

# Appendix A

## Command Reference

This appendix discusses all aspects of the command set. A list of top-level commands is provided in Table A-1.

### Command-Line Processing

The user interface for the admin. port on the concentrator is a basic command-line interpreter. Commands and parameters are not case sensitive and can be abbreviated if they contain enough characters to eliminate any ambiguity with other commands at the same level. Command-line editing is provided along with history substitution. If you incorrectly enter a command, a usage message gives you the correct command format. Pressing **Ctrl-W** deletes the last word typed and pressing **Ctrl-U** deletes the entire line.

### History Substitution Buffer

Commands entered during a terminal session are stored in a history substitution buffer. Commands in this buffer can be repeated or edited in a style similar to the UNIX C shell. The buffer stores the last 20 commands entered during a terminal session. (See the section “history Command” later in this appendix.)

To repeat a recent command, do the following:

```
!! - repeat the most recent command
!nn - repeat command nn
!aaa - repeat the command beginning with string aaa
!?aaa - repeat the command containing the string aaa
```

To modify and repeat the most recent command, do the following:

```
^aaa^bbb - replace the string aaa with the string bbb in
            the most recent command
```

To add a string to the end of a previous command and repeat it, do the following:

```
!!aaa - add string aaa to the end of the most recent command
!nn aaa - add string aaa to the end of command nn
!aaa bbb - add string bbb to the end of the command beginning
            with string aaa
!?aaa bbb - add string bbb to the end of the command containing
            the string aaa
```

## Connecting to Concentrator Administration

You can connect to the admin. interface through the admin. port (EIA/TIA-232) or via Telnet. The admin. port allows fixed baud rates. Telnet and admin. port sessions are automatically logged out if they are idle for 20 minutes.

Use the admin. interface to perform the following functions:

- Monitor network performance
- Configure the SNMP agent parameters
- Configure SMT parameters
- Configure the EIA/TIA-232 port line speed and echo parameter
- Provide a backup for SNMP-based management
- Download software updates to the concentrator
- Troubleshoot the concentrator

## Connection via EIA/TIA-232

You can connect through the admin. port via EIA/TIA-232. Following is a sample display:

```
Cisco Systems Console
Enter password:
console>
console>
console> quit
```

## Connection via Telnet

To use Telnet, you must have the IP address configured on the concentrator. To access the concentrator with Telnet, use the following procedure:

**Step 1** On the remote host, enter the following command, where *hostname* is the host name or IP address of the concentrator:

```
%telnet hostname
```

**Step 2** Enter the admin. interface password.

**Step 3** When you finish, enter **quit** to exit the Telnet session. Following is a sample Telnet session:

```
% telnet concentrator1
Trying 192.XXX.XXX.XXX ...
Connected to concentrator1.
Escape character is '^]'.
Cisco Systems Console
Enter password:
console>
console>
console> quit
Connection closed by foreign host.
```

## Top-Level Commands

There are two categories of commands: normal and privileged. (See Table A-1.)

- Normal commands are available in privileged and normal modes; use them for everyday operations.
- Privileged commands are only available after you enter the **enable** command and privileged mode password. Use privileged commands for configuring the concentrator and troubleshooting basic problems. When (enable) appears on your screen, the system is in privileged mode. The designation (enable) is used in the sample displays in this appendix to indicate when the system is in privileged mode.

You can enter **help** or **?** to see the list of commands. Additional help is available for some commands when you enter the command followed by **help** or **?**.

**Table A-1 Top-Level Commands**

<b>Command</b>	<b>Description</b>	<b>Mode<sup>1</sup></b>
clear	Use <b>clear help</b> for information on <b>clear</b> commands	P
configure	Configure from the terminal or the network	P
connect fddi	Connect to the FDDI ring	P
copy flash tftp	Upload the Flash memory image to a network host	P
copy tftp flash	Copy files to and from Flash memory	P
disable	Disable privileged mode	P
disconnect fddi	Disconnect from the FDDI ring	P
download	Download new code to Flash memory	P
enable	Enable privileged mode	N
help	Display top-level commands and a description of how the command is used	N
history	Show the contents of the history substitution buffer	N
macreinit	Reinitializes all MACs <sup>2</sup>	P
ping	Send echo request packets to a node on the network	N
quit	Exit from the console	N
reset	Reset the system	P
set	Use <b>set help</b> for information on the <b>set</b> commands	N
show	Use <b>show help</b> for information on the <b>show</b> commands	N
test	Use <b>test help</b> for information on the <b>test</b> commands	P
traffic	Send continuous traffic on the ring	P
upload	Upload Flash memory code to the network	P
write	Write configuration information to the terminal or to a file	P

1. N = normal; P = privileged.

2. MAC = Media Access Control.

## Aliases

Some commands had different nomenclature in the Workgroup WS-C1100 Concentrator software (Version 2.3). Predefined aliases for these commands are available. Table A-2 lists the current commands and the predefined aliases.

**Table A-2** Predefined Aliases

Alias	Current Command
action port	set port
clearlem	clear lem
di	show
coalias	clear/set/show coalias
ipalias	clear/set/show ipalias
di conc	show system
di hw	show test
download now	download serial
exit, logout	quit
netdownload	download
resetclr	clear config
set debug off	disable
set debug on	enable
set insert-mode	set insertmode
set trap invalid	clear trap
sysclr	clear log
set name	set sysname
sysdis	show log
trap	test trap

## clear Commands

Table A-3 lists the **clear** commands.

Table A-3 clear Commands

Command	Description	Mode <sup>1</sup>
clear arp	Clear ARP <sup>2</sup> table entries	P
clear coalias	Clear MAC address alias	P
clear config	Clear configuration and reset the system	P
clear counters	Clear MAC and port counters	P
clear help	Displays <b>clear</b> commands and descriptions	P
clear ipalias	Clear alias of IP addresses	P
clear lem	Clear link error monitor counters	P
clear log	Clear the system error log	P
clear mac	Clear MAC counters	P
clear port	Clear port counters	P
clear route	Clear IP routing table entries	P
clear trap	Clear SNMP trap receiver address	P

1. P = privileged.

2. ARP = Address Resolution Protocol.

### clear arp

The **clear arp** command clears individual ARP table entries and **clear arp all** clears the entire ARP table. Following is a sample display:

```
Console> (enable) clear arp ?
Usage: clear arp all
       clear arp <ip_addr>
       (ip_addr is ipalias or IP dot notation: a.b.c.d)
Console> (enable) clear arp 192.XXX.XXX.XX
Arp entry deleted.
Console> (enable) clear arp all
ARP table cleared. (1)
Console> (enable)
```

See also **set arp** and **show arp**.

## clear coalias

The **clear coalias** command clears individual aliases of the MAC prefix and **clear coalias all** clears all coalias entries. Following is a sample display:

```
Console> (enable) clear coalias ?
Usage: clear coalias all
       clear coalias <name> [company_prefix]
       (company_prefix is 3 hex words separated by ":", ex 00:02:d0)
Console> (enable) clear coalias 3com
Company MAC alias deleted.
Console> (enable)
```

See also **set coalias** and **show coalias**.

## clear config

The **clear config** command clears the configuration information stored in nonvolatile random-access memory (NVRAM) and changes all configuration variables to the default. It also causes the system to be reset. Following is a sample display:

```
Console> (enable) clear config
This command will reset the system after clearing configuration in NVRAM.
This command will disconnect your telnet session.
Do you want to continue (y/n) [n]? y
Connection closed by foreign host.
%
```

**Note** After using the **clear config** command, Telnet will not work unless you reconfigure the IP address locally, or there is a BOOTP server on the ring that is configured with the concentrator's IP address.

See also **show config** and **write Command**.

## clear counters

The **clear counters** command clears all the MAC and port counters, as follows:

```
Console> (enable) clear counters
MAC and port counters cleared.
Console> (enable)
```

See also **clear mac** and **clear port**.

## clear help

The **clear help** command displays the following message in normal mode.

```
Console> (enable) clear help
Clear commands:
-----
clear arp          Clear ARP table entries
clear coalias     Clear aliases of company MAC addresses
clear config      Clear configuration and reset system
clear counters    Clear MAC and port counters
clear help        Show this message
clear ipalias     Clear aliases of IP addresses
clear lem         Clear link error counters
clear log         Clear system error log
clear mac         Clear MAC counters
clear port        Clear port counters
clear route       Clear IP routing table entries
clear trap        Clear SNMP trap receiver address
Console> (enable)
```

## clear ipalias

The **clear ipalias** command clears the IP aliases that were assigned using the **set ipalias** command. The **clear ipalias all** command clears all IP alias entries. Following is a sample display:

```
Console> (enable) clear ipalias ?
Usage: clear ipalias all
       clear ipalias <name>
Console> (enable) clear ipalias montreux
IP alias deleted.
Console> (enable)
```

See also **set ipalias** and **show ipalias**.

## clear lem

The **clear lem** command clears the link error monitor (LEM) counters. Following is a sample display:

```
Console> (enable) clear lem
Link error counters cleared.
Console> (enable)
```

See also **show port**.

## clear log

The **clear log** command clears the system error log. Following is a sample display:

```
Console> (enable) clear log
System error log cleared.
Console> (enable)
```

See also **show log**.

## clear mac

The **clear mac** command clears the following MAC counters:

- RingOp
- TvxExpired
- ErrorCt
- Lost\_Ct, Frame\_Ct
- LLCFrames
- SMTRFrames
- LLCXmitFrames
- SMTXmitFrames
- LLCRcvdFrames
- SMTRcvdFrames

Following is a sample display:

```
Console> (enable) clear mac
MAC counters cleared.
Console> (enable)
```

See also **show mac**.

## clear port

The **clear port** command clears the following port counters:

- LEM\_Reject\_Ct
- EBErr\_Ct
- LCTFail\_Ct
- LEM\_Ct

Following is a sample display:

```
Console> (enable) clear port  
Port counters cleared.
```

See also **show port**.

## clear route

The **clear route** command clears IP routing table entries that were set using the **set route** command. The **clear route all** command clears all route entries except the local entry. The default metric value is 1.

Following is a sample display:

```
Console> (enable) clear route ?  
Usage: clear route all  
       clear route <destination> <gateway> [metric]  
       (destination and gateway are ipalias or IP address in  
       dot notation: a.b.c.d)  
Console> (enable) clear route host1 gateway1 0  
Route deleted.  
Console> (enable)
```

See also **set route** and **show route**.

## clear trap

The **clear trap** command clears an individual entry in the SNMP trap receiver table. The command **clear trap all** clears all trap receiver entries.

Following is a sample display:

```
Console> (enable) clear trap
Usage: clear trap all
       clear trap <receiver>
       (receiver is ipalias or IP address in dot notation: a.b.c.d)
Console> clear trap 198.XXX.XXX.XXX
Trap receiver cleared.
Console> (enable)
```

See also **set trap** and **show snmp**.

## configure Command

The **configure** command downloads a configuration file or a batch file from the network and executes each command in that file. It is only available in privileged mode. The file should contain only American Standard Code for Information Interchange (ASCII) text and should not exceed 9,216 bytes (9 kilobytes [KB]) in length. Administrator commands are entered one per line.

The list of commands should end with the word “end” followed by a carriage return. The file may also contain comment lines, which are indicated by a pound (#) character at the beginning of each line. Some commands prompt for user input or confirmation. Responses to such commands should appear on the line after the command prompt.

**Note** Some confirmations in a Telnet session are not prompted for in EIA/TIA-232 port sessions—for example, **set ipaddress** and **set port disable**.

Following are examples of configuration files:

- In the tftpboot directory conc5.cfg:

```
show time
set ipalias conc5 192.1.1.205
set ipalias montreux 192.1.1.10
set ipalias bigbird 198.1.1.8
set prompt conc5>
set password
#the next line is empty because the old password is an empty string

pingpong
pingpong
end
```

- In the admin. interface session:

```
Console> (enable) configure help
Usage: configure network
       configure terminal
       configure <host> <file>
Console> (enable) configure 198.1.1.8 conc5.cfg
Configure using file conc5.cfg from host 198.1.1.8.(y/n) [n]? y
Configuring using conc5.cfg from 198.1.1.8
Done. Finished Network Download. (224 bytes)
```

```
>> show time
Wed Mar 30 1994, 17:42:50
>> set ipalias conc5 192.1.1.205
IP alias added.
>> set ipalias oscar 192.1.1.10
IP alias added.
>> set ipalias bigbird 198.1.1.8
IP alias added.
>> set prompt conc5>
>> set password
Enter old password:
Enter new password: pingpong
Retype new password: pingpong
Password changed.
conc5> (enable)
```

See also **show config** and **write Command**.

## connect fddi Command

The **connect fddi** command connects the concentrator to the FDDI ring. Following is a sample display:

```
Console> (enable) connect
Usage: connect fddi
Console> (enable) connect fddi
Connected to FDDI ring.
Console> (enable)
```

See also the **disconnect fddi Command**.

## copy flash tftp Command

The **copy flash tftp** command uploads the Flash memory image file from the concentrator to a network host to create a backup file. The file must be created in advance and saved in the tftpboot directory. Following is a sample display:

```
Console> (enable) copy flash tftp
IP address or name of remote host? oscar
Name of file to copy to? c1100_conc3.net
Upload image from flash to file c1100_conc3.net on host oscar (y/n) [n]? y
Uploading image to c1100_conc3.net on oscar
/
Done. Finished Network Upload. (446468 bytes)
Console> (enable)
```

## copy tftp flash Command

The **copy tftp flash** command downloads a Flash memory image file from the tftpboot directory to Flash memory. The binary file is searched for in the tftpboot directory of the host designated by IP address or name. The file transfer process can be stopped by pressing **Ctrl-C**. The **copy tftp flash** command and the **download** command are identical.



**Caution** Do not reset the concentrator after the Flash memory initialization process begins. The Flash memory image file may be incomplete and would cause system failure.

Following is a sample display:

```
Console> (enable) copy tftp flash
IP address or name of remote host? oscar
Name of file to copy from? c1100_10.net
This command will disconnect your telnet session.
Download image c1100_10.net from host oscar to flash (y/n) [n]? y
Downloading image c1100_10.net from oscar
/
Done. Finished Network Download. (440324 bytes)
Initializing flash...Erasing Flash..Done
Programming Flash
Base...Code...Length...Time...Done
Disconnected from FDDI ring.
Connection closed by foreign host.
%
```

## disable Command

The **disable** command returns you to normal mode. Following is a sample display:

```
Console> (enable) disable
Console>
```

See also **enable** and **set enablepass**.

## disconnect fddi Command

The **disconnect fddi** command disconnects all CDDI/FDDI ports from the FDDI ring. The **disconnect fddi** command will also terminate any network connections, including services such as Telnet. After the concentrator is reset, it attempts to connect all ports even if you had previously issued a **disconnect fddi** command.

