C H A P T E R 4

Serial Management

The Catalyst 1600 Token Ring switch supports serial management and Telnet sessions, and provides a simple command-line interface that you can use to configure the Catalyst 1600 before connecting other network devices.

To manage the Catalyst 1600 using the serial interface, connect one of the following devices to the serial port on the front panel (see Figure 1-1):

- A terminal that supports a fixed serial format of 9600 baud, 8 bits, 1 stop bit, and no parity to the serial port by means of a null-modem EIA/TIA-232 cable with 25-pin D-type connector.

- A 100% Hayes-compatible modem by means of a straight-through EIA/TIA-232 cable with 25-pin D-type connector. When the Catalyst 1600 is switched on, it puts the modem into auto-answer mode.

When you connect the terminal to the Catalyst 1600:

Step 1   At the sign-on message, the prompt requests the password for the device.

To use commands that write information to the device, enter the password. Otherwise, to use read-only commands, press **Return**.

Step 2   Type **help** and press **Return**.

The commands that you can use to manage the Catalyst 1600 are displayed.

If you do not have read/write access to the device because you did not enter the password, a subset of the commands is displayed.

Step 3   Type a command from the list and press **Return**.

Pin Connections for the Serial Port

Figure 4-1 illustrates the pin connections to use when you connect the Catalyst 1600 to a terminal using a null-modem EIA/TIA-232 cable, or to a modem using a straight-through EIA/TIA-232 cable.

Figure 4-1   Pin Connections for Catalyst 1600 Serial Port
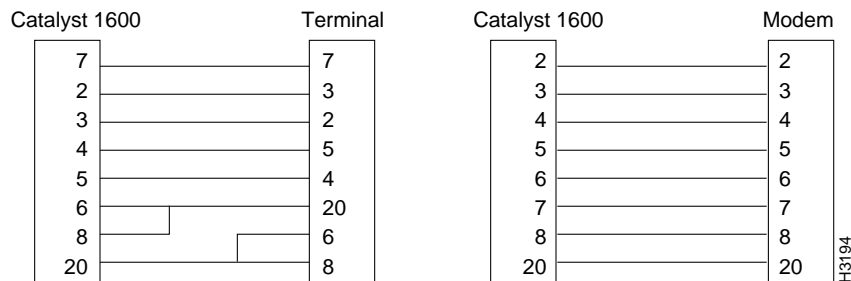
Serial Management Commands

When you connect to the serial interface using the Catalyst 1600 password, or when no password is set, you can gain access to read commands such as **show bridge status** and write commands such as **set port ifmode**.

If you do not enter the correct password, you can only enter read commands and you cannot change the configuration of the Catalyst 1600. If you have read-only access to the device, the **help** command displays only the commands that are available.

Whether you have read-only or read/write access to the Catalyst 1600, you can enter commands by typing only the first part of the command and pressing the space bar. Depending on the combination of command lines that can result from the part that you have entered, the remaining part of the command line is completed for you.

For example, to enter the command **show bridge characteristics**:

Step 1   At the prompt, type **sh** and press the space bar.

The word `show` is added to the command line.

Step 2   Type **b** and press the space bar.

The word `bridge` is added to the command line.

Step 3   Type **ch** and press the space bar.

The command line `show bridge characteristics` is complete.

Read-Only Commands

The read-only commands that you can use without entering the Catalyst 1600 password are described below.

Command: **help**

Description: Displays a list of the commands that you can use to view and set the configuration of the Catalyst 1600.

Command: **quit**

Description: Ends the serial management session**.**

Command: **show bridge characteristics**

```
CmdEnvExample:>show bridge characteristics
Bridge Name:                        switch B
Bridge Number:                             2
IP Address:                   194.32.220.119
IP Subnet Mask:               255.255.255.0
Spanning Tree Root Priority:           40000
```

Command: **show bridge status**

Description: Displays the spanning-tree parameters of the Catalyst 1600.

```
Example:   >show bridge status
Spanning Tree Bridge ID:              00400BC2000B
Spanning Tree Designated Root Priority:   32768
Spanning Tree Designated Root:        00400BC2000B
Software Version:                         1.01.06
Boot EPROM Version:                       1.00.29
Switch Hardware Version:                  1.00.06
Switch Software Version:                  1.00.33
MAC Software Version:                     1.00.04
```

