

Go to Table

EN-4000™ Reference Manual Document 7

Configuring the EN-4000's Serial Ports

A module containing two serial ports is installed in an expansion port on the front of the EN-4000. This document discusses configuration of the EN-4000's serial ports.

Also see Configuring Chassis Ports in the EN-4000.

7.1 Connecting to the EN-4000

Connect a management terminal to the EN-4000, and log into the management system. (For details, see *Using the EN-4000's Management System*, in the document *Configuring General Settings for the EN-4000*.)

7.2 Configuring a Serial Port

1 On the EN-4000 Management System, select the Network tab.

✤ The Network Interfaces Screen is displayed (Figure 7-1).

| atic Routes Load Sharing/Failover | QoS Di | agnostics | Hostnames | DHCP and DNS | VPN | VRRP | Serial | _ | _ | _ | _ | _ | _ |
|--|---|---|--|---|---|---|--|--|---|---|--|---|---|
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Status | | | | | | | | | A | tions | | | |
| Uptime: 7d 0h 7m 47s | Uptime: 7d 0h 7m 47s | | | | | | | | | | | | |
| RX: 124.81 MB (369234 Pkts | 2.22.10 | | | | | 2 | Connect | 8 | Stop | | Edit | × | Delete |
| IX: 445.82 MB (466462 Pkts IPv4: 192.168.1.1/24 | s.) | | | | | | | | | | | | |
| Uptime: 7d 0h 7m 43s | 0.50.45 | | | | | | | | | | | | |
| RX: 658.41 MB (3129536 Pk | 5:59:15 ts.) | | | | | 2 | Connect | | Stop | | Edit | × | Delete |
| TX: 121.31 MB (431830 Pkts | s.) | | | | | | | | | | | | |
| | Status Uptime: 7d 0h 7m 47s MAC-Address: 00:40:E80:24 Pkt TX: 445.82 MB (466422 Pkt Uptime: 7d 0h 7m 43s Uptime: 7d 0h 7m 43s Uptime: 7d 0h 7m 43s Vi: 192.16s: 1.1/24 Uptime: 7d 0h 7m 43s MC-Address: 00:40:E80 MC: 638.41 MB (3129356 Pkt) | Status Uptime: 7d 0h 7m 47s MAC-Address: 00:A0:EB103:59:16 RX: 124.81 M8 (369234 Pkts.) TX: 445.82 M8 (466462 Pkts.) TX: 445.82 M8 (466462 Pkts.) IV: 192.168.1.124 Uptime: 7d 0h 7m 43s MAC-Address: 00:A0:EB103:59:15 RX: 688.41 M8 (3129356 Pkts.) | Status Uptime: 7d 0h 7m 47s MAC-Address: 00:A0:E6003:59:16 RX: 124.81 M6 (369234 Pkts.) TX: 445.82 M6 (466462 Pkts.) IFV4: 192.168.1.1/24 Uptime: 7d 0h 7m 43s MAC-Address: 00:A0:E61003:59:15 RX: 658.41 M9 (3129250 Pkts.) RX: 658.41 M9 (3129230 Pkts.) | Status Uptime: 7d 0h 7m 47s MAC-Address: 00:A01:E8:03:59:16 RX: 124.81 M8 (369234 Pkts.) TX: 445.82 M8 (466462 Pkts.) TX: 445.82 M8 (466462 Pkts.) Uptime: 7d 0h 7m 03.80 Pkts.) IV: 192.168.11.124 Uptime: 70.00.1E8:03:59:15 MAC-6ddress: 00:A01E8:03:59:15 RX: 658.41 M8 (2129350 Pkts.) | Status Uptime: 7d 0h 7m 47s MAC-Address: 00:A0:EB:00:59:16 RX: 14.8.1 MR (392324 Pkts.) TX: 445.82 MR (466462 Pkts.) IFV4: 192.168.1.1/24 Uptime: 7d 0h 7m 43s MAC-Address: 00:A0:EB:00:59:15 MAC-Address: 00:A0:EB:00:59:15 MAC-Address: 00:A0:EB:00:59:15 MAC-Bdress: 00:A0:EB:00:59:15 | Status Uptime: 7d 0h 7m 47s MAC-Address: 00:00.0258/9516 RX: 124.31 ME (305934 Pkts.) TX: 445.82 MB (466462 Pkts.) IFV4: 192.168.1.1/244 Uptime: 7d 0h 7m 43s MAC-Address: 00:00.01E80.03:59:15 MX: 658.41 MB (312950 Pkts.) IX: 658.41 MB (312950 Pkts.) | Status Uptime: 7d 0h 7m 47s WAC-Address: 00:A01:E8:03:59:16 #################################### | Status Uptime: 7d 0h 7m 475 