CHAPTER 3

# System Management Commands

This chapter describes the commands that pertain to system interfaces, system booting, and terminal sessions.

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**Note** The command syntax includes a combination of bold and regular uppercase and lowercase alphanumeric characters. You can enter commands in full or you can enter abbreviated forms of many commands. The abbreviated form consists of the first characters in each word of the syntax that appear in bold uppercase type in command syntax in this chapter. These characters represent the minimum you must enter for the command to be recognized and executed.

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# change user

To enter user profile mode or return to the system level, use the **change user** command.

**CD** [<**username**>]

## Syntax Description

**username** (Optional) Name of the profile. You can abbreviate the profile name to the fewest characters that make it unique, a minimum of two characters. Profile names are not case-sensitive for this command. If not specified, returns to the system level.

## Default

None

## Command Mode

System level or profile mode

## Usage Guidelines

Use this command at the system level to enter any profile or in profile mode to return to the system level.

## Example

The following example switches you from the system level to profile mode for profile 2503:

```
Host> cd 2503
Host: 2503>
```

# help

To display a list of commands and their syntax, use the **help** command.

**HE**lp **[<cmd**> **[<modifier**>**]]**

## Syntax Description

**cmd** (Optional) All cmds will be listed. The most useful are **set** (set commands), **reset** (reset commands), **show** (show commands), **log** (log commands), **test** (test commands).

**modifier** (Optional) All **modifiers** will be listed. The most useful are **ip** (Internet Protocol), **ipx** (Internetwork Packet Exchange), **snmp** (Simple Network Management Protocol).

## Default

None

## Command Mode

System level or profile mode

## Usage Guidelines

Use to display all online help reference on commands.

## Sample Display

The following sample display shows output from the **help** command:

```
help
CAll [ C | L | | C/L | C/ | / ]  [ P | CH | P/CH ] [<number>]
where
 C          indicates a Connection number
 or L       indicates a Link number
 C/L or /   indicates Link of a Connection
 P          indicates Port
 CH         indicates Channel
 P/CH       indicates Channel of a Port
```

# log

To implement the router's logging functions, use the **log** command.

**LO**g **NO**ne | **CA**lls | **ME**ssage | **ST**ate | **ER**rors | **IP**x [ **TI**me ] [ **VE**rbose]

**LOg [LAN |<connection> ] PAckets | TRaffic [CHannel = <channel>] [IN**bound | **OU**tbound**]]**

## Syntax Description

**none** (Optional) Disables all logging.

**calls** (Optional) Logs call statistics. Each major call event is logged and a message is displayed every time a channel is assigned a connection.

**message** (Optional) Logs messages that are passed on the Integrated Services Digital Network (ISDN) call control stack from the network layer up. Used primarily for troubleshooting the ISDN line.

**states** (Optional) Logs the call startup state and all messages received for CPP negotiation. Also displayed are the channel and connection to which the information applies. Used to troubleshoot any CPP negotiation problems.

**errors** (Optional) Logs error messages that otherwise are not displayed, including buffer allocation errors, mail delivery errors, and chip level errors.

**IPX** (Optional) Displays messages when Service Advertisement Protocol (SAP) entries get changed, interface characteristics are set or changed, or when erroneous Routing Information Protocol (RIP) information is received

**time** (Optional) Displays time and date of each logged event or message.

**verbose** (Optional) Modifies the action of the **messages** keyword by logging all layers of the ISDN call control stack and traffic by printing the entire packet.

| | |
|---|---|
| **lan** | (Optional) Enable logging for the LAN connection. Used with packets or traffic. |
| **connection** | (Optional) Enables router logging for the connection specified. If no connection is entered, the router determines the connection from the current profile. |
| **packets** | (Optional) Displays statistics on packet routing once per second. Number of packets filtered, forwarded, received, and the packet queve lengths are displayed. |
| **traffic** | (Optional) Displays a one-character indicator of each packet sent on the connection or the whole packet when verbose is specified. |
| **channel** | (Optional) This qualifier provides the channel number. This is used to log traffic on a channel before the channel is assigned to a connection. This is primarily used to diagnose PPP negotiation problems. |
| **inbound/ outbound** | (Optional) These qualifiers, when entered in conjunction with the Verbose parameter, restrict the packet content display to either incoming or outgoing packets. |

More than one keyword can be entered at one time.

