show

To verify the Multiple Spanning Tree (MST) configuration, use the **show** command. in MST configuration submode.

show [**current** | **pending**]

Syntax Description

current	(Optional) Displays the current configuration that is used to run MST.
pending	(Optional) Displays the edited configuration that will replace the current configuration.

Defaults

This command has no default settings.

Command Modes

MST configuration submode

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The display output from the **show pending** command is the edited configuration that will replace the current configuration if you enter the **exit** command to exit MST configuration mode.

Entering the **show** command with no arguments displays the pending configurations.

Examples

This example shows how to display the edited configuration:

```
Router(config-mst)# show pending

Pending MST configuration
Name      [zorglub]
Version   31415
Instance  Vlans Mapped
--------  ---------------------------------------------------------------------
0         4001-4096
2         1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110
          1120
3         1-1009, 1011-1019, 1021-1029, 1031-1039, 1041-1049, 1051-1059
          1061-1069, 1071-1079, 1081-1089, 1091-1099, 1101-1109, 1111-1119
          1121-4000
-------------------------------------------------------------------------------
Router(config-mst)#
```

This example shows how to display the current configuration:

```
Router(config-mst)# show current
```

```
Current MST configuration
Name []
Revision 0
Instance Vlans mapped
-------- ---------------------------------------------------------------------
0 1-4094
---------------------------------------------------------------------------
```

Related Commands

Command	Description
instance	Maps a VLAN or a set of VLANs to an MST instance.
name (MST configuration submode)	Sets the name of an MST region.
revision	Sets the revision number for the MST configuration.
show spanning-tree mst	Displays the information about the MST protocol.
spanning-tree mst configuration	Enters MST-configuration submode.

show <command> append

To redirect and add the output of any **show** command to an existing file, use the **show** *command* **| append** command in privileged EXEC mode.

show *command* **| append** *url*

Syntax Description

command	Any Cisco IOS **show** command.
| append *url*	The addition of this syntax redirects the command output to the file location specified in the Universal Resource Locator (URL). The pipe (|) is required. The Cisco IOS File System (IFS) uses URLs to specify the location of a file system, directory, and file. Typical URL elements include: *prefix***:**[*directory***/**]*filename* Prefixes can be local file locations, such as **flash:** or **disk0:**. Alternatively, you can specify network locations using the following syntax: **ftp:**[[**//**[*username*[**:***password*]**@**]*location*]**/***directory*]**/***filename* **tftp:**[[**//***location*]**/***directory*]**/***filename* The **rcp:** prefix is not supported.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(21)S	This command was introduced.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.

Usage Guidelines

To display all URL prefixes that are supported for this command, use the **show** *command* **| append ?** command.

This command adds the **show** command output to the end of the specified file.

Examples

In the following example, output from the **show tech-support** command is redirected to an existing file on Disk 1 with the file-name of "showoutput.txt." This output is added at the end of any existing data in the file.

```
Router# show tech-support | append disk1:showoutput.txt
```

Related Commands

Command	Description
show <command> redirect	Redirects the output of any **show** command to a specified file.
show <command> tee	Copies the **show** command output to a file while displaying it on the terminal.

show <command> begin

To begin the output of any **show** command from a specified string, use the **show** *command* **|** **begin** command in EXEC mode.

show *command* **|** **begin** *regular-expression*

Syntax Description

command	Any supported **show** command.
|	A vertical bar (the "pipe" symbol) indicates that an output processing specification follows.
regular-expression	Any regular expression found in **show** command output. The show output will begin from the first instance of this string (output prior to this string will not be printed to the screen). The string is case-sensitive. Use parenthesis to indicate a literal use of spaces.
/	Specifies a search at a --More-- prompt that begins unfiltered output with the first line that contains the regular expression.
-	Specifies a filter at a --More-- prompt that only displays output lines that do not contain the regular expression.
+	Specifies a filter at a --More-- prompt that only displays output lines that contain the regular expression.

Command Modes

EXEC

Command History

Release	Modification
8.3	The **show** command was introduced.
12.0(1)T	This extension of the **show** command was introduced..
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The *regular-expression* argument is case sensitive and allows for complex matching requirements. Use parenthesis to indicate a literal use of spaces. For example, **| begin u** indicates that the show output should begin with any line that contains a u; **| begin (u)** indicates that the show output should begin with any line that contains a space and a u together (line has a word that begins with a lowercase u).

To search the remaining output of the **show** command, use the following command at the --More-- prompt:

/*regular-expression*

You can specify a filtered search at any --More-- prompt. To filter the remaining output of the **show** command, use one of the following commands at the --More-- prompt:

-*regular-expression*

+*regular-expression*

When output volume is large, the search can produce long lists of output. To interrupt the output, press **Ctrl**-**^** (Ctrl-Shift-6) or **Ctrl**-**z**.

Note Once you specify a filter for a **show** command, you cannot specify another filter at the next --More-- prompt. The first specified filter remains until the **more** command output finishes or until you interrupt the output. The use of the keyword **begin** does not constitute a filter.

Because prior output is not saved, you cannot search or filter backward through prior output.

Note A few **show** commands that have long output requirements do not require user input at the --More-- prompt to jump to the next table of output; these types of output require you to enter the same number of Ctrl-^ or Ctrl-Z combinations as there are --More-- prompts to completely abort output.

Examples

The following is partial sample output of the **show interface | begin** command that begins unfiltered output with the first line that contains the regular expression "Ethernet." At the --More-- prompt, the user specifies a filter to show only the lines in the remaining output that contain the regular expression "Serial."

```
Router# show interface | begin Ethernet
Ethernet0 is up, line protocol is up
Hardware is Lance, address is 0060.837c.6399 (bia 0060.837c.6399)
  Description: ip address is 172.1.2.14 255.255.255.0
  Internet address is 172.1.2.14/24
.
.
.
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
--More--
+Serial
filtering...
Serial1 is up, line protocol is up
Serial2 is up, line protocol is up
Serial3 is up, line protocol is down
Serial4 is down, line protocol is down
Serial5 is up, line protocol is up
Serial6 is up, line protocol is up
Serial7 is up, line protocol is up
```

Related Commands

Command	Description
more <url> begin	Begins unfiltered output of the **more** command with the first line that contains the regular expression you specify.
more <url> exclude	Filters **more** command output so that it excludes lines that contain a particular regular expression.
more <url> include	Filters **more** command output so that it displays only lines that contain a particular regular expression.
show <command> exclude	Filters **show** command output so that it excludes lines that contain a particular regular expression.
show <command> include	Filters **show** command output so that it displays only lines that contain a particular regular expression.

show <command> exclude

To filter **show** command output so that it excludes lines that contain a particular regular expression, use the **show** *command* **| exclude** command in EXEC mode.

show *command* **| exclude** *regular-expression*

Syntax Description

command	Any supported **show** command.
|	A vertical bar (the "pipe" symbol) indicates that an output processing specification follows.
regular-expression	Any regular expression found in **show** command output.
/	Specifies a search at a --More-- prompt that begins unfiltered output with the first line that contains the regular expression.

Command Modes

EXEC

Command History

Release	Modification
12.0(1)T	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The *regular-expression* argument is case sensitive and allows for complex matching requirements.

You can specify a new search at every --More-- prompt. To search the remaining output of the **show** command, use the following syntax at the --More-- prompt:

/regular-expression

When output volume is large, the search can produce long lists of output. To interrupt the output, press **Ctrl**-**^** (Ctrl-Shift-6) or **Ctrl**-**Z**.

Because prior output is not saved, you cannot search or filter backward through prior output.

Note A few **show** commands that have long output requirements do not require user input at the --More-- prompt to jump to the next table of output; these types of output require you to enter the same number of Ctrl-^ or Ctrl-Z combinations as there are --More-- prompts to completely abort output.

Examples

The following is partial sample output of the **show | exclude** command used with the **show buffers** command. It excludes lines that contain the regular expression "0 misses." At the --More-- prompt, the user searches for the regular expression "Serial0," which continues the filtered output with the first line that contains "Serial0."

```
Router# show buffers | exclude 0 misses

Buffer elements:
     398 in free list (500 max allowed)
Public buffer pools:
```

```
Small buffers, 104 bytes (total 50, permanent 50):
     50 in free list (20 min, 150 max allowed)
     551 hits, 3 misses, 0 trims, 0 created
Big buffers, 1524 bytes (total 50, permanent 50):
     49 in free list (5 min, 150 max allowed)
Very Big buffers, 4520 bytes (total 10, permanent 10):
.
.
.
Huge buffers, 18024 bytes (total 0 permanent 0):
     0 in free list (0 min, 4 max allowed)
--More--
/Serial0
filtering...
Serial0 buffers, 1543 bytes (total 64, permanent 64):
     16 in free list (0 min, 64 max allowed)
     48 hits, 0 fallbacks
```

Related Commands

Command	Description
more <url> begin	Begins unfiltered output of the **more** command with the first line that contains the regular expression you specify.
more <url> exclude	Filters **more** command output so that it excludes lines that contain a particular regular expression.
more <url> include	Filters **more** command output so that it displays only lines that contain a particular regular expression.
show <command> begin	Searches the output of any **show** command and displays the output from the first instance of a specified string.
show <command> include	Filters **show** command output so that it displays only lines that contain a particular regular expression.

show <command> include

To filter **show** command output so that it only displays lines that contain a particular regular expression, use the **show** *command* **| include** command in EXEC mode.

show *command* **| include** *regular-expression*

Syntax Description

command	Any supported **show** command.
|	A vertical bar (the "pipe" symbol) indicates that an output processing specification follows.
regular-expression	Any regular expression found in **show** command output. Use parenthesis to include spaces in the expression.
/	Specifies a search at a --More-- prompt that begins unfiltered output with the first line that contains the regular expression.