MAC-Address: 00:A0:EB:03:59:16 RX: 124.31 MR (369234 Pkts.) TX: 445.82 MR (466462 Pkts.) RX: 124.31 MR (369234 Pkts.) Uptime: 7d 0h 7m 475 RX: 145.81 MR (369234 Pkts.) TX: 445.82 MR (466462 Pkts.) RX: 124.31 MR (369234 Pkts.) IPU+1: 192.168.1.1/24 RX: 129.2168.1.1/24 Uptime: 7d 0h 7m 432 RX: 668.41 MR (3129536 Pkts.) RX: 668.41 MR (3129536 Pkts.) RX: 668.41 MR (3129536 Pkts.) | Status Uptime: 7d 0h 7m 475 MAC-Address: 00:A0:E80:03:59:16 RX: 12:43:1M 8(369:234 Pkts.) TX: 445.82 MB (466462 Pkts.) If 24:13:14:17:44 Uptime: 7d 0h 7m 43: If 26:05:29:15 MAC-Address: 00:A0:E80:03:59:15 If 26:05:29:15 MAC-6:04:05:29:05:15:15 If 26:05:29:15 MAC-6:04:05:00:05:15:15 If 20:05:29:15 MAC-6:04:05:00:05:15:15 If 20:05:29:15 MAC-6:04:05:00:05:15:15 If 20:05:29:15 MAC-6:04:05:00:05:15 If 20:05:29:15 MAC-6:04:05:00:05:00:15 If 20:05:29:00:15 | Status Act Uptime: 7d 0h 7m 47s MAC-Address: 00:A0:EB:00:59:16 RX: 124.31 IM (50:9324 Pkts.) Image: Connect @ Stop TX: 445.82 MB (466462 Pkts.) Image: Connect @ Stop Uptime: 7d 0h 7m 47s Image: Connect @ Stop MAC-Address: 00:A0:EB:00:59:15 Image: Connect @ Stop MAC-Address: 00:A0:EB:00:59:15 Image: Connect @ Stop MAC-Address: 00:A0:EB:00:59:15 Image: Connect @ Stop MAC-6Address: 00:A0:EB:00:59:15 Image: Connect @ Stop MAC-6Address: 00:A0:EB:00:59:15 Image: Connect @ Stop MAC-6Address: 00:A0:EB:00:59:15 Image: Connect @ Stop | Status Actions Uptime: 7d 0h 7m 47s @Connect MAC-Address: 00:A0(EB:03:59:16 @Connect RX: 124.31 MB (369234 Pkts.) ?Connect TX: 445.32 MB (466462 Pkts.) ?Connect Uptime: 7d 0h 7m 42s @Connect MAC-Address: 00:A0(EB:03:59:15 ?Connect MAC: 638.41 MB (312930 Phts.) ?Connect MAC: 638.41 MB (312930 Phts.) ?Connect | Status Actions Uptime: 7d 0h 7m 47s @ Connect MAC-Address: 00:A0:EB:03:59:16 @ Connect RX: 124.31 ME (369234 Pkts.) If Version 24 Pkts.) ITX: 445.32 ME (466462 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466462 Pkts.) If Version 25 Pkts.) ItX: 45.41 ME (369323 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466462 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466462 Pkts.) If Version 25 Pkts.) ItX: 45.32 ME (466462 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466462 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466462 Pkts.) If Version 25 Pkts.) ItX: 45.32 ME (466462 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466462 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466452 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466452 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466452 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466452 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466452 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466452 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466452 Pkts.) If Version 25 Pkts.) ItX: 445.32 ME (466452 Pkts.) If Version 25 Pkts.) | Status Actions Uptime: 7d 0h 7m 47s MAC-Address: 00:A0:EB:03:59:16 RX: 124.51 IM (50:9234 Pkts.) Image: Connect @ Stop @ Edit x TX: 445.82 IM (646462 Pkts.) Image: Connect @ Stop @ Edit x Uptime: 7d 0h 7m 43s Image: Connect @ Stop @ Edit x Vptime: 7d 0h 7m 43s Image: Connect @ Stop @ Edit x |

