



## System Management Commands

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Use the following commands to manage your Cisco ONS 15540 ESPx.

# clear facility-alarm

To clear the external indications for the facility alarms, use the **clear facility-alarm** command.

**clear facility-alarm** [**critical** | **major** | **minor**]

Syntax Description	critical	Specifies that all external critical alarm indications be cleared.
	<b>major</b>	Specifies that all external major alarm indications be cleared.
	<b>minor</b>	Specifies that all external minor alarm indications be cleared.

**Defaults** Clears all external alarm indications and LEDs.

**Command Modes** Privileged EXEC

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

**Usage Guidelines** Use this command to perform a one-time clear of the specified LEDS and external audible and visual alarm relays.

The facility alarm conditions and alarm threshold error conditions are still posted in the processor memory and can be seen by using the **show facility-alarm status** command. You can clear the alarm threshold error conditions in memory by disabling protocol monitoring using the **no monitor enable** command. Online removal of a component or disabling an interface with the **show performance** command also clears an alarm from processor memory.

**Examples** The following examples shows how to clear critical external facility alarm indications.

```
Switch# clear facility-alarm critical
```

Related Commands	Command	Description
	<a href="#">monitor enable</a>	Enables signal monitoring for certain protocol encapsulations.
	<a href="#">show facility-alarm status</a>	Shows the facility alarm status information.
	<a href="#">show performance</a>	Disables an interface.

# environment-monitor shutdown fan

To enable fan failure shutdown, use the **environment-monitor shutdown fan** command. To disable fan failure shutdown, use the **no** form of the command.

**environment-monitor shutdown fan**

**no environment-monitor shutdown fan**

**Syntax Description** This command has no other arguments or keywords.

**Defaults** Disabled

**Command Modes** Global configuration

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(12c)EV3	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

**Usage Guidelines**

If a single fan fails on the Cisco ONS 15540 ESPx, a minor alarm is reported to the processor card. However, the chassis will never reach critical high temperature when only one fan fails.

If two or more fans fail, a major alarm is reported to the processor card.

If all eight fans in the fan tray fail, the chassis will reach critical temperature after 14 minutes.

To prevent damage to the cards and modules in the shelf when two or more fans fail, use the **environment-monitor shutdown fan** command to configure the system to automatically power off the following components:

- 2.5-Gbps transponder modules
- 10-GE transponder modules

The 2.5-Gbps transponder modules power off if the hardware version of the 2.5-Gbps line card motherboard is 2.1 or later; otherwise, the 2.5-Gbps transponder modules reset. Use the **show hardware** command to determine the hardware version of the 2.5-Gbps line card motherboards.

To recover from fan failure shutdown, you must power-cycle the shelf.



**Caution**

Do not save the startup configuration file after the line modules shutdown. This action would result in losing the previous startup configuration.



**Caution**

The fan failure shutdown feature disrupts traffic on the shelf when two or more fans fail.

**Examples**

The following example shows how to enable fan failure shutdown.

```
Switch# configure terminal
Switch(config)# environment-monitor shutdown fan
```

**Related Commands**

Command	Description
<a href="#">show environment</a>	Displays the temperature sensor and fan status.
<a href="#">show hardware</a>	Displays information about the hardware on the shelf.

# environment-monitor shutdown temperature

To enable the automatic shutdown of the system if the operating temperature exceeds the critical threshold, use the **environment-monitor shutdown temperature** command. To disable this feature, use the **no** form of the command.

**environment-monitor shutdown temperature** *slot /subslot/module*

**no environment-monitor shutdown temperature**

Syntax Description	<b>slot</b>	Specifies a chassis slot.
	<b>subslot</b>	Specifies a chassis sub slot.
	<b>module</b>	Specifies a module.

Defaults Enabled

Command Modes Global configuration

Command History This table includes the following release-specific history entry:

SV-Release	Modification
12.2(29)SV	This command was introduced.

Usage Guidelines The Cisco ONS 15540 ESPx system automatically resets the following cards if the operating temperature exceeds the critical threshold:

- ESCON aggregation cards
- 8-port FC/GE aggregations cards
- 2.5-Gbps ITU trunk cards
- 10-Gbps ITU trunk cards
- Transponder line cards
- Multirate cards

All the other cards will be shutdown if the operating temperature exceeds the critical threshold. In addition, the ITU lasers on the trunk cards will be powered off. Though possible, Cisco does not recommend that you disable this feature.

To recover from a shutdown, you must power-cycle the shelf.



### Caution

Do not save the startup configuration file after the line cards shut down. This action would result in losing the previous startup configuration.

**Caution**

The shutdown feature disrupts traffic on the shelf when the operating temperature exceeds the critical temperature.

**Examples**

The following example shows how to enable the automatic shutdown of the system if the operating temperature exceeds the critical threshold:

```
Switch# configure terminal  
Switch(config)# environment-monitor shutdown temperature 6/0/0
```

**Related Commands**

Command	Description
<a href="#">show environment</a>	Displays the temperature sensor and fan status.
<a href="#">environment-monitor temperature-threshold</a>	Changes the default threshold temperatures.

# environment-monitor temperature-threshold

To change the default threshold temperatures, use the **environment-monitor temperature-threshold** command. To reset all the thresholds to the default values for all modules, use the **no** form of the command.

**environment-monitor temperature-threshold** {critical | major | minor | low}  
*slot/subslot/module <threshold value>*

**no environment-monitor temperature-threshold**

## Syntax Description

critical	Specifies the critical alarm.
major	Specifies the major alarm.
minor	Specifies the minor alarm.
low	Specifies the low alarm.
<b>slot</b>	Specifies a chassis slot.
<b>subslot</b>	Specifies a chassis sub slot.
<b>module</b>	Specifies a module.
threshold value	Specifies the new threshold temperature.