Command Modes

EXEC

Command History

Release	Modification
12.0(1)T	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The *regular-expression* argument is case sensitive and allows for complex matching requirements.

You can specify a new search at every --More-- prompt. To search the remaining output of the **show** command, use the following syntax at the --More-- prompt:

/regular-expression

When output volume is large, the search can produce long lists of output. To interrupt the output, press **Ctrl**-**^** (Ctrl-Shift-6) or **Ctrl**-**Z**.

Because prior output is not saved, you cannot search or filter backward through prior output.

Note A few **show** commands that have long output requirements do not require user input at the --More-- prompt to jump to the next table of output; these types of output require you to enter the same number of Ctrl-^ or Ctrl-Z combinations as there are --More-- prompts to completely abort output.

Examples

The following is partial sample output of the **show interface | include** command. It displays only lines that contain the regular expression "(is)." The parentheses force the inclusion of the spaces before and after "is." Use of the parenthesis ensures that only lines containing "is" with a space both before and after it will be included in the output. Lines with words like "disconnect" will be excluded because there are not spaces around the instance of the string "is".

```
Router# show interface | include ( is )
```

```
ATM0 is administratively down, line protocol is down
  Hardware is ATMizer BX-50
Dialer1 is up (spoofing), line protocol is up (spoofing)
  Hardware is Unknown
  DTR is pulsed for 1 seconds on reset
Ethernet0 is up, line protocol is up
  Hardware is Lance, address is 0060.837c.6399 (bia 0060.837c.6399)
  Internet address is 172.21.53.199/24
Ethernet1 is up, line protocol is up
  Hardware is Lance, address is 0060.837c.639c (bia 0060.837c.639c)
  Internet address is 5.5.5.99/24
Serial0:0 is down, line protocol is down
  Hardware is DSX1
.
.
.
 --More--
```

At the --More-- prompt, the user searches for the regular expression “Serial0:13”, which continues filtered output with the first line that contains “Serial0:13.”

```
/Serial0:13
filtering...
Serial0:13 is down, line protocol is down
  Hardware is DSX1
  Internet address is 11.0.0.2/8
     0 output errors, 0 collisions, 2 interface resets
  Timeslot(s) Used:14, Transmitter delay is 0 flags
```

Related Commands

Command	Description
more <url> begin	Begins unfiltered output of the **more** command with the first line that contains the regular expression you specify.
more <url> exclude	Filters **more** command output so that it excludes lines that contain a particular regular expression.
more <url> include	Filters **more** command output so that it displays only lines that contain a particular regular expression.
show <command> begin	Searches the output of any **show** command and displays the output from the first instance of a specified string.
show <command> exclude	Filters **show** command output so that it excludes lines that contain a particular regular expression.

show <command> redirect

To redirect the output of any **show** command to a file, use the **show** *command* **| redirect** command in privileged EXEC mode.

show *command* **| redirect** *url*

Syntax Description

command	Any Cisco IOS **show** command.
| redirect *url*	The addition of this syntax redirects the command output to the file location specified in the Universal Resource Locator (URL). The pipe (|) is required. The Cisco IOS File System (IFS) uses URLs to specify the location of a file system, directory, and file. Typical URL elements include: *prefix***:**[*directory***/**]*filename* Prefixes can be local file locations, such as **flash:** or **disk0:**. Alternatively, you can specify network locations using the following syntax: **ftp:**[[**//**[*username*[**:***password*]@]*location*]**/***directory*]**/***filename* **tftp:**[[**//***location*]**/***directory*]**/***filename* The **rcp:** prefix is not supported.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(21)S	This command was introduced.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.

Usage Guidelines

To display all URL prefixes that are supported for this command, use the **show** *command* **| redirect ?** command.

This command creates a new file at the specified location, or overwrites an existing file.

Examples

In the following example, output from the **show tech-support** command is write to the file "showtech.txt" on the host at 172.16.101.101 in the directory "//tftpboot/docs/" using FTP:

```
Router# show tech | redirect
ftp://USER:MYPASSWORD@172.16.101.101//tftpboot/docs/showtech.txt
```

Related Commands

Command	Description
show <command> append	Redirects and appends **show** command output to the end of an existing file.
show <command> tee	Copies the **show** command output to a file while displaying it on the terminal.

show <command> section

To filter the output of a **show** command to match a given expression as well as any lines associated with that expression, use the **show** *command* **section** command in privileged EXEC mode.

show *command* **| section** [**include | exclude**] *regular-expression*

Syntax Description

command	Any Cisco IOS **show** command.
include	(Optional) Includes only the lines that contain a particular regular expression. This is the default keyword when none is specified.
exclude	(Optional) Excludes any lines that contain a particular regular expression.
regular-expression	Any regular expression or plain text string found in show command output. The syntax of the regular expression conforms to that of Bell V8 regexp(3).

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(2)T	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS release 12.(33)SRE.

Usage Guidelines

In many cases, it is useful to filter the output of a **show** command to match a specific expression. Filtering provides some control over the type and amount of information displayed by the system. The **show section** command provides enhanced filtering capabilities by matching lines in the **show** command output containing specific expressions as well as matching any entries associated with those expressions. Filtering is especially useful, for example, when displaying large configuration files using the **show running-configuration** command or the **show interfaces** command.

If the **include** or **exclude** keyword is not specified, **include** is the default.

If there are no associated entries for an expression, then only the line matching the expression is displayed.

Examples

The following examples compare the filtering characteristics of the **show running-config | include** command with the **show running-config | section** command. The first example gathers just the lines from the configuration file with "interface" in them.

```
Router# show running-config | include interface

interface Ethernet0/0
interface Ethernet1/0
interface Serial2/0
interface Serial3/0
```

The next example uses the **show** *command* **section** command to gather the lines in the configuration file with "interface" in them as well as any lines associated with those entries. In this example, interface configuration information is captured.

```
Router# show running-config | section include interface

interface Ethernet0/0
 shutdown
 no cdp enable
interface Ethernet1/0
 shutdown
 no cdp enable
interface Serial2/0
 shutdown
 no cdp enable
interface Serial3/0
 shutdown
 no cdp enable
```

Related Commands

Command	Description
show <command> append	Redirects the output of any **show** command and adds it to the end of an existing file.
show <command> exclude	Filters **show** command output so that it excludes lines that contain a particular regular expression.
show <command> include	Filters **show** command output so that it displays only lines that contain a particular regular expression.
show <command> redirect	Redirects the output of any **show** command to a specified file.

show <command> tee

To copy the output of any **show** command to a file while displaying it on the terminal, use the **show** *command* **| tee** command in privileged EXEC mode.

show *command* **| tee** [**/append**] *url*

Syntax Description

command	Any Cisco IOS **show** command.
| tee *url*	The addition of this syntax copies the command output to the file location specified in the Universal Resource Locator (URL). The pipe (|) is required. The Cisco IOS File System (IFS) uses URLs to specify the location of a file system, directory, and file. Typical URL elements include: *prefix***:**[*directory***/**]*filename* Prefixes can be local file locations, such as **flash:** or **disk0:**. Alternatively, you can specify network locations using the following syntax: **ftp:**[[**//**[*username*[**:***password*]**@**]*location*]**/***directory*]**/***filename* **tftp:**[[**//***location*]**/***directory*]**/***filename* The **rcp:** prefix is not supported.
/append	(Optional) Adds the **show** command output to the end of an existing file.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.0(21)S	This command was introduced.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.

Usage Guidelines

To display all URL prefixes that are supported for this command, use the **show** *command* **| tee ?** command.

The **tee** keyword was chosen to reflect that output is redirected to two locations; the terminal and a file (as a tee plumbing junction redirects water to two different pipes).

Examples

In the following example, output from the **show tech-support** command is displayed on-screen while it is written to the file "showoutput.txt" at the host 172.16.101.101 using TFTP:

```
Router# show tech-support | tee tftp://172.16.101.101/docs/showoutput.txt
```

The following example performs the same function as above, but in this case the output is added at the end of any existing data in the file "showoutput.txt":

```
Router# show tech-support | tee /append tftp://172.16.101.101/docs/showoutput.txt
```

Related Commands

Command	Description
show <command> append	Redirects the output of any **show** command and adds it to the end of existing file.
show <command> redirect	Redirects the output of any **show** command to a specified file.

show (Flash file system)

To display the layout and contents of a Flash memory file system, use the **show** *flash-filesystem* command in EXEC mode.