Following are samples of the **disconnect fddi** command with two connection types:

- EIA/TIA-232 connection:

```
Console> (enable) disconnect
Usage: disconnect fddi
Console> (enable) disconnect fddi
This command will disconnect all CDDI/FDDI ports.
Do you want to continue (y/n) [n]? y
Disconnected from FDDI ring.
Console> (enable)
```

- Telnet session:

```
Console> (enable) disconnect fddi
This command will disconnect all CDDI/FDDI ports and your
telnet session.
Do you want to continue (y/n) [n]? y
Disconnected from FDDI ring.
Connection closed by foreign host.
%
```

See also the **connect fddi Command**.

**Note** After using the **disconnect** command, network connections can be resumed with the **connect** command locally or by resetting the concentrator.

## download Commands

There are two ways to download a new image to Flash memory: through the serial port using the **download serial** command or over the network using the **download host file** command.

### download

The **download** command enables you to download data to the concentrator over the network. When you download over the network, the concentrator expects a binary image. Network download is achieved via TFTP. The binary file image is searched for in the tftpboot directory. You can cancel the **download** command during the TFTP process by pressing **Ctrl-C**. The **download** command and the **copy tftp flash** are identical.



**Caution** Do not reset the concentrator after the download process begins. The Flash memory image file may be incomplete and would cause system failure.

**Note** Downloading an image file over the network will take about two minutes during normal traffic conditions.

Following is an example of a network download in a Telnet session:

```
Console> (enable) download
Usage: download serial
      download <host> <file>
      (serial downloads via the administration RS-232 port,
      host is ipalias or IP address: a.b.c.d for a network download
      (NOTE: FDDI ring will go down)
Console> (enable) download cres c1100_10.net
This command will disconnect your telnet session.
Download image c1100_10.net from host cres to flash (y/n) [n]? y

Downloading image c1100_10.net from cres
/
Done. Finished Network Download (409604 bytes)
Initializing flash...Erasing Flash...Done
Programming Flash
Base...Code...Length...Time...Done
Disconnecting from the FDDI ring.
Connection closed by foreign host.
%
```

## download serial

When you download through the serial port, the concentrator expects an ASCII image. You must ensure that the baud rates from the sending and receiving end are the same.

**Note** Downloading an image file through the serial port will take about 20 minutes.

The following display shows a serial download session through the EIA/TIA-232 port using Kermit for a UNIX workstation:

```
workstation% cd /tmp
workstation% tar -xvfp /dev/rfd0
x c1100_26.rom, 1156046 bytes, 2258 tape blocks
workstation% ls -la
total 1150
drwxrwsrwt 5 bin          512 Sep 28 04:15 .
drwxr-xr-x 18 root       1536 Sep 27 15:41 ..
-r--r--r-- 1 60000      1156046 Jul 18 10:32 c1100_26.rom
workstation% kermit
C-Kermit, 4E(072) 24 Jan 89, SUNOS 4.x
Type ? for help
C-Kermit>set line /dev/ttya
C-Kermit>set speed 9600
/dev/ttya: 9600 baud
C-Kermit>connect
```

```

Connecting thru /dev/ttya, speed 9600.
The escape character is CTRL-\ (28).
Type the escape character followed by C to get back,
or followed by ? to see other options.

Console> enable
Console> (enable) download serial

Concentrator Boot ROM (Ver 2.01)

Waiting for DOWNLOAD!!
Return to your local Machine by typing its escape sequence
Issue Kermit send command from there[ Send `Filename`]

[Back at Local System]
C-Kermit>send c1100_26.rom
SF
c1100_26.rom => C1100_26.ROM, Size: 1156046

CTRL-F to cancel file, CTRL-R to resend current packet
CTRL-B to cancel batch, CTRL-A for status report:
.....
.....
*** Display Truncated ***
.....
..... [OK]
ZB?
C-Kermit>connect
Connecting thru /dev/ttya, speed 9600.
The escape character is CTRL-\ (28).
Type the escape character followed by C to get back,
or followed by ? to see other options.

Download OK
Initializing flash
Programming Flash
Base....Code....Length....Time....Done

Cisco Systems Console
Enter password:
Wed Feb 12, 1992, 17:35:08
Console>

```

## enable Command

The **enable** command is used to enter privileged mode. Following is a sample display:

```
Console>  
Console> enable  
Enter password:  
Console> (enable)
```

See also **disable** and **set enablepass**.

## help Command

The **help** command displays the following information in normal mode. (The **? command** is the same as the **help** command.) Following is a sample display:

```
Console> help  
Commands:  
-----  
enable          Enable privileged mode  
help            Show this message  
history         Show contents of history substitution buffer  
ping           Send echo packets to hosts  
quit           Exit out of the console  
set            Set, use 'set help' for more info  
show           Show, use 'show help' for more info  
Console>
```

The **help** command displays the following information in privileged mode. (The **?** command is the same as the **help** command.) Following is a sample display:

```
Console> (enable) help
Commands:
-----
clear          Clear, use 'clear help' for more info
configure      Configure system from terminal/network
connect        Connect to FDDI ring
copy           Copy code to/from flash
disable        Disable privileged mode
disconnect     Disconnect from FDDI ring
download       Download new code to the flash
enable         Enable privileged mode
help           Show this message
history        Show contents of history substitution buffer
macreinit      Reinitialize all MACs
ping           Send echo packets to hosts
quit          Exit out of the console
reset          Reset the system
set            Set, use 'set help' for more info
show           Show, use 'show help' for more info
test           Test, use 'test help' for more info
traffic        Send continuous traffic on the ring
upload         Upload flash code to network
write          Write system configuration to terminal/network
Console> (enable)
```

## history Command

The **history** command shows the last 20 commands you entered, as follows:

```
Console> history
 2 history
 3 history
 4 configure help
 5 show help
 6 show system
 7 show snmp
 8 show time
 9 show port
10 show mac
11 help
12 set ipalias 198.122.174.205 marketing
13 set netmask 255.255.255.0
14 show snmp
15 set ipalias bedrock 192.122.173.125
16 set ipalias marketing 192.122.173.40
17 set ipalias bigbird 192.122.173.42
18 show ipalias
19 show time
20 disable
21 history
Console>
```

## macreinit Command

The **macreinit** command reinitializes the primary and secondary MACs. You could use the **macreinit** command to clear a halted concentrator. Following is a sample display:

```
Console> (enable) macreinit
MACs reinitialized.
Console> (enable)
```

## ping Command

The **ping** command sends Internet Control Message Protocol (ICMP) echo request packets to a node on the network. When the **-s** option is specified, the **ping** command sends one datagram per second and prints one line of output for every response it receives. No output is produced if there is no response. Also, when the **-s** option is specified, round-trip times and packet-loss statistics are computed, and a summary of this information is shown on termination or timeout. The default packet size is 64 bytes, or you can specify a size from 1 to 2,000 bytes.

If you give an optional packet count, the **ping** command sends only that number of requests. Following is a sample display of the **ping** command:

```
Console> ping
Usage: ping <host>
       ping -s <host> [data_size] [packet_count]
       (host is ipalias or IP address in dot notation: a.b.c.d)
Console> ping bedrock
no answer from bedrock
Console> ping elvis
elvis is alive
Console> ping -s elvis 58 5
PING elvis: 58 data bytes
66 bytes from elvis: icmp_seq=0. time=13 ms
66 bytes from elvis: icmp_seq=1. time=5 ms
66 bytes from elvis: icmp_seq=2. time=5 ms
66 bytes from elvis: icmp_seq=3. time=5 ms
66 bytes from elvis: icmp_seq=4. time=7 ms

----elvis PING Statistics----
5 packets transmitted, 5 packets received, 0% packet loss
round-trip (ms)  min/avg/max = 5/7/13
Console> ping -s ariel
PING ariel: 56 data bytes
64 bytes from ariel: icmp_seq=46. time=14 ms
64 bytes from ariel: icmp_seq=47. time=8 ms
64 bytes from ariel: icmp_seq=48. time=7 ms
64 bytes from ariel: icmp_seq=49. time=8 ms
64 bytes from ariel: icmp_seq=50. time=9 ms
64 bytes from ariel: icmp_seq=51. time=7 ms
64 bytes from ariel: icmp_seq=52. time=6 ms
64 bytes from ariel: icmp_seq=53. time=8 ms
64 bytes from ariel: icmp_seq=54. time=9 ms
^C

----ariel PING Statistics----
55 packets transmitted, 9 packets received, 83% packet loss
round-trip (ms)  min/avg/max = 6/8/14
Console>
```

Following are several examples of responses to the **ping** command.

- Normal response—Occurs in one to ten seconds, depending on network traffic:

```
Console> ping 130.125.132.108
Console> 130.125.132.108 is alive
Console> ping hub20
Console> hub20 is alive
```

- Destination does not respond—If the destination node does not respond, a “no answer” message appears in ten seconds:

```
Console> ping 130.125.132.108
Console> no answer from 130.125.132.108
```

- Network unreachable—The concentrator found no corresponding entry in the routing table (see the **set route** command later in this appendix):

```
Console> ping 192.54.56.122
ping: network unreachable
Console>
```

- Host unreachable—The concentrator found no corresponding entry in the routing table (see the **set route** command):

```
Console> ping 130.28.99.76
ping: host unreachable
Console> no answer from 130.28.99.76
```

- Destination unreachable—The gateway given in the routing table (130.128.136.53) for this destination indicates that the destination is unreachable:

```
Console> ping 192.9.201.4
Console> ping: dest unreachable response from 130.128.136.53
ping: dest unreachable response from 130.128.136.53
^C
no answer from 192.9.201.4
```

- **-s option**—One packet is sent every second. Enter **Ctrl-C** to stop pinging:

```

Console> ping -s 192.XXX.XXX.XXX
Console> 64 bytes from 192.XXX.XXX.XXX: icmp_seq=0. time=10 ms
64 bytes from 192.XXX.XXX.XXX: icmp_seq=1. time=6 ms
64 bytes from 192.XXX.XXX.XXX: icmp_seq=2. time=4 ms
64 bytes from 192.XXX.XXX.XXX: icmp_seq=3. time=3 ms
64 bytes from 192.XXX.XXX.XXX: icmp_seq=4. time=4 ms
64 bytes from 192.XXX.XXX.XXX: icmp_seq=5. time=4 ms
64 bytes from 192.XXX.XXX.XXX: icmp_seq=6. time=6 ms
^C

----192.XXX.XXX.XXX PING Statistics----
7 packets transmitted, 7 packets received, 0% packet loss
round-trip (ms)  min/avg/max = 3/5/10
Console>

```

- **Pinger busy**—The first **ping** command in this example did not receive a response. The second **ping** command failed because the first **ping** command is still active. Enter **Ctrl-C** to cancel the command, then continue:

```

Console> ping -s 130.XXX.XXX.XXX
Console> ping 130.XXX.XXX.XXX
Pinger busy, use ctrl-c for ping statistics
^C
no answer from 130.XXX.XXX.XXX
Console>

```

- **Packet size and count**—You can specify a packet size and number of packets to send. Packet sizes range from 1 to 2,000 bytes, with a default of 64 bytes. The actual packet size will be eight bytes larger than you specify because the concentrator adds header information:

```

Console> ping -s 192.XXX.XXX.XXX 2000 5
Console> 2008 bytes from 192.XXX.XXX.XXX: icmp_seq=0. time=38 ms
2008 bytes from 192.XXX.XXX.XXX: icmp_seq=1. time=10 ms
2008 bytes from 192.XXX.XXX.XXX: icmp_seq=2. time=10 ms
2008 bytes from 192.XXX.XXX.XXX: icmp_seq=3. time=10 ms
2008 bytes from 192.XXX.XXX.XXX: icmp_seq=4. time=10 ms

----192.XXX.XXX.XXX PING Statistics----
5 packets transmitted, 5 packets received, 0% packet loss
round-trip (ms)  min/avg/max = 10/15/38
Console>

```

## quit Command

The **quit** command quits the administration session. Following is a sample display:

```
Console> quit
Connection closed by foreign host.
%
```

## reset Command

The **reset** command resets the system. Following are sample displays of two different connections:

- EIA/TIA-232 connection:

```
Console> (enable) reset
This command will reset the system.
Do you want to continue (y/n) [n]? y
Concentrator Boot ROM (Ver 2.00)
ATE0
ATSO=1
Cisco Systems Console          Fri Apr 01 1994, 10:22:34
Enter Password:
```

- Telnet connection:

```
Console> (enable) reset
This command will reset the system and disconnect your telnet session.
Do you want to continue (y/n) [n]? y
%
```

## set Commands

Table A-4 lists the **set** commands.

**Table A-4** set Commands

Command	Description	Mode <sup>1</sup>
set agingtime	Set the ARP aging time	P
set agingtime	Set the port line error rate alarm	P
set arp	Set ARP table entry	P
set attach	Set system attach type	P
set baud	Set serial port baud rate	P
set broadcast	Set SNMP broadcast address	P
set coalias	Set alias for company MAC address	P
set community	Set SNMP community string	P
set cutoff	Set port line error rate cutoff	P
set defaultTTL	Set default TTL <sup>2</sup> for packets	P
set echo	Set echo mode (enable or disable)	P
set enablepass	Set enable password	P
set help	Display <b>set</b> commands and descriptions	P
set insertmode	Set system insert mode	P
set ipaddress	Set SNMP IP, netmask, and broadcast addresses	P
set ipalias	Set alias for IP address	P
set length	Set number of lines in terminal display	N
set meter	Set system traffic meter path	P
set netmask	Set module name	P
set netmask	Set SNMP netmask	P
set password	Set the console password	P
set path	Set port requested path	P
set port	Set port state (enable or disable)	P
set portname	Set port name	P

Command	Description	Mode <sup>1</sup>
set prompt	Set the command-line prompt	P
set redirect	Set ICMP redirects on or off	P
set route	Set IP routing table entry	P
set syscontact	Set system contact name	P
set syslocation	Set system location	P
set sysname	Set system name	P
set time	Set the system clock	P
set tnotify	Set SMT Time Notify	P
set trap	Set SNMP trap receiver address	P
set req	Set the token request value of the MAC	P
set userdata	Set SMT parameter user data	P

1. N = normal; P = privileged.

2. TTL = time to live

## set agingtime

The switch uses an aging mechanism for the ARP address table that removes an address that has been inactive for a number of seconds set by the user. Removing addresses of inactive stations keeps the address table from filling up. Aging ensures that the old address/port association is removed if a station is moved from one switch port to another. The **set agingtime** command sets the aging time. The default value is 300 seconds. To disable aging, enter 0. A sample display follows:

```
Console> (enable) set agingtime
Usage: set agingtime <seconds>
Console> (enable) set agingtime ?
Usage: set agingtime <0..1000000>
Console> (enable) set agingtime 1200
ARP aging time set.
Console> (enable)
```

## set alarm

The **set alarm** command sets the port line error rate alarm value. The alarms generated are sent to the Network Management System. The default LER-alarm value is 8. Following is a sample display:

```
Console> (enable) set alarm
Usage: set alarm <port_number> <value>
Console> (enable) set alarm 3 5
Port 3 Ler-Alarm set to 5.
Console> (enable)
```

See also **show port**.

