

Planning for Configuration and Management

Read this chapter before using the Catalyst 3900 in your network. This chapter contains information and instructions that are useful in preparation for using the Catalyst 3900 in your network. This chapter provides the following information:

- Considerations for Using the Catalyst 3900 on page 5-1
- Using a Serial Link Connection on page 5-2
- Using a Telnet Session on page 5-6
- Using the Console Panels on page 5-8
- Customizing the Console Session on page 5-10

Considerations for Using the Catalyst 3900

This section discusses topics you should consider before implementing the Catalyst 3900 in your network.

SNMP Management

If you are using the Catalyst 3900 in an SNMP-managed network, you must configure an initial IP address and the SNMP parameters from the console panels. You can then use either the console panels or an SNMP management program, such as CiscoView, to view or change parameters and management information.

The Catalyst 3900 can be managed via an SNMP manager. The Catalyst 3900 supports 12 Management Information Bases (MIBs). Nine of the MIBs are standard MIBs, which are defined by RFCs and are included with most SNMP management applications. Three of the MIBs are private MIBs.

For more information about the MIBs supported, see the “SNMP-Based Management” section on page 1-5 of the “Introduction to the Catalyst 3900” chapter.

Obtaining Copies of Cisco MIBs

You can obtain the private MIBs supported by Cisco products using anonymous FTP or the World Wide Web (WWW) to access Cisco Connection Online (CCO).

To access the MIBs via FTP:

- Step 1** Enter the **ftp cco.cisco.com** command.
- Step 2** Log in with the username **anonymous** and enter your e-mail address when prompted for the password.
- Step 3** Enter the **cd pub/mibs** command to go to the directory that contains the MIB files.
- Step 4** Enter the **get README** command to obtain the *README* file containing a description of the Cisco Systems public MIB area.

To determine the MIBs supported for each Cisco product, go to the **supportlists** subdirectory where you will find directories for all Cisco products. Refer to the *supportlist.txt* file in each directory, as necessary, to determine the MIBs supported on that platform, for each Cisco IOS software release, and the location of the desired MIB file. Cisco IOS MIB files are in the **v1** and **v2** subdirectories. You can then use the **ftp** command **get mib-filename** to retrieve the MIB file.

A description of issues you might encounter when loading Cisco MIBs into your NMS is located at ftp://www.cisco.com/pub/mibs/app_notes/mib-compliers.

To access the MIBs on CCO via the WWW, use this URL: <http://www.cisco.com/public/mibs> or <ftp://www.cisco.com/pub/mibs>.

Expansion Module Configuration

The Catalyst 3900 contains two feature slots that can accommodate optional, field-installable, expansion modules, which provide additional connections. If you are installing an expansion module with your Catalyst 3900, configure the expansion module according to the instructions shipped with it before you customize your Catalyst 3900.

Note If you are required to load new microcode for the expansion modules, do so before customizing your Catalyst 3900. If you configure the Catalyst 3900 and then load new microcode, the customized configuration data might be lost.

Using a Serial Link Connection

The front of the Catalyst 3900 contains an EIA 232 port. This port allows you to establish a serial link connection with the Catalyst 3900. Using this connection, you can access the Catalyst 3900 console panels, which you can use to configure, monitor, and manage the Catalyst 3900.

You can establish either a local or remote connection to the Catalyst 3900. For a local connection, you directly connect a PC, or other DTE, to the EIA 232 port on the Catalyst 3900. For a remote connection, connect a modem to the EIA 232 port then dial in from your remote workstation. For information about the cabling requirements for the EIA 232 port, see the “Cable and Pin Information” appendix.

Connecting a Local Terminal

To connect a local terminal to the Catalyst 3900, perform the following steps:

Step 1 Start your terminal emulation software on the PC or other DTE to which you will connect the Catalyst 3900.

Step 2 Set the terminal emulation settings using the parameters listed in Table 5-1.

If you are using the Microsoft Windows terminal emulation, disable the “Use Function, Arrow, and Ctrl Keys for Windows” option, located in the Terminal Preferences menu under Settings.

Table 5-1 Terminal Emulation Settings

Baud rate	1200, 2400, 4800, 9600, 19200, 38400, or 57600 (9600 is the default)
Parity	None
Data bits	8
Stop bits	1
Handshaking	None
Terminal emulation	VT100
Duplex	Full
Software flow control (XON/XOFF)	Off
Hardware flow control (RTS/CTS)	Off
Line wrap	Off
Screen scroll	On
CR translation	CR
Backspace (BS) translation	Destructive
Break length (ms)	350
Enquiry (ENQ)	Off
EGA/VGA true underline	Off
Terminal width	80
ANSI 7- or 8-bit commands	7

Step 3 Connect the EIA 232 port on the Catalyst 3900 to your PC or DTE device using a null-modem cable or straight-through cable and null-modem adapter. The Catalyst 3900 has a 9-pin male connector. For pin-out and cable information, refer to the “Cable and Pin Information” appendix.