Figure 7-1. Network Interfaces Screen

2 Then select the Serial tab.

The Serial Port Configuration Screen is displayed (Figure 7-2).



| | pout | |
|--|--|-----------------|
| terfaces Firewall Static Routes Load Sharing | /Failover QoS Diagnostics Hostnames DHCP and DNS | VPN VRRP Serial |
| ort Settings | | |
| rial Ports Configuration | | |
| following is a table of the different protocols co Gerial Ports | figured for the serial port. | |
| Port Name | Protocol | |
| ttyACM10 | ASYNC_ENCAPS | Z Edit 🗶 Delete |
| ttygre5 | FRAME_RELAY_IP | Z Edit Delete |
| | TELNET_TERMINAL | Edit Delete |
| ttyACM11 | | |
| ttyACM11 | | |
| ttyACM11 | | |
| ttyACM11 | Modifications & Additions | |

The default configuration for the dual serial-port module includes the following. (Port names—for example, ttyACM10—may differ in your set-up.)

- **ttyACM10**: The Asynchronous Encapsulation protocol is the default configuration for one of the physical serial ports. This protocol sends and receives Async Encaps transmissions to and from a remote device.
- **ttyGRE5**: This virtual port uses general route encapsulation (GRE) to send and receive Frame Relay transmissions. (GRE uses the Internet Protocol, IP.)
- **ttyACM11**: The Telnet Terminal protocol is the default configuration on one of the physical serial ports.

The port configurations named ttyACM10 and ttyACM11 refer to discrete serial ports; each serves only one physical port. The port configuration named ttyGRE5 is a virtual port and can serve both physical serial ports. Additional virtual ports can be configured.

- **3** If you wish to customize a port configuration, select that row's **Edit** button. For example, select the edit button in the row for **ttyACM10**.
 - The Serial Port Configuration Detail Screen is displayed (Figure 7-3).



| ıcor <mark>e?n</mark> etworks | | | Change |
|---|--|-------------|---------------------------------|
| Status System Network Statistics Logout | | | |
| Interfaces Firewall Static Routes Load Sharing/Failover QoS I | Diagnostics Hostnames DHCP and DI | IS VPN VRRP | Serial |
| Port Settings | | | |
| erial Port - ttyACM10 | | | |
| onfig the Serial Port Parameters | | | |
| Port Name | ttyACM10 | • | |
| Protocol | Async Encaps Serial Port's Protocol | • | |
| Asynchronous Speed | 9600 | • | |
| Flow Control | HARDWARE | | |
| GPT Name | dlci16 | | |
| GPT Type | FRAME-RELAY PVC | • | |
| GPT Port | /dev/ttygre5 | | |
| DLCI Number | 16 | | |
| Priority | MEDIUM | • | |
| | | | |
| Back to Overview | | | 🕲 Reset 💟 Save 🛛 🛄 Save & Apply |