## Defaults

The following table provides the default threshold temperatures for the alarms:

Alarm	Threshold Temperature in degree Celsius (° C)
Minor	50
Major	60
Critical	70
Low	-15

## Command Modes

Global configuration

## Command History

This table includes the following release-specific history entry:

SV-Release	Modification
12.2(29)SV	This command was introduced.

## Usage Guidelines

If you do not specify the threshold temperature for an alarm (critical, major, minor, or low), the threshold will be reset to the default value. If you do not specify the module as well, the threshold temperature will be reset for all the modules.



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**Examples**

The following example shows how to configure the critical threshold temperature:

```
Switch# configure terminal  
Switch(config)# environment-monitor temperature-threshold critical 6/0/0 65
```

---

**Related Commands**

Command	Description
<a href="#">show environment</a>	Displays the temperature sensor and fan status.
<a href="#">environment-monitor shutdown temperature</a>	Enables the automatic shutdown of the system if the operating temperature exceeds the critical threshold

# hw-module subslot power

To turn off the power to a 2.5-Gbps transponder module in a line card motherboard before removing it, use the **hw-module subslot power** command.

**hw-module subslot *slot/subcard* power off**

Syntax Description		
	<i>slot/subcard</i>	Specifies a transponder module in a line card motherboard.
	<b>off</b>	Turns off the power to the transponder module.

**Defaults** The power to the 2.5-Gbps transponder module is on.

**Command Modes** Privileged EXEC

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
12.1(12c)EV2	The <b>on</b> option was removed.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

**Usage Guidelines** When removing a 2.5-Gbps transponder module from the Cisco ONS 15540 ESPx, bit rate errors occur on the transponder modules in the same line card motherboard. These errors do not affect system traffic but they can cause the system to issue alarms if an alarm threshold is exceeded. You can avoid these errors and alarms by turning off the power to the online module with the **hw-module subslot power** command before removing it.

Use the **show hardware linecard** command to display the status of the power to a 2.5-Gbps transponder module.



**Note**

The **hw-module subslot power** command is only supported on 2.5-Gbps transponder modules installed in line card motherboards with hardware version 5.1, or later, and with LRC (line card redundancy controller) functional image version 2.72, or later.

To determine the functional image and hardware versions on your system, use the **show hardware detail** command.

To power up the transponder module, you must remove it from the line card motherboard and reinsert it.

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**Examples**

The following example shows how to turn the power off to a 2.5-Gbps transponder module before removing it.

```
Switch# hw-module subslot 8/1 power off
Warning: Power OFF subcard 8/1. Continue? [confirm]y
Switch#
```

---

**Related Commands**

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Command	Description
<a href="#">show hardware</a>	Shows hardware information.

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# reload

To reload the active processor card, use the **reload** command.

**reload** [*text* | **in** [*hh:mm*] [*text*] | **at** *hh:mm* [*month day* | *day month*] [*text*] | **cancel**]

## Syntax Description

<b>text</b>	Specifies a reason for reloading the active processor card (maximum of 255 characters).
<b>in</b> [ <i>hh:mm</i> ]	Schedules a reload of the software to occur in the specified hours and minutes. The reload must occur within approximately 24 days.
<b>at</b> <i>hh:mm</i>	<p><b>Note</b> The <b>at</b> keyword can only be used if the system clock has been set (either through NTP, the hardware calendar, or manually). The time is relative to the configured time zone on the system.</p> <p>Schedules a reload of the software to occur at the specified time (using a 24-hour clock).</p> <p>If you specify the month and day, the reload is scheduled to occur at that specified time and date. If you do not specify the month and day, the reload occurs at the specified time on the current day (if the specified time is later than the current time), or on the next day (if the specified time is earlier than the current time).</p> <p>Specifying 00:00 schedules the reload for midnight.</p> <p>The reload must occur within approximately 24 days.</p>
<b>month</b>	Specifies the name of the month the reload is to occur, any number of characters in a unique string.
<b>day</b>	Specifies the number of the day the reload is to occur, in the range 1 to 31.
<b>cancel</b>	Cancels a scheduled reload.

## Defaults

Immediate active processor card reload

## Command Modes

Privileged EXEC

## Command History

This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.

S-Release	Modification
12.2(22)S	This command was integrated in this release.

### Usage Guidelines

This command halts the active processor card. If the processor card is set to restart on error, it reboots itself.

Use this command after configuration information is entered into a file and saved to the startup configuration. You cannot reload from a virtual terminal if the processor card is not set up for automatic booting. This prevents the processor card from dropping to the ROM monitor and thereby taking the processor card out of the remote user's control.

If you modify your configuration file, the system prompts you to save the configuration. During a save operation, the system asks you if you want to proceed with the save if the CONFIG\_FILE environment variable points to a startup configuration file that no longer exists. If you enter **yes** in this situation, the processor card goes to setup mode upon reload.

When you schedule a reload to occur at a later time, it must occur within approximately 24 days.

This command can be entered on either the active or standby processor card console and only a reload of the processor card on which the command was entered occurs.

When entered on the active processor card, this command synchronizes the running-config to the standby processor card just before the reload is executed, and causes a switchover to the standby processor card only if the standby processor card is in the hot-standby state.

By default the system is configured to reboot automatically, so the active processor card reboots as the standby processor card after the reload.

To display information about a scheduled reload, use the **show reload** command.