## set arp

The **set arp** command adds ARP table entries. Following is a sample display:

```
Console> (enable) set arp
Usage: set arp <ip_addr> <hw_addr>
      (ip_addr is ipalias or IP dot notation: a.b.c.d)
      (hw_addr is in canonical form)
Console> (enable) set arp bedrock 08:00:20:08:f1:ac
ARP entry added.
Console> (enable)
```

See also **clear arp** and **show arp**.

## set attach

The **set attach** command sets the system attach type, including single, dual, or null, as follows:

```
Console> (enable) set attach
Usage: set attach <attachment_type>
Console> (enable) set attach ?
Usage: set attach <dual|single|null>
Console> (enable) set attach single
Attachment type changed to single attach.
Must reset concentrator for this to take effect!
Console> (enable)
```

Following are the three attachment types for the **set attach** command:

- Dual attachment—A dual attachment concentrator connects to both the primary and secondary rings of an FDDI network through the A and B ports (ports 1 and 2). It is capable of accommodating a dual (counter-rotating) ring. The factory default is dual attachment.  
  
Dual homing concentrators use dual attachment. In this configuration, one concentrator connects its A and B ports to M ports on two other concentrators.
- Single attachment—A single attachment concentrator connects to the M port of another concentrator (port 2 becomes an S port for connecting to another concentrator, and port 1 becomes an M port).
- Null attachment—Use null attachment if the concentrator does not have a dual or single attachment to an external ring. If an A/B port card is installed, ports 1 and 2 become M ports that are available for connecting to other workstations.

**Note** Changes to the attachment type take effect after you execute the **reset** command.

See also **show port** and **show system**.

## set baud

The **set baud** command sets the serial port baud rate. The following line speeds are available: 600, 1,200, 2,400, 4,800, 9,600, 19,200, and 38,400. The default line speed is 9,600 baud. Following is a sample display:

```
Console> (enable) set baud
Usage: set baud <baud_rate>
Console> (enable) set baud ?
Usage: set baud <600|1200|2400|4800|9600|19200|38400>
Console> (enable) set baud 9600
Baud rate set to 9600.
Console> (enable)
```

See also **show system**.

## set broadcast

The **set broadcast** command sets the IP broadcast address. A broadcast address specifies the address of the network. All stations on the network receive any packets with the broadcast address in the destination field.

Following is a sample display:

```
Console> (enable) set broadcast ?
Usage: set broadcast <a.b.c.d>
Console> (enable) set broadcast 192.54.16.255
Broadcast address changed.
Console> (enable)
```

See also **show snmp**.

## set coalias

The **set coalias** command assigns company aliases, up to eight characters long, for MAC addresses. Only the first three bytes of the MAC address are mapped to an alias. For example, the globally assigned MAC address for Cisco Systems Workgroup is 00:02:d0 in FDDI format.

Following is a sample display:

```
Console> (enable) set coalias ?
Usage: set coalias <name> <company-prefix>
       Company-prefix is 3 hex words separated by ":", ex 00:02:d0
Console> (enable) set coalias sgi 10:00:96
Company MAC alias added.
Console> (enable)
```

See also **clear coalias** and **show coalias**.

## set community

The **set community** command sets one of the four SNMP community strings, as follows:

```
Console> (enable) set community
Usage: set community <access_type> [community_string]
Console> (enable) set community ?
Usage: set community <none|read-only|read-write|read-write-all>
       [community_stri]
Console> (enable) set community read-only public
SNMP community string set.
Console> (enable)
```

You can set a community string for each the following access types:

- None—Prohibits all access to the MIB.
- Read only—Gives read access to all objects in the MIB except the community strings, but does not allow write access. The default is public.
- Read-write—Gives read and write access to all objects in the MIB, but not to the community strings. The default is private.
- Read-write all—Gives read and write access to all objects in the MIB, including the community strings. The default is secret.

See also **show snmp**.

### set cutoff

The **set cutoff** command sets the port line error rate (LER) cutoff value. The default LER-cutoff is 7. Following is a sample display:

```
Console> (enable) set cutoff
Usage: set cutoff <port_number> <value>
Console> (enable) set cutoff 3 10
Port 3 Ler-Cutoff set to 10.
Console> (enable)
```

### set defaultTTL

The **set defaultTTL** command sets the Time-To-Live field of the IP header datagrams whenever a TTL value is not supplied by the transport layer protocol. The default **defaultTTL** value is 60 seconds. Following is a sample display:

```
Console> (enable) set defaultTTL ?
Usage: set defaultTTL <seconds>
      (TTL must be 0..255)
Console> (enable) set defaultTTL 15
DefaultTTL set to 15.
Console> (enable)
```

See also **show snmp**.

## set echo

The **set echo** command sets echo mode on or off. Echo mode determines whether or not what you enter at the console will display on the screen. The default value is enabled. Following is a sample display:

```
Console> (enable) set echo
Usage: set echo <enable|disable>
Console> (enable) set echo disable
Echo mode disabled.
Console> (enable)
Echo mode enabled.
Console> (enable) quit
```

**Note** In the previous example, you must enter **set echo on** at the third console prompt but the command will not be displayed on the screen.

See also **show system**.

## set enablepass

The **set enablepass** command changes the privileged-level password for the admin. interface. After initializing the **set enablepass** command, you are prompted for the old password, the new password, and to confirm the new password. A zero-length password is allowed. The default password is no password. Following is a sample display:

```
Console> (enable) set enablepass
Enter old password:
Enter new password:
Retype new password:
Password changed.
Console> (enable)
```

**Note** The passwords entered will not echo to the screen.

## set help

The **set help** command displays the following information in normal mode:

```
Console> set help
Commands:
-----
set help          Show this message
set length       Set number of lines in terminal display
```

The **set help** command displays the following information in privileged mode:

```
Console> (enable) set help
Commands:
-----
set alarm          Set port ler-alarm
set arp            Set ARP table entry
set attach        Set system attach type
set baud           Set system admin port baud rate
set broadcast      Set SNMP broadcast address
set coalias        Set alias of company MAC address
set community      Set SNMP community string
set cutoff         Set port ler-cutoff
set defaultttl     Set default TTL for packets
set echo           Set echo mode (enable/disable)
set enablepass     Set privileged password
set help           Show this message
set insertmode     Set system insert mode
set ipaddress      Set SNMP IP address, netmask, and broadcast address
set ipalias        Set alias for IP address
set length         Set number of lines in terminal display
set meter          Set system traffic meter path
set modname        Set module name
set module         Set module (enable/disable)
set netmask        Set SNMP netmask
set password       Set the console password
set path           Set port requested path
set port           Set port state (enable/disable)
set portname       Set port name
set prompt         Set system prompt
set redirect       Set ICMP redirects (enable/disable)
set route          Set IP routing table entry
set syscontact     Set system contact
set syslocation    Set system location
set sysname        Set system name
set time           Set time and date
set tnotify        Set system SMT T-Notify
set trap           Set SNMP trap receiver address
set treq           Set MAC T-Request
set userdata       Set system SMT User Data
Console> (enable)
```

## set insertmode

Workgroup WS-C1100 Concentrators support insertion of stations attached to the concentrator M port into the FDDI ring so that no data frames are lost in the process. This form of insertion is called *scheduled insertion*. Without scheduled insertion, frames can be lost while connecting to a new station.

You can change port insertion mode using the **set insertmode** command, which sets the system insert mode to standard or scheduled. The default is scheduled.

Following is a sample display:

```
Console> (enable) set insertmode  
Usage: set insertmode <standard|scheduled>  
Console> (enable) set insertmode standard  
System insert mode set to standard.  
Console> (enable) set insertmode scheduled  
System insert mode set to scheduled.  
Console> (enable)
```

You can display the insertion mode of the concentrator by using the **show system** command. The Ins-Mode field displays the insert mode of the M ports.

## set ipaddress

The **set ipaddress** command sets the IP address. The netmask and broadcast addresses needed for SNMP, ping, Telnet, or TFTP can be set at the same time. Following are two sample displays.

EIA/TIA 232 example:

```
Console> (enable) set ipaddress
Usage: set ipaddress <ip_address> [net_mask [broadcast_address]]
      (all values given in IP dot notation: a.b.c.d)
Console> (enable) set ipaddress 192.54.16.205
IP address changed.
Console> (enable) !! 255.255.255.0 192.54.16.205
set ipaddress 192.54.16.205 255.255.255.0 192.54.16.255
IP address, netmask, broadcast address changed.
Console> (enable)
```

Telnet example:

```
Console. (enable) set ipaddress 192.54.16.205
This command will disconnect your telnet session.
Do you want to continue (y/n) [n] ? y
Connection closed by foreign host.
%
```

See also **set ipalias**.

## set ipalias

The **set ipalias** command adds aliases for IP addresses. The maximum length allowed for a character string is 19. There is one predefined default alias, 0.0.0.0. Following is a sample display:

```
Console> (enable) set ipalias oscar 192.XXX.XXX.XXX
IP alias set.
Console> (enable)
```

See also **clear ipalias** and **show ipalias**.

## set length

The **set length** command sets the maximum number of lines you want displayed on the terminal screen so information does not scroll off the screen. A partial display ends with the following prompt:

```
--More--
```

At the prompt, press **Ctrl-C** to terminate the display or press any key to scroll to the next screen of information. Setting the value to 0 disables this feature. The default value is 0. Following is a sample display:

```
Console> set length 19
Screen length set to 19.
Console>
```

A sample display with more information follows:

```
Console> show port
Port Name                Status Req-Path Cur-Path Conn-State Type Neigh
-----
1                ok      secondary concat   active      A    M
2                other   primary  isolated connecting B    U
3                other   primary  isolated connecting M    U
4                other   primary  isolated connecting M    U
5                other   primary  isolated connecting M    U
6                other   primary  isolated connecting M    U
7                other   primary  isolated connecting M    U
8                other   primary  isolated connecting M    U
9                other   primary  isolated connecting M    U
10               other   primary  isolated connecting M    U
11               other   primary  isolated connecting M    U
12               other   primary  isolated connecting M    U
13               other   primary  isolated connecting M    U
14               other   primary  isolated connecting M    U
15               other   primary  isolated connecting M    U
--More--
```

## set meter

The **set meter** command sets the ring path to be shown on the traffic meter. The variables available are as follows:

- Primary—Displays primary ring traffic
- Secondary—Displays secondary ring traffic
- Local—Displays local ring traffic
- None—Disables traffic monitoring

The default setting is primary. Following is a sample display:

```
Console> (enable) set meter
Usage: set meter <path>
Console> (enable) set meter help
Usage: set meter <primary|secondary|local|none>
console> (enable) set meter secondary
Traffic meter now monitoring secondary path.
console> (enable)
```

See also **show system**.

### **set netmask**

The **set netmask** command sets the IP subnet mask. The subnet mask specifies the subnet field of IP addresses and consists of a 32-bit mask written in dotted-decimal format. Following is a sample display:

```
Console> (enable) set netmask
Usage: set netmask <a.b.c.d>
Console> (enable) set netmask 255.255.255.0
Netmask changed.
Console> (enable)
```

### **set password**

The **set password** command sets the concentrator login password. You are prompted for the old password followed by the new password twice if the old password checks. A zero-length password is allowed, but passwords must not exceed 20 characters.

**Note** The default is no password configured.

If you forget your password, you have 30 seconds after power up or pressing the reset button to log in without a password and change the password. This requires physical access to the concentrator.

Following is a sample display:

```
Console> (enable) set password
Enter old password:
Enter new password:
Retype new password:
Password changed.
Console> (enable)
```

**Note** The passwords entered will not echo to the terminal display.

### set path

The **set path** command sets individual ports to primary or secondary ring paths. The default is primary. Following is a sample display:

```
Console> set path
Usage: set path <port_number> <primary|secondary>
Console> set path 4 secondary
Port 4 requested path set to secondary.
Console>
```

See also **show port**.

### set port

The **set port** command enables and disables a port. The default is enabled. Following is a sample display:

```
Console> set port
Usage: set port <port_number> <enable|disable>
Console> set port 1 enable
Port 1 enabled.
Console> set port 15 disable
Port 15 disabled.
```

The format of the **set port** command follows:

- Port number—1 through 18.
- Enable—Restarts the port and enables PCM. The port attempts to connect.

- **Disable**—Stops and disables the port. The port is disconnected and does not attempt to connect until the port is enabled. The port LED is off. The port remains disabled during a power up or reset. The **clear config** command enables all ports.

See also **show port**.

### set portname

The **set portname** command configures a name for a port. The default port name is no name. The variables available are as follows:

```
Console> set portname
Usage: set portname <port_number> [name_string]
Console> set portname 1 A
Console> set portname 2 B
Console> set portname 14
Console>
```

The port name you enter will appear in the port information display of the **show port** command. You can enter any port name up to 20 characters in length. A zero-length port name is allowed. Port names are only meaningful to network administrators and are not used by the concentrator.

**Note** You may find that referring to the ports by the names of the attached devices makes system administration easier and reduces the possibility of accidentally disconnecting the wrong workstation.

### set prompt

The **set prompt** command changes the prompt for the command line of the admin. interface. The default prompt is Console>. Following is a sample display:

```
Console> (enable) set prompt
Usage: set prompt <prompt_string>
Console> (enable) set prompt conc5>
conc5>
```

**Note** You may find it useful to set a more meaningful prompt, such as the location of the concentrator or the name of a workgroup.

## set redirect

The **set redirect** command enables or disables the ICMP redirects, allowing or disallowing dynamic updates to the routing table. The default is enabled. Following is a sample display:

```
Console> (enable) set redirect ?  
Usage: set redirect <enable|disable>  
Console> (enable) set redirect enable  
ICMP Redirects enabled.  
Console> (enable)
```

See also **show snmp**.

## set route

The **set route** command adds IP routing table entries. Its variables are as follows:

- Destination—Network or individual workstation
- Gateway—IP address of the gateway
- Metric—0 or 1 (default is 1)

Following is a sample display:

```
Console> (enable) set route ?  
Usage: set route <destination> <gateway> [metric]  
      (destination and gateway are ipalias or IP address in  
      dot notation: a.b.c.d)  
Console> (enable) set route fddi 198.133.219.40  
Route added.  
Console> (enable)
```

You can enter either an IP address in dotted-decimal format or an alias, if one is set. Add an entry for the destination network and the gateway IP address if you want to manage the concentrator from a network management workstation that is not on the local network.

Figure A-1 shows two sample networks. In example A, the concentrator needs a path to a network management workstation located on another network through a router. In this case, you must add an entry in the routing table using the **set route** command. For example:

```
set route 192.4.34.0 192.45.67.4
```

In example B, the network management workstation is located on the same network as the concentrator, so you do not need to add an entry in the table.