## Default

Log calls

## Command Mode

System level or in profile mode

## Sample Displays

The following sample display shows output from the **log calls** command:

```
Host> log calls time
cb760> ca 1 6545
04/04/1996 00:24:08  L05  0         6545  Outgoing Call Initiated
cb760> cb760> 01/01/1995 00:24:10  L04  0               Line Deactivated
cb760> 01/01/1995 00:24:10  L27  0              Disconnected
cb760>
```

The following sample display shows output from the **log messages** command:

```
Host> log messages
> Host> 04/04/1996 04:19:26  L05  0 814159031604  Outgoing Call Initiated
Host>  0500 --> 0400 0001
 01 00 02 80 13 1d 18 02 00 03 2c
 0c 38 31 34 31 35 39 30 33 31
 36 30 35 6c 09 00 00 37 37 34
 32 38 36 35 04 02 88 90
Host> 04/04/1996 04:19:26  L05  0 814159031605  Outgoing Call Initiated
Host  0400 --> 0300 01 8012 0340 b548
 08 01 00 80 04 02 88 90 18 01 83
 2c 0c 38 31 34 31 35 39 30 33
 31 36 30 34 6c 09 00 80 37 37
 34 32 38 36 35
Host>  0400 --> 0300 02 8013 0340 b548
 08 01 00 80 04 02 88 90 18 01 83
 2c 0c 38 31 34 31 35 39 30 33
 31 36 30 35 6c 09 00 80 37 37
 34 32 38 36 35
Host>  0300 --> 0400 02 8013 0341 b3f6
 02 01 14 98 18 01 89
```

The following sample display shows output from the **log messages verbose** command:

```
Host> log messages verbose
Host>  0300 --> 020a 02 8015 0240 b3f6
 08 01 16 0f
Host>  0400 --> 0500 0004
 04 00 02 80 15 04 18 02 01 01
Host>  020a --> 0200 02 0000 0140 b3f6
 00 93 fa 2e
 08 01 16 0f
```

```
Host>  0200 --> 020a 00 0000 0141 b3f6
 02 81 0c e0
 08 01 95 07
Host> 04/04/19956 04:22:48  L08  2 814159031605  Call Connected
Host>  020a --> 0300 01 0000 0241 b3f6
 02 81 0c e0
 08 01 95 07
Host>  020a --> 0200 01 0000 0140 b0c6
 02 81 01 0e
```

The following example shows output from the **log states** command:

```
Host> log states
Host> Log States   Event: Outgoing Call   Channel:  2
Old State: Idle
New State: Calling Start Delay
Log States   Event: Outgoing Call   Channel:  1
Old State: Idle
New State: Calling Start Delay
Log States   Event: Delay Exp   Channel:  2
Old State: Calling Start Delay
New State: Calling Start
Log States   Event: Delay Exp   Channel:  1
Old State: Calling Start Delay
New State: Calling Start
Log States   Event: Packet Sent   Channel:  2
Old State: Calling Start
New State: Calling Start
Log States   Event: Packet Sent   Channel:  1
Old State: Calling Start
New State: Calling Start
Log States   Event: Inband Packet   Channel:  2
Old State: Calling Start
New State: Calling Wait for Packet Sent
  Port 1 Number =                    814159031604
  Port 2 Number =                    814159031605
  Protocol = 1
  Password =
  Ethernet = 00 40 f9 00 3e ad
  Line Integrity = 10
  IP Address = 192.168.100.56
  Remote Bridge =          dms1604
Host> Log States   Event: Packet Sent   Channel:  2
Old State: Calling Wait for Packet Sent
New State: Forwarding
```

```
Log States   Event: Inband Packet   Channel:  1
Old State: Calling Start
New State: Calling Wait for Packet Sent
  Port 1 Number =                    814159031604
  Port 2 Number =                    814159031605
  Protocol = 1
  Password =
  Ethernet = 00 40 f9 00 3e ad
  Line Integrity = 10
  IP Address = 192.168.100.56
  Remote Bridge =          dms1604
```

