
	Dumb Terminal Option : Transmit		
	🗖 Local Echo		
	Send 'Enter' Key As:	CR-LF	
	Receive		
	CR Translation :	No Changed 🗾	
	LF Translation :	No Changed 🛛 💌	
		OK	Cancel

12. Type 1 to select **ansi/VT100** terminal type, and then press **Enter** to open the **MAIN MENU**.



The MAIN MENU is shown below. (NOTE: Click on Edit → Font to choose a different font for the MAIN MENU.)

PComm Terminal Emulator - COM1,115200,None,8,1,¥T100
Pro <u>f</u> ile <u>E</u> dit <u>P</u> ort Manager <u>W</u> indow <u>H</u> elp
🛃 🖬 🛃 🔄 📚 Brk 🔊 28
COM1,115200,None,8,1,¥T100
CN2510-8 CN2510-8_5631 V2.0
DTR [Server] Port seTting sAve Utility Restart Exit Examine/modify async server node/table configuration
Enter: select ESC: previous menu

## Configuring CN2510—The Server Menu

In this section, we describe both basic and advanced configuration tasks. We use the Telnet interface to illustrate (the Serial Console interface is the same).

#### Server Configuration—Info.

1. From the **MAIN MENU**, use the arrow keys to select **Server**, and then press **Enter**.

CN2510-8		CI	N2510-8_	5631 .	V2.0	MAIN	MENU
[Server] P Examine/mc			-			 	
Enter: sel	ect ESC:	previous	menu				

2. From the SERVER MENU, select Info., and then press Enter.

```
CN2510-8 CN2510-8_5631 V2.0 SERVER MENU

[Info.] Lan Adv. Host_table Route_table User_table Quit

Examine/modify async server basic configuration

Enter: select ESC: previous menu
```

 The Info. page contains input/display fields for name, location, serial number, Domain server 1/2 IP address, WINS function disable, WINS server IP address, and Console password. Each item is described in detail below.

```
CN2510-8
                            CN2510-8 5631
                                            V2.0
[Info.] Lan Adv. Host_table Route_table User_table Quit
Examine/modify async server basic configuration
ESC: back to menu Enter: select
                               [CN2510-8 5631
   Async server name
   Async server location
   Async server serial number
                               [9]
   Domain server 1 IP address
   Domain server 2 IP address
   WINS function disable
   WINS server IP address
   Console password
```

**Async server name**—CN2510 uses this name to identify itself when requested by an SNMP station or UNIX host. Use an ASCII string with maximum length of 40 characters for the name. Spaces are allowed.

**Async server location**—CN2510 reports this location to the SNMP station when requested. Use an ASCII string with maximum length of 44 characters for the location. Spaces are allowed.

**Async server serial number**—Each CN2510 Async Server is assigned a unique serial number before it leaves the factory. The serial number cannot be changed.

**Domain server 1/2 IP address**—A Domain Name Server is a network host that translates host names to IP addresses. Hosts use the Domain Name Server to request the IP address that corresponds to a particular url (such as <u>www.moxa.com</u>). Input the IP address of the primary Domain Name Server in the **Domain server 1 IP address** field, and the IP address of the secondary Domain Name Server in the **Domain server 2 IP address** field. When CN2510 receives a connection request, CN2510 first checks the host table defined on the Host\_table page. If a matching entry cannot be found, CN2510 sends a query to the Domain Name Server.

WINS function disable—Enable or disable the WINS server. The default setting is "enable."

**WINS server IP address**—If a WINS Server is connected to the network, use this field to record the WINS Server's IP address. TCP/IP uses IP addresses to identify hosts, but users often use symbolic names, such as computer names. The WINS (Windows Internet Naming Service) Server, which uses NetBIOS over TCP/IP, contains a dynamic database to map computer names to IP addresses.

**Console password**—If you specify a password, write it down for safe keeping. If you forget the password, you will need to use the reset password button to reset it. Only use the console password when absolutely necessary.

**NOTE** Write your console password in a safe place before setting the password.

## Server Configuration—LAN

1. From the MAIN MENU, use the arrow keys to select Server, and then press Enter.

CN2510-8 CN2510-8_5631 V2.0	MAIN	MENU		
[Server] Port seTting sAve Utility Restart Exit Examine/modify async server node/table configuration				
Enter: select ESC: previous menu				
From the SERVED MENU coloct Lan and then proce Enter				

2. From the SERVER MENU, select Lan, and then press Enter.



 The Lan page contains input/display fields for DHCP (client), Async server IP address, Async server IP netmask, Default gateway IP address, Ethernet speed, and Ethernet address. Each item is described in detail below.

described in detail below.	
CN2510-8 CN25	510-8_5631 V2.0
Info. [Lan] Adv. Host table R	Route table User table Ouit
Examine/modify the Ethernet LAN	
ESC: back to menu Enter: selec	c+
ESC. Dack to menu Enter. Sere	
Ethernet LAN port 1:	
DHCP (client)	[Disable]
Async server IP address	[192.168.127.254]
Async server IP netmask Default gateway IP address	
Ethernet speed	
Ethernet address	[00:90:E8:26:10:09]

**DHCP (client)**—When DHCP is enabled, CN2510 will request an available IP address and Netmask over the network from the DHCP Server. If an IP address is not available, CN2510 will use the current IP address, but will continue sending requests to the DHCP Server.

**Async server IP address**—This field MUST contain an IP address unique to the network. The IP address is written using the notation "ddd.ddd.ddd.ddd," in which each "ddd" is a nonnegative decimal number strictly less than 256 (i.e., an 8-bit integer). The default value is 192.168.127.254.

**Async server IP netmask**—A netmask is used to group network hosts into subnets. CN2510 sends TCP/IP packets directly to hosts that are on the same subnet. If the recipient of the packet is NOT on the same subnet, the packet is sent to the default gateway IP address.

**Default gateway IP address**—This field contains the IP address of a router on the local network. The default gateway is used when a packet is sent to an IP address that is not on the subnet specified in CN2510's local routing table.

**Ethernet speed**—If the Ethernet port is active, the Ethernet speed will be set automatically to 10BaseT or 100BaseT. This field cannot be modified.

**Ethernet address**—This field contains the hardware Ethernet address. This field cannot be modified.

#### Server Configuration—Adv.

1. From the **MAIN MENU**, use the arrow keys to select **Server**, and then press **Enter**.

CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
[Server] Port seTting sAve Utility Restart Exit Examine/modify async server node/table configuration	
Enter: select ESC: previous menu	

2. From the SERVER MENU, select Adv., and then press Enter.

CN2510-	3		C	N2510-8_5631	V2.0		SERVER	MENU
	-	-	—	Route_table pasic configu		Quit		
Enter:	select	ESC:	previous	menu				

 The Adv. page contains input/display fields for RADIUS server IP, RADIUS key, UDP port, Enable RADIUS accounting, SNMP community name, SNMP trap server IP address, Ethernet IP forwarding, Routing protocol, TCP retransmission timeout, and SIO data transfer timeout. Each item is described in detail below.

CN2510-8 CN	2510-8_5631	V2.0	
Info. Lan [Adv.] Host_table Examine/modify async server ad			Quit
ESC: back to menu Enter: sel	ect		
Radius server IP RADIUS key UDP port (1:1645 2:1812) Enable RADIUS accounting	[ [1]	]	]
SNMP community name SNMP trap server IP address			] ]
Ethernet IP forwarding Routing protocol			
TCP retransmission timeout SIO data transfer timeout			

**RADIUS server IP**—The IP address of the RADIUS (Remote Authentication Dial-In User Service) server is used to authenticate remote dial-in users connecting from an ISP (Internet Service Provider). Leave this field blank if you do not have a RADIUS server on your network.

Windows NT includes RADIUS software. For UNIX-based platforms, refer to Appendix B for information about setting up a RADIUS server.

*NOTE:* The RADIUS server and CN2510 SHOULD be able to communicate with each other. To verify this, check to see if you can ping from each server to the other.

**RADIUS server IP**—This is the IP address of the RADIUS server.

**RADIUS key**—This is a shared key used by the RADIUS protocol. If you have a RADIUS server, you will need to enter the password in this field.

**UDP port (1:1645 2:1812)**—RADIUS originally used port **1645**, but more recently this conflicted with the RFC standard, so the officially assigned RADIUS port is now **1812**. Check which UDP port your RADIUS server software uses to determine the proper choice.

**Enable RADIUS accounting**—The default for this field is **no**. If your RADIUS Server offers this function, set it to **yes**.

**SNMP community name**—The SNMP community name can be used to guarantee minimal security for SNMP communication. Only SNMP stations with the same community name can access SNMP agents (such as Async Server). Choose a community name with no more than 16 ASCII characters. The default name is "public."

**SNMP trap server IP address**—This field specifies the IP address of the SNMP trap server. CN2510 will report to the SNMP trap server each time it restarts. You may leave this field blank if SNMP is not needed.

**Ethernet IP forwarding**—CN2510 can forward packets between different segments of a TCP/IP network. When enabled, CN2510 will use its Ethernet routing ability to identify which incoming packets should be forwarded.

**Routing protocol**—CN2510 supports RIP (Routing Information Protocol) versions 1 and 2, a widely used protocol specifying how routers exchange routing table information. When RIP is activated, routers (or CN2510s) periodically exchange entire routing tables.

**TCP retransmission timeout**—This is the amount of time CN2510 waits to retransmit after a transmission failure occurs.

**SIO data transfer timeout**—This is the amount of time (in milliseconds) CN2510 waits to send serial data to the Ethernet. Use a shorter timeout to improve efficiency.

#### Server Configuration—Host\_table

1. From the **MAIN MENU**, use the arrow keys to select **Server**, and then press **Enter**.

```
      CN2510-8
      CN2510-8_5631
      V2.0
      MAIN MENU

      [Server]
      Port seTting sAve Utility Restart Exit
      Examine/modify async server node/table configuration

      Enter:
      select
      ESC:
      previous menu
```

2. From the SERVER MENU, select Host\_table, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	SERVER MENU
	[Host_table] Route_table User_table Quit async server basic configuration	
Enter: select	ESC: previous menu	

3. The Host\_table contains frequently accessed host names and their corresponding IP addresses. Adding entries to this table gives you the advantage of being able to refer to a host by name, instead of by IP address. The host table can hold up to 16 [Host name] / [Host IP address] entries. The Host\_table page contains input/display fields for Entry, Host name, and Host IP address.

CN2510-8	CN25	510-8_5631 	V2.0	
Info. Lan Adv. [ Examine/modify the		oute_table	User_table	Quit
ESC: back to menu	Enter: seled	ct		
Entry 01 02 03 04 05 06 07	Host name [ [ [ [ [	] ] ] ] ]	Host IP [ [ [ [ [	address ] ] ] ] ] ]
07		]	[	]

#### Server Configuration—Route\_table

1. From the MAIN MENU, use the arrow keys to select Server, and then press Enter.

CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
[Server] Port seTting sAve Utility Restart Exit	
Examine/modify async server node/table configuration	
Enter: select ESC: previous menu	

2. From the SERVER MENU, select Route\_table, and then press Enter.

CN2510-8 CN2510-8_5631 V2.0	SERVER	MENU
Info. Lan Adv. Host_table [Route table] User_table Quit Examine/modify async server basic configuration		
Enter: select ESC: previous menu		

3. The **Route\_table** specifies routing parameters. The **Route\_table** page contains input/display fields for **Entry**, **Gateway**, **Destination**, **Netmask**, and **Metric**. Each item is described in detail below.

Entry, Gatev	Endy, Gateway, Destination, Nethask, and Pietric. Each item is described in detail below.								
CN2510-8		CN251	0-8_5631 V2.0						
	h Adv. Host odify the ro		e table] User_t	able Quit					
ESC: back	to menu Er	nter: select							
Entry	Gateway	Destin	ation Netmas						
01 02	[	] [	] [	] [01] ] [01]					
03	[	] [	] [	] [01]					
04	[	] [	] [	] [01]					
05	[	] [	] [	] [01]					
06	[	] [	] [	] [01]					
07	[	] [	] [	] [01]					
08	]	] [	] [	] [01]					

Gateway—The gateway IP address or interface source IP address to which data packets are sent.

**Destination**—The IP address of a host or network to which the route connects.

**Netmask**—The netmask of the destination network.

Metric—The number of hops from source to destination. Refer to Chapter 14 for routing settings.

## Server Configuration—User\_table

1. From the MAIN MENU, use the arrow keys to select Server, and then press Enter.

CN2510-8 CN2510-8_56	531 V2.0 MAIN	MENU
[Server] Port seTting sAve Utility R Examine/modify async server node/table		
Enter: select ESC: previous menu		

2. From the SERVER MENU, select User\_table, and then press Enter.

		-	- /			,					
C	CN2510-	8			CN251(	0-8_563	31 V2.	.0		SERVER	MENU
				table c_server			-		Quit	 	
				previou		-	JULACIO	11			

 The User\_table is used for local authentication for dial-in/out access. The CN2510 User Table, which holds information for up to 64 users, is useful if you do not have an external RADIUS server for authentication. The User\_table page contains input/display fields for Entry, User name, Password, and Phone number.

CN2510-8		CN2510-8_563	1 V2.0	
	n Adv. Host_tal odify the user/}		[User_table] Qu	it
ESC: back	to menu Enter	: select		
Entry	User name	Password	Phone nu	umber
01	[	] [	] [	]
02	[	] [	] [	]
03	[	] [	] [	]
04	[	] [	] [	]
05	[	] [	] [	]
06	[	] [	] [	]
07	[	] [	] [	]
08	[	] [	] [	]

## Save

When exiting the **SERVER MENU**, you will be prompted to save settings. Press **Y** to save.

CN2510-8	CN2510-8_5	631 V2.0		MAIN MENU
	ost_table Route_tabl nc server basic conf		Quit	
Enter: select ESC	: previous menu			
+				
	Warning !!			
You ha	ad modified the conf:	iguration withou	ıt saving.	
Would	you save it now ?			
	'Y': yes	'N': no		
+				

You may also save all settings from the MAIN MENU by selecting sAve.

Server Port seTting [SAVE] Utility Restart Exit							
Server Port seTting [SAve] Utility Restart Exit Save current configuration to Flash ROM							
ESC: back to menu Enter: select							
++							
Enter to updated, other key to cancel							
++							

## Restart

1. From the MAIN MENU, select Restart.

CN2510-8		CN2510-8_5631 V2.0	MAIN	MENU
		g sAve Utility <mark>[Restart]</mark> Exit stem or selected async ports		
Enter:	select ESC:	previous menu		
Enter:	select ESC:	previous menu		

2. Select System and then press Enter to restart the system and terminate the Telnet session.



# **Knowing Your Application**

This chapter discusses a variety of applications for CN2510 Async Server. Refer to the diagrams in each section to see which application most closely matches your own. Determining which application you should choose will save time configuring both the hardware and software.

CN2510 is an Async Server that can support simultaneously different operation modes for different serial ports. The examples in this chapter explain each operation mode in detail. You can create a wide variety of applications by using different combinations of operation modes on the same Async Server.

*NOTE:* Each section title consists of an application name that uses terminology common to our industry, followed in parentheses by the application name used in CN2510's console utility. For example, the CN2510 application that corresponds to Linux Real TTY/Unix Fixed TTY is NT Real COM mode.

The following topics are covered in this chapter:

- Windows Real COM (NT Real COM)
- Linux Real TTY/Unix Fixed TTY (NT Real COM)
- Device Control (Device Control)
- UDP Communication (Raw UDP)
- Console Management (Reverse Terminal)
- Terminal Access (Terminal)
- Multi-host TTY (Multi-host TTY)
- Dial-in/Out-of-Band Management (Dialin/out)
- Network Printer (Printer)
- Multiplexor Access (Multiplex)



## Windows Real COM (NT Real COM)

Moxa provides CN2510 COM port drivers for all Windows operating systems. The COM port driver serves a dual purpose—(1) convert serial data into Ethernet packets, (2) convert Ethernet packets into serial data—as outlined in the following table:

	PC → CN2510 → Serial Device		Serial Device $\rightarrow$ CN2510 $\rightarrow$ PC
1.	The PC generates RS-232 serial COM commands.	1.	A serial device connected to CN2510 starts
2.	The COM port driver converts the commands		transmitting serial data.
	into Ethernet packets.	2.	CN2510 converts the data into one or more
3.	The packets are sent over the network to CN2510's		Ethernet packets.
	Ethernet port.	3.	The packets are sent over the network to the PC
4.	CN2510 converts the Ethernet packets back into		host's Ethernet port.
	RS-232 serial format.	4.	The COM port driver converts the Ethernet
5.	The commands are delivered to serial device(s)		packets back into RS-232 serial format.
	connected to CN2510's serial port(s).	5.	The serial data is processed by the program that
			controls the serial device.

You can enhance your applications greatly by using CN2510 to access serial devices over an Ethernet network, and since CN2510 and the COM driver handle all protocol conversion tasks, you won't need to modify the software currently in use. In fact, multiple PCs can access the serial ports of one CN2510, as shown in the figure.

Refer to Chapter 4 for detailed information and configuration instructions.

# Linux Real TTY/Unix Fixed TTY (NT Real COM)



Real TTY drivers that control Moxa CN2510 Async Server's serial ports are provided for Linux environments. This means that CN2510 Async Server can be used with existing Linux-based applications that use multiport serial boards, since the host PC will recognize CN2510's COM ports as real TTY ports. You can enhance your applications by using CN2510 to access serial devices over an Ethernet network, but without needing to modify the software currently in use.

Moxa also provides Fixed TTY port drivers for Unix environments. However, the Linux Real TTY and Windows Real COM port drivers provide better control over serial port data transmission, since you can control modem signals such as DTR, DSR, RTS, and CTS. The Unix Fixed TTY driver provides software reception and transmission through CN2510's serial ports, but does not allow you to control the DTR, DSR, RTS, and CTS modem signals.

Refer to Chapter 4 for detailed information and configuration instructions.



## **Device Control (Device Control)**

The CN2510 Device Control application allows you to choose between two different operation modes: ASPP and RAW.

**ASPP Mode**—For applications that require setting up communication parameters or controlling modem signals (DTR, RTS, Break, etc.), take advantage of Moxa's ASPP lib to simplify your programming tasks. ASPP takes care of the more basic protocol-level programming tasks, and allows you to concentrate your energy on higher level, application-specific tasks.

**RAW Mode**—To control device data transmission directly, set CN2510 for TCP RAW mode. Device control applications can use standard Linux/Unix Socket programming in Linux/Unix environments, or WinSock programming in Windows environments. Standard socket programming allows you to focus on pure data transmission, without needing to write code for controlling serial ports or modem signals. ASPP can also be used to communicate with CN2510.

Linux/Unix socket programming and Windows WinSock programming both use IP as the communication agent between hosts and devices. RAW mode is a good solution for handling pure serial data communications applications that do not require setting up communication parameters (baud rate, parity, etc.).

Refer to Chapter 5 for detailed information and configuration instructions.

# UDP datagram UDP datagram Serial

UDP is a non connection-oriented data transmission protocol that has the advantages of efficient, high-speed, high-volume data transmission. Since UDP does not use TCP's handshaking procedure, it does not re-assemble and retransmit packets when data is missing. This means that data integrity is sacrificed for higher transmission speed. UDP provides a very powerful transmission method when data needs to be transmitted quickly over the network, and upper-level application software is given the responsibility of verifying the accuracy of the data.

UDP can also use broadcasting or multicasting technologies to handle point to multi-point transmissions. UDP is an ideal transmission method for serial devices that must transmit data to a group of devices or PCs.

Refer to Chapter 6 for detailed information and configuration instructions.

**Finger Printer** 

## **Console Management (Reverse Terminal)**



The Reverse Terminal application, which uses Rtelnet mode, is used with routers, switches, and UPS equipment for console management applications. Rtelnet mode is similar to RAW mode, in that after booting up it listens to one specific TCP port for network hosts to initiate a connection. RAW mode, however, does not provide a Telnet conversion function. If the serial devices connected to CN2510 need to use the CR/LF conversion function, then Rtelnet mode must be used. CN2510's Rtelnet mode is also used widely for device management applications in telecommunication control rooms, since remote hosts can make use of Local User Table or RADIUS identity verification methods.

Refer to Chapter 7 for detailed information and configuration instructions.

# 

CN2510's Terminal Access application is used to connect terminals to Unix or Windows Servers over a network. The terminals connect to CN2510's serial ports at a remote site, with terminal commands transmitted over the network via CN2510's Ethernet port. The Terminal Access application allows you to use fast keys used in many terminal applications, and switching sessions on the same terminal. CN2510 supports ASCII terminal and Binary terminal, with up to 8 simultaneous sessions for each port.

Refer to Chapter 8 for detailed information and configuration instructions.

# Terminal Access (Terminal)



## Multi-host TTY (Multi-host TTY)

The Multi-host TTY application is ideal for connecting over a network to multiple Unix hosts from several sessions simultaneously. When communication begins, the networked Unix server must first enable Moxattyd to activate the TTY port's mapping function. Moxattyd will initiate the connection with the CN2510, and the CN2510 will listen to the connection requests issued by various Moxattyd over different TCP ports.

Once the connection is established, the Terminal server can use hot keys to switch sessions, allowing one terminal to control different Unix hosts.

Refer to Chapter 9 for detailed information and configuration instructions.



Dial-in/Out-of-Band Management (Dialin/out)

Moxa CN2510 Async Server provides dial-up/dial-out access for ISPs and enterprises that need a remote access solution. When a user at a remote site uses a PPP dial-up connection to access CN2510, CN2510 plays the role of dial-up server, but also ensures the user has legal access to the network by verifying the user's identity with its Local User Table or RADIUS.

CN2510 supports PPP, SLIP, and Terminal modes for dial-up/dial-out access. Regardless of which OS is used, you will always be able to use standard PPP dial-up to establish a connection. CN2510 can also act as an Async router to connect serial ports to a WAN connection. Routing protocols (including static, RIP I, and RIP II) can be adjusted to route different WAN connections.

Refer to Chapter 10 for detailed information and configuration instructions.

# Network Printer (Printer)



CN2510 Async Server's printing program (running under UNIX) provides an excellent solution for banking and stock exchange services with huge printing demands. Use a Windows or Unix host's network printer function via RAW mode, and assign a specific IP address and TCP port number to specify the printer's location. You can also connect to the printer via LPD mode when LPD protocol is needed to operate the printer.

Refer to Chapter 11 for detailed information and configuration instructions.


## **Multiplexor Access (Multiplex)**

If are using a multiport serial board installed in a UNIX host, but wish to extend the device control range without dismantling the host, you can accomplish this with CN2510. Multiplex and De-multiplex solutions use CN2510's RTelnet and terminal modes, eliminating the need to modify existing software. CN2510 acts like a converter by extending the communication distance. CN2510s work in pairs over the network to overcome the short communication distance limitation imposed by serial connections.

See Chapter 12 for detailed configuration instructions.

**NOTE** This mode does not allow copying the status of control signals to devices at a remote site.

# Setting Up Windows Real COM/Linux Real TTY/Unix Fixed TTY

CN2510 Async Server supports Real COM/TTY drivers for Windows and Linux, allowing CN2510's serial ports to be recognized as Real COM ports by the Windows operating system, or Real TTY ports by Linux operating systems. CN2510 Async Server can be used for a variety of applications to make the serial ports accessible over an Ethernet, but without the need to modify existing serial transmission software. The Real COM driver provided by Moxa lets users treat networked serial ports the same as local serial ports.

The following topics are covered in this chapter:

- Accessing the Console Utility
- Selecting the Application
- Configuring ASPP Mode
- Configuring the Serial Ports
- Save
- Restart
- Setting up Hosts
  - Setting up Windows XP/2003 Hosts
  - Setting up Windows 2000 Hosts
  - > Setting up Windows 95/98/ME/NT Hosts

## Accessing the Console Utility

**NOTE** In this section, we show how to access CN2510's console utility by Telnet over the network. For information on using the console port, see the section "Accessing the Console Utility" in Chapter 2.

1. Telnet over the network to the server's IP address.

Run	<u>?</u> ×
-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	telnet 192.168.127.254
	OK Cancel <u>B</u> rowse

2. Type 1 to choose ansi/vt100, and then press Enter.

📕 Telnet 192.168.127.2	54	
Async Server CN2510-8 Console terminal type (	1: ansi/vt100, 2: vt52) : 1	

3. CN2510's MAIN MENU will open, as shown below.

<b>Telnet 192.168.127.254</b>	
CN2510-8 CN2510-8_5631 V2	.0 MAIN MENU
[Server] Port seTting sAve Utility Restart Examine/modify async server node/table configu	
Enter: select ESC: previous menu	

Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

## **Selecting the Application**

Open **Port Menu**  $\rightarrow$  **Mode** to configure the **NT Real COM** application.

1. From the MAIN MENU, select Port, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0	PORT MENU
[Mode] Line mOdem Examine/modify the	Welcome_MSG Quit operation mode of async ports	
Enter: select ESC	C: previous menu	

3. The **Mode** page has pop-up selection lists for **Application**, **Mode**, and **Description/more setting** for each serial port. Use the arrow keys to move the cursor to the **Application** column for the port to be configured, and then press **Enter**. We use Port 6 to illustrate.

configured, and then press <b>Enter</b> . We use Port 6 to industrate.										
CN2510-8 CN2510-8 5631 V2.0										
[Mode] Line mOdem	Welcome MSG Quit									
Examine/modify the	operation mode of async ports									
ESC: back to menu	Enter: select									
Port Application	Mode Description/more setting									
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]									
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]									
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]									
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]									
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]									
06 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]									
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]									

4. Use the Up/Down arrow keys to select NT Real COM, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem V	Welcome_MSG Quit
Examine/modify the c	operation mode of async ports
ESC: back to menu	Enter: select
Port Application	++ption/more setting
01 [NT Real COM	]  Disable   Server Proprietary Protocol]
02 [NT Real COM	]  Dialin/out   Server Proprietary Protocol]
03 [NT Real COM	]  Terminal   Server Proprietary Protocol]
04 [NT Real COM	]  Reverse Terminal   Server Proprietary Protocol]
05 [NT Real COM	]  Device Control   Server Proprietary Protocol]
06 [NT Real COM	]  Multiplex   Server Proprietary Protocol]
07 [NT Real COM	]  Printer   Server Proprietary Protocol]
08 [NT Real COM	]  Multi-Host TTY   Server Proprietary Protocol]
	]  NT Real COM
	]  Raw UDP
	]++

5. **ASPP** mode is selected by default, since it is the only mode associated with the **NT Real COM** application.

CN2510-8 CN2510-8_5631 V2.0								
[Mode] Line mOdem Welcome_MSG Quit								
Examine/modify the operat	tion mode of async ports							
ESC: back to menu Enter	: select							
Port Application	Mode Description/more setting							
01 [NT Real COM ]	[ASPP ] [Async Server Proprietary Protocol]							
02 [NT Real COM ]	[ASPP ] [Async Server Proprietary Protocol]							
03 [NT Real COM ]	[ASPP ] [Async Server Proprietary Protocol]							
04 [NT Real COM ]	[ASPP ] [Async Server Proprietary Protocol]							
05 [NT Real COM ]	[ASPP ] [Async Server Proprietary Protocol]							
06 [NT Real COM ]	[ASPP ] [Async Server Proprietary Protocol]							
07 [NT Real COM ]	[ASPP ] [Async Server Proprietary Protocol]							
08 [NT Real COM ]	[ASPP ] [Async Server Proprietary Protocol]							

## **Configuring ASPP Mode**

Follow these steps to configure ports for ASPP mode:

1. Move the cursor to the **Description/more setting** column and press **Enter**.

CN251	0-8	-	CN2	510	-8_5631	V2.0		
[Mode]		Odem Welco						
Exami	lne/modify	the opera	tion mc	de	of asynd	c ports		
ESC:	back to m	enu Enter	: sele	ect				
Port	Applicat	ion	Mode		Descrip	tion/mc	ore setting	
01	[NT Real (	COM ]	[ASPP	]	[Async	Server	Proprietary	Protocol]
02	[NT Real (	COM ]	[ASPP	]	[Async	Server	Proprietary	Protocol]
03	[NT Real (	COM ]	[ASPP	]	[Async	Server	Proprietary	Protocol]
04	[NT Real (	COM ]	[ASPP	]	[Async	Server	Proprietary	Protocol]
05	[NT Real (	COM ]	[ASPP	]	[Async	Server	Proprietary	Protocol]
06	[NT Real (	COM ]	[ASPP	]	Async	Server	Proprietary	Protocol
07	[NT Real (	COM ]	[ASPP	]	[Async	Server	Proprietary	Protocol]
08	[NT Real (	COM ]	[ASPP	]	[Async	Server	Proprietary	Protocol]

2. The pop-up selector contains input/display fields for **TCP data port**, **TCP command port**, and **TCP alive check time**. Each item is described in detail below the figure.

CN2510-8 CN2510-8_5631 V2.0									
[Mode] Line mOdem Welcome MSG Quit									
Examine/modify the operation mode of async ports									
ESC: back to menu E	nter: select								
Port Application	Mod++								
Port Application									
01 [NT Real COM	] [AS  TCP data port : [950]  ]								
02 [NT Real COM	] [AS  TCP command port : [966]  ]								
03 [NT Real COM	] [AS  TCP alive check time : [0 ] minutes  ]								
04 [NT Real COM	] [AS++								
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]								
06 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]								

Setting	Value	Notes		Necessity		
TCP data port	950 - 965	The host uses	this port number to determine which	Required		
		serial device to	o send data to. <b>These values are</b>			
		fixed, and ca	nnot be changed by the user.			
		Serial Port	Serial Port TCP Port No.			
		01	950			
		02	951			
		03	952			
		16	965			
TCP command port	966 - 981	The host uses	Required			
		device to send	l commands to. These values are			
		fixed, and ca				
		Serial Port				
		01	966			
		02	967			
		03	968			
		16	981			
TCP alive check time	0 – 99 min.	The time perio	Optional			
	(default =	TCP connectio				
	7 min)	received, CN2				
		the connection	۱.			

3. Press **ESC** to return to the **PORT MENU**.

## **Configuring the Serial Ports**

Open **Port Menu**  $\rightarrow$  **Line** to configure serial port settings.

1. From the MAIN MENU, select Port, and then press Enter.



2. From the PORT MENU, select Line, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	PORT MENU
	em Welcome_MSG Quit synchronous port configuration	
Enter: select	ESC: previous menu	

 The Line page has pop-up selection lists for Port, Speed, Bits, Stop, Parity, FIFO, RTS/CTS, XON/XOFF, and Discon. ctrl for each serial port. Each item is described in detail below the figure.

CN251	0-8			CN2510-8	_5631	V2.0			
 Mode	[Line] mC	)dem W	 Ielcome	 MSG Quit					
			_	port conf	igurati	on			
	_			-	-				
ESC:	back to m	nenu	Enter:	select					
Port	Speed	Bits	Stop	Parity	FIFO	RTS/CTS	XON/XOFF	Discon.	ctrl
01	[115200]	[8]	[1]	[None] [	yes]	[yes]	[no ]	[None	
02	[115200]	[8]	[1]	[None ] [	yes]	[yes]	[no ]	[None	
03	[115200]	[8]	[1]	[None ] [	yes]	[yes]	[no ]	[None	
04	[115200]	[8]	[1]	[None ] [	yes]	[yes]	[no ]	[None	
05	[115200]	[8]	[1]	[None ] [	yes]	[yes]	[no ]	[None	
06	[115200]	[8]	[1]	[None ] [	[yes]	[yes]	[no ]	[None	
07	[115200]	[8]	[1]	[None ] [	yes]	[yes]	[no ]	[None	
8 0	[115200]	[8]	[1]	[None ] [	yes]	[yes]	[no ]	[None	]

Setting	Value	Notes
Speed	50 bps to 921.6 Kbps	Transmission rate
Bits	5, 6, 7, 8	Data bits
Stop	1, 1.5, 2	Stop bits
Parity	None, Even, Odd, Mark, Space	Odd, Even, Mark, Space
FIFO	Yes, No	First In First Out Device
RTS/CTS	Yes, No	Hardware Flow Control
XON/XOFF	Yes, No	Software Flow Control
Discon. Ctrl	None	DSR off or DCD off will not be interpreted as a
		disconnection.
	DSR off	<b>DSR off</b> will be interpreted as a disconnection.
	DCD off	<b>DCD off</b> will be interpreted as a disconnection.

4. Press ESC to return to the PORT MENU.

## Save

When exiting the **SERVER MENU**, you will be prompted to save settings. Press  $\mathbf{Y}$  to save.



You may also save all settings from the **MAIN MENU** by selecting **sAve** and then pressing **Enter**. Press **Enter** again to save, and any other key to cancel.

CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
Server Port seTting [sAve] Utility Restart Exit Save current configuration to Flash ROM	
ESC: back to menu Enter: select	
++	
Enter to updated, other key to cancel	
++	

## Restart

1. From the MAIN MENU, select Restart.

CN2510-8	CN2510-8_5631 V2.0	MAIN	MENU
-	sAve Utility <mark>[Restart]</mark> Exit stem or selected async ports		
Enter: select ESC:	previous menu		

2. Select **System** and then press **Enter** to restart the system and terminate the Telnet session.

CN2510-8	C1	12510-8_5631	V2.0			
[System] P Restart t	ort Quit he Async Ser	ver				
ESC: back t	o menu Ent	er: select				+
   Resta 	rt system wi	ll disconnec Enter: cont	inue ESC	and clear al C: cancel	l status	value     
+						+

## **Setting up Hosts**

After using CN2510 Console Utility to set up Async Server's ports for the NT Real COM application (ASPP mode), you will need to install port drivers on every computer used to access CN2510's ports. In this section we explain how to set up Windows hosts

### Setting up Windows XP/2003 Hosts

In this section, we use Windows XP to illustrate the installation procedure. The installation procedure for Windows 2003 machines is identical.

#### **Installing a Server**

- 1. Unzip the Windows XP/2003 driver file, located on the CN2510 CD ROM, to your hard disk.
- 2. Run the Windows Add Hardware Wizard, located in the Control Panel.



3. When the Welcome to the Add Hardware Wizard window opens, click on Next to continue.

Add Hardware Wizard	
	Welcome to the Add Hardware Wizard
	This wizard helps you:
	<ul> <li>Install software to support the hardware you add to your computer.</li> </ul>
	<ul> <li>Troubleshoot problems you may be having with your hardware.</li> </ul>
	If your hardware came with an installation CD, it is recommended that you click Cancel to close this wizard and use the manufacturer's CD to install this hardware. To continue, click Next.
	< Back Next > Cancel

4. Wait patiently while the Wizard searches for servers connected to the network.



5. The next window to open will ask you if the hardware is connected. Select **Yes, I have already connected the hardware**, and click on **Next** to continue.

Add Hardware Wizard	
Is the hardware connected?	
Have you already connected this hardware to your computer?	
< <u>B</u> ack	Next > Cancel

6. Select Add a new hardware device, and then click on Next to continue.



7. Select **Install the hardware that I manually select from a list (Advanced)** to install the hardware, and then click on **Next** to continue.

Add Hardware Wizard
The wizard can help you install other hardware
The wizard can search for other hardware and automatically install it for you. Or, if you know exactly which hardware model you want to install, you can select it from a list.
What do you want the wizard to do? Search for and install the hardware automatically (Recommended) Install the hardware that I manually select from a list (Advanced)
< <u>B</u> ack <u>N</u> ext> Cancel

8. The window that opens next will ask you to select the type of hardware you are installing. Select **Multi-port serial adapters**, and then click on **Next** to continue.



9. The window that opens next will ask you to select the device driver you want to install for this hardware. Click on **Have Disk...** to install from the CD.

Add Hardware Wizard				
Select the device driver you	want to install for this hardware.			
	d model of your hardware device and then click Next. If you le driver you want to install, click Have Disk.			
Manufacturer Digi International Moxa Technologies Co., Ltd Moxa Technologies Inc.	Model MOXA C104 Series (ISA Bus) Version: 1.9.0.0 [2004/7. MOXA C104H/PCI Series (PCI Bus) Version: 1.8.0.0 [2 MOXA C104H/PCI Series (PCI Bus) Version: 1.8.0.0 [2 MOXA C104H/PCI Series (ISA Bus) Version: 1.8.0.0 [2004			
This driver is not digitally s Tell me why driver signing is imp	-			
	< <u>B</u> ack <u>N</u> ext> Cancel			

10. Locate and then select the driver file **NPSERVER.INF**. Click on **Open** to proceed with the installation.

Locate File					? ×
Look jn:	🗀 WinXP		•	G 🤌 📂 🖽•	
My Recent Documents Desktop	NPortTool				
) My Documents					
My Computer					
My Network	File <u>n</u> ame:	NPSERVER		•	<u>O</u> pen
Places	Files of type:	Setup Information (*.inf)		<b>T</b>	Cancel

11. Select the correct CN2510 model, and then click on **Next** to continue.

Add Hardware Wizard		
Select the device driver you want to in	stall for this hardware.	
Select the manufacturer and model of ye have a disk that contains the driver you		
Model MOXA Async Server CN2516		A
M0XA Async Server CN2610-16 M0XA Async Server CN2610-8		
MOXA DE-309-16/CN2116		•
This driver is not digitally signed! <u>Tell me why driver signing is important</u>		<u>H</u> ave Disk
	< <u>B</u> ack <u>N</u> ext >	Cancel

12. The Wizard will start installing the driver, and automatically search the network for copies of the CN2510 model you selected in the previous step.