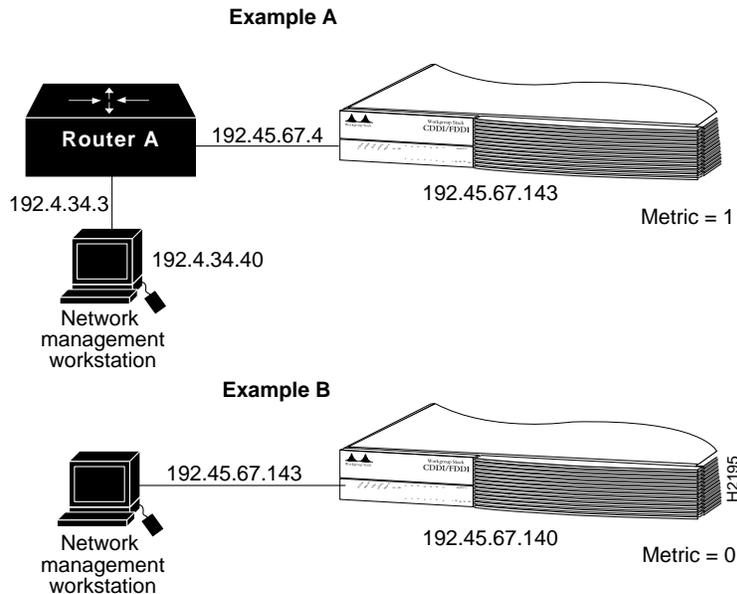


Figure A-1 Sample Networks for the `set route` Command

See also `clear route` and `show route`.

### `set syscontact`

The `set syscontact` command sets the name of the person to contact that is displayed in the `show system` display. The entry can be up to 19 characters long. Following is a sample display:

```
Console> (enable) set syscontact ?
Usage: set syscontact [name_string]
Console> (enable) set syscontact Alysa P.Hacker X 6742
System contact set.
Console> (enable)
```

See also `show system`.

## set syslocation

The **set syslocation** command sets the location of this concentrator, which is displayed in the **show system** display. The entry can be up to 19 characters long. Following is a sample display:

```
Console> (enable) set syslocation ?
Usage: set syslocation [name_string]
Console> (enable) set syslocation Bldg 12 Rm 403 B-3
System location set.
Console> (enable)
```

See also **show system**.

## set sysname

The **set sysname** command sets the name of this concentrator, which is displayed in the **show system** display. The entry can be up to 19 characters long. Following is a sample display:

```
Console> (enable) set sysname ?
Usage: set sysname [name_string]
Console> (enable) set sysname dragon
System name set.
Console> (enable)
```

See also **show system**.

## set time

The **set time** command changes the day of the week, date, and/or time of day in the system clock, as follows:

```
Console> (enable) set time
Usage: set time [day_of_week] [mm/dd/yy] [hh:mm:ss]
Console> (enable) set time tuesday 05/10/94 18:00:00
Tue May 10 1994, 18:00:00
Console> (enable)
```

See also **show time**.

## set tnotify

The **set tnotify** command changes the Time Notify (TNotify) timer value for the concentrator. The TNotify timer specifies the interval between neighbor information broadcasts (NIF frames) to other stations in the network. Enter an integer value from 2 to 30 seconds. The default is 30 seconds. Following is a sample display:

```
Console> (enable) set tnotify
Usage: set tnotify <seconds>
Console> (enable) set tnotify 20
System SMT T-Notify set to 20.
Console> (enable)
```

## set trap

The **set trap** command enables, disables, or adds an entry in the SNMP authentication trap receiver table. The default is disabled. Following is a sample display:

```
Console> (enable) set trap
Usage: set trap enable
       set trap disable
       set trap <rcvr_address> <rcvr_community>
           (rcvr_address is ipalias or IP address, rcvr_community is string)
Console> (enable) set trap disable
SNMP authentication traps disabled.
Console> (enable) set trap 192.16.54.12 public
SNMP trap receiver added.
Console> (enable) set trap enable
SNMP authentication traps enabled.
Console> (enable)
```

When you enter addresses in the table, you must specify the community string that will appear in the trap message.

See also **clear trap** and **test trap**.

## set treq

The **set treq** command changes the token request (TReq) value of the specified MAC. Following is a sample display:

```
Console> (enable) set treq
Usage: set treq <mac_number> <usecs>
Console> (enable) set treq 1 165111
MAC T-Request must be in the range 2502..165000 usec
Console> (enable) set treq 1 165000
MAC 1 T-Request set to 165000 usec.
Console> (enable)
```

The MAC number is either 1 (the primary MAC) or 2 (the secondary MAC). You can enter any new value from TMin to TMax. The default is 165,000 microseconds.

See also **show mac**.

## set userdata

The **set userdata** command configures the user data string in the SMT MIB. The user data field can be used to identify a station. The default is set as "CDDI/FDDI Concentrator." Following is a sample display:

```
Console> (enable) set userdata
Usage: set userdata <userdata_string>
Console> (enable) set userdata Workgroup C1100
System SMT user data set.
Console> (enable)
```

## show Commands

Table A-5 lists the **show** commands.

Table A-5 show Commands

Command	Description	Mode <sup>1</sup>
show arp	Show ARP table entries	N
show coalias	Show company aliases	N
show config	Show concentrator configuration	P
show cspsig	Show CSP <sup>2</sup> signal history	P
show driver	Show frame driver status or counts	P
show help	Use this for information on the <b>show</b> commands	N
show ipalias	Show IP aliases assigned	N
show log	Show the system error log	P
show mac	Show MAC information	N
show macdbg	Show MAC debug information	P
show macstatus	Show the history of the MAC status register	P
show mbuf	Show mbuf <sup>3</sup> and malloc <sup>4</sup> statistics	P
show phy	Show PHY <sup>5</sup>	P
show pmac	Show primary MAC registers	P
show port	Show port information	N
show portdbg	Show port debug information	P
show porthistory	Show port events	
show remotemib	Show a remote MIB	N
show ringmap	Show the ringmap for the primary MAC	N
show route	Show IP routing table	N
show smac	Show secondary MAC registers	P
show snmp	Show SNMP information	N

Command	Description	Mode <sup>1</sup>
show system	Show the system information	N
show test	Show the results of diagnostic tests	P
show time	Show time of day	N

1. N = normal; P = privileged.
2. CSP = connection services process.
3. mbuf = memory buffer.
4. malloc = memory allocation.
5. PHY = physical memory registers.

## show arp

The **show arp** command displays the ARP table entries. Following is a sample display:

```

Console> (enable) show arp
Aging time = 1200 sec

montreux          at 08:00:20:08:f1:ac
Console> (enable) show arp raw
Aging time = 1200 sec

198.133.219.40    at 08:00:20:08:f1:ac
Console> (enable)

```

See also **clear arp** and **set arp**.

## show coalias

The **show coalias** command displays the aliases of company MAC addresses. Following is a sample display:

```
Console> (enable) show coalias
  cisco      00:02:d0
  ods        00:00:4a
codenoll     00:00:52
  amd        00:00:58
  s&k        00:00:5a
netframe     00:00:7e
  proteon    00:00:80
  synoptx    00:00:81
netwgnrl     00:00:a6
northern     00:00:ae
  fibrncs    00:00:b0
  cabltrn    00:00:b8
  cmc        00:00:bc
  eagle      00:00:d8
tekelec      00:00:e8
intrphse     00:00:ee
  npi        00:01:1b
  summit     00:01:51
  synern     00:01:7c
  3com       00:06:31
  ub         00:bb:10
  ibm        08:00:5a
  ibm        10:00:5a
  sun        10:00:04
  sgi        10:00:96
  dec        10:00:d4
Console> (enable)
```

See also **clear coalias** and **set coalias**.

## show config

The **show config** command lists all commands used to create the current configuration.

**Note** If the passwords are configured they will be displayed in clear text and not visible.

Following is a sample display:

```
Console> (enable) show config
```

```
set password
```

```
set enablepass
```

```
set prompt CONC6>
set attach dual
set baud 9600
set echo enable
set tnotify 30
set meter primary
set sysname alpha
set syslocation BETA
set syscontact gamma
set userdata WS-C1100 (CONC6)

set insertmode scheduled
set ipaddress 198.133.219.206
set netmask 255.255.255.0
set broadcast 198.133.219.255
set agingtime 1200
set redirect disable
set defaultTTL 255
set community none
set community read-only public
set community read-write private
set community read-write-all secret
set trap 198.133.219.40 private
set trap 192.122.173.125 public
set trap enable
set route 192.122.173.0 198.133.219.40 1
set route 192.122.174.0 198.133.219.40 1
set ipalias default 0.0.0.0

set ipalias montreux 198.133.219.40
set ipalias conc3 198.133.219.203
set ipalias conc4 198.133.219.204
set ipalias conc5 198.133.219.205
set ipalias conc6 198.133.219.206
set ipalias conc7 198.133.219.207
set ipalias conc8 198.133.219.208
set ipalias conc9 198.133.219.209
set ipalias conc10 198.133.219.210
set ipalias conc11 198.133.219.211
set ipalias conc12 198.133.219.212
```

```

set ipalias conc21 198.133.219.221
set ipalias fddi 192.122.173.0
set ipalias cres-fddi 192.122.173.42
set ipalias sade 192.122.173.82
set ipalias kiss 192.122.173.125
set ipalias hub6 192.122.173.206
set ipalias ether 192.122.174.0

set ipalias montreux- 192.122.174.40
set ipalias cres 192.122.174.42
set ipalias strauss 192.122.174.51
set coalias cisco 00:02:d0
set coalias cisco 00:00:30
set coalias ods 00:00:4a
set coalias codenoll 00:00:52
set coalias amd 00:00:58
set coalias s&k 00:00:5a
set coalias netframe 00:00:7e
set coalias proteon 00:00:80
set coalias synoptx 00:00:81
set coalias netwgnrl 00:00:a6
set coalias northern 00:00:ae
set coalias fibrncs 00:00:b0
set coalias cabltrn 00:00:b8
set coalias cmc 00:00:bc
set coalias eagle 00:00:d8

set coalias tekelec 00:00:e8
set coalias intrphse 00:00:ee
set coalias npi 00:01:1b
set coalias summit 00:01:51
set coalias synern 00:01:7c
set coalias 3com 00:06:31
set coalias ub 00:bb:10
set coalias ibm 08:00:5a
set coalias ibm 10:00:5a
set coalias sun 10:00:04
set coalias sgi 10:00:96
set coalias dec 10:00:d4
set treq 1 15000
set treq 2 15000
set portname 1
set path 1 secondary
set alarm 1 8
set cutoff 1 7

set port 1 enable
set portname 2
set path 2 primary
set alarm 2 8
set cutoff 2 7

set port 2 enable
set portname 3
set path 3 primary
set alarm 3 8

```

```
set cutoff 3 7
set port 3 enable
set portname 4
set path 4 primary
set alarm 4 8
set cutoff 4 7
set port 4 enable
set portname 5
set path 5 primary
set alarm 5 8
set cutoff 5 7
set port 5 enable
set portname 6
set path 6 primary
set alarm 6 8
set cutoff 6 7
set port 6 enable
set portname 7
set path 7 primary
set alarm 7 8
set cutoff 7 7
set port 7 enable
set portname 8
set path 8 primary
set alarm 8 8
set cutoff 8 7
set port 8 enable
set portname 9
set path 9 primary
set alarm 9 8
set cutoff 9 7
set port 9 enable
set portname 10
set path 10 primary
set alarm 10 8
set cutoff 10 7
set port 10 enable
set portname 11
set path 11 primary
set alarm 11 8
set cutoff 11 7
set port 11 enable
set portname 12
set path 12 primary
set alarm 12 8
set cutoff 12 7
set port 12 enable
set portname 13
set path 13 primary
set alarm 13 8
set cutoff 13 7
set port 13 enable
```

```
set portname 14
set path 14 primary
set alarm 14 8
set cutoff 14 7
set port 14 enable
set portname 15
set path 15 primary
set alarm 15 8
set cutoff 15 7
set port 15 enable
set portname 16

set path 16 primary
set alarm 16 8
set cutoff 16 7
set port 16 enable
set portname 17
set path 17 primary
set alarm 17 8
set cutoff 17 7
set port 17 enable
set portname 18
set path 18 primary
set alarm 18 8
set cutoff 18 7
set port 18 enable
CONC6> (enable)
```

See also **clear config** and **write Command**.

## show cspsig

The **show cspsig** command displays the connection services process (CSP) signal history, as follows:

```
Console> (enable) show cspsig
Signal History Index == 12
```

Signal Type	Signal Entity	Signal Data
-----	-----	-----
0 LEM:SIG_LEM_Start	1	3383
1 LEM:SIG_LEM_Start	1	3384
2 LEM:SIG_LEM_Start	1	3385
3 LEM:SIG_LEM_Start	1	3386
4 LEM:SIG_LEM_Start	1	3387
5 LEM:SIG_LEM_Start	1	3388
6 LEM:SIG_LEM_Start	1	3389
7 LEM:SIG_LEM_Start	1	3390
8 LEM:SIG_LEM_Start	1	3391
9 LEM:SIG_LEM_Start	1	3392
10 LEM:SIG_LEM_Start	1	3393
11 LEM:SIG_LEM_Start	1	3394
12 LEM:SIG_LEM_Start	1	3345
13 LEM:SIG_LEM_Start	1	3346
14 LEM:SIG_LEM_Start	1	3347
15 LEM:SIG_LEM_Start	1	3348
16 LEM:SIG_LEM_Start	1	3349
17 LEM:SIG_LEM_Start	1	3350
18 LEM:SIG_LEM_Start	1	3351
19 LEM:SIG_LEM_Start	1	3352
20 LEM:SIG_LEM_Start	1	3353
21 LEM:SIG_LEM_Start	1	3354
22 LEM:SIG_LEM_Start	1	3355
23 LEM:SIG_LEM_Start	1	3356
24 LEM:SIG_LEM_Start	1	3357
25 LEM:SIG_LEM_Start	1	3358
26 LEM:SIG_LEM_Start	1	3359
27 LEM:SIG_LEM_Start	1	3360
28 LEM:SIG_LEM_Start	1	3361
29 LEM:SIG_LEM_Start	1	3362
30 LEM:SIG_LEM_Start	1	3363
31 LEM:SIG_LEM_Start	1	3364
32 LEM:SIG_LEM_Start	1	3365
33 LEM:SIG_LEM_Start	1	3366
34 LEM:SIG_LEM_Start	1	3367
35 LEM:SIG_LEM_Start	1	3368
36 LEM:SIG_LEM_Start	1	3369
37 LEM:SIG_LEM_Start	1	3370
38 LEM:SIG_LEM_Start	1	3371
39 LEM:SIG_LEM_Start	1	3372
40 LEM:SIG_LEM_Start	1	3373
41 LEM:SIG_LEM_Start	1	3374
42 LEM:SIG_LEM_Start	1	3375

```
43 LEM:SIG_LEM_Start          1          3376
44 LEM:SIG_LEM_Start          1          3377
45 LEM:SIG_LEM_Start          1          3378
46 LEM:SIG_LEM_Start          1          3379
47 LEM:SIG_LEM_Start          1          3380
48 LEM:SIG_LEM_Start          1          3381
49 LEM:SIG_LEM_Start          1          3382
Console> (enable)
```