Class A Flash File Systems

show *flash-filesystem***:** [**all** | **chips** | **filesys**]

Class B Flash File Systems

show *flash-filesystem***:**[*partition-number*:] [**all** | **chips** | **detailed** | **err** | **summary**]

Class C Flash File Systems

show *flash-filesystem***:**

Syntax Description

*flash-filesystem***:**	Flash memory file system, followed by a colon. The availablity of Flash file system keywords will vary by platform. Valid flash file system keywords inlude: • **bootflash** • **flash** • **slot0** • **slot1** • **slavebootflash** • **slaveslot0** • **slaveslot1**
all	(Optional) On Class B Flash file systems, **all** keyword displays complete information about Flash memory, including information about the individual ROM devices in Flash memory and the names and sizes of all system image files stored in Flash memory, including those that are invalid. On Class A Flash file systems, the **all** keyword displays the following information: • The information displayed when no keywords are used. • The information displayed by the **filesys** keyword. • The information displayed by the **chips** keyword.
chips	(Optional) Displays information per partition and per chip, including which bank the chip is in, plus its code, size, and name.
filesys	(Optional) Displays the Device Info Block, the Status Info, and the Usage Info.
partition-number	(Optional) Displays output for the specified partition number. If you do not specify a partition in the command, the router displays output for all partitions. You can use this keyword only when Flash memory has multiple partitions.

detailed	(Optional) Displays detailed file directory information per partition, including file length, address, name, Flash memory checksum, computer checksum, bytes used, bytes available, total bytes, and bytes of system Flash memory.
err	(Optional) Displays write or erase failures in the form of number of retries.
summary	(Optional) Displays summary information per partition, including the partition size, bank size, state, and method by which files can be copied into a particular partition. You can use this keyword only when Flash memory has multiple partitions.

Command Modes

EXEC

Command History

Release	Modification
11.3 AA	This command was introduced.
12.3	A timestamp that shows the offset from Coordinated Universal Time (UTC) was added to the **show** command display.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

If Flash memory is partitioned, the command displays the requested output for each partition, unless you use the **partition** keyword.

The command also specifies the location of the current image.

To display the contents of boot Flash memory on Class A or B file systems, use the **show bootflash:** command as follows:

Class A Flash file systems

show bootflash: [**all** | **chips** | **filesys**]

Class B Flash file systems

show bootflash:[*partition-number*] [**all** | **chips** | **detailed** | **err**]

To display the contents of internal Flash memory on Class A or B file systems, use the **show flash:** command as follows:

Class A Flash file systems

show flash: [**all** | **chips** | **filesys**]

Class B Flash file systems

show flash:[*partition-number*][**all** | **chips** | **detailed** | **err** | **summary**]

The **show** (Flash file system) command replaces the **show flash devices** command.

Examples

The output of the **show** command depends on the type of Flash file system you select. Types include **flash:**, **bootflash:**, **slot0:**, **slot1:**, **slavebootflash:**, **slaveslot0:**, and **slaveslot1:**.

Examples of output from the **show flash** command are provided in the following sections:

- Class A Flash File System
- Class B Flash File Systems

Although the examples use **flash:** as the Flash file system, you may also use the other Flash file systems listed.

Class A Flash File System

The following three examples show sample output for Class A Flash file systems. Table 49 describes the significant fields shown in the display.

The following is sample output from the **show flash:** command.

```
Router# show flash:

-#- ED --type-- --crc--- -seek-- nlen -length- -----date/time------ name
1   .. unknown  317FBA1B  4A0694   24  4720148 Dec 15 2003 17:49:36 -08:00
hampton/nitro/c7200-j-mz
2   .. unknown  9237F3FF  92C574   11  4767328 Jan 02 2004 18:42:53 -08:00 c7200-js-mz
3   .D unknown  71AB01F1 10C94E0   10  7982828 Jan 02 2004 18:48:14 -08:00 rsp-jsv-mz
4   .D unknown  96DACD45 10C97E0    8      639 Jan 03 2004 12:09:17 -08:00 the_time
5   .. unknown  96DACD45 10C9AE0    3      639 Jan 03 2004 12:09:32 -08:00 the_time
6   .D unknown  96DACD45 10C9DE0    8      639 Jan 03 2004 12:37:01 -08:00 the_time
7   .. unknown  96DACD45 10CA0E0    8      639 Jan 03 2004 12:37:13 -08:00 the_time

3104544 bytes available (17473760 bytes used)
```

Table 49 show (Class A Flash File System) Field Descriptions

Field	Description
#	Index number for the file.
ED	Whether the file contains an error (*E*) or is deleted (*D*).
type	File type (1 = configuration file, 2 = image file). The software displays these values only when the file type is certain. When the file type is unknown, the system displays “unknown” in this field.
crc	Cyclic redundant check for the file.
seek	Offset into the file system of the next file.
nlen	Name length—Length of the filename.
length	Length of the file itself.
date/time	Date and time the file was created. In the example, -08:00 indicates that the given date and time is 8 hours behind Coordinated Universal Time (UTC).
name	Name of the file.

The following is sample output from the **show flash: chips** command:

```
RouterA# show flash: chips

******** Intel Series 2+ Status/Register Dump ********

ATTRIBUTE MEMORY REGISTERS:
  Config Option Reg (4000): 2
```

```
  Config Status Reg (4002): 0
  Card Status   Reg (4100): 1
  Write Protect Reg (4104): 4
  Voltage Cntrl Reg (410C): 0
  Rdy/Busy Mode Reg (4140): 2

COMMON MEMORY REGISTERS: Bank 0
  Intelligent ID Code  : 8989A0A0
  Compatible Status Reg: 8080
  Global     Status Reg: B0B0
  Block Status Regs:
    0  :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    8  :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    16 :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    24 :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0

COMMON MEMORY REGISTERS: Bank 1
  Intelligent ID Code  : 8989A0A0
  Compatible Status Reg: 8080
  Global     Status Reg: B0B0
  Block Status Regs:
    0  :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    8  :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    16 :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    24 :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0

COMMON MEMORY REGISTERS: Bank 2
  Intelligent ID Code  : 8989A0A0
  Compatible Status Reg: 8080
  Global     Status Reg: B0B0
  Block Status Regs:
    0  :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    8  :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    16 :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    24 :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0

COMMON MEMORY REGISTERS: Bank 3
  Intelligent ID Code  : 8989A0A0
  Compatible Status Reg: 8080
  Global     Status Reg: B0B0
  Block Status Regs:
    0  :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    8  :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    16 :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    24 :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0

COMMON MEMORY REGISTERS: Bank 4
  Intelligent ID Code  : 8989A0A0
  Compatible Status Reg: 8080
  Global     Status Reg: B0B0
  Block Status Regs:
    0  :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    8  :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    16 :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
    24 :  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0  B0B0
```

The following is sample output from the **show flash: filesys** command:

```
RouterA# show flash: filesys

-------- F I L E   S Y S T E M   S T A T U S --------
  Device Number = 0
DEVICE INFO BLOCK:
  Magic Number          = 6887635   File System Vers = 10000    (1.0)
```

```
  Length                = 1400000   Sector Size      = 20000
  Programming Algorithm = 4         Erased State     = FFFFFFFF
  File System Offset    = 20000     Length = 13A0000
  MONLIB Offset         = 100       Length = C730
  Bad Sector Map Offset = 1FFEC     Length = 14
  Squeeze Log Offset    = 13C0000   Length = 20000
  Squeeze Buffer Offset = 13E0000   Length = 20000
  Num Spare Sectors     = 0
    Spares:
STATUS INFO:
  Writable
  NO File Open for Write
  Complete Stats
  No Unrecovered Errors
  No Squeeze in progress
USAGE INFO:
  Bytes Used     = 10AA0E0  Bytes Available = 2F5F20
  Bad Sectors    = 0        Spared Sectors  = 0
  OK Files       = 4        Bytes = 90C974
  Deleted Files  = 3        Bytes = 79D3EC
  Files w/Errors = 0        Bytes = 0
```

The following is sample output from the **show flash:** command:

```
RouterB> show flash:

System flash directory:
File  Length   Name/status
  1   4137888  c3640-c2is-mz.Feb24
[4137952 bytes used, 12639264 available, 16777216 total]
16384K bytes of processor board System flash (Read/Write)\
```

The following example shows detailed information about the second partition in internal Flash memory:

```
RouterB# show flash:2

System flash directory, partition 2:
File  Length   Name/status
  1   1711088  dirt/images/c3600-i-mz
[1711152 bytes used, 15066064 available, 16777216 total]
16384K bytes of processor board System flash (Read/Write)
```

Class B Flash File Systems

Table 50 describes the significant fields shown in the displays.

Table 50 show (Class B Flash File System) all Fields

Field	Description
addr	Address of the file in Flash memory.
available	Total number of bytes available in Flash memory.
Bank	Bank number.
Bank-Size	Size of bank in bytes.
bytes used	Total number of bytes used in Flash memory.
ccksum	Computed checksum.
Chip	Chip number.
Code	Code number.

