



System Management Commands

Use the following commands to manage your Cisco ONS 15530.

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.
	major	Specifies that all external major alarm indications be cleared.
	minor	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)EV2	This command was 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 from release 12.2(22)SV.

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 **shutdown** 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
	monitor enable	Enables signal monitoring for certain protocol encapsulations.
	show facility-alarm status	Shows the facility alarm status information.
	shutdown	Disables an interface.

environment-monitor shutdown fan

To enable the fan failure shutdown feature, 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 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 from release 12.2(22)SV.

Usage Guidelines If a single fan fails on the Cisco ONS 15530, a minor alarm is reported to the CPU switch module. However, the chassis will never reach a critical high temperature when only one fan fails.

If two or more fans fail, a major alarm is reported to the CPU switch module.

If all six fans in the fan tray fail, the chassis will reach critical temperature after 4 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 reset the following components:

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

In addition, the ITU lasers on the transponder line cards are powered off.
To recover from fan failure shutdown, you must power-cycle the shelf.

**Caution**

Do not save the startup configuration file after the line cards 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
show environment	Displays the temperature sensor and fan status.

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

<i>slot</i>	Specifies a chassis slot.
<i>subslot</i>	Specifies a chassis sub slot.
<i>module</i>	Specifies a temperature sensor 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 15530 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
show environment	Displays the temperature sensor and fan status.
environment-monitor temperature-threshold	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 temperature sensor 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.
<i>slot</i>	Specifies a chassis slot.
<i>subslot</i>	Specifies a chassis sub slot.
<i>module</i>	Specifies a temperature sensor module.
<i>threshold value</i>	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 temperature sensor module as well, the threshold temperature will be reset for all the temperature sensor modules.

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
show environment	Displays the temperature sensor and fan status.
environment-monitor shutdown temperature	Enables the automatic shutdown of the system if the operating temperature exceeds the critical threshold

reload

To reload the active CPU switch module, use the **reload** command.

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

Syntax Description

text	Specifies a reason for reloading the active CPU switch module (maximum of 255 characters).
in [<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.
at <i>hh:mm</i>	<p>Note The at 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>
month	Specifies the name of the month the reload is to occur, with any number of characters in a unique string.
day	Specifies the number of the day the reload is to occur, in the range 1 to 31.
cancel	Cancels a scheduled reload.

Defaults

Immediate active CPU switch module 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)EV2	This command was 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 from release 12.2(22)SV.

Usage Guidelines

This command halts the active CPU switch module. If the CPU switch module 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 CPU switch module is not set up for automatic booting. This prevents the CPU switch module from dropping to the ROM monitor and thereby taking the CPU switch module 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 CPU switch module 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 CPU switch module console and only a reload of the CPU switch module on which the command was entered occurs.

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

By default the system is configured to reboot automatically, so the active CPU switch module reboots as the standby CPU switch module 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 CPU switch module.

```
Switch# reload
```

The following example reloads the software on the CPU switch module 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 CPU switch module 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 CPU switch module 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
	config-register	Changes the configuration register settings.
	maintenance-mode	Enables or disables CPU switch module redundancy synchronization.
	redundancy reload peer	Reloads the standby CPU switch module.
	redundancy reload shelf	Reloads both CPU switch modules in the shelf.
	redundancy switch-activity	Manually switches activity from the active CPU switch module to the standby CPU switch module.
	show reload	Displays reload status information.

reprogram

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

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

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 10.
<i>subcard</i>	Indicate a subcard in a slot for half-width modules or in a carrier motherboard. The subcard number ranges from 0 to 3.
rommon	Specify reprogramming the ROMMON (ROM monitor) image of the active CPU switch card.
sby-rommon	Specify reprogramming the ROMMON image of the standby CPU switch card.

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)EV2	This command was 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 from release 12.2(22)SV.

Usage Guidelines This command 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.

Examples

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

```
Switch# reprogram bootflash:fi-ons15530-escon.A.2-36.exo 3
```

Related Commands

Command	Description
show hardware	Displays hardware information for the system.
show upgrade-info functional-image	Displays information from a version diagnostics data file about the versions of the ROMMON and functional images on the shelf.
show version	Display version information for the Cisco IOS system image and the ROMMON image.

show bootvar

To display boot and related environmental variables for both the active and standby CPU switch modules, 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)EV2	This command was 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 from release 12.2(22)SV.