## show driver

The **show driver** command displays frame driver status and counts, as follows:

```
Console> (enable) show driver
MACs on board                2
Frames/poll value            3
Intrs seen (P & S)          10929

                                Primary      Secondary
Ring Operational status      up        up
Frame Recieved flag           0         0
Rcv buffer full flag         0         0

Entered get_rcv_pkt           9164      8552
MSVALID bit not set           0         0
MAC Aborted frames            0         0
Packet length errors          0         0
No Rcv buffers                 0         0
Frame type errors              0         0
Xfered packets                 9665      9652
Adjust RPR wrapped             8         8
Xfer packet wrapped            8         8
Rcv Q resets                   0         0
Rcv lock clears                0         0
Rcv SMT frames                 8698      8698
Rcv LLC frames                 967       954

Enter SendSMTFrame            479       680
Sent SMT Frames                479       680
Wrapped SMT Xmit Buffer         10        15
SMT RP Out Of Bounds           0         0
SMT Ptr Out Of Bounds          0         0
SMT Restart Xmit, No Space     0         0
No Space In SMT Buffer          0         0
Wrapped LLC Xmit Buffer         0         0
LLC RP Out Of Bounds           0         0
No Space in LLC Buffer          0         0
MACReInitCt                    0         0
Xtra Xmit Issued               0         0
Xmit Stuck                      0         0
Console> (enable)
```

## show help

The **show help** command displays the following information in normal mode:

```
Console> show help
Show commands:
-----
show help          Show this message
show mac           Show MAC information
show port          Show port information
show remotemib    Show a remote mib
show ringmap       Show the ring map for the primary mac
show snmp          Show SNMP information
show system        Show system information
show time          Show time
Console>
```

The **show help** command displays the following information in privileged mode:

```
Console> (enable) show help
Show commands:
-----
show arp           Show ARP table
show coalias       Show alias of company MAC addresses
show config        Show commands to set current configuration
show cspsig        Show CSP signal history
show driver        Show frame driver status/counts
show help          Show this message
show ipalias       Show aliases for IP addresses
show log           Show system error log
show mac           Show MAC information
show macdbg        Show MAC debug information
show macstatus     Show history of MAC status register
show mbuf          Show mbuf and malloc stats
show phy           Show PHY registers
show pmac          Show primary MAC registers
show port          Show port information
show portdbg       Show port debug information
show porthistory   Show port management history
show remotemib    Show a remote mib
show ringmap       Show FDDI ring map
show route         Show IP routing table
show smac          Show secondary MAC registers
show snmp          Show SNMP information
show system        Show system information
show test          Show results of diagnostics tests
show time          Show time and date
Console> (enable)
```

## show ipalias

The **show ipalias** command displays IP aliases assigned using the **set ipalias** command. Following is a sample display:

```
Console> (enable) show ipalias
default      0.0.0.0
Console> (enable)
```

See also **clear ipalias** and **set ipalias**.

## show log

The **show log** command displays the system error log. Following is a sample display:

```
Console> (enable) show log

Magic Pattern: 55aa      Interrupt level not zero count : 0

Last Restart reason : S/W Watchdog failure
DRAM Failures : 0      S/W Watchdog : 58648
H/W Watchdogs : 0      Warm Start : 0
MAC Failures : 0
Path Test Failures : 0

Last CPU exception was : 11
PC = 0  Status Regs = 0
D0-D7: 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000
A0-A7: 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000

Access Bits:  Read/Write: W  Instr/Data: D  FC code: 0
Access Addr:  50000  Instruction Reg:  0
Console> (enable)
```

See also **clear log**.

## show mac

The **show mac** command displays information on both MACs, as follows:

```
Console> (enable) show mac ?
Usage: show mac [raw]
      (raw - no alias conversions,
      otherwise use FDDI format with aliasing)
Console> (enable) show mac raw
MAC SMT-Address      Curr-Path      TReq      TNeg      TMax      TVX
-----
1  00:02:d0:03:0b:58 primary      165000     10000     165004     2509
   (00:40:0b:c0:d0:1a)
2  00:02:d0:03:0b:59 secondary    165000     10000     165004     2509
   (00:40:0b:c0:d0:9a)

MAC      Rcv-Frms      Rcv-Smt      Rcv-llc      Tvx-Exp-Ct      RingOp-Ct      RMT-St
-----
1          100286          91269          9017           0           94      ring-op
2           96067          91257          4810           0           59      ring-op

MAC      Xmit-Frms      Xmit-Smt      Xmit-llc      Error-Frms      Lost-Frms      Total-Frms
-----
1          24743          9363          15380           1           2      440372753
2           9298          9298           0           0           0      440383810

MAC Upstream-Nbr      Downstream-Nbr      Old-Upstream-Nbr      Old-Downstream-Nbr
-----
1  00:02:d0:50:c0:f3  00:02:d0:03:0b:59  10:00:04:10:8f:35  00:02:d0:50:c0:f3
   (00:40:0b:0a:03:cf) (00:40:0b:c0:d0:9a) (08:00:20:08:f1:ac) (00:40:0b:0a:03:cf)
2  00:02:d0:03:0b:58  57:53:2d:03:00:48  00:00:1f:00:00:00  00:02:d0:03:06:00
   (00:40:0b:c0:d0:1a) (ea:ca:b4:c0:00:12) (00:00:f8:00:00:00) (00:40:0b:c0:60:00)

Last-Time-Cleared
-----
Mon Jul 11 1994, 20:45:19
Console> (enable)
```

Following are descriptions of the display fields of the **show mac** command:

- **MAC**—Indicates which MAC is being referenced by the data in the other fields. Workgroup WS-C1100 Concentrators currently have two MACs: MAC 1 is the primary MAC and MAC 2 is the secondary MAC.
- **SMT-Address**—Refers to the 48-bit MAC address, and displays in two versions: the FDDI version (first) and the canonical version, as shown in the following partial sample display:

```
MAC SMT-Address
-----
1      cisco:01:07:1e (FDDI version)
      (00:40:0b:80:e0:78) (canonical version)
```

- **Curr-Path**—Indicates the current path handled by the MAC and takes one of the following values:
  - **Primary**—Displays if the MAC is on the primary path.
  - **Secondary**—Displays if the MAC is on the secondary path.
  - **Isolated**—Displays if the MAC is not on any path but is isolated.
  - **Unknown**—If the concentrator cannot determine the path, it returns a value of unknown.
  - **Other**—If the concentrator is unable to determine the path, it returns a value of other.
- **TReq**—Shows the time in microseconds that the MAC requests as the average token rotation time. You can configure this parameter with the **set treq** command.
- **TNeg**—Contains the TReq value agreed on by all MACs in the ring.
- **TMax**—Holds the maximum time in microseconds that the MAC will send out as a TReq value.
- **TVX**—Displays the time in microseconds of the MAC valid transmission timer.
- **Rcv-Frms**—Displays the total number of frames received by the MAC.
- **Rcv-Smt**—Displays the total number of SMT frames received by the MAC.
- **Rcv-llc**—Displays the total number of logical link control (LLC) frames received by the MAC.
- **Tvx-Exp-Ct**—Displays the number of TVX expirations counted by the MAC.
- **RingOp-Ct**—Displays the number of times the ring has encountered a break and restarted.

- RMT-St—The ring management (RMT) state. Ring management identifies stuck beaconing, initiates traces, provides notification of MAC availability, and detects duplicate addresses that prevent ring operation. This field will display one of the following:
  - Isolated—The initial state of RMT.
  - Non-op—The ring is not operational; however, the MAC is participating in ring recovery procedures.
  - Ring-op—The MAC is part of an operational FDDI ring.
  - Detect—The ring is not operational because a duplicate address has been detected.
  - NonOp-dup—The ring is not operational because a duplicate address was detected, and this MAC's address is one of the duplicates.
  - Rng-Op-Dup—A duplicate address has been detected on the ring, and this MAC's address is one of the duplicates. The ring, however, remains operational.
  - Directed—The MAC is sending directed beacon frames out to attempt to isolate a local-area network (LAN) fault.
  - Trace—Indicates that the MAC initiated a trace function. Trace provides a recovery mechanism from a stuck beacon that cannot be traced to a single link. In this condition, all stations leave the ring, perform a self-test, and rejoin the ring if they are not faulty.
- Xmit-Frms—Contains the total number of frames transmitted by the MAC.
- Xmit-Smt—Contains the total number of SMT frames transmitted by the MAC.
- Xmit-llc—Contains the total number of LLC frames transmitted by the MAC. The LLC frames contain user and application data.
- Error-Frms—Shows the total number of error frames that a MAC has detected (no other MACs have set the frame-error-detected indicator).
- Lost-Frms—Displays the total number of frames received by the MAC that contain an error.
- Total-Frms—Contains the total number of frames seen by the MAC.

- Upstream-Nbr—Contains the address of the most recently known upstream neighbor to the MAC.
- Downstream-Nbr—Contains the address of the most recently known downstream neighbor, the next MAC to receive frames from this MAC.
- Old-Upstream-Nbr—Contains the MAC address of the previous upstream neighbor.
- Old-Downstream-Nbr—Contains the MAC address of the previous downstream neighbor.
- Last-Time-Cleared—Displays the date and time that the MAC counters were last cleared.

See also **clear mac**.

### show macdbg

The **show macdbg** command shows MAC debug information, as follows:

```
Console> (enable) show macdbg
```

```
MAC TMax-Cap TVX-Cap FS-Cap Avl-Path Rq-Path DA-Test DA-Flg Frm-Mac-Flg
-----
1 167769 5202 0 3 4 pass false false
2 167769 5202 0 3 2 pass false false

MAC Xmit-Abort Dir-Beacon Rcv-Invalid Rcv-Reset Rcv-Short
-----
1 0 0 0 0 0
2 0 0 0 0 0

MAC Trace-Init Trace-Prop Trace-Term DownstrmType
-----
1 0 0 0 B
2 0 0 0 B
```

Following are descriptions of the display fields of the **show macdbg** command:

- MAC—Displays MAC number.
- TMax-Cap—Target token rotation number (TTRT) TMax capability displays the maximum time value this MAC can support.
- TVX-Cap—Timer valid transmission (TVX) capability displays the maximum time value this MAC can support.

- FS-Cap—Frame status capability displays the optional frame status functions supported.
- Avl-Path—Displays available paths.
- Rq-Path—Displays requested paths.
- DA-Test—Displays duplicate address test pass or fail.
- DA-Flg—Displays duplicate address flag true or false.
- Frm-Mac-Flg—Displays MAC frame error flag condition setting as true or false.
- Xmit-Abort—Displays the number of times the MAC aborts a transmit.
- Dir-Beacon—Displays the number of times the directional beacon is sent.
- Rcv-Invalid—Displays the number of times the MAC receives an invalid frame.
- Rcv-Reset—Displays the number of times the receiver reset is sent.
- Rcv-Short—Displays the number of times the receive short frame is sent.
- Trace-Init—Displays the number of times trace is initiated.
- Trace-Prop—Trace propagation displays the number of time the trace has been propagated.
- Trace-Term—Trace termination displays the number of time the trace has been terminated.
- DownstrmType—Displays port downstream from the MAC.

## show macstatus

The **show macstatus** command displays the history of the FDDI MAC status registers, as follows:

```
Console> (enable) show macstatus
```

index	ST1U	ST1L	ST2U	ST2L
65	000000	000000	0x8000	0x8100
64	000000	000000	0x8000	0x8100
63	000000	000000	0x8000	0x8100
62	000000	000000	000000	0x8010
61	000000	000000	0x8000	0x8100
60	000000	000000	0x8000	0x8100
59	000000	000000	0x8000	0x8100
58	000000	000000	0x8000	0x8100
57	000000	000000	0x8000	0x8100
56	000000	000000	0x8000	0x8100
55	000000	000000	0x8000	0x8100
54	000000	000000	0x8000	0x8100
53	000000	000000	0x8000	0x8100
52	000000	000000	0x8000	0x8100
51	000000	000000	0x8000	0x8100
50	000000	000000	0x8000	0x8100
49	000000	000000	0x8000	0x8100
48	000000	000000	0x8000	0x8100
47	000000	000000	0x8000	0x8100
46	000000	000000	0x8000	0x8100
45	000000	000000	0x8000	0x8100

## show mbuf

The **show mbuf** command displays memory buffer (mbuf) and memory allocation (malloc) statistics, as follows:

```
Console> (enable) show mbuf
-----
total      free      in use    drops     drains    panics
-----
mbufs      240       228       12        0         0         0
clusters  20        20         0
scc bufs   4096     3938      158
malloc blocks  128      93        35

mbuf usage: (current number)/(maximum number since last show)
data=      0/7      header=   0/1      socket=   4/5
pcb=       5/6      rtable=   2/2      htable=  0/0
atable=    0/0      soname=   0/1      zombie=  0/0
soopts=    0/1      ftable=   0/0      rights=  0/0
ifaddr=    1/1
Console> (enable)
```

## show phy

The **show phy** command displays the values stored in PHY registers and the Tl-min of the PHY.

The variables available are as follows:

- Port\_num—Physical port number 1 to 16.
- Hex\_register—0 to 1a, le, lf, and 80 to 8d
- Tl-min—Minimum time to transmit a PHY line state before advancing to the next PCM state.