The following sample display shows output from the **log errors** command:

```
2865_66>  log errors
2865_66>  Log Errors: 11003 IPX RIP Not Sent To Virtual Conn 3
2865_66>  Log Errors: 11003 IPX RIP Not Sent To Virtual Conn 3
2865_66>  Log Errors: 11003 IPX RIP Not Sent To Virtual Conn 3
2865_66>  Log Errors: 11003 IPX RIP Not Sent To Virtual Conn 3
2865_66>  Log Errors: 11003 IPX RIP Not Sent To Virtual Conn 3
2865_66>
```

# ping

Use the **ping** command to determine the reachability of a system on any connected interface.

**PI**ng <**ip address**>

## Syntax Description

**ip address** Specifies the ip address of the system connected to an interface on the Cisco router.

## Default

None

## Command Mode

System level

## Usage Guidelines

If the destination can be reached, the round trip delay is determined and reported. If the destination cannot be reached, a no response message is generated.

The **ping** command is retried three times if the destination cannot be reached.

## Sample Display

The following sample display illustrates a successful ping:

```
Host> ping 172.16.2.1
start sending : round trip time is 40 msec.
```

The following sample display illustrates an unsuccessful ping:

```
Host> ping 172.16.2.1
start sending : no response
start sending : no response
start sending : no response
```

# reboot

To boot the router manually, use the **reboot** command.

**REB**oot

## Syntax Description

This command has no keywords or arguments.

## Default

None

## Command Mode

System level

## Example

The following example shows how to manually boot the router:

```
Host> reboot
```

# reset packets

To set accumulated packet counts to zero for one connection, use the **reset packets** command.

**RE**set [<**connection**> | **LAN**] **PAC**kets [**AL**l]

## Syntax Description

**lan** (Optional) Resets accumulated packet counts to zero on the LAN connection.

**connection** Resets accumulated packet counts to zero on the specified connection if neither a connection number or LAN specified the connection, with associated current profile.

## Default

None

## Command Mode

Profile mode

## Example

The following example resets the packets counts for profile 2503:

```
Host:2503> reset packets
```

## Related Command

**show packets**

# set date

To set the current date, use the **set date** command.

**SE**t **DA**te MM/DD/YYYY

## Syntax Description

**MM** A two-digit number from 01 to 12.

**DD** A two-digit number from 01 to 31.

**YYYY** A four-digit number from 1994 to 2020.

## Default

The default date is 01/01/1996.

## Command Mode

System level

## Usage Guidelines

You must reset the date every time the router is rebooted.

## Example

The following example configures the current date in the router:

```
Host> set date 02/29/1996
```

# set default

To set all variable parameters to their default values, use the **set default** command.

**SE**t **DE**fault

## Syntax Description

This command has no keywords or arguments.

## Default

None

## Command Mode

System level or in profile mode.

## Usage Guidelines

The system deletes all parameters and their profiles that have none as a default and will automatically reboot the unit.

## Example

The following example configures the router to default values:

```
Host> set default
```

# set echo

To enable and disable terminal echo of keyboard entry, use the **set echo** command.

**SE**t **EC**ho **ON** | **OFf**

## Syntax Description

**on** Enables terminal echo.

**off** Disables terminal echo.

## Default

Terminal echo is enabled.

## Command Mode

System level

## Example

The following example disables terminal echo for the Cisco router:

```
Host> set echo off
```

# set encapsulation ppp and cpp

This command sets the encapsulation method for packets that are sent over the WAN links.

**SE**t **EN**capsulation **[PPp | CPp]**

## Syntax Description

**ppp** Sets encapsulation to Point-to-Point (PPP) protocol.

**cpp** Sets encapsulation to Combinet Packet Protocol (CPP).

## Default

**cpp**

## Command Mode

Profile mode

## Example

The following example sets encapsulation to PPP:

```
Host> set encapsulation ppp
```

# set ipx trace

To convert IPX packets to hexadecimal values for troubleshooting purposes, use the **set ipx trace** command.

**SE**t **IPX TR**ace **length** | **OFf** | **ON**

## Syntax Description

**length** Can be from 1 to 65,535.

**on** Enables IPX packet conversion to hexadecimal numbers.

**off** Disables IPX packet conversion to hexadecimal numbers.

## Default

**off**

## Command Mode

Profile mode.