### Examples

The following example shows how to reload the software on the processor card.

```
Switch# reload
```

The following example reloads the software on the processor card in 10 minutes.

```
Switch# reload in 10
Reload scheduled for 11:57:08 PDT Mon Feb 26 2001 (in 10 minutes)
Proceed with reload? [confirm]
Switch#
```

The following example reloads the software on the processor card at 1:00 p.m. today.

```
Switch# reload at 13:00
Reload scheduled for 13:00:00 PPDT Mon Feb 26 2001 (in 1 hour and 2 minutes)
Proceed with reload? [confirm]
Switch#
```

The following example reloads the software on the processor card on 2/27 at 2:00 a.m.

```
Switch# reload at 02:00 feb 27
Reload scheduled for 02:00:00 PDT Tues Feb 26 2001 (in 38 hours and 9 minutes)
Proceed with reload? [confirm]
Switch#
```

The following example cancels a pending reload.

```
Switch# reload cancel
%Reload cancelled.
```

Related Commands	Command	Description
	<a href="#">config-register</a>	Changes the configuration register settings.
	<a href="#">maintenance-mode</a>	Enables or disables processor card redundancy synchronization.
	<a href="#">redundancy reload peer</a>	Reloads the standby processor card.
	<a href="#">redundancy reload shelf</a>	Reloads both processor cards in the shelf.
	<a href="#">redundancy switch-activity</a>	Manually switches activity from the active processor card to the standby processor card.
	<a href="#">show reload</a>	Displays reload status information.

# reprogram

To upgrade the ROMMON or functional image on a selected card from a flash file, use the **reprogram** privileged EXEC command.

```
reprogram flash-file-name {slot | rommon} [subcard]
```

## Syntax Description

<i>flash-file-name</i>	Specifies the name of the image to download, which can be in the CompactFlash Card or bootflash.
<i>slot</i>	Specifies the physical slot number of the controller you want to reprogram. The slot number ranges from 0 to 11.
<b>rommon</b>	Specify reprogramming the ROMMON (ROM monitor) image of the designated CPU switch card.
<i>subcard</i>	Indicate a subcard in a slot for half-width modules or daughter cards in full width cards. The subcard number ranges from 0 to 1.

## Defaults

None.

## Command Modes

EXEC

## Command History

This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

## Usage Guidelines

This command reprograms the image to the controller you select. It also resets the selected controller, which causes active connections and configurations to be lost.



### Caution

Do not power cycle the system during a reprogram operation because damage can occur to the controller you are reprogramming. If you power-cycle the system while reprogramming is in progress, you also might be unable to boot the system.

## reprogram

### Examples

The following example shows how to reprogram the image on the processor card in slot 3.

```
Switch# reprogram bootflash:fi-ons15540-muxdemux.A.2-36.exo 3
```

### Related Commands

Command	Description
<a href="#">show hardware</a>	Displays information about the programmable device images for a given module in the system.
<a href="#">show upgrade-info functional-image</a>	Displays information from a version diagnostics data file for the ROMMON and functional images on the shelf.



# show bootvar

To display boot and related environmental variables for both the active and standby processor cards, use the **show bootvar** command.

## show bootvar

### Syntax Description

This command has no other arguments or keywords.

### Defaults

None

### Command Modes

EXEC and privileged EXEC

### Command History

This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

### Usage Guidelines

This command shows boot and related information for the active and standby processor cards.

### Examples

The following example shows how to display boot information for the system. (See [Table 8-1](#) for field descriptions.)

```
Switch# show bootvar
BOOT variable = bootflash:<imagenam>;
CONFIG_FILE variable =
BOOTLDR variable =
Configuration register is 0x2

Standby auto-sync startup config mode is on

Standby auto-sync running config mode is on

Standby is up.
Standby BOOT variable = bootflash:<imagenam>;
Standby CONFIG_FILE variable =
```

```
Standby BOOTLDR variable =
Standby Configuration register is 0x2
```

**Table 8-1** *show bootvar Field Descriptions*

Field	Description
BOOT variable	Shows a list of bootable images on various devices.
CONFIG_FILE variable	Shows the configuration file used during system initialization.
BOOTLDR variable	Shows the configuration file used during system initialization.
Configuration register	Shows the stored configuration information.
Standby auto-sync startup config mode	Indicates whether startup-config file autosynchronization is enabled or disabled on the standby processor card.
Standby auto-sync running config mode	Indicates whether running-config file autosynchronization is enabled or disabled on the standby processor card.
Standby	Indicates whether the standby processor card is up or down.
Standby BOOT variable	Shows a list of bootable images on various devices for the standby processor card.
Standby CONFIG_FILE variable	Shows the configuration file used during system initialization for the standby processor card.
Standby BOOTLDR variable	Shows the configuration file used during system initialization for the standby processor card.
Standby Configuration register	Shows the stored configuration information for the standby processor card.

#### Related Commands

Command	Description
<a href="#">auto-sync running-config</a>	Selectively enables only automatic synchronizing of the running configuration to the standby processor card.
<a href="#">auto-sync startup-config</a>	Selectively enables only automatic synchronizing of the startup configuration to the standby processor card.

# show ciscoview package

To display Embedded CiscoView package information, use the **show ciscoview package** command.

## show ciscoview package

**Syntax Description** This command has no other arguments or keywords.

**Defaults** None

**Command Modes** EXEC and privileged EXEC

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

**Usage Guidelines** Use this command to display Embedded CiscoView package file information or for troubleshooting.

**Examples** The following example shows how to display Embedded CiscoView package information. (See [Table 8-2](#) for field descriptions.)

```
Switch# show ciscoview package

File source:slot1:
CVFILE                               SIZE(in bytes)
-----
ONS15540-1.0.html                     8861
ONS15540-1.0.sgz                      1183238
ONS15540-1.0_ace.html                 3704
ONS15540-1.0_error.html               401
ONS15540-1.0_jks.jar                  17003
ONS15540-1.0_nos.jar                  17497
applet.html                           8861
cisco.x509                             529
identitydb.obj                        2523
```

*Table 8-2 show ciscoview package Field Descriptions*

Field	Description
File source	Identifies the slot.
CVFILE	Identifies the Embedded CiscoView files in the package.
SIZE (in bytes)	Shows the file size in bytes.

**Related Commands**

Command	Description
<a href="#">show ciscoview version</a>	Displays Embedded CiscoView version information.

# show ciscoview version

To display Embedded CiscoView version information, use the **show ciscoview version** command.