Table 50 show (Class B Flash File System) all Fields (continued)

Field	Description
Copy-Mode	Method by which the partition can be copied to: • RXBOOT-MANUAL indicates a user can copy manually by reloading to the boot ROM image. • RXBOOT-FLH indicates user can copy via Flash load helper. • Direct indicates user can copy directly into Flash memory. • None indicates that it is not possible to copy into that partition.
fcksum	Checksum recorded in Flash memory.
File	Number of the system image file. If no filename is specified in the **boot system flash** command, the router boots the system image file with the lowest file number.
Free	Number of bytes free in partition.
Length	Size of the system image file (in bytes).
Name	Name of chip manufacturer and chip type.
Name/status	Filename and status of a system image file. The status [invalidated] appears when a file has been rewritten (recopied) into Flash memory. The first (now invalidated) copy of the file is still present within Flash memory, but it is rendered unusable in favor of the newest version. The [invalidated] status can also indicate an incomplete file that results from the user abnormally terminating the copy process, a network timeout, or a Flash memory overflow.
Partition	Partition number in Flash memory.
Size	Size of partition (in bytes) or size of chip.
State	State of the partition. It can be one of the following values: • Read-Only indicates the partition that is being executed from. • Read/Write is a partition that can be copied to.
System flash directory	Flash directory and its contents.
total	Total size of Flash memory (in bytes).
Used	Number of bytes used in partition.

The following is sample output from the **show flash: all** command:

```
RouterB> show flash: all
Partition   Size    Used      Free      Bank-Size  State          Copy Mode
  1        16384K   4040K    12343K     4096K      Read/Write     Direct

System flash directory:
File  Length   Name/status
        addr      fcksum  ccksum
  1   4137888  c3640-c2is-mz.Feb24
        0x40      0xED65  0xED65
```

```
[4137952 bytes used, 12639264 available, 16777216 total]
16384K bytes of processor board System flash (Read/Write)

   Chip    Bank    Code      Size      Name
    1      1       01D5      1024KB    AMD   29F080
    2      1       01D5      1024KB    AMD   29F080
    3      1       01D5      1024KB    AMD   29F080
    4      1       01D5      1024KB    AMD   29F080
    1      2       01D5      1024KB    AMD   29F080
    2      2       01D5      1024KB    AMD   29F080
    3      2       01D5      1024KB    AMD   29F080
    4      2       01D5      1024KB    AMD   29F080
    1      3       01D5      1024KB    AMD   29F080
    2      3       01D5      1024KB    AMD   29F080
    3      3       01D5      1024KB    AMD   29F080
    4      3       01D5      1024KB    AMD   29F080
    1      4       01D5      1024KB    AMD   29F080
    2      4       01D5      1024KB    AMD   29F080
    3      4       01D5      1024KB    AMD   29F080
    4      4       01D5      1024KB    AMD   29F080
```

The following is sample output from the **show flash: all** command on a router with Flash memory partitioned:

```
Router# show flash: all

System flash partition information:
Partition   Size    Used       Free     Bank-Size     State         Copy-Mode
    1       4096K    3459K     637K     4096K         Read Only     RXBOOT-FLH
    2       4096K    3224K     872K     4096K         Read/Write    Direct

System flash directory, partition 1:
File     Length     Name/status
        addr     fcksum     ccksum
  1     3459720     master/igs-bfpx.100-4.3
        0x40     0x3DE1     0x3DE1
[3459784 bytes used, 734520 available, 4194304 total]
4096K bytes of processor board System flash (Read ONLY)

   Chip    Bank     Code      Size      Name
    1      1        89A2      1024KB    INTEL 28F008SA
    2      1        89A2      1024KB    INTEL 28F008SA
    3      1        89A2      1024KB    INTEL 28F008SA
    4      1        89A2      1024KB    INTEL 28F008SA
Executing current image from System flash [partition 1]

 System flash directory, partition2:
File     Length     Name/status
        addr     fcksum     ccksum
  1     3224008     igs-kf.100
        0x40     0xEE91     0xEE91
[3224072 bytes used, 970232 available, 4194304 total]
4096K bytes of processor board System flash (Read/Write)

   Chip    Bank     Code      Size      Name
    1      2        89A2      1024KB    INTEL 28F008SA
    2      2        89A2      1024KB    INTEL 28F008SA
    3      2        89A2      1024KB    INTEL 28F008SA
    4      2        89A2      1024KB    INTEL 28F008SA
```

The following is sample output from the **show flash: chips** command:

```
RouterB> show flash: chips

16384K bytes of processor board System flash (Read/Write)

   Chip    Bank    Code      Size      Name
    1       1       01D5      1024KB    AMD   29F080
    2       1       01D5      1024KB    AMD   29F080
    3       1       01D5      1024KB    AMD   29F080
    4       1       01D5      1024KB    AMD   29F080
    1       2       01D5      1024KB    AMD   29F080
    2       2       01D5      1024KB    AMD   29F080
    3       2       01D5      1024KB    AMD   29F080
    4       2       01D5      1024KB    AMD   29F080
    1       3       01D5      1024KB    AMD   29F080
    2       3       01D5      1024KB    AMD   29F080
    3       3       01D5      1024KB    AMD   29F080
    4       3       01D5      1024KB    AMD   29F080
    1       4       01D5      1024KB    AMD   29F080
    2       4       01D5      1024KB    AMD   29F080
    3       4       01D5      1024KB    AMD   29F080
    4       4       01D5      1024KB    AMD   29F080
```

The following is sample output from the **show flash: detailed** command:

```
RouterB> show flash: detailed

System flash directory:
File  Length   Name/status
        addr      fcksum  ccksum
  1   4137888  c3640-c2is-mz.Feb24
        0x40      0xED65  0xED65
[4137952 bytes used, 12639264 available, 16777216 total]
16384K bytes of processor board System flash (Read/Write)
```

The following is sample output from the **show flash: err** command:

```
RouterB> show flash: err

System flash directory:
File  Length   Name/status
  1   4137888  c3640-c2is-mz.Feb24
[4137952 bytes used, 12639264 available, 16777216 total]
16384K bytes of processor board System flash (Read/Write)

   Chip    Bank    Code      Size      Name                 erase  write
    1       1       01D5      1024KB    AMD   29F080       0      0
    2       1       01D5      1024KB    AMD   29F080       0      0
    3       1       01D5      1024KB    AMD   29F080       0      0
    4       1       01D5      1024KB    AMD   29F080       0      0
    1       2       01D5      1024KB    AMD   29F080       0      0
    2       2       01D5      1024KB    AMD   29F080       0      0
    3       2       01D5      1024KB    AMD   29F080       0      0
    4       2       01D5      1024KB    AMD   29F080       0      0
    1       3       01D5      1024KB    AMD   29F080       0      0
    2       3       01D5      1024KB    AMD   29F080       0      0
    3       3       01D5      1024KB    AMD   29F080       0      0
    4       3       01D5      1024KB    AMD   29F080       0      0
    1       4       01D5      1024KB    AMD   29F080       0      0
    2       4       01D5      1024KB    AMD   29F080       0      0
    3       4       01D5      1024KB    AMD   29F080       0      0
    4       4       01D5      1024KB    AMD   29F080       0      0
```

See Table 50 for a description of the fields. The **show flash: err** command also displays two extra fields: erase and write. The erase field indications the number of erase errors. The write field indicates the number of write errors.

The following is sample output from the **show flash summary** command on a router with Flash memory partitioned. The partition in the Read Only state is the partition from which the Cisco IOS image is being executed.

```
Router# show flash summary

System flash partition information:
Partition   Size     Used      Free    Bank-Size   State       Copy-Mode
    1       4096K    2048K     2048K   2048K       Read Only   RXBOOT-FLH
    2       4096K    2048K     2048K   2048K       Read/Write  Direct
```

Related Commands

Command	Description
more	Displays the contents of any file in the Cisco IOS File System.

show aliases

To display all alias commands, or the alias commands in a specified mode, use the **show aliases** command in EXEC mode.

show aliases [*mode*]

Syntax Description

mode	(Optional) Name of a specific command or configuration mode. Specifies that only aliases configured for this mode should be displayed.

Command Modes

EXEC

Command History

Release	Modification
10.3	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

When used without the *mode* argument, this command will display all aliases currently configured on the system. Use the *mode* argument to display only the aliases configured for the specified command mode.

To display a list of the command mode keywords available for your system, use the **show aliases ?** command.

The following is sample output from the **show aliases exec** commands. The aliases configured for commands in EXEC mode are displayed.

```
Router> show aliases exec

Exec mode aliases:
  h                    help
  lo                   logout
  p                    ping
  r                    resume
  s                    show
  w                    where
```

Related Commands

Command	Description
alias	Creates a command alias.

show alignment

To display alignment errors and spurious memory access errors, use the **show alignment** command in privileged EXEC mode.

show alignment

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(7)T	This command was introduced.
12.2(22)S	This command was integrated into Cisco IOS Release 12.2(22)S.
12.2(18)SXE	This command was integrated into Cisco IOS Release 12.2(18)SXE.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Alignment Errors

Alignment errors are caused by misaligned reads and writes. For example, a two-byte read where the memory address is not an even multiple of two bytes is an alignment error. Alignment errors are caused by a software defect.