## Examples

The following example enables ipx trace and sets packet length to 4,096:

```
Host> set ipx trace 4096 on
```

The following example disables ipx trace:

```
Host> set ipx trace off
```

# set loopback

To create a loop from the router towards the ISDN line, use the **set loopback** command. This command is used with the **test** command.

**SE**t **[<connection>] LOO**pback **ON** | **OFf**

## Syntax Description

**connection** (Optional) Specifies a connection number on which to create a loop. If no connection number is specified, a loop is created on the connection associated with the current profile. If the router cannot determine the connection number from the profile, an error message will be displayed.

**on** Enables a loop.

**off** Disables a loop.

## Default

Disabled

## Command Mode

System level or profile mode

## Usage Guidelines

Use this command at the system level with the connection-number argument or in profile mode. This command is used for troubleshooting purposes.

## Example

The following example creates a loopback on connection 14:

```
Host> set 14 loopback on
```

# set system name

To configure the router's name that is used as the system prompt and during PPP authentication, use the **set system name** command.

**SE**t **SY**stemname [<**Systemname**>]

## Syntax Description

**systemname** Name used as the system prompt. The system name is case sensitive and can be from 1 to 20 characters. The system name is used as this router's identity when making PPP connections. It therefore is matched with the profile name on a remote router.

## Default

No system name.

## Command Mode

System level

## Usage Guidelines

To delete the system name, enter the command without the **systemname** argument.

## Example

The following example configures the router with a system name:

```
> set systemname Host
Host>
```

# set time

To set the current time, use the **set time** command.

**SE**t **TI**me HH:MM:SS

## Syntax Description

**HH** A number from 1 to 23.

**MM** A two-digit number from 00 to 59.

**SS** A two-digit number from 00 to 59.

## Default

None

## Command Mode

System level

## Usage Guidelines

The time must be reset every time the router is rebooted.

## Example

The following example configures the current time in the router:

```
Host> set time 8:48:20
```

# show

To display the router's configuration and the status of both ISDN B channels, use the **show** command.

**SH**ow

## Syntax Description

This command contains no keywords or arguments.

## Default

None

## Command Mode

System level or profile mode

## Usage Guidelines

In profile mode, the **show** command displays only profile-based configurations. Parameters that have been configured at the profile level are indicated by *. All other values are inherited from the profile template.

## Sample Display

The following sample display shows output from the **show** command at the system level:

```
Host> show
System Parameters
    Environment
      Screen Length          20
      Echo Mode              ON
      CountryGroup           1
    Bridging Parameters
      LAN Forward Mode       ANY
      WAN Forward Mode       ONLY
      Address Age Time       OFF
```

```
    Call Startup Parameters
      Multidestination       OFF
    Line Parameters
      Switch Type            5ESS
    Call Parameters          Link 1             Link 2
      Retry Delay              30                 30

Ringback number 814155554321<*> 814155554321<*>
Status 02/02/1996 19:52:14 Connection Link
Line Status
Line DeActivat4d
Terminal Identifier Unassigned
Port Status
Ch: Waiting for Call
```

# show configuration

To display a subset of the current configuration parameters, use the **show configuration** command.

**SH**ow **CO**nfig **[AL**l**]**

## Syntax Description

**all** (Optional) Use this keyword in profile mode to display system configurations in addition to profile configurations (the same display shown at the system level).

## Default

None

## Command Mode

System level or profile mode

## Usage Guidelines

In profile mode, the **show configuration** command displays only profile-based configurations. Parameters that have been configured at the profile level are indicated by *. All other values are inherited from the profile template.