## **show ciscoview version**

**Syntax Description** This command has no other arguments or keywords.

**Defaults** None

**Command Modes** EXEC and privileged EXEC

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

**Usage Guidelines** Use this command to display Embedded CiscoView version information.

**Examples** The following example shows how to display Embedded CiscoView version information. (See [Table 8-3](#) for field descriptions.)

```
Switch# show ciscoview version
```

```
Engine Version: 5.3 ADP Device: ONS15540 ADP Version: 1.0 ADK: 39
```

**Table 8-3** *show ciscoview version* Field Descriptions

Field	Description
Engine Version	Identifies the Embedded CiscoView version.
ADP Device	Identifies the ADP (Autonomous Device Package) device.
ADP Version	Identifies the ADP version.

■ show ciscoview version

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**Related Commands**

Command	Description
<a href="#">show cdl defect-indication</a>	Displays Embedded CiscoView package information.

---

# show environment

To display the temperature sensor and fan status, use the **show environment** command.

## show environment

**Syntax Description** This command has no other arguments or keywords.

**Defaults** None

**Command Modes** EXEC

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(12c)EV3	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

## Examples

The following example shows how to display the fan tray failure shutdown feature configuration:

```
Switch# show environment
Fan
---
Status:                Total Failure

Line card shutdown on fan failure:enabled

      Sensor                Temperature                Thresholds
      (degree C)            Minor            Major            Critical            Low
-----
Inlet Sensor                28                65                75                80                -15
Outlet Sensor                28                75                85                90                -15

      Sensor                Alarms
      Min
Critical
-----
Inlet Sensor                0                0                0
Outlet Sensor                0                0                0
```

```
show environment
```

```
Power Entry Module 0 type DC status:          OK
```

---

**Related Commands**

Command	Description
<a href="#">environment-monitor shutdown fan</a>	Enables system shutdown when the fans fail.



# show facility-alarm status

To display the facility alarm status, use the **show facility-alarm status** command.

**show facility-alarm status** [**critical** | **info** | **major** | **minor**]

Syntax Description		
	<b>critical</b>	Shows the status information for critical facility alarms.
	<b>info</b>	Shows the status information for information facility alarms.
	<b>major</b>	Shows the status information for major facility alarms.
	<b>minor</b>	Shows the status information for minor facility alarms.

**Defaults** Displays all facility alarm status information. This information includes external alarms and protocol monitoring alarms.

**Command Modes** EXEC and privileged EXEC

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

**Usage Guidelines** Use this command to display the facility alarm and alarm threshold error status information.

**Examples** The following example shows how to display the facility alarm status information. (See [Table 8-4](#) for field descriptions.)

```
Switch# show facility-alarm status
System Totals Critical: 1 Major: 3 Minor: 1
Source: Chassis Severity: CRITICAL Description: 0 Chassis fan tray missing
Source: Transponder SC Severity: MAJOR Description: 0 Access to Tsp card failed
Source: Transponder SC Severity: MINOR Description: 1 Access to IDPROM failed
Source: Transponder SC Severity: MAJOR Description: 2 Line laser failure detected
Source: Wave2/1/0 Severity: MAJOR Description: Low alarm threshold exceeded for
Receive Power (in dBm)
```

*Table 8-4 show facility-alarm status Field Descriptions*

Field	Description
System Totals	Shows the number of alarms in the output display by severity.
Source	Shows the system component that is the source of the alarm.
Severity	Shows the severity of the alarm.
Description	Shows a description of the alarm. If a number is present at the beginning of the description, it is the index of the alarm.

**Related Commands**

Command	Description
<a href="#">clear facility-alarm</a>	Clears external facility alarm indications.
<a href="#">monitor enable</a>	Enables signal monitoring for certain protocol encapsulations.

# show hardware

To display hardware information, use the **show hardware** command.

**show hardware** [**detail** | **linecard slot**]

Syntax Description	detail	Shows detailed hardware information for the entire shelf.
	<b>linecard slot</b>	Shows detailed hardware information for the motherboard or processor card in a specific slot. The range is 0 to 11.

**Defaults** Displays summary hardware information for the entire shelf.

**Command Modes** Privileged EXEC

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

**Usage Guidelines** Use this command to display hardware information for debugging and tracking.

**Examples** The following example shows how to display hardware information for the shelf. (See [Table 8-5](#) for field descriptions.)

```
Switch# show hardware
-----
ONS_15540_Backplane named Switch, Date: 10:25:38 UTC Tue Jul 3 2001
-----

-----
Back-Plane Information
-----
Orderable Product No.  MAC-Address          MAC-Size  Serial No.   Mfg. Date  H/W Ver
-----
15540-CHSA=             00-01-64-45-b1-10 16         TBC05133029 11/02/2001 3.1
```

```

-----
Slot Orderable Product No.      Part No.   Rev Serial No.   Mfg. Date  H/W Ver.
-----
0/*  15540-LCMB-UNKNOWN          73-7793-02 11 CAB0604MD7V    2/20/2002  2.0
0/0  15540-MDXA-32AD              05-0893-01 2   402286         11/26/2001  1.0
1/*  15540-LCMB-UNKNOWN          73-7793-02 11 CAB0604MD7A    2/20/2002  1.0
1/0  15540-MDXD-32A0              74-2859-01 2   FE006817      06/21/2001  1.0
2/*  15540-LCMB-1400=             800-17218- 09 CAB06240NF1    10/15/2002  4.1
3/*  15540-TBD                    73-7789-01 03 CAB0546L9V5    mm/dd/2001  5.0
3/0  N/A                          68-1345-04 02 CAB0545L8G4    11/15/2001  5.1
3/1  N/A                          68-1345-03 02 CAB0545L8FF    11/15/2001  5.1
4/*  15540-LCMB-1100=             68-1672-03 A0 CAB06310XYC    09/25/2002  2.2
4/0  15540-TSP2-0100=            68-1341-06 A1 CNH0651009F    01/21/2003  5.1
4/2  15540-TSP2-0300=            68-1342-06 A1 CNH0716004N    04/22/2003  5.1
4/3  15540-TSP2-0300=            68-1342-06 A1 CNH0716003V    04/22/2003  5.1
5/*  15540-LCMB-1100              68-1672-02 10 CAB06170BQB    05/29/2002  2.0
5/0  15540-TSP1-25B3=            68-1434-02 B0 CAB0608MQK8    03/23/2002  2.6
5/1  15540-TSP1-25A3=            68-1642-02 B0 CAB061305XQ    07/25/2002  2.6
5/2  15540-TSP1-27A3=            68-1643-02 C0 CAB06190FJY    06/04/2002  2.6
5/3  15540-TSP1-27A3=            68-1643-02 B0 CAB061305QC    07/25/2002  2.6
6/*  N/A                          73-5621-02 03 CAB0505GZHA    02/16/2001  2.5
8/*  15540-LCMB-1100              68-1672-02 10 CAB06192UVB    05/29/2002  2.0
10/* 15540-LCMB-1100              68-1672-02 10 CAB06439NWB    05/29/2002  2.0
10/0 15540-TSP2-0900=            68-1345-06 A1 CNH06430028    11/05/2002  5.1
-----