13. Although the next window to open states that the software hasn't passed Windows Logo testing, you can rest assured that this driver has already been tested and been shown that it can support this Windows OS. Click on **Continue Anyway** to proceed.

Hardware Installation			
<u>.</u>	The software you are installing for this hardware: MOXA Async Server CN2610-8 has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.) Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.		
	Continue Anyway STOP Installation		

14. Wait patiently while the driver is installed.

Copying Files	×
6	$\triangleright$
npofg.dll Tio F:\WINXP\System32	
	Cancel

15. You can select the CN2510 that was located automatically, or select **Manually Enter the IP address of NPort Server / Async Server** and then enter the IP address of a different server. Click on **Next** to finish installing the CN2510 driver.

)XA NF	Port Serve	r Installatio	n	
			Async Server you want to install Async Server is that you want to install	
•	<u>è</u> elect existin	g NPort Serv	ers / Async Servers on the LAN	
	Model	Serial No	IP Address	
	CN2510-8	5631	192.168.127.254	
				Scan <u>Ag</u> ain
0 1	Manually Ent	er the IP add	ress of NPort Server / Async Server	
			< Back	Next > Cancel

16. The next window reports that the driver was installed, and port drivers will be installed next. Click on **Next** to continue.

MOXA NPort Server II	nstallation			
	NPort Servers / Async Servers installation completed NPort Server / Async Server is ready to install Port driver.			
Server driver insta System will install p NPort Server / Ass				
Model:	CN2510-8			
Name:	CN2510-8_5631			
IP Address:	192.168.127.254			
		< <u>B</u> ack <u>Next</u> >	Cancel	

17. Click on **Finish** to complete the installation of the server driver. This will automatically trigger the port installation procedure.

Add Hardware Wizard			
	Completing the Add Hardware Wizard		
	The following hardware was installed:		
	MOXA Async Server CN2510-8		
	Windows has finished installing the software for this device.		
	To close this wizard, click Finish.		
	< Back Finish Cancel		

### **Installing Ports**

1. After the CN2510 server driver has been installed, Windows will notify you that new hardware has been found. Select **Install from a list or specific location (Advanced)**, and then click on **Next** to continue.



2. Select Include this location in the search, and then click on Next to continue.

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM)
✓ Include this location in the search:
F:\WirXP Browse
C Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.
< <u>B</u> ack <u>N</u> ext > Cancel

3. Although the next window to open states that the software hasn't passed Windows Logo testing, you can rest assured that this driver has already been tested and been shown that it can support this Windows OS. Click on **Continue Anyway** to proceed.

Hardware	Installation
1	The software you are installing for this hardware: Moxa Port 0 has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.) Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
	Continue Anyway

4. The driver for Moxa Port 0 will be installed.



5. After Moxa Port 0 is installed, steps 1 to 4 will be repeated 7 or 15 times, depending on whether you are installing drivers for the 8-port or 16-port CN2510.

Found New Hardware Wizard	
	Completing the Found New Hardware Wizard The wizard has finished installing the software for: Moxa Port 0
	< <u>B</u> ack <b>[Finish</b> ] Cancel

6. After the installation is complete, you can check **Ports (COM & LPT)** under **Device Manager** to verify that all of the ports were installed successfully.



### Configuring CN2510 in a Windows XP/2003 Environment

After the CN2510 driver is installed, you will be given the option to proceed directly with the configuration of CN2510. You may also configure CN2510 at a later time. In this section we explain how to configure Real COM Mapping.

 Click on Device Manager → Multiport serial adapters, right click on the CN2510 you would like to configure, and select Properties.



2. Click on the **Configuration** tab.

MOXA Asy	nc Server CN251	0-8 Properties	? ×
General	Configuration Dri	ver	
»I)	MOXA Async Serv	ver CN2510-8	
	Device type:	Multi-port serial adapters	
	Manufacturer:	Moxa Technologies Co., Ltd	
	Location:	Unknown	
_ Devic	e status		
This	device is working pr	operly.	3
	u are having problem the troubleshooter.	is with this device, click Troubleshoot to	2
,		Iroubleshoot	
Device usage:			
Use thi	is device (enable)		•
		OK Car	ncel

3. Click on **Settings** to configure CN2510's Basic Configuration, Password, and Access Control.

MOXA Async Server CN2510-8 Properties			
General Configuration Driver			
NPort Server / Async Server Status	_		
Model: CN2510-8			
IP Address: 192.168.127.254			
<u>Settings</u>			
Port Status	_		
COM Number: COM13COM20			
Ports Setting			
OK	Cancel		

4. On the **Basic Configuration** page, modify **Server Name**, **IP Address**, **Netmask**, and **Gateway**. Check the **DHCP** checkbox if the network parameters will be assigned automatically by a DHCP server.

Property Sheet	
Basic Configuration Password	Access Control
Model Name: CN2510-8	
Serial Number 5631	
Server Name	CN2510-8_5631
<u>I</u> P Address	192 . 168 . 127 . 254
Net <u>m</u> ask	255 . 255 . 255 . 0
<u>G</u> ateway	· · ·
	OK Cancel

5. On the Password page, add a password or change the existing password. Check the **Remember Password** checkbox to remember the password on this computer.

Property Sheet	×
Basic Configuration Password Access Control	
Current Password:	
New Password:	
Confirm Password:	
<u>R</u> emember Password	
OK	Cancel

6. The Access Control page allows you to set up access rights for each of the CN2510's ports. Access right is assigned by IP address. In the example shown here, the "netmask" of 255.255.255.255 limits access to the listed IP address (192.168.6.16). To allow access to a group of IP addresses, adjust the "netmask" accordingly.

To allow any IP address to access a port, delete all IP addresses assigned to that port.

Property Sheet	×
Basic Configuration   Password   Access Control	
View access control list by	
⊡- CN2510-8_5631(192.168.127.254) ⊕- 192.168.127.100 255.255.255.255	Add <u>I</u> P
	Add Port
	<u>H</u> emove
	Modify
Tip: Delete All IP Address to Grant All.	
OK	Cancel

7. Click on **Modify** to save all **Property Sheet** settings and return to the **Properties / Configuration** page.

MOXA A	sync Serve	r CN2510-	8 Properties		? X
Genera	al Configura	ition Driver			
	Port Server 7.	Async Serve	er Status		
	Model:	CN2510-8			
	IP Address:	192.168.12	27.254		
			<u>S</u> etting:	s	
⊢ Po	rt Status				
C	OM Number:		СОМ13СОМ2	20	
			<u>P</u> orts Set	ting	
				OK	Cancel

8. Click on **Ports Setting** to configure the data transmission mode and FIFO for each COM port.



9. Check the box(es) next to the port(s) you would like to modify, and then click on Modify Setting.

ort Configurati	ion		
Port Setting-			
Port	Number	Tx Mode	FIFO
	COM13	Hi-Performance	Enable
2	COM14	Hi-Performance	Enable
3	COM15	Hi-Performance	Enable
4	COM16	Hi-Performance	Enable
5	COM17	Hi-Performance	Enable
6	COM18	Hi-Performance	Enable
7	COM19	Hi-Performance	Enable
8	COM20	Hi-Performance	Enable
			<u>M</u> odify Setting
		ОК	Cancel

10. Modify the settings that need to be changed, and then click on **OK**.

Change Port Setting	×
_ <u>P</u> ort Number	
COM13 🔽 🔽 .	Auto Enumerating COM <u>N</u> umber
Transmission <u>M</u> ode	- <u>E</u> IFO
<u>H</u> i-Performance	• Enable
© <u>C</u> lassical	© <u>D</u> isable
☑ Set The Change to All Ports	☑ Set The Change to <u>A</u> ll Ports
	OK Cancel

### Setting up Windows 2000 Hosts

In this section, we explain how to set up a host in a Windows 2000 environment.

#### **Installing a Server**

- 1. Unzip the Windows 2000 driver file, located on the CN2510 CD ROM, to your hard disk.
- 2. Run the Windows Add Hardware Wizard, located in the Control Panel.



3. When the Welcome to the Add Hardware Wizard window opens, click on Next to continue.

Add/Remove Hardware Wizar	rd
	Welcome to the Add/Remove Hardware Wizard This wizard helps you add, remove, unplug, and troubleshoot your hardware.
	< Back Next > Cancel

4. In the **Choose a Hardware Task** window, select **Add/Troubleshoot a device**, and then click on **Next** to continue.

Add/Remove Hardware Wizard
Choose a Hardware Task Which hardware task do you want to perform?
Select the hardware task you want to perform, and then click Next.
<ul> <li>Add/Troubleshoot a device</li> <li>Choose this option if you are adding a new device to your computer or are having problems getting a device working.</li> </ul>
Uninstall/Unplug a device Choose this option to uninstall a device or to prepare the computer to unplug a device.
< <u>B</u> ack <u>N</u> ext > Cancel

5. In the **Choose a Hardware Device** window, select **Add a new device**, and then click on **Next** to continue.

Add/Remove Hardware Wizard
Choose a Hardware Device Which hardware device do you want to troubleshoot?
The following hardware is already installed on your computer. If you are having problems with one of these devices, select the device, and then click Next. If you are attempting to add a device and it is not shown below, select Add a new device, and then click Next.
Devices
Add a new device ACPI Fixed Feature Button Programmable interrupt controller System timer Direct memory access controller Standard 101/102-Key or Microsoft Natural PS/2 Keyboard Printer Port (I PT1)
< <u>B</u> ack <u>N</u> ext > Cancel

6. In the **Find New Hardware** window, select **No, I want to select the hardware from a list**, and then click on **Next** to continue.

Add/Remove Hardware Wizard
Find New Hardware Windows can also detect hardware that is not Plug and Play compatible.
When Windows detects new hardware, it checks the current settings for the device and installs the correct driver.
Do you want Windows to search for your new hardware?
$\odot$ Yes, search for new hardware
No, I want to select the hardware from a list
< <u>B</u> ack <u>N</u> ext > Cancel

7. In the **Hardware Type** window, select **Multi-port serial adapters** from the **Hardware types** list, and then click on **Next** to continue.

Add/Remove Hardware Wizard	
Hardware Type What type of hardware do you want to install?	
Select the type of hardware you want to install. Hardware types:	
<ul> <li>Imaging devices</li> <li>Infrared devices</li> <li>Memory technology driver</li> <li>Modems</li> <li>Multi-port serial adapters</li> <li>Network adapters</li> <li>Other devices</li> <li>PCMCIA adapters</li> <li>Ports (COM 2.1 PT)</li> </ul>	
<u> </u>	ck <u>N</u> ext > Cancel

8. Click on **Have Disk** to install from the CD, and then click on **Next** to continue.

Add/Remove Hardware Wizard	
Select a Device Driver Which driver do you want to i	nstall for this device?
	nd model of your hardware device and then click Next. If you he driver you want to install, click Have Disk. Models:
Comtrol Corporation Digi International Equinox Systems Inc. Moxa Technologies Co., Ltd Specialix International Ltd. Stallion Technologies	MOZA NPort Server Lite DE-301 MOXA NPort Server Lite DE-302 MOXA NPort Server Lite DE-304 MOXA NPort Server Lite DE-331 MOXA NPort Server Lite DE-332 MOXA NPort Server Pro DE-303 <u>H</u> ave Disk
	< <u>B</u> ack <u>N</u> ext > Cancel

9. After locating the **win2k** folder, select the driver file **NPSERVER.INF**, and then click on **Open**.

Locate File			? ×
Look jn: 🔁 Win2K	T	+ 🗈 💣 🎫	
Image: Second state			
Desktop			
My Documents			
My Computer			
File <u>n</u> ame:	NPSERVER	•	<u>O</u> pen
My Network P Files of type:	Setup Information (*.inf)	<b>v</b>	Cancel

10. Select the correct CN2510 model, and then click on  ${\bf Next}$  to continue.

Add/Remove Hardware Wizard
Select a Device Driver Which driver do you want to install for this device?
Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.
Models: MOXA Async Server CN2504 MOXA Async Server CN2510-16 MOXA Async Server CN2510-16 MOXA Async Server CN2510-8 MOXA Async Server CN2610-16 MOXA Async Server CN2610-16 MOXA Async Server CN2610-8 ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲ ▲
< <u>B</u> ack <u>N</u> ext > Cancel

11. The Wizard will start installing the Server driver, and automatically search the network for copies of the CN2510 model you selected in the previous step.

Add/Remove Hardware Wizard
Start Hardware Installation         Windows is ready to install drivers for your new hardware.
MDXA Async Server CN2510-8 Windows will use default settings to install the software for this hardware device. To install the software for your new hardware, click Next.
< <u>B</u> ack <u>Next</u> > Cancel

12. Although the next window to open states that the software hasn't passed Windows Logo testing, you can rest assured that this driver has already been tested and been shown that it can support this Windows OS. Click on **Continue Anyway** to proceed.

Digital Signature Not Fou	nd X
	The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested. The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows. MOXA Async Server CN2510-8 If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available. Do you want to continue the installation?
	Yes No More Info

d/Remove Hardware Wizard Hardware Install Windows is installing drivers for your new ha	ardware.
MOXA Async Server CN2510-8	r hardware
	Configuration Please Wait
	<back next=""> Cancel</back>

 You can select the CN2510 that was located automatically, or select Manually Enter the IP address of NPort Server / Async Server and then enter the IP address of a different server. Click on Next to finish installing CN2510 driver.

MOXA N	Port Server	Installatio	n	
			Async Server you want to inst Async Server is that you want to inst	
•	Select existing	) NPort Servi	ers / Async Servers on the LAN	
	Model	Serial No	IP Address	
	CN2510-8	5631	192.168.127.254	
				Scan Again
01	J Manually Ente	r the IP add	ess of NPort Server / Async Server	
			< <u>B</u> ack	<u>N</u> ext > Cancel

14. The next window reports that the driver was installed, and port drivers will be installed next. Click on **Next** to continue.

MOXA NPort Server I	nstallation			
	Async Servers installa Async Server is ready to in		d	
Server driver insta System will install NPort Server / As				
Model:	CN2510-8			
Name:	CN2510-8_5631			
IP Address:	192.168.127.254			
		< <u>B</u> ack	<u>N</u> ext>	Cancel

### **Installing Ports**

1. The ports will be installed automatically. Click on **Finish** to conclude the installation procedure.

Add/Remove Hardware Wiza	rd
	Completing the Add/Remove Hardware Wizard
	The following hardware was installed: MOXA Async Server CN2510-8
	Windows has finished installing the software for this device.
	To close this wizard, click Finish.
	< Back Finish Cancel

2. After the installation is complete, you can check **Ports (COM & LPT)** under **Device Manager** to verify that all of the ports were installed successfully.



#### **Configuring CN2510 in a Windows 2000 Environment**

After the CN2510 driver is installed, you will be given the option to proceed directly with the configuration of CN2510. You may also configure CN2510 at a later time. In this section we explain how to configure Real COM Mapping.

 Click on Device Manager → Multiport serial adapters, right click on the CN2510 you would like to configure, and select Properties.



2. Click on the **Configuration** tab.



3. Click on **Settings** to configure CN2510's Basic Configuration, Password, and Access Control.

MOXA Async Server CN2510	-8 Properties		? ×
General Configuration Driv	er		
NPort Server / Async Serv	ver Status		
Model: CN2510-	В		
IP Address: 192.168.	127.254		
	<u>S</u> etting		
Port Status			
COM Number:	COM27COM	34	
	Ports Sel	tting	
L			
		ОК	Cancel

4. On the **Basic Configuration** page, modify **Server Name**, **IP Address**, **Netmask**, and **Gateway**. Check the **DHCP** checkbox if the network parameters are assigned automatically by a DHCP server.

Property Sheet		×
Basic Configuration Password	Access Control	
Model Name: CN2510-8		
Serial Number 5631		
<u>S</u> erver Name	CN2510-8_5631	
IP Address	192 . 168 . 127 . 254	
Net <u>m</u> ask	255 . 255 . 255 . 0	
<u>G</u> ateway	· · ·	
	OK Cancel	

5. On the Password page, add a password or change the existing password. Check the **Remember Password** checkbox to remember the password on this computer.

Property Sheet	×
Basic Configuration Password Access Control	
Current Password:	
New Password:	
Confirm Password:	
☑ <u>B</u> emember Password	
ОК	Cancel

6. The Access Control page allows you to set up access rights for each of the CN2510's ports. Access right is assigned by IP address. In the example shown here, the "netmask" of 255.255.255.255 limits access to the listed IP address (192.168.6.16). To allow access to a group of IP addresses, adjust the "netmask" accordingly. To allow any IP address to access a port, delete all IP addresses assigned to that port. Click on Modify to make changes.

Property Sheet	×
Basic Configuration   Password Access Control	
View access control list by	
⊡- CN2510-8_5631(192.168.127.254) ⊕-192.168.127.100 255.255.255	Add [P
	Add Port
	<u>R</u> emove
	Modify
Tip: Delete All IP Address to Grant All.	
OK	Cancel

7. And then click on **OK** to return to the **Access Control** page.

Property Sheet	×
Basic Configuration Password Access Control	
View access control list by IP Address	
Add Access Grant IP	
OK Cancel	

8. Click on **OK** to return to the Configuration page.



9. Click on Ports Setting to configure the data transmission mode and FIFO for each COM port.

MOXA Async Server CN251	10-8 Properties	<u>? ×</u>
General Configuration Dr	iver	
NPort Server / Async Se	erver Status	- I
Model: CN251	0-8	
IP Address: 192.16	8.127.254	
	<u>S</u> ettings	
Port Status		- 1
COM Number:	COM27COM34	
	Ports Setting	
	OK	Cancel

10. Check the box(es) next to the port(s) you would like to modify, and then click on **Modify Setting**.

Port Setting-			
Port	Number	Tx Mode	FIFO
<b>⊡</b> 1	COM27	Hi-Performance	Enable
<b>2</b> 2	COM28	Hi-Performance	Enable
<b>⊡</b> 3	COM29	Hi-Performance	Enable
☑ 4	COM30	Hi-Performance	Enable
<b>⊡</b> 5	COM31	Hi-Performance	Enable
<b>⊡</b> 6	COM32	Hi-Performance	Enable
<b>⊡</b> 7	COM33	Hi-Performance	Enable
8	COM34	Hi-Performance	Enable
,			<u>M</u> odify Setting
		ОК	Cancel

11. Modify the settings that need to be changed, and then click on **OK**.

Change Port Setting	X	
COM3	Auto Enumerating COM <u>N</u> umber	
Transmission <u>M</u> ode <u>H</u> i-Performance <u>C</u> lassical	EIFO © Enable © Disable	
✓ Set The Change to All Ports	✓ Set The Change to <u>A</u> II Ports	
	OK Cancel	

### Setting up Windows 95/98/ME/NT Hosts

In this section, we explain how to set up a host in a Windows 95/98/ME/NT environment. You will first install the **NPort Pro Manager** program, and then use this utility to configure the server. We use Windows NT to illustrate the installation procedure.
#### **Installing a Server**

- 1. Unzip the Windows 95/98/ME/NT driver file, located on the CN2510 CD ROM, to your hard disk.
- 2. Locate and run the **Setup.exe** file.



3. The setup program is used for both CN2500 and NPort Server Pro products, so you will see a **Welcome to NPort Server Pro** window. Click on **Next** to continue.

#elcome to NPort Server Pro X
This setup program will install the software for Moxa NPort Server Pro to your workstation. Click on the Cancel button now if you do not want to continue setting up Moxa NPort Server Pro at this time.
Next > Cancel

4. Select **Custom** mode, and then click on **Next** to continue.



5. Select a **Destination Directory** and then click on **Next** to continue.



6. Click on **Next** to finish installing NPort Pro Manager.

Setup Wizard	×
NPort Server Pro Setup has finished installing t Program on to your NT workstation. Click on N	
Next	<u>C</u> ancel

7. After the driver is installed, **NPort Pro Manager** and the **Add Server Wizard** will start running automatically. Select **Yes**, and then click on **Next** to continue.



8. Select one of the server's in the list, or select **No, I will define the server myself** if the correct server is not listed. Click on **Next** to continue.

Add Server Wizard	×
Custom	Your NPort Server Pro Select the server from the list below. If you cannot find
	the server in the list, check your server connection and power cord, and then click on "Find". © No, I will define the server myself. © Select existing NPort Servers on the network.
	Model Name IP address Serial No. CN2510-8 CN2 192.168.127.254 5631
	Find
	< <u>B</u> ack <u>N</u> ext > Cancel

9. If necessary, enter a different IP address in the **Server IP address** box, and then click on **Next** to continue.

Add Server Wizard	×
Welcome to <i>NPort</i> Server Pro	NPort Server IP address Enter a desired IP address below or click Next to use the current one. Server IP address: 192.168.127.254
www.moxa.com	
	< <u>B</u> ack <u>N</u> ext > Cancel

10. Select the COM number for CN2510's port 1. The rest of the ports will be mapped automatically. Click on **Next** to continue.

Add Server Wizard	×
Welcome to <i>Description</i> Server Pro	Your COM Port Name : CN2510-8_5631 Serial No. : 5631 Total Port : 8 Specify the first COM port name your system will map to.
www.moxa.com	
	< <u>B</u> ack <u>N</u> ext > Cancel

11. For added security, set a password for the CN2510. Check the **Auto-Saved** box to save the password on your computer. Click on **Next** to continue.

Add Server Wizard	×
Welcome to APort Server Pro	Set Server Password Your system has no password protection. It is strongly recommended that you set up a password to prevent misuse of the selected server. Server Password: Confirm Password: Auto-Saved
	< <u>B</u> ack <u>N</u> ext > Cancel

12. Check the new server settings to make sure they are correct, and then click on **Finish**.



13. The server and ports will be displayed in the **NPort Server Manager** window. Click the **Save** icon in the upper left corner to save the settings before exiting the program.



#### Configuring CN2510 in a Windows 95/98/ME/NT Environment

After the CN2510 driver is installed, you can proceed directly with the configuration of CN2510, or configure CN2510 at a later time. In this section we explain how to configure Real COM Mapping.

 Start the Manger by clicking on Start → Properties → NPort Server → NPort Server Manager, and then click on the server you would like to configure. The ports will be shown in the right pane of the window.

🔚 NPort Pro Manager - Custom			
<u>S</u> erver <u>P</u> ort <u>H</u> elp			
	2		
⊡-= MPort Server	Port	СОМ	Status
	1234 5678 80000000	COM3	Available
	2 2 2 3	COM4	Available
		СОМ5 СОМ6	Available Available
	5	COM6 COM7	Available
	0 0 0 0 0 7	COM8	Available
	🄊 7	COM9	Available
	D 8	COM10	Available
, Ready	-		li.

 Right click on the CN2510 you wish to configure, click the right mouse button, and then select Server Properties.

-				
🔚 NPort Pro Manager - Custom				_ 🗆 🗵
<u>S</u> erver <u>P</u> ort <u>H</u> elp				
	2			
⊡= NPort Server	Port	COM	Status	
	p> 1	COM3	Available	
Delete Server	2 2 2 3	COM4	Available	
Server <u>P</u> roperties	🔊 3	COM5	Available	
<u>Replace Server</u>	000000 00000 00000 0000 0000 7	COM6 COM7	Available Available	
	6	COM7 COM8	Available	
Upgrade Firmware	õ 7	COM9	Available	
	D 8	COM10	Available	
	I			
	I			
	I			
	I			
	I			
	1			
J	1			
Ready				111

 On the General page, you can see the server's Serial No., and modify Server Name, Server IP, and Netmask. Select the Enable option (to the right of DHCP)if the network parameters are assigned automatically by a DHCP server.

Server Properties	×
General Password Transmi	ission Access Control Advanced
Server Info	
Serial No :	5631
Server Name :	CN2510-8_5631
Server IP	192,168,127,254
Server IP	
Netmask :	255.255.255.0
DHCP :	O Enable 💿 Disable
	OK Cancel

4. On the **Password** page, set up a password for this CN2510 for added security. Check the **Auto Save Password on this computer** box if you want your computer to remember the password.

Server Properties
General Password Transmission Access Control Advanced
Auto Save Password on this computer
Change Password
Current Server Password :
New Password :
Confirm New Password :
OK Cancel

 The Access Control page allows you to set up access rights for each of the CN2510's ports. Access right is assigned by IP address.



6. The Transmission page lets you to select a Transmission Mode and Tx FIFO for each port.

Server Prope	Server Properties				
General Pa Port No. 2 3 4 5 6 7 8	COM No. COM3 COM4 COM5 COM6 COM7 COM8 COM7 COM8 COM9 COM10	Access C Transmission Mode Hi-Performance Hi-Performance Hi-Performance Hi-Performance Hi-Performance Hi-Performance Hi-Performance Hi-Performance Hi-Performance	ontrol Adva Tx FIFO Enable Enable Enable Enable Enable Enable Enable Enable Enable	Port No. : 1 Transmission Mode	
				OK Cancel	

7. The **Access Control** page is used to modify access rights to the server.

Server Properties	×
General Password Transmission	Access Control Advanced
View access control list by :	Port
CN2510-8_5631(192.168.12         ⊕ Port 1         ⊕ Port 2         ⊕ Port 3         ⊕ Port 3         ⊕ Port 4         ⊕ Port 5         ⊕ Port 6         ⊕ Port 8         ⊕ Port 8	Add Port
	<u>M</u> odify OK Cancel

8. The **Advanced** page allows you to add routes to CN2510. However, since CN2510 has a column to set the Default Gateway, you can ignore this configuration.

Server Properties				×
General Password	Transmission A	ccess Control	Advanced	
[				
Enter the IP addr	ess and Gateway fo	or your data to r	oute to.	
Destination	Calannan	Netmask	Metric	
Destination	Gateway	Netmask	Metric	Add
				<u>R</u> emove
				Modify
•			•	<u></u>
			OK	Cancel

# **Setting Up Device Control**

Device Control applications use standard Linux/Unix Socket programming for Linux/Unix systems, or WinSock programming for Windows systems, to control device data transmission directly. With CN2510 configured for RAW mode, you can focus on pure data transmission, without using serial port control or serial modem control signals. You can also use ASPP mode, provided exclusively by Moxa, to communicate with CN2510.

For both Linux/Unix Socket programming and Windows WinSock programming, IP is used to communicate between hosts and devices. At the end of the chapter, we give examples that explain how ASPP is used in a UNIX/Windows environment.

The following topics are covered in this chapter:

- Accessing the Console Utility
- Selecting the Application
- Configuring ASPP Mode
- Configuring RAW Mode
- Configuring the Serial Ports
- Save
- Restart
- ASPP Library Introduction
- ASPP Examples for Unix
- □ ASPP Examples for Windows

# **Accessing the Console Utility**

**NOTE** In this section, we show how to access CN2510's console utility by Telnet over the network. For information on using the console port, see the section "Accessing the Console Utility" in Chapter 2.

1. Telnet over the network to the server's IP address.

Run	? ×
-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	telnet 192.168.127.254
	OK Cancel <u>B</u> rowse

2. Type 1 to choose ansi/vt100, and then press Enter.

📕 Telnet 192.168.127	254		
Async Server CN2510-8 Console terminal type	(1: ansi/vt100,	2: vt52) : 1	

3. CN2510's MAIN MENU will open, as shown below.

🗾 Telne	t 192.168.12	7.254					
CN2510-8		Cl	N2510-8_5	5631 V2	.0	MAIN	MENU
	Port seTtin modify async	-	-			 	
Enter: s	elect ESC:	previous	menu				

Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

### **Selecting the Application**

Open **Port Menu**  $\rightarrow$  **Mode** to configure the **Device Control** application.

1. From the MAIN MENU, select Port, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8_5	5631	V2.0	PORT	MENU
	m Welcome_MSG Quit he operation mode of a	async :	ports		
Enter: select E	SC: previous menu				

3. The **Mode** page has pop-up selection lists for **Application**, **Mode**, and **Description/more setting** for each serial port. Use the arrow keys to move the cursor to the **Application** column for the port to be configured, and then press **Enter**. We use Port 6 to illustrate.

configured, and th	en press <b>Enter</b> . we	e use port o to mus	strate.	
CN2510-8		CN2510-8_5631	V2.0	
[Mode] Line r	nOdem Welcome	MSG Quit		
Examine/modif	y the operation	n mode of asyn	c ports	
ESC: back to	menu Enter:	select		
Port Applica	tion Mo	de Descri	ption/more setting	
01 [NT Real	COM ] [AS	SPP ] [Async	Server Proprietary	Protocol]
02 [NT Real	COM ] [AS	SPP ] [Async	Server Proprietary	Protocol]
03 [NT Real	COM ] [AS	SPP ] [Async	Server Proprietary	Protocol]
04 [NT Real	COM ] [AS	SPP ] [Async	Server Proprietary	Protocol]
05 [NT Real	COM ] [AS	SPP ] [Async	Server Proprietary	Protocol]
06 [NT Real	COM ] [AS	SPP ] [Async	Server Proprietary	Protocol]
07 [NT Real	COM ] [AS	SPP ] [Async	Server Proprietary	Protocol]

4. Use the **Up/Down** arrow keys to select **Device Control**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem	Welcome_MSG Quit
Examine/modify the	operation mode of async ports
ESC: back to menu	Enter: select
Dort Application	Intion (mana cotting
Port Application 01 [NT Real COM	++ption/more setting ]  Disable
02 [NT Real COM	]  Dialin/out   Server Proprietary Protocol]
03 [NT Real COM	]  Terminal   Server Proprietary Protocol]
04 [NT Real COM	]  Reverse Terminal   Server Proprietary Protocol]
05 [NT Real COM	]  Device Control   Server Proprietary Protocol]
06 [NT Real COM	]  Multiplex   Server Proprietary Protocol]
07 [NT Real COM	]  Printer   Server Proprietary Protocol]
08 [NT Real COM	]  Multi-Host TTY   Server Proprietary Protocol]
	]  NT Real COM
	]  Raw UDP
	]++

5. **ASPP** mode is selected by default.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem Weld	come_MSG Quit
Examine/modify the oper	ration mode of async ports
ESC: back to menu Ent	er: select
Port Application	Mode Description/more setting
01 [NT Real COM	[ASPP ] [Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
06 [Device Control	] [ASPP ] [Async Server Proprietary Protocol]
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]

After configuring a port for the Device Control application, you will need to choose between one of two operation modes: **ASPP** and **RAW**. ASPP mode, which was developed by Moxa, provides an easy-to-use TCP/IP socket programming library and other useful functions. Choosing RAW mode gives you more freedom to define your own applications for serial data transmitted and received over the Ethernet. If you select RAW mode, you will need to use standard TCP/IP socket programming techniques.

#### **Configuring ASPP Mode**

Moxa ASPP is a TCP/IP socket programming library. If you are using Moxa ASPP to create your programs, configure CN2510's serial ports for ASPP mode, and copy the ASPP library to the server. ASPP programming functions and examples are introduced at the end of this chapter.

Each physical ASPP port is divided into two logical ports. One is called the **command port**, and the other is called the **data port**. The command port is used to issue commands across the network to set the transmission line's configuration parameters, such as baud rate, data bits, flow control condition, etc. The data port is used for normal data transmission tasks, such as retrieving data from the serial device.

Follow these steps to configure ports for ASPP mode:

1. Move the cursor to the **Mode** column for the port and press **Enter**.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem Wel	lcome_MSG Quit
Examine/modify the ope	eration mode of async ports
ESC: back to menu En	ter: select
Port Application	Mode Description/more setting
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
06 [Device Control	] [ASPP ] [Async Server Proprietary Protocol]
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]

2. Use the arrow keys to highlight **ASPP**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0
	elcome_MSG Quit
Examine/modify the op	peration mode of async ports
ESC: back to menu E	nter: select
Port Application	Mode Description/more setting
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP ]++rver Proprietary Protocol]
05 [NT Real COM	] [ASPP ]  ASPP  rver Proprietary Protocol]
06 [Device Control	] [ASPP ]  RAW  rver Proprietary Protocol]
07 [NT Real COM	] [ASPP ]++rver Proprietary Protocol]
08 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]

3. Move the cursor to the **Description/more setting** column and press **Enter**.

CN251(	0-8		CN2	2510	-8_5631 V2.0
[Mode]				~	
Exami	ne/modify the ope	era	tion mo	bde	of async ports
ESC:	back to menu En	nter	: sele	ect	
Port	Application		Mode		Description/more setting
01	[NT Real COM	]	[ASPP	]	[Async Server Proprietary Protocol]
02	[NT Real COM	]	[ASPP	]	[Async Server Proprietary Protocol]
03	[NT Real COM	]	[ASPP	]	[Async Server Proprietary Protocol]
04	[NT Real COM	]	[ASPP	]	[Async Server Proprietary Protocol]
05	[NT Real COM	]	[ASPP	]	[Async Server Proprietary Protocol]
06	[Device Control	]	[ASPP	]	[Async Server Proprietary Protocol]
07	[NT Real COM	]	[ASPP	]	[Async Server Proprietary Protocol]

4. The pop-up selector contains input/display fields for **TCP data port**, **TCP command port**, and **TCP alive check time**. Each item is described in detail below the figure.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem We	
Examine/modify the ope	eration mode of async ports
ESC: back to menu En	ter: select
Port Application	Mod++
01 [NT Real COM	] [AS  TCP data port : [950]  ]
02 [NT Real COM	] [AS  TCP command port : [966]  ]
03 [NT Real COM	] [AS  TCP alive check time: [0 ] minutes  ]
04 [NT Real COM	] [AS++]
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
06 [Device Control	] [ASPP ] [Async Server Proprietary Protocol]
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]

Setting	Value	Notes		Necessity
TCP data port	950 - 965	The host uses this value to determine which		Required
		serial device to s	end data to. <b>These values</b>	
		are fixed, and o	cannot be changed by the	
		user.		
		Serial Port	TCP Port No.	
		01	950	
		02	951	
		03	952	
		16	965	
TCP command port	966 - 981	The host uses th	Required	
		which device to s		
		values are fixed	d, and cannot be changed	
		by the user.		
		Serial Port	TCP Port No.	
		01	966	
		02	967	
		03	968	
		16	981	
TCP alive check time 0 – 99 min.		The time period (	CN2510 waits before checking	Optional
		if the TCP connec	ction is alive or not. If no	
		response is recei	ved, CN2510 will reset the	
		port and termina	te the connection.	

5. Press **Esc** to return to the **PORT MENU**.

#### **Configuring RAW Mode**

RAW mode is used for standard TCP/IP socket programs. RAW mode provides a transparent communication link between the network socket program and the corresponding serial port.

1. Move the cursor to the **Mode** column for the port and press **Enter**.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem Wel	_ ~
Examine/modify the ope	ration mode of async ports
ESC: back to menu Ent	er: select
Port Application	Mode Description/more setting
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
06 [Device Control	] [ASPP ] [Async Server Proprietary Protocol]
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]

2. Use the arrow keys to highlight **RAW**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem Welcome MS	 SG Quit
Examine/modify the operation	mode of async ports
ESC: back to menu Enter: se	elect
Port Application Mode	e Description/more setting
	1
01 [NT Real COM ] [ASP	PP ] [Async Server Proprietary Protocol]
02 [NT Real COM ] [ASF	PP ] [Async Server Proprietary Protocol]
03 [NT Real COM ] [ASE	PP ] [Async Server Proprietary Protocol]
04 [NT Real COM ] [ASF	P ]++rver Proprietary Protocol]
05 [NT Real COM ] [ASE	P ]  ASPP  rver Proprietary Protocol]
06 [Device Control ] [ASF	PP ]  RAW  rver Proprietary Protocol]
07 [NT Real COM ] [ASF	PP ]++rver Proprietary Protocol]

 Move the cursor to the Description/more setting column, and then press Enter. The pop-up selector contains input/display fields for TCP port, Source IP address, Destination IP addr, Inactivity time, and TCP alive check time. Each item is described in detail below the figure.

CN2510-8	CN2510-8_5631 V2.0	
[Mode] Line mOdem We	_ <b>~</b>	
Examine/modify the op-	eration mode of async ports	
ESC: back to menu Er	ter: select	
Port Application	Mod+	+
01 [NT Real COM	] [AS  TCP port	: [4001 ]  ]
02 [NT Real COM	] [AS  Source IP address	:[]]
03 [NT Real COM	] [AS  Destination IP addr	:[]]
05 [NT Real COM	] [AS  Inactivity time	: [0 ] minutes  ]
06 [Device Control	] [RA  TCP alive check time	: [0 ] minutes  ]
07 [NT Real COM	] [AS+	+]
08 [NT Real COM	] [ASPP ] [Async Server Pr	oprietary Protocol ]

Setting	Value	Notes	Necessity
TCP port	number	Each of CN2510's serial ports is mapped to a TCP port.	Optional
		You may modify these port numbers, but to avoid	
		conflicts among TCP port numbers for other serial	
		ports, we strongly suggest using the default values:	
		4001 for port 1, 4002 for port 2, etc.	