## Sample Display

The following sample display shows output for the Cisco 750 series routers, from the **show configuration** command at the system level:

```
Host> show config
System Parameters
 Environment
    Screen Length          20
    Echo Mode              ON
 Bridging Parameters
  LAN Forward Mode       ANY
  WAN Forward Mode       ONLY
  Address Age Time       OFF
 Call Startup Parameters
  Multidestination       OFF
 Line Parameters
  Switch Type            5ESS
  Directory Number       5229026 5229044
  SVC Profile ID         015229026000 015229044000
  Numbering Plan         NORMAL
  Voice Priority         ALWAYS
Call Parameters          Link 1             Link 2
  Retry Delay              30                 30

Profile Parameters
 Bridging Parameters
  Bridging               ON
  Routed Protocols
  Learn Mode             ON
  Passthru               OFF
Call Startup Parameters
  Encapsulation          PPP
 Line Parameters
  Line Speed             64K/Line
Call Parameters          Link 1             Link 2
  Auto                   ON                     ON
  Called Number
  Ringback Number
```

The following sample display shows output for the Cisco 760 series routers, from the **show configuration** command at the system level:

```
Host> show config
System Parameters
    Environment
      Screen Length          20
      Echo Mode              ON
      CountryGroup           1
    Bridging Parameters
      LAN Forward Mode       ANY
      WAN Forward Mode       ONLY
      Address Age Time       OFF
    Call Startup Parameters
      Multidestination       OFF
    Line Parameters
      Switch Type            5ESS
    Call Parameters          Link 1            Link 2
      Retry Delay              30                30

Profile Parameters
    Bridging Parameters
      Bridging               ON
      Routed Protocols
      Learn Mode             ON
      Passthru               OFF
    Call Startup Parameters
      Encapsulation          CPP
    Line Parameters
      Line Speed             AUTO
      Numbering Plan         NORMAL
    Call Parameters          Link 1            Link 2
      Auto                     ON                ON
      Called Number
      Ringback Number
```

# show connection

To display all current connections, use the **show connection** command.

**SH**ow **CONN**ection

## Syntax Description

This command has no keywords or arguments.

## Default

None

## Command Mode

System level

## Sample Display

Following is sample display output from the **show connection** command:

```
Host> show connection

Connections    04/04/1996 17:49:38
    Start Date & Time   #  Name              #     Ethernet
  1 04/04/1996 00:00:00 #                    # 00 00 00 00 00 00
  2 04/04/1996 00:00:00 # Top                #
            Link: 1 Channel:  1 Phone: 9018
            Link: 2 Channel:  2 Phone: 9018
```

Table 3-1 describes the fields shown in the display.

**Table 3-1 Show Connection Field Descriptions**

| Field | Description |
|---|---|
| Connection | Connection number assigned by the router. |
| Start Date | Connection start date. |
| Start Time | Connection start time. |
| Name | System ID of the remote router. |
| Ethernet | Ethernet address of the remote router. (CPP connections only). |

# show demand

To display demand and timeout configurations, use the **show demand** command.

**SH**ow **DE**mand

## Syntax Description

This command has no keywords or arguments.

## Default

None

## Command Mode

System level or profile mode

## Usage Guidelines

In profile mode, the **show demand** command displays only profile-based configurations. Parameters that have been configured at the profile level are indicated by *. All other values are inherited from the profile template.

## Sample Display

The following example shows output from the **show demand** command at the system level:

```
> Show demand
Demand Calling Parameters        Link 1        Link 2
  Connection Type               Auto ON       Auto ON
  Threshold                        0 kbs         48 kbs
  Duration                         1 sec          1 sec
  Source                             LAN           BOTH
Timeout (call tear down) Parameters
  Threshold                        0 kbs         48 kbs
  Duration                           OFF            OFF
  Source                             LAN           BOTH
```

## Related Commands

**demand**
**set timeout**
**timeout**

# show packets

To display packet count statistics, use the **show packets** command.

**SH**ow [<**connection**> | **LA**n] **PA**ckets

## Syntax Description

**connection** (Optional) Displays packet statistics for the connection number indicated. If no connection number is entered, statistics for the current profile are displayed.

**lan** (Optional) Displays packet statistics for the LAN connection.

## Default

None

## Command Mode

System level or profile mode.