```

```

-----
Power-Supply Module
-----

```

```

Power-Supply A is : OK
Power-Supply B is : OK

```

**Table 8-5** *show hardware Field Descriptions*

Field	Description
Slot	Shows the slot or slot and subcard position for the hardware component.
Orderable Product No.	Shows the orderable part number for the component.
Part No.	Shows the part number.
Rev	Shows the revision number.
Serial No.	Shows the serial number.
Mfg. Date	Shows the date the component was manufactured.
H/W Ver.	Shows the hardware version number.

The following example shows how to display detailed hardware information for a specific slot. (See [Table 8-6](#) for field descriptions.)

```

Switch# show hardware linecard 8
-----
Slot Number           : 4/*
Controller Type       : 0x1019
On-Board Description  : ONS_15540_XPS_W/Splitter
Orderable Product Number: 15540-LCMB-1100=
Board Part Number     : 68-1672-03
Board Revision        : A0
Serial Number         : CAB06310XYC
Manufacturing Date    : 09/25/2002
Hardware Version      : 2.2

```

```

RMA Number          : 0
RMA Failure Code    : 0
Functional Image Version: 2.72
Function-ID         : 0
Subcard Power Control : 0:ON, 1:ON, 2:ON, 3:ON
-----
Slot Number         : 4/0
Controller Type     : 0x1003
On-Board Description : Type_2_TSP_Ch_1/2_With_Selectable_Client_XVRA
Orderable Product Number: 15540-TSP2-0100=
Board Part Number   : 68-1341-06
Board Revision      : A1
Serial Number       : CNH0651009F
Manufacturing Date  : 01/21/2003
Hardware Version    : 5.1
RMA Number          : 0
RMA Failure Code    : 0
Optical Rx Power Table : IDPROM based, calibrated
Functional Image Version: 1.A3
Function-ID         : 0
Transceiver type    : Transceiver is absent
-----
Slot Number         : 4/2
Controller Type     : 0x1003
On-Board Description : Type_2_TSP_Ch_1/2_With_Selectable_Client_XVRA
Orderable Product Number: 15540-TSP2-0300=
Board Part Number   : 68-1342-06
Board Revision      : A1
Serial Number       : CNH0716004N
Manufacturing Date  : 04/22/2003
Hardware Version    : 5.1
RMA Number          : 0
RMA Failure Code    : 0
Optical Rx Power Table : IDPROM based, calibrated
Functional Image Version: 1.A3
Function-ID         : 0
Transceiver type    : Transceiver is absent
-----
Slot Number         : 4/3
Controller Type     : 0x1003
On-Board Description : Type_2_TSP_Ch_1/2_With_Selectable_Client_XVRA
Orderable Product Number: 15540-TSP2-0300=
Board Part Number   : 68-1342-06
Board Revision      : A1
Serial Number       : CNH0716003V
Manufacturing Date  : 04/22/2003
Hardware Version    : 5.1
RMA Number          : 0
RMA Failure Code    : 0
Optical Rx Power Table : IDPROM based, calibrated
Functional Image Version: 1.A3
Function-ID         : 0
Transceiver type    : Transceiver is absent

```

**Table 8-6** *show hardware linecard Field Descriptions*

Field	Description
Slot Number	Shows the slot or slot and subcard position for the hardware component.
Controller Type	Shows the hardware component controller type.
On-Board Description	Shows the description stored on the component.

*Table 8-6 show hardware linecard Field Descriptions (continued)*

Field	Description
Orderable Product Number	Shows the component product order number.
Board Part Number	Shows the part number.
Board Revision	Shows the revision number.
Serial Number	Shows the serial number.
Manufacturing Date	Shows the date the component was manufactured.
Hardware Version	Shows the hardware version number.
RMA Number	Shows the RMA number.
RMA Failure Code	Shows the RMA failure code.
Optical Rx Power Table	Show where the optical receive power calibration is determined.
Functional Image Version	Shows the version of the component functional image.
Subcard Power Control	Shows the status of the power to the subcard positions in the 2.5-Gbps line card motherboard.
Transceiver type	Shows the type of SFP optics installed in a Type 2 extended range transponder module. For SM transponder modules and MM transponder modules, the SFP optics are absent.

**Related Commands**

Command	Description
<a href="#">environment-monitor shutdown temperature</a>	Controls the power to transponder modules.

# show optical wavelength mapping

To display the mapping of Cisco ONS 15540 ESPx channels to ITU grid frequencies and wavelengths, use the **show optical wavelength mapping** command.