Following is a sample display:

```
Console> (enable) show phy ?
Usage: show phy <port_num> [hex_register]
       show phy <port_num> tlmin
       (mod_num=1..2, port_num=1..16, hex_register=0..1f,80..8d)
Console> (enable) show phy 2 10
PHY 2 register 0x10 = 0x3e6
Console> (enable) show phy 2 tlmin
PHY 2 register tlmin (0x07) = 0xffff1
Console> (enable)
```

## show pmac

The **show pmac** command displays the values stored in primary MAC registers, as follows:

```
Console> (enable) show pmac 44
Usage: show pmac [hex_register]
       (hex_register=0 to 43)
Console> (enable) show pmac 3
Primary MAC register 0x3 = 0x8110
```

## show port

The **show port** command displays status and configuration information about each of the concentrator ports, as follows:

```
Console> show port
```

Port	Name	Status	Req-Path	Cur-Path	Conn-State	Type	Neigh
1		ok	secondary	concat	active	A	M
2		other	primary	isolated	connecting	B	U
3		other	primary	isolated	connecting	M	U
4		other	primary	isolated	connecting	M	U
5		other	primary	isolated	connecting	M	U
6		other	primary	isolated	connecting	M	U
7		other	primary	isolated	connecting	M	U
8		other	primary	isolated	connecting	M	U
9		other	primary	isolated	connecting	M	U
10		other	primary	isolated	connecting	M	U
11		other	primary	isolated	connecting	M	U
12		other	primary	isolated	connecting	M	U
13		other	primary	isolated	connecting	M	U
14		other	primary	isolated	connecting	M	U
15		other	primary	isolated	connecting	M	U
16		other	primary	isolated	connecting	M	U
17		other	primary	isolated	connecting	M	U
18		other	primary	isolated	connecting	M	U

Port	Ler-Cond	Ler-Est	Ler-Alrm	Ler-Cutoff	Lem-Ct	Lem-Rej-Ct	Media
1	false	15	8	7	0	0	mlt-3
2	false	16	8	7	0	0	mlt-3
3	false	16	8	7	0	0	cddi
4	false	16	8	7	0	0	cddi
5	false	16	8	7	0	0	cddi
6	false	16	8	7	0	0	cddi
7	false	16	8	7	0	0	cddi
8	false	16	8	7	0	0	cddi
9	false	16	8	7	0	0	cddi
10	false	16	8	7	0	0	cddi
11	false	16	8	7	0	0	mlt-3
12	false	16	8	7	0	0	mlt-3

```

13  false      16      8      7      0      0  mlt-3
14  false      16      8      7      0      0  mlt-3
15  false      16      8      7      0      0  mlt-3
16  false      16      8      7      0      0  mlt-3
17  false      16      8      7      0      0  mlt-3
18  false      16      8      7      0      0  mlt-3

```

```

Last-Time-Cleared
-----
00 2000, 00:00:00

```

Console>

Following are descriptions of the display fields of the **show port** command:

- **Port**—Displays the port number, a value from 1 to 18. Port 1 is either an A port or an M port. Port 2 is either a B port, S port, or M port. Ports 3 through 18 are M ports.
- **Name**—Contains the name of the designated port. You will only see a name displayed if you have given the port a name using the **set portname** command.
- **Status**—Displays the port status as one of the following:
  - **Ok**—The port has connection. The link status LED is green.
  - **Minor**—A signal is detected, but the port is not connected. The link status LED is orange.
  - **Other**—The port has not connected.
- **Req-Path**—Set using the **set path** command. Possible paths are primary and secondary from the admin. port console. This is set using Workgroup Director network management software to display the paths requested by the MAC. Possible paths are primary, secondary, local, and isolated. For more information, refer to the publication *Workgroup Director User Guide*.
- **Cur-Path**—Shows the current path of the port. Possible paths are primary, secondary, isolated, thru, concatenated, and other.

- Primary—The port has been inserted into the primary path. (See Figure A-2.)

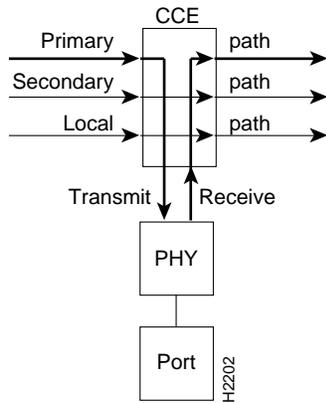


Figure A-2 Primary Configuration Control (CCE) Element State

- Secondary—The port has been inserted into the secondary path. (See Figure A-3.)

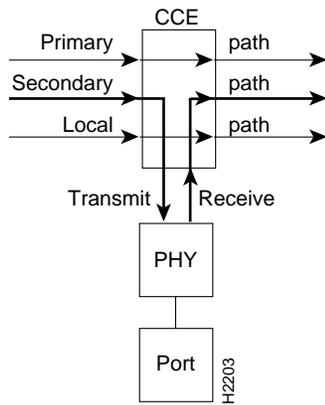


Figure A-3 Secondary Configuration Control Element State

— Isolated—Displays when the PHY is isolated from the paths. (See Figure A-4.)

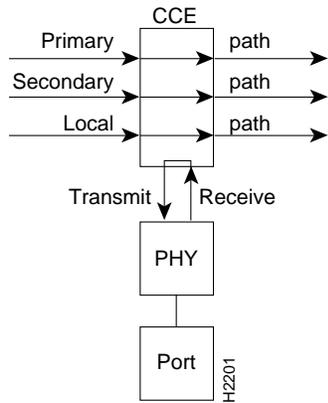


Figure A-4 Isolated Configuration Control Element State

— Thru—Both A and B ports have been inserted into the primary path and the B port has been inserted into the secondary path in a thru configuration. (See Figure A-5.)

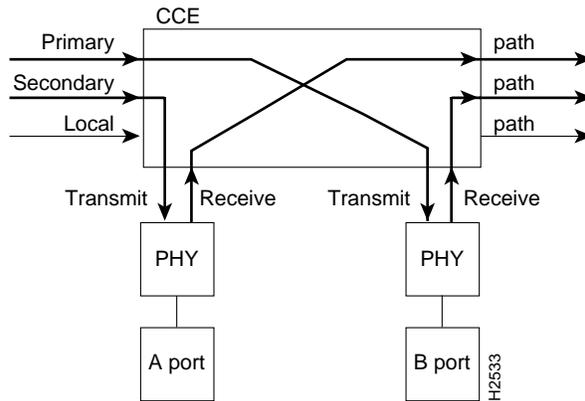
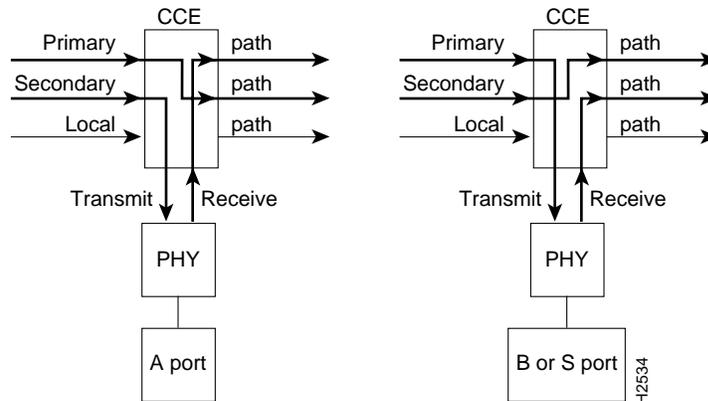


Figure A-5 Thru Configuration Control Element State

- Concatenated—The A, B, and S ports have been inserted into both primary and secondary paths in a concatenated path configuration. (See Figure A-6.)



**Figure A-6 Concatenated Configuration Control Element State**

- Other—Displays other if the concentrator is unable to determine the CCE state.
- Conn-State—Displays the connection state of the port, as follows:
  - Disabled—The port has no line module, or was disabled by the user.
  - Connecting—The port is attempting to connect or is disconnected.
  - Standby—The connection is withheld or is the inactive port of a dual homing concentrator.
  - Active—The port has made connection.
  - Other—The concentrator is unable to determine the Conn-State.
- Type—Specifies the type of port as follows. (See Figure A-7.)
  - A—A port
  - B—B port

- M—Master port
- S—Slave port
- U—Unknown

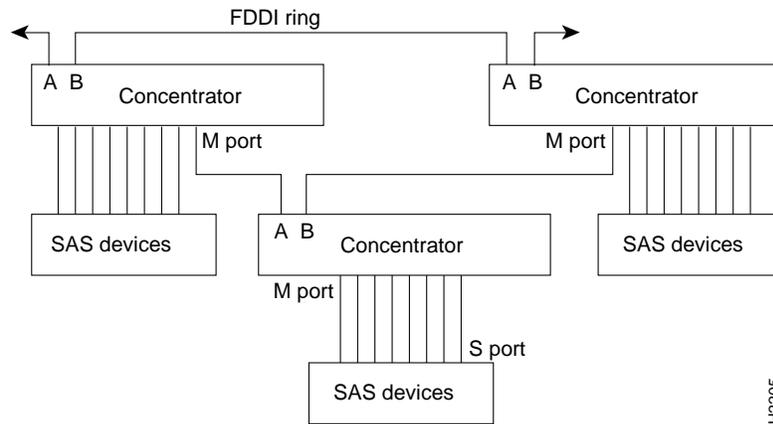


Figure A-7 Port Types

- Neigh—Indicates the type of port attached to this port. The neighbor can be one of the following types:
  - A—A port.
  - B—B port.
  - M—M port.
  - S—Slave port.
  - U—The concentrator cannot determine the type of the neighbor port.
- Ler-Cond—Shows the link error rate indicator field as either true, an error condition exists on the link, or false, no error conditions exist on the link.
- Ler-Est—Refers to the long-term estimated error rate for the link. The value displayed in this field is the exponent of  $10^{-n}$ . For example, if the indicated value is 11, the estimated error rate is  $10^{-11}$ ; thus, the higher the value of the exponent, the better the link error rate. Values range from  $10^{-4}$  to  $10^{-15}$ .

- **Ler-Alarm**—Contains the error rate for the link that will generate an alarm. The default is  $10^{-8}$ . The value displayed is the exponent of  $10^{-n}$ .
- **Ler-Cutoff**—Contains the error rate for the link that will disable the port. The default is  $10^{-7}$ . The value displayed is the exponent of  $10^{-n}$ .
- **Lem-Ct**—Holds the link error monitor count, the number of recorded link errors received. The link error monitor is used to estimate the link error rate (**Ler-Est**) and helps measure link performance and isolate faulty links that pass initial tests.
- **Lem-Rej-Ct**—Contains the link error monitor rejected count, the number of times a link was disabled because the link error rate reached the cutoff threshold.
- **Media**—Indicates the media capabilities of the indicated port as follows:
  - **mlt-3**—The port uses MLT-3 media.
  - **cddi**—The port uses CDDI media.
  - **fiber**—The port uses FDDI fiber-optic cable.
  - **none**—This port cannot be used because it is missing a line card.
- **Last-Time-Cleared**—Displays the date and time that the port counters were last cleared.

See also **clear port**, **set port**, **set portname**, **set path**, **set agingtime**, and **set cutoff**.

## show portdbg

The **show portdbg** command displays port debug information, as follows:

```
Console> (enable) show portdbg
Port Con-Pol Rq-Path Av-Path Mac-Plmt LCT-Fail Rem-Mac PC-Wthld BS-Flg EB-Ct
-----
1      0 015999      3      0      0 false  none   false  0
2      0 0169a9      3      1      0 false  none   false  0
3      0 012700      3      0      0 false  none   false  0
4      0 012700      3      2      0 true   none   false  0
5      0 012700      3      0      0 false  none   false  0
6      0 012700      3      0      0 false  none   false  0
7      0 012700      3      0      0 false  none   false  0
8      0 012700      3      0      0 false  none   false  0
9      0 012700      3      0      0 false  none   false  0
10     0 012700      3      0      0 false  none   false  0

Port MACLoop-Time PC-State  Ins-Attmpt  Ins-Ok  Ins-Tout  Ins-Cancel  BreakCt
-----
1      0 connect      0      0      0      0      0
2      0 active      0      0      0      0      0
3      0 connect      0      0      0      0      0
4      0 active      1      1      0      0      0
5      0 connect      0      0      0      0      0
6      0 connect      0      0      0      0      0
7      0 connect      0      0      0      0      0
8      0 connect      0      0      0      0      0
9      0 connect      0      0      0      0      0
10     0 connect      0      0      0      0      0
Console> (enable)
```

Following are descriptions of the display fields of the **show portdbg** command:

- Port—Displays the port number.
- Con-Pol—Connection policy indicates the bit string representing the connection policy desired.
- Rq-Path—Displays requested paths.
- Av-Path—Displays available paths.
- Mac-Plmt—MAC placement indicates the MAC whose transmit path exits via this port, if any.
- LCT-Fail—Number of times the link confidence test (LCT) fails.
- Rem-Mac—Remote MAC indicates a physical connection signalling its intent to place a MAC in the output token path to a port as true or false.

- PC-Withld—Physical connection withholding indicates the reason for withholding the connection.
- BS-Flg—Break state flag indicates that the physical connection management state machine is not leaving the break state in an expected time interval as true or false.
- EB-Ct—Indicates the number of times elastic buffer error counts have occurred.
- MACLoop-Time—Controls the value used to T\_Next.
- PC-State—Displays the state of the physical connection.
- Ins-Attmpt—Insertion attempts indicates the number of attempts to insert into the ring.
- Ins-Ok—Indicates number of times scheduled insertion was successful.
- Ins-Tout—Indicates the number of time scheduled insertion timed out.
- Ins-Cancel—Indicates the number of times the scheduled insertion was cancelled.
- BreakCt—Indicates the number of times the port enters the PC break state.

### show porthistory

The **show porthistory** command displays the events for each port since the last system reset. A sample display follows:

```

Console> (enable) show porthistory
Port Management History Table
PHY  Event
----  -----
0    PCM RCode=e  T_Val=8,    isW=0, isC=0, npc=0
7    PCM RCode=8  T_Val=e,    isW=0, isC=1, npc=1
7    PCM RCode=8  T_Val=e,    isW=0, isC=1, npc=1
7    PCM RCode=8  T_Val=e,    isW=0, isC=1, npc=1
0    PCM RCode=e  T_Val=8,    isW=0, isC=0, npc=0
***** Information Deleted *****

Console> (enable)

```

## show remotemib

The **show remotemib** command displays remote MIB information, as follows:

```
Console> show remotemib
Usage: show remotemib <macaddr> [raw]
      (macaddr is hex separated by :, ex: 00:02:d0:02:06:e1
      macaddr can also use coalias, ex: cisco:02:06:e1
      If raw, then company aliases are not displayed.)
Console>
```

For example, the following command displays SMT parameters from the station with the MAC address of cisco:02:23:3e.

```
Console> (enable) show remotemib cisco:02:23:3e
Station-ID          MACs Ports Attach Op-Ver Hi-Ver Lo-Ver CF-State
-----
00:00:00:02:d0:02:23:3e  1  1  1  1  1  1  NA
(00:00:00:40:0b:40:c4:7c)

MAC      TReq      TNeg      TMax      TVX RingOp-Ct
-----
1        15000    10000    167772    2621      NA

MAC Upstream-Nbr      Downstream-Nbr      Frame-Ct      Error-Ct      Lost-Ct
-----
1        cisco:03:06:7f      cisco:01:0d:f0      1008945      1      2
(00:40:0b:c0:60:fe)(00:40:0b:80:b0:0f)

Port  Ler-Est  Ler-Alrm  Ler-Cutoff      Lem-Ct  Lem-Rej-Ct
-----
1      15      8      7      0      0

Manu-Data          User-Data
-----
Cisco Systems      FDDI EISA Adapter
Console> (enable)
```

You can also use a company alias as part of the MAC address. Use the raw option to show MAC addresses without company aliases.