Alignment errors are reported in the system log and recorded by the router. Output from the **show alignment** command provides a record of these errors along with potentially useful traceback information. The traceback information for alignment errors can generally be decoded to reveal the function causing the alignment problems.

Spurious Memory Access Errors

Spurious memory access errors occur when a software process attempts to access memory in a restricted location. A read operation to this region of memory is usually caused when a nonexisting value is returned to a function in the software, or in other words, when a null pointer is passed to a function.

Spurious memory access errors are counted and recorded, if possible, by the software. This information is displayed with the **show alignment** command.

Examples

The following is sample output from the **show alignment** command when alignment detection is disabled. To enable alignment detection, use the **enable** command to enter privileged EXEC mode

```
Router# show alignment
Unaligned handler is disabled
Router#
```

The following is sample output from the **show alignment** command when there are no alignment or spurious memory errors:

```
Router# show alignment
```

```
No alignment data has been recorded.
No spurious memory references have been recorded.
Router#
```

The following is sample output from the **show alignment** command when there are only alignment errors. The traceback information is necessary to determine the cause and the fix of the alignment errors.

```
Router# show alignment

Total Corrections 134, Recorded 1, Reads 134, Writes 0
Initial    Initial
Address  Count  Access  Type   Traceback
1A014C5   134   32bit read  0x6012F538 0x601338F8 0x601344D8 0x6022D528

No spurious memory references have been recorded.

Router#
```

Table 51 describes the significant fields shown in the display.

Table 51 show alignment Field Descriptions

Field	Description
Total Corrections	Total number of alignment corrections made.
Recorded	Number of alignment entries.
Reads	Number of misaligned reads.
Writes	Number of misaligned writes.
Initial Address	Address of where the alignment error occurred.
Count	Number of times the alignment occurred at this address.
Initial Access	Address of where the alignment error occurred.
Type	Type of alignment error: read or write.
Traceback	The traceback address information necessary to determine the cause of the misalignment.

The following is sample output from the **show alignment** command when there are only spurious memory access errors:

```
Router# show alignment

No alignment data has been recorded.

Total Spurious Accesses 50, Recorded 3

Address  Count  Traceback

E        10     0x605351A0 0x603CA084 0x606C4060 0x606D6368  0x60743284 0x60743270
E        20     0x605351A0 0x6036EE7C 0x606C4060 0x606D6368  0x60743284 0x60743270
E        20     0x605351A0 0x603C998C 0x606D53EC 0x606C4060 0x606D6368 0x60743284
Router#
```

Table 52 describes the significant fields shown in the display.

Table 52 show alignment Field Descriptions for Spurious Memory Access Errors

Field	Description
Total Spurious Accesses	Total number of spurious memory accesses made.
Recorded	Number of recorded spurious memory access entries.
Address	Address at which the spurious memory access error occurred.
Count	Number of times the spurious memory access occurred at each address. The sum equals the Total Spurious Accesses.
Traceback	The traceback address information necessary to determine the cause of the misalignment.

The following is sample output from the **show alignment** command when there are alignment errors and spurious memory access errors:

```
Router# show alignment

Total Corrections 134, Recorded 1, Reads 134, Writes 0
Initial        Initial
Address  Count Access  Type   Traceback
1A014C5   134   32bit    read 0x6012F538 0x601338F8 0x601344D8 0x6022D528

Total Spurious Accesses 50, Recorded 3

Address  Count  Traceback
E        10     0x605351A0 0x603CA084 0x606C4060 0x606D6368  0x60743284 0x60743270
E        20     0x605351A0 0x6036EE7C 0x606C4060 0x606D6368  0x60743284 0x60743270
E        20     0x605351A0 0x603C998C 0x606D53EC 0x606C4060 0x606D6368 0x60743284 x60743270
```

Related Commands

Command	Description
enable	To enter privileged EXEC mode, or any other security level set by a system administrator, use the **enable** command in user EXEC or privileged EXEC mode.

show archive

To display information about the files saved in the Cisco IOS configuration archive, use the **show archive** command in privileged EXEC mode.

show archive

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(7)T	This command was introduced.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(31)SB2	This command was implemented on the Cisco 10000 series.
12.2(33)SB	This command was integrated into Cisco IOS Release 12.2(33)SB and implemented on the Cisco 10000 series.

Examples

The following is sample output from the **show archive** command:

```
Router# show archive

There are currently 1 archive configurations saved.
The next archive file will be named disk0:myconfig-2
 Archive #  Name
   0
   1       disk0:myconfig-1 <- Most Recent
   2
   3
   4
   5
   6
   7
   8
   9
   10
   11
   12
   13
   14
```

The following is sample output from the **show archive** command after several archive files of the running configuration have been saved. In this example, the maximum number of archive files to be saved is set to three.

```
Router# show archive

There are currently 3 archive configurations saved.
```

```
The next archive file will be named disk0:myconfig-8
 Archive #  Name
   0
   1        :Deleted
   2        :Deleted
   3        :Deleted
   4        :Deleted
   5        disk0:myconfig-5
   6        disk0:myconfig-6
   7        disk0:myconfig-7 <- Most Recent
   8
   9
   10
   11
   12
   13
   14
```

Table 53 describes the significant fields shown in the displays.

Table 53 show archive Field Descriptions

Field	Description
Archive #	Indicates the number of the running configuration file saved to the Cisco IOS configuration archive. You can set the maximum number of archive files of the running configuration to be saved in the configuration archive. The most recent archive file is the last one shown in the display.
Name	Indicates the name of the running configuration file saved to the Cisco IOS configuration archive.

Related Commands

Command	Description
archive config	Saves a copy of the current running configuration to the Cisco IOS configuration archive.
configure confirm	Confirms replacement of the current running configuration with a saved Cisco IOS configuration file.
configure replace	Replaces the current running configuration with a saved Cisco IOS configuration file.
maximum	Sets the maximum number of archive files of the running configuration to be saved in the Cisco IOS configuration archive.
path	Specifies the location and filename prefix for the files in the Cisco IOS configuration archive.
time-period	Sets the time increment for automatically saving an archive file of the current running configuration in the Cisco IOS configuration archive.

show archive config differences

To perform a line-by-line comparison of any two configuration files (accessible through the Cisco IOS File System [IFS]) and generate a list of the differences between them, use the **show archive config differences** command in user EXEC or privileged EXEC mode.

show archive config differences [*filename1(path)*[*filename2(path)*][**ignorecase**]]

Syntax Description

filename1(path)	(Optional) The filename (path) of the first configuration file. Can be files in the following locations: bootflash:, cns:, fpd:, ftp:, harddisk:, http:, https:, null:, nvram:, obfl:, pram:, rcp:, revrcsf:, scp:, stby-bootflash:, stby-harddisk:, stby-nvram:, stby-obfl:, stby-rcsf:, stby-usb0:, stby-usb1:, system:, tar:, tftp:, tmpsys:, usb0:
filename2(path)	(Optional) The filename of the second configuration file. Can be files in the following locations: bootflash:, cns:, fpd:, ftp:, harddisk:, http:, https:, null:, nvram:, obfl:, pram:, rcp:, revrcsf:, scp:, stby-bootflash:, stby-harddisk:, stby-nvram:, stby-obfl:, stby-rcsf:, stby-usb0:, stby-usb1:, system:, tar:, tftp:, tmpsys:, usb0:
ignorecase	(Optional) Indicates that the case of the filenames should be ignored.

Command Default

If the *filename1(path)* and *filename2(path)* arguments are not specified, the first configuration file is assumed to be the running configuration file and the second to be the startup configuration file.

If only the *filename1(path)* argument is specified, the second configuration file is assumed to be the running configuration file.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.3(4)T	This command was introduced.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SB	This command was integrated into Cisco IOS Release 12.2(33)SB and implemented on the Cisco 10000 series.

Usage Guidelines

Interpreting the output of the **show archive config differences** command is dependent on the order in which the two files are configured. Each entry in the generated output list is prefixed with a unique text symbol to indicate the type of difference found. The text symbols and their meanings are as follows:

- A minus symbol (-) indicates that the configuration line exists in *filename1(path)* but not in *filename2(path)*.

- A plus symbol (+) indicates that the configuration line exists in *filename2(path)* but not in *filename1(path)*.
- An exclamation point (!) with descriptive comments is used to identify order-sensitive configuration lines whose location is different in *filename1(path)* than in *filename2(path)*.

Examples

In this example, a diff operation is performed on the running and startup configuration files. Table 54 shows the configuration files used for this example.