## show optical wavelength mapping

**Syntax Description** This command has no other arguments or keywords.

**Defaults** None

**Command Modes** EXEC and privileged EXEC

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

## Usage Guidelines

Use this command to display how the Cisco ONS 15540 ESPx channels map to the ITU G.692 grid wavelengths. Channel 0 is the OSC. Channels 1 through 32 are the client data channels. The last two digits of the frequency correspond to the ITU number (for example, the frequency for channel 1 is 192.1 so the ITU grid number is 21).

The frequencies ending in 0 and 5 are missing from the output because they are used as buffers between the 4-channel bands.

## Examples

The following example shows how to display wavelength mapping information for the system. (See [Table 8-7](#) for field descriptions.)

```
Switch# show optical wavelength mapping
      Frequency      Wavelength
Channel  (THz)      (nm)
-----  -
0         191.9      1562.23
1         192.1      1560.61
2         192.2      1559.79
```

■ show optical wavelength mapping

3	192.3	1558.98
4	192.4	1558.17
5	192.6	1556.55
6	192.7	1555.75
7	192.8	1554.94
8	192.9	1554.13
9	193.1	1552.52
10	193.2	1551.72
11	193.3	1550.92
12	193.4	1550.12
13	193.6	1548.51
14	193.7	1547.72
15	193.8	1546.92
16	193.9	1546.12
17	194.1	1544.53
18	194.2	1543.73
19	194.3	1542.94
20	194.4	1542.14
21	194.6	1540.56
22	194.7	1539.77
23	194.8	1538.98
24	194.9	1538.19
25	195.1	1536.61
26	195.2	1535.82
27	195.3	1535.04
28	195.4	1534.25
29	195.6	1532.68
30	195.7	1531.90
31	195.8	1531.12
32	195.9	1530.33

*Table 8-7 show optical wavelength mapping Field Descriptions*

Field	Description
Channel	Identifies the channel.
Frequency (THz)	Shows the frequency for the channel in THz. The last two digits correspond to the ITU grid number.
Wavelength (nm)	Shows the wavelength for the channel in nm.



# show temperature

To display shelf temperature information, use the **show temperature** command.

## show temperature

**Syntax Description** This command has no other arguments or keywords.

**Defaults** None

**Command Modes** EXEC and privileged EXEC

**Command History** This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

**Usage Guidelines** Use this command to display the current shelf temperature and the alarm threshold temperatures.

**Examples** The following example shows how to display internal redundancy software state information. (See [Table 8-8](#) for field descriptions.)

```
Switch> show temperature
  Sensor                Temperature
                    (degree C)   Minor    Major    Critical    Low
-----
Inlet Sensor           31             65      75      80         -15
Outlet Sensor          33             75      85      90         -15

  Sensor                Alarms
                    Minor    Major    Critical
-----
Inlet Sensor           0       0       0
Outlet Sensor          0       0       0
```

**Table 8-8** *show temperature Field Descriptions*

Field	Description
Sensor	Shows the type of sensor.
Temperature (degree C)	Shows the current temperature in degrees Celsius.
Minor	Shows temperature threshold that generates a minor alarm.
Major	Shows temperature threshold that generates a major alarm.
Critical	Shows temperature threshold that generates a critical alarm.
Low	Shows temperature threshold that generates a low alarm.
Alarms	Shows the number of minor, major, and critical alarms on the inlet and outlet sensors.

**Related Commands**

Command	Description
<a href="#">show facility-alarm status</a>	Shows the facility alarm status information.

# show upgrade-info functional-image

To display ROMMON and functional image version diagnostics, use the **show upgrade-info functional-image** command.

```
show upgrade-info functional-image {all | latest-version [software-compatible]}
dat-file device:filename [detail]
```

Syntax Description		
<b>all</b>		Displays information about all the functional images found in the data file.
<b>latest-version</b>		Displays information about the latest functional images on the system.
<b>software-compatible</b>		Displays information about the latest functional images which are compatible with the currently running system image.
<b>dat-file</b> <i>device:filename</i>		Specifies the name of the data file containing the version diagnostics for the ROMMON and functional images on the system.
<b>detail</b>		Displays detailed functional image version diagnostics.

**Defaults** None

**Command Modes** Privileged EXEC

**Command History** This table includes the following release-specific history entries:

- SV-Release
- S-Release

SV-Release	Modification
12.2(18)SV	This command was first introduced.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

**Usage Guidelines** Use this command to display the version diagnostics for ROMMON and functional images. The data file to use in conjunction with this command can be downloaded from the following URL:

<http://www.cisco.com/cgi-bin/tablebuild.pl/ons15540-fpga>

The following example shows how to display detailed APS information for all APS groups. (See [Table 8-9](#) for field descriptions.)

```
Switch# show upgrade-info functional-image all dat-file
bootflash:fi-ons15540-index.008.dat
Validating CRC...100%
```

```
Generating Functional Image Upgrade Information for the currently running IOS
using DAT file bootflash:fi-ons15540-index.008.dat, created on Tues Aug 19 00:20:15 PST
2003.
```

## show upgrade-info functional-image

Please ensure that you are using the latest DAT file from Cisco Connection Online (CCO) Webpage

Abbr: Cur.FV = Functional Image Version of the Card.

Lis.FV = List of Func. Image Versions found in the DAT-file for the corresponding card.

(U) = IOS Software upgrade is required, to upgrade to the recommended functional image version.