- **4** On the Serial Port Configuration Detail Screen, configure the following near the top of the screen:
 - **Port Name:** At the direction of your network administrator, you may rename the port to something more meaningful in your network.
 - **Protocol:** You may change the protocol that the port uses. The choices are:
 - Telnet Terminal
 - Frame Relay (Synchronous Mode)
 - Frame Relay (IP)
 - Asynchronous Encapsulation
 - The protocol selection determines the fields that appear on the rest of the screen.
- **5** See one of the following, as appropriate:
 - Step 6: Serial Port Configuration for Telnet Terminal
 - Step 7: Serial Port Configuration for Frame Relay (Synchronous Mode)
 - Step 8: Serial Port Configuration for Frame Relay over IP
 - Step 9: Serial Port Configuration for Asynchronous Encapsulation

6 Serial Port Configuration for Telnet Terminal

| tus System Network Statistics Logout | | | |
|---|---|-----------------------|--|
| erfaces Firewall Static Routes Load Sharing/Fai | lover QoS Diagnostics Hostnames DHCP an | d DNS VPN VRRP Serial | |
| rt Settings | | | |
| ial Port - ttyACM11 | | | |
| ig the Serial Port Parameters | | | |
| ort Name | ttyACM11 | | |
| rotocol | Telnet Terminal Serial Port's Protocol | × | |
| synchronous Speed | 9600 | | |
| fType | RS232 | | |
| emote Address | 192.168.1.3 | | |
| lemote Port | 261 | | |
| ocal Address | 192.168.1.1 | | |
| ocal Port | 258 | | |
| Data Bits | 8 | • | |
| arity | NONE | | |
| top Bits | 1 | | |
| low Control | OFF | | |
| Connection Type | DTR Dial | | |
| inswer Mode | OFF | × | |
| Data Mode | Normal | | |
| PT Port | /dev/ttygre5 | | |

- **a** On the Serial Port Configuration Detail for Telnet Terminal Screen (Figure 7-4), you may see the following fields:
 - Asynchronous Speed: Select a speed for the transmission.
 - IfType: The interface type can be RS232 or RS485.
 - Remote Address: IP address for remote device
 - Remote Port: Port number for remote device
 - Local Address: IP address for EN-4000
 - Local Port: Port number for EN-4000
 - Data Bits: 8, 7, or 6. Confer with your network administrator to match the data bits to the application.
 - Parity: None, Even, or Odd
 - Stop Bits: 1 or 2
 - Flow Control: Off or On
 - Connection Type: Manual or DTR Dial
 - Answer Mode:

Off (Does not answer calls, but will initiate calls.)

On (Answers and initiates calls.)

Only (Answers but does not initiate calls.)

- Data Mode: Binary or Normal
- **GPT (Global Path) Port:** Select a global path port for the virtual protocol to use, or select **custom** to type a new global path name.
- **b** Go to step 10.
- **7** Serial Port Configuration for Frame Relay (Synchronous Mode)

Figure 7-5. Serial Port Configuration Detail for Frame Relay (Synchronous Mode)

| atus System Network Statistics Logout | | | | | | |
|---|---------------------|--|-----------------|---------|--------|--|
| terfaces Firewall Static Routes Load Sharing/Fa | lover QoS Diagnosti | cs Hostnames [| DHCP and DNS VP | 'N VRRP | Serial | |
| ort Settings | | | | | | |
| rial Port - ttygre5 | | | | | | |
| nfig the Serial Port Parameters | | | | | | |
| Port Name | 1 | yGRE5 | | • | | |
| Protocol | | rame Relay (Synchr Serial Port's Protoc | onous Mode) | • | | |
| Management Protocol | J | ANSI ANNEX D User | | • | | |
| Synchronous Speeds | | 4000 Speed in BPS | | • | | |
| Trace Level | [| .OW | | • | | |
| Value N1 | 3 | Range 1-255 | | | | |
| Value N2 | 4 | Range 1-255 | | | | |
| Value N3 | 3 | Range 1-255 | | | | |
| Value T1 | 1 | 0 Range 5-30 | | | | |
| Value T2 | 1 | 5 Range 5-30 | | | | |
| GPT Port | _ | dev/ttygre5 | | • | | |