Table 54 Configuration Files Used for the Diff Operation Example

Running Configuration File	Startup Configuration File
no ip subnet-zero ip cef interface Ethernet1/0 ip address 10.7.7.7 255.0.0.0 no ip route-cache no ip mroute-cache duplex half no ip classless snmp-server community public RO	ip subnet-zero ip cef ip name-server 10.4.4.4 voice dnis-map 1 dnis 111 interface Ethernet1/0 no ip address no ip route-cache no ip mroute-cache shutdown duplex half ip default-gateway 10.5.5.5 ip classless access-list 110 deny ip any host 10.1.1.1 access-list 110 deny ip any host 10.1.1.2 access-list 110 deny ip any host 10.1.1.3 snmp-server community private RW

The following is sample output from the **show archive config differences** command. This sample output displays the results of the diff operation performed on the configuration files in Table 54.

```
Router# show archive config differences running-config startup-config

+ip subnet-zero
+ip name-server 10.4.4.4
+voice dnis-map 1
 +dnis 111
interface Ethernet1/0
 +no ip address
 +shutdown
+ip default-gateway 10.5.5.5
+ip classless
+access-list 110 deny   ip any host 10.1.1.1
+access-list 110 deny   ip any host 10.1.1.2
+access-list 110 deny   ip any host 10.1.1.3
+snmp-server community private RW
-no ip subnet-zero
interface Ethernet1/0
 -ip address 10.7.7.7 255.0.0.0
-no ip classless
-snmp-server community public RO
```

Related Commands

Command	Description
more nvram:startup-config	Displays the startup configuration file contained in NVRAM or specified by the CONFIG_FILE environment variable.
more system:running-config	Displays the contents of the currently running configuration file.
show archive config incremental-diffs	Performs a line-by-line comparison of a specified configuration file to the running configuration file and generates a list of the configuration lines that do not appear in the running configuration file.

show archive config incremental-diffs

To perform a line-by-line comparison of a specified configuration file to the running configuration file and generate a list of the configuration lines that do not appear in the running configuration file, use the **show archive config incremental-diffs** command in user EXEC or privileged EXEC mode.

show archive config incremental-diffs *file*

Syntax Description

file	The filename of the configuration file to be compared to the running configuration file.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.3(4)T	This command was introduced.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SB	This command was integrated into Cisco IOS Release 12.2(33)SB and implemented on the Cisco 10000 series.

Usage Guidelines

When an incremental diff operation is performed, a list of the configuration lines that do not appear in the running configuration file (in other words, configuration lines that only appear in the specified file that is being compared to the running configuration file) is generated as output. An exclamation point (!) with descriptive comments is used to identify order-sensitive configuration lines whose location is different in the specified configuration file than in the running configuration file.

Examples

In this example, an incremental diff operation is performed on the startup and running configuration files. Table 55 shows the configuration files used for this example.

Table 55 Configuration Files Used for the Incremental Diff Operation Example

Startup Configuration File	Running Configuration File

ip subnet-zero
ip cef
ip name-server 10.4.4.4
voice dnis-map 1
  dnis 111
interface Ethernet1/0
  no ip address
  no ip route-cache
  no ip mroute-cache
  shutdown
  duplex half
ip default-gateway 10.5.5.5
ip classless
access-list 110 deny ip any host 10.1.1.1
access-list 110 deny ip any host 10.1.1.2
access-list 110 deny ip any host 10.1.1.3
snmp-server community private RW
	no ip subnet-zero
	ip cef
	interface Ethernet1/0
	  ip address 10.7.7.7 255.0.0.0
	  no ip route-cache
	  no ip mroute-cache
	  duplex half
	no ip classless
	snmp-server community public RO

The following is sample output from the **show archive config incremental-diffs** command. This sample output displays the results of the incremental diff operation performed on the configuration files in Table 55.

```
Router# show archive config incremental-diffs nvram:startup-config

ip subnet-zero
ip name-server 10.4.4.4
voice dnis-map 1
 dnis 111
interface Ethernet1/0
 no ip address
 shutdown
ip default-gateway 10.5.5.5
ip classless
 access-list 110 deny   ip any host 10.1.1.1
 access-list 110 deny   ip any host 10.1.1.2
 access-list 110 deny   ip any host 10.1.1.3
snmp-server community private RW
```

Related Commands

Command	Description
more nvram:startup-config	Displays the startup configuration file contained in NVRAM or specified by the CONFIG_FILE environment variable.
more system:running-config	Displays the contents of the currently running configuration file.
show archive config differences	Performs a line-by-line comparison of any two configuration files (accessible through the IFS) and generates a list of the differences between them.

show archive config rollback timer

To display settings of the timed rollback, use the **show archive config rollback timer** command in privileged EXEC mode.

show archive config rollback timer

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(15)T	This command was introduced in Cisco IOS Release12.4(15)T.
12.2(33)SRC	This command was integrated into a release earlier than Cisco IOS Release 12.2(33)SRC.
12.2(33)SXI	This command was integrated into a release earlier than Cisco IOS Release 12.2(33)SXI.
Cisco IOS XE Release 2.1	This command was integrated into Cisco IOS XE Release 2.1.

Usage Guidelines

Use the **show archive config rollback timer** command to display the timed rollback settings, such as the timer type (idle timer or absolute timer) and timer value, after a timed rollback is configured on a router.

Examples

The following is sample output from the **show archive config rollback timer** command:

```
Router# show archive config rollback timer

Time configured(or reconfigured): 22:50:48 UTC Sat Feb 21 2009
Timer type: absolute timer
Timer value: 2 min
User: console
```

Table 56 describes the significant fields shown in the display.

Table 56 show archive config rollback timer Field Descriptions

Field	Description
Time configured (or reconfigured)	The time at which the timer refreshes every time the Enter key is pressed.
Timer type	The type of the timer: Idle or absolute.
Timer value	Displays the time, in minutes, for which to wait for confirmation.
User	Displays the username.

Related Commands

Command	Description
configure revert	Cancels the timed rollback and trigger the rollback immediately or resets parameters for the timed rollback.
configure terminal revert timer	Enter global configuration mode and sets the parameters for reverting the configuration if confirmation of the new configuration is not received.

show archive log config

To display entries from the configuration log, use the **show archive log config** command in privileged EXEC mode.

show archive log config {**all** | *record-number* [*end-number*] | **user** *username* [**session** session-*number*] *record-number* [*end-number*] | **statistics**} [**provisioning**] [**contenttype** {**plaintext** | **xml**}] [**persistent**]

Syntax Description

all	Displays all configuration log entries.
record-number [*end-number*]	Displays the log entry by record number. If you specify a record number for the optional *end-number* argument, all log entries with record numbers between the values entered for the *record-number* and *end-number* arguments are displayed. Valid values for the *record-number* and *end-number* arguments range from 1 to 2147483647.
user *username*	Displays log entries attributed to a particular user.
session *session-number*	(Optional) Displays log entries attributed to a particular session. Valid values for the *session-number* argument range from 1 to 1000.
statistics	Displays memory usage information for the configuration log.
provisioning	(Optional) Displays configuration log file information as it would appear in a configuration file, rather than in tabular format.
contenttype	(Optional) Specifies the format for the display of configuration change results.
plaintext	Specifies that the configuration change results will be formatted as plain text. This keyword appears only if the **contenttype** keyword has been entered.
xml	Specifies that the configuration change results will be in eXtensible Markup Language (XML) format. This keyword appears only if the **contenttype** keyword has been entered.
persistent	(Optional) Displays the persistent configuration changes in a configlet format.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.3(4)T	This command was introduced.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(33)SRA	The **contenttype**, **plaintext**, **xml**, and **persistent** keywords were added.
12.4(11)T	This command was integrated into Cisco IOS Release 12.4(11)T.

Release	Modification
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.2(33)SB	This command with syntax updated in 12.2(33)SRA was integrated into Cisco IOS Release 12.2(33)SB. This command was implemented on the Cisco 10000 series.

Usage Guidelines

If you do not specify the **all** keyword, you must specify a record number with the *record-number* argument. You can optionally specify an end record number with the *end-number* argument to display a range of records. If you use the *end-number* argument to specify a record number that does not exist, all records after the starting record number with a record number lower than that specified with the *end-number* argument are displayed.

Specifying the **provisioning** keyword results in the display appearing as it would in a configuration file, rather than in tabular format. This output includes commands used to change configuration modes and logged configuration commands. This output can be used to set up another router if desired.

Examples

The following is sample output from the **show archive log config** command, which displays configuration log entry numbers 1 and 2:

```
Router# show archive log config 1 2

idx   sess   user@line        Logged command
 1     1     user1@console    logging enable
 2     1     user1@console    logging size 200
```

Table 57 describes the significant fields shown in the display.

Table 57 show archive log config Field Descriptions

Field	Description
idx	The record number of the configuration log entry.
sess	The session number associated with the configuration log entry.
user@line	The username of the user who executed the command that generated the configuration log entry.
Logged command	The command that was executed.