Slot	Product No	Cur.FV	Lis.FV	Listed Functional Image
0/*	15540-LCMB-UNKNOWN	2.66	2.66	No Func. Image Upgrade Required
1/*	15540-LCMB-UNKNOWN	2.67	2.67	No Func. Image Upgrade Required
3/*	15540-LCMB-1100	2.72	2.72	No Func. Image Upgrade Required
3/0	15540-TSP2-0100=	1.F1	1.F1	No Func. Image Upgrade Required
3/1	15540-TSP2-0100=	1.F1	1.F1	No Func. Image Upgrade Required
3/3	15540-TSP1-13B3=	1.F1	1.F1	No Func. Image Upgrade Required
4/0	15540-LCMB-1100	1.A0	1.A1	fi-ons15540-tlcmdb.A.1-A1.exo
6/*	15540-CPU=	1.25	1.27	fi-ons15540-ph0cpu.A.1-27.exo
7/*	15540-CPU=	1.27	1.27	No Func. Image Upgrade Required

**Table 8-9** show upgrade-info functional-image Field Descriptions

Field	Description
Slot	Indicates the slot for a card and the slot and subcard for a module.
Product No	Indicates the product number for the card or module.
Cur. FV	Indicates the current ROMMON or functional image version on the card or module.
Lis. FV	Indicates the ROMMON or functional image version listed in the data file.
Listed Function Image	Indicates the name of the ROMMON or functional image file to use to upgrade the card or module.

### Related Commands

Command	Description
<a href="#">reprogram</a>	Updates the ROMMON or functional image on a card or module.
<a href="#">show hardware</a>	Displays information about the hardware on the shelf.

# show version

To display the system hardware configuration, software version, and names and sources of configuration files and boot images, use the **show version** command.

## show version

### Syntax Description

This command has no other arguments or keywords.

### Defaults

None

### Command Modes

EXEC and privileged EXEC

### Command History

This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

### Usage Guidelines

Use this command to display the system hardware configuration, software version, and names and sources of configuration files and boot images.



#### Note

Always specify the complete software version number when reporting a possible software problem.

### Examples

The following example shows how to display version information for the system. [Table 8-10](#) describes the output from the **show version** command.

```
Switch# show version

Cisco Internetwork Operating System Software
IOS (tm) ONS-15540 Software (manopt-M0-M), Experimental Version 12.1(20001031:221042)
[ffrazer-man_cosmos 252]
Copyright (c) 1986-2001 by cisco Systems, Inc.
Compiled Fri 23-Feb-01 15:23 by ffrazer
Image text-base:0x60010950, data-base:0x604E8000
```

```

ROM:System Bootstrap, Version 12.1(20001031:194138) [ffrazer-man_cosmos 233],
DEVELOPMENT SOFTWARE
BOOTFLASH:ONS-15540 Software (manopt-M0-M), Experimental Version 12.1(20001031:221042)
[ffrazer-man_cosmos 246]

Switch uptime is 30 minutes
System returned to ROM by power-on
System image file is "tftp://171.69.1.129/ffrazer/manopt-m0-mz.010223.6"

cisco (QUEENS-CPU) processor with 98304K/32768K bytes of memory.
R7000 CPU at 234Mhz, Implementation 39, Rev 2.1, 256KB L2, 2048KB L3 Cache

Last reset from power-on
2 Ethernet/IEEE 802.3 interface(s)
509K bytes of non-volatile configuration memory.

20480K bytes of Flash PCMCIA card at slot 0 (Sector size 128K).
16384K bytes of Flash internal SIMM (Sector size 64K).
Configuration register is 0x102

```

**Table 8-10** *show version Field Descriptions*

Field	Description
Software version	Shows the software version.
Compiled	Shows the date and time the software was compiled.
System Bootstrap, Version	Shows the system bootstrap version number.
BOOTFLASH, Version	Shows the bootflash version number.
Switch uptime	Shows the number of days, hours, minutes, and seconds the system has been up and running.
System returned to ROM by power-on	Shows how the system was last booted—as a result of a normal system startup or because of system error.
System image file	Shows the name and location of the system image file.
bytes of memory	Shows the amount of system memory.
Last reset from power-on	Shows how the system was last reset.
2 Ethernet/IEEE 802.3 interface(s)	Shows the number, type, and encapsulation of interfaces available.
non-volatile configuration memory	Shows the amount of nonvolatile configuration memory available.
Flash PCMCIA	Shows the amount of Flash memory and location of the card.
Flash internal SIMM	Shows the amount of Flash internal SIMM memory.
Configuration register	Shows the location of the configuration register.

# traceroute

To trace the IP routes the packets actually take when traveling from the Cisco ONS 15540 ESPx NME (network management Ethernet) port to their destination, use the **traceroute** EXEC command.

## EXEC Mode

**traceroute** *protocol destination*

## Privileged EXEC Mode

**traceroute** [*protocol*] [*destination*]

Syntax Description	
<i>protocol</i>	Protocols that can be used are <b>appletalk</b> , <b>clns</b> , <b>ip</b> , <b>ipx</b> , and <b>vines</b> . In privileged EXEC mode, the default protocol is assumed for the destination address format.
<i>destination</i>	Destination address or host name on the command line. In privileged EXEC mode, the default parameters for the appropriate protocol are assumed.

## Defaults

The *protocol* argument is based on the format of the *destination* argument. For example, if the system finds a destination in IP format, the protocol defaults to **ip**.

## Command Modes

EXEC and privileged EXEC

## Command History

This table includes the following release-specific history entries:

- EV-Release
- SV-Release
- S-Release

EV-Release	Modification
12.1(10)EV	This command was first introduced.
SV-Release	Modification
12.2(18)SV	This command was integrated in this release.
S-Release	Modification
12.2(22)S	This command was integrated in this release.

## Usage Guidelines

The **traceroute** command works by taking advantage of the error messages generated by the system when a datagram exceeds its TTL (Time To Live) value. The **traceroute** command starts by sending probe datagrams with a TTL value of 1. This causes the first system to discard the probe datagram and send back an error message. The **traceroute** command sends several probes at each TTL level and displays the round-trip time for each.

The **tracert** command sends out one probe at a time. Each outgoing packet may result in one or two error messages. A `time exceeded` error message indicates that an intermediate system detected and discarded the probe. A `destination unreachable` error message indicates that the destination node received and discarded the probe because it could not deliver the packet. If the timer goes off before a response comes in, **tracert** prints an asterisk(\*).