Setting	Value	Notes	Necessity
Source IP address IP address for		Specify an IP address for this port for application	Optional
	the port	purposes. If left blank, CN2510 will use its own IP	
		address, in which case you will need to specify	
		different TCP port numbers for different serial ports.	
Destination IP addr	IP address	The host with this IP address will have exclusive	Optional
		access to this port. If left blank, all hosts on the	
		network will have access to this port.	
Inactivity time	0-99 minutes	Idle time before the port is disconnected	Optional
		automatically. If set to 0 minutes, the port will not	
		disconnect.	
TCP alive check	0-99 minutes	The time period CN2510 waits before checking if the	Optional
time		TCP connection is alive or not. If no response is	
		received, CN2510 will reset the port and terminate the	
		connection.	

4. Press **Esc** to return to the **PORT MENU**.

### **Configuring the Serial Ports**

Open **Port Menu**  $\rightarrow$  **Line** to configure serial port settings.

1. From the MAIN MENU, select Port, and then press Enter.



2. From the PORT MENU, select Mode, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	PORT MENU
	Odem Welcome_MSG Quit asynchronous port configuration	
Enter: select	ESC: previous menu	

3. The Line page has pop-up selection lists for Port, Speed, Bits, Stop, Parity, FIFO, RTS/CTS, XON/XOFF, and Discon. ctrl for each serial port. Each item is described in detail below the figure.

CN2510-8		CN2510-8_5631	V2.0			
2 2	Mode [Line] mOdem Welcome_MSG Quit Examine/modify asynchronous port configuration					
ESC: back to	menu Enter:	select				
Port Speed	Bits Stop	Parity FIFO	RTS/CTS	XON/XOFF	Discon.	ctrl
01 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None	]
02 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None	]
03 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None	]
04 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None	]
05 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None	]
06 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None	]

Setting	Value	Notes
Speed	50 bps to 921.6 Kbps	Transmission rate
Bits	5, 6, 7, 8	Data bits
Stop	1, 1.5, 2	Stop bits
Parity	None, Even, Odd, Mark, Space	Odd, Even, Mark, Space

Setting	Value	Notes
FIFO	Yes, No	First In First Out Device
RTS/CTS	Yes, No	Hardware Flow Control
XON/XOFF	Yes, No	Software Flow Control
Discon. Ctrl	None	<b>DSR off</b> or <b>DCD off</b> will not be interpreted as a disconnection.
	DSR off	<b>DSR off</b> will be interpreted as a disconnection.
	DCD off	<b>DCD off</b> will be interpreted as a disconnection.

4. Press **ESC** to return to the **PORT MENU**.

#### Save

When exiting the **SERVER MENU**, you will be prompted to save settings. Press **Y** to save.

Info. Lan Adv. Host table Route table [User table] Quit	
Examine/modify async server basic configuration	
Enter: select ESC: previous menu	
+	
Warning !!!	
You had modified the configuration without saving.	
Would you save it now ?	
∣ 'Y': yes 'N': no	
+	

You may also save all settings from the **MAIN MENU** by selecting **sAve** and then pressing **Enter**. Press **Enter** again to save, and any other key to cancel.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	ng <mark>[sAve]</mark> Utility Restart Exit guration to Flash ROM	
ESC: back to menu	Enter: select	
+   En	ter to updated, other key to cancel	
+	+	

### Restart

1. From the MAIN MENU, select Restart.

CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
Server Port seTting sAve Utility [Restart] Exit Restart the whole system or selected async ports	
Enter: select ESC: previous menu	

2. Select **System** and then press **Enter** to restart the system and terminate the Telnet session.

CN2510-8 CN2510-8_5631 V2.0
[System] Port Quit Restart the Async Server
ESC: back to menu Enter: select
++
· · · · · · · · · · · · · · · · · · ·
$\mid$ Restart system will disconnect all ports and clear all status value $\mid$
` Enter: continue ESC: cancel
++

#### **ASPP Library Introduction**

The CN2510 Documentation and Software CD contains example programs that illustrate how to control an ASPP port. After uncompressing the file **ASPP.tar**, the folder **\aspp\_unix\aspp.h** will contain several basic subroutines.

The following subroutines are used to control an ASPP port:

- 1. **sio\_init()**—start ASPP Library
- 2. sio\_open(ipaddr, p)-open a serial port
- 3. sio\_close(fd)-close a serial port
- 4. sio\_ioctl(fd, baud, mode)-configure a serial port's baud rate, parity, etc.
- 5. sio\_baud(fd, baud, mode)-configure serial port's baud rate
- 6. sio\_flowctrl(fd, mode)—configure hardware and/or software flow control
- 7. **sio\_lctrl(fd, mode**)—line control
- 8. sio\_lstatus(fd)-check line status
- 9. sio\_flush(fd, func)-clear input/output buffer
- 10. sio\_write(fd, buf, len)-write data
- 11. sio\_read(fd, buf, len)-read data
- 12. sio\_break(fd, time)-send break signals
- 13. sio\_oqueue(fd)-check how much data is in the output buffer
- 14. sio\_iqueue(fd)-check how much data is in the input buffer

#### **ASPP Examples for Unix**

In general, controlling devices attached to ASPP ports involves using the following procedures:

- 1. Create a socket for the command port, and then connect to the port.
- 2. Configure the port's serial parameters, such as baud rate, via the command port.
- 3. Create a socket for the data port, and then connect to the port.
- 4. Transfer data via the data port.

This example program continually sends the string "1234567890" to CN2510's ASPP port and then reads back data when the program ends.

#### Settings:

```
Target port: parity = None, data bits = 8, stop bit = 1, software (XON/XOFF) flow control, no hardware (RTS/CTS).
```

Syntax: # ./example ConsoleServerName [port(1) [Baud(9600)]]

For example:

# ./example CN2510 1 19200

Program sends "1234567890" to port 1 at 19200 bps baud rate and reads back any data on it. Environment: SCO UNIX. If you're using another system, modify by including the file name and other variables.

#### **ASPP Examples for Windows**

1. Program testing environment:



- 2. This program works like a dumb terminal. It sends all characters pressed on the keyboard to a remote connection, and then echoes the data to the screen.
- 3. This program sends `\r' as `\r\n' and `\n' as `\r\n'.
- 4. All CN2510 ASPP functions are defined in the file as.h.
- The program works on Windows 9x/NT/2000/XP/2003 as a dumb terminal. After completing the connection to CN2510, the serial port will send all characters pressed on the keyboard to the remote connection, and then echo the data to the screen.

# **Setting Up Raw UDP**

UDP is a non connection-oriented data transmission method. By circumventing TCP's handshaking process, UDP gains the advantages of fast transmission speed, and high transmission efficiency. The disadvantage is that UDP is unable to guarantee data integrity, since UDP does not re-assemble out-of-order packets, or retransmit packets when data is missing. UDP is an ideal transmission method if you need fast data transmission, and upper-layer application software is given the task of checking data for transmission errors.

CN2510's UDP mode supports 4 configurable groups of IP addresses, allowing data to be broadcast over the network to one or more groups of IP addresses.

The following topics are covered in this chapter:

- Accessing the Console Utility
- Selecting the Application
- Configuring RAW UDP Mode
- Configuring the Serial Ports
- Save
- Restart

# **Accessing the Console Utility**

**NOTE** In this section, we show how to access CN2510's console utility by Telnet over the network. For information on using the console port, see the section "Accessing the Console Utility" in Chapter 2.

1. Telnet over the network to the server's IP address.

Run	? ×
-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	telnet 192.168.127.254
	OK Cancel <u>B</u> rowse

2. Type 1 to choose ansi/vt100, and then press Enter.

📕 Telnet 192.168.127	. 254			
Async Server CN2510-8				
Console terminal type	(1: ansi/vt100,	2: vt52)	: 1	

3. CN2510's MAIN MENU will open, as shown below.

📠 Telnet 192.168.127.254	
CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
[Server] Port seTting sAve Utility Restart Exit Examine/modify async server node/table configuration	
Enter: select ESC: previous menu	

Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

### **Selecting the Application**

Open **Port Menu**  $\rightarrow$  **Mode** to configure the **Raw UDP** application.

1. From the MAIN MENU, select Port, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN M	ENU
	seTting sAve Utility Restart Exit async server ports configuration		
Enter: select	ESC: previous menu		

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V	J2.0 POR'	r menu
[Mode] Line mOdem Welc Examine/modify the oper		orts	
Enter: select ESC: pre	vious menu		

3. The **Mode** page has pop-up selection lists for **Application**, **Mode**, and **Description/more setting** for each serial port. Use the arrow keys to move the cursor to the **Application** column for the port to be configured, and then press **Enter**. We use Port 6 to illustrate.

3 / 1	s <b>Enter</b> . We use Port 6 to mustrate.
CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem	Welcome_MSG Quit
Examine/modify the	operation mode of async ports
ESC: back to menu	Enter: select
Port Application	Mode Description/more setting
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
06 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]

4. Use the **Up/Down** arrow keys to select **Raw UDP**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0	
[Mode] Line mOdem We	elcome MSG Quit	
Examine/modify the op	peration mode of async ports	
ESC: back to menu Er	nter: select	
Port Application	+setting	
01 [NT Real COM		
02 [NT Real COM	]  Dialin/out   Server Proprietary Protocol]	
03 [NT Real COM	]  Terminal   Server Proprietary Protocol]	
04 [NT Real COM	]  Reverse Terminal   Server Proprietary Protocol]	
05 [NT Real COM	]  Device Control   Server Proprietary Protocol]	
06 [NT Real COM	]  Multiplex   Server Proprietary Protocol]	
07 [NT Real COM	]  Printer   Server Proprietary Protocol]	
08 [NT Real COM	]  Multi-Host TTY   Server Proprietary Protocol]	
	]  NT Real COM	
	]   Raw UDP	
	]++	

5. The only operation mode associated with this application is **RAW UDP**, which is selected automatically in the Mode column.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem Welc Examine/modify the oper	ome_MSG Quit ation mode of async ports
ESC: back to menu Ente	er: select
Port Application 01 [NT Real COM 02 [NT Real COM 03 [NT Real COM 04 [NT Real COM 05 [NT Real COM	ModeDescription/more setting[ASPP][Async Server Proprietary Protocol][ASPP][Async Server Proprietary Protocol]
06 [Raw UDP 07 [NT Real COM	] [ <u>RAW UDP</u> ] [Pure raw data (UDP) mode ] ] [ASPP ] [Async Server Proprietary Protocol]

# **Configuring RAW UDP Mode**

1. Move the cursor to the **Description/more setting** column, and then press **Enter**.

		_
CN2510-8	CN2510-8_5631 V2.0	
		-
[Mode] Line mOdem W	Welcome MSG Ouit	
	operation mode of async ports	
Examine, modily end o	speración mode or abyne pores	
ESC: back to menu	Enter: select	
Port Application	Mode Description/more setting	
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	
06 [Raw UDP	] [RAW UDP ] [Pure raw data (UDP) mode ]	
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	

 The pop-up selector contains input/display fields for serial to LAN and LAN to serial parameters, Local Listen Port, Delimiter 1 (Hex), Delimiter 2 (Hex), and Force transmit (ms). Each item is described in detail below the figure.

+					+
	Begin	End		Port	I
(serial to LAN)					1
Dest. IP addr 1	[	][	] [		]
Dest. IP addr 2	[	][	] [		]
Dest. IP addr 3	[	][	] [		]
Dest. IP addr 4	[	][	] [		]
(LAN to serial)					I
Src. IP addr 1		][	]		I
Src. IP addr 2		][	] [		]
Src. IP addr 3		][	] [		]
Src. IP addr 4		][	] [		]
1					I
Local Listen Por	t				I
Delimiter 1 (Hex	:)				1
Delimiter 2 (Hex	:)				I
Force transmit (	ms)				1
+					+

Setting	Value		Notes	Necessity
Dest. IP	Begin:	x.x.x.x	Defines 1 to 4 groups of IP addresses. UDP packets	1: Required
address	End:	y.y.y.y	will be sent through UDP port <b>Port</b> to the range of IP	(2, 3, 4 are
1/2/3/4	Port:	1 to 65535	addresses from the <b>Begin</b> IP address to the <b>End</b> IP	Optional)
			address.	
Src. IP	Begin:	x.x.x.x	Defines IP addresses that will be allowed to transmit	1: Required
address	End:	y.y.y.y	UDP packets to CN2510's Ethernet port. UDP	(2, 3, 4 are
1/2/3/4	Port:	1-65535	packets from IP addresses in the range from <b>Begin</b>	Optional)
			IP address to <b>End</b> IP address will be accepted	
			through UDP port <b>Port</b> .	
Local	1-65535		The UDP port that CN2510 listens to and that other	Required
Listen Port			devices must use to contact CN2510. The default is	
			blank. Be sure to choose a Local Listen Port number	
			that does not conflict with the Local Listen Port for	
			CN2510's other serial ports.	

Setting	Value	Notes	Necessity		
Delimiter	00-FF	Once the CN2510 receives delimiters through its	Optional		
1/2 <hex></hex>		serial port (or the amount of data received exceeds			
		1K), it immediately packs all data currently in its			
		buffer and sends it out the CN2510's Ethernet port.			
		Note: Delimiter 2 is optional. If left blank, then			
		Delimiter 1 alone trips clearing of the buffer.			
Force	0-65535	0: Disable this function.	Optional		
transmit		1 to 65535: Forces the CN2510 to try to pack serial			
<ms></ms>		data received during the specified time into the			
		same data frame via UDP mode.			
	The optimal Force Trans	mit timeout depends on the application, but it must be	at least as large		
	as the time required to	time required to transmit one character, for the specified baud rate. For example,			
	assume that the serial p	port is set to 1200 bps, 8 data bits, 1 stop bit, and no	ne for parity. In		
	this case, the total numb	per of bits required to send a character is 10 bits and the	ne time required		
	to transfer one characte	er is			
	( 10 bits / 1200 bits/s )	* 1000 ms/s = 8.3 ms.			
	Therefore, you should s	et the Force Transmit timeout to be greater than 8.3	ms. The Force		
	Transmit timeout is specified in milliseconds and must be larger than 10 ms.				
	If you want to send a series of characters in the same packet, the serial device attached to				
	CN2510 should send that series of characters during a time interval less than the Force				
	Transmit timeout, and the total length of data must be less than or equal to CN2510's internal				
	buffer size. The serial co	ommunication buffer size is 1 KB per port.			

3. Press ESC to return to PORT MENU

### **Configuring the Serial Ports**

Open **Port Menu**  $\rightarrow$  **Line** to configure serial port settings.

1. From the **MAIN MENU**, select **Port**, and then press **Enter**.

CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
Server [Port] seTting sAve Utility Restart Exit Examine/modify async server ports configuration	
Enter: select ESC: previous menu	

2. From the PORT MENU, select Mode, and then press Enter.



3. The Line page has pop-up selection lists for Port, Speed, Bits, Stop, Parity, FIFO, RTS/CTS,

XON/XOFF, and Discon. ctrl for ea	ach serial port. Each item	n is described in detail below the figure	١.
-----------------------------------	----------------------------	---	----

CN2510-8		CN2510-8_5631	V2.0		_
	mOdem Welcom y asynchronou	e_MSG Quit s port configura	ation		
ESC: back to r	menu Enter:	select			
Port Speed	Bits Stop	Parity FIFO	RTS/CTS	XON/XOFF	Discon. ctrl
01 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]
02 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]
03 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]
04 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]
05 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]
06 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]

Setting	Value	Notes
Speed	50 bps to 921.6 Kbps	Transmission rate
Bits	5, 6, 7, 8	Data bits
Stop	1, 1.5, 2	Stop bits
Parity	None, Even, Odd, Mark, Space	Odd, Even, Mark, Space
FIFO	Yes, No	First In First Out Device
RTS/CTS	Yes, No	Hardware Flow Control
XON/XOFF	Yes, No	Software Flow Control
Discon. Ctrl	None	DSR off or DCD off will not be interpreted as a
		disconnection.
	DSR off	<b>DSR off</b> will be interpreted as a disconnection.
	DCD off	<b>DCD off</b> will be interpreted as a disconnection.

4. Press **ESC** to return to the **PORT MENU**.

#### Save

When exiting the **SERVER MENU**, you will be prompted to save settings. Press **Y** to save.

CN2510-8	CN2510-8_5631 V2.0	SERVER	MENU
	dv. Host_table Route_table [User_table] Quit fy async server basic configuration		
Enter: selec	t ESC: previous menu		
+	Warning !!!		
	You had modified the configuration without saving.		
+	'Y': yes 'N': no		

You may also save all settings from the **MAIN MENU** by selecting **sAve** and then pressing **Enter**. Press **Enter** again to save, and any other key to cancel.

CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
Server Port seTting <mark>[sAve]</mark> Utility Restart Exit Save current configuration to Flash ROM	
ESC: back to menu Enter: select	
++	
Enter to updated, other key to cancel	
++	

## Restart

1. From the **MAIN MENU**, select **Restart**.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	Fting sAve Utility <mark>[Restart]</mark> Exit e system or selected async ports.	
Enter: select H	ESC: previous menu	

2. Select **System** and then press **Enter** to restart the system and terminate the Telnet session.

CN2510-8	CN2510-8_5631 V2.0
[System] Port Qu:	it
Restart the Async	Server
ESC: back to menu	Enter: select
+	+
	Warning !!!
Restart syste	em will disconnect all ports and clear all status value
`	Enter: continue ESC: cancel
+	+

7

# **Setting Up Reverse Terminal**

In this chapter, we show how to use CN2510 to connect terminals to a computer over an Ethernet network.

The following topics are covered in this chapter:

- Accessing the Console Utility
- Selecting the Application
- Configuring RTELNET Mode
- Configuring the Serial Ports
- Save
- Restart

# **Accessing the Console Utility**

**NOTE** In this section, we show how to access CN2510's console utility by Telnet over the network. For information on using the console port, see the section "Accessing the Console Utility" in Chapter 2.

1. Telnet over the network to the server's IP address.

Run	<u>? ×</u>
-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	telnet 192.168.127.254
	OK Cancel Browse

2. Type 1 to choose ansi/vt100, and then press Enter.

Async Server CN2510-8	
Console terminal type (1: ansi/vt100, 2: vt52) : 1	

3. CN2510's MAIN MENU will open, as shown below.

🗾 Telnet 192.	168.127.254	
CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server node/table configuration	
Enter: select	ESC: previous menu	

Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

### **Selecting the Application**

Open **Port Menu**  $\rightarrow$  **Mode** to configure the **Reverse Terminal** application.

1. From the MAIN MENU, select Port, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8_5631	V2.0	PORT	MENU
[Mode] Line mOdem Wel Examine/modify the ope		ports		
Enter: select ESC: pr	evious menu			

 The Mode page has pop-up selection lists for Application, Mode, and Description/more setting for each serial port. Use the arrow keys to move the cursor to the Application column for the port to be configured, and then press Enter. We use Port 6 to illustrate.

configu	ireu, ar	ia the	en pres	s ente	er. v	ve use	POR	6 to mus	trate.			
CN251	0-8					CN2	2510	-8_5631	V2.0			
[Mode	] Lir	ne m	Odem	Welc	ome	_MSG	Qu	it				
Exam	ine/mo	odify	y the	oper	ati	on mc	bde	of asyn	c ports			
ESC:	back	to n	nenu	Ente	er:	sele	ect					
Port	Appl	licat	ion		Þ	lode		Descrip	otion/mo	ore setting		
01	[NT F	keal	COM		] [.	ASPP	]	[Async	Server	Proprietary	Protocol]	
02	[NT F	keal	COM		] [.	ASPP	]	[Async	Server	Proprietary	Protocol]	
03	[NT F	keal	COM		] [.	ASPP	]	[Async	Server	Proprietary	Protocol]	
04	[NT F	keal	COM		] [.	ASPP	]	[Async	Server	Proprietary	Protocol]	
05	[NT F	keal	COM		] [.	ASPP	]	[Async	Server	Proprietary	Protocol]	
06	NT F	≷eal	COM		] [.	ASPP	]	[Async	Server	Proprietary	Protocol]	
07	[NT F	keal	COM		] [.	ASPP	]	[Async	Server	Proprietary	Protocol]	

4. Use up/down arrow keys to select **Reverse Terminal**, and then press **Enter**.

CN2510-8	CN2510-8_5631	V2.0
[Mode] Line mOdem	Welcome MSG Quit	
Examine/modify the	operation mode of asyn	c ports
ESC: back to menu	Enter: select	
Port Application	+	+ption/more setting
01 [NT Real COM	]  Disable	Server Proprietary Protocol]
02 [NT Real COM	]  Dialin/out	Server Proprietary Protocol]
03 [NT Real COM	]  Terminal	Server Proprietary Protocol]
04 [NT Real COM	]  Reverse Termina.	l   Server Proprietary Protocol]
05 [NT Real COM	]  Device Control	Server Proprietary Protocol]
06 [NT Real COM	]  Multiplex	Server Proprietary Protocol]
07 [NT Real COM	]  Printer	Server Proprietary Protocol]
08 [NT Real COM	]  Multi-Host TTY	Server Proprietary Protocol]
	]  NT Real COM	
	]  Raw UDP	
	]+	+

5. The only operation mode associated with this application is **Reverse Terminal** mode, which is selected automatically in the Mode column. **RTELNET** mode allows Ethernet hosts to access serial hosts attached to CN2510's serial ports, which is the reverse direction provided by CN2510's terminal application.

CN2510-8	CN2510-8_	5631 V2.0
2 3	dem Welcome_MSG Quit the operation mode of a	async ports
ESC: back to me	enu Enter: select	
Port Applicati 01 [NT Real C 02 [NT Real C 03 [NT Real C 04 [NT Real C 05 [NT Real C 06 [Reverse T 07 [NT Real C	COM       ] [ASPP       ]         COM       ] [ASPP       ]	Description/more setting [Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Reverse Telnet mode ] [Async Server Proprietary Protocol]

# **Configuring RTELNET Mode**

Reverse Telnet, or RTELNET, supports the Telnet program used by Ethernet hosts to login to serial hosts. Ethernet hosts recognize serial ports by the specified source IP address, or by the TCP port number followed by CN2510's IP address.

1. Move the cursor to the **Description/more setting** column, and then press **Enter**.

CN2510-8	CN2510-8_5	631 V2.0
[Mode] Line mOdem Welco	- ~	
Examine/modify the opera	tion mode of a	sync ports
ESC: back to menu Enter	r: select	
Port Application	Mode	Description/more setting
01 [NT Real COM ]	[ASPP ]	[Async Server Proprietary Protocol]
02 [NT Real COM ]	[ASPP ]	[Async Server Proprietary Protocol]
03 [NT Real COM ]	[ASPP ]	[Async Server Proprietary Protocol]
04 [NT Real COM ]	[ASPP ]	[Async Server Proprietary Protocol]
05 [NT Real COM ]	[ASPP ]	[Async Server Proprietary Protocol]
06 [Reverse Terminal ]	[RTELNET ]	[Reverse Telnet mode ]
07 [NT Real COM ]	[ASPP ]	[Async Server Proprietary Protocol]

 The pop-up selector contains input/display fields for TCP port, Source IP address, Destination IP addr, Inactivity time, Map keys <CR-LF> to, Authentication type, and TCP alive check time. Each item is described in detail below the figure.

+-		 	 +
	TCP port	[4006 ]	1
	Source IP address	[	I.
	Destination IP addr	[	1
	Inactivity time	[0 ] minutes	l.
	Map keys <cr-lf> to</cr-lf>	[CR-LF]	l.
	Authentication type	[none ]	1
	TCP alive check time	[0 ] minutes	1
+-		 	 +

Setting	Value	Notes	Necessity
TCP port	number	Each of CN2510's serial ports is mapped to a TCP port.	Optional
		To avoid conflicts with the TCP port numbers for	
		CN251's other serial ports, use the default values: 4001	
		for port 1, 4002 for port 2, etc.	
Source IP address	IP address for	Specify an IP address for this port for application	Optional
	the port	purposes. If left blank, CN2510 will use its own IP	
		address, in which case you will need to specify different	
		TCP port numbers for different serial ports.	
Destination IP addr	IP address	Assign a host IP address on the LAN for exclusive port	Optional
		access. If left blank, all hosts on the network will have	
		access to this port.	
Map Keys	CR/LF/CR-LF	When you enter the string <cr-lf>, CN2510 will</cr-lf>	Optional
<cr-lf> to</cr-lf>		determine whether to send <cr>, <lf>, or <cr-lf>.</cr-lf></lf></cr>	
Inactivity time	0-99 minutes	Idle time before the port is disconnected automatically.	Optional
		If set to 0 minutes, the port will not disconnect.	
Authentication type	None/local	<b>None:</b> Authentication is not required.	Optional
	/server	<b>local:</b> Check the ID stored in the User_table	
		(defined under the SERVER MENU).	
		Server: Check the ID with the external RADIUS	
		server. Refer to Appendix C for RADIUS installation	
		information.	

Setting	Value	Notes	Necessity
TCP alive check time	0-99 minutes	The time period CN2510 waits before checking if the	Optional
		TCP connection is alive or not. If no response is	
		received, CN2510 will reset the port and terminate the	
		connection.	

3. Press **Esc** to return to **PORT MENU**.

# **Configuring the Serial Ports**

Open **Port Menu**  $\rightarrow$  **Line** to configure serial port settings.

1. From the **MAIN MENU**, select **Port**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8 CN2510-8_5631 V2.0	PORT MENU
Mode [Line] mOdem Welcome_MSG Quit Examine/modify asynchronous port configuration	
Enter: select ESC: previous menu	

3. The Line page has pop-up selection lists for Port, Speed, Bits, Stop, Parity, FIFO, RTS/CTS,

XON/XOFF, and Discon. ctrl for each serial port. Each item is described in detail below the figure.					
CN2510-8	CN2510-8_56	31 V2.0			
 Mode [Line] mOdem Welcome_MSG Quit Examine/modify asynchronous port configuration					
ESC: back to menu	Enter: select				
Port Speed Bits	Stop Parity FIF	O RTS/CTS XON/XOFF	Discon. ctrl		
01 [115200] [8]	[1] [None] [yes]	[yes] [no ]	[None ]		
02 [115200] [8]	[1] [None] [yes]	[yes] [no]	[None ]		
03 [115200] [8]	[1] [None] [yes]	[yes] [no]	[None ]		
04 [115200] [8]	[1] [None] [yes]	[yes] [no]	[None ]		
05 [115200] [8]	[1] [None] [yes]	[yes] [no]	[None ]		
06 [115200] [8]	[1] [None] [yes]	[yes] [no]	[None ]		

Setting	Value	Notes
Speed	50 bps to 921.6 Kbps	Transmission rate
Bits	5, 6, 7, 8	Data bits
Stop	1, 1.5, 2	Stop bits
Parity	None, Even, Odd, Mark, Space	Odd, Even, Mark, Space
FIFO	Yes, No	First In First Out Device
RTS/CTS	Yes, No	Hardware Flow Control
XON/XOFF	Yes, No	Software Flow Control
Discon. Ctrl	None	DSR off or DCD off will not be interpreted as a
		disconnection.
	DSR off	DSR off will be interpreted as a disconnection.
	DCD off	<b>DCD off</b> will be interpreted as a disconnection.

4. Press **ESC** to return to the **PORT MENU**.

#### Save

When exiting the SERVER MENU, you will be prompted to save settings. Press Y to save.



You may also save all settings from the **MAIN MENU** by selecting **sAve** and then pressing **Enter**. Press **Enter** again to save, and any other key to cancel.

CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
Server Port seTting [sAve] Utility Restart Exit Save current configuration to Flash ROM	
ESC: back to menu Enter: select	
++	
Enter to updated, other key to cancel	
++	

#### Restart

1. From the MAIN MENU, select Restart.

CN2510-8	CN2510-8_5631 V2.0	MAIN	MENU
-	sAve Utility <mark>[Restart]</mark> Exit stem or selected async ports		
Enter: select ESC:	previous menu		

2. Select **System** and then press **Enter** to restart the system and terminate the Telnet session.

CN2510-8	CN251	LO-8 5631	V2.0			
[System] Po	ort Ouit					
	ne Async Server					
ESC: back t	o menu Enter:	select				
+						+
			Warning !	11		
Resta	rt system will	disconnect	2		all status	value
	-		inue ES			
+						+

# **Setting Up Terminal**

In this chapter, we describe the steps you should follow to configure Moxa CN2510 as a Terminal Server. CN2510 provides Telnet and Rlogin protocols for terminals to establish connections with UNIX hosts. Two terminal modes are supported—ASCII terminal with up to 8 simultaneous sessions, and Binary terminal with one session for one user. Terminals can be connected directly to one of CN2510's RS-232 ports, or connected from a remote site by using external modems.

The following topics are covered in this chapter:

- Accessing the Console Utility
- Selecting the Application
- Configuring TERM\_ASC Mode
- Configuring TERM\_BIN Mode
- Configuring the Serial Ports
- Save
- Restart

# **Accessing the Console Utility**

**NOTE** In this section, we show how to access CN2510's console utility by Telnet over the network. For information on using the console port, see the section "Accessing the Console Utility" in Chapter 2.

1. Telnet over the network to the server's IP address.

Run	<u>?</u> ×
	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	telnet 192.168.127.254
	OK Cancel <u>B</u> rowse

2. Type 1 to choose ansi/vt100, and then press Enter.

📕 Telnet 192.168.127	254	
Async Server CN2510-8 Console terminal type	(1: ansi/vt100, 2: vt52)	: 1

3. CN2510's MAIN MENU will open, as shown below.

<b>Telnet 192.168.127.254</b>			
CN2510-8	CN2510-8_5631 V2.0	MAIN	MENU
[Server] Port seTting sAve Examine/modify async server			
Enter: select ESC: previou	us menu		

Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

### **Selecting the Application**

Open **Port Menu**  $\rightarrow$  **Mode** to configure the **Terminal** application.

1. From the MAIN MENU, select Port, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8 5	631 V2 0	PORT MENU
	CN2310_0_3		
[Mode] Line mOdem Examine/modify the	Welcome_MSG Quit operation mode of a	sync ports	
Enter: select ESC	C: previous menu		

 The Mode page has pop-up selection lists for Application, Mode, and Description/more setting for each serial port. Use the arrow keys to move the cursor to the Application column for the port to be configured, and then press Enter. We use Port 6 to illustrate.

comgured, and then press <b>enter</b> . We use port 6 to mustrate.			
CN2510-8	CN2510-8_5631 V2.0		
[Mode] Line mOdem	Welcome_MSG Quit		
Examine/modify the	operation mode of async ports		
ESC: back to menu	Enter: select		
Port Application	Mode Description/more setting		
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]		
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]		
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]		
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]		
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]		
06 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]		
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]		

4. Use the **up/down** arrow keys to select **Terminal**, and then press **Enter**.

CN2510	)-8	CN2510-8_5631	V2.0
[Mode]	Line mOdem	 Welcome MSG Quit	
		operation mode of async	c ports
ESC:	back to menu	Enter: select	
Port	Application	+	-+ption/more setting
01	[NT Real COM	]  Disable	Server Proprietary Protocol]
02	[NT Real COM	]  Dialin/out	Server Proprietary Protocol]
03	[NT Real COM	Terminal	Server Proprietary Protocol]
04	[NT Real COM	]  Reverse Terminal	Server Proprietary Protocol]
05	[NT Real COM	]  Device Control	Server Proprietary Protocol]
06	[NT Real COM		Server Proprietary Protocol]
07	[NT Real COM	]  Printer	Server Proprietary Protocol]
08	[NT Real COM	]  Multi-Host TTY	Server Proprietary Protocol]
		]  NT Real COM	
		]   Raw UDP	
		]+	-+

#### 5. TERM\_ASC mode is selected by default.

CN2510-8	CN2510-8	_5631 V2.0
[Mode] Line mOdem W	Velcome_MSG Quit	
Examine/modify the o	peration mode of	async ports
ESC: back to menu	Enter: select	
Port Application	Mode	Description/more setting
01 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
05 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
06 [Terminal	] [TERM_ASC ]	[ASCII Termianl mode (8 sessions) ]
07 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]

After configuring a port for the Terminal application, you will need to choose between one of two operation modes: **TERM\_ASC** and **TERM\_BIN**. The default mode, **TERM\_ASC** (short for Terminal ASCII), supports 8 terminal sessions. The other option, **TERM\_BIN** (short for Terminal Binary) only supports 1 session.

# **Configuring TERM\_ASC Mode**

**TERM\_ASC** supports 8 terminal sessions for each terminal. Hot keys are used to switch between different sessions.

1. Move the cursor to the Mode column for the port and press Enter.

CN2510-8	CN2510-8_5631 V2.0
E 3	Welcome_MSG Quit
Examine/modify the	operation mode of async ports
ESC: back to menu	Enter: select
Port Application	Mode Description/more setting
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
06 [Terminal	] [TERM ASC ] [ASCII Termianl mode (8 sessions) ]
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]

2. Use the arrow keys to highlight **TERM\_ASC**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem Examine/modify the	Welcome_MSG Quit operation mode of async ports
ESC: back to menu	Enter: select
Port Application 01 [NT Real COM 02 [NT Real COM 03 [NT Real COM 04 [NT Real COM 05 [NT Real COM 06 [Terminal 07 [NT Real COM 08 [NT Real COM	ModeDescription/more setting[ASPP][Async Server Proprietary Protocol][ASPP][Async Server Proprietary Protocol][ASPP][Async Server Proprietary Protocol][ASPP][Async Server Proprietary Protocol][ASPP]!++rver Proprietary Protocol][ASPP]!  TERM ASC[ITERM_ASC]!  TERM_BIN  rminal mode (8 sessions)[ASPP]!++rver Proprietary Protocol][ASPP]!++rver Proprietary Protocol][ASPP]!++rver Proprietary Protocol][ASPP]!+rver Proprietary Protocol][ASPP][Async Server Proprietary Protocol]

3. Move the cursor to the **Description/more setting** column and press **Enter**.

CN2510-8	CN2510-8_5631 V2.0	
[Mode] Line mOdem	Welcome MSG Quit	
Examine/modify the	operation mode of async ports	
ESC: back to menu	Enter: select	
Port Application	Mode Description/more setting	j i
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	
06 [Terminal	] [TERM_ASC ] [ASCII Termianl mode (8 sessions) ]	
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]	
The pop-up selector contains input/display fields for Key Mapping, Auto-link protocol, Link by input IP, Auto-login prompt, Terminal type, Inactivity time, Authentication type, and TCP alive check time. Each item is described in detail below the figure.

+			+
Key Mapping :			1
Max. Sessions	•		i i
		[^T]	· · ·
Ouit		[^E]	! 
	•		
Break			
Interrupt	:	L J	
Auto-link protocol		[none ]	
Telnet TCP port		[23 ]	
Primary host IP		[	]
Link by input IP		[Disable]	1
Secondary host IP		[	]
Auto-login prompt		[ogin:	]
Password prompt		[assword:	]
Login user name		[	]
Login password		[	]
Terminal type		[ansi ]	1
Inactivity time		[0 ] minutes	
Authentication type		[local ]	
TCP alive check time			
+			+

Setting	Value	Notes	Necessity	
Key Mapping				
Max. Sessions	1-8	Configure the max. number of sessions	Optional	
Change Session	^T	Hot key for changing sessions	Optional	
Quit	^E	Hot key for quitting a session	Optional	
Erase-line		Hot key for erase-line	Optional	
Break		Hot key for sending Telnet break signal	Optional	
Interrupt		Hot key for program termination	Optional	
Auto-link protocol	None/Telnet/ Rlogin	None:Do not connect to the host automatically.Telnet:Connects to the host automatically by Telnet.Rlogin:Connects to the host automatically by Rlogin.	Optional	
Telnet TCP port	23	By default, the Telnet TCP port number is set to 23, which is the default TCP port number for Telnet. If you need to telnet to this CN2510 serial port, set the Telnet TCP port to a different number. We recommend using 4001, 4002, etc. for ports 1, 2, etc. to avoid conflicts with other ports.	Optional	
Primary host IP	IP address or the name defined in the [Host] table	If specified, designates a 'permanent' host to which the terminal will always be connected.	Optional	
Link by input IP	Enable/ Disable	For users to enter the connection IP address manually.	Optional	
Secondary host IP	IP address or the name defined in the [Host] table.	If specified, designates a secondary 'permanent' host to which the terminal will be connected.	Optional	
Auto-login prompt	ogin:	Send ID information when this prompt is received.	Optional	
Password prompt	assword:	Send Password information when this prompt is received	Optional	
Login user name		Login ID	Optional	

Setting	Value	Notes	Necessity
Login password		Login Password	Optional
Terminal type	ansi	Terminal type for outgoing connection	Optional
Inactivity time	0-99 minutes	Idle time before the port is disconnected	Optional
		automatically. If set to 0 minutes, the port will not	
		disconnect.	
Authentication type	None/local/	None: Authentication is not required.	Optional
	server	<b>local:</b> Check the ID stored in the User_table	
		(defined under the SERVER MENU).	
		<b>Server:</b> Check the ID with the external RADIUS	
		server. Refer to Appendix C for RADIUS	
		installation information.	
TCP alive check time	0-99 minutes	The time period CN2510 waits before checking if	Optional
		the TCP connection is alive or not. If no response is	
		received, CN2510 will reset the port and terminate	
		the connection.	