Usage Guidelines

This command shows boot and related information for the active and standby CPU switch modules.

Examples

The following example shows how to display boot information for the system. (See [Table 9-1](#) 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 9-1 *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 CPU switch module.
Standby auto-sync running config mode	Indicates whether running-config file autosynchronization is enabled or disabled on the standby CPU switch module.
Standby	Indicates whether the standby CPU switch module is up or down.
Standby BOOT variable	Shows a list of bootable images on various devices for the standby CPU switch module.
Standby CONFIG_FILE variable	Shows the configuration file used during system initialization for the standby CPU switch module.
Standby BOOTLDR variable	Shows the configuration file used during system initialization for the standby CPU switch module.
Standby Configuration register	Shows the stored configuration information for the standby CPU switch module.

Related Commands

Command	Description
auto-sync running-config	Selectively enables only automatic synchronizing of the running configuration to the standby CPU switch module.
auto-sync startup-config	Selectively enables only automatic synchronizing of the startup configuration to the standby CPU switch module.

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)EV2	This command was 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 from release 12.2(22)SV.

Usage Guidelines Use this command to display Embedded CiscoView package file information or to troubleshoot.

Examples The following example shows how to display Embedded CiscoView package information. (See [Table 9-2](#) for field descriptions.)

```
Switch# show ciscoview package
```

```
File source:slot1:
CVFILE                               SIZE(in bytes)
-----
ONS15530-1.0.html                     8861
ONS15530-1.0.sgz                       1183238
ONS15530-1.0_ace.html                  3704
ONS15530-1.0_error.html                 401
ONS15530-1.0_jks.jar                   17003
ONS15530-1.0_nos.jar                   17497
applet.html                             8861
cisco.x509                               529
identitydb.obj                          2523
```

■ show ciscoview package

Table 9-2 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
show ciscoview version	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)EV2	This command was 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 from release 12.2(22)SV.

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 9-3](#) for field descriptions.)

```
Switch# show ciscoview version
```

```
Engine Version: 5.3 ADP Device: ONS15530 ADP Version: 1.0 ADK: 39
```

Table 9-3 *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

Related Commands	Command	Description
	show ciscoview package	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 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 from release 12.2(22)SV.

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
environment-monitor shutdown fan	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		
	critical	Shows the status information for critical facility alarms.
	info	Shows the status information for information facility alarms.
	major	Shows the status information for major facility alarms.
	minor	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)EV2	This command was 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 from release 12.2(22)SV.

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 9-4](#) for field descriptions.)

```
Switch# show facility-alarm status
System Totals Critical: 0 Major: 5 Minor: 1

Source          Severity      Description [Index]
-----
Chassis         INFO         Chassis power supply 1 missing [6]
Giga2/0/4       INFO         Keep-alive timeout event [12]
WaveE4/0        MAJOR        Loss of Lock event [0]
WaveE4/0        MAJOR        Loss of Sync event [2]
```

■ show facility-alarm status

```

PSC card 6          MINOR          Unprotected. Peer not responding [10]
TenGE7/0           MAJOR          Loss of Lock event [0]
TenGE7/0           MAJOR          Loss of Sync event [2]
Wave4/0/1          MAJOR          Low alarm threshold exceeded for
                  Receive Power (in dBm)
Wave4/0/1          INFO          Low warning threshold exceeded for
                  Receive Power (in dBm)

```

Table 9-4 *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 [Index]:	Shows a description of the alarm, including a MIB index if present.

Related Commands

Command	Description
clear facility-alarm	Clears external facility alarm indications.
monitor enable	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.
	linecard [<i>slot</i>]	Shows detailed hardware information for the motherboard or CPU switch module in a specific slot. The range is 0 to 10.

Defaults Displays a summary of 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)EV2	This command was 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 from release 12.2(22)SV.