- Step 4** Plug in the Catalyst 3900 if you have not already done so, or press the Reset button. The Catalyst 3900 does not have a power switch; the Catalyst 3900 is powered on when you plug in the power cord. When the Catalyst 3900 is powered on, it performs a series of self-test diagnostics. (For more information about these diagnostic tests, refer to the “Resetting the Catalyst 3900” chapter.)

Note When you press the Reset button, the memory and tables (including address tables) of the Catalyst 3900 are cleared. However, pressing the Reset button does not clear the user-set configuration parameters; those values stored in NVRAM.

- Step 5** When diagnostics are complete, continue with the steps in the “Using the Console Panels” section on page 5-8.

Connecting a Modem to Allow Remote Terminal Access

You can monitor the Catalyst 3900 remotely by using a connection established through any Hayes-compatible modem. To connect a modem to the Catalyst 3900, perform the following steps:

- Step 1** Set up your modem according to its instructions.
- Step 2** Connect the cable from the EIA 232 port on the modem to the EIA 232 port on the Catalyst 3900.
- Step 3** Set the modem as follows:



Caution Some modems use slightly different names for the options. It is important that your modem be correctly configured. The settings shown in italics are particularly important. If your modem is not correctly configured, the connection may cause the Catalyst 3900 to reset.

<i>Echo</i>	<i>Off</i>
<i>Result codes</i>	<i>Off</i>
<i>Wait for connection</i>	<i>45 seconds</i>
<i>Pause between calls</i>	<i>6 seconds</i>
<i>Drop DTR between calls</i>	<i>Yes</i>
<i>Send CR between calls</i>	<i>Yes</i>
Auto baud detect	On
Send init if CD high	Yes
Maximum dial attempts	999

- Step 4** Start your terminal emulation software on the PC or other DTE to which you will be connecting the Catalyst 3900.
- Step 5** Set the terminal using the emulation parameters listed in Table 5-1.
- Step 6** Dial in to the Catalyst 3900 modem from your remote site.
- Step 7** Continue with the steps in the “Using the Console Panels” section on page 5-8.

Troubleshooting the Serial Link Connection

There are three types of communications problems that you might encounter when establishing a serial link connection: no communication, corrupted communication, and dropped characters. This section suggests steps to resolve these problems. In some cases, you are instructed to alter the configuration of the connection at the terminal or at the Catalyst 3900. For information about altering the configuration of your terminal emulator, refer to the documentation that accompanied your emulation program. For information about altering the configuration of the connection at the Catalyst 3900, refer to the “Customizing the Console Session” section on page 5-10.

No Communication

If no communication is established, perform the following steps to determine the cause:

- Step 1** Check the cables and physical connections. Ensure that you are using the proper cable and adapter.
- Step 2** Check the handshaking configuration at the terminal and the Catalyst 3900. Handshaking at the Catalyst 3900 is controlled by the Hardware Flow Control field on the Serial Link Configuration panel. Refer to the “Customizing the Serial Link” section on page 5-11 for more information.



Caution Hardware handshaking must be turned on at the Catalyst 3900 and at the terminal. You must also be using a 7- or 9-wire cable to the terminal. If hardware handshaking is off and you are using a 3-wire cable, a catastrophic failure of the Catalyst 3900 can occur.

- Step 3** If the Catalyst 3900 has just been installed and is not yet in use, reset the Catalyst 3900. Resetting the Catalyst 3900 while it is in use will disrupt your network.
- Step 4** If the problem continues, contact the Cisco Technical Assistance Center (TAC).

Corrupted Communication

If communication is established but the data displayed is corrupted, perform the following steps:

- Step 1** Ensure that the baud rate set at the Catalyst 3900 matches the rate set at the terminal.
- Step 2** Verify the configuration of the terminal emulation, specifically:
 - Parity—None
 - Data Bits—8
 - Stop Bits—1
- Step 3** If the Catalyst 3900 has just been installed and is not yet in use, reset the Catalyst 3900.



Caution Resetting the Catalyst 3900 while it is in use will disrupt your network.

- Step 4** If the problem continues, contact the Cisco TAC.