The following example results in the display of all configuration log files as they would appear in a configuration file rather than in tabular format. In addition to displaying logged commands, the example shows the commands used to change configuration modes that are required to correctly apply the logged commands.

```
Router# show archive log config all provisioning

archive
 log config
 logging enable
 logging size 200
```

The following example results in the display of memory usage statistics for the configuration log:

```
Router# show archive log config statistics
```

```
Config Log Session Info:
 Number of sessions being tracked: 1
 Memory being held: 3910 bytes
 Total memory allocated for session tracking: 3910 bytes
 Total memory freed from session tracking: 0 bytes

Config Log log-queue Info:
 Number of entries in the log-queue: 3
 Memory being held in the log-queue: 671 bytes
 Total memory allocated for log entries: 671 bytes
 Total memory freed from log entries:: 0 bytes
```

The output is self-explanatory.

The following example shows the contents of the archive log in XML format:

```
Router# show archive log config all contenttype xml

<?xml version="1.0" encoding="UTF-8"?>
<configLoggerMsg version="1.0">
    <configChanged>
        <changeInfo>
            <user>jdoe</user>
            <async>
                <port>con_0</port>
            </async>
            <when>
                <absoluteTime>2003-04-23T20:25:19.847Z</absoluteTime>
            </when>
        </changeInfo>
        <logComment>begin test test1</logComment>
    </configChanged>
    <configChanged>
        <changeInfo>
            <user>jdoe</user>
            <async>
                <port>con_0</port>
            </async>
            <when>
                <absoluteTime>2003-04-23T20:27:19.847Z</absoluteTime>
            </when>
        </changeInfo>
        <changeItem>
            <context/>
            <enteredCommand>
                <cli>interface e0</cli>
            </enteredCommand>
            <prcResultType>
                <prcSuccess>
                    <change>PRC_CHANGE</change>
                </prcSuccess>
            </prcResultType>
            <oldConfigState>
                <cli></cli>
            </oldConfigState>
            <newConfigState>
                <cli>interface e0</cli>
            </newConfigState>
        </changeItem>
        </configChanged>
        <configChanged>
            <changeInfo>
                <user>jdoe</user>
                <async>
```

```
                    <port>con_0</port>
                </async>
                <when>
                        <absoluteTime>2003-04-23T20:28:19.847Z</absoluteTime>
                    </when>
                </changeInfo>
                <changeItem>
                    <context><cli>interface e0</cli></context>
                    <enteredCommand>
                        <cli>ip address 10.1.1.1 255.255.255.0</cli>
                    </enteredCommand>
                    <prcResultType>
                        <prcSuccess>
                            <change>PRC_CHANGE</change>
                        </prcSuccess>
                        </prcResultType>
                        <oldConfigState/>
                        <newConfigState>
                            <cli>ip address 10.1.1.1 255.255.255.0</cli>
                        </newConfigState>
                    </changeItem>
    </configChanged>
    <configChanged>
        <changeInfo>
            <user>jdoe</user>
            <async>
                <port>con_0</port>
            </async>
            <when>
                <absoluteTime>2003-04-23T20:29:19.847Z</absoluteTime>
            </when>
        </changeInfo>
        <logComment>end test test1</logComment>
    </configChanged>
</configLoggerMsg>
```

show as5400

To display the hardware details of an application server, use the **show as5400** command in privileged EXEC mode.

show as5400

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(22)T	This command was introduced in a release earlier than Cisco IOS Release 12.4(22)T.

Usage Guidelines

The **show as5400** command provides complex troubleshooting information that pertains to the platform's shared references rather than to a specific interface.

Examples

The following is sample output from the **show as5400** command:

```
Router# show as5400

Hardware Info:
 System I/O Controller PLD version:       0x8
 Serial Interface Controller PLD version: 0x2

Memory Info:
 Memory Installed:           1024 MB
 Memory Type is  :           DDR

Bus Watcher Counters
cor_l2cache_data_ecc_count = 0
bad_l2cache_data_ecc_count = 0
cor_l2cache_tag_ecc_count  = 0
bad_l2cache_tag_ecc_count  = 0
cor_memory_data_ecc_count  = 0
bad_memory_data_ecc_count  = 0
bus_errors                 = 0

System Controller Network Interrupts:
 Interrupt Register is at 0xB0020040 (0x0000008000000000)
 BCM interrupt mask 0xFF7C03BEFFE0FCC2

 Registered Interrupts:
 Level Mask               Count      Data       Interrupt Handler
 0     0x0000000100000000 0          0x00000000 0x6036C144 (GT96124 Interrupt h)
 0     0x0000000000100000 26415      0xC097F6AC 0x60354064 (GigabitEthernet0/1)
 0     0x0000000000080000 0          0x66712B8C 0x60354064 (GigabitEthernet0/0)
 0     0x0000040000000000 22982406   0x00000000 0x608B2CBC (Low IRQ interrupt)
 1     0x0000100000000000 0          0x00000000 0x60085D98 (BCM1125 GPIO12 - BI)
```

```
 1     0x0000000000000020 0          0xC002880C 0x608C4ABC (SB1125 Timer 3)
 1     0x0000000000000010 0          0xC0028744 0x608C4ABC (SB1125 Timer 2)
 1     0x0000000000000008 0          0xC002867C 0x608C4ABC (SB1125 Timer 1)
 1     0x0000000000000004 0          0xC00285B4 0x608C4ABC (SB1125 Timer 0)
 1     0x0000080000000000 22963823   0x00000000 0x608B2F84 (High IRQ interrupt)
 3     0x0000800000000000 0          0x00000000 0x60380F88 (OIR Interrupt)
 4     0x0000400000000000 0          0x00000000 0x608BD1EC (NRBUS Parity Error)
 4     0x0000200000000000 0          0x00000000 0x608BD1EC (IO Error)
 4     0x0000004000000000 0          0x00000000 0x608BD1EC (IO_BUS_Parity Error)
 4     0x007C00000000E0C2 0          0x00000000 0x608C2FD8 (Spurious Intr ERROR)
 4     0x0000000000020000 0          0x00000000 0x608C3A14 (Corrected ECC Error)
 4     0x0000000000010000 0          0x00000000 0x608C2A7C (Bad ECC Error Handl)
 4     0x0003000000000000 0          0x64A985BC 0x608C2B4C (BCM1125 Host LDT Br)
 4     0x0000000000040000 0          0x00000000 0x608C2E04 (BCM1125 IO-Bus Erro)
 4     0x0080000000000000 0          0x00000000 0x608C2BD4 (BCM1125 Host PCI Br)
 6     0x0000000000000001 0          0x00000000 0x608C2FD8 (Watchdog Timer 0 Ha)

HT 600MHz Retry Count 0
BCM1125H HT Host Bridge, handle=0
BCM bridge, config=0x0
(0x00):dev, vendor id              = 0x0002166D
(0x04):status, command             = 0x00100107
(0x08):class code, revid           = 0x06000003
(0x0C):hdr, lat timer, cls         = 0x00010000
(0x18):bus id registers            = 0x001B0100
(0x1C):secondary status            = 0x00000141
(0x20):mem base/limit              = 0x5FF04300
(0x30):io upper limit/base         = 0x00010001
(0x34):capabilities ptr            = 0x00000040
(0x38):expansion rom bar           = 0x00000000
(0x3C):bridge ctrl                 = 0x00020000
(0x40):LDT cmd, cap id,            = 0x20000008
(0x44):Link config/control         = 0x00000020
(0x48):Link frequency              = 0x801F0423
(0x50):SRIcmd, srirxden, sritxden  = 0x50211010
(0x54):SRI tx numerator            = 0x0000FFFF
(0x58):SRI rx numerator            = 0x0000FFFF
(0x68):Error status/control        = 0x00009A49
(0x6C):Tx ctrl, databufalloc       = 0x00041515
(0xC8):Tx buffer count max         = 0x00FFFFFF
(0xDC):Rx CRC expected             = 0xBFFFABE0
(0xF0):Rx CRC received             = 0x7FF3FFFD

BCM PCI Host Bridge:
bus_no=0, device_no=0
DeviceID=0x0001, VendorID=0x166D, Cmd=0x0146, Status=0x02A0
Cls=0x06/0x00/0x00, Rev=0x03, LatencyTimer=0x2C, CacheLineSize=0x10
BaseAddr0=0x60000008, BaseAddr1=0x00000000, MaxLat=0x00, MinGnt=0x00
SubsysDeviceID=0x0000, SubsysVendorID=0xFFFF, ErrorAddr=0x00030400
Additional Status = 0x00000020

PLX HT2PCI Bridge A for PCM Tracer & DFC 2,4,6, handle=0
PLX HT7520 bridge, config=0x0
(0x00):dev, vendor id         = 0x74501022
(0x04):status, command        = 0x02300107
(0x08):class code, revid      = 0x06040012
(0x0C):hdr, lat timer, cls    = 0x00810000
(0x18):bus id registers       = 0xF80E0201
(0x1C):secondary status       = 0x02200141
(0x20):mem base/limit         = 0x4FF04300
(0x30):io upper limit/base    = 0x00010001
(0x34):capabilities ptr       = 0x000000A0
(0x3C):bridge ctrl            = 0x00020000
(0x40):miscellaneous          = 0x00010004
```

```
(0x4C):prefetch ctrl          = 0x00000446
(0xC0):ht cmd, cap id         = 0x00410008
(0xC4):link cfg/ctrl side a   = 0x00112020
(0xC8):link cfg/ctrl side b   = 0x770020D0
(0xCC):link freq ctrl side a  = 0x00350422
(0xD0):link freq ctrl side b  = 0x00350402

PLX HT2PCI Bridge B, for DFC 1,3,5,7
(0x00):dev, vendor id         = 0x74501022
(0x04):status, command        = 0x02300107
(0x08):class code, revid      = 0x06040012
(0x0C):hdr, lat timer, cls    = 0x00810000
(0x18):bus id registers       = 0xF81B0F01
(0x1C):secondary status       = 0x022001A1
(0x20):mem base/limit         = 0x5FF05000
(0x30):io upper limit/base    = 0x00010001
(0x34):capabilities ptr       = 0x000000A0
(0x3C):bridge ctrl            = 0x00020000
(0x40):miscellaneous          = 0x000B0004
(0x4C):prefetch ctrl          = 0x00000446


RTC chip is DS1337
```

Table 58 describes the significant fields shown in the display.