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 9-5](#) for field descriptions.)

```
Switch# show hardware
-----
ONS 15530 Chassis, NEBS Version named Switch, Date: 08:44:06 UTC Wed Apr 27 2005
-----

-----
Back-Plane Information
-----
Orderable Product No.  MAC-Address          MAC-Size  Serial No.   Mfg. Date  H/W Ver
-----
15530-CHAS-N=          00-0e-83-44-b0-30  16        TBC07464403 2004/01/20 3.1
```

```

-----
Slot Orderable Product No.      Part No.   Rev Serial No.   Mfg. Date  H/W Ver.
-----
1/* 15530-ITU2-2110=            800-24373- A0 CNH08060204 10/11/2004 8.1
2/* 15530-ITU2-1310=            800-24365- A0 CNH084300WR 11/01/2004 8.1
3/* 15530-ITU2-0520            800-24389- 04 CNH071900BZ 05/16/2003 8.0
5/* 15530-CPU=PROTO            73-7399-04 02 CAB0602M9XE 01/31/2002 4.6
6/*  PROTO-HAMPTON-CPU         73-6572-04 06 CAB0602M9XV 01/29/2002 4.0
7/* 15530-ITU3-0120            68-1761-02 2  CAB06280T7Q 01/01/2000 3.0
10/* 15530-ITU2-0120=          800-19405- A0 CNH0711001J 03/28/2003 7.1

```

```

Power Supply:
Slot Part No.      Rev Serial No.   RMA No.      Hw Vrs  Power Consumption
-----
0          34-1811-01 A0  SNI06090004 00-00-00-00  1.0          4900 cA
Power Supply 0 :
                type      : 600W AC
                status    : OK
Power Supply 1 Not present

```

Table 9-5 *show hardware Field Descriptions*

Field	Description
Slot	Shows the slot or slot and subcard position for the hardware component.
Controller Type	Shows the hardware component controller type.
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.
RMA No.	Shows the RMA number.
H/W Ver.	Shows the hardware version number.

The following example shows how to display detailed hardware information for a specific slot. (See [Table 9-6](#) for field descriptions.)

```

Switch# show hardware linecard 1
-----
Slot Number          : 1/*
Controller Type      : 0x1113
On-Board Description : ONS 15530 Tunable Ch 21-24 10Gpbs ITU Line Card MU w/
splitter
Orderable Product Number: 15530-ITU2-2110=
Board Part Number    : 800-24373-02
Board Revision       : A0
Serial Number        : CNH08060204
Manufacturing Date   : 10/11/2004
Hardware Version     : 8.1
RMA Number           :
RMA Failure Code     :
Functional Image Version: 2.38
Function-ID          : 0
Version-ID (VID)     : V01

```

Table 9-6 *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.
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.
Functional Image Version	Shows the version of the component functional image.
Function-ID	Shows the FPGA version of the subcards.
Version-ID	Shows the version of the component.

show inventory

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

show inventory [raw]

Syntax Description	raw	Shows hardware inventory information for every slot in the shelf, including empty slots.
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Defaults Displays summary hardware inventory information.

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)EV2	This command was 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 from release 12.2(22)SV.

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

Examples The following example shows how to display hardware inventory information for the shelf. (See [Table 9-7](#) for field descriptions.)

```
Switch# show inventory
NAME: "Cisco ONS 15530 Chassis, NEBS compliant", DESCR: "Cisco ONS 15530 Chassis
, NEBS compliant"
PID: 15530-CHAS-N=      , VID: 3.1, SN: TBC07464403

NAME: "ONS 15530 4-Channel Band F 10Gbps ITU Line Card MU with Splitter", DESCR:
"ONS 15530 4-Channel Band F 10Gbps ITU Line Card MU with Splitter"
PID: 15530-ITU2-2110=  , VID: 8.1, SN: CNH08060204

NAME: "ONS 15530 4-Channel Band D 10Gbps ITU Line Card MU with Splitter", DESCR:
"ONS 15530 4-Channel Band D 10Gbps ITU Line Card MU with Splitter"
PID: 15530-ITU2-1310=  , VID: 8.1, SN: CNH084300WR
```

NAME: "ONS 15530 Ch 05 10Gbps ITU Line Card MU without Splitter", DESCR: "ONS 15530 Ch 05 10Gbps ITU Line Card MU without Splitter"
 PID: 15530-ITU2-0520 , VID: 8.0, SN: CNH071900BZ

NAME: "Cisco ONS 15530 CPU and Switch Board", DESCR: "Cisco ONS 15530 CPU and Switch Board"
 PID: 15530-CPU=PROTO , VID: 4.6, SN: CAB0602M9XE