5. Press **Esc** to return to the **PORT MENU**.

## **Configuring TERM\_BIN Mode**

**TERM\_BIN** (Terminal Binary) mode is used as an application protocol. For example, it can be used to transfer files with XMODEM or ZMODEM. You are only allowed to open one terminal session at a time when in Terminal Binary mode.

1. Move the cursor to the Mode column for the port and press Enter.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem	Welcome_MSG Quit
Examine/modify the	operation mode of async ports
ESC: back to menu	Enter: select
Port Application	Mode Description/more setting
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
06 [Terminal	] [ <mark>TERM_ASC ]</mark> [ASCII Termianl mode (8 sessions) ]
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]

2. Use the arrow keys to highlight **TERM\_BIN**, and then press **Enter**.

CN2510-8 CN2510-8_5631 V2.0								
[Mode] Line mOdem Welc	come MSG Quit							
Examine/modify the oper	ation mode of async ports							
ESC: back to menu Ente	er: select							
Port Application	Mode Description/more setting							
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]							
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]							
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]							
04 [NT Real COM	] [ASPP ]++rver Proprietary Protocol]							
05 [NT Real COM	] [ASPP ]  TERM ASC  rver Proprietary Protocol]							
06 [Terminal	] [TERM ASC ]  TERM BIN  rminal mode (8 sessions) ]							
07 [NT Real COM	] [ASPP ]++rver Proprietary Protocol]							
08 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]							

3. Move the cursor to the **Description/more setting** column and press **Enter**.

CN251	0-8	CN2510-	-8_5	5631 V2.0
[Mode	l Line mOdem	Welcome MSG Qui	 +	
	-	operation mode of		async ports
ESC:	back to menu	Enter: select		
Port	Application	Mode		Description/more setting
01	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]
02	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]
03	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]
04	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]
05	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]
06	[Terminal	] [TERM BIN	]	Binary Termianl mode (1 session)
07	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]

 The pop-up selector contains input/display fields for Quit key, Auto-link protocol, Link by input IP, Auto-login prompt, Terminal type, Inactivity time, Authentication type, and TCP alive check time. Each item is described in detail below the figure.

+	 
Quit key	[^E]
Auto-link protocol	[none ]
Telnet TCP port	[23 ]
Primary host IP	[ ]
Link by input IP	[Disable]
Secondary host IP	[ ]
Auto-login prompt	[ogin: ]
Password prompt	[assword: ]
Login user name	[ ]
Login password	[ ]
Terminal type	[ansi ]
Inactivity time	[0 ] minutes
Authentication type	[local ]
TCP alive check time	[0 ] minutes
+	

Setting	Value Notes N			
Quit Key	^E	Defines the Quit key used to disconnect the link	Optional	
		between the current terminal session and the		
		remote host. It may be left blank for binary		
		communication.		
Auto-link protocol	None/Telnet/	None: Do not connect to the host	Optional	
	Rlogin	automatically.		
		<b>Telnet:</b> Connects to the host automatically by		
		Telnet.		
		<b>Rlogin:</b> Connects to the host automatically by		
		Rlogin.		
Telnet TCP port 23		By default, the Telnet TCP port number is set to	Optional	
		23, which is the default TCP port number for		
		Telnet. If you need to telnet to this CN2510 serial		
		port, set the Telnet TCP port to a different		
		number. We recommend using 4001, 4002, etc.		
		for ports 1, 2, etc. to avoid conflicts with other		
		ports.		
Primary host IP	IP address or	If specified, designates a 'permanent' host to	Optional	
	the name	which the terminal will always be connected.		
defined in the				
	[Host] table			
Link by input IP	Enable/	For users to enter the connection IP address	Optional	
	Disable	manually.		

Setting	Value	Notes	Necessity
Secondary host IP	IP address or	If specified, designates a secondary 'permanent'	Optional
	the name	host to which the terminal will be connected.	
	defined in the		
	[Host] table.		
Auto-login prompt	ogin:	Send ID information when this prompt is	Optional
		received.	
Password prompt	assword:	Send Password information when this prompt is	Optional
		received	
Login user name		Login ID	Optional
Login password		Login Password	Optional
Terminal type	ansi	Terminal type for outgoing connection	Optional
Inactivity time	0-99 minutes	Idle time before the port is disconnected	Optional
		automatically. If set to 0 minutes, the port will	
		not disconnect.	
Authentication type	None/local/	None: Authentication is not required.	Optional
	server	<b>local:</b> Check the ID stored in the User_table	
		(defined under the SERVER MENU).	
		Server: Check the ID with the external	
		RADIUS server. Refer to Appendix C for RADIUS	
		installation information.	
TCP alive check time	0-99 minutes	The time period CN2510 waits before checking if	Optional
		the TCP connection is alive or not. If no response	
		is received, CN2510 will reset the port and	
		terminate the connection.	

5. Press **Esc** to return to the **PORT MENU**.

# **Configuring the Serial Ports**

Open **Port Menu**  $\rightarrow$  **Line** to configure serial port settings.

1. From the **MAIN MENU**, select **Port**, and then press **Enter**.

CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
Server [Port] seTting sAve Utility Restart Exit Examine/modify async server ports configuration	
Enter: select ESC: previous menu	

2. From the PORT MENU, select Mode, and then press Enter.

CN2510-	8		CI	N2510-	-8_5631	V2.0		PORT	MENU
	-		Welcome_M			tion	 		
Enter:	select	ESC:	previous	menu					

3. The Line page has pop-up selection lists for Port, Speed, Bits, Stop, Parity, FIFO, RTS/CTS,

CN2510-8		CN2510-8_5631	V2.0			
	mOdem Welcom Ty asynchronou	ne_MSG Quit Is port configur	ation			
ESC: back to	menu Enter:	select				
Port Speed	Bits Stop	Parity FIFO	RTS/CTS	XON/XOFF	Discon. ct	rl
01 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]	
02 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]	
03 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]	
04 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]	
05 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]	
06 [115200]	[8] [1]	[None ] [ves]	[yes]	[no ]	[None ]	

Setting	Value	Notes
Speed	50 bps to 921.6 Kbps	Transmission rate
Bits	5, 6, 7, 8	Data bits
Stop	1, 1.5, 2	Stop bits
Parity	None, Even, Odd, Mark, Space	Odd, Even, Mark, Space
FIFO	Yes, No	First In First Out Device
RTS/CTS	Yes, No	Hardware Flow Control
XON/XOFF	Yes, No	Software Flow Control
Discon. Ctrl	None	DSR off or DCD off will not be interpreted as a
		disconnection.
	DSR off	<b>DSR off</b> will be interpreted as a disconnection.
	DCD off	<b>DCD off</b> will be interpreted as a disconnection.

4. Press **ESC** to return to the **PORT MENU**.

### Save

When exiting the **SERVER MENU**, you will be prompted to save settings. Press **Y** to save.

CN2510-8	CN2510-8_5	631 V2.0		SERVER	MENU
Info. Lan Adv. Hos Examine/modify async			Quit		
Enter: select ESC:	previous menu				
+				+	
l l	Warning !!				
You had	modified the conf	iguration withou	it saving.		
Would ye	ou save it now ?				
	'Y': yes	'N': no			
+				+	

You may also save all settings from the **MAIN MENU** by selecting **sAve** and then pressing **Enter**. Press **Enter** again to save, and any other key to cancel.

CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
Server Port seTting <mark>[sAve]</mark> Utility Restart Exit Save current configuration to Flash ROM	
ESC: back to menu Enter: select	
++	
Enter to updated, other key to cancel	
++	

## Restart

1. From the MAIN MENU, select Restart.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	eTting sAve Utility <mark>[Restart]</mark> Exit le system or selected async ports	
Enter: select	ESC: previous menu	

2. Select **System** and then press **Enter** to restart the system and terminate the Telnet session.

CN2510-8 CN2510-8_5631 V2.0	
[System] Port Quit Restart the Async Server	
ESC: back to menu Enter: select	
+	+
Warning	!!!
Restart system will disconnect all po:	
' Enter: continue	ESC: cancel
+	+

# Setting Up Multi-host TTY

The Multi-host TTY application is the ideal transmission method for communicating with multiple Unix hosts over the network via several simultaneous sessions.

When the communication starts, a Unix server connected to the network must first activate Moxattyd to use the TTY port's mapping function. Moxattyd will initiate the connection with the CN2510, and the CN2510 will listen on different TCP ports for connection requests from various Moxattyd.

Once a connection is established, the Terminal server can use hot keys to switch sessions. In this way, one terminal can control different Unix hosts.

The following topics are covered in this chapter:

- Accessing the Console Utility
- Selecting the Application
- Configuring FIXTTY Mode
- Configuring the Serial Ports
- Save
- Restart
- Setting up Hosts
  - Installing and Compiling Moxatty
  - > Moxatty for Different Applications
  - Using Moxatty

## **Accessing the Console Utility**

**NOTE** In this section, we show how to access CN2510's console utility by Telnet over the network. For information on using the console port, see the section "Accessing the Console Utility" in Chapter 2.

1. Telnet over the network to the server's IP address.

Run	?×
-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	telnet 192.168.127.254
	OK Cancel <u>B</u> rowse

2. Type 1 to choose ansi/vt100, and then press Enter.

📕 Telnet 192.168.127	254		
Async Server CN2510-8 Console terminal type	(1: ansi/vt100,	2: vt52) : 1	

3. CN2510's MAIN MENU will open, as shown below.

📠 Telnet 192.168.127.254	
CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
[Server] Port seTting sAve Utility Restart Exit Examine/modify async server node/table configuration	
Enter: select ESC: previous menu	

Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

### **Selecting the Application**

Open **Port Menu**  $\rightarrow$  **Mode** to configure the **Multi-host TTY** application.

1. From the MAIN MENU, select Port, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8_5631	V2.0	PORT	MENU
[Mode] Line mOdem Welcome Examine/modify the operation		ports		
Enter: select ESC: previo	us menu			

3. The **Mode** page has pop-up selection lists for **Application**, **Mode**, and **Description/more setting** for each serial port. Use the arrow keys to move the cursor to the **Application** column for the port to be configured, and then press **Enter**. We use Port 6 to illustrate.

the then press Enter. We use port 6 to inustrate.						
CN2510-8	CN2510-8_5631 V2.0					
[Mode] Line mOdem	Welcome_MSG Quit					
Examine/modify the	operation mode of async ports					
ESC: back to menu	Enter: select					
Port Application	Mode Description/more setting					
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
06 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					

4. Use the up/down arrow keys to select Multi-Host TTY, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem	Welcome_MSG Quit
Examine/modify the	operation mode of async ports
ESC: back to menu	Enter: select
Port Application	++ption/more setting
01 [NT Real COM	]  Disable   Server Proprietary Protocol]
02 [NT Real COM	]  Dialin/out   Server Proprietary Protocol]
03 [NT Real COM	]  Terminal   Server Proprietary Protocol]
04 [NT Real COM	]  Reverse Terminal   Server Proprietary Protocol]
05 [NT Real COM	]  Device Control   Server Proprietary Protocol]
06 [NT Real COM	]   Multiplex   Server Proprietary Protocol]
07 [NT Real COM	]  Printer   Server Proprietary Protocol]
08 [NT Real COM	]  Multi-Host TTY   Server Proprietary Protocol]
	]  NT Real COM
	]  Raw UDP
	]++

5. The only operation mode associated with this application is **FIXTTY** mode, which is selected automatically in the Mode column.

CN2510-8 CN251	.0-8_5631 V2.0
[Mode] Line mOdem Welcome_MSG Q	Quit
Examine/modify the operation mode	e of async ports
ESC: back to menu Enter: select	
Port Application Mode	Description/more setting
01 [NT Real COM ] [ASPP	] [Async Server Proprietary Protocol]
02 [NT Real COM ] [ASPP	] [Async Server Proprietary Protocol]
03 [NT Real COM ] [ASPP	] [Async Server Proprietary Protocol]
04 [NT Real COM ] [ASPP	] [Async Server Proprietary Protocol]
05 [NT Real COM ] [ASPP	] [Async Server Proprietary Protocol]
06 [Multi-Host TTY ] [FIXTTY	] [Unix fixtty driver mode ]
07 [NT Real COM ] [ASPP	] [Async Server Proprietary Protocol]
08 [NT Real COM ] [ASPP	] [Async Server Proprietary Protocol]

# **Configuring FIXTTY Mode**

1. Move cursor to the **Description/more setting** column and then press **Enter**.

CN2510-8	CN2510	-8_5631 V2.0
[Mode] Line mOdem We	lcome_MSG Qu	 it
Examine/modify the op	eration mode	of async ports
ESC: back to menu Er	nter: select	
Port Application	Mode	Description/more setting
01 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]
05 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]
06 [Multi-Host TTY	] [FIXTTY	] [Unix fixtty driver mode ]
07 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]

 The pop-up selector contains input/display fields for Max. Sessions, Terminal model no., Inactivity time, TCP alive check time, and also Session parameters. Each item is described in detail below the figure.

	guic.						
+							+
1	Max. Ses	sions	: [ 8	]			1
	Terminal	model no.	: [VT1	00	]		1
I	Inactivi	ty time	: [0]	minutes			1
I	TCP aliv	e check ti	me : [0]	minutes			1
I	Session	Hot key	TCP port	Remote	ΙP	address	1
I	1	[^A]	[4001 ]	[		]	1
I	2	[^B]	[5001 ]	[		]	1
I	3	[^E]	[6001 ]	[		]	1
I	4	[^F]	[7001 ]	[		]	1
l	5	[^T]	[8001 ]	[		]	1
I	6	[^U]	[9001 ]	[		]	1
I	7	[^V]	[10001 ]	[		]	1
I	8	[^W]	[11001 ]	[		]	1
+							+

Setting	Value	Notes	Necessity
Max. Sessions	1-8	Select the maximum number of simultaneous	Optional
		sessions that will be allowed for this serial	
		port.	
Terminal mode no.	Star NT-560+,	CN2510 provides 3 modes that depend on	Optional
	NL-5000A,	the connection mode supported by the	
	VT100	terminal.	
Inactivity time	0-99 minutes	Idle time before the port is disconnected	Optional
		automatically. If set to 0 minutes, the port	
		will not disconnect.	
TCP alive check time	0-99 minutes	The time period CN2510 waits before	Optional
		checking if the TCP connection is alive or not.	
		If no response is received, CN2510 will reset	
		the port and terminate the connection.	
Session			
Hot Key		Configure the Hot key, TCP port, and	
TCP port		Remote IP address for each session.	
Remote IP			

3. Press **Esc** to return to the **PORT MENU**.

# **Configuring the Serial Ports**

Open **Port Menu**  $\rightarrow$  **Line** to configure serial port settings.

1. From the MAIN MENU, select Port, and then press Enter.

CN	12510-8	CN2510-8_5631 V2.0	MAIN MENU
		seTting sAve Utility Restart Exit async server ports configuration	
E	Inter: select	ESC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0 PORT	MENU
Mode [Line] mOdem Welcome Examine/modify asynchronous		
Enter: select ESC: previo	us menu	

3. The Line page has pop-up selection lists for Port, Speed, Bits, Stop, Parity, FIFO, RTS/CTS,

XON/XOFF, and Discon. ctrl for each serial port. Each item is described in detail below the figure.						
CN2510-8	CN2510-8_5631	V2.0				
Mode <mark>[Line]</mark> mOdem Welcom Examine/modify asynchronou		ation				
ESC: back to menu Enter:	select					
PortSpeedBitsStop01[115200][8][1]02[115200][8][1]03[115200][8][1]04[115200][8][1]05[115200][8][1]06[115200][8][1]	Parity FIFO [None] [yes] [None] [yes] [None] [yes] [None] [yes] [None] [yes]	RTS/CTSXON/XOFF[yes][no][yes][no][yes][no][yes][no][yes][no][yes][no]	Discon. ctrl [None ] [None ] [None ] [None ] [None ] [None ]			

Setting	Value	Notes
Speed	50 bps to 921.6 Kbps	Transmission rate
Bits	5, 6, 7, 8	Data bits
Stop	1, 1.5, 2	Stop bits
Parity	None, Even, Odd, Mark, Space	Odd, Even, Mark, Space
FIFO	Yes, No	First In First Out Device
RTS/CTS	Yes, No	Hardware Flow Control
XON/XOFF	Yes, No	Software Flow Control
Discon. Ctrl	None	<b>DSR off</b> or <b>DCD off</b> will not be interpreted as a disconnection.
	DSR off	<b>DSR off</b> will be interpreted as a disconnection.
	DCD off	<b>DCD off</b> will be interpreted as a disconnection.

4. Press **ESC** to return to the **PORT MENU**.

### Save

When exiting the SERVER MENU, you will be prompted to save settings. Press Y to save.



You may also save all settings from the **MAIN MENU** by selecting **sAve** and then pressing **Enter**. Press **Enter** again to save, and any other key to cancel.

	AIN MENU
Server Port seTting [sAve] Utility Restart Exit Save current configuration to Flash ROM	
ESC: back to menu Enter: select	
++	
Enter to updated, other key to cancel	
++	

### Restart

1. From the MAIN MENU, select Restart.

CN2510-8	CN2510-8_5631 V2.0	MAIN	MENU
-	sAve Utility <mark>[Restart]</mark> Exit stem or selected async ports		
Enter: select ESC:	previous menu		

2. Select **System** and then press **Enter** to restart the system and terminate the Telnet session.

CN2510-8	CN251	LO-8 5631	V2.0			
[System] Po	ort Ouit					
	ne Async Server					
ESC: back t	o menu Enter:	select				
+						+
			Warning !	11		
Resta	rt system will	disconnect	2		all status	value
	-		inue ES			
+						+

# **Setting up Hosts**

### **Installing and Compiling Moxatty**

### **Installing and Compiling**

- 1. Create a directory for Moxatty (e.g. /user/etc/moxatty) as shown below:
   #mkdir /usr/etc/moxatty
   #cd /usr/etc/moxatty
- 2. Extract code from the tar-formatted file  ${\tt moxatty.tar}$  as follows:

#tar xvf moxatty.tar

3. After the extraction is complete, locate the following files:

moxattyd.c	program source code
moxattyd.cf	configuration file
README	description file for moxatty

4. Compile and link documents:

SCO UNIX: cc -O -o moxattyd moxattyd.c -lsocketLINUX: cc -O -o moxattyd moxattyd.cAIX: cc -O -o -DAIX moxattyd moxattyd.c

### **Configuring tty Redirection**

The following example illustrates how to map and redirect a tty device to a MOXA CN2510 serial port. Use **vi** or any other text editor to add or modify entries in the file <code>moxattyd.cf</code>. There are three columns: **Device Name**, **CN2510 IP address**, and **TCP port number** in the entry for the file <code>moxattyd.cf</code>.

Device Name	CN2510 IP address	TCP Port number
ttyp1	192.168.1.1	4001
ttyp2	192.168.1.1	4002
ttyp3	192.168.1.1	4003
ttyp4	192.168.1.1	4004

NOTE

- 1. Device Names for SCO Unix are ttyp0, ttyp1, ttyp2.
- 2. Device Names for Linux are tty[pqrs][0-9,a-f].
- 3. Device Names for AIX are tty p[0-9,a-f].
- Default TCP port numbers are from 4001 to 4016 for the 16-port CN2510. If necessary, you can customize the TCP port numbers. However, the numbers you use MUST be the same as those defined in MOXA CN2510.

#### Adding Moxatty to system booting procedures

To include MOXATTY in the booting system, add the moxattyd daemon process to the /etc/inittab file. The following example illustrates how to add the full path name for moxattyd to the entries of /etc/inittab for different UNIX hosts.

```
For SCO UNIX
ts:2:respawn:/usr/etc/moxatty/moxattyd -t 1
For LINUX
ts:3:respawn:/usr/etc/moxatty/moxattyd -t 1
For AIX
ts:2:respawn: usr/etc/moxatty/moxattyd -t 1
```

**NOTE** The option "-t 1" means the reconnection time is 1 minute after turning CN2510 on or off.

### **Moxatty for Different Applications**

This section illustrates how to use MOXATTY with a number of different applications.

#### **Terminal Access**

To use terminal access, the process getty must be activated when the system boots up. To do this, add the following entries to the file /etc/inittab.

#### For SCO UNIX

ts1:234:respawn:/etc/getty ttyp1
ts2:234:respawn:/etc/getty ttyp2
ts3:234:respawn:/etc/getty ttyp3
ts4:234:respawn:/etc/getty ttyp4

#### For LINUX

```
p1:345:respawn:/sbin/mingetty ttyp1
p2:345:respawn:/sbin/mingetty ttyp2
p3:345:respawn:/sbin/mingetty ttyp3
p4:345:respawn:/sbin/mingetty ttyp4
```

#### For AIX

```
ts1:2:respawn:/usr/sbin/getty ttyp1
ts2:2:respawn:/usr/sbin/getty ttyp2
ts3:2:respawn:/usr/sbin/getty ttyp3
ts4:2:respawn:/usr/sbin/getty ttyp4
```

**NOTE** ttyp1 to ttyp4 device names are mapped to port 1 to port 4 on MOXA CN2510.

#### **Transparent Printer Access**

It's not necessary to add additional entries to /etc/inittab for printer access, as mentioned in the section on terminal access. Since MOXATTY is a fixed pseudo tty, you can easily connect a serial printer to a Moxa CN2510 serial port to execute printing commands.

The following example is for SCO UNIX:

Command	Description
/usr/lib/lpadmin -pLaser1 -v/dev/ttyp1	set printer name as Laser1 and use ttyp1
/usr/lib/accept Laser1	accept printer Laser1
enable Laser1	enable printer Laser1
lp -dLaser1 file_name	print file to Laser1

#### **Other Applications**

As mentioned earlier, the system setup depends on which application you are using. Since MOXATTY is a fixed pseudo tty, no additional setup is required to enable your applications to open tty devices.

#### **Using Moxatty**

#### Starting MOXATTY

Once you have completed the above settings, you can start. Follow the steps given below to ensure that MOXATTY is running correctly.

See if the entries added to moxattyd.cf are correct.

Run init q or reboot your system to start the MOXATTY daemon. If you see that moxattyd is running on your system, then MOXATTY has been successfully started.

#### **Stopping MOXATTY**

If for any reason you need to stop the MOXATTY daemon, the two methods listed below allow you to stop the moxattyd daemon process:

- 1. Remove entries related to moxattyd daemon in /etc/inittab and execute init q or reboot your system, or
- 2. Replace respawn with off in entries related to moxattyd daemon in /etc/inittab, and execute init q or reboot your system.

For instance, 'ts:2:off:/usr/etc/moxatty/moxattyd' for SCO UNIX, 'ts:3:off:/usr/etc/moxatty/moxattyd' for LINUX, or 'ts:2:off:/usr/etc/moxatty/moxattyd' for AIX.

# **Setting Up Dialin/out**

In this chapter, we describe the steps required to configure Moxa CN2510 as a Dial-in/out Access Server. Dial-in Access allows remote users to access the LAN, whereas Dial-out Access allows LAN hosts to establish connections to other sites.

The following topics are covered in this chapter:

- Accessing the Console Utility
- Selecting the Application
- Configuring PPPD/PPP Mode
- Configuring SLIPD/SLIP Mode
- Configuring Dynamic Mode
- Configuring the Serial Ports
- Configuring Modem Initialization
- Optional Welcome Message
- Configuring Optional Local User Information
- Save
- Restart

## **Accessing the Console Utility**

**NOTE** In this section, we show how to access CN2510's console utility by Telnet over the network. For information on using the console port, see the section "Accessing the Console Utility" in Chapter 2.

1. Telnet over the network to the server's IP address.

Run	? ×
-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	telnet 192.168.127.254
	OK Cancel <u>B</u> rowse

2. Type 1 to choose ansi/vt100, and then press Enter.

📕 Telnet 192.168.127	254	
Async Server CN2510-8		
Console terminal type	(1: ansi/vt100, 2: vt52) :	1

3. CN2510's MAIN MENU will open, as shown below.

🗾 Telnet 192.	168.127.254	
CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server node/table configuration	
Enter: select	ESC: previous menu	

Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

### **Selecting the Application**

Open **Port Menu**  $\rightarrow$  **Mode** to configure the **Dial-up/out** application.

1. From the MAIN MENU, select Port, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8_5631	V2.0	ORT MENU
[Mode] Line mOdem Examine/modify the	Welcome_MSG Quit operation mode of async	ports	
Enter: select ESC:	previous menu		

3. The **Mode** page has pop-up selection lists for **Application**, **Mode**, and **Description/more setting** for each serial port. Use the arrow keys to move the cursor to the **Application** column for the port to be configured, and then press **Enter**. We use Port 6 to illustrate.

CN2510-8	CN2	2510-8_5631			
	dem Welcome_MSG				
Examine/modify	the operation mo	ode of asyn	c ports		
ESC: back to me	nu Enter: sele	ect			
Port Applicati	on Mode	Descrip	otion/mo	ore setting	
01 [NT Real C	OM ] [ASPP	] [Async	Server	Proprietary	Protocol]
02 [NT Real C	OM ] [ASPP	] [Async	Server	Proprietary	Protocol]
03 [NT Real C	OM ] [ASPP	] [Async	Server	Proprietary	Protocol]
04 [NT Real C	OM ] [ASPP	] [Async	Server	Proprietary	Protocol]
05 [NT Real C	OM ] [ASPP	] [Async	Server	Proprietary	Protocol]
06 [NT Real C	OM ] [ASPP	] [Async	Server	Proprietary	Protocol]
07 [NT Real C	OM ] [ASPP	] [Async	Server	Proprietary	Protocol]

4. Use the up/down arrow keys to select **Dialin/out** mode, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem	Welcome MSC Quit
	operation mode of async ports
ESC: back to menu	Enter: select
Dout Junitestion	
Port Application	++ption/more setting
01 [NT Real COM	]  Disable   Server Proprietary Protocol]
02 [NT Real COM	]  <mark>Dialin/out  </mark>   Server Proprietary Protocol]
03 [NT Real COM	]  Terminal   Server Proprietary Protocol]
04 [NT Real COM	]  Reverse Terminal   Server Proprietary Protocol]
05 [NT Real COM	]  Device Control   Server Proprietary Protocol]
06 [NT Real COM	]  Multiplex   Server Proprietary Protocol]
07 [NT Real COM	]  Printer   Server Proprietary Protocol]
08 [NT Real COM	]  Multi-Host TTY   Server Proprietary Protocol]

 The Dialin/out application supports five operation modes: DYNAMIC, PPP, PPPD, SLIP, SLIPD. DYNAMIC mode is selected by default.

CN2510-8	CN2510-	-8_5631	V2.0	
[Mode] Line mOdem	Welcome_MSG Qui	lt		
Examine/modify the	operation mode of	of asynd	c ports	
ESC: back to menu	Enter: select			
Port Application	Mode	Des	cription/more setting	
01 [NT Real COM	] [ASPP	] [As	ync Server Proprietary Pr	otocol]
02 [NT Real COM	] [ASPP	] [As	ync Server Proprietary Pr	otocol]
03 [NT Real COM	] [ASPP	] [As	ync Server Proprietary Pr	otocol]
04 [NT Real COM	] [ASPP	] [As	ync Server Proprietary Pr	otocol]
05 [NT Real COM	] [ASPP	] [As	ync Server Proprietary Pr	otocol]
06 [Dialin/out	] [DYNAMIC	] [Au	to Term/SLIP/PPP identifi	cation]
07 [NT Real COM	] [ASPP	] [As	ync Server Proprietary Pr	otocol]
08 [NT Real COM	] [ASPP	] [As	ync Server Proprietary Pr	otocol]

### **Configuring PPPD/PPP Mode**

PPPD (PPP on demand) is used for dial-in services, since it provides PPP services only when receiving a request from a remote PC. PPP provides standard PPP services for both dial-in and dial-out.

1. Move the cursor to the **Mode** column for the port and then press **Enter**.

CN2510-8	CN2510-	-8_5631 V2.0				
[Mode] Line mOdem Welcome_MSG Quit Examine/modify the operation mode of async ports						
ESC: back to menu	Enter: select					
Port Application 01 [NT Real COM 02 [NT Real COM 03 [NT Real COM 04 [NT Real COM 05 [NT Real COM 06 [Dialin/out 07 [NT Real COM	Mode ] [ASPP ] [ASPP ] [ASPP ] [ASPP ] [ASPP ] [DYNAMIC ] [ASPP	Description/more setting [Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Auto Term/SLIP/PPP identification] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol]				

2. Select **PPPD** for dial-in services only, or **PPP** for both dial-in/out services.

```
CN2510-8
                             CN2510-8 5631
                                             V2.0
[Mode] Line mOdem Welcome MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu
                    Enter: select
Port Application
                          Mode
                                       DYNAMIC |on/more setting
     [NT Real COM
                         [ASPP
                                       PPP
                                                |rver Proprietary Protocol]
     [NT Real COM
                         [ASPP
                                       PPPD
                                                 |rver Proprietary Protocol]
                                     11
                                       SLIP
     [NT Real COM
                                                 |rver Proprietary Protocol]
                        ] [ASPP
                                     ] |
 04
     [NT Real COM
                         [ASPP
                                     ]| SLIPD
                                                |rver Proprietary Protocol]
         Real COM
                          [ASPP
                                     1 +
                                        -----Proprietary Protocol]
                                        [Auto Term/SLIP/PPP identification]
 06
                         [DYNAMIC
     [NT Real COM
                         [ASPP
                                        [Async Server Proprietary Protocol]
     [NT Real COM
                         [ASPP
                                        [Async Server Proprietary Protocol]
```

3. Move the cursor to the Description/more setting column, and then press Enter.'

CN2510-8	CN2510-	0-8_5631 V2.0
[Mode] Line mOdem	Welcome_MSG Qui	it
Examine/modify the	operation mode o	of async ports
ESC: back to menu	Enter: select	
Port Application	Mode	Description/more setting
01 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]
05 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]
06 [Dialin/out	] [PPP	] [Point-to-Point Protocol ]
07 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]
08 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]

4. The pop-up selector contains input/display fields for **Destination IP addr**, **Source IP address**, **IP netmask**, **TCP/IP compression**, **Inactivity time**, **Link quality report**, **Outgoing PAP ID**, **PAP password**, and **Incoming PAP check**. Each item is described in detail below the figure.

+ -		 	 +
	Destination IP addr	[	
	Source IP address	[	
	IP netmask	[	1
	TCP/IP compression	[no ]	1
	Inactivity time	[0 ] minutes	
	Link quality report	[no ]	1
	Outgoing PAP ID	[	
	PAP password	[	
	Incoming PAP check	[none ]	
+ -		 	 +

Setting	Value	Notes	Necessity
Destination IP addr	IP address for the	Assign an IP address for the remote user.	Required
	remote Dial-in /		
	Dial-out user		
Source IP address	IP address for the port	CN2510 will automatically assign an IP address	Optional
		for the port. We recommend leaving this space	
		blank.	
IP netmask	IP netmask	CN2510 automatically assigns the netmask	Optional
		255.255.255.255. We recommend leaving this	
		space blank.	
TCP/IP	Yes/No	Depends on whether the remote user's	Optional
compression		application requests compression.	
Inactivity time	0-99 minutes	Idle time before the port is disconnected	Optional
		automatically. If set to 0 minutes, the port will	
		not disconnect.	
Link quality report	Yes/No	If you are using software to collect Link quality	Optional
		information, choose YES.	
Outgoing PAP ID	ID	Dial out user/account ID information	Optional
PAP password	Password	Dial out user/account password	Optional
Incoming PAP	None/local/server	<b>None:</b> Authentication is not required.	Optional
check		<b>local:</b> Check the ID stored in the User_table	
		(defined under the SERVER MENU). You will	
		need to configure the user's information later in	
		this chapter.	
		Server: Check the ID with the external	
		RADIUS server. Refer to Appendix C for RADIUS	
		installation information.	

5. Press **Esc** to return to the **PORT MENU**.

# **Configuring SLIPD/SLIP Mode**

Moxa CN2510 supports SLIP (Serial Line Internet Protocol), and SLIPD (for Dial-in services only).

1. Move the cursor to the **Mode** column for the port and then press **Enter**.

CN2510-8	CN2510	-8_5631 V2.0					
[Mode] Line mOdem Welcome_MSG Quit							
Examine/modify the o	operation mode	of async ports					
ESC: back to menu	Enter: select						
Dent Jungligstion	Mada	Description (nous cotting					
Port Application	Mode	Description/more setting					
01 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]					
02 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]					
03 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]					
04 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]					
05 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]					
06 [Dialin/out	DYNAMIC	] [Auto Term/SLIP/PPP identification]					
07 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]					
08 [NT Real COM	1 [ASPP	] [Async Server Proprietary Protocol]					

2. Select SLIPD for dial-in services only, or SLIP for both dial-in/out services.

CN2510-8	CN2510	-8_5631 V2.0				
Examine/modify the	operation mode	of async ports				
ESC: back to menu	Enter: select					
		++				
Port Application	Mode	DYNAMIC  on/more setting				
01 [NT Real COM	] [ASPP	]  PPP  rver Proprietary Protocol]				
02 [NT Real COM	] [ASPP	]  PPPD  rver Proprietary Protocol]				
03 [NT Real COM	] [ASPP	]  SLIP  rver Proprietary Protocol]				
04 [NT Real COM	] [ASPP	]  SLIPD  rver Proprietary Protocol]				
05 [NT Real COM	] [ASPP	]+Proprietary Protocol]				
06 [Dialin/out	] [DYNAMIC	] [Auto Term/SLIP/PPP identification]				
07 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]				
08 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]				

3. Move the cursor to the **Description/more setting** column, and then press **Enter**.

CN2510-8	CN2510-8	_5631 V2.0
[Mode] Line mOdem	Welcome MSG Quit	
Examine/modify the	operation mode of	async ports
ESC: back to menu	Enter: select	
Port Application	Mode	Description/more setting
01 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
05 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
06 [Dialin/out	] [SLIP ]	Serial Line Internet Protocol
07 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
08 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]

4. The pop-up selector contains input/display fields for **Destination IP addr**, **Source IP address**, **IP netmask**, **TCP/IP compression**, **Inactivity time**, **Link quality report**, **Outgoing PAP ID**, **PAP password**, and **Incoming PAP check**. Each item is described in detail below the figure.

+ -		 	 +
	Destination IP addr	[	
	Source IP address	[	
	IP netmask	[	
	TCP/IP compression	[no ]	
	Inactivity time	[0 ] minutes	
	Link quality report	[no ]	
	Outgoing PAP ID	[	
	PAP password	[	
	Incoming PAP check	[none ]	
+-		 	 +

Setting	Value	Notes	Necessity
Destination IP addr	IP address for the	Assign an IP address for the remote user.	Required
	remote Dial-in /		
	Dial-out user		
Source IP address	IP address for the port	CN2510 will automatically assign an IP address	Optional
		for the port. We recommend leaving this space	
		blank.	
IP netmask	IP netmask	CN2510 automatically assigns the netmask	Optional
		255.255.255.255. We recommend leaving this	
		space blank.	
TCP/IP	Yes/No	Depends on whether the remote user's	Optional
compression		application requests compression.	
Inactivity time	0-99 minutes	Idle time before the port is disconnected	Optional
		automatically. If set to 0 minutes, the port will	
		not disconnect.	
Link quality report	Yes/No	If you are using software to collect Link quality	Optional
		information, choose YES.	
Outgoing PAP ID	ID	Dial out user/account ID information	Optional
PAP password	Password	Dial out user/account password	Optional
Incoming PAP	None/local/server	None: Authentication is not required.	Optional
check		<b>local:</b> Check the ID stored in the User_table	
		(defined under the SERVER MENU). You will	
		need to configure the user's information later in	
		this chapter.	
		Server: Check the ID with the external	
		RADIUS server. Refer to Appendix C for RADIUS	
		installation information.	

5. Press **Esc** to return to the **PORT MENU**.

### **Configuring Dynamic Mode**

Dynamic mode integrates PPPD, SLIPD, and Terminal dial-in services. Dynamic mode automatically detects which remote connection mode is being used, and provides corresponding services. You can further enable/disable PPP/SLIP/Terminal services by using the **Description/more setting** pop-ups.