## Sample Displays

The following sample displays shows output from the **show packets** command for a specified connection:

```
Host> show 14 packets
Packet Statistics for Connection 14
Filtered: 11013246 Forwarded: 8400 Received: 5993
Dropped: 263 Lost: 0 Corrupted: 0 Misordered: 1
Compression Ratio: 1.73:1
Ethernet Type: 0806 Count: 3375
Ethernet Type: 0800 Count: 979
Ethernet Type: 80f3 Count: 1068
Ethernet Type: 809b Count: 48718
```

The following sample display shows output from the **show packets** command for the LAN connection:

```
Host> show lan packets
Packet Statistics for LAN
Filtered: 11001795 Forwarded: 12411637 Received: 25496880
Dropped: 0 Lost: 6911 Corrupted: 46 Misordered: 0
Ethernet Type: 0806 Count: 3375
Ethernet Type: 0800 Count: 979
Ethernet Type: 80f3 Count: 1068
Ethernet Type: 809b Count: 48718
```

Table 3-2 describes the show packets field descriptions.

**Table 3-2 Show Packets Field Descriptions**

| Field | Description |
|---|---|
| Filtered | Packets received by the bridge engine and not forwarded. |
| Forwarded | Packets forwarded to specified connection. |
| Received | Packets received from the specified connection. |
| Dropped | Packets received from the connection and dropped because the queue of packets to be forwarded was too long. |
| Lost | Packets received from the connection but not successfully transmitted (often because of a faulty Ethernet). |
| Corrupted | Packets received from the connection with a bad checksum (CRC) that were discarded as corrupted. |
| Misordered | Packet received out of sequence when using ordered or fragmented protocol. |
| Ethernet Type | Broadcast packet types received. |
| Count | Number of packets of this type received. |
| Compression | Packets compressed. |

# show users

To display all profiles and their status, use the **show users** command.

**SH**ow **US**ers

## Syntax Description

This command has no keywords or arguments.

## Default

None

## Command Mode

System level

## Sample Display

The following sample display shows output from the **show users** command:

```
Host> show users
User                State      Connection
-------------------------------------
LAN                  Active     LAN
Internal             Active     INTERNAL
```

Table 3-3 describes the fields shown in the display.

**Table 3-3 Show Users Field Descriptions**

| Field | Description |
|---|---|
| User | Name of profile. |
| State | Active or Inactive. |
| Connection | Name or number of the connection assigned to the profile. |

# software load (SWL)

To download new software through the configuration port or across a TCP/IP network using Trivial File Transfer Protocol (TFTP), use the **software load** command.

**SW**l **[TFTP]**

## Syntax Description

**TFTP** (Optional) Use when loading software across a TCP/IP network using TFTP.

## Default

None

## Command Mode

System level

## Example

Following is an example of the **software load** or a TFTP client command.

**Note** You will need terminal emulation software to load new software.

To load software with the **software load** command, take the following steps:

**Step 1** Connect the serial cable from your terminal to the configuration port on the Cisco router.

**Step 2** On the terminal emulation software, set the baud rate to 9600.

**Step 3** Power on the Cisco router.

**Step 4** In the terminal emulation software, enter the **software load** command:

```
Host> swl
```

**Step 5** Enter **y** in response to the prompt:

```
Are you sure? y
```

**Step 6** At the prompt, enter one of the load rates listed, and make sure that the load rate you choose is supported by your terminal emulation software:

**Note** Do not press the Return key after entering the number.

```
BOOT version 2.0(1)/1.392 03-26-96 02:03:06
Copyright (c) 1993-1996.  All rights reserved.

Ready to upload new firmware into flash.  Select baud rate:

    1 -    300 baud
    2 -   1200 baud
    3 -   2400 baud
    4 -   4800 baud
    5 -   9600 baud
    6 -  19200 baud
    7 -  38400 baud
    8 -  57600 baud
    9 - 115200 baud
```

See Table 3-4 for approximate software load times according to baud rate.

**Step 7** Change the baud rate of the terminal emulation software to the rate indicated in Table 3-4.

**Step 8** From the terminal, load the file containing the new software by following the prompts from your terminal emulation program. The file is sent as an ASCII (Text) file to the router. The LINE LED should blink throughout the loading process.

**Note** Select ASCII on the terminal emulation software you are using.

**Step 9** When the software has been downloaded, you will be prompted to change the terminal emulator's baud rate back to 9600, and then you will be prompted to press any key.

If the load is successful, the LINE LED will turn off, and the RDY LED should be on. If the load was not successful, refer to Table 3-5 for possible symptoms and solutions.