**Note** The MAC addresses displayed in the Upstream-Nbr and Downstream-Nbr fields are in FDDI format.

The **show remotemib** display contains parts of the **show mac** and **show port** displays, with the following new fields:

- **Manu-Data**—A text field in the remote MIB containing device information from the manufacturer.

- User-Data—A text field in the remote MIB containing information entered by the user.

See also **show ringmap**.

## show ringmap

The **show ringmap** command displays the FDDI ringmap for the primary or secondary MAC.

The variables available are as follows:

- Raw or canonical—Used to display the information in various hierarchies.
- Primary or secondary—Used to determine the ring to be shown.

The equal sign (=) after a MAC address denotes the default MAC. An asterisk (\*) after a MAC address denotes mismatched neighbor information.

**Note** Ringmap information will stabilize after 30 to 60 seconds, then the “\*” will disappear.

Following is a sample display:

```
Console> (enable) show ringmap ?
Usage: show ringmap [raw|canonical]
      (raw - show with no alias conversions,
       canonical - show with canonical format,
       otherwise use FDDI format with aliasing)
Console> (enable)
```

In the following sample displays of the **show ringmap** command, token flow is from the top to the bottom of the list.

```
Console> (enable) show ringmap raw
```

```
Ring Map for Primary Ring
1=00:00:ae:03:0c:57
2=00:02:d0:02:23:4b
3=00:02:d0:03:06:7f
4=00:02:d0:03:06:00
5=00:02:d0:50:c0:f3
6=00:02:d0:03:00:48
7=00:02:d0:03:0b:58=
8=00:02:d0:03:0b:59
9=00:02:d0:03:00:49
10=00:02:d0:02:15:8e
11=00:02:d0:03:0b:5b
12=00:02:d0:03:0b:5c
```

```
13=00:02:d0:01:16:51
14=00:02:d0:02:02:f1
15=00:02:d0:05:20:f8
16=00:02:d0:01:00:24
17=00:02:d0:01:0a:24*
18=10:00:04:10:8f:35
19=00:00:ae:03:0c:58
Update ring map again (y/n) [y]? n
Console> (enable)
Console> (enable) show ringmap canonical
```

```
Ring Map for Primary Ring
1=00:40:0b:c0:d0:f2
2=00:40:0b:40:c4:d2
3=00:40:0b:c0:60:fe
4=00:40:0b:c0:60:00
5=00:40:0b:0a:03:cf
6=00:40:0b:c0:00:12
7=00:40:0b:c0:d0:1a=
8=00:40:0b:c0:d0:9a
9=00:40:0b:c0:00:92
10=00:40:0b:40:a8:71
11=00:40:0b:c0:d0:da
12=00:40:0b:c0:d0:3a
13=00:40:0b:80:68:8a
14=00:40:0b:40:40:8f
15=00:40:0b:a0:04:1f
16=00:40:0b:80:00:24
17=00:40:0b:80:50:24*
18=08:00:20:08:f1:ac
19=00:40:0b:c0:d0:0a*
20=00:00:75:c0:30:1a*
Update ring map again (y/n) [y]? n
Console> (enable)
```

```
Console> (enable) show ringmap
```

```
Ring Map for Primary Ring
1= cisco:02:23:4b
2= cisco:03:06:7f
3= cisco:03:06:00
4= cisco:50:c0:f3
5= cisco:03:00:48
6= cisco:03:0b:58=
7= cisco:03:0b:59
8= cisco:03:00:49
9= cisco:02:15:8e
10= cisco:03:0b:5b
11= cisco:03:0b:5c
12= cisco:01:16:51
13= cisco:02:02:f1
14= cisco:05:20:f8
15= cisco:01:00:24
16= cisco:01:0a:24*
```

```
17=      sun:10:8f:35
18=     cisco:03:0b:50
19=     cisco:03:0b:4f
Update ring map again (y/n) [y]? n
Console> (enable)
```

## show route

The **show route** command displays the IP routing table entries set using the **set route** command. Following is a sample display:

```
Console> (enable) show route
destination      gateway          metric
default          192.1.1.3       1
192.1.1.0        192.1.1.203    0
192.1.2.0        192.1.1.10     1
Console> (enable)
```

See also **clear route** and **set route**.

## show smac

The **show smac** command displays the values stored in secondary MAC registers, as follows:

```
Console> (enable) show smac 5
Secondary MAC register 0x5 = 0xffff9
```

## show snmp

The **show snmp** command displays two levels of the SNMP and IP information. Privileged mode allows read-write and read-write-all community access. Following are sample displays:

- Following is a normal mode display:

```
Console> show snmp
IP-Address          IP-Netmask          IP-Broadcast
-----
192.54.16.205      255.255.255.0      192.54.16.255

ICMP Redirects      DefaultTTL
-----
enabled             60

Community-Access    Community-String
-----
none                -----
read-only           public

Trap-Rec-Address    Trap-Rec-Community    Auth Traps Disabled
-----

```

Console>

- Following is a privileged mode display:

```
Console> (enable) show snmp
IP-Address          IP-Netmask          IP-Broadcast
-----
192.54.16.205      255.255.255.0      192.54.16.255

ICMP Redirects      DefaultTTL
-----
enabled             60

Community-Access    Community-String
-----
none                -----
read-only           public
read-write          private
read-write-all     secret

Trap-Rec-Address    Trap-Rec-Community    Auth Traps Disabled
-----

```

Console> (enable)

Following are descriptions of the display fields of the **show snmp** command:

- **IP-Address**—Shows the IP address of the FDDI interface used by the SNMP agent.
- **IP-Netmask**—Displays the subnet mask of the FDDI interface.
- **IP-Broadcast**—Displays the broadcast address of the FDDI interface.
- **ICMP Redirects**—Displays ICMP redirects status as enabled or disabled.
- **DefaultTTL**—Displays the Time-To-Live field of the IP header datagram.
- **Community-Access**—Lists the access modes for the SNMP MIB.
- **Community-String**—Shows the authentication string that all SNMP messages must contain for the type of MIB access requested.
- **Trap-Rec-Address**—Contains the address of the network manager to which trap messages will be sent.
- **Trap-Rec-Community**—Contains the community string for the trap message.
- **Auth Traps Enabled**—Indicates if authentication trap messages are enabled or disabled.

## show system

The **show system** command displays system information. Following is a sample display:

```
Console> (enable) show system
Maximum Installed Attach Attach
Station-ID          MACs Port-Ct Port-Ct  Type  Count  Uptime d,h:m:s
-----
00:00:00:02:d0:03:00:48  2   18   18    dual   2    7,23:42:17
(00:00:00:40:0b:c0:00:12)

Baud Echo      T-Notify Conn-Pol CF-St   ECM-St   Hold-St Bypass Traffic
-----
9600 enabled  30      8000   c-Wrap-A in    not-hold absent  31%(P)

Ps-Type Ps-Status  Fan-Status Temp-Alarm Sys-Status
-----
80w     ok         ok         off        ok

Model   Serial-Num Hw   Fw   Sw
-----
WS-C1100 000000220 1.0  2.1  2.704

System-Name          System-Location          System-Contact
-----
alpha                BETA                    gamma

SMT User-Data          Op-Ver Hi-Ver Lo-Ver Ins-Mode
-----
WS-C1100 (CONC6)      2      2      2      scheduled

Ins-Pending Phy-to-Insert exitMACID #Connecting ExpansionBrd
-----
0            0            0            0            present

Software compiled on Aug 16 1994, 11:22:28.
Software downloaded on 0 200, 00:00:00.
Console> (enable)
```

Following are descriptions of the display fields of the **show system** command:

- **Station-ID**—Refers to the address of the concentrator and displays it in both FDDI and canonical format. The canonical address appears in parentheses.
- **MACs**—This number equals the number of MAC elements in the concentrator.
- **Ports-Ct**—Displays the number of ports on the module.

- **Type**—Displays which concentrator attachment type you set with the **set attach** command. A concentrator can be dual attachment, single attachment, or null attachment.
- **Count**—Displays the number of attachment ports.
- **Uptime d,h:m:s**—Displays the days, hours, minutes, and seconds since the last restart of the concentrator.
- **Baud**—Reflects the current baud rate setting for the admin. interface EIA/TIA-232 port. You can configure this parameter with the **set baud** command.
- **Echo**—Reflects the state of the echo functionality in the system, either enabled or disabled. (See the section “set echo” earlier in this appendix.)
- **T-Notify**—Specifies how often SMT initiates neighbor notification broadcasts and is defined by the **set tnotify** command. T-Notify will take the form of an integer value from 2 to 30 seconds. For more information, see the section “set tnotify” earlier in this appendix.
- **Conn-Pol**—The connection policy field shows a hexadecimal value representing the connection policies in effect in the concentrator. Connection policies are port-to-port configurations that the concentrator either rejects or accepts. Table A-6 shows the bit location, corresponding connection policy, and policy definition. Instructions on translating the hexadecimal value into a connection policy follow Table A-6.

**Note** Connection policies cannot be configured with the admin. interface.

**Table A-6 Bit Location Connection Policies and Definitions**

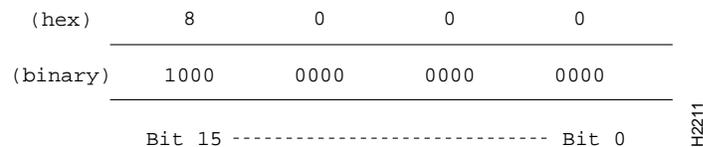
Bit Location	Connection Policy	Policy Definition
0 (LSB) <sup>1</sup>	Reject A-A	An undesirable peer connection that creates twisted primary and secondary rings.
1	Reject A-B	Normal trunk ring-to-peer connection.
2	Reject A-S	Undesirable peer connection that creates a wrapped ring.
3	Reject A-M	Tree connection with possible redundancy.
4	Reject B-A	Normal trunk ring-to-peer connection.
5	Reject B-B	Undesirable peer connection that creates twisted primary and secondary rings.

Bit Location	Connection Policy	Policy Definition
6	Reject B-S	Undesirable peer connection that creates a wrapped ring.
7	Reject B-M	Tree connection with possible redundancy.
8	Reject S-A	Undesirable peer connection that creates a wrapped ring.
9	Reject S-B	Undesirable peer connection that creates a wrapped ring.
10	Reject S-S	Connection that creates a single ring of two slave stations.
11	Reject S-M	Normal tree connection.
12	Reject M-A	Tree connection that provides possible redundancy.
13	Reject M-B	Tree connection that provides possible redundancy.
14	Reject M-S	Normal tree connection.
15 (MSB) <sup>2</sup>	Reject M-M	An illegal connection that creates a “tree of rings” topology.

1. LSB = least significant bit.

2. MSB = most significant bit.

The value displayed in the connection policy field is a four-digit hexadecimal number in which each digit corresponds to four of the bit positions in the table. The interpretation of the number 8000 is shown in Figure A-8.



**Figure A-8 Interpreting the Connection -Policy Hexadecimal Number**

For example, assume the Connection-Policy value for the concentrator is 8000. Reading the hexadecimal numbers from right to left, note that bits 0 through 3 are not set, bits 4 through 7 are not set, bits 8 through 11 are not set,

and bits 12 through 14 are not set; however, bit 15 is set. Check Table A-6 for the policy that corresponds to bit 15. In this case, an M-M port connection is rejected.

- CF-St—Displays the CCE state (part of configuration management). Configuration management describes the internal configuration of ports and MACs within the concentrator. The following figures illustrate the configuration state, which are isolated, wrap-s, wrap-A, wrap-B, thru, and other.
  - Isolated—In this state, ports 1/A and 2/B are isolated from the paths. (See Figure A-9.)

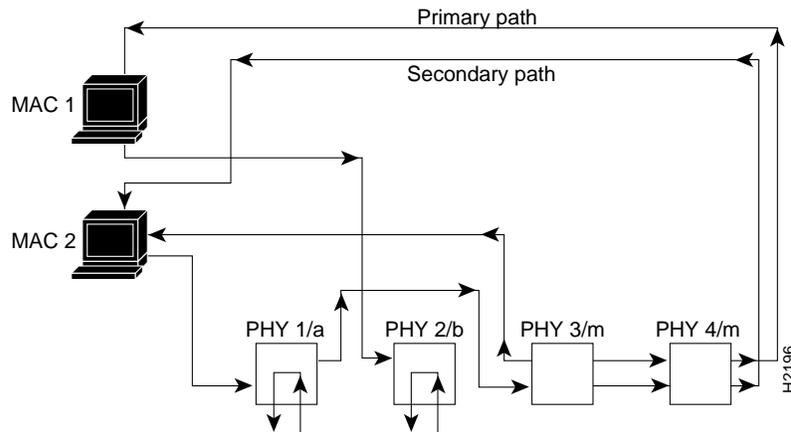


Figure A-9 Isolated Configuration State

- Wrap-S—Port 1 is configured as an S port and is connected to the primary and secondary path. (See Figure A-10.)

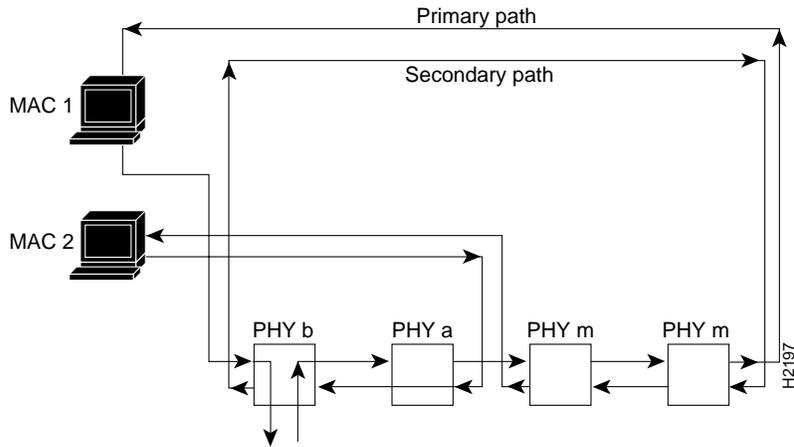


Figure A-10 Wrap-S Configuration State

- Wrap-A—Port 2/B is isolated, and port 1/A is connected to the primary and secondary paths. (See Figure A-11.)

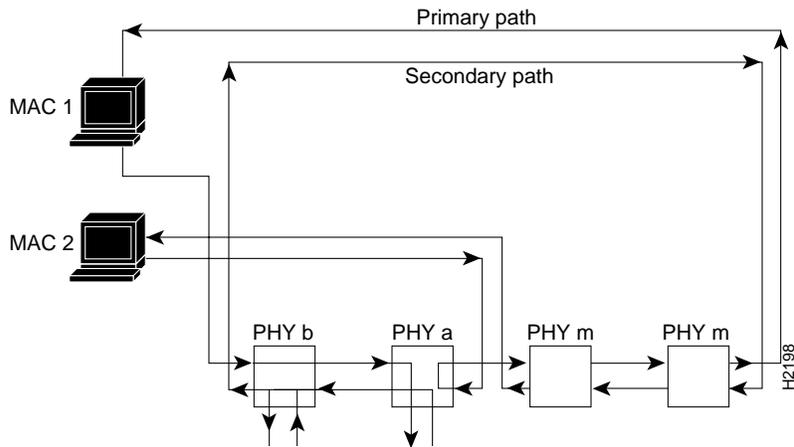


Figure A-11 Wrap-A Configuration State

- Wrap-B—Port 1/A is isolated and port 2/B is connected to the primary and secondary paths. (See Figure A-12.)