- **a** On the Serial Port Configuration Detail for Frame Relay (Synchronous Mode) Screen (Figure 7-5), you may see the following fields:
 - Management Protocol: Consult with your network administrator to select one of several available protocols.
 - Synchronous Speed: Select a speed for the transmission.
 - Trace Level: Low, Medium, High, Critical
 - Value N1: For Frame Relay, polling, and so forth.
 - Value N2: For Frame Relay, polling, and so forth.
 - Value N3: For Frame Relay, polling, and so forth.
 - Value T1: For Frame Relay, polling, and so forth.
 - Value T2: For Frame Relay, polling, and so forth.
 - GPT (Global Path) Port: Select a global path port for the virtual protocol to use, or select custom to type a new global path name.

b Go to step 10.

8 Serial Port Configuration for Frame Relay over IP

Figure 7-6. Serial Port Configuration Detail for Frame Relay (IP Mode)

| terfaces Firewall Static Routes Load Sharing | 'Failover QoS Diagnostics Hostnames DHCP ar | d DNS VPN VRRP Seri | 1 | |
|--|---|---------------------|---|--|
| rt Settings | | | | |
| ial Port - ttygre5 | | | | |
| fig the Serial Port Parameters | | | | |
| Port Name | ttyGRE5 | T | | |
| Protocol | Frame Relay (IP Mode) | | | |
| 1anagement Protocol | ANSI ANNEX D User | | | |
| Trace Level | LOW | • | | |
| .ocal Address | 192.168.1.1 | | | |
| Remote Address | 192.168.1.3 | | | |
| /alue N1 | 3 ② Range 1-255 | | | |
| /alue N2 | 4 ② Range 1-255 | | | |
| /alue N3 | 3 2 Range 1-255 | | | |
| /alue T1 | 10 🞯 Range 5-30 | | | |
| /alue T2 | 15 | | | |
| GPT Port | /dev/ttygre5 | • | | |

- **a** On the Serial Port Configuration Detail for Frame Relay (IP Mode) Screen (Figure 7-6), you may see the following fields:
 - Management Protocol: Consult with your network administrator to select one of several available protocols.
 - Trace Level: Low, Medium, High, Critical
 - Local Address: The EN-4000's IP address.
 - Remote Address: The remote device's IP address
 - Value N1: For Frame Relay, polling, and so forth.
 - Value N2: For Frame Relay, polling, and so forth.
 - Value N3: For Frame Relay, polling, and so forth.
 - Value T1: For Frame Relay, polling, and so forth.
 - Value T2: For Frame Relay, polling, and so forth.
 - GPT (Global Path) Port: Select a global path port for the virtual protocol to use, or select custom to type a new global path name.

b Go to step 10.

9 Serial Port Configuration for Asynchronous Encapsulation

Figure 7-7. Serial Port Configuration Detail for Asynchronous Encapsulation

| terfaces Firewall Static Routes Load Sharing/Failo | er QoS Diagnostics Hostnames DI | HCP and DNS VPN VRRP S | Serial |
|--|---------------------------------|------------------------|--------|
| rt Settings | | | |
| | | | |
| rial Port - ttyACM10 | | | |
| nfig the Serial Port Parameters | | | |
| Port Name | ttyACM10 | • | |
| Protocol | Async Encaps | • | |
| | Serial Port's Protocol | | |
| Asynchronous Speed | 9600 | • | |
| Flow Control | HARDWARE | • | |
| GPT Name | dlci16 | | |
| GPT Type | FRAME-RELAY PVC | • | |
| GPT Port | /dev/ttvgre5 | | |
| DI CI Number | 16 | | |
| | Range 16-1007 | | |
| Priority | MEDIUM | • | |