Dropped Characters

If communication is established but some of the characters appear to be dropped or lost:

- Step 1** Reduce the baud rate configured at the Catalyst 3900. We suggest a baud rate of 9600.
- Step 2** Enable the software handshaking feature. Handshaking at the Catalyst 3900 is controlled by the Software Flow Control field on the Serial Link Configuration panel. Refer to the “Customizing the Serial Link” section on page 5-11 for more information.



Caution Hardware handshaking must be turned on at the Catalyst 3900 and at the terminal. You must also be using a 7- or 9-wire cable to the terminal. If hardware handshaking is off and you are using a 3-wire cable, a catastrophic failure of the Catalyst 3900 can occur.

- Step 3** If the problem continues, contact the Cisco TAC.

Using a Telnet Session

As an alternative to a serial link connection, you can use a Telnet session to access the Catalyst 3900 console panels. Using a Telnet session to configure, monitor, and manage the Catalyst 3900 can be more convenient. If using a Telnet session to access the console panels, there are some limitations that you might encounter. These limitations are also discussed in this section.

Starting the Telnet Session

To establish a Telnet session to the Catalyst 3900:

- Step 1** Set the IP State on the IP Configuration panel to “BootP When Needed” or “BootP Always”.
- Step 2** Configure your Telnet client to use a VT100/VT220 compatible setup.
- Step 3** Telnet to the Catalyst 3900 using its assigned IP address. For information about assigning an IP address to the Catalyst 3900, refer to the “Configuring IP Information” section on page 6-20 of the “Configuring the Catalyst 3900” chapter.
- Step 4** Continue with the Telnet session using the steps in the “Using the Console Panels” section on page 5-8.

Stopping the Telnet Session

To terminate the Telnet session, press **Ctrl-B** or use the method provided by the Telnet application.

Troubleshooting a Telnet Session

If you experience difficulty opening a Telnet session with the Catalyst 3900, verify the settings for your Telnet client. Ensure that the terminal type is set to VT100, VT102, or VT220.

Limitations of Telnet Sessions

If you choose to use a Telnet session to access the console panels of the Catalyst 3900, you should be aware of the following limitations:

- Not all parameters can be altered from a Telnet session.
- There is a risk of involuntary termination of the Telnet session.

If you attempt to access a console panel that is already accessed by another Telnet or serial link session, the message “Console is currently in use” is displayed.

Parameter Limitations

If you are using a Telnet session to access the console panels, be aware of the following limitations:

- On the Telnet Configuration panel, you cannot change the values for the fields “Number of Telnet Sessions Allowed” or “Disallow New Telnet Sessions,” or select the option Terminate All Active Telnet Sessions.
- You cannot select Serial Link Configuration on the Console Configuration panel.
- You cannot select Close_Session on the Telnet Sessions panel.
- If a Telnet session is disrupted, the user’s configuration changes might not have been completed.

Involuntary Termination of the Telnet Session

A Telnet session can be terminated involuntarily from the console or as a result of certain configuration changes.

When the console is idle and Telnet is active, a user at the console can terminate the Telnet session without warning (refer to the “Customizing and Managing the Telnet Sessions” section on page 5-12).

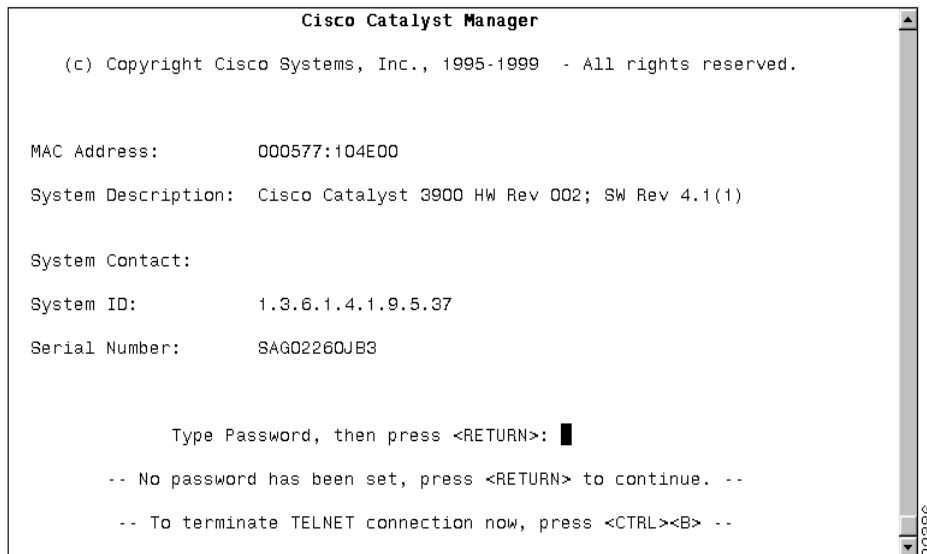
Also, the Telnet session will end if you disable the port through which you are accessing the Catalyst 3900 and might end if a user changes any of the following information for the port through which you are accessing the Catalyst 3900:

- VLAN (TrCRF) assignments
- Spanning-tree parameters
- IP address
- Default gateway
- Subnet mask of the TrBRF that corresponds to the port through which you are accessing the switch
- IP state to IP disabled for the TrBRF that corresponds to the port through which you are accessing the switch
- Inactivity timeout

Using the Console Panels

After you have established a connection to the Catalyst 3900 via a serial link or a Telnet session, the Copyright panel (Figure 5-1) is displayed.

Figure 5-1 Copyright Panel



To access the console panels, do the following:

Step 1 Type the password (if one has been configured). The default is that no password is set.

Note If you have forgotten your password, press the System Request button to access the System Request menu, and then select **Clear the system password**. This will clear only the system password. All other configuration parameters saved in NVRAM will be retained.

Step 2 Press **Enter** to advance to the Cisco Catalyst 3900 Main Menu panel (Figure 5-2).

From this menu you can:

- Select **Configuration** to customize the configuration of the Catalyst 3900.
- Select **Statistics** to monitor the Catalyst 3900.
- Select **Download/Upload** to update the Catalyst 3900 microcode.
- Select **Reset** to reset the Catalyst 3900.

Step 3 Use your cursor to select an item and then press **Enter**.

Figure 5-2 Cisco Catalyst 3900 Main Menu Panel



Guidelines for Using the Console Panels

As you move through the console panels, follow these guidelines:

- To select a menu or action item, move the cursor to the item and press **Enter**. You can use the arrow keys or the Tab key to move the cursor.
- To make changes to a parameter, move the cursor to the parameter name and press **Enter**. You will then be prompted to enter the new data or select from a list of valid choices.
- To make changes to a list entry, select **Change** and specify the entry identifier (index number). You will then be prompted to enter the new data or select from a list of valid choices. Some list entries consist of multiple parameters. To retain the current value of any parameter, enter a null value at the prompt.
- When viewing or updating parameters for a port, you will be prompted to enter either a port number or a port list.

When entering a port list, you can specify ports, a range of ports, or both. Separate each port and range by a space or comma. When entering a range of ports, enter the lowest port first and separate with a hyphen (for example, 8-10). The following are examples of entering a port list:

```
1-3 5 7-9
1-3,5,7-9
```

To enter all ports on a switch, type an asterisk (*).

- To save any changes made to the configuration panels in NVRAM, you must select **Return**. In most cases, changes will not take effect until you have exited the panel by selecting Return.
- To return to the main menu without saving your changes, press **Ctrl-P**. Changes made to the current panel will not be saved.
- To return to the previous panel without saving your changes, press the backspace key.

- To refresh the console panel at any time, press **Ctrl-L**.
- In some cases, more information is available than can be displayed on the panel. To scroll to the next panel of information, select **More**.

Customizing the Console Session

To customize your console session, select **Configuration** on the Main Menu and then select **Console Configuration** on the Configuration Menu. The Console Configuration panel (Figure 5-3) is displayed.

Figure 5-3 Console Configuration Panel



The Console Time-Out information is displayed on this panel. The Console Time-Out is the time, in minutes, that the console session can remain inactive before it times out. Unsaved entries are lost when the console times out. Valid values are 0 through 1440. The default is 5. A value of 0 means the console will not time out

To	Select	Then
Change the console time-out...	Console Time-Out	Specify the new value.
Specify parameters for a console session via a serial link...	Serial Link Configuration	Refer to the "Customizing the Serial Link" section on page 5-11.
Specify parameters for a console session via Telnet...	Telnet Configuration	Refer to the "Customizing and Managing the Telnet Sessions" section on page 5-12.
Save your changes...	Return	

Note You cannot select Serial Link Configuration if you are accessing the configuration program via Telnet.

Customizing the Serial Link

To view and change the parameters for a serial link console session, select **Serial Link Configuration** on the Console Configuration panel. The Serial Link Configuration panel (Figure 5-4) is displayed.