1. Move the cursor to the Mode column for the port and then press Enter.

CN2510-8	CN2510-	8_5631 V2.0				
[Mode] Line mOdem Welcome_MSG Quit Examine/modify the operation mode of async ports						
-	-	I async ports				
ESC: back to menu	Enter: select					
Port Application	Mode	Description/more setting				
01 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]				
02 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]				
03 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]				
04 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]				
05 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]				
06 [Dialin/out	DYNAMIC	] [Auto Term/SLIP/PPP identification]				
07 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]				
08 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol]				

2. Select **DYNAMIC** for dial-in/out services.

```
CN2510-8
                              CN2510-8 5631
                                              V2.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu
                     Enter: select
                                         DYNAMIC |on/more setting
 Port Application
                           Mode
      [NT Real COM
                                         PPP
                                                  |rver Proprietary Protocol]
                          [ASPP
                                      11
                                                   |rver Proprietary Protocol]
 02
      [NT Real COM
                           [ASPP
                                         PPPD
                                      11
                                                   |rver Proprietary Protocol]
 03
      [NT Real COM
                           「ASPP
                                         SLIP
                                      11
 04
      [NT Real COM
                           [ASPP
                                         SLIPD
                                                   |rver Proprietary Protocol]
 0.5
      [NT Real COM
                           [ASPP
                                                  -+rver Proprietary Protocol]
 06
     [Dialin/out
                          [DYNAMIC
                                         [Auto Term/SLIP/PPP identification]
 07
      [NT Real COM
                           [ASPP
                                         [Async Server Proprietary Protocol]
      [NT Real COM
                           [ASPP
                                         [Async Server Proprietary Protocol]
```

3. Move the cursor to the **Description/more setting** column, and then press **Enter**.

```
CN2510-8
                               CN2510-8 5631
                                                V2.0
[Mode] Line mOdem Welcome MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
 Port Application
                            Mode
                                           Description/more setting
                                           [Async Server Proprietary Protocol]
      [NT Real COM
                            [ASPP
     [NT Real COM
                            [ASPP
                                           [Async Server Proprietary Protocol]
     [NT Real COM
                                           [Async Server Proprietary Protocol]
 03
                            [ASPP
 04
      [NT Real COM
                            [ASPP
                                           [Async Server Proprietary Protocol]
      [NT Real COM
                                           [Async Server Proprietary Protocol]
                            [ASPP
                                            Auto Term/SLIP/PPP identification]
[Async Server Proprietary Protocol]
 06
      [Dialin/out
                            [DYNAMIC
 07
      [NT Real COM
                            [ASPP
      [NT Real COM
 08
                            [ASPP
                                            [Async Server Proprietary Protocol]
```

4. The pop-up selector contains input/display fields for **TERM\_BIN mode**, **PPPD mode**, and **SLIPD mode**. Each item is described in detail below the figure.

+     TERM_BIN mode   PPPD mode   SLIPD mode	Enable [ <mark>yes</mark> ] [yes] [yes]	Detail setting [Term parameters [PPP parameters [SLIP parameters	+   ]   ]
   Authentication t		[local ]	

Setting	Value	Notes	Necessity
TERM_BIN mode	yes/no	Select yes to enable a Binary Terminal connection	Optional
PPPD mode	yes/no	Select yes to enable a PPPD connection	Optional
SLIPD mode	yes/no	Select yes to enable a SLIPD Terminal connection	Optional
Authentication type	None/	None: Authentication is not required.	Optional
	local/	<b>local:</b> Check the ID stored in the User_table	
	server	(defined under the SERVER MENU).	
		Server: Check the ID with the external RADIUS	
		server. Refer to Appendix C for RADIUS installation	
		information.	

5. To configure the **TERM\_BIN** mode parameters, move the cursor to the Detail setting column to highlight **Description/more setting**, and then press **Enter**.



 The pop-up selector contains input/display fields for Quit key, Auto-link protocol, Link by input IP, Auto-login prompt, Terminal type, Inactivity time, Authentication type, and TCP alive check time. Each item is described in detail below the figure.

+	 		+
Quit key	[^E]		
Auto-link protocol	[none ]		
Telnet TCP port	[23]		
Primary host IP	[	]	
Link by input IP	[Disable]		
Secondary host IP	[		
Auto-login prompt	[ogin:	]	
Password prompt	[assword:	]	
Login user name	[	]	
Login password	[	]	
Terminal type	[ansi ]		
Inactivity time	[0 ] minutes		
Authentication type	[local ]		
TCP alive check time	[0 ] minutes		
+			+

Setting	Value	Notes	Necessity
Quit Key	^E	Defines the Quit key used to disconnect the link	Optional
		between the current terminal session and the	
		remote host. It may be left blank for binary	
		communication.	

Setting	Value	Notes	Necessity
Auto-link protocol	None/Telnet/	None: Do not connect to the host	Optional
	Rlogin	automatically.	
		<b>Telnet:</b> Connects to the host automatically by	
		Telnet.	
		<b>Rlogin:</b> Connects to the host automatically by	
		Rlogin.	
Telnet TCP port	23	By default, the Telnet TCP port number is set to	Optional
		23, which is the default TCP port number for	
		Telnet. If you need to telnet to this CN2510	
		serial port, set the Telnet TCP port to a different	
		number. We recommend using 4001, 4002, etc.	
		for ports 1, 2, etc. to avoid conflicts with other	
		ports.	
Primary host IP	IP address or	If specified, designates a 'permanent' host to	Optional
	the name	which the terminal will always be connected.	
	defined in the		
	[Host] table		
Link by input IP	Enable/	For users to enter the connection IP address	Optional
	Disable	manually.	
Secondary host IP	IP address or	If specified, designates a secondary 'permanent'	Optional
	the name	host to which the terminal will be connected.	
	defined in the		
	[Host] table.		
Auto-login prompt	ogin:	Send ID information when this prompt is	Optional
		received.	
Password prompt	assword:	Send Password information when this prompt is	Optional
		received	
Login user name		Login ID	Optional
Login password		Login Password	Optional
Terminal type	ansi	Terminal type for outgoing connection	Optional
Inactivity time	0-99 minutes	Idle time before the port is disconnected	Optional
		automatically. If set to 0 minutes, the port will	
		not disconnect.	
Authentication type	None/local/	<b>None:</b> Authentication is not required.	Optional
	server	<b>local:</b> Check the ID stored in the User_table	
		(defined under the SERVER MENU).	
		Server: Check the ID with the external	
		RADIUS server. Refer to Appendix C for RADIUS	
		installation information.	
TCP alive check time	0-99 minutes	The time period CN2510 waits before checking if	Optional
		the TCP connection is alive or not. If no response	
		is received, CN2510 will reset the port and	
		terminate the connection.	

7. To configure the **PPPD** mode parameters, move the cursor to the Detail setting column to highlight **PPP parameters**, and then press **Enter**.

+			+
	Enable	Detail setting	1
TERM_BIN mode	[yes]	[Term parameters	]
PPPD mode	[yes]	PPP parameters	]
SLIPD mode	[yes]	[SLIP parameters	]
Authentication t	суре	[local ]	1
+			+

 The pop-up selector contains input/display fields for Destination IP addr, Source IP address, IP netmask, TCP/IP compression, Inactivity time, Link quality report, Outgoing PAP ID, and, PAP password. Each item is described in detail below the figure.

+-		 	 +
	Destination IP addr	[	1
	Source IP address	[	
	IP netmask	[	
	TCP/IP compression	[no ]	
	Inactivity time	[0 ] minutes	
	Link quality report	[no ]	1
	Outgoing PAP ID	[	1
	PAP password	[	1
	Incoming PAP check	[none ]	
+-			 +

Setting	Value	Notes	Necessity
Destination IP addr	P addr IP address for the You need to assign an IP address for the remote		Required
	remote Dial-in /	user.	
	Dial-out user		
Source IP address	IP address for the port	CN2510 will automatically assign an IP address	Optional
		for the port. We recommend leaving this space	
		blank.	
IP netmask	IP netmask	CN2510 automatically assigns the netmask	Optional
		255.255.255.255. We recommend leaving this	
		space blank.	
TCP/IP	Yes/No	Depends on whether the remote user's	Optional
compression		application requests compression.	
Inactivity time	0-99 minutes	Idle time before the port is disconnected	Optional
		automatically. If set to 0 minutes, the port will	
		not disconnect.	
Link quality report	Yes/No	If you are using software to collect Link quality	Optional
		information, choose YES.	
Outgoing PAP ID	ID	Dial out user/account ID information	Optional
PAP password	Password	Dial out user/account password	Optional

9. To configure the **SLIPD** mode parameters, move the cursor to the Detail setting column to highlight **SLIP parameters**, and then press **Enter**.

+			+
	Enable	Detail setting	
TERM BIN mode	[yes]	[Term parameters	]
PPPD mode	[yes]	[PPP parameters	]
SLIPD mode	[yes]	SLIP parameters	]
Authentication t	ype	[local ]	1
+			+

10. The pop-up selector contains input/display fields for **Destination IP addr**, **Source IP address**, **IP netmask**, **TCP/IP compression**, and **Inactivity time**. Each item is described in detail below the figure.

+-		 	 +
	Destination IP addr	[	
	Source IP address	[	
	IP netmask	[	
	TCP/IP compression	[no ]	
	Inactivity time	[0 ] minutes	
+-		 	 +

Setting	Value	Notes	Necessity
Destination IP addr	IP address for the	You need to assign an IP address for the remote	Required
	remote Dial-in /	user.	
	Dial-out user		

Setting	Value	Notes	Necessity
Source IP address	IP address for the port	CN2510 will automatically assign an IP address	Optional
		for the port. We recommend leaving this space	
		blank.	
IP netmask	IP netmask	CN2510 automatically assigns the netmask	Optional
		255.255.255.255. We recommend leaving this	
		space blank.	
TCP/IP	Yes/No	Depends on whether the remote user's	Optional
compression		application requests compression.	
Inactivity time	0-99 minutes	Idle time before the port is disconnected	Optional
		automatically. If set to 0 minutes, the port will	
		not disconnect.	

11. Press **Esc** to return to the **PORT MENU**.

### **Configuring the Serial Ports**

Open **Port Menu**  $\rightarrow$  **Line** to configure serial port settings.

1. From the **MAIN MENU**, select **Port**, and then press **Enter**.



2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0	PORT MENU
	Ddem Welcome_MSG Quit asynchronous port configuration	
Enter: select	ESC: previous menu	

3. The Line page has pop-up selection lists for Port, Speed, Bits, Stop, Parity, FIFO, RTS/CTS, XON/XOFF, and Discon. ctrl for each serial port. Each item is described in detail below the figure.

CN2510-8			CN2510-8_5631	V2.0			
			e_MSG Quit s port configura	ation			
ESC: back to	menu	Enter:	select				
Port Speed	Bits	Stop	Parity FIFO	RTS/CTS	XON/XOFF	Discon.	ctrl
01 [115200]	[8]	[1]	[None ] [yes]	[yes]	[no ]	[None	]
02 [115200]	[8]	[1]	[None ] [yes]	[yes]	[no ]	[None	]
03 [115200]	[8]	[1]	[None ] [yes]	[yes]	[no ]	[None	]
04 [115200]	[8]	[1]	[None ] [yes]	[yes]	[no ]	[None	]
05 [115200]	[8]	[1]	[None ] [yes]	[yes]	[no ]	[None	]
06 [115200]	[8]	[1]	[None ] [yes]	[yes]	[no ]	[None	]

Setting	Value	Notes			
Speed	50 bps to 921.6 Kbps	Transmission rate			
Bits	5, 6, 7, 8	Data bits			
Stop	1, 1.5, 2	Stop bits			
Parity	None, Even, Odd, Mark, Space	Odd, Even, Mark, Space			
FIFO	Yes, No	First In First Out Device			
RTS/CTS	Yes, No	Hardware Flow Control			

Setting	Value	Notes
XON/XOFF	Yes, No	Software Flow Control
Discon. Ctrl	None	<b>DSR off</b> or <b>DCD off</b> will not be interpreted as a disconnection.
	DSR off	<b>DSR off</b> will be interpreted as a disconnection.
	DCD off	<b>DCD off</b> will be interpreted as a disconnection.

4. Press **ESC** to return to the **PORT MENU**.

# **Configuring Modem Initialization**

Open **Port Menu** → **Modem** to configure modem dial-out initialization and dial-out phone numbers.

1. From the MAIN MENU, use the arrow keys to select Port, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the **PORT MENU**, select **mOdem**, and then press **Enter**.

CN2510-8	,	,	N2510-8_5631	PC	RT M	1ENU
Mode Line Modem init			SG Quit -out setting	 		
Enter: sel	ect ESC:	previous	menu			

3. The **Modem** page has input/display fields for **Enable**, **Initialize**, **Dialup**, and **Phone number** for each serial port. Each item is described in detail below the figure.

CN251	0-8		CN251	0-8_5631	V2.0		PORT MENU
		[mOdem] Welco lization and					
ESC: }		menu Enter:	select				
Port	Enabl	no  ialize		Dial Up		Phone Number	
01 02	[yes]  [no ]+-	<u> </u>	]	[ATD [ATD	] ]	-	]
03 04	[no ] [no ]	-	]	[ATD [ATD	]	[ [	] ]
05	[no ]	[AT	]	[ATD	]	[	]
06 07	[no ] [no ]			[ATD [ATD	]	[	]
08	[no ]	[AT	]	[ATD	]	[	]

Setting	Value	Notes		
Enable	yes/no Enable modem settings			
Initialize	String	Set the modem initial string.		
		E.g., AT&S0 =1 for auto-answer.		
Dial Up String Dial-up AT command		Dial-up AT command		
Phone Number	Number	Set the number you use to dial out		

- **NOTE** The Dial Up and Phone Number settings are only valid under PPP/SLIP mode.
  - 4. Press **Esc** to return to the **PORT MENU**.

### **Optional Welcome Message**

Open **Port Menu** → **Welcome\_MSG** to set up a welcome message to greet dial-in users.

1. From the **MAIN MENU**, use the arrow keys to select **Port**, and then press **Enter**.



2. From the PORT MENU, select Welcome\_MSG, and then press Enter.

CN2510-8 CN2510-8_5631 V2.0	
Mode Line mOdem <mark>[Welcome MSG]</mark> Quit Edit the hello message for Terminal port	
ESC: back to menu Enter: select	++
vvvvvvvvvvvvvvvvvvvvvvvvvvvvvenable hello message : [ no	<mark>no</mark>
<pre><!-- Moxa Async Server -->&gt;&gt;</pre>	yes  vvvvvvvvvvvv ++

- 3. Select **yes** to edit the welcome message.
- 4. Press Esc to return to the PORT MENU.

### **Configuring Optional Local User Information**

Open Server Menu → User\_Table, to configure local user authentication information. If you set Incoming PAP check or Authentication type as Local instead of Server, you will need to configure the User\_table for user authentication. The User\_table page is also used to activate the call-back function.

1. From the MAIN MENU, use the arrow keys to select Server, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	ng sAve Utility Restart Exit server node/table configuration	
Enter: select ESC:	previous menu	
From the CEDVED MENU	relact liese table and then proce Enter	

2. From the SERVER MENU, select User\_table, and then press Enter.

CN2510-	8				Cl	12510-8	3_563	31 V2	.0		SERVER	MENU
Info. I	Lan	Adv.	Host	_table	Rc	oute_ta	able	[User	_table]	Quit		
Examine,	/mod	ify t	he us	ser/pass	SWO:	rd tabl	le					
Enter:	sele	ect	ESC:	previo	us	menu						

3. The **User\_table** page has input fields for **User name**, **Password**, and **Phone Number**, for each serial port. Input a Phone Number to activate the automatic call back function. Note that CN2510 can store information for up to 64 users.

CN2510-	.8		CN2510-8	_5631	V2.0	
			table Route_tak		[User_table]	Quit
Examine	/modify the	use	r/password table	e		
ESC: b	ack to menu	En	ter: select			
Entry	User name		Password		Phone Numbe	er
01	[	]	[	]	[	]
02		]	[	]	[	]
03	[	]	[	]	[	]
04	[	]	[	]	[	]
05		]	[	]	[	]

4. Press **Esc** to return to the **MAIN MENU**.

### Save

When exiting the **SERVER MENU**, you will be prompted to save settings. Press **Y** to save.

CN2510-8 CN2510-8	3_5631 V2.0 SERVER MENU
Info. Lan Adv. Host_table Route_t Examine/modify async server basic co	
Enter: select ESC: previous menu	
+	++
Warning	
	onfiguration without saving.
Would you save it now 3	
Y': yes	'N': no
+	+

You may also save all settings from the **MAIN MENU** by selecting **sAve** and then pressing **Enter**. Press **Enter** again to save, and any other key to cancel.

CN2510-8	CN2510-8_5631 V2.0 MAI	IN MENU
	ting <mark>[sAve]</mark> Utility Restart Exit Figuration to Flash ROM	
ESC: back to menu	Enter: select	
+-  E +-	nter to updated, other key to cancel	

### Restart

1. From the **MAIN MENU**, select **Restart**.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
-	g sAve Utility <mark>[Restart]</mark> Exit stem or selected async ports	
Enter: select ESC:		

2. Select  ${\bf System}$  and then press  ${\bf Enter}$  to restart the system and terminate the Telnet session.

CN253	10-8 CN2510-8_5631 V2.0	
	tem] Port Quit start the Async Server	
ESC:	back to menu Enter: select	
-	Warning !!!       Restart system will disconnect all ports and clear all status value     Enter: continue ESC: cancel	
-	++	

# **Setting Up Printer**

In this chapter, we describe how to set up Moxa CN2510 as a printer server. Up to 16 serial printers can be connected simultaneously to one CN2510. At the end of the chapter, the settings needed for one-port parallel printing is illustrated for both UNIX and Windows systems.

The following topics are covered in this chapter:

- Accessing the Console Utility
- Selecting the Application
- Configuring RAW PRN Mode
- **Configuring LPD PRN Mode**
- Configuring the Serial Ports
- Save
- Restart
- Setting up Unix Hosts
  - Setting up a SCO Unix Host
  - > Setting up a SOLARIS X86 Host
  - > Setting up a LINUX Host
- Setting up Windows Hosts
  - > Setting up a Windows NT Host
  - > Setting up a Windows 2000 Host

## **Accessing the Console Utility**

**NOTE** In this section, we show how to access CN2510's console utility by Telnet over the network. For information on using the console port, see the section "Accessing the Console Utility" in Chapter 2.

1. Telnet over the network to the server's IP address.

Run	? ×			
-	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.			
Open:	telnet 192.168.127.254			
	OK Cancel <u>B</u> rowse			

2. Type 1 to choose ansi/vt100, and then press Enter.

Async Server CN2510-8	
Console terminal type (1: ansi/vt100, 2: vt52) : 1	

3. CN2510's MAIN MENU will open, as shown below.

🗾 Telne	t 192.168.12	7.254					
CN2510-8		Cl	N2510-8_5	5631 V2	.0	MAIN	MENU
	Port seTtin modify async	-	-			 	
Enter: s	elect ESC:	previous	menu				

Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

### **Selecting the Application**

Open **Port Menu**  $\rightarrow$  **Mode** to set up the **Printer** application.

1. From the MAIN MENU, select Port, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0	PORT MENU
	em Welcome_MSG Quit the operation mode of async ports	
Enter: select	ESC: previous menu	

3. The **Mode** page has pop-up selection lists for **Application**, **Mode**, and **Description/more setting** for each serial port. Use the arrow keys to move the cursor to the **Application** column for the port to be configured, and then press **Enter**. We use Port 6 to illustrate.

configured, and then press <b>Enter</b> . we use port 6 to industrate.						
CN2510-8	CN2510-8_5631 V2.0					
[Mode] Line mOdem	Welcome MSG Quit					
Examine/modify the	operation mode of async ports					
_						
ESC: back to menu	Enter: select					
Port Application	Mode Description/more setting					
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
06 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]					

4. Use the up/down arrow keys to select **Printer**, and then press **Enter** to confirm.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem	Welcome MSG Quit
Examine/modify the	operation mode of async ports
ESC: back to menu	Enter: select
Port Application	++ption/more setting
01 [NT Real COM	]  Disable   Server Proprietary Protocol]
02 [NT Real COM	]  Dialin/out   Server Proprietary Protocol]
03 [NT Real COM	]  Terminal   Server Proprietary Protocol]
04 [NT Real COM	]  Reverse Terminal   Server Proprietary Protocol]
05 [NT Real COM	]  Device Control   Server Proprietary Protocol]
06 [NT Real COM	]  Multiplex   Server Proprietary Protocol]
07 [NT Real COM	]  Printer   Server Proprietary Protocol]
08 [NT Real COM	]  Multi-Host TTY   Server Proprietary Protocol]
	]  NT Real COM
	]   DRDAS
	]  Raw UDP
	]++

5. The Dialin/out application supports two operation modes: **RAW PRN** and **LPD PRN**. RAW PRN mode is selected by default.

CN2510-8	CN2510-8	_5631 V2.0
[Mode] Line mOdem Welco	_	
Examine/modify the opera	tion mode of	async ports
ESC: back to menu Ente:	r: select	
Port Application	Mode	Description/more setting
01 [NT Real COM ]	[ASPP ]	[Async Server Proprietary Protocol]
02 [NT Real COM ]	[ASPP ]	] [Async Server Proprietary Protocol]
03 [NT Real COM ]	[ASPP ]	] [Async Server Proprietary Protocol]
04 [NT Real COM ]	[ASPP ]	[Async Server Proprietary Protocol]
05 [NT Real COM ]	[ASPP ]	[Async Server Proprietary Protocol]
06 [Printer ]	[RAW PRN ]	[Raw serial port printer mode ]
07 [NT Real COM ]	[ASPP ]	] [Async Server Proprietary Protocol]

### **Configuring RAW PRN Mode**

1. Move the cursor to the **Mode** column for the port and then press **Enter**.

CN2510-8	CN2510-8_	5631 V2.0		
[Mode] Line mOdem	_ ~			
Examine/modify the operation mode of async ports				
ESC: back to menu	Enter: select			
Port Application	Mode	Description/more setting		
01 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]		
02 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]		
03 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]		
04 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]		
05 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]		
06 [Printer	] [RAW PRN ]	[Raw serial port printer mode ]		
07 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]		

2. Select **RAW PRN**, and then press **Enter**.

```
CN2510-8
                              CN2510-8 5631
                                              V2.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu
                    Enter: select
 Port
     Application
                           Mode
                                          Description/more setting
     [NT Real COM
                          [ASPP
                                          [Async Server Proprietary Protocol]
      [NT
         Real COM
                          [ASPP
                                          [Async Server Proprietary Protocol]
         Real COM
                          [ASPP
                                          [Async Server Proprietary Protocol]
      [NT
 04
         Real COM
                                                 -+rver Proprietary Protocol]
                          [ASPP
                                         RAW PRN |rver Proprietary Protocol]
     [NT Real COM
                          [ASPP
 06
                          [RAW PRN
                                        LPD PRN
                                                  |al port printer mode
     [Printer
                                                                             [NT Real COM
                           [ASPP
                                                  +rver Proprietary Protocol]
      [NT Real COM
                           [ASPP
                                          [Async Server Proprietary Protocol]
```

3. Move the cursor to the Description/more setting column, and then press Enter.

CN2510-8 CN2510-8_5631 V2.0					
[Mode] Line	mOdem Welc	ome_MSG Qui	t		
Examine/modify the operation mode of async ports					
ESC: back to	menu Ente	er: select			
Port Applic	ation	Mode	D	escription/more setting	
01 [NT Rea	1 COM	[ASPP	] [	Async Server Proprietary Protocol]	
02 [NT Rea	l COM	[ASPP	] [	Async Server Proprietary Protocol]	
03 [NT Rea	1 COM	[ASPP	] [	Async Server Proprietary Protocol]	
04 [NT Rea	l COM	[ASPP	] [	Async Server Proprietary Protocol]	
05 [NT Rea	l COM	[ASPP	] [	Async Server Proprietary Protocol]	
06 [Printe	r j	[RAW PRN	] [	Raw serial port printer mode	
07 [NT Rea	l COM	[ASPP	] [	Async Server Proprietary Protocol]	

4. The pop-up selector contains input/display fields for **Group**, **TCP Pcort number**, and **TCP alive check time**. Each item is described in detail below the figure.

+-		 +
	Group	[Group01]
	TCP port number	[2048]
	TCP alive check time	[0 ] minutes
+-		 +

Setting	Value	Notes	Necessity
Group	Group 01-16	Groups printers attached to different ports. Printers in	Optional
		the same group will share the printing load for printing	
		requests to that group of printers. E.g., setting	
		CN2510's serial ports 1, 3, and 6 for Group01 will allow	
		the printers attached to these three ports to act	
		essentially as one printer.	
TCP port number	2048-2063	The host uses this value to determine which Group the	Fixed
		printer attached to this serial port belongs to. These	
		values are fixed, and cannot be changed by the	
		user.	
		Group TCP Port No.	
		01 2048	
		02 2049	
		03 2050	
		16 2063	
TCP alive check	0-99 minutes	The time period CN2510 waits before checking if the Optional	
time		TCP connection is alive or not. If no response is	
		received, CN2510 will reset the port and terminate the	
		connection.	

5. Press **Esc** to return to the **PORT MENU**.

### **Configuring LPD PRN Mode**

1. Move the cursor to the **Mode** column for the port and then press **Enter**.

CN2510-8	CN2510-	-8_5631 V2.0				
[Mode] Line mOdem	[Mode] Line mOdem Welcome_MSG Quit					
Examine/modify the operation mode of async ports						
ESC: back to menu	Enter: select					
Port Application	Mode	Description/more setting				
01 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol	L]			
02 [NT Real COM	] [ASPP	] [Async Server Proprietary Protocol	L]			
03 [NT Real COM	] [ASPP	] [Async Server Proprietary Protoco]	L]			
04 [NT Real COM	] [ASPP	] [Async Server Proprietary Protoco]	L]			
05 [NT Real COM	] [ASPP	] [Async Server Proprietary Protoco]	L]			
06 [Printer	] [RAW PRN	] [Raw serial port printer mode	]			
07 [NT Real COM	] [ASPP	] [Async Server Proprietary Protoco]	L]			

2. Select LPD PRN, and then press Enter.

		-8_5631 V2.0
[Mode] Line mOdem W	elcome_MSG Qui	it
Examine/modify the op	peration mode (	of async ports
ESC: back to menu E	Inter: select	
Port Application 01 [NT Real COM 02 [NT Real COM 03 [NT Real COM 04 [NT Real COM 05 [NT Real COM 06 [Printer 07 [NT Real COM	Mode ] [ASPP ] [ASPP ] [ASPP ] [ASPP ] [ASPP ] [RAW PRN ] [ASPP	Description/more setting [Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol] ]++rver Proprietary Protocol] ]  RAW PRN  rver Proprietary Protocol] ]  LPD PRN  al port printer mode ] ]++rver Proprietary Protocol]
3. Move the cursor to the **Description/more setting** column, and then press **Enter**.

CN251	0-8	CN2510	-8_5	5631 V2.0
[Mode Exam:		Welcome_MSG Qu: operation mode		async ports
ESC:	back to menu	Enter: select		
	Application	Mode		Description/more setting
01 02 03	[NT Real COM [NT Real COM [NT Real COM	] [ASPP ] [ASPP ] [ASPP	]	[Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol]
03 04 05	[NI Real COM [NT Real COM [NT Real COM	] [ASPP ] [ASPP ] [ASPP	]	[Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol]
06 07	[Printer [NT Real COM	] [LPD PRN ] [ASPP	]	[LPD serial port printer mode ] [Async Server Proprietary Protocol]

The pop-up selector contains input/display fields for Queue name <RAW>, Queue name <ASCII>,
 Append Form Feed, and TCP alive check time. Each item is described in detail below the figure.

+	 	 -+
Queue name <raw></raw>	[	
Queue name <ascii></ascii>	[	
Append Form Feed	[Disable]	
TCP alive check time	[0 ] minu	
+	 	 

Setting	Value	Notes	Necessity
Queue name (RAW)	Text	Specify print queue's name (in RAW mode)	Fixed
Queue name (ASCII)	Text	Specify print queue's name (in ASCII mode)	Fixed
Append Form Feed	Enable/Disable	Specify paging	Optional
TCP alive check time	0-99 minutes	The time period CN2510 waits before checking if the TCP connection is alive or not. If no response is received, CN2510 will reset the port and terminate the connection.	Optional

## **Configuring the Serial Ports**

Open **Port Menu**  $\rightarrow$  **Line** to configure serial port settings.

1. From the **MAIN MENU**, select **Port**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	eTting sAve Utility Restart Exit ync server ports configuration	
Enter: select ES	SC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8_5631	V2.0	PORT MENU
Mode [Line] mOdem Welcome Examine/modify asynchronous		 tion	
Enter: select ESC: previo	ıs menu		

3. The Line page has pop-up selection lists for Port, Speed, Bits, Stop, Parity, FIFO, RTS/CTS,

XON/XOFF, and Discon	. ctrl for each serial por	t. Each item is described in de	tail below the figure.
----------------------	----------------------------	---------------------------------	------------------------

CN2510-8		CN2510-8_5631	V2.0		
	mOdem Welcom Ey asynchronou	ne_MSG Quit us port configur	ation		
ESC: back to	menu Enter:	select			
Port Speed 01 [115200] 02 [115200] 03 [115200] 04 [115200] 05 [115200] 06 [115200]	Bits Stop [8] [ 1 ] [8] [ 1 ]	Parity FIFO [None ] [yes] [None ] [yes] [None ] [yes] [None ] [yes] [None ] [yes]	RTS/CTS [yes] [yes] [yes] [yes] [yes] [ves]	XON/XOFF [no ] [no ] [no ] [no ] [no ]	Discon. ctrl [None ] [None ] [None ] [None ] [None ]

Setting	Value	Notes
Speed	50 bps to 921.6 Kbps	Transmission rate
Bits	5, 6, 7, 8	Data bits
Stop	1, 1.5, 2	Stop bits
Parity	None, Even, Odd, Mark, Space	Odd, Even, Mark, Space
FIFO	Yes, No	First In First Out Device
RTS/CTS	Yes, No	Hardware Flow Control
XON/XOFF	Yes, No	Software Flow Control
Discon. Ctrl	None	DSR off or DCD off will not be interpreted as a
		disconnection.
	DSR off	<b>DSR off</b> will be interpreted as a disconnection.
	DCD off	<b>DCD off</b> will be interpreted as a disconnection.

4. Press **ESC** to return to the **PORT MENU**.

### Save

When exiting the **SERVER MENU**, you will be prompted to save settings. Press **Y** to save.

Info. Lan Adv. Host_table Route_table [User_table] Quit Examine/modify async server basic configuration Enter: select ESC: previous menu	
Enter: select ESC: previous menu	
++	
Warning !!!	
You had modified the configuration without saving.	
Would you save it now ?	
'Y': yes 'N': no	
++	

You may also save all settings from the **MAIN MENU** by selecting **sAve** and then pressing **Enter**. Press **Enter** again to save, and any other key to cancel.

CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
Server Port seTting <mark>[sAve]</mark> Utility Restart Exit Save current configuration to Flash ROM	
ESC: back to menu Enter: select	
++	
Enter to updated, other key to cancel	
++	

### Restart

1. From the MAIN MENU, select Restart.

```
      CN2510-8
      CN2510-8_5631
      V2.0
      MAIN MENU

      Server Port seTting sAve Utility [Restart] Exit
      Exit

      Restart the whole system or selected async ports

      Enter: select ESC: previous menu
```

2. Select System and then press Enter to restart the system and terminate the Telnet session.

CN2510-8	CN2510-8_5631	V2.0
[System] Port Qu	it	
Restart the Async	c Server	
ESC: back to menu	Enter: select	
+		+ Warning !!!
Restart syst		t all ports and clear all status value
	Enter: cont	tinue ESC: cancel
+		+

## **Setting up Unix Hosts**

UNIX uses the RLP program for remote parallel printing. For serial printing, Moxa provides the asprint utility program, which consists of two files, asprint.c and asprint.mak. First uncompress printer.tar.Z to the \printer directory, and then locate the files asprint.c and asprint.mak. To compile and link, you may need to modify the source file asprint.c. For instance, in SCO UNIX you must link to the libnls.a library, in Solaris to libnsl.a, and in Venix to the libnsl s.a.

#### Setting up a SCO Unix Host

Steps	SCO UNIX Command	Description
Uncompress all programs	#uncompress print.tar.Z	
Uncompress printer.tar.Z	#tar xvf printer.tar	
to ./printer		
compile/link	#make -f sco_unix.mak	
make printer node	#mknod /dev/iop1 p	Create a unique pipe name for each printer
		group. Since there are 16 groups of TCP port
		numbers (from 2048 to 2063), you need to
		create 16 respective pipe names. For
		example: iop1, iop2, iop3, etc.
set it to printer	#chown lp /dev/iop1	Change the pipe owner to 1p
set rw	#chmod 600 /dev/iop1	Change access permission to 600 or rw
set printer name	#/usr/lib/lpadmin -pLaser1	Redirect the printer spooler to write to pipe
	-v/dev/iop1	'iop1'. Assumes the printer name is Laser1.
execute asprint for Group 01	#./asprint /dev/iop1	Start 'asprint' utility to read from pipe 'iop1'
	'CN2510 IP address' 2048 &	and write to the CN2510 printer port.
		'/dev/iop1': the device name the spooler is
		writing to.
		'CN2510': the host name of the CN2510 as
		defined in /etc/hosts, or its IP address.
		`2048': the TCP port number (Group01) of the
		printer port on the CN2510.
accept printer Laser1	#/usr/lib/accept Laser1	Set Laser 1 to accept print request.
enable Laser1	#enable Laser1	enable Laser1
print file to Laser1	<pre>#lp -dLaser1 file_name</pre>	send print job to the CN2510
Repeat		Repeat the above steps to set up another
		printer. For printers in the same group, it is not
		necessary to repeat every step.

#### Setting up a SOLARIS X86 Host

Steps	SCO UNIX Command	Description
Set free the occupied Floppy disk	<pre>#/etc/init.d/volmgt stop</pre>	
Uncompress all programs	#tar /dev/fd0 ./	
Uncompress printer.tar.Z	#tar xvf printer.tar.Z	
to ./printer		
compile/link	#make -f sco_unix.mak	
make printer node	#mknod /dev/iop1 p	Create a unique pipe name for each printer
		group. Since there are 16 groups of TCP port
		numbers (from 2048 to 2063), you need to
		create 16 respective pipe names. For
		example: iop1, iop2, iop3, etc.
set it to printer	#chown lp /dev/iop1	Change the pipe owner to 1p
set rw	#chmod 600 /dev/iop1	Change access permission to 600 or rw
set printer name	#/usr/lib/lpadmin -pLaser1	Redirect the printer spooler to write to pipe
	-v/dev/iop1	'iop1'. Assumes the printer name is Laser1.
execute asprint for Group 01	#/asprint /dev/iop1	Start 'asprint' utility to read from pipe 'iop1'
	'CN2510 IP address' 2048 &	and write to the CN2510 printer port.
		'/dev/iop1': the device name the spooler is
		writing to.
		'CN2510': the host name of the CN2510 as
		defined in /etc/hosts, or its IP address.
		`2048': the TCP port number (Group01) of the
		printer port on the CN2510.
accept printer Laser1	#/usr/lib/accept Laser1	Set Laser 1 to accept print request.
enable Laser1	#enable printer Laser1	enable Laser1
print file to Laser1	<pre>#lp -dLaser1 file_name</pre>	send print job to the CN2510
Repeat		Repeat the above steps to set up another
		printer. For printers in the same group, it is not
		necessary to repeat every step.

#### Setting up a LINUX Host

Steps	SCO UNIX Command	Description
Uncompress all programs	#tar /dev/fd0 ./	
Uncompress printer.tar.Z	#tar xvf printer.tar.Z	
to ./printer		
compile/link	#make -f sco_unix.mak	
make printer node	#mknod /dev/iop1 p	Create a unique pipe name for each printer
		group. Since there are 16 groups of TCP port
		numbers (from 2048 to 2063), you need to
		create 16 respective pipe names. For
		example: iop1, iop2, iop3, etc.
set it to printer	#chown lp /dev/iop1	Change the pipe owner to 1p
set rw	#chmod 600 /dev/iop1	Change access permission to 600 or rw
set printer name	#/usr/lib/lpadmin -pLaser1	Redirect the printer spooler to write to pipe
	-v/dev/iop1	'iop1'. Assumes the printer name is Laser1.
	add one line to /etc/printcap	
	file	
	Laser1:lp=/dev/iop1,sd=/u	
	sr/spool/Laser1	
make spool directory	#mkdir /usr/spool/Laser1	
execute asprint for Group 01	#/asprint /dev/iop1	Start 'asprint' utility to read from pipe 'iop1'
	'CN2510 IP address' 2048 &	and write to the CN2510 printer port.
		'/dev/iop1': the device name the spooler is
		writing to.
		'CN2510': the host name of the CN2510 as
		defined in /etc/hosts, or its IP address.
		`2048': the TCP port number (Group01) of the
		printer port on the CN2510.
accept printer Laser1	<pre>#lpr -PLaser1 file_name.txt</pre>	Set Laser 1 to accept print request.
Repeat		Repeat the above steps to set up another
		printer. For printers in the same group, it is not
		necessary to repeat every step.

### **Setting up Windows Hosts**

Windows uses the LPD/LPR application to access printers. Moxa provides LPD PRN mode for serial printing. In this section, we explain how to install a LPD/LPR printer in a Windows NT/2000 environment to access a serial printer connected to a CN2510 Async Server.

#### Setting up a Windows NT Host

- 1. First, you need to add TCP/IP printing service to your Windows NT.
- 2. Go to **Start** → **Settings** → **Control Panel** → **Network**. Click on the **Services** tab, and then select **Add**.

Microsoft DHCP Server		×
Network Monitor Tools and     Remote Access Service     RPC Configuration     Server     Vorkstation	Agent	
Add Detenpoon Distributed protocol required for	Properties	Lipitete Mer Browser
service.		

3. Select Microsoft TCP/IP Printing, and then click on OK to continue.



- 4. Insert the Windows NT installation CD to your computer's CD driver.
- 5. After the Microsoft TCP/IP Printing service is added, reboot your computer.