NAME: "Cisco ONS 15530 CPU and Switch Board", DESCR: "Cisco ONS 15530 CPU and Switch Board"
 PID: PROTO-HAMPTON-CPU , VID: 4.0, SN: CAB0602M9XV

NAME: "ONS 15530 Ch 01/02 2.5Gbps ITU Line Card MU without Splitter", DESCR: "ONS 15530 Ch 01/02 2.5Gbps ITU Line Card MU without Splitter"
 PID: 15530-ITU3-0120 , VID: 3.0, SN: CAB06280T7Q

NAME: "ONS 15530 Ch 01 10Gbps ITU Line Card MU without Splitter", DESCR: "ONS 15530 Ch 01 10Gbps ITU Line Card MU without Splitter"
 PID: 15530-ITU2-0120= , VID: 7.1, SN: CNH0711001J

Table 9-7 *show inventory* Field Descriptions

Field	Description
NAME:	Shows the name for the hardware component.
DESCR:	Shows the description of the hardware component.
PID:	Shows the part identifier.
VID:	Shows the hardware version identifier.
SN:	Shows the serial number.

show optical wavelength mapping

To display the mapping of Cisco ONS 15530 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)EV2	This command was 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 from release 12.2(22)SV.

Usage Guidelines

Use this command to display how the Cisco ONS 15530 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 9-8](#) 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
```

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 9-8 *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)EV2	This command was 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 from release 12.2(22)SV.

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 9-9](#) for field descriptions.)

```
Switch> show temperature
  Sensor                Temperature          Thresholds
                (degree C)   Minor      Major      Critical   Low
-----
Sensor                27             65         75         80         -15

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


Table 9-9 *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
show facility-alarm status	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		
	all	Displays information about all the functional images found in the data file.
	latest-version	Displays information about the latest functional images on the system.
	software-compatible	Displays information about the latest functional images which are compatible with the currently running system image.
	dat-file <i>device:filename</i>	Specifies the name of the data file containing the version diagnostics for the ROMMON and functional images on the system.
	detail	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 introduced.
S-Release	Modification
12.2(22)S	This command was integrated in this release from release 12.2(22)SV.

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/ons15530-fpga>

The following example shows how to display detailed APS information for all APS groups. (See [Table 9-10](#) for field descriptions.)

```
Switch# show upgrade-info functional-image all dat-file fi-ons15530-index.010.dat
Validating CRC...100%
```

```
Generating Functional Image Upgrade Information for the currently running IOS
using DAT file fi-ons15530-index.010.dat, created on Thu Aug 21 00:23:10 PST 2003.
```

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
1/*	15530-TSP1-2912=	3.12	3.12	No Func. Image Upgrade Required
1/0	Unknown	1.A2	1.A2	No Func. Image Upgrade Required
2/*	15530-TSP1-3112	3.55	3.55	No Func. Image Upgrade Required
2/0	Unknown	1.F2	1.F2	No Func. Image Upgrade Required
3/*	15530-TSP1-2911	3.11	3.12	fi-ons15530-tpd.A.3-12.exo
3/0	Unknown	1.9F	1.A0	fi-ons15540-tlcmdb.A.1-A0.exo
4/*	PROTO-HAMPTON-ESCON	2.33	2.36	fi-ons15530-escon.A.2-36.exo
5/*	PROTO-HAMPTON-CPU	1.43	1.43	No Func. Image Upgrade Required
5/0	Active Rommon	1.1	1.1	No Func. Image Upgrade Required
6/*	PROTO-HAMPTON-CPU	1.43	1.43	No Func. Image Upgrade Required
6/0	Standby Rommon	1.1	1.1	No Func. Image Upgrade Required
8/*	PROTO-HAMPTON-OSCM	1.37	1.37	No Func. Image Upgrade Required
8/0	15530-OSCM	0.58	0.58	No Func. Image Upgrade Required
8/1	15530-OSCM	0.58	0.58	No Func. Image Upgrade Required

Table 9-10 *show upgrade-info functional-image Field Descriptions*

Field	Description
Slot	Indicate 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
reprogram	Updates the ROMMON or functional image on a card or module.
show hardware	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)EV2	This command was 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 from release 12.2(22)SV.