Command: **show bridge counters**

Description: Displays the total number of frames and bytes that the Catalyst 1600 receives and transmits.

```
Example:   >show bridge counters
Total Frames Transmitted:               621,080
Total Frames Received:                  251,211
Frames Per Second:                           22
Bytes Per Second:                         9,891
```

Command: **show bridge all**

Description: Displays information about the name, bridge number, IP address, and spanning-tree priority of the Catalyst 1600. The command also displays the total number of frames and bytes that the Catalyst 1600 receives and transmits.

```
Example:    >show bridge all
Bridge Name:                            switch B
Bridge Number:                                 2
IP Address:                          195.3.42.55
IP Subnet Mask:                    255.255.255.0
Spanning Tree Root Priority:             32768
Spanning Tree Bridge ID:          00400BC2000B
Spanning Tree Designated Root Priority:   32768
Spanning Tree Designated Root:     00400BC2000B
Software Version:                        1.01.06
Boot EPROM Version:                      1.00.29
Switch Hardware Version:                 1.00.06
Switch Software Version:                 1.00.33
MAC Software Version:                    1.00.04
Total Frames Transmitted:                 33,200
Total Frames Received:                    33,200
Frames Per Second:                            45
Bytes Per Second:                          1,256
Input Broadcast Discards:                      0
Output Broadcast Discards:                     0
Switched Frame Discards:                       0
```

Command: **show port characteristics** *port*

Description: Displays information about whether the port is enabled or disabled by the administrator, the interface mode and ring speed of the port, whether source routing is enabled or disabled by the administrator, and the source-routing configuration of the port.

To find out the actual port interface status and source-routing status, use the **show port status** command.

Parameters: *port*   Port number

```
Example:    >show port characteristics 2
Interface Admin. Status:              Disabled
Interface Mode:                    Concentrator
Interface Speed:                       16 Mbps
S.R. Port Admin. Status:                Enabled
S.R. Port Segment Number:                   9B7
S.R. Port Spanning Tree Mode:         Automatic
S.R. Port Hop Count:                          7
S.R. Port Spanning Tree Path Cost:          100
```

Command: **show port status** *port*

Description: Displays information about whether the port is enabled or disabled, the MAC address of the port, whether source-routing is enabled or disabled and the source routing status of the port.

To find out the whether the port interface and source-routing are enabled or disabled by the administrator, use the **show port characteristics** command.

Parameters: *port*   Port number

```
Example:     >show port status 2
Interface Actual Status:              Disabled
Interface Active MAC Address:         0002D0000F62
S.R. Port Actual Status:                Broken
S.R. Port Spanning Tree Broadcast:    Disabled
S.R. Port Designated Bridge:          00006F00F006
```

Command: **show port counters** *port*

Description: Displays the number of frames and bytes that the Catalyst 1600 receives and transmits for all frames, non-broadcast frames, all routes explorer frames and spanning-tree explorer frames. The command also displays the number of frames that the Catalyst 1600 discards.

Parameters: *port*   Port number

```
Example:     >show port counters 2
Bytes Transmitted:                      19,339,380
Bytes Received:                            455,390
Non-broadcast Frames Transmitted:            1,029
Non-broadcast Frames Received:               2,747
All Routes Explorer Frames Received:             0
All Routes Explorer Frames Transmitted:    4,289
Spanning Tree Explorer Frames Received:      259
Spanning Tree Explorer Frames Transmitted:28,065
Receiving Segment Mismatch Discards:             0
Duplicate Segment Mismatch Discards:             0
ARE Hop Count Exceeded Discards:                 0
```

Command: **show port all** *port*

Description: Displays the information about the port that you would get by using the **show port characteristics**, **show port status**, and **show port counters** commands.