6. At this point, you can start configuring your LPR/LPD Printer.

7. Click on **Start**  $\rightarrow$  **Settings**  $\rightarrow$  **Printers**.



8. Click on Add Printer to start the Add Printer Wizard.



9. Select My Computer, and then click on Next to continue.



10. In the window that opens next, click on Add Port.

	Available ports:	print to the first av	alable checked	port.
	Port	Description	Printer	
	C LETTI	Local Port		- 2
	LPT2	Local Port		
	LPT3	Local Port		
	CDM1:	Local Port		
	COM2	Local Port		
	COM3	Local Port		1
×\$	Add Por	-	Configure P	ort
	Enable prin	ter pooling		

11. Select LPR Port. Click on New Port....

rinter Ports	?
Available Printer Ports:	
Digital Network Port Lexmark DLC Network Port Lexmark TCP/IP Network Port Local Port LPR Port	
	New Monitor

12. Enter CN2510's IP Address, and then enter the Print Queue's name. Click on **OK** to continue.

Add LPR compatible printer		×
Name or address of server providing lpd:	192.168.1.5	OK
Name of printer or print queue on that server:	ascii_3_d	Cancel
		<u>H</u> elp

13. Select **logical printer port** for the LPR port you just added. The LPF port should be the IP address of the port.

A REAL	Available ports:			
K	Port	Description	Printer	
	✓ 192.168.1	1.5		
(	LPT1:	Local Port		
	LPT2	Local Port		
2	LPT3:	Local Port		
	COM1:	Local Port		
	COM2:	Local Port		
	Add Port		Configure P	Port
	Enable print	her pooling		

14. Select the printer's manufacturer and model name. Click on **Next** to continue.

💓 installation disk	facturer and model of your printer. If your printer can , click Have Disk. If your printer is not listed, consu ntation for a compatible printer.	
<u>1</u> anufacturers:	Printers:	
Diconix Digital Epson Fujitsu GCC Generic Gestetner	Generic / Text Only     Generic IBM Graphics 9pin     Generic IBM Graphics 9pin wide	
	Hav	e Disk
	<back next=""></back>	Cancel

15. Enter the printer's name, and select **yes** if you wish to set this printer as the default printer. Click on **Next** to continue.



16. Select **Shared** when prompted with questions asking if the printer is to be shared or not, and then enter the name of the shared printer.

Indicate whether this printer will be shared with other network users. If you choose sharing give this printer a share name.
C Shared C Not shared Share Name:
Windows 95 Windows NT 4.0 MIPS Windows NT 4.0 Alpha Windows NT 4.0 PPC

17. Print a test page to verify that the printer is configured correctly, and then click on **OK** to finish.

#### Setting up a Windows 2000 Host

1. Click on Start  $\rightarrow$  Settings  $\rightarrow$  Printers.



2. Click on Add Printer to start and Add Printer Wizard.

3. A Welcome message will appear. Click on **Next** to continue.

Add Printer Wizard	
	Welcome to the Add Printer Wizard This wizard helps you install a printer or make printer connections. To continue, click Next.
	< <u>B</u> ack Cancel

4. Select Local printer, and click on Next to continue.

ld Printer Wizard		
Local or Network Printer Is the printer attached to your computer?		
If the printer is directly attached to your cor another computer, or directly to the networ Local printer		ed to
🔲 Automatically detect and install my	Plug and Play printer	
C N <u>e</u> twork printer		
	< <u>B</u> ack <u>N</u> ext>	Cancel

5. Select Create a new port:, and then select LPR Port from the drop down list. Click on Next to continue.

elect the Print Computers cor	er Port mmunicate with printers	through ports.		
Select the port new port.		ouse. If the port is no	t listed, you can create a	i.
Port	Description	Printer		
LPT1: LPT2: LPT3: COM1: COM2: COM3:	Printer Port Printer Port Printer Port Serial Port Serial Port Serial Port			
- 12 - 10 - 10 - 10 - 10 - 10 - 10 - 10	t computers use the LP <sup>-</sup>	1: port to communica	te with a local printer.	
Create a no	1997-1997-1997 - 19 <mark>9</mark>			
Туре:	LPR Port		<b>_</b>	
	AppleTalk P Local Port	rinting Devices	<u> </u>	
	LPR Port			

6. Enter CN2510's IP Address, and then enter the Print Queue's name. Click on **OK** to continue.

Add LPR compatible printer		×
Name or address of server providing lpd:	192.168.1.1	ОК
Name of printer or print queue on that server:	ascii_4	Cancel
	,	Help

7. Select the printer's manufacturer and model name. Click on **Next** to continue.

dd Printer Wizard	
Add Printer Wizar The manufactur	rd er and model determine which printer to use.
	anufacturer and model of your printer. If your printer came with an installation ave Disk. If your printer is not listed, consult your printer documentation for a inter. Printers:
Diconix Digital Epson Fujitsu GCC Generic Gestelber	Generic / Text Only     Generic IBM Graphics Spin     Generic IBM Graphics Spin wide     MS Publisher Color Printer     MS Publisher Imagesetter
	Windows Update Have Disk
	< <u>B</u> ack <u>N</u> ext > Cancel

8. Enter the printer's name, and select yes if you wish to set this printer as the default printer. Click on **Next** to continue.

d Printer Wizard			
Name Your Printer			D
You must assign a name for this printer.			×
Supply a name for this printer. Some progr combinations of more than 31 characters.	ams do not support	server and print	er name
Printer name:			
Your Name here			
Do you want your Windows-based program	ms to use this printe	r as the default	printer?

9. Select **Shared** when prompted with questions asking if the printer is to be shared or not, and then enter the name of the shared printer. Click on **Next** to continue.

Add Printer Wizard	
Printer Sharing You can share	this printer with other network users.
	er you want this printer to be available to other users. If you share this st provide a share name.
C Do not sha	re this printer
Share as:	YourName
	<back next=""> Cancel</back>

10. You will need to reboot Windows 2000 to enable the printer you just added. When asked if you want to print a test page, select **No**. Click on **Next** to continue.

dd Printer Wizard			
Print Test Page To confirm that the printer is installed pr	operly, you can print	a test page.	
Do you want to print a test page?			
C Yes			
• No			
	< <u>B</u> ack	<u>N</u> ext >	Cancel
		w	

11. If you want to print a test page, reboot Windows 2000, select this printer, and click on **Print Test Page**.



# **Setting Up Multiplex**

In this chapter, we describe how to configure Moxa CN2510 as a Multiplexor and De-Multiplexor. Using the Multiplexor/De-Multiplexor application requires two Async Servers—one attached to a host with a multi-port serial board and several serial lines, and the other connected to external devices. In this way, the original host can use a TCP/IP connection to control serial devices from a remote location.

The following topics are covered in this chapter:

- Accessing the Console Utility
- Selecting the Application
- Configuring the "Host" CN2510
- Configuring the "Device" CN2510
- Configuring the Serial Ports
- Save
- Restart

## **Accessing the Console Utility**

**NOTE** In this section, we show how to access CN2510's console utility by Telnet over the network. For information on using the console port, see the section "Accessing the Console Utility" in Chapter 2.

1. Telnet over the network to the server's IP address.

Run	? ×
	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	telnet 192.168.127.254
	OK Cancel <u>B</u> rowse

2. Type 1 to choose ansi/vt100, and then press Enter.

🗾 Telnet 192.168.127.	54	
Async Server CN2510-8		
Console terminal type	1: ansi/vt100, 2: vt52) : 1	

3. CN2510's MAIN MENU will open, as shown below.

🗾 Telnet 192.168.127.254		
CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
[Server] Port seTting sA Examine/modify async serve	ve Utility Restart Exit er node/table configuration	
Enter: select ESC: previ	ous menu	

Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

### **Selecting the Application**

The Multiplex application uses two Async Servers. One of the servers (called the "host" CN2510) is attached to a host with a multi-port serial board and mutiple serial lines. The other server (called the "device" CN2510) is connected to external serial devices. In this way, one host can use a TCP/IP connection to control multiple serial devices from a remote location. We use ports 5, 6, 7, and 8 on both CN2510's to illustrate.



**NOTE** Configure the "Host" CN2510's serial ports for RTELNET mode, and configure the "Device" CN2510's serial ports for TERM\_BIN mode.

## Configuring the "Host" CN2510

Open **Port Menu**  $\rightarrow$  **Mode** to select the **Multiplex** application.

1. From the MAIN MENU, select Port, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

	-,	
CN2510-8	CN2510-8_5631 V2.0	PORT MENU
[Mode] Line m(	Odem Welcome MSG Quit	
Examine/modify	the operation mode of async ports	
Enter: select	ESC: previous menu	

 The Mode page has pop-up selection lists for Application, Mode, and Description/more setting for each serial port. Use the arrow keys to move the cursor to the Application column for the port to be configured, and then press Enter. We first use Port 6 to illustrate.

CN251(	)-8				CN	2510	-8_5631	V2.0			
	·			Welco: opera		~	it of asyn	c ports			
ESC:	back	to	menu	Enter	: sel	.ect					
Port	App]	licat	tion		Mode		Descrip	ption/m	ore setting		
01	[NT H	Real	COM	]	[ASPP	]	[Async	Server	Proprietary	Protocol]	
02	[NT H	Real	COM	]	[ASPP	]	[Async	Server	Proprietary	Protocol]	
03	[NT H	Real	COM	]	[ASPP	]	[Async	Server	Proprietary	Protocol]	
04	[NT H	Real	COM	]	[ASPP	]	[Async	Server	Proprietary	Protocol]	
05	[NT I	Real	COM	]	[ASPP	]	[Async	Server	Proprietary	Protocol]	
06	NT I	Real	COM	]	[ASPP	]	[Async	Server	Proprietary	Protocol]	
07	[NT I	Real	COM	]	[ASPP	]	[Async	Server	Proprietary	Protocol]	

4. Use the up/down arrow keys to select **Multiplex**, and then press **Enter**.

CN2510-8			CN2510-8_5631	V2.0				
[Mode] I	[Mode] Line mOdem Welcome MSG Quit							
Examine/	modify	the opera	tion mode of async	ports				
ESC: bac	ck to me	nu Enter	: select					
Port Ap	plicati	on +		-+ption/more setting				
01 [N	- T Real (	COM ]	Disable	Server Proprietary Protocol]				
02 [N	T Real (	COM ]	Dialin/out	Server Proprietary Protocol]				
03 [N	T Real (	COM ]	Terminal	Server Proprietary Protocol]				
04 [N	T Real (	COM ]	Reverse Terminal	Server Proprietary Protocol]				
05 [N	T Real (	COM ]	Device Control	Server Proprietary Protocol]				
06 [N	T Real (	COM ]	Multiplex	Server Proprietary Protocol]				
07 [N	T Real (	COM ]	Printer	Server Proprietary Protocol]				
08 [N	T Real (	COM ]	Multi-Host TTY	Server Proprietary Protocol]				
		]	NT Real COM					
		]	Raw UDP					
		] -	+	-+				

 The Multiplex application supports two operation modes: RTELNET and TERM\_BIN. RTELNET mode is selected by default. For the "Host" CN2510, use RTELNET mode.

CN2510	CN2510-8 CN2510-8_5631 V2.0						
[Mode]	Line mOdem	Welcome MSG Quit					
Exami	ne/modify the	operation mode of	async ports				
ESC:	back to menu	Enter: select					
Port	Application	Mode	Description/more setting				
01	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]				
02	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]				
03	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]				
04	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]				
05	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]				
06	[Multiplex	] [RTELNET ]	[Reverse Telnet mode ]				
07	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]				
08	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]				

**NOTE** Reverse Telnet, or RTELNET, supports the Telnet program used by Ethernet hosts to login to serial hosts. Ethernet hosts recognize serial ports by the specified source IP address, or by the TCP port number followed by CN2510's IP address.

6. Move the cursor to the **Description/more setting** column, and then press **Enter**.

CN251	0-8	Cl	2510-8_5	631 V2.0			
-	[Mode] Line mOdem Welcome_MSG Quit Examine/modify the operation mode of async ports						
ESC:	back to menu	Enter: se	.ect				
	Application	Mode		Description/more setting			
01	[NT Real COM	] [ASPF	]	[Async Server Proprietary Protocol]			
02	[NT Real COM	] [ASPF	]	[Async Server Proprietary Protocol]			
03	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]			
04	[NT Real COM	] [ASPF	]	[Async Server Proprietary Protocol]			
05	[NT Real COM	] [ASPF	]	[Async Server Proprietary Protocol]			
06	[Multiplex	] [RTEL	NET ]	[Reverse Telnet mode ]			
07	[NT Real COM	] [ASPF	]	[Async Server Proprietary Protocol]			
8 0	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]			

7. The pop-up selector contains input/display fields for TCP port, Source IP address, Destination IP addr, Inactivity time, Map keys <CR-LF> to, Authentication type, and TCP alive check time. Each item is described in detail below the figure.

+-		 	 +
1	TCP port	[4006 ]	
1	Source IP address	[	1
1	Destination IP addr	[	1
1	Inactivity time	[0 ] minutes	
1	Map keys <cr-lf> to</cr-lf>	[CR-LF]	
	Authentication type	[none ]	
	TCP alive check time	[0 ] minutes	
+		 	 

Setting	Value	Notes	Necessity
TCP port	number	Each of CN2510's serial ports is mapped to a TCP	Required
		port. To avoid conflicts with the TCP port numbers	
		for CN251's other serial ports, use the default	
		values: 4001 for port 1, 4002 for port 2, etc.	
Source IP address	IP address for	Specify an IP address for this port for application	Optional
	the port	purposes. If left blank, CN2510 will use its own IP	
		address, in which case you will need to specify	
		different TCP port numbers for different serial	
		ports.	
Destination IP addr	IP address	Assign a host IP address on the LAN for exclusive	Optional
		port access. If left blank, all hosts on the network	
		will have access to this port.	
Map Keys	CR/LF/CR-LF	When you enter the string <cr-lf>, CN2510 will</cr-lf>	Optional
<cr-lf> to</cr-lf>		determine whether to send <cr>, <lf>, or</lf></cr>	
		<cr-lf>.</cr-lf>	
Inactivity time	0-99 minutes	Idle time before the port is disconnected	Optional
		automatically. If set to 0 minutes, the port will not	
		disconnect.	
Authentication type	None/local	<b>None:</b> Authentication is not required.	Optional
	/server	local: Check the ID stored in the User_table	
		(defined under the SERVER MENU).	
		Server: Check the ID with the external RADIUS	
		server. Refer to Appendix C for RADIUS	
		installation information.	
TCP alive check time 0-99 minutes		The time period CN2510 waits before checking if	Optional
		the TCP connection is alive or not. If no response is	
		received, CN2510 will reset the port and terminate	
		the connection.	

8. Repeat the previous steps for ports 5, 7, and 8.

•		1 7 7	
CN251	0-8	CN2510-8_5	5631 V2.0
[Mode	-	Welcome_MSG Quit	
Exam	ine/modify the	operation mode of a	async ports
ESC:	back to menu	Enter: select	
Dowt	Application	Mode	Description/more setting
Port	Application	Mode	Description/more setting
01	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
02	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
03	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
04	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
05	[Multiplex	] [RTELNET ]	[Reverse Telnet mode ]
06	[Multiplex	] [RTELNET ]	[Reverse Telnet mode ]
07	[Multiplex	] [RTELNET ]	[Reverse Telnet mode ]
8 0	Multiplex	] [RTELNET ]	[Reverse Telnet mode ]

## Configuring the "Device" CN2510

1. From the MAIN MENU, select Port, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the PORT MENU, select Mode, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	PORT MENU
[Mode] Line mOdem Examine/modify the	Welcome_MSG Quit operation mode of async ports	
Enter: select ESC	: previous menu	

3. The **Mode** page has pop-up selection lists for **Application**, **Mode**, and **Description/more setting** for each serial port. Use the arrow keys to move the cursor to the **Application** column for the port to be configured, and then press **Enter**. We first use Port 6 to illustrate.

configured, and then press <b>Litter</b> . We first use Fort o to indicate.								
CN2510-8	CN2510-8_5631 V2.0							
<u></u>								
[Mode] Line mOdem We	elcome_MSG Quit							
Examine/modify the op	peration mode of async ports							
ESC: back to menu Er	nter: select							
Port Application	Mode Description/more setting							
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]							
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]							
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]							
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]							
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]							
06 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]							
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]							

4. Use the up/down arrow keys to select **Multiplex**, and then press **Enter** to confirm.

						p		
CN2510	S−C			CN2510-8_5631	7	V2.0		
			1					
[Mode]			—					
Exami	lne/modify	the op	eratio	n mode of asyn	ср	orts		
					_			
ESC:	back to me	enu Er	nter	select				
Port	Applicati	on	+		+3	ption/m	ore setting	
01	[NT Real	COM	]  Di	isable		Server	Proprietary	Protocol]
02	[NT Real	COM	]  Di	ialin/out		Server	Proprietary	Protocol]
03	[NT Real	COM	]  Te	erminal		Server	Proprietary	Protocol]
04	[NT Real	COM	]  Re	everse Termina	1	Server	Proprietary	Protocol]
05	[NT Real	COM	]  De	evice Control		Server	Proprietary	Protocol]
06	[NT Real	COM	]   Mu	ultiplex		Server	Proprietary	Protocol]
07	[NT Real	COM	]  Pi	rinter		Server	Proprietary	Protocol]
08	[NT Real	COM	]  Mu	ulti-Host TTY		Server	Proprietary	Protocol]
			]  N1	I Real COM				
			]  Rā	aw UDP				
			]+		+			

5. The Multiplex application supports two operation modes: **RTELNET** and **TERM\_BIN**. RTELNET mode is selected by default. For the "Device" CN2510, select **TERM\_BIN** mode.

CN2510-8	CN2510-8_	5631 V2.0					
	[Mode] Line mOdem Welcome_MSG Quit Examine/modify the operation mode of async ports						
-	-						
ESC: back to menu	Enter: Select						
Port Application 01 [NT Real COM 02 [NT Real COM 03 [NT Real COM	Mode ] [ASPP ] ] [ASPP ] ] [ASPP ]	Description/more setting [Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol]					
04 [NT Real COM 05 [NT Real COM 06 [ <mark>Multiplex</mark> 07 [NT Real COM	] [ASPP ] ] [ASPP ] ] [RTELNET ] ] [ASPP ]	[Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Reverse Telnet mode ] [Async Server Proprietary Protocol]					
08 [NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]					

6. Move the cursor to the **Mode** column for the port and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem	Welcome MSG Ouit
	e operation mode of async ports
ESC: back to menu	Enter: select
Port Application	Mode Description/more setting
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
05 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
06 [Multiplex	] [ <mark>RTELNET</mark> ] [Reverse Telnet mode ]
07 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
08 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]

7. Use the arrow keys to highlight **TERM\_BIN**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0
[Mode] Line mOdem	Welcome_MSG Quit
Examine/modify the	operation mode of async ports
ESC: back to menu	Enter: select
Port Application	Mode Description/more setting
01 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
02 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
03 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]
04 [NT Real COM	] [ASPP ]++rver Proprietary Protocol]
05 [NT Real COM	] [ASPP ]  RTELNET  rver Proprietary Protocol]
06 [Multiplex	] [RTELNET ]  <mark>TERM BIN</mark>  Telnet mode ]
07 [NT Real COM	] [ASPP ]++rver Proprietary Protocol]
08 [NT Real COM	] [ASPP ] [Async Server Proprietary Protocol]

8. The next step is to configure the **TERM\_BIN** parameters.

CN251	0-8	CN25	10-8_	5631 V2.0
[Mode]	Line mOdem	Welcome MSG	Quit	
Exami	ine/modify the	operation mod	~ e of	async ports
ESC:	back to menu	Enter: selec	t	
Port	Application	Mode		Description/more setting
01	[NT Real COM	] [ASPP	1	[Async Server Proprietary Protocol]
02	[NT Real COM	] [ASPP	ĺ	[Async Server Proprietary Protocol]
03	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]
04	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]
05	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]
06	[Multiplex	] [TERM_B	IN	[Binary Terminal mode (1 session) ]
07	[NT Real COM	] [ASPP	]	[Async Server Proprietary Protocol]
08	[NT Real COM	1 [ASPP	1	[Async Server Proprietary Protocol]

**NOTE** Terminal Binary, or TERM\_BIN mode, supports automatic link to Ethernet hosts for Terminal or Telnet users by redirecting Telnet requests to the specified Ethernet host. Below we describe how to set auto-link host and login ID information. Auto-linking one TERM\_BIN port to a port in RTELNET mode provides a transparent link through the network.

9. Move the cursor to the **Description/more setting** column, and then press **Enter**.

CN251	0-8	CN2510-8_	5631 V2.0
[Mode Exam	3	Welcome_MSG Quit operation mode of	async ports
ESC:	back to menu	Enter: select	
Port 01 02 03 04 05	Application [NT Real COM [NT Real COM [NT Real COM [NT Real COM [NT Real COM	Mode ] [ASPP ]	Description/more setting [Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol]
05 06 07 08	[NT Real COM [Multiplex [NT Real COM [NT Real COM	] [ASPP ] ] [TERM_BIN ] ] [ASPP ] ] [ASPP ]	[Async Server Proprietary Protocol] [Binary Terminal mode (1 session) ] [Async Server Proprietary Protocol] [Async Server Proprietary Protocol]

 The pop-up selector contains input/display fields for Quit key, Auto-link protocol, Link by input IP, Auto-login prompt, Terminal type, Inactivity time, Authentication type, and TCP alive check time. Each item is described in detail below the figure.

+	 	+
Quit key	[^E]	
Auto-link protocol	[none ]	
Telnet TCP port	[23 ]	1
Primary host IP	[	]
Link by input IP	[Disable]	1
Secondary host IP	[	]
Auto-login prompt	[ogin:	]
Password prompt	[assword:	]
Login user name	[	]
Login password	[	]
Terminal type	[ansi ]	
Inactivity time	[0 ] minutes	
Authentication type	[local ]	
TCP alive check time	[0 ] minutes	
+	 	+

Setting	tting Value Notes		Necessity	
Quit Key	^E	Defines the Quit key used to disconnect the link	Optional	
		between the current terminal session and the		
		remote host. It may be left blank for binary		
		communication.		
Auto-link protocol	None/Telnet/	None: Do not connect to the host	Optional	
	Rlogin	automatically.		
		Telnet: Connects to the host automatically by		
		Telnet.		
		<b>Rlogin:</b> Connects to the host automatically by		
		Rlogin.		
Telnet TCP port	23	By default, the Telnet TCP port number is set to	Optional	
		23, which is the default TCP port number for		
		Telnet. If you need to telnet to this CN2510 serial		
		port, set the Telnet TCP port to a different		
		number. We recommend using 4001, 4002, etc.		
		for ports 1, 2, etc. to avoid conflicts with other		
		ports.		
Primary host IP IP address or If specified, designation		If specified, designates a 'permanent' host to	Optional	
	the name	which the terminal will always be connected.		
	defined in the			
	[Host] table			
Link by input IP	Enable/	For users to enter the connection IP address	Optional	
	Disable	manually.		
Secondary host IP	IP address or	If specified, designates a secondary 'permanent'	Optional	
	the name	host to which the terminal will be connected.		
	defined in the			
	[Host] table.			
Auto-login prompt	ogin:	Send ID information when this prompt is	Optional	
		received.		
Password prompt	assword:	Send Password information when this prompt is	Optional	
	_	received		
Login user name		Login ID	Optional	
Login password		Login Password	Optional	
Terminal type	ansi	Terminal type for outgoing connection	Optional	
Inactivity time	0-99 minutes	Idle time before the port is disconnected	Optional	
		automatically. If set to 0 minutes, the port will		
		not disconnect.		

Setting	Value	Notes	Necessity
Authentication type	None/local/	<b>None:</b> Authentication is not required.	Optional
	server	<b>local:</b> Check the ID stored in the User_table	
		(defined under the SERVER MENU).	
		Server: Check the ID with the external	
		RADIUS server. Refer to Appendix C for RADIUS	
		installation information.	
TCP alive check time	0-99 minutes	The time period CN2510 waits before checking if	Optional
		the TCP connection is alive or not. If no response	
		is received, CN2510 will reset the port and	
		terminate the connection.	

11. Repeat the previous steps for ports 5, 7, and 8.

CN251	0-8	CN2510-8	_5631 V2.0
-	2	Welcome_MSG Quit	
Exam:	ine/modify the	operation mode of	async ports
ESC:	back to menu	Enter: select	
Port	Application	Mode	Description/more setting
01	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
02	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
03	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
04	[NT Real COM	] [ASPP ]	[Async Server Proprietary Protocol]
05	[Multiplex	] [TERM BIN]	[Binary Terminal mode (1 session) ]
06	[Multiplex	] [TERM_BIN]	[Binary Terminal mode (1 session) ]
07	[Multiplex	] [TERM_BIN]	[Binary Terminal mode (1 session) ]
08	[Multiplex	] [TERM BIN]	[Binary Terminal mode (1 session) ]

## **Configuring the Serial Ports**

Open **Port Menu**  $\rightarrow$  **Line** to configure serial port settings.

1. From the **MAIN MENU**, select **Port**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting sAve Utility Restart Exit async server ports configuration	
Enter: select	ESC: previous menu	

2. From the **PORT MENU**, select **Mode**, and then press **Enter**.

CN2510-8	CN2510-8_5631 V2.0	PORT	MENU
Mode [Line] mOdem Welcome Examine/modify asynchronous			
Enter: select ESC: previo	us menu		
Enter: select ESC: previo	us menu		

3. The Line page has pop-up selection lists for Port, Speed, Bits, Stop, Parity, FIFO, RTS/CTS,

XON/XOFF, and Discon.	. ctrl for each serial p	ort. Each item is described ir	detail below the figure.
-----------------------	--------------------------	--------------------------------	--------------------------

CN2510-8		CN2510-8_5631	V2.0		_
. ,	mOdem Welcom Ty asynchronou	e_MSG Quit s port configura	ation		
ESC: back to	menu Enter:	select			
Port Speed	Bits Stop	Parity FIFO	RTS/CTS	XON/XOFF	Discon. ctrl
01 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]
02 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]
03 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]
04 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]
05 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]
06 [115200]	[8] [1]	[None ] [yes]	[yes]	[no ]	[None ]

Setting	Value	Notes
Speed	50 bps to 921.6 Kbps	Transmission rate
Bits	5, 6, 7, 8	Data bits
Stop	1, 1.5, 2	Stop bits
Parity	None, Even, Odd, Mark, Space	Odd, Even, Mark, Space
FIFO	Yes, No	First In First Out Device
RTS/CTS	Yes, No	Hardware Flow Control
XON/XOFF	Yes, No	Software Flow Control
Discon. Ctrl	None	DSR off or DCD off will not be interpreted as a
		disconnection.
	DSR off	<b>DSR off</b> will be interpreted as a disconnection.
	DCD off	<b>DCD off</b> will be interpreted as a disconnection.

4. Press **ESC** to return to the **PORT MENU**.

### Save

When exiting the **SERVER MENU**, you will be prompted to save settings. Press **Y** to save.

CN2510-8 CN2510-8_5631 V2.0	SERVER	MENU
Info. Lan Adv. Host_table Route_table [User_table] Quit Examine/modify async server basic configuration		
Enter: select ESC: previous menu		
+	F	
Warning !!!		
You had modified the configuration without saving.		
Would you save it now ?		
∣ 'Y': yes 'N': no		
+	ł	

You may also save all settings from the **MAIN MENU** by selecting **sAve** and then pressing **Enter**. Press **Enter** again to save, and any other key to cancel.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	seTting <mark>[sAve]</mark> Utility Restart Exit configuration to Flash ROM	
ESC: back to a	menu Enter: select	
	++  Enter to updated, other key to cancel  ++	

## Restart

1. From the MAIN MENU, select Restart.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
	eTting sAve Utility <mark>[Restart]</mark> Exit ble system or selected async ports	
Enter: select	ESC: previous menu	

2. Select **System** and then press **Enter** to restart the system and terminate the Telnet session.

CN2510-8	C1	12510-8_5631	V2.0			
[System] P Restart t	ort Quit he Async Ser	ver				
ESC: back t	o menu Ent	er: select				
+			Warning !!	 !		+
Resta 	rt system wi '	ll disconnec Enter: cont	-		l status valu	e   
+						+

# **Setting Up Routing**

Routing is the main process used by Internet hosts to deliver packets. The Internet uses a hop-by-hop routing model, which means that each host or router that handles a packet examines the Destination Address in the IP header, computes the next hop that will bring the packet one step closer to its destination, and then delivers the packet to the next hop, where the process is repeated.

Two things are needed to make this work: (1) Routing tables must match destination addresses with next hops, and (2) routing protocols must determine the contents of these tables.

CN2510 provides easy-to-use routing functions that support both static routing tables and dynamic RIP1/RIP2 routing protocols. This chapter illustrates how to configure static routing tables and dynamic RIP1/RIP2 protocols. A few routing examples are also given to illustrate some basic routing concepts.

The following topics are covered in this chapter:

- Accessing the Console Utility
- What is RIP?
- Configuring RIP
- Configuring the Static Routing Table
- **Static Routing Examples** 
  - > Configuring Routes to the Internet
  - > Configuring Routes to the Internet and Intranet
  - Configuring Multiple-Point Routes
- Save
- Restart

## Accessing the Console Utility

**NOTE** In this section, we show how to access CN2510's console utility by Telnet over the network. For information on using the console port, see the section "Accessing the Console Utility" in Chapter 2.

1. Telnet over the network to the server's IP address.

Run	<u>?</u> ×
	Type the name of a program, folder, document, or Internet resource, and Windows will open it for you.
Open:	telnet 192.168.127.254
	OK Cancel <u>B</u> rowse

2. Type 1 to choose ansi/vt100, and then press Enter.

🗾 Telnet 192.168.127.2	54	
Async Server CN2510-8		
Console terminal type (	1: ansi/vt100, 2: vt52) : 1	

3. CN2510's MAIN MENU will open, as shown below.

🗾 Telı	net 192.168.1	27.254		
CN2510-	8	CN2510-8_5631 V2.0	MAIN M	1ENU
		ng sAve Utility Restart Exit c server node/table configuration		
Enter:	select ESC:	previous menu		

Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

## What is RIP?

RIP (Routing Information Protocol) is a protocol used widely to manage routing information within a self-contained network, such as a corporate LAN (Local Area Network) or an interconnected group of such LANs.

By using RIP, a gateway host with a router can send its entire routing table, which lists all the other hosts it knows about, to its closest neighbor host every 30 seconds. The neighbor host in turn will pass this information on to its closest neighbor, and so on, until all hosts within the network have the same routing path information. This state is known as network convergence. RIP uses a hop count as a way of determining network distance. (Other protocols use more sophisticated algorithms that also include timing.) After receiving a packet headed for a specific destination, a network host with a router uses the routing table information to determine the next host to route the packet to.

RIP is considered an effective solution for small homogeneous networks. For larger, more complicated networks, transmitting the entire routing table every 30 seconds can bog down the network with a lot of extra traffic.

RIP 2 is an extension of RIP. Its purpose is to expand the amount of useful information contained in RIP packets, and to add security elements. RIP version 2 recently became the standard version of RIP, and the original RIP is no longer in use.

### **Configuring RIP**

Open Server Menu → Adv. to configure Dynamic routing.

1. From the MAIN MENU, select Server, and then press Enter.

CN2510-8 CI	N2510-8_5631 V2.0 MAIN M	ENU
[Server] Port seTting sAve [		
Examine/modify async server no	ode/table configuration	
Enter: select ESC: previous	menu	

2. From the SERVER MENU, select Adv., and then press Enter.

CN2510-	8		CN	2510-8_56	31 V2.C	)		S	SERVER	MENU
			Host_table server ad				Quit			
Enter:	selec	t ESC:	previous r	nenu						

 Use the Up/Down arrow keys to move the cursor to the Routing protocol pop-up selector. Press Enter to see the options. Select RIP-1 or RIP-2. The RIP setting is only for sending packets. For receiving packets, CN2510 supports both RIP-1 and RIP-2.



4. Press Esc to return to the MAIN MENU.

### **Configuring the Static Routing Table**

Although RIP-1 and RIP-2 periodically update routing tables between different routers, you still need to add routing entries in the routing table for routes only directed to you.

Open **Server Menu** → **Route\_table** to configure the static routing table.

1. From the MAIN MENU, select Server, and then press Enter.



2. From the SERVER MENU, select Route\_table and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	SERVER MENU
Info. Lan Adv. Host_table Examine/modify async server		Quit
Enter: select ESC: previous	s menu	

3. Use the tab and arrow keys to move the cursor to configure **Gateway**, **Destination**, **Netmask**, and **Metric**. Each item is described in detail below the figure.

CN2510-8			CN2510-8_563	31	V2.0		
	Adv. Host_ta dify the routi			:]	User_table	Quit	
ESC: back <sup>.</sup>	to menu Enter	::	select				
	<b>-</b>				· ·		
Entry	Gateway		Destination		Netmask		Metric
01	[	]	[	]	[		[01]
02	[	]	[	]	[	]	[01]
03	[	]	[	]	[	]	[01]
04	[	]	[	]	[		[01]

Setting	Value	Notes	Necessity
Entry	01-32	A maximum of 32 entries are allowed.	Fixed
Gateway	xxx.xxx.xxx.xxx	The IP address of the next-hop router.	Required
Destination	xxx.xxx.xxx.xxx	The host IP address or network address of the	Required
		route's destination.	
Netmask	xxx.xxx.xxx.xxx	The destination network's netmask.	Required
Metric	1-15	The number of hops from the source destination.	Required

4. Press Esc to return to the MAIN MENU.

## **Static Routing Examples**

#### **Configuring Routes to the Internet**



For this example, the Notebook PC dials in to the CN2510 to request a connection to Internet host 210.48.96.9 (for example), which is not on local network 203.67.6. This causes CN2510 to act as a router and send the datagram to the default next-hop router, 203.67.6.254. In this case we should add the default gateway IP address (203.67.6.254) to the routing table, as shown in the following figure, to handle hops to any destination beyond the local network (203.67.6).

CN2510-	8		CN2510-8_	563	1 V2.0			
	Lan Adv. Host_t /modify the rout		-	ole	] User_table	Qui	t	
ESC: ba	ck to menu Ent	er:	select					
Entry 01 02 03	Gateway [203.67.6.254 [ [	] ] ]	Destination [0.0.0.0 [ [	] ] ]	Netmask [0.0.0.0 [ [	] ] ]	Metric [01] [01] [01]	

#### 203.67.6.1 UNIX Server Ethernet 203.67.6 TCP/IP 203.67.6.252 ---) ---Router Router CN2510 Console Server 203.67.6.253 203.67.6.254 205.65.66.2 Router Modem Ethernet 202.65.66 Internet Modem 202.65.66.4 202.65.66.5 PC PC Notebook

Configuring Routes to the Internet and Intranet

For this example, in addition to sending requests to the Internet, dial-in users can make requests to Intranet hosts 202.65.66.4 or 202.65.66.5, which are on network 202.65.66 (located outside network 203.67.6). In this case, add a route entry for the next-hop router, 203.67.6.252, that delivers requests to network 202.65.66. The metric hop in this case is 2 route hops.

CN2510-8	8	CN2510-8_5	631 V2.0		
	an Adv. Host_t /modify the rout		le] User_table (	Quit	
ESC: bad	ck to menu Ente	er: select			
Entry 01 02 03	Gateway [203.67.6.254 [203.67.6.252 [	Destination ] [0.0.0.0 ] [203.65.66.0 ] [	Netmask ] [0.0.0.0 ] [255.255.255.0 ] [	] ] ]	Metric [01] [01] [01]



#### **Configuring Multiple-Point Routes**

For multi-location enterprises, CN2510 can be placed in different branch offices and used as both a multi-point router and remote access server. When hosts (e.g., the Web/FTP and E-mail/News servers shown in the figure) send requests to hosts on another network, such as 202.6.6 or 201.2.2, CN2510 delivers the request to the remote end CN2510, 202.6.6.254 or 201.2.2.254, as the next-hop router. Requests to Internet hosts are still sent through router 203.67.6.254 as the next-hop router.

For this example, assume that the PPP source and destination IPs of modems 1, 2, 3, and 4 are:

	Source IP	Destination IP		Source IP	Destination IP
Modem 1	203.67.6.250	202.6.6.250	Modem 3	202.6.6.250	203.67.6.250
Modem 2	203.67.6.249	201.2.2.249	Modem 4	201.2.2.249	203.67.6.249

In this case, you will need to add three entries to the routing table, as shown below.

CN2510-	8		CN2510-8_5	563	1 V2.0		
	Lan Adv. Host_t /modify the rout		-	ole	] User_table (	Quit	
ESC: ba	ck to menu Ent	er:	select				
Entry	Gateway		Destination		Netmask		Metric
01	[203.67.6.254	]	[0.0.0.0	]	[0.0.0.0	]	[01]
02	[203.67.6.250	]	[202.6.6.0	]	[255.255.255.0	]	[01]
03	[203.67.6.249	]	[201.2.2.0	]	[255.255.255.0	]	[01]
04	[	]	[	]	[	]	[01]

#### Save

When exiting the SERVER MENU, you will be prompted to save settings. Press Y to save.



You may also save all settings from the **MAIN MENU** by selecting **sAve** and then pressing **Enter**. Press **Enter** again to save, and any other key to cancel.