- **a** On the Serial Port Configuration Detail for Asynchronous Encapsulation Screen (Figure 7-7), you may see the following fields:
 - Asynchronous Speed: Select a speed for the transmission.
 - Flow Control: Hardware, Off, On, or Tx (Transmit) Only
 - GPT (Global Path) Name: Select a global path for the virtual protocol to use.
 - **GPT Type:** Select a global path type (Frame Relay, Telnet, and so forth) for the virtual protocol to use.
 - GPT Port: Select a global path port for the virtual protocol to use, or select custom to type a new global path name.
 - DLCI Number: Get the DLCI number from your network administrator.
 - Priority: Immediate, High, Medium, or Low
- **b** Go to step 10.
- **10** When you have finished configuring the serial port protocol, do one of the following:
 - a Select the Save & Apply button (in the lower right corner of the screen).
 - The changes are saved, and the Serial Port Configuration Screen is redisplayed. The new display includes your changes.
 - **b** Select the **Back to Overview** button (in the lower left of the screen).
 - The changes are discarded, and the Serial Port Configuration Screen is redisplayed.

- **11** If you wish to reconfigure another protocol on the Serial Port Configuration Screen, select that protocol's row, and repeat step 3 through step 10.
- **12** If you wish to add another protocol for the serial ports, do the following:
 - a Select the Add Port button (at the lower left of the list of Port Names).
 - The Serial Port Configuration Screen with a Row for a New Protocol (Figure 7-8) is displayed. The protocol does not yet have a name.

Figure 7-8. Serial Port Configuration Screen with a Row for a New Protocol

| encor <mark>e!n</mark> etworks ⁻ | | |
|--|---|-----------------|
| Status System Network Statistics | Logout | |
| Interfaces Firewall Static Routes Load Sh | aring/Failover QoS Diagnostics Hostnames DHCP and DNS | VPN VRRP Serial |
| Port Settings | | |
| Serial Ports Configuration | | |
| The following is a table of the different protocol | s configured for the serial port. | |
| Serial Ports | | |
| Port Name | Protocol | |
| ttyACM10 | ASYNC_ENCAPS | Z Edit 🗙 Delete |
| ttygre5 | FRAME_RELAY_IP | Z Edit X Delete |
| ttyACM11 | TELNET_TERMINAL | Z Edit X Delete |
| | - | Z Edit X Delete |
| Add Port | | |
| Activate Configuration | | |
| | Modifications & | |
| | Additions | |
| | Save & Apply | |
| | | |
| | | |

b In the new row, select the **Edit** button.

The Serial Port Configuration Detail Screen for a New Protocol (Figure 7-9) is displayed. The protocol does not yet have a name.

Figure 7-9. Serial Port Configuration Detail Screen for a New Protocol

| stics Hostnames DHCP and DNS | S VPN VRRP Serial | |
|---|---|--|
| [| | _ |
| | | |
| | | |
| | | |
| | • | |
| Telnet Terminal Ø Serial Port's Protocol | × | |
| 115200 | | |
| RS232 | | |
| 192.168.1.2 | | |
| 257 | | |
| 0.0.0.0 | | |
| 258 | | |
| 8 | | |
| NONE | | |
| 1 | | |
| OFF | | |
| DTR Dial | | |
| OFF | | |
| Normal | | |
| (dev/ttygre5 | | |
| | 115200 RS232 192.168.1.2 257 0.0.0 258 8 NONE 1 OFF DTR Dial OFF Normal | 115200 • RS232 • 192.168.12 257 10.0.0 258 8 • NONE 1 • OFF • IOFF • Nomal |

- **c** In the **Port Name** field, select a name from the pulldown list, or select **custom** and type a new name.
- **d** In the **Protocol** field, select the protocol that the virtual protocol will support.
 - The remaining fields on the screen change to support the selected protocol. Return to step 5.