The **tracert** command terminates when the destination responds, when the maximum TTL is exceeded, or when the user interrupts the trace with the escape sequence. By default, to invoke the escape sequence, enter **^X**.

### Common Trace Problems

Due to bugs in the IP implementation of various hosts and switches, the IP **tracert** command may behave in unexpected ways.

Not all destinations respond correctly to a probe message by sending back an `ICMP port unreachable` message. A long sequence of TTL levels with only asterisks, terminating only when the maximum TTL is reached, may indicate this problem.

There is a known problem with the way some hosts handle an `ICMP TTL exceeded` message. Some hosts generate an ICMP message, but they reuse the TTL of the incoming packet. Because this is zero, the ICMP packets do not make it back. When you trace the path to such a host, you may see a set of TTL values with asterisks (\*). Eventually, the TTL gets high enough that the ICMP message can get back. For example, if the host is 6 hops away, **tracert** times out in responses 6 through 11.

### Examples

The following example displays sample IP **tracert** output in EXEC mode when a destination host name is specified. (See [Table 8-11](#) for field descriptions.)

```
Switch> tracert ip ABA.NYC.mil

Type escape sequence to abort.
Tracing the route to ABA.NYC.mil (26.0.0.73)
 0 DEBRIS.CISCO.COM (131.108.1.6) 1000 msec 8 msec 4 msec
 1 BARNET-GW.CISCO.COM (131.108.16.2) 8 msec 8 msec 8 msec
 2 EXTERNAL-A-GATEWAY.STANFORD.EDU (192.42.110.225) 8 msec 4 msec 4 msec
 3 BB2.SU.BARNET.NET (131.119.254.6) 8 msec 8 msec 8 msec
 4 SU.ARC.BARNET.NET (131.119.3.8) 12 msec 12 msec 8 msec
 5 MOFFETT-FLD-MB.in.MIL (192.52.195.1) 216 msec 120 msec 132 msec
 6 ABA.NYC.mil (26.0.0.73) 412 msec 628 msec 664 msec
```

**Table 8-11** *tracert command Field Descriptions*

Field	Description
1	Indicates the sequence number of the system in the path to the host.
DEBRIS.CISCO.COM	Shows the host name of this system.
131.108.1.61	Shows the IP address of this system.
1000 msec 8 msec 4 msec	Shows the round-trip time for each of the three probes that are sent.

[Table 8-12](#) describes the characters that can appear in **tracert** output.



**Table 8-12** IP Trace Text Characters

Character	Description
<i>nn</i> msec	Indicates for each node the round-trip time in milliseconds for the specified number of probes.
*	Indicates that the probe timed out.
?	Indicates an unknown packet type.
Q	Indicates a source quench.
P	Indicates that the protocol is unreachable.
N	Indicates that the network is unreachable.
U	Indicates that the port is unreachable.
H	Indicates that the host is unreachable.

The following example displays sample IP **traceroute** output in privileged EXEC mode when a destination IP address is specified. (See [Table 8-13](#) for prompt descriptions and [Table 8-11](#) for field descriptions.)

```
Switch# traceroute
Protocol [ip]:
Target IP address: 10.0.0.1
Source address:
Numeric display [n]:
Timeout in seconds [3]:
Probe count [3]:
Minimum Time to Live [1]:
Maximum Time to Live [30]:
Port Number [33434]:
Loose, Strict, Record, Timestamp, Verbose[none]:
Type escape sequence to abort.
Tracing the route to 10.0.0.1

 1 10.0.0.2 msec 0 msec 4 msec
 2 10.0.1.9 0 msec 0 msec 0 msec
 3 10.0.0.1 0 msec 0 msec 4 msec
```

**Table 8-13** traceroute Command Prompt Descriptions

Prompt	Description
Protocol [ip]:	Specifies the protocol. The default is IP.
Target IP address:	Specifies the host name or an IP address. There is no default.
Source address:	Specifies one of the interface addresses of the router to use as a source address for the probes. The system will normally pick what it feels is the best source address to use.
Numeric display [n]:	Specifies the <b>traceroute</b> display format. The default is to have both a symbolic and numeric display; however, you can suppress the symbolic display.
Timeout in seconds [3]:	Specifies the number of seconds to wait for a response to a probe packet. The default is 3 seconds.
Probe count [3]:	Specifies the number of probes to be sent at each TTL level. The default count is 3.

Table 8-13 *tracert Command Prompt Descriptions (continued)*

Prompt	Description
Minimum Time to Live [1]:	Specifies the TTL value for the first probes. The default is 1, but it can be set to a higher value to suppress the display of known hops.
Maximum Time to Live [30]:	Specifies the largest TTL value that can be used. The default is 30. The <b>tracert</b> command terminates when the destination is reached or when this value is reached.
Port Number [33434]:	Specifies the destination port used by the UDP probe messages. The default is 33434.
Loose, Strict, Record, Timestamp, Verbose [none]:	<p>Specifies the IP header options. You can specify any combination. The <b>tracert</b> command issues prompts for the required fields. Note that trace will place the requested options in each probe; however, there is no guarantee that all routers (or end nodes) will process the options. The default is no header options.</p> <p>The options are:</p> <ul style="list-style-type: none"> <li>• Loose—Allows you to specify a list of nodes that must be traversed when going to the destination.</li> <li>• Strict—Allows you to specify a list of nodes that must be the only nodes traversed when going to the destination.</li> <li>• Record—Allows you to specify the number of hops to leave room for.</li> <li>• Timestamp—Allows you to specify the number of time stamps to leave room for.</li> <li>• Verbose—If you select any of the above options, the verbose mode is automatically selected and the <b>tracert</b> command prints the contents of the option field in any incoming packets. You can prevent verbose mode by selecting it again, toggling its current setting.</li> </ul>