CN2510-8 CN2510-8_5631 V2.0	MAIN MENU
Server Port seTting [sAve] Utility Restart Exit Save current configuration to Flash ROM	
ESC: back to menu Enter: select	
++	
Enter to updated, other key to cancel	
++	

### Restart

1. From the MAIN MENU, select Restart.

CN2510-8	CN2510-8_5631 V2.0	MAIN	MENU
-	sAve Utility <mark>[Restart]</mark> Exit stem or selected async ports		
Enter: select ESC:	previous menu		

2. Select **System** and then press **Enter** to restart the system and terminate the Telnet session.

CN2510-8		CN251	0-8 5631	V2.0				
[Svstem]	Port Qu:	it.						
	the Async							
ESC: back	to menu	Enter:	select					
+								+
1				Warning	111			
Res	art syste	em will o	disconnect	all por	ts and clea	ar all stat	tus value	
l	<u>ً</u> ،			-	SC: cancel			
+								+

# **Administrative Utilities**

In this chapter, we show how to use CN2510 administrative utilities, which include **Ping** (to see if a LAN host is still active), and how to get information with **Monitor**  $\rightarrow$  **Line**, **Monitor**  $\rightarrow$  **Network**, **Monitor**  $\rightarrow$  **Async**, **Monitor**  $\rightarrow$  **Routing**, and **Monitor**  $\rightarrow$  **PPP-Trace**.

The following topics are covered in this chapter:

#### Ping

#### Monitor

- ≻ Line
- > Network
- > Async
- Routing
- PPP-Trace

#### Diagnostic

#### Upgrade

- > Upgrading with the Windows Utility
- Console Terminal Upgrade
- > Upgrading through the Serial Console
- > Remote RCP Upgrade

#### Export

- Console Terminal Export
- > Remote RCP Export

#### Import

- Console Terminal Import
- Remote RCP Import

#### Default

## Ping

Ping is used to test network hardware connectivity and whether a network host is active.

1. From the MAIN MENU, select Utility, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
Server Port Async server 1	seTting sAve <mark>[Utility]</mark> Restart Exit utilities	
Enter: select	ESC: previous menu	

2. From the UTILITY MENU, select Ping, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	UTILITY	MENU
[Ping] Monitor Ping a host	Diagnostic Upgrade Quit		
Enter: select	ESC: previous menu		

3. Enter the target host IP address or target host name, and then press Enter. CN2510-8 CN2510-8 5631 V2.0

```
[Ping] Monitor Diagnostic Upgrade Quit
Ping a host
ESC: back to menu Enter: select
Press ESC to cancel ...
PING 192.168.1.3: 56 data bytes
64 bytes from 192.168.1.3: icmp_seq=0. time=0 ms
64 bytes from 192.168.1.3: icmp_seq=1. time=0 ms
64 bytes from 192.168.1.3: icmp_seq=2. time=0 ms
```

4. Press Esc to return to Ping.

### Monitor

The **Monitor** utility allows you to monitor serial line status (**Line**), network status (**Network**), serial transmission flow (**Async**, **async-Setting**), **routing**, and **PPP trace**.

1. From the MAIN MENU, select Utility, and then press Enter.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
Server Port seTting s Async server utilities	Ave <mark>[Utility]</mark> Restart Exit	
Enter: select ESC: pre		

2. From the UTILITY MENU, select Monitor, and then press Enter.

CN2510-8	CN2510-8_5631	V2.0 UTILITY	MENU
Ping [Monitor] Diagnostic Monitor async server status	Upgrade Quit		
Enter: select ESC: previou	s menu		
3. Each item is discussed in the following subsections.



### Line

1. From the MONITOR MENU, select Line, and then press Enter.

```
CN2510-8 CN2510-8_5631 V2.0 MONITOR MENU
[Line] Network Async async-Setting Routing PPP-Trace Quit
Monitor asynchronous port connective utilization
Enter: select ESC: previous menu
```

2. The **Line** page shows the status of each port.

CN2510	-8		CN2510-8_5631 V2.0
[Line]			nc-Setting Routing PPP-Trace Quit
Monit	or asynchron	ous port	connective utilization
ESC:	back to men	u Enter	: select
Port	Туре	Idle	Status
01	PPP	39Sec	negotiation
02	TERM BIN	39Sec	select protocol
03	RTELNET	39Sec	listen
04	ASPP	39Sec	listen
05	TERM BIN	39Sec	select protocol
06	RAW PRN	39Sec	listen
07	FIXTTY	39Sec	#S1:listen S2:listen
08	ASPP	39Sec	listen
09	RAW UDP	39Sec	data transfer
Туре	The current	operation	mode of the port (set in <b>PORT MENU</b> $\rightarrow$ <b>Mode</b> ).

**Idle** The amount of time the port has been idle.

**Status** The current status of the port. (If a host is connected to this port, then the host's IP address is displayed in this column.)

3. Press Esc to return to Line.

### Network

I. ITOIT THE MONITOR MENO, SCIECT MELWORK, and then pless Litter	1.	From the MONITOR MENU	, select Network,	and then	press Enter.
--	----	-----------------------	-------------------	----------	--------------

twork Async synchronous p	-			P-Trace Ouit	
			Lizatio		
k to menu E	nter: s	elect			
Received	636 0	<b>T</b> Q	0	Sent Sent	106 27
Received RDiscard	209 0	SNoRoute	0	Sent SDiscard	0 104 0 0
Received REchoReq	9 0 0		0	Sent SEchoReq	0 0 0
Received	4 0	ErrPorts	0	Sent	18
Received ErrHeader CurrEstab	55 0 1	ErrPorts Opens	0 0	Sent ReSent	86 1
	Received RDiscard Received RDiscard ErrHeader Received REchoReq REchoRply Received ErrHeader Received ErrHeader CurrEstab	Received 0 RDiscard 0 Received 209 RDiscard 0 ErrHeader 0 Received 9 REchoReq 0 REchoRply 0 Received 4 ErrHeader 0 Received 55 ErrHeader 0 CurrEstab 1	ReceivedORDiscardOErrSumReceived209RDiscardOSNoRouteErrHeaderOErrProtoReceived9RechoReqReceived4ErrHeaderErrHeaderOErrPortsReceived55ErrHeaderErrHeaderOErrPortsCurrEstab1Opens	Received0RDiscard0ErrSum0Received20900RDiscard0SNoRoute0ErrHeader0ErrProto0Received900Received40ErrHeaderErrHeader0ErrPorts0Received550ErrPorts0	Received0SentRDiscard0ErrSum0SDiscardReceived209SentSentRDiscard0SNoRoute0SDiscardErrHeader0ErrProto0ErrAddrReceived9SentSentREchoReq0SEchoReqReceived4SentErrHeader0ErrPorts0Received55SentErrHeader0ErrPorts0Received55SentErrHeader0ErrPorts0CurrEstab1Opens0

#### Ethernet statistics

Received:	Total number of input datagram packets received from the Ethernet.
Sent:	Total number of output datagram packets delivered to the Ethernet.

#### **PPP statistics**

<b>Received:</b>	Received IP datagram packets.
RDiscard:	Received but discarded IP datagram packets.
ErrSum:	Checksum error packets.
Sent:	Sent IP datagram packets.
SDiscard:	Sent but discarded IP datagram packets.

#### **IP** statistics

Received:	Received IP datagram packets.
RDiscard:	Received but discarded PPP datagram packets.
ErrHeader:	Received but discarded IP datagram packets due to errors in IP headers.
SNoRoute:	Received IP datagram packets for wrong route.
ErrProto:	Locally addressed IP datagram packet received successfully but discarded for not
	matching one of TCP, UDP, ICMP protocols offered by CN2500.
Sent:	Sent IP datagram packets.
SDiscard:	Sent but discarded IP datagram packets.
ErrAddr:	Sent datagram packet discarded for invalid destination IP address.

#### **ICMP** statistics

Received:	Received packets of ICMP messages.
Sent:	Sent packets of ICMP messages.
REchoReq:	Received packets from remote Ping request.
<b>REchoRply:</b>	Responding packets to remote Ping request.
SEchoReq:	Received packets from local ping request.
SEchoRply:	Responding packets to local ping request.

### **UDP statistics**

Received:	Received UDP datagram packets.
ErrPorts:	Received UDP datagram packets with invalid destination port.
ErrHeader:	Received UDP datagram packet with incorrect header.
Sent:	Sent UDP datagram packets.

#### TCP statistics

Received:	Total received packets of segments, including error packets.
ErrHeader:	Error packets (e.g., bad TCP checksums).
CurrEstab:	The counter of TCP connections for which the current state is either ESTABLISHED or
	CLOSE-WAIT.
ErrPorts:	Received TCP datagram packets with invalid destination port.
Opens:	TCP connections.
Sent:	Total sent packets, including those on current connections.
ReSent:	Retransmitted packets.

2. Press Esc to return to Network

### Async

1. From the **MONITOR MENU**, select **Async**, and then press **Enter**.

CNZ5.	10-8		CN251	LO-8_563	31 V2.0				MONI	TOR	MEN
		k [Async] chronous port			Routing	PPP-Tra	ace	Quit	t		
Ente	er: select	ESC: prev	ious men	u							
CN251	10-8		CN251	LO-8_563	31 V2.0						
Line Moni		k [Async] chronous port			Routing	PPP-Tra	ace	Quit	t		
ESC:	back to	menu Enter	: select								
		menu Enter		RXBuf	TXAvg	RXAvg	DTR	RTS	DSR	CTS	DCI
				RXBuf 0	TXAvg 0	RXAvg 0	DTR ON			CTS OFF	
Port 01 02	TXTotalC	nt RxTotalCnt	TXBuf	0 0		2					
Port 01 02 03	TXTotalC 180	nt RxTotalCnt 0	TXBuf 0 231 0	0 0 0	0	0	ON ON	ON	 	OFF OFF OFF	 
Port 01 02 03 04	TXTotalC 180 21 0 0	nt RxTotalCnt 0 0	TXBuf 0 231 0 0	0 0 0 0	0 0 0 0	0 0 0 0	ON ON OFF OFF	ON ON ON ON	 	OFF OFF OFF OFF	 
Port 01 02 03 04 05	TXTotalC 180 21 0 0 21	nt RxTotalCnt 0 0 0	TXBuf 0 231 0 0 231	0 0 0 0 0	0 0 0 0 0	0 0 0 0 0	ON ON OFF OFF ON	ON ON ON ON	  	OFF OFF OFF OFF	
Port 01 02 03 04 05 06	TXTotalC 180 21 0 0 21 0	nt RxTotalCnt 0 0 0 0 0	TXBuf 0 231 0 231 0 231 0	0 0 0 0 0 0		0 0 0 0 0 0	ON ON OFF OFF ON ON	ON ON ON ON ON	  	OFF OFF OFF OFF OFF	
Port 01 02 03 04 05 06 07	TXTotalC 180 21 0 21 0 21 0 4	nt RxTotalCnt 0 0 0 0 0 0	TXBuf 0 231 0 231 0 231 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	ON OFF OFF ON ON OFF	ON ON ON ON ON ON	  	OFF OFF OFF OFF OFF OFF	  
Port 01 02 03 04 05 06 07 08	TXTotalCr 180 21 0 21 0 21 0 4 0	nt RxTotalCnt 0 0 0 0 0 0 0 0	TXBuf 0 231 0 231 0 231 0 0 0			0 0 0 0 0 0 0 0	ON ON OFF OFF ON ON	ON ON ON ON ON ON	   	OFF OFF OFF OFF OFF OFF	 
Port 01 02 03 04 05 06 07	TXTotalC 180 21 0 21 0 21 0 4	nt RxTotalCnt 0 0 0 0 0 0 0 0 0 0	TXBuf 0 231 0 231 0 231 0 0	0 0 0 0 0 0 0	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0	ON OFF OFF ON ON OFF	ON ON ON ON ON ON		OFF OFF OFF OFF OFF OFF	

**TXTotalCnt:** Total transmitted characters.

**RXTotalCnt**: Total received characters.

**TXBuf:** Queued data bytes in the transmit raw buffer.

**RXBuf:** Received data bytes in the receiving raw buffer.

**TXAvg:** Current approx. characters per second transmit rate.

**RXAvg:** Current approx. characters per second receiving rate.

**DTR:** Current DTR status.

RTS: Current RTS status.

**DSR:** Current DSR status

**CTS:** Current CTS status.

**DCD:** Current DCD status.

2. Press **Esc** to return to **Async**.

## Routing

CN2510	-8	,	CN2510-8_	5631 V2.0			
Line Monito	Netwo Dr cur	ork Async rent routi		[Routing] P	PP-Trace (	 Quit	
ESC: k	back t	o menu Er	nter: select				
Iface eth0 eth0 eth0 eth0 eth0 lo17	0.0. 201. 203. 0.0. 192.	2.2.0 65.66.0	Gateway/HA 192.168.1.3 203.67.6.251 203.67.6.252 203.67.6.254 192.168.2.180 *	Netmask 0.0.0.0 255.255.255 255.255.255 0.0.0.0 255.255.0.0 *		Flag UGT+ UGT UGT UGT U UH	Use 0 0 9 389
Iface:		Name of the	e physical network int	erface.			
Destina	tion:		host that the router a		nect to.		
Gatewa	y:		of the gateway you cor dress. Otherwise, it is	5	•		
Netmas	k:	Network pat	ttern of the gateway.				
Metric:		Number of l	nops to the destination	n.			
Flags:		State of the	route. Valid states ar	e:			
		Uu	р				
		D d	own				
			oute to a gateway				
			oute to a host				
			etting in route table				
			ynamic by RIP				
Use:		Correct num	nber of packets being	sent in this route	2.		

1. From the **MONITOR MENU**, select **Routing**, and then press **Enter**.

2. Press **Esc** to return to **Routing**.

### **PPP-Trace**

1. From the MONITOR MENU, select PPP-Trace, and then press Enter.

CN2510-8	CN2510-8_5	5631 V2.0		MONITOR MENU
Line Network Asy Trace PPP protocol		Routing	[PPP-Trace]	Quit
Enter: select ESC	: previous menu			

2. Use the arrow keys to select the port you wish to trace, and then press **Enter** to select.

CN2510-8		CN251(	)-8_5631	. V2.	0		
Line Network Trace PPP protoc	Async asy col connect			outing	[PPI	P-Trace]	Quit
ESC: back to mer	nu Enter:	select					
+							-+
Select	port:						
*01	02 *03	3 04	05	*06	07	08	
09 	10 [ 11	.] 12	13	14	*15	16	
Enter:	select	ESC:	cancel	SPZ	ACE:	start	
+							-+

3. After selecting the ports that need monitoring, press **Space** to start.

CN2510-8		CN2510-8_5	5631 V2.0		
Line Network Trace PPP proto		2	Routing	[PPP-Trace]	Quit
ESC: back to me	nu Enter: s	select			
TRACE PORTs: 01 P01 state: LCP F P01 send: C02101	Req-Sent	002060000	00000304C02	230506BE2B92D	707020802

- 4. PPP states for the selected ports are shown. LCP (Link Control Protocol), which is an essential part of the PPP link, is used for establishing, configuring, and testing the data link connection.
- 5. Press **Esc** to return to **PPP-Trace**.

## Diagnostic

CN2510 Diagnostic Utility, which is used to test async ports, Ethernet controllers, and printer ports, supports the following functions.

- Async port controller and internal loop-back test.
- Ethernet controller, internal and external loop-back test.
- Printer port test.

1. From the **UTILITY** menu, select **Diagnostic**, and then press **Enter**.

N2510-8	CN2510-8_5631	V2.0	UTILITY	MENU
Ping Monitor <mark>[Diagnostic]</mark> Loopback test and self-diagno				
Enter: Select ESC: previou	is menu			
any of these tests fails, contact Moxa	to request repair services	5.		

CN2510-8			CN2510-	-8_5631	V2.0	
-		[Diagnostic] & self-diagnos		Quit		
ESC: ba	ack to mer	u Enter: se	elect			
-	-	controller t				
-	-	t loopback tes htroller test				
	-	controller loo	-			
Etherne	t port 1	ransceiver lo	popback tes	st OK	•	

3. Press **Esc** to restart the system.

## Upgrade

2.

The operating system in CN2510 is kept in the Flash ROM. It can be upgraded using the Windows Utility, from a locally connected CONSOLE Terminal using XMODEM protocol, or from a Unix host using RCP protocol.

### **Upgrading with the Windows Utility**

One of the main features provided by the Windows Utility is to upgrade firmware. If the CN2510 is connected to a Windows network, this is the simplest method available for upgrading the firmware.

1. Run Upgrade.exe from the CN2510 CD.

🔽 NPort Server í	NPort Server firmware upgrade utility								
Server Tool Hel	Server Tool Help								
]1 🗳 🚨 🚍	1 <b>2 2 = 2</b> ?								
Name	Upgrade firmware	IP Address	Serial No	MAC address	Firmware Ver.				
CN2510-8_5631	CN2510-8	192.168.127.254	5631	00:90:E8:00:56:31	2.0				

2. Select the CN2510 server by clicking the sutton on the toolbar. If the CN2510 server is at a remote

site, use to add it to the list.

Upgrade NPort Serve	er	×
Enter the file to up	ograde.	
Server Name:	CN2510-8_5631	
IP address:	192.168.127.254	
Serial No:	5631	
	Browse	
	OK Cancel	

3. Specify the new firmware file used to upgrade. Click on  ${\bf OK}$  to start.

Upgrade NPort Serve	er	×
Enter the file to up	grade.	
Server Name:	CN2510-8_5631	
IP address:	192.168.127.254	
Serial No:	5631	
CN2510_2.0.ROM	6 Browse Cancel	

4. When the **Download ok!** window appears, click on **OK**.



### **Console Terminal Upgrade**

 Run Start → Programs → PComm Terminal Emulator. (If you cannot find the software on your computer, install PComm Lite from the CN2510 CD, and then run the program.)



2. Use an RJ45-DB9 female cable to connect to the console port, and then turn on CN2510. Start the PComm Terminal program and then open a new connection.



3. On the **Communication Parameter** page, select **COM2** for **Ports**, **115200** for **Baud Rate**, **8** for **Data Bits**, **None** for **Parity**, and **1** for **Stop Bits**.

Property	×
Communication Para	meter Terminal File Transfer Capturing
COM Options -	
Ports :	COM1 💌
Baud Rate :	115200 💌
Data Bits :	8
Parity :	None
Stop Bits :	1
Flow Control	Output State
RTS/CTS	DTR O ON C OFF
C XON/XOFF	RTS ON OFF
	OK Cancel

4. On the **Terminal** page, select **VT100** for **Terminal Type**, and then press **Enter**.

Property	×
Communication Parameter	Terminal File Transfer Capturing
Terminal Type :	VT100
Dumb Terminal Option : Transmit	
🗖 Local Echo	
Send 'Enter' Key As:	CR-LF
Receive	
CR Translation :	No Changed 🔄
LF Translation :	No Changed 🔄
	OK Cancel

5. Type 1 to choose ansi/VT100 terminal type, and then press Enter to enter the MAIN MENU.

PComm Terminal Emulator - COM1,115200,None,8,1,¥T100
Profile <u>E</u> dit <u>P</u> ort Manager <u>Wi</u> ndow <u>H</u> elp
🛃 🔲 🕅 🚰 📚 Brk 🔊 2B
COM1,115200,None,8,1,¥T100
DTR RTS Async Server CN2510-8 Console terminal type (1: ansi/vt100, 2: vt52) : 1

6. Use the following keystrokes to navigate CN2510's console utility.

Action	Кеу
Move	[Up/Down/Left/Right] Arrow Key or [Tab] Key
Jump to next menu, or	[Enter] Key
Select item	
Return to previous menu, or	[Esc] Key
Close pop up selector	
Shortcut Key	Capitalized letter of the word

### **Upgrading through the Serial Console**

1. From the  $\ensuremath{\text{MAIN MENU}}$  , select  $\ensuremath{\text{Utility}}$  , and then press  $\ensuremath{\text{Enter}}$  .

P	SPC o	omm Terminal E	mulator - COM	11,115200,N	lone,8,1,¥T100		
	Profile	<u>E</u> dit <u>P</u> ort Mana	iger <u>W</u> indow	<u>H</u> elp			
	-		🔊 💽 😹 Brk	2B			
ſ	👪 cu	)M1,115200,Nor	e,8,1,¥T100				
I		CN2510-8		CN2	2510-8_5631 V2	.0	MAIN MENU 🔼
	DTR RTS	Server Port Async server			<b>lity]</b> Restart	Exit	
		Enter: selec	t ESC: pre	evious men	nu		

2. From the **UTILITY MENU**, select **Upgrade**, and then press **Enter**.

PC 🔁	omm Terminal Emulator - COM1,111	5200,None,8,1,¥T100				
Profile	<u>E</u> dit <u>P</u> ort Manager <u>W</u> indow <u>H</u> elp					
-	🖬 🛃 🛃 🎥 🔤 😹 Brk 🔜	2B				
State Co	0M1,115200,None,8,1,¥T100					
	CN2510-8	CN2510-8_5631 V2.0	UTILITY MENU 🔼			
DTR RTS	DTR Ping Monitor Diagnostic [Upgrade] Quit RTS Upgrade operational system program					
	Enter: select ESC: previou	s menu				

3. Select Console port (using XMODEM) for Upgrade type, and then press Ctrl-U to start.

BPC	PComm Terminal Emulator - COM1,115200,None,8,1,¥T100				
Profile	<u>E</u> dit <u>P</u> ort Manager <u>W</u> indow <u>H</u> elp				
-	🖬 🕅 🛃 🎦 🏹 Brk 🔜	28			
🔣 CO	DM1,115200,None,8,1,¥T100				
	CN2510-8	CN2510-8_5631 V2.0			
DTR RTS					
	ESC: back to menu Enter:	select			
	Upgrade via	[Console port (using XMODEM)]			
	Host name/IP address	[ ]			
	File name				
	User name	L J			
	Press CTRL-U to start				

4. When you see **Start loading file ...** near the bottom of the screen, click on the **Port Manager** menu.

PC	omm Terminal Emulator - COM1,115	5200,None,8,1,VT1(	0		
Profile	Edit Port Manager <u>W</u> indow <u>H</u> elp				
3	🖬 🔣 🚰 📚 🖼 🔊	2B			
😹 CO	DM1,115200,None,8,1,¥T100				
	CN2510-8	CN2510-8_5631	V2.0		
DTR RTS	Ping Monitor Diagnostic [ Upgrade operational system ]				
	ESC: back to menu Enter: :	select			
	Upgrade via Host name/IP address	[ <mark>Console</mark>	port (using XMOD)	( <u>M</u>	
	File name	[			1
	User name	[	1		
	Press CTRL-U to start				
	Start loading file				
State	OPEN CTS DSR TI DCD Ready				
Porate.	ICTS JDSR JRI JDCD JHEADY				111.



6. In the File Transfer window select **XModem-CheckSum** for **Protocol** and **Transmit** for **Direction**, and then click on **OK**, The file will be transmitted to the CN2510.

File Transfer	
Protocol	Direction
C ASCII	© Transmit
C Kermit	C Receive
C XModem-1KCRC	
C XModem-CheckSum	
C XModem-CRC	
C YModem	ок
C ZModem	Cancel

 Locate the upgrade file, CN2510\_2.ROM for example, and then click on **Open** to transfer the firmware to the CN2510.

Transmit File	<u>? ×</u>
Look jn: 🛛 🌡 3.5 Floppy (A:)	-11 🔁 🖆 💶
CN2510_2.0.ROM	
File <u>n</u> ame: CN2510_2.0	<u> </u>
Files of type: .*	Cancel

8. The CN2510 will store the new firmware in its Flash ROM, and then restart the entire system, completing the Firmware Upgrade procedure.

Transmit File			
Protocol :	XModem-CheckSum		
Port :	СОМ1		
File Name :	MXPCI.SYS		
File Size :	0		
Transmit Length :	0		
Cancel			

### Remote RCP Upgrade

RCP (Remote Copy Program) is the Unix utility for copying files over the Ethernet. RCP allows transparent copying of files between hosts, without the need to enter passwords. This can be done using the security file .rhosts.

NOTE	The format of RCP is as follows: rcp from to
	The from and to arguments can either be specified as local files or remote files. To specify a remote file, use
	the format: $user@hostname:filename$ . If the remote login ID is identical to the local login ID, then $user@$
	can be omitted (i.e., only hostname:filename is required).

- **NOTE** The security file . *rhosts* is a plain text file that must reside in the local user's home directory, and must be owned by that user. This file identifies those users who are "equivalent" to the local user, and are given access without needing to enter a password.
- **NOTE** The file must contain at least a host, and if the login ID is different on the remote host, it must also contain the login ID. This sample *.rhosts* file is for the user *john* on the host sun. The following three accounts are considered "equivalent" accounts. The user has accounts on *moxa1* and *moxa3* with the same login ID, and has an account on moxa2 as *johnwu*.

# This comment line is ignored by the operating system. Moxal.com.tw john Moxa2.com.tw johnwu Moxa3.com.tw john.

- 1. Login to your UNIX/LINUX host. For example, login to 203.67.8.22 as user "john".
- 2. Copy the CN2510 firmware file, e.g., "CN2510.rom", to the current directory.
- 3. Create a file named .rhosts in this directory. Enter CN2510's IP address, e.g., 192.168.205.21, in the .rhosts file, or enter CN2510's domain name if it's defined in your /etc/hosts file.
- 4. Telnet CN2510's IP address.

5. After entering CN2510's **MAIN MENU**, select **Utility** → **Upgrade**.

CN2510-8	CN2510-8_5631 V2.0 UTILITY	MENU
Ping Monitor Diagnostic Upgrade operational system p		
Enter: select ESC: previou	is menu	

6. In the Upgrade via column, select Network host (using RCP).

CN2510-8	CN2510-8_5631	V2.0	
Ping Monitor Diagnostic Upgrade operational system p	- 1 ) - 1		
ESC: back to menu Enter:	select	+	+
		Console port	(using XMODEM)
Upgrade via	[Console port	(  Network host	(using RCP)
Host name/IP address	[	+	+
File name	[		]
User name	[	]	
Dread CMDI II to start			

- 7. In Host name/IP address, enter the IP address of the UNIX/LINUX host.
- 8. In File name, enter the CN2510 firmware file name in the UNIX/LINUX host.
- 9. In User name, enter the user name for logging into the UNIX/LINUX host.
- 10. Press CTRL-U to start.
- 11. After downloading, CN2510 will restart the system.



### Export

Settings can be exported to a file to backup the configuration, or to set up another CN2510 with the same configuration. There are two types of exported file settings: Console Terminal or Remote RCP.

### **Console Terminal Export**

- Run Start → Programs → PComm Terminal Emulator. Follow the steps given earlier to enter the MAIN MENU.
- 2. From the **MAIN MENU** select **seTting**, and then press **Enter**.

PComm Terminal Emulator - COM1,115200,None,8,1,YT100	
Profile Edit Port Manager Window Help	
COM1,115200,None,8,1,¥T100	
CN2510-8_5631 V2.0	MAIN MENU 🔼
DTR Server Port [seTting] sAve Utility Restart Exit Export or import configuration	
Enter: select ESC: previous menu	

3. From the SETTING MENU select Export, and then press Enter.

<b>B</b>	PComm Terminal Emulator - COM1,115200,None,8,1,¥T100	
Prof	rofile <u>E</u> dit <u>P</u> ort Manager <u>W</u> indow <u>H</u> elp	
-	🗐 🖬 🛃 🚰 📚 🕬 📠 🔊 28	
5	COM1,115200,None,8,1,¥T100	
	CN2510-8 CN2510-8_5631 V2.0	SETTING MENU 🔺
	DTR [Export] Import Default Quit RTS Export current configuration to file	
	Enter: select ESC: previous menu	

4. Select Console port (using XMODEM) for upgrade type, and then press Ctrl-U to start.



5. When you see **Start loading file ...** near the bottom of the screen, click on the **Port Manager** menu.

ВРС	Comm Terminal Emulator - COM1,115200,None,8,1,VT100	
Profile	ile <u>E</u> dit <u>P</u> ort Manager <u>W</u> indow <u>H</u> elp	
-		
State Co	COM1,115200,None,8,1,¥T100	- D ×
	CN2510-8 CN2510-8_5631 V2.0	
DTR RTS		
	ESC: back to menu Enter: select	
	Export via [Console port (using XMODEM)] Host name/IP address [ ]	
	File name [	1
	User name [ ]	
	Press CTRL-U to start	
	Start loading file	

6. Select **Port Manager** → **File Transfer** from the menu.

PCo	PComm Terminal Emulator - COM1,115200,None,8,1,YT100								
Profile	Edi	Port Manager Window	Help						
-3	<b>B</b>	Open	Ctrl+Alt+O	1					
		Close	Ctrl+Alt+L						
C 🔣	M1,11	Close All	Ctrl+Alt+A						
	CN251	Port Enable	Ctrl+Alt+E	D-8_5631 V2.0					
DTR	[Expo	Port Disable	Ctrl+Alt+Q						
RTS	Expo	Properties		Le					
	ESC:	Clear Screen							
1 I		File Transfer							
	E	Send Pattern		Console port (using XMODEM)					
		Send Break		1	,				
		Capture		1	1				
		Double Byte Character	r	. ·					
	P	ress CTRL-U to sta	rt	-					

7. In the **File Transfer** window select **XModem-CheckSum** for **Protocol**, and **Receive** for **Direction**. Selecting **OK** causes the terminal to receive settings from the CN2510.



8. Choose the backup filename, CN2510.bak for example, and then click on **Save**.

Receive File	<u>?</u> ×
Savejn: 🖙 WINXP (F:) 💽 🗢 🗈 📸 🧾	<b>.</b>
Documents and Settings	
Program Files	
WINXP	
WUTemp	
File name: CN2501.bak	ave
Save as type: **	ancel

9. CN2510 will export settings to the file.

### **Remote RCP Export**

As we pointed out earlier, RCP is a file transfer protocol that does not require a password.

- 1. Login to your UNIX/LINUX host. For example, login to 203.67.8.22 as user john.
- Create a file named .rhosts in this directory. Enter CN2510's IP address, e.g., 192.168.205.21, or CN2510's domain name (if it's defined in your /etc/hosts file), in the .rhosts file.
- 3. Telnet CN2510's IP address.
- 4. After entering CN2510's **MAIN MENU**, select **setting** → **Export**.
- 5. In the Export via column, select Network host (using RCP).
- 6. Enter the UNIX/LINUX host's IP address for **Host name/IP address**.
- 7. Enter CN2510's firmware file name on the UNIX/LINUX host for File name.
- 8. Enter the user name required to login to the UNIX/LINUX host for User name.
- 9. Press CTRL-U to start.

CN2510-8	CN2510-8_5631 V2.0
[Export] Import Default Quit Export current configuration t	o file
ESC: back to menu Enter: sel	ect
Export via Host name/IP address File name User name	[Network host (using RCP) ] [203.67.8.22 ] [/home/john/cn2510.rom ] [john ]
Press CTRL-U to start	

## Import

Saved settings can be imported back to the CN2510. There are two settings to choose from for importing from a file, **Console Terminal** or **Remote RCP**.

### **Console Terminal Import**

- Run Start → Programs → PComm Terminal Emulator. Follow the steps given earlier to enter the MAIN MENU.
- 2. From the MAIN MENU, select seTting, and then press Enter.

🚰 PComm Terminal Emulator	- COM1,115200,None,8,1,¥T100	
Profile Edit Port Manager Wir	ndow <u>H</u> elp	
	S Brk 38 2B	
COM1,115200,None,8,1,VT	100	
CN2510-8	CN2510-8_5631 V2.0	MAIN MENU 🔼
DTR Server Port sett RTS Export or import c	ing] sAve Utility Restart Exit onfiguration	
Enter: select ESC	: previous menu	

3. From the SETTING MENU, select Import, and then press Enter.

<mark>В</mark> Р	Comm Terminal Emulator - COM1,115200,None,8,1,¥T100	
Prof	ile <u>E</u> dit <u>P</u> ort Manager <u>W</u> indow <u>H</u> elp	
-	🖬 🛃 🔊 🔄 🐺 Brk 📠 2B	
8	COM1,115200,None,8,1,¥T100	
	CN2510-8 CN2510-8_5631 V2.0	SETTING MENU 🔼
DTF RT:	R Export [Import] Default Quit Import configuration from previously saved file	
	Enter: select ESC: previous menu	

4. Select Console port (using XMODEM) for Import type and then press Ctrl-U to start.

Becomm Terminal Emulator - COM1,115200,None,8,1,¥T100							
Profile Edit Port Manager <u>W</u> indow <u>H</u> elp							
COM1,115200,None,8,1,¥T100							
CN2510-8 CN2510-8_5631 V2.0							
DTR       Export [Import] Default Quit         Import configuration from previously saved file         ESC: back to menu       Enter: select							
Import via [Console port (using XMODEM)] Host name/IP address [ File name [ User name [ ] Press CTRL-U to start	1						

5. When you see **Start loading file ...** near the bottom of the screen, click on the **Port Manager** menu.

🖥 PC o	omm Terminal Emulator - COM1,115200	,None,8,1,¥T	100			
Pro <u>f</u> ile	<u>E</u> dit <u>P</u> ort Manager <u>W</u> indow <u>H</u> elp					
	🖬 🛃 🛃 📚 📴 😹 🔤 🔊	]				
🔣 CO	DM1,115200,None,8,1,¥T100					
	CN2510-8 CF	N2510-8_56	31 V2.O			<b>_</b>
DTR RTS	Export [Import] Default Quit Import configuration from previ	iously save	ed file			
	ESC: back to menu Enter: sele	ect				
	Import via	Console	e port (usi	ng XMODEM)		
	Host name/IP address	[			]	
	File name User name	ſ	1			1
	Press CTRL-U to start	ı	ſ			
	Start loading file					

6. Select **Port Manager** → **File Transfer** from the menu.

I	<b>B</b> PCo	omm T	erminal Emulator - CO	M1,115200,Nor	ne,8,1,¥T100	
	Profile	Edi	Port Manager Window	Help	_	
	-		Open	Ctrl+Alt+O		
I			Close	Ctrl+Alt+L		
	Sec.	DM1,11	Close All	Ctrl+Alt+A		<u> </u>
		CN251	Port Enable	Ctrl+Alt+E	D-8_5631 V2.0	
	DTR	[Expo	Port Disable	Ctrl+Alt+Q		
	RTS	Expo			Le	
		ESC:	Clear Screen			
			File Transfer			
		E	Send Pattern		Console port (using XMODEM)	
			Send Break		1	
			Capture		]	
			Double Byte Character	r		
1		Р	ress CTRL-U to sta	rt		

7. In the **File Transfer** window select **XModem-CheckSum** for **Protocol** and **Transmit** for **Direction**. This causes the file to be sent from the terminal to CN2510. Click on **OK**.

File Transfer	
Protocol	Direction
C ASCII	Transmit
C Kermit	C Receive
C XModem-1KCRC	
C XModem-CheckSum	
C XModem-CRC	
C YModem	ок
C ZModem	Cancel

8. Choose the backup filename, CN2510.bak for example, and then click on **Open**.

Transmit File					? ×
Look <u>i</u> n: 🥯	WINXP (F:)	•	🗢 🔁	📸 🎫	
Documents	and Settings				
📄 Program Fi	les				
🚞 WINXP					
MUTemp					
File <u>n</u> ame:	CN2510.bak			<u>0</u> per	n
Files of <u>type</u> :	× ×		•	Canc	

9. CN2510 will import settings from the file.

### **Remote RCP Import**

As we pointed out earlier, RCP is a file transfer protocol that does not require a password.

- 1. Login to your UNIX/LINUX host. For example, login to 203.67.8.22 as user john.
- Create a file named .rhosts in this directory. Enter CN2510's IP address, e.g., 192.168.205.21, or CN2510's domain name (if it's defined in your /etc/hosts file), in the .rhosts file.
- 3. Telnet CN2510's IP address.
- After accessing CN2510's MAIN MENU, select seTting → Import. In Import via column, select Network host (using RCP).
- 5. Enter the UNIX/LINUX host's IP address for Host name/IP address.
- 6. Enter CN2510's firmware file name on the UNIX/LINUX host for File name.
- 7. Enter the user name required to login to the UNIX/LINUX host for User name.
- 8. Press CTRL-U to start.

```
CN2510-8
                                CN2510-8 5631
                                                V2.0
Export [Import] Default Quit
Import configuration from previously saved file
ESC: back to menu Enter: select
    Import via
                                [Network host (using RCP)
       Host name/IP address
                                [203.67.8.22
                                                                ٦
                                [/home/john/cn2510.rom
       File name
                                                                    1
       User name
                                [john
   Press CTRL-U to start ...
```

## Default

CN2510 can restore default settings if necessary. Note that the IP address will not be changed to default.

1. From the **MAIN MENU** select **seTting**, and then press **Enter**.



2. From the SETTING MENU, select Default, and then press Enter.

				-				
CN2510-8	8		CN	12510-8 5631	V2.0		SETTING	MENU
-	Import e factor	-	ult] Quit ting	2				
Enter:	select	ESC:	previous	menu				

3. Press **Enter** to confirm that you wish to erase all settings and restore the default settings. Press any key to cancel.