**Table 3-4 Approximate Software Load Time**

| Load Rate (Baud) | Approximate Time (Minutes) |
|---|---|
| 2400 | 48 |
| 9600 | 12 |
| 19200 | 6 |
| 38400 | 3 |
| 57600 | 2 |
| 115200 | 1 |

**Table 3-5 Software Load Command Troubleshooting**

| Symptom | Probable Cause/Solution |
|---|---|
| Load takes significantly longer than the approximate time listed in Table 3-4. | The terminal emulation program's interline and inter-character delays are not set to zero. |
| The terminal displays unrecognizable text after the load is completed. | The terminal has not been reset to 9600 baud. Reset the terminal anytime after loading the new software. After changing the terminal baud rate, press Return to gain access to the standard prompt (>). |
| Two or more LEDs are blinking. | Incorrect configuration of the PC's COM port or a defective console cable. Press Escape on the terminal and try the software load again. |

The following are the steps performed before the **software load tftp** command is entered.

Before beginning this procedure, you should configure your workstation to operate as a TFTP server. In server mode, the workstation will only accept *put* requests for the file.

**Step 1** Confirm that the new software and, optionally, the new configuration file are installed on the client machine.

**Step 2** Confirm that the Cisco router can be reached from the client machine by pinging the router to the client's router:

```
Host> ping client's ip address
```

**Caution** Once the **software load tftp** command is entered, the existing software is erased. If a catastrophic event, such as a power failure, occurs before the transfer of the CODE file has been completed, the Cisco router must be initialized through the configuration port.

**Step 3** Enter the software load command to configure the Cisco router for TFTP server mode:

```
Host> swl tftp
Are you sure? yes
Erasing Flash memory, please standby...
Ready for software load.
```

**Note** Entering the **software load tftp** command on the Cisco router causes it to enter TFTP server mode and wait for client requests. The TFTP server mode will timeout in one minute. If the transfer is successful, the Cisco router will reboot with the new software and the new configuration (if a new configuration file was loaded).

**Note** On the TFTP client machine, you must use binary file transfer mode to transfer the new software file. The remote file name must be set to CODE.

# test

To generate test packets, use the **test** command.

**TEst [<connection**>] **[WA**n | **AL**l] [**ST**op | **RE**sult | **ET**her] **RA**te <**pps**> **[MI**npkts <**bytes**> **MA**xpkts **<bytes>**

## Syntax Description

| | |
|---|---|
| **connection** | Number of the connections where test packets will be generated. |
| **wan** | Generates test packets on the ISDN line. Packets should be sent to a remote router that has a loop enabled with the **set loop** command. Compare number of sent packets to number of received packets. |
| **all** | Generates test packets on both the ISDN line and on the LAN. |
| **stop** | (Optional) Stops all test packets from being generated. |
| **result** | (Optional) Displays results of last completed test. |
| **ether** | Generates test packets on the LAN and compares number of sent packets to the number of received packets. |
| **rate** (pps) | (Optional) Rate in packets per second at which test packets are generated. Default value is 10. Can be between 1 and 100. |
| **minpkts bytes** | (Optional) Minimum size (in bytes) of test packets. Default value is 60. Can be between 60 and 1514.<br>Packets are generated in incrementally larger sizes, starting with the minimum size and ending with the maximum size. After the maximum length is reached, the next packet is the minimum size. |
| **maxpkts bytes** | (Optional) Maximum size in bytes of test packets. Default value is 1514. Can be between 60 and 1514. |

## Default

None

## Command Mode

System level

## Usage Guidelines

This command is useful for troubleshooting purposes.

## Example

The following example enables a test on the ISDN line and the Ethernet with a minimum packet size of 255 bytes and a maximum packet size of 1024 bytes:

```
Host> test all min 255 max 1024
```

# upload

To send a set of ASCII strings containing the current configuration to the terminal, use the **upload** command.

**UP**load

## Syntax Description

This command has no keywords or arguments.

## Default

None

## Command Mode

System level

## Usage Guidelines

You can use the captured file to reconfigure the router after loading new software or to configure multiple routers with the same parameters.