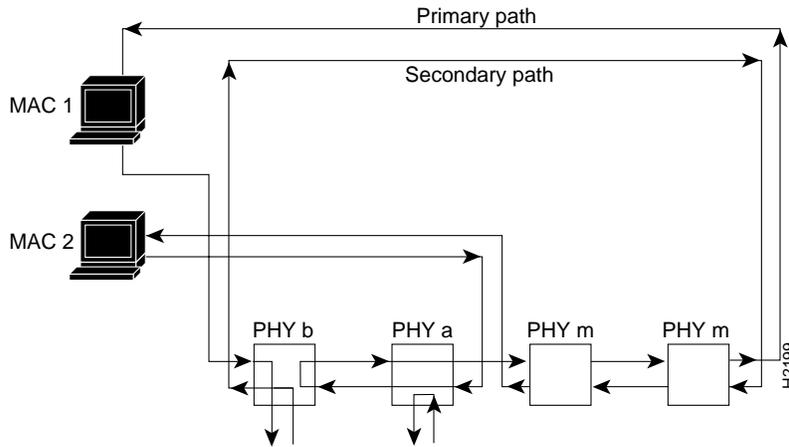


Figure A-12 Wrap-B Configuration State

- Thru—Ports 1/A and 2/B are connected to the primary and secondary paths. (See Figure A-13.)

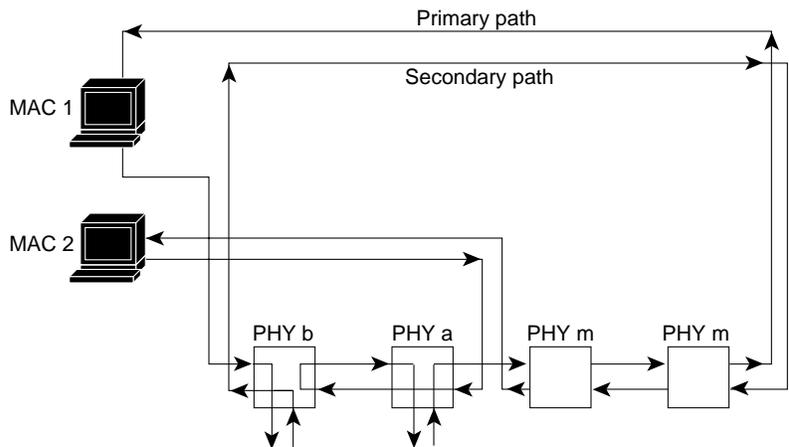


Figure A-13 Thru Configuration State

- Other—The concentrator cannot determine the CF-St.
- ECM-St—Tells the current state of the entity coordination management (ECM) for the concentrator. ECM controls the bypass switch of the physical medium dependent (PMD) layer and signals the physical connection management (PCM) when the media is available. It also coordinates the trace function and initiates a path test after a trace to localize the suspected fault. ECM-St may appear as any one of the following values:
  - Out—Shows when the concentrator is waiting for a connect request.
  - In—The normal state for a completed connection.
  - Trace—Determines the location of a stuck beacon condition.
  - Leave—Allows sufficient time to break existing connections.
  - Path-test—Reached after leaving the trace state.
  - Insert—Allows for the switching time of the bypass.
  - Check—Confirms that both the primary and secondary bypass switches have switched.
  - Deinsert—Allows enough time for the bypass switch to deinsert.
  - Other—Shows if the concentrator cannot determine the ECM state.
- Hold-St—Refers to the current state of the hold function. The hold state of the concentrator is always not-hold.
  - Not-Hold—There is no holding on either the primary or secondary ring.
  - Other—Shows if the concentrator cannot determine the hold state.
- Bypass—Tells you whether or not a bypass switch is connected to the concentrator (*present* or *absent*). If you install or remove a bypass switch, reset the concentrator.
- Traffic—Tells you the current traffic load on the concentrator as a percentage of maximum load. The letter in parentheses indicates the path being monitored—for example, primary (P), secondary (S), local (L), none (N). Refer to the section “set meter” for more information.
- Ps-Type—Displays the rating of the power supply in watts.

- Ps-Status—Refers to the power supply’s current status.
  - OK—No faults or power supply alarms have been detected.
  - Major—Occurs when +12V or –12V is bad. The field displays “Major,” followed by a hexadecimal translation of the power supply test result bitmap. See Table A-7.

**Table A-7 Power Supply Test Results**

Bit Location	Test
0	–12V
1	+12V

- Other—Shows if the concentrator is unable to determine the state of the power supply.
- Fan-Status—Refers to the current status of the concentrator fans.
- Temp-Alarm—Occurs when the ambient temperature of the concentrator exceeds 95 F (35 C).
- Sys-Status—Displays the current alarm status of the concentrator.
- Model—Displays the concentrator model number.
- Serial-Num—Displays the concentrator serial number.
- Hw, Fw, Sw—Refers to the hardware, firmware, and software revision levels in the concentrator.
- System-Name—Refers to the concentrator name, which displays only if you have named the concentrator using the **set sysname** command.
- System-Location—Refers to the concentrator location, which displays only if you have set the concentrator location using the **set syslocation** command.
- System-Contact—Refers to the name of a person to contact, which displays only if you have set the concentrator contact using the **set syscontact** command.
- SMT User-Data—A text field in the SMT MIB containing information you enter.

- **Op-Ver**—Identifies the operating version of SMT in the concentrator. Note that all releases of SMT up to and including SMT 6.2 are version 1. Later releases of SMT may have a higher version number. For example, SMT 7.3 is version 2.
- **Hi-Ver**—States the latest version of SMT that the concentrator supports.
- **Lo-Ver**—States the oldest version of SMT that the concentrator supports.
- **Ins-Mode**—Shows the insert mode of the concentrator.
- **Ins-Pending**—Displays true or false if a port is waiting to be inserted into the ring during scheduled insertion.
- **Phy-to-Insert**—Displays the port waiting to be inserted into the ring. If no port is waiting, displays the last port inserted.
- **exitMACID**—Displays the MAC used to capture the token for a scheduled insertion.
- **#Connecting**—Displays the number of ports currently connected to the ring through PCM.
- **ExpansionBrd**—Displays whether a second board is absent or present.

## show test

The **show test** command displays the results of the diagnostic tests. This command generates a static test file each time the concentrator is reset. Following is a sample display:

```

Console> (enable) show test

M68302 Status:                (.=Pass, F=Fail, .=Yes, N=No)
  NMI: .   DMA: .

Memory Status:
  RAM: .   ROM: .   Flash-EEPROM: .   NVRAM: .   Ser-EEPROM: .

I/O Status:
  FAN1: .   FAN2: .   POWER -12V: .   POWER +12V: .

                                - MACS -
CCE Status:                    1   2
-----
CCE Present                    .   .
Revision read test             .   .
Password match test           .   .
Watch Dog Timer test          .   .

```



## show time

The **show time** command displays the system clock, as follows:

```
Console> show time
Tue May 10 1994, 16:47:03
Console>
```

See also **set time**.

## test Commands

Table A-8 list the **test** commands.

**Table A-8 test Commands**

Command	Description	Mode <sup>1</sup>
test help	Display test commands	P
test trap	Send a trap message to trap receivers	P

1. P = privileged

## test help

The **test help** command displays the following message:

```
Console> (enable) test help
Commands:
-----
test help          Show this message
test trap          Send SNMP trap message to trap receivers
Console> (enable)
```

## test trap

The **test trap** command sends an SNMP trap message to the trap receivers. Following is a sample display:

```
Console> (enable) test trap
Usage: test trap <trap_num> [specific_num]
Console> (enable) test trap 1
SNMP trap message sent.
Console> (enable)
```

See also **clear trap** and **set trap**.

## traffic Command

The **traffic** command sends continuous traffic on the ring, as follows:

```
Console> (enable) traffic
Usage: traffic <FC> <DA> <SA> random <LEN> <PKTS>
      traffic <FC> <DA> <SA> percent <CENT>
      (FC is any valid FDDI Frame Class in hex format.
       DA and SA are hex MAC addresses in FDDI format
       separated by :, ex: a:0:45:21:2:6
       LEN = length of packet, PKTS = Number of packets)

Console> (enable) traffic 41 00:40:0b:80:e0:48 00:40:b0:80:e0:c8
                    random 64 100

Generating Random data at maximum rate...Done

Console> (enable) traffic 41 00:40:0b:80:e0:48 00:40:b0:80:e0:c8
                    percent 60

Generating Traffic at 60%
 = Packet rate of 1666 packets/sec
 = Inter-packet gap time of 239 usec
 = Wait loop count of 225
HIT ANY KEY TO STOP TRAFFIC GENERATION
..Percentage traffic stopped
Console> (enable)
```

The **traffic** command sets the concentrator in traffic generation mode. You can specify the number, type, and content of packets to be generated. The traffic is generated by the primary MAC only.

**Note** While traffic is generated as a result of a **traffic** command, the concentrator may not respond to admin. interface or Workgroup Director commands. These modes should return once the concentrator is reset.

The following options are available with the **traffic** command:

- **FC**—The frame class (1 byte); any valid FDDI frame class. For example, fc=41 for SMT frames, and fc=51 for LLC frames.
- **DA**—The destination address; any valid MAC address in FDDI format (noncanonical).
- **SA**—The source address of the MAC in FDDI format (noncanonical). The source address should be the primary MAC address of the concentrator that is generating the traffic.
- **LEN**—The length of the packet in bytes, from 13 to 4,494.
- **PKTS**—The number of packets to generate, from 1 to 4,294,967,296 (used only with the **random** option).
- **CENT**—The percentage of traffic to generate on the ring, from 1 to 100 in 1 percent increments (used only with the **percent** option). This option is not supported on admin. interface sessions through Telnet.

Refer to the sample network in Figure A-14 when you read the following examples of the **traffic** command.

To generate packets with random data, use the following command:

```
traffic 51 00:02:D0:02:00:35 00:02:D0:01:00:08 random 100 10000
```

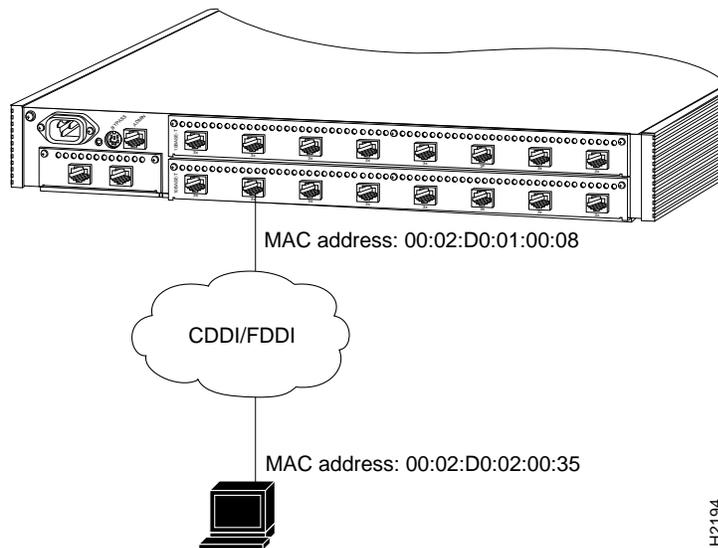
This command generates 10,000 frames of 100 bytes, each containing random data. The traffic generation ceases either after all the frames have been generated or if the ring goes down for any reason.

The **LEN** parameter in the previous command (100) can be any valid FDDI frame length. Note that the length you specify includes the frame class and address fields. The data bytes in the frames are all set to zero and packets are generated by the MAC at the fastest possible rate.

To generate traffic at a fixed rate, use the following command:

```
traffic 51 00:02:D0:02:00:35 00:02:D0:01:00:08 percent 78
```

This command generates 78 percent traffic on the ring. Each frame contains the same random data and is 4,492 bytes in length. For every new percent traffic command, new random data is generated. The mode of traffic generation stops either if the ring goes down or if any key on the keyboard is pressed. Note that there may be a slight deviation from the exact percentage.



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**Figure A-14 Example Connection for the traffic Command**

Always reset the concentrator following traffic generation. This will ensure proper behavior of the node.

## **upload Command**

The **upload** command uploads the Flash memory image file from the concentrator to a network host to create a backup file. The file must be created in advance and saved in the tftpboot directory.

The **upload** command performs the same function as the **copy flash tftp** command.

Following is a sample display:

```
Console> (enable) upload
Usage: upload <host> <file>
      (host is ipalias or IP address: a.b.c.d
       file must already exist in tftp directory.)
Console> (enable) upload oscar c1100_conc3.net
Upload flash image to file c1100_conc3.net on host oscar (y/n) [n]? y
Uploading image to c1100_conc3.net on 198.133.219.40
/
Done. Finished Network Upload. (446468 bytes)
Console> (enable)
```

See also the **copy tftp flash Command**.

## write Command

The **write** command writes the concentrator configuration either to an existing file in a network host tftpboot directory or to the terminal screen display.

The ASCII configuration file uploaded by the **write terminal** command can be used to configure the same concentrator or edited to configure another WS-C1100 concentrator. (See the section “configure Command” earlier in this appendix.) The uploaded file is the same output as the files generated by the **show config** and **write terminal** commands, with the following exceptions:

- The configuration file should end with a single line containing the word “end” followed by a carriage return.
- Passwords are saved in the configuration file as clear text and do not echo to the screen.
- A blank line should follow the **set password** and **set enablepass** commands, assuming no password is to be configured.
- A blank line should follow each occurrence of the following command lines:
  - **set ipaddress** *ip address*
  - **set port** *module/port* **disable**

The blank line is needed to display the confirmation prompt with the no default. When these commands are called from a Telnet session, they will not be executed because they may disconnect the Telnet session. We recommend you execute the **configure** command from the EIA/TIA-232 connection, not from a Telnet session.

- A **set attach** command type change made from a configuration file will be set, but the concentrator must be reset for the attachment type change to be implemented.

The **write terminal** command functions the same as the **show config** command.

Following is a sample display:

```
Console> (enable) write ?
Usage: write network
       write terminal
       write <host> <file>
Console> (enable) write cres 06.29.config
Write file 06.29.config on host cres (y/n) [n]? y
Uploading configuration to 06.29.config on cres
Done. Finished Network Upload (5135 bytes)
Console> (enable)
```

See also the **configure Command**.