CN2510-8	CN2510-8_5	5631 V2.0	
Export Import [Defau Load the factory sett			
ESC: back to menu	Enter: select		
+			+
Enter to	load factory sett	ting, other key	to cancel
+			+



# **Troub**leshooting

In this appendix, we give solutions to various problems you may come across when using CN2510.

The following topics are covered in this appendix:

- **Console Terminal Problems**
- Terminal Port Problems
- □ How to Save CN2510's Parameters
- □ ASPP Port Problems
- SLIP/PPP Connection Problems
- RADIUS Problems

## **Console Terminal Problems**

Problem: No message is displayed on the console terminal.

#### Solutions:

- > Check to see if the terminal is set to 115200 bps, 8 data bits, no parity, 1 stop bit.
- Check to see if the RS-232 cable is wired correctly. The console needs CTS/DCD signals to trigger. Refer to the "Cable Wiring" section in Appendix D.
- > The console may be blocked waiting for an event. Press ESC to try unblocking.

#### Problem: Garbage characters are displayed on the console terminal.

#### Solutions:

- > Check to see if the terminal is set to 115200 bps, 8 data bits, no parity, 1 stop bit.
- > Check to see if terminal type setting is correct. The console only accepts ansi/vt100 or vt52.
- > Press Ctrl-L to refresh the display.

#### Question: How can I restore CN2510 to the factory default settings?

#### Solution:

➤ After entering the Console window, select setting → Default, and then press Enter. The CN2510 will be restored to the factory default settings.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
Server Port [seTting Export or import conf	] sAve Utility Restart Exit iguration	
Enter: select ESC:	previous menu	
CN2510-8	CN2510-8_5631 V2.0	
Export Import [Defau Load the factory sett		
ESC: back to menu	Enter: select	
+  Enter to +	load factory setting, other key to	+ cancel  +

#### Question: If I forget the password for my CN2510, what should I do?

#### Solution:

 $\succ~$  Press the Reset button on the CN2510's front panel for more than 5 seconds.

The password stored in the Flash ROM will be erased. In addition, all settings will be reset to their factory default values. CN2510 will beep twice when the configuration has been reset. Refer to Chapter 1 for more details.



Problem: I used Telnet Console in a Windows 9x/NT environment, but I couldn't use the arrow keys to select options.

Solution:

In Telnet, click on the Terminal menu, choose Preferences, and then select VT100 Arrows in the Terminal Preferences window. Click on OK to return to the MAIN MENU. The arrow keys should work properly now.

	inal <u>H</u> elp			
sync Serv. Sta	iferences int Logging ip Logging al type (1: ans	i/vt100	, 2: v	t52) : 1∎
<b>erminal Preference</b>			×	
erminal Preference Terminal Options Local <u>E</u> cho	Emulation C VT-52	OK	×	
Terminal Options Local Echo Blinking Cursor	Emulation	OK Cancel	× ]	
-Terminal Options	Emulation O VT-52	OK	×	

Question: My application involves connecting the console port of a CISCO router/switch to a Moxa Async Server serial port. I connect to the CISCO router/switch console by Telnet over the network from a remote site. Why does the CISCO router/switch receive two "Enter" commands even though I only pressed the "Enter" key once?

#### Solution:

- The "Enter" Map keys of Async server are <CR-LF>, causing the CISCO router to receive two commands instead of one.
- Access Async server.
- > Access Async server serial console to change the "Map keys" type from <CR-LR> to <CR>.

	🛛 🔂 🌽 🔂 😹 Brk	Qlan
COM4,1	15200,None,8,1,RTS/C1	TS, ¥ T100
CN261	0-16	CN2610-16_34 V1.1.7
Mode	Line mOdem Welco	WCC Outs
		ation mode of async ports
- ANAL	ine/modily che opera	ación mode or async poros
ESC-	back to menu Ente	er: select
	Duch oo menu bioe	an ourse
Port	Application	Nod++
01	[Reverse Terminal]	[RT  TCP port : [4001 ]  ]
02		[AS  Source IP address : [ ] ]]
03	[Device Control ]	[AS] Destination IP addr : ] ]]
04	[Device Control ]	[AS  Inactivity time : [0 ] minutes  ]
05	[Device Control ]	[AS  Map keys <cr-lf> t [ : [DR ] ]  ]</cr-lf>
100.003		[AS  Map keys <cr-lf> t : [CR ]  ]  ] [AS  Authentication type: [none ]  ]</cr-lf>
05	[Device Control ]	
05	[Device Control ] [Device Control ]	[AS] Authentication type: [none ]  ]
05 06 07	[Device Control ] [Device Control ] [Device Control ]	[AS] Authentication type : [none ]  ] [AS] TCP alive check time: 17 ] minutes  ]
05 06 07 08	[Device Control ] [Device Control ] [Device Control ] [Device Control ]	[AS] Authentication type: [none ]  ] [AS] TCP alive check time: 12 ] minutes  ] [AS++]
05 06 07 08 09	[Device Control ] [Device Control ] [Device Control ] [Device Control ]	[AS] Authentication type:       [none ] ] ]         [AS] TCP alive check time:       []         [AS]       []         [AS]       []         [AS]       []         [AS]       []         [] <t< td=""></t<>
05 06 07 08 09 10	[Device Control ] [Device Control ] [Device Control ] [Device Control ] [Device Control ]	[AS] Authentication type:       [none ]       []         [AS] TCP alive check time:       []       []         [AS]       []       []         [AS]       []       []         [ASPP ]       []       [Async Server Proprietary Protocol]         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []       []         []       []
05 06 07 08 09 10 11	[Device Control ] [Device Control ] [Device Control ] [Device Control ] [Device Control ] [Device Control ]	[AS] Authentication type:       [none 1 1]         [AS] TCP alive check time:       [2] mentes 1]         [AS] TCP alive check time:       [2] mentes 1]         [AS] TCP alive check time:       [2] mentes 1]         [AS]       TCP alive check time:       [2] mentes 1]         [AS]       [Async Server Proprietary Protocol]         [ASPP ]       [Async Server Proprietary Protocol]         [ASPP ]       [Async Server Proprietary Protocol]
05 06 07 08 09 10 11 12	[Device Control ] [Device Control ] [Device Control ] [Device Control ] [Device Control ] [Device Control ] [Device Control ]	[AS] Authentication type:       [none 1 1]         [AS] TCP alive check time:       [2] mentes         [AS] TCP alive check time:       [2] mentes         [AS] TCP alive check time:       [2] mentes         [AS]       TCP alive check time:       [2] mentes         [AS]       [Async Server Proprietary Protocol]         [ASPP ]       [Async Server Proprietary Protocol]         [ASPP ]       [Async Server Proprietary Protocol]
05 06 07 08 09 10 11 12 13	[Device Control ] [Device Control ]	[AS] Authentication type:       [none ]       []         [AS] TCP alive check time [2] pentes       []         [ASPP ]       [Async Server Proprietary Protocol]

## **Terminal Port Problems**

Problem: When a terminal is connected to one of CN2510's serial ports, no message is displayed on the terminal attached to the CN2510 terminal port when it is powered on.

#### Solutions:

- > One of the possible reasons is that this serial port is configured to Disable mode, or to another application mode. Using the Serial Console or Telnet Console, select Port → Mode, and then move the cursor to the Application corresponding to the serial port, and change Disable to Terminal.
- Check to see if the terminal's serial port is set to the same settings as CN2510's serial port. Use Serial Console or Telnet Console, select Port → Line, and then move the cursor to the corresponding serial port, and check to see if Speed, Bits, Stop, Parity, FIFO, RTS/CTS, XON/XOFF, and Discon.ctrl settings are the same as the terminal's serial port.
- Check to see if the RS-232 cable is wired correctly. If the port is utilizing RTS/CTS hardware flow control, then the RTS, CTS pins should be included. In this case, a cable with only TxD, RxD, and GND pins will not work.
- The terminal may be unlocked by pressing [Ctrl-S] (Hex Code 0x13) if software flow control is used. Press [Ctrl-Q] (Hex Code 0x11) to relieve it.

## How to Save CN2510's Parameters

Question: How can I save CN2510's parameters to recover from unexpected power failures, or to transfer the same parameters to another CN2510?

#### Solutions:

After entering the Console screen, select seTting → Export, and press Enter. Then you can use XMODEM for a Windows host, or RCP for a UNIX host, to save the parameters to a file.

CN2510-8	CN2510-8_5631 V2.0	MAIN MENU
Server Port [seTting] Export or import confi	sAve Utility Restart Exit guration	
Enter: select ESC: p	previous menu	
CN2510-8	CN2510-8_5631 V2.0	SETTING MENU
[Export] Import Defaul Export current configu		
Export current conrigu		
Enter: select ESC: p	previous menu	
CN2510-8	CN2510-8_5631 V2.0	
[Export] Import Defaul		
Export current configu	ration to file	
ESC: back to menu E	nter: select	
Export via	[Console port (using XMODEM)]	
Host name/IP ad	dress [ ]	
File name		]
User name		
Press CTRL-U to sta	ort .	

## **ASPP Port Problems**

Problem: The application utilizing the ASPP subroutines could not connect to the CN2510.

#### Solutions:

- ➤ Check to see if the target port's mode is set to ASPP. The connection will fail if the port mode is set to something other than ASPP. After entering the Console screen, select **Port** → **Mode**, move the cursor to the **Application** corresponding to the serial port, and set it to **Device Control**. In the **Mode** column, select **ASPP**.
- > Moxa provides example programs on the website (<u>www.moxa.com</u>) that can be downloaded.

## **SLIP/PPP Connection Problems**

#### Problem: Cannot make a SLIP connection to a remote host.

#### Solutions:

- Check to see if the CN2510's SLIP port baud rate (in the **Port** → Line menu) is the same as the remote host's baud rate.
- Check to see if data bits = 8.
- > Check to see if the XON/XOFF flow control is the same as the remote site.
- Check to see if the RS-232 cable is wired correctly. If the port is utilizing RTS/CTS hardware flow control, then the RTS, CTS pins should be included. In this case, cables with only pins 2, 3, and 7 will not work.
- > Make sure there is no "getty" or other process using the SLIP port on the remote site.

## **RADIUS Problems**

#### Question: What can I do if there is an authentication check failure on the radius server?

#### Solutions:

- > Check to see if the console password is the same as the radius server's radius key.
- > Make sure the password was entered correctly.
- > Make sure the account and password in the login script are correct.
- If the authentication check runs for a long time and then times out, check to see if the RADIUS Server's IP is correct. E.g., set up one port as Rtelnet, telnet CN2510's TCP port from radius, and then telnet CN2510's console and check the Monitor {line} status. Check to see if the remote IP address matches the radius IP address you set in the CN2510.

#### Question: Why can't I compile radius software on a system running Linux Red hat 5.0?

#### Solutions:

Take the following steps if you compiled RADIUS2.3 on Red hat 5.0 or above:

1. Save makefile-SCO as a file named makefile-LINUX, and then modify the content as follows:

```
#
# make file for LINUX
#
LIBS = -lcrypt
include Makefile
```

2. Add two similar line to the shell program "mk\_radius" at read\_os "1". For example, they might appear as follows:

read\_os case \$ans in `1') clear mk\_src echo "enter lib directory" cd lib echo "compiling source program ...." make cd .. echo "linking program ....." make -f Makefile-LINUX;;

# **RADIUS Server**

Managing dispersed serial lines and modem pools for large numbers of users can create the need for significant administrative support. Since modem pools are a link to the outside world, they require careful attention to security, authorization, and accounting. This can best be achieved by managing a single "database" of users, allowing for authentication (verifying user name and password) as well as configuring information which details the type of service to deliver to the user (for example: SLIP, PPP, Telnet, rlogin). Moxa CN2510 Async Server supports RADIUS protocol, which requires only one database for remote user management.

The following topics are covered in this appendix:

#### What is RADIUS?

- Definition
- Client/Server Architecture
- **Setting up CN2510** 
  - > Setting up the RADIUS Server IP Address
  - Setting up Port Configuration
- Setting up UNIX Hosts
- Setting up Windows NT Hosts
- Setting up Windows 2000 Hosts
- Setting up Windows 2003 Hosts

## What is RADIUS?

### Definition

Remote Authentication Dial-up User Service, or RADIUS, is the standard for centralizing the authentication, authorization, and accounting of remote access users.

Here is a brief description of how RADIUS works: When a user dials in to a remote access device, that device communicates with the central RADIUS server to determine if the user is authorized to connect to the LAN. The RADIUS server performs the authentication and responds with the result—either accept or reject. If the user is accepted, the remote access server routes the user onto the network; if not, the RAS will terminate the user's connection. The RADIUS server also provides accounting services if supported by the remote access server.

With RADIUS, a network manager or ISP only needs to maintain a single, central database against which all remote user authentication takes place. This greatly eases the management burden associated with administering large numbers of Dial-in users.

### **Client/Server Architecture**

RADIUS is a type of client-server software. Communication servers, such as CN2510, play an active role, whereas a RADIUS server is passive.

When a remote host is connected to CN2510, it is prompted to enter its user ID and password.

After receiving the user ID and password, CN2510 sends the information to a defined RADIUS server. Up to this point, the remote user is still unable to access the network.

The RADIUS server compares the user ID and password with its internal database, and then uses the internet to respond, either accepting or rejecting.

If CN2510 receives the "accept" message from the RADIUS server, the remote user is allowed to enter the network. Otherwise, CN2510 will wait for another try, or terminate the connection when a specified time limit has been reached.

## Setting up CN2510

### Setting up the RADIUS Server IP Address

1. From the MAIN MENU, select Server, and then press Enter.

```
      CN2510-8
      CN2510-8_5631
      V2.0
      MAIN MENU

      [Server]
      Port seTting sAve Utility Restart Exit
      Examine/modify async server node/table configuration

      Enter:
      select
      ESC: previous menu
```

2. From the SERVER MENU, select Adv., and then press Enter.

CN2510-8 CN2510	-8_5631	V2.0	
Info. Lan [Adv.] Host_table Rout Examine/modify async server basic			
ESC: back to menu Enter: select			
RADIUS server IP RADIUS key UDP port <1:1645 2:1812> Enable RADIUS accounting		]	]
SNMP community name SNMP trap server IP address	[public [	]	]
Ethernet IP forwarding Routing protocol		None     RIP-1     RIP-2	
TCP retransmission timeout SIO data transfer timeout		++: 50 - 60000 ms) (range: 0 - 1000 ms)	

3. RADIUS settings.

RADIUS server IP: [RADIUS server IP address]

RADIUS key: [RADIUS password] (must be the same in the RADIUS server)

**UDP port**: [1/2]

Mode 1: An earlier but rather common setting is 1645. If you choose 1645, the authentication has to be set as 1645, and accounting as 1646 in the RADIUS Server.

Mode 2: The latest setting is 1812. If you choose 1812, the authentication must be set as 1812, and accounting as 1813 in the RADIUS Server.

#### Enable RADIUS accounting: [yes/no]

4. Save, and then restart CN2510.

### **Setting up Port Configuration**

RADIUS is effective for dial-up services. Apart from dial-in services (PPP, SLIP, Dynamic), it also supports RADIUS settings in Terminal applications and Console Management application.

### **Dialin/out**—Dynamic Mode

CN2510-8 CN2510-8_5631 V2.0
[Mode] Line mOdem Welcome_MSG Quit
Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
Port Application Mode Description/more setting
01 [Dialin/out ] [DYNAMIC ] [Auto Term/SLIP/PPP identification]
02 [Dialin/out ] [DYNAMIC ] [Auto Term/SLIP/PPP identification]
03 [Dialin/out ] [DYNAMIC ] [Auto Term/SLIP/PPP identification]
04 [Dialin/out ] [DYNAMIC ] [Auto Term/SLIP/PPP identification]
++
Enable Detail-setting
TERM_BIN mode [yes] [Term parameters]     PPPD_mode [yes] [PPP_parameters]

[SLIP parameters]

Dialin/out-	PPP/PPD	Mode

[yes]

SLIPD mode

TERM\_BIN mode

PAP password

Incoming PAP check

CN2510-8	CN2510-8_5	5631 V2.0	
[Mode] Line mOdem Welco Examine/modify the opera	_	async ports	
ESC: back to menu Enter	: select		
03 [Dialin/out ]	Mode [PPP ] [PPP ] [PPP ] [PPP ]	Description/more setting [Point-to-Point Protocol [Point-to-Point Protocol [Point-to-Point Protocol [Point-to-Point Protocol	] ] ]
<pre>+</pre>	: [ : [ : [no ] : [0 ] min	1   ]   ]   ]   utes   ]	

٦

[none

### Dialin/out—TERM\_BIN / TERM\_ASC Mode

CN2510-8	CN2510-8_5633	1 V2.0	
[Mode] Line mOdem Weld	come MSG Ouit		
Examine/modify the open		nc ports	
	4	-	
ESC: back to menu Ent	er: select		
Port Application 01 [Terminal ] [T		scription/more se Terminal mode (8	
02 [Terminal ] [1		Terminal mode (8	
		Terminal mode (8	
<pre>Key Mapping : Max. Sessions Max. Session Quit Break Interrupt Auto-link protocol Felnet TCP port Primary host IP Link by input IP Secondary host IP Auto-login prompt Dassword prompt Login user name Login password Terminal type : [a]</pre>	<pre>: [^TT] : [^T] : [^E] : [ ] : [ ] : [none ] : [23 ] : [ ] : [Disable] : [ ] : [ogin: : [assword: ] : [ ] ansi ]</pre>		

### **Console Management—RADIUS Settings**

TCP alive check time : [0 ] minutes

\_ \_

CN2510-8 CN2510-8_5631 V2.0
[Mode] Line mOdem Welcome_MSG Quit Examine/modify the operation mode of async ports
ESC: back to menu Enter: select
PortApplicationModeDescription/more setting01[Reverse Terminal ][RTELNET ][Reverse Telnet mode]02[Reverse Terminal ][RTELNET ][Reverse Telnet mode]03[Reverse Terminal ][RTELNET ][Reverse Telnet mode]04[Reverse Terminal ][RTELNET ][Reverse Telnet mode]05[Reverse Terminal ][RTELNET ][Reverse Telnet mode]
<pre>++   TCP port : [4003 ]     Source IP address : [ ]     Destination IP addr : [ ]     Inactivity time : [0 ] minutes     Map keys <cr-lf> to : [CR-LF]     Authentication type : [none ]     TCP alive check time : [0 ] minutes   ++</cr-lf></pre>

## Setting up UNIX Hosts

MOXA recommends the FreeRADIUS server for UNIX users. FreeRADIUS is the premiere open source RADIUS server, and is well within the top 5 RADIUS servers in use world-wide. It is suitable for embedded systems with small amounts of memory, to systems with millions of users. It is fast, flexible, configurable, and supports more authentication protocols than many commercial servers.

The server is released under the GNU General Public License (GPL), which means that it is free to download and install. FreeRADIUS can be downloaded from the following website:

http://www.freeradius.com/

## **Setting up Windows NT Hosts**

Install Windows NT OPTION PACK 4.0 to Windows NT server.

1. Start → Programs → Windows NT 4.0 Option Pack → Microsoft Internet Information Server → Management Console Manger.



- Click Console Root → Internet Information Server (in the left info window). Your computer's name will be visible.
- 3. Click your computer name, after which you will see RADIUS in the right info window.



4. Right click on **RADIUS** in the left info window, and then select **Properties**.



5. Select Service. Check the RADIUS ports.

[Authentication] 1645 [Accounting] 1646

Select Client, and the click on Add. Enter CN2510's IP address in the IP address field. Enter CN2510's password in the password field. The password corresponds to the RADIUS key setting in the CN2510 Console.

Service Logging Clients Profiles
Clients are network access device the development of the second to the second to the second s
Authentication requests can be re Client Location  Client Location  P address:  DNS name:  DNS name:
Add Eemove HoxaServer U2.00
Info. [Addus] Host_table Route_table User_table Quit Examine/modify async server advance configuration
OK ESC-back to menu Enter: select
RADIUS server IP         [192.168.205.101]           RADIUS key         [1234]           UDP port (1:1645 2:1812)         [1]           Enable RADIUS accounting [yes]         []
SNHP community name [public ] SNHP trap server IP address [ ]
Ethernet IP forwarding [no ] Routing protocol [None ]
TCP retransmission timeout [ ] SIO data transfer timeout [ ]

- 7. Click Apply.
- 8. Right click on **RADIUS** in the left info window, and select **Start**.
- 9. You will now see that RADIUS is running.

## **Setting up Windows 2000 Hosts**

- 1. Click on Start  $\rightarrow$  Programs  $\rightarrow$  Administrative Tools  $\rightarrow$  Routing and Remote Access.
- 2. Follow the steps below to install. Right click on Server (Local) to select Configure and Enable Routing and Remote Access. Click on Next to continue.
- 3. Select **Remote access server**, and then click on **Next** to continue.

🚊 Routing	and Remote Access	_ 🗆 🗙
<u>A</u> ction	Routing and Remote Access Server Setup Wizard	
Tree Routing	Common Configurations You can select from several common configurations.	
🔁 ANN	<ul> <li>Internet connection server Enable all of the computers on this network to connect to the Internet.</li> <li>Remote access server</li> </ul>	
	Enable remote computers to dial in to this network. C Virtual private network (VPN) server Enable remote computers to connect to this network through the Internet.	*SS
	C Network router Enable this network to communicate with other networks.	
	C Manually configured server Start the server with default settings.	
	< Back Next > Cancel	
🛃 Start	🙆 🥭 🗊 🛛 🧕 Routing and Remote A 📢	1:15 PM

4. Select Set up an advanced remote access server, and then click on Next to continue.

🚊 Routing	and Remote Access	_ 🗆 🗡
Action	Routing and Remote Access Server Setup Wizard	
Tree Routing	Remote Access Server Setup You can use a basic configuration or more advanced options to set up this remote	
🔁 ANN	Select a configuration type based on the complexity of your network.	
		ess
	Set up an advanced remote access server Select this option to create a server that will have advanced administrative features such as remote access policies, or if you plan to add this server to a domain.	
	< Back Next > Cancel	
🛃 Start 📗	🙆 🥭 🤤 🗍 🚊 Routing and Remote A	1:56 PM

5. Select **TCP/IP** protocol, and then click on **Next** to continue.

🚊 Routing	and Remote Access	_ 🗆 🗵
Action	Routing and Remote Access Server Setup Wizard	
Tree Routing	Remote Client Protocols The protocols required for remote client access must be available on this server.	
🔁 ANN	Verify that the protocols required on this server for remote clients are listed below.	
	Protocols:	
		955
	Yes, all of the required protocols are on this list	
	C No, I need to add protocols	
	< Back Next > Cancel	
🛃 Start	🙆 🧉 🗐 📴 Routing and Remote A	2:01 PM

6. Specify an IP address.

E Routing and Remote Access	
Action Routing and Remote Access Server Setup Wizard	
Tree IP Address Assignment Provide Comparison of the method for assigning IP addresses to render the method for assigning IP	
ANN How do you want IP addresses to be assigned to remote clie Automatically If you use a DHCP server to assign addresses, confirm th If you do not use a DHCP server, this server will generate From a specified range of addresses	at it is configured properly.
📕 Start 🛛 🙆 🤔 🏹 🖉 Routing and Remote A	

Routing	and Remote Access	- 🗆 🗵
Action	Routing and Remote Access Server Setup Wizard	
Tree Routing	remote clients.	
🍋 ANN	En New Address Range I of the Type a starting IP address and either an ending IP address or the number of Ad addresses in the range.	
	F         Start IP address:         Image: Control of address:	PSS
	OK Cancel	
	< Back Next> Cancel	
<b>Start</b>	🖸 🈂 🧊 🗍 🚊 Routing and Remote A 🍕	2:05 PM

7. Select **Yes, I want to use a RADIUS server**, and then click on **Next** to start using this function.

🚊 Routing	j and Remote Access	<u>- 🗆 ×</u>
Action	Routing and Remote Access Server Setup Wizard	
Tree Routing		
🔁 ANN	A Remote Authentication Dial-In User Service (RADIUS) server provides a central authentication database for multiple remote access servers and collects accounting information about remote connections.	
	Do you want to set up this remote access server to use an existing RADIUS server?	ess
	O No, I don't want to set up this server to use RADIUS now	~~
	Yes, I want to use a RADIUS server	
	Windows provides a RADIUS solution called Internet Authentication Service (IAS) as an optional component that you can install through Add/Remove Programs.	
	< Back Next > Cancel	
Start	🕜 🏈 🗊 🗍 🧕 Routing and Remote A	2:12 PM

## **Setting up Windows 2003 Hosts**

Windows 2003 uses IAS service instead of RADIUS service. For this reason, you need to install IAS service to use RADIUS with Windows 2003 (IAS service will not be installed by default).

- 1. Click on Start  $\rightarrow$  Add or Remove Programs  $\rightarrow$  Add/Remove Windows Components.
- 2. With Windows Components selected, choose Network Services.

Windows Components Wizard	×
Windows Components You can add or remove components of Windows.	t
To add or remove a component, click the checkbox. A shaded box me part of the component will be installed. To see what's included in a con Details.	
Components:	
🔲 불 Management and Monitoring Tools	6.4 MB 🔺
🗹 🚉 Networking Services	2.6 MB
Other Network File and Print Services	0.0 MB 💻
🗆 🚐 Remote Installation Services	2.0 MB
🗆 📾 Bemote Storage	35MB 🔟
Description: Contains a variety of specialized, network-related services	and protocols.
Total disk space required: 17.2 MB	Details
Space available on disk: 1914.9 MB	Details
< <u>B</u> ack <u>N</u> ext > Cance	I Help

3. Select **Details**, and then **Internet Authentication Service**. Click on **OK** to continue until the installation is finished.

Networking Services	×
To add or remove a component, click the check box. A shaded box m of the component will be installed. To see what's included in a compon	
Sub <u>c</u> omponents of Networking Services:	
🗆 🚚 Domain Name System (DNS)	1.6 MB 🔄
🗆 📇 Dynamic Host Configuration Protocol (DHCP)	0.0 MB
🗹 畏 Internet Authentication Service	0.0 MB
RPC over HTTP Proxy	0.0 MB
🗆 📃 Simple TCP/IP Services	0.0 MB
🗆 📮 Windows Internet Name Service (WINS)	0.9 MB
	-
Description: Enables authentication, authorization and accounting o users. IAS supports the RADIUS protocol.	f dial-up and VPN
Total disk space required: 14.6 MB	Details
Space available on disk: 1914.9 MB	<u> </u>
OK	Cancel

4. After the installation is finished, click on **Administrative Tools**, and run **Internet Authentication Service**. The window shown below will open.



5. Select **NEW RADIUS Client** to add a new RADIUS client. You will then be able to start using this function.

# **SNMP Agent with MIB II**

Simple Network Management Protocol agent software is built into CN2510. The software supports cold/warm start trap, line up/down trap, and RFC 1213 MIB-II. The following table lists the standard MIB-II groups, as well as the variable implementations for CN2510.

System MIB	Interfaces MIB	IP MIB	ІСМР МІВ
SysDescr	itNumber	ipForwarding	IcmpInMsgs
SysObjectID	ifIndex	ipDefaultTTL	IcmpInErrors
SysUpTime	ifDescr	ipInreceives	IcmpInDestUnreachs
SysContact	ifType	ipInHdrErrors	IcmpInTimeExcds
SysName	ifMtu	ipInAddrErrors	IcmpInParmProbs
SysLocation	ifSpeed	ipForwDatagrams	IcmpInSrcQuenchs
SysServices	ifPhysAddress	ipInUnknownProtos	IcmpInRedirects
	ifAdminStatus	ipInDiscards	IcmpInEchos
	ifOperStatus	ipInDelivers	IcmpInEchoReps
	ifLastChange	ipOutRequests	IcmpInTimestamps
	ifInOctets	ipOutDiscards	IcmpTimestampReps
	ifInUcastPkts	ipOutNoRoutes	IcmpInAddrMasks
	ifInNUcastPkts	ipReasmTimeout	IcmpOutMsgs
	ifInDiscards	ipReasmReqds	IcmpOutErrors
	ifInErrors	ipReasmOKs	IcmpOutDestUnreachs
	ifInUnknownProtos	ipReasmFails	IcmpOutTimeExcds
	ifOutOctets	ipFragOKs	IcmpOutParmProbs
	ifOutUcastPkts	ipFragFails	IcmpOutSrcQuenchs
	ifOutNUcastPkts	ipFragCreates	IcmpOutRedirects
	ifOutDiscards	ipAdEntAddr	IcmpOutEchos
	ifOutErrors	ipAdEntIfIndex	IcmpOutEchoReps
	ifOutQLen	ipAdEntNetMask	IcmpOutTimestamps
	ifSpecific	ipAdEntBcastAddr	IcmpOutTimestampReps
		ipAdEntReasmMaxSize	IcmpOutAddrMasks
		IpNetToMediaIfIndex	IcmpOutAddrMaskReps
		IpNetToMediaPhysAddress	
		IpNetToMediaNetAddress	
		IpNetToMediaType	
		IpRoutingDiscards	

#### Supported SNMP variables

UDP MIB	ТСР МІВ	SNMP MIB
UdpInDatagrams	tcpRtoAlgorithm	snmpInPkts
UdpNoPorts	tcpRtoMin	snmpOutPkts
UdpInErrors	tcpRtoMax	snmpInBadVersions
UdpOutDatagrams	tcpMaxConn	snmpInBadCommunityNames
UdpLocalAddress	tcpActiveOpens	snmpInASNParseErrs
UdpLocalPort	tcpPassiveOpens	snmpInTooBigs
	tcpAttempFails	snmpInNoSuchNames
Address Translation MIB	tcpEstabResets	snmpInBadValues
AtIfIndex	tcpCurrEstab	snmpInReadOnlys
AtPhysAddress	tcpInSegs	snmpInGenErrs
AtNetAddress	tcpOutSegs	snmpInTotalReqVars
	tcpRetransSegs	snmpInTotalSetVars
	tcpConnState	snmpInGetRequests
	tcpConnLocalAddress	snmpInGetNexts
	tcpConnLocalPort	snmpInSetRequests
	tcpConnRemAddress	snmpInGetResponses
	tcpConnRemPort	snmpInTraps
	tcpInErrs	snmpOutTooBigs
	tcpOutRsts	snmpOutNoSuchNames
		snmpOutBadValues
		snmpOutGenErrs
		snmpOutGetRequests
		snmpOutGetNexts
		snmpOutSetRequests
		snmpOutGetResponses
		snmpOutTraps
		snmpEnableAuthenTraps

# **Pin Assignments and Cable Wiring**

In this appendix, common pin assignment and cable wiring diagrams are presented.

The following topics are covered in this appendix:

#### Pin Assignments

- > 10/100BaseTX Port Pin Assignment
- > Console Port Pin Assignment
- > Async RS-232 Port Pin Assignment

#### Cable Wiring

- > 10/100BaseTX Port Cable Wiring
- > Async RS-232 Port Cable Wiring
- > DB9 and DB25 Connector Pin Assignments

# **Pin Assignments**

### 10/100BaseTX Port Pin Assignment

Pin	Signal	
1	Tx+	
2	Tx-	1 8
3	Rx+	
6	Rx-	

### **Console Port Pin Assignment**

Pin	RS-232
1	DSR (in)
2	RTS (out)
3	GND
4	TxD (out)
5	RxD (in)
6	DCD (in)
7	CTS (in)
8	DTR (out)



## Async RS-232 Port Pin Assignment

Pin	RS-232
1	DSR (in)
2	RTS (out)
3	GND
4	TxD (out)
5	RxD (in)
6	DCD (in)
7	CTS (in)
8	DTR (out)



# **Cable Wiring**

## 10/100BaseTX Port Cable Wiring



## Async RS-232 Port Cable Wiring

#### 8-pin RJ45 to Male DB9 for CN2510 RJ45 Port : RJ45 Connector Male DB9 Female DB9 **RS-232** CN2510 $\langle \|$ Device **Cable Wiring** 8 pins 9 pins DSR RTS GND - 6 DTR 1 🔫 ÷ 2 ▶ 7 CTS - 5 GND 3 -TxD 🗄 4 · ► 3 RxD RxD DCD CTS 5 🔫 2 TxD 6 🔫 - 1 DCD 7 \prec - 8 RTS ► 4 DSR DTR 8 -

#### 8-pin RJ45 to Female DB9 for CN2510



#### 8-pin RJ45 to Female DB25 for CN2510



#### 8-pin RJ45 to Male DB25 for CN2510



### **DB9 and DB25 Connector Pin Assignments**



**DB25 Connector Pin Assignment** 

Male DB25 Connector







Female DB25 Connector



For first time installation, we recommend using the LCM display and four push buttons to configure the IP address.

#### **Basic Operation**

If the CN2510 is working properly, the LCM panel will display a green color. The red Ready LED will also light up, indicating that the CN2510 is receiving power. After the red Ready LED turns to green, you will see a display similar to:

С	Ν	2	5	1	0	-	8	_	1	9				
1	9	2		1	6	8		1	2	7	2	5	4	

This is where

- CN2510-8 is the CN2510's name
- 19 is the CN2510's serial number
- 192.168.127.254 is the CN2510's IP address

There are four push buttons on CN2510's nameplate. Going from left to right, the buttons are:

Button	Name	Action
menu	menu	activates the main menu, or returns to an upper level
$\bigtriangleup$	up cursor	scrolls up through a list of items shown on the LCM panel's 2nd line
$\bigtriangledown$	down cursor	scrolls down through a list of items shown on the LCM panel's 2nd line
sel	select	selects the option listed on the LCM panel's 2nd line

The buttons are manipulated in a manner similar to the way a modern cellular phone operates. As you move through the various functions and setting options, note that the top line shows the current menu or submenu name, and the bottom line shows the submenu name or menu item which is activated by pressing the SEL button.

#### **Detailed Menu Options**

The best way to explain all of CN2510's LCM functions is to refer to the tree graph shown on the next page. There are three main levels-1, 2, and 3—with each level represented by a separate column.

The first thing to remember is that the MENU button is used to move back and forth between the LCM panel's default screen, and main menu screen:

С	Ν	2	5	1	0	-	0	8	_	0	3				
1	9	2		1	6	8		1	2	7		2	5	4	
	$\uparrow$														
MENU															
							Ļ								
М	a	i	n		М	е	n	U							
S	е	r	V	е	r		S	е	t	t	i	n	g		$\downarrow$

In addition, you only need to remember to:

- Use the SEL button to move up one level (i.e., left to right on the tree graph)
- Use the MENU button to move down one level (i.e., right to left on the tree graph)
- Use the cursor keys, △ and ▽, to scroll between the various options within a level (i.e., up and down on the tree graph).

As you use the buttons to operate the LCM display, you will notice that with very few exceptions, moving up one level causes the bottom line of the display to move to the top line of the display. You will also notice that the bottom three options in level 2, and all of the options in level 3 have either a C or D attached. The meaning is as follows:

• C = configurable

I.e., you are allowed to change the setting of this option

• D = display only

I.e., the setting for this option is displayed, but it cannot be changed (this does NOT necessarily mean that the number doesn't change; only that you can't change it)

Main Menu			
	Server setting	Serial number	D
		Server name	С
		Firmware ver	D
		Model name	D
	Network	Ethernet status	D
	setting	MAC address	D
		IP config	С
		IP address	С
		Netmask	С
		Gateway	С
		DNS server 1	С
		DNS server 2	С
	Serial set	Select port	С
		Baud rate	С
		Data bit	С
		Stop bit	С
		Parity	С
		Flow control	С
		Tx/Rx fifo	С
		Interface	С
		Tx/Rx bytes	D
		Line status	D

The part of the LCM operation that still requires some explanation is how to edit the configurable options. In fact, you will only encounter two types of configurable options.

The first type involves entering numbers, such as IP addresses, Netmasks, etc. In this case, you change the number one digit at a time. The up cursor ( $\triangle$ ) is used to decrease the highlighted digit, the down cursor ( $\nabla$ ) is used to increase the highlighted digit, and the sel button is used to move to the next digit. When the last digit has been changed, pressing sel simply enters the number into CN2510's memory.

The second type of configurable option is when there are only a small number of options from which to choose (although only one option will be visible at a time). Consider the Parity attribute under Serial set as an example. Follow the tree graph to arrive at the following Parity screen. The first option, None, is displayed, with a down arrow all the way to the right. This is an indication that there are other options from which to choose.

Р	a	r	i	t	У										
Ν	0	n	е												$\downarrow$
Press	Press the down cursor button once to see Odd as the second option.														
Р	а	r	i	t	У										$\uparrow$
0	d	d													$\downarrow$
Press	Press the down cursor button again to see Even as the third option.														
Р	а	r	i	t	У										$\uparrow$
Е	v	е	n												$\downarrow$
Press	the do	wn curs	sor butt	on aga	in to se	ee Spac	ce as th	ie fourt	h optio	n.					
Р	а	r	i	t	У										$\uparrow$
S	р	a	С	е											$\downarrow$
Press	the do	wn curs	sor butt	on yet	again t	o see t	he last	option	, Mark.		•	•			
Þ	a	r	i	+	3.7										^

Р	a	r	i	t	У					$\uparrow$
М	a	r	k							

To choose the desired option, press the SEL button when the option is showing on the screen.