Figure 5-4 Serial Link Configuration Panel



The following information is displayed on this panel:

- **Hardware Flow Control**—Indicates whether request to send or clear to send handshaking is enabled or disabled. The default is Disabled.
- **Software Flow Control**—Indicates whether the use of XON and XOFF characters is enabled or disabled. The default is Disabled.
- **Autobaud upon Break**—Indicates whether the baud rate is reset when a Break key sequence (pressing **Enter** rapidly for five seconds) is sent or received. The default is Disabled. When set to enabled, you can change the baud rate by changing the baud rate of the terminal emulator, disconnecting and reconnecting the EIA 232 cable, and then pressing **Enter** until a panel appears.
- **Console Baud Rate**—Baud rate of the EIA 232 port. Acceptable baud rates for the console are 1200, 2400, 4800, 9600, 19200, 38400, 57600, or Autobaud. The default is 9600. Make sure that your terminal emulator baud rate matches the console baud rate you set.

To	Select	Then
Change the current settings...	The appropriate parameter...	Specify the new value.
Save your changes...	Return	

Customizing and Managing the Telnet Sessions

To view and change the parameters for a Telnet console session, select **Telnet Configuration** on the Console Configuration panel. The Telnet Configuration panel (Figure 5-5) is displayed.

Figure 5-5 Telnet Configuration Panel



The following information is displayed on this panel:

- **Number of Telnet Sessions Allowed**—Maximum number of Telnet sessions allowed. Valid values are 1 through 5. The default is 5.
- **Disallow New Telnet Sessions**—Indicates whether new Telnet sessions should not be allowed. The default is No, which indicates that new Telnet sessions are allowed.

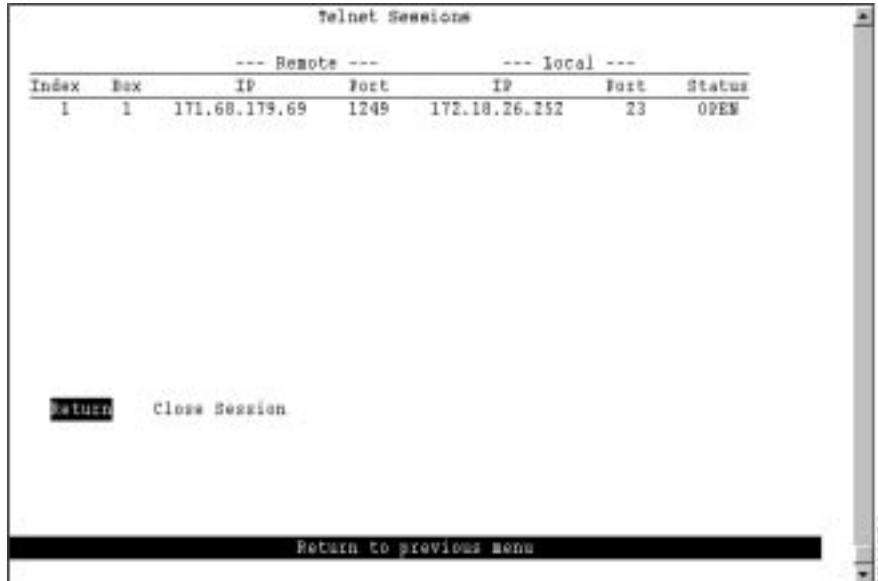
To	Select	Then
Change the current settings...	The appropriate parameter...	Specify the new value.
Stop all active Telnet sessions...	Terminate All Active Telnet Sessions	
Display information about a specific Telnet session...	Telnet Sessions	Refer to the “Managing Individual Telnet Sessions” section on page 5-13.
Save your changes...	Return	

Note You cannot select Number of Telnet Sessions Allowed, Disallow New Telnet Sessions, or Terminate All Active Telnet Sessions if you are accessing the configuration program via Telnet.

Managing Individual Telnet Sessions

To display information about or to close any active Telnet session, select **Telnet Sessions** from the Telnet Configuration panel. The Telnet Sessions panel (Figure 5-6) is displayed.

Figure 5-6 Telnet Sessions Panel



The following information is displayed on this panel:

- Index—Identifier for the Telnet session.
- Box—Identifier of the Catalyst 3900 in the stack.
- Remote IP—IP address of the Telnet client.
- Remote Port—TCP services port being used at the Telnet client.
- Local IP—IP address assigned to the Catalyst 3900.
- Local Port—TCP services port being used at the Catalyst 3900. This is always port 23.
- Status—Status of the Telnet session. Possible values are open, closing, and exit.

To	Select	Then
Stop a specific Telnet session...	Close Session	Specify the index number of the session to close.
Save your changes...	Return	

Note You cannot select **Close Session** if you are accessing the configuration program via Telnet.