Parameters: *port*   Port number

```
Example:    >show port all 2
Interface Admin. Status:                Disabled
Interface Mode:                      Concentrator
Interface Speed:                        16 Mbps
S.R. Port Admin. Status:                 Enabled
S.R. Port Segment Number:                    9B7
S.R. Port Spanning Tree Mode:          Automatic
S.R. Port Hop Count:                           7
S.R. Port Spanning Tree Path Cost:           100
Interface Actual Status:                Disabled
Interface Active MAC Address:       0002D0000F62
S.R. Port Actual Status:                  Broken
S.R. Port Spanning Tree Broadcast:      Disabled
S.R. Port Designated Bridge:        00006F00F006
Bytes Transmitted:                             0
Non-broadcast Frames Transmitted:              0
Non-broadcast Frames Received:                 0
All Routes Explorer Frames Received:           0
All Routes Explorer Frames Transmitted:        0
Spanning Tree Explorer Frames Received:        0
Spanning Tree Explorer Frames Transmitted:     0
Receiving Segment Mismatch Discards:           0
Duplicate Segment Mismatch Discards:           0
ARE Hop Count Exceeded Discards:               0
```

Command: **show dump**

Description: Allows support engineers to examine information about the Catalyst 1600 system. You do not need to use the command to install or configure the Catalyst 1600.

Command: **show reset**

Description: Allows support engineers to examine information about the Catalyst 1600 system.You do not need to use the command to install or configure the Catalyst 1600.

Read/Write Commands

The read/write commands that you can use after entering the Catalyst 1600 password include all read-only commands, and the commands described below.

Command:	**enable port interface** *port*
Description:	Enables the port interface.
Parameters:	*port* Port number

Command:	**disable port interface** *port*
Description:	Disables the port interface**.**
Parameters:	*port* Port number

Command:	**enable port srb** *port*
Description:	Enables the forwarding of source-routed frames by the port.
Parameters:	*port* Port number

Command:	**disable port srb** *port*
Description:	Disables the forwarding of source-routed frames by the port.
Parameters:	*port* Port number

Command:	**set bridge name** *name*
Description:	Sets the unique name that identifies the Catalyst 1600 on the network.
Parameters:	*name* Catalyst 1600 name (1-16 characters)

Command: **set bridge password** *password*

Description: Sets the password that you enter to manage the Catalyst 1600 using the serial interface or TrueView Catalyst 1600 Manager.

Parameters: *password*   Catalyst 1600 password (6-8 characters)

Command: **set bridge ip address** *ipaddress*

Description: Sets the IP address of the Catalyst 1600.

Parameters: *ipaddress*   IP address (aaa.bbb.ccc.ddd)

Command: **set bridge subnet** *subnet*

Description: Sets the IP subnet mask of the Catalyst 1600 in the form aaa.bbb.ccc.ddd.

Parameters: *subnet*   IP subnet mask (aaa.bbb.ccc.ddd)

Command: **set bridge root priority** *priority*

Description: Sets the spanning-tree root priority.

The bridge root priority applies when the port spanning tree mode is set to Auto.

Parameters: *priority*   Bridge root priority (*0-65535*)

Command: **set port ifmode** *port mode*

Description: Sets the port interface to node or concentrator mode.

Parameters: *port*   Port number

                       mode   Port interface (**node** or **concentrator**)

Command:	**set port ifspeed** *port speed*	
Description:	Sets the ring speed for the port to 4 or 16 Mbps.	
Parameters:	*port*	Port number
	speed	Ring speed (**4** or **16**)

Command:	**set port segment** *port segment*	
Description:	Sets the ring number.	
Parameters:	*port*	Port number
	segment	Ring number (001-FFF hexadecimal)

Command:	**set port hop count** *port hopcount*	
Description:	Sets the port hop count, which is the total number of hops that a broadcast frame can make.	
Parameters:	*port*	Port number
	hopcount	Port hop count (1-7)

Command: **set port spanning tree mode** *<port> <mode>*

Description: Sets the port spanning tree mode to auto, disabled, or forced.

Set the path cost of ports that are in auto spanning-tree mode using the **set port path cost** command.

Parameters:	*port*	Port number
	mode	Port spanning tree mode (**auto**, **disabled** or **forced**)

Command: **set port path cost** *port pathcost*

Description: Set the port spanning-tree path cost.

The port path cost applies when the port spanning-tree mode is set to auto.

Parameters: *port*   Port number

                         pathcost   Port path cost (1-65535)