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 9-11](#) describes the output from the **show version** command.

```
Switch# show version
Cisco IOS Software, ONS-15530 Software (ONS15530-I-M), Experimental Version 12.2
(20050406:093210) [ksrinu-flo_ons_dev 100]
Copyright (c) 1986-2005 by Cisco Systems, Inc.
Compiled Wed 06-Apr-05 15:26 by ksrinu

ROM: System Bootstrap, Version 12.1(10r)EV, RELEASE SOFTWARE (fc1)
```

```

switch uptime is 1 day, 7 hours, 35 minutes
Uptime for this control processor is 1 day, 6 hours, 37 minutes
System returned to ROM by reload at 02:29:17 UTC Tue Apr 26 2005
System image file is "bootflash:ons15530-i-mz-UT-APR6"

Cisco ONS15530 (RM7000) processor with 49152K/16384K bytes of memory.
R7000 CPU at 234Mhz, Implementation 39, Rev 2.1, 256KB L2, 2048KB L3 Cache

Last reset from s/w nmi
2 FastEthernet interfaces
509K bytes of NVRAM.

16384K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x0

```

Table 9-11 *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.
Switch uptime	Shows the number of days, hours, minutes, and seconds the system has been up and running.
System returned to ROM by reload	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 s/w nmi	Shows how the system was last reset.
2 FastEthernet interface(s)	Shows the number, type, and encapsulation of interfaces available.
NVRAM	Shows the amount of nonvolatile configuration RAM available.
Flash internal SIMM	Shows the amount of Flash internal SIMM memory.
Configuration register	Shows the location of the configuration register.

tl1 user

To add a new user for the TL1 command environment, use the **tl1 user** command. To remove a TL1 user, use the **no** form of the command.

```
tl1 user user-name { maint | prov | rtrv | super } [0 | 7] password
```

```
no tl1 user user-name
```

Syntax Description

<i>user-name</i>	Specifies the TL1 user name. The user name is case sensitive and can be 1 to 10 alphanumeric characters.
maint	Specifies TL1 maintenance command privileges only.
prov	Specifies TL1 provisioning command privileges only.
rtrv	Specifies TL1 retrieval command privileges only.
super	Specifies access to all TL1 commands.
0	Specifies that the password is unencrypted.
7	Specifies that the password is hidden.
<i>password</i>	Specifies the TL1 user password. The password is case sensitive and can be 1 to 10 printable ASCII characters, excluding "?", ":", ";", ",", "!", " ", "-", and "=".

Defaults

None

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)EV1	This command was 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 from release 12.2(22)SV.

Usage Guidelines

Use the **tl1 user** command to create user names for the TL1 command environment using the Cisco IOS CLI.

Examples

The following example shows how to create a TL1 user name and password.

```
Switch(config)# tl1 user admin super 0^x3T1
```

traceroute

To trace the IP routes the packets actually take when traveling from the Cisco ONS 15530 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 appletalk , clns , ip , ipx , and vines . 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)EV2	This command was 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 from release 12.2(22)SV.

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 **traceroute** 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, **traceroute** prints an asterisk(*).

The **traceroute** 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 **traceroute** 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, **traceroute** times out in responses 6 through 11.

Examples

The following example displays sample IP **traceroute** output in EXEC mode when a destination host name is specified. (See [Table 9-12](#) for field descriptions.)

```
Switch> traceroute 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 BARRNET-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.BARRNET.NET (131.119.254.6) 8 msec 8 msec 8 msec
 4 SU.ARC.BARRNET.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 9-12 *traceroute 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 9-13](#) describes the characters that can appear in **traceroute** output.

Table 9-13 IP Trace Text Characters

Character	Description
nn 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 **tracert** output in privileged EXEC mode when a destination IP address is specified. (See [Table 9-14](#) for prompt descriptions and [Table 9-12](#) for field descriptions.)

```
Switch# tracert
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 9-14 *tracert* 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 tracert 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 9-14 *traceroute 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 traceroute 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 traceroute 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"> • Loose—Allows you to specify a list of nodes that must be traversed when going to the destination. • Strict—Allows you to specify a list of nodes that must be the only nodes traversed when going to the destination. • Record—Allows you to specify the number of hops to leave room for. • Timestamp—Allows you to specify the number of time stamps to leave room for. • Verbose—If you select any of the above options, the verbose mode is automatically selected and the traceroute 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.