When downloading the file, set the ASCII download for 1 second so that each line will be correctly processed.

---

**Note** Use the **set echo off** command to prevent the **upload** command from being captured in the file.

---

## Sample Display

The following sample display shows the **upload** command output:

```
Host> upload
CD
SET SCREENLENGTH 20
```

```
SET LAN MODE ANY
SET WAN MODE ONLY
SET AGE OFF
SET MULTIDESTINATION OFF
SET SWITCH 5ESS
SET PLAN NORMAL
SET 1 DELAY 30
SET 2 DELAY 30
SET BRIDGING ON
SET PASSTHRU OFF
SET ENCAPSULATION CPP
SET SPEED AUTO
SET 1 AUTO ON
SET 2 AUTO ON
SET 1 NUMBER
SET 2 NUMBER
SET 1 RINGBACK
SET 2 RINGBACK
LOG CALLS TIME VERBOSE
SET UNICASTFILTER OFF
DEMAND 1 THRESHOLD 0
DEMAND 2 THRESHOLD 48
DEMAND 1 DURATION 1
DEMAND 2 DURATION 1
DEMAND 1 SOURCE LAN
DEMAND 2 SOURCE BOTH
TIMEOUT 1 THRESHOLD 0
TIMEOUT 2 THRESHOLD 48
TIMEOUT 1 DURATION 0
TIMEOUT 2 DURATION 0
TIMEOUT 1 SOURCE LAN
TIMEOUT 2 SOURCE BOTH
SET UNICASTFILTER OFF
SET REMOTEACCESS PROTECTED
SET LOCALACCESS ON
SET CALLERID OFF
SET PPP AUTHENTICATION IN CHAP
SET CALLBACK OFF
SET CALLBACKID OFF
SET PPP AUTHENTICATION OUT CHAP
SET CPP NEGOTIATION INTEGRITY   10
SET CPP NEGOTIATION ABORT DISCONNECT
SET CPP NEGOTIATION COUNT   6
SET CPP NEGOTIATION RETRY   1000
SET PPP NEGOTIATION INTEGRITY 10
```

```
SET PPP NEGOTIATION COUNT 10
SET PPP NEGOTIATION RETRY  3000
SET PPP TERMREQ COUNT 2
SET PPP MULTILINK ON
SET CPP PROTOCOL   ORDERED
SET CPP COMPRESSION STAC
SET SNMP CONTACT
SET SNMP LOCATION
SET SNMP TRAP COLDSTART OFF
SET SNMP TRAP WARMSTART OFF
SET SNMP TRAP LINKDOWN OFF
SET SNMP TRAP LINKUP OFF
SET SNMP TRAP AUTHENTICATIONFAIL OFF
SET USER LAN
SET USER Internal
SET USER Standard
SET PROFILE POWERUP ACTIVATE
SET PROFILE DISCONNECT KEEP
```

## Related Command

**set echo**

# version

To display the software release level and date, use the **version** command.

**VE**rsion

## Syntax Description

This command has no keywords or arguments.

## Default

None

## Command Mode

System level or profile mode

---

**Note** This sample display only applies to routers with analog phone support. The Cisco 750 series routers **version** command sample display, does not include hardware configuration.

---

## Sample Display

The following sample display shows output from the **version** command:

```
> version
Software Version 766-in.r.US 3.2(0.14) - Mar  1 1996 14:09:37

ISDN Stack Revision US 2.10 (5ESS/DMS/NI-1)
Copyright (c) 1993-1995 by Cisco Systems, Inc.  All rights reserved.
Software is used subject to software license agreement contained
with this product. By using this product you agree to accept the
terms of the software license.
Hardware Configuration:
   POTS Board: Type 0
   NT1 Installed
```

Table 3-6 lists the specific types of daughter boards used in each country.

**Table 3-6 Daughter Board Types and Countries**

| Board Types | Countries |
|---|---|
| Type 0 | Mexico, US |
| Type 1 | Canada, Japan Korea, Taiwan, Singapore, Netherlands |
| Type 2 | Austria, Portugal, Switzerland, Spain, Germany, Luxembourg, Belgium, Denmark, Finland, France, Greece, Italy, Norway, UK, Hong Kong, Ireland |