Table 58 show as5400 Field Descriptions

Field	Description
System I/O Controller PLD version	The version of the programmable logic device (PLD) on the system.
Level	Interrupt priority level.
Mask	Maskable interrupt.
Count	Interrupt count.
Handler	Type of interrupt handler.
RTC chip	Real time clock chip type.

show async bootp

Command	Description
as	Defines an application server on a gateway.

To display the extended BOOTP request parameters that have been configured for asynchronous interfaces, use the **show async bootp** command in privileged EXEC mode.

show async bootp

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
10.0	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Examples

The following is sample output from the **show async bootp** command:

```
Router# show async bootp

The following extended data will be sent in BOOTP responses:

bootfile (for address 192.168.1.1) "pcboot"
bootfile (for address 172.16.1.111) "dirtboot"
subnet-mask 255.255.0.0
time-offset -3600
time-server 192.168.1.1
```

Table 59 describes the significant fields shown in the display.

Table 59 show async bootp Field Descriptions

Field	Description
bootfile... "pcboot"	Boot file for address 192.168.1.1 is named pcboot.
subnet-mask 255.255.0.0	Subnet mask.
time-offset -3600	Local time is one hour (3600 seconds) earlier than UTC time.
time-server 192.168.1.1	Address of the time server for the network.

Related Commands

Command	Description
async-bootp	Configures extended BOOTP requests for asynchronous interfaces as defined in RFC 1084.

show autoupgrade configuration unknown

To display all of the unknown start-up configuration lines that the auto-upgraded Cisco IOS software image does not understand, use the **show autoupgrade configuration unknown** command in privileged EXEC mode.

show autoupgrade configuration unknown

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(15)T	This command was introduced.

Usage Guidelines

Use the **show autoupgrade configuration unknown** command to view any invalid start-up configuration. This command prints invalid start-up configuration data only when run from an an image which was upgraded using the Auto-Upgrade Manager. This command output is useful when you are upgrading to an image with a different feature set.

Examples

The following example shows how to view the invalid start-up configuration lines that the Cisco IOS software image, upgraded on the router using AUM, does not understand:

```
Router# show autoupgrade configuration unknown
! Config Lines not understood by the current image:
voice-card 0
 no dspfarm
crypto pki trustpoint aum_cisco_ca
 enrollment terminal
 revocation-check none
crypto pki certificate chain aum_cisco_ca
 certificate ca 40DCB71E54EE24CBE5326F8006BBA4F6 nvram:SecureServer#A4F6CA.cer
no ip http secure-server
 transport output lat pad telnet rlogin lapb-ta mop udptn v120 ssh

Total 9 Invalid Config Lines

Router#
```

Related Commands

Command	Description
upgrade automatic abortversion	Cancels a scheduled reloading of the device with a new Cisco IOS software image.

Command	Description
upgrade automatic getversion	Downloads a Cisco IOS software image directly from www.cisco.com or from a non-Cisco server.
upgrade automatic runversion	Reloads the device with a new Cisco IOS software image.

show bcm560x

To display the BCM560x hardware table information, use the **show bcm560X** command in user EXEC or privileged EXEC mode.

show bcm560x name {*offset* | **all**} [**raw**]

Syntax Description

name	Displays the bcm50x hardware table name. The hardware table name can be VLAN table name (VTABLE) or Port based VLAN table name (PTABLE):
offset	Hardware table number. Range is from 0 to 65535
all	Displays all the bcm560x hardware table names.
raw	(Optional) Displays the bcm560x hardware table names.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
12.4(15)T	This command was introduced in a release earlier than Cisco IOS Release 12.4(15)T.

Examples

The following is sample output from the **show bcm560X all** command:

```
Router# show bcm560x VTABLE all

Router# VTABLE.0[0x1]: <VLAN_TAG=1,PORT_BITMAP=0xA000008,UT_PORT_BITMAP=8,MOD_BMAP=0>
*Mar 11 08:07:29.863: VTABLE.0[0x2]:
<VLAN_TAG=2,PORT_BITMAP=0xA000000,UT_PORT_BITMAP=0,MOD_BMAP=0>
*Mar 11 08:07:29.863: VTABLE.0[0x3]:
<VLAN_TAG=0x401,PORT_BITMAP=0xA000000,UT_PORT_BITMAP=0,MOD_BMAP=0>
*Mar 11 08:07:29.867: VTABLE.0[0x4]:
<VLAN_TAG=0xFFF,PORT_BITMAP=0x8000000,UT_PORT_BITMAP=0x8000000,MOD_BMAP=0>
*Mar 11 08:07:29.867:
```

show bootflash:

To display information about the bootflash: file system, use the **show bootflash:** command in user EXEC or privileged EXEC mode.

show bootflash: [**all** | **chips** | **filesys**]

Syntax Description

all	(Optional) Displays all possible Flash information.
chips	(Optional) Displays information about the Flash chip.
filesys	(Optional) Displays information about the file system.

Defaults

This command has no default settings.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Examples

This example shows how to display information about the file system status:

```
Router> show bootflash: filesys

-------- F I L E   S Y S T E M   S T A T U S --------
  Device Number = 0
DEVICE INFO BLOCK: bootflash
  Magic Number          = 6887635   File System Vers = 10000    (1.0)
  Length                = 1000000   Sector Size      = 40000
  Programming Algorithm = 39        Erased State     = FFFFFFFF
  File System Offset    = 40000     Length = F40000
  MONLIB Offset         = 100       Length = C628
  Bad Sector Map Offset = 3FFF8     Length = 8
  Squeeze Log Offset    = F80000    Length = 40000
  Squeeze Buffer Offset = FC0000    Length = 40000
  Num Spare Sectors     = 0
    Spares:
STATUS INFO:
  Writable
  NO File Open for Write
  Complete Stats
  No Unrecovered Errors
  No Squeeze in progress
USAGE INFO:
  Bytes Used     = 917CE8  Bytes Available = 628318
  Bad Sectors    = 0       Spared Sectors  = 0
```

```
  OK Files       = 2       Bytes = 917BE8
  Deleted Files  = 0       Bytes = 0
  Files w/Errors = 0       Bytes = 0
Router>
```

This example shows how to display image information:

```
Router> show bootflash:

-#- ED --type-- --crc--- -seek-- nlen -length- -----date/time------ name
1   .. image    8C5A393A  237E3C   14  2063804 Aug 23 1999 16:18:45 c6msfc-boot-mz
2   .. image    D86EE0AD  957CE8    9  7470636 Sep 20 1999 13:48:49 rp.halley
Router>
```

This example shows how to display all bootflash information:

```
Router> show bootflash: all

-#- ED --type-- --crc--- -seek-- nlen -length- -----date/time------ name
1   .. image    8C5A393A  237E3C   14  2063804 Aug 23 1999 16:18:45 c6msfc-boot-
mz
2   .. image    D86EE0AD  957CE8    9  7470636 Sep 20 1999 13:48:49 rp.halley

6456088 bytes available (9534696 bytes used)

-------- F I L E   S Y S T E M   S T A T U S --------
  Device Number = 0
DEVICE INFO BLOCK: bootflash
  Magic Number          = 6887635   File System Vers = 10000    (1.0)
  Length                = 1000000   Sector Size      = 40000
  Programming Algorithm = 39        Erased State     = FFFFFFFF
  File System Offset    = 40000     Length = F40000
  MONLIB Offset         = 100       Length = C628
  Bad Sector Map Offset = 3FFF8     Length = 8
  Squeeze Log Offset    = F80000    Length = 40000
  Squeeze Buffer Offset = FC0000    Length = 40000
  Num Spare Sectors     = 0
    Spares:
STATUS INFO:
  Writable
  NO File Open for Write
  Complete Stats
  No Unrecovered Errors
  No Squeeze in progress
USAGE INFO:
  Bytes Used     = 917CE8  Bytes Available = 628318
  Bad Sectors    = 0       Spared Sectors  = 0
  OK Files       = 2       Bytes = 917BE8
  Deleted Files  = 0       Bytes = 0
  Files w/Errors = 0       Bytes = 0
Router>
```

Related Commands

Command	Description
delete	Marks files on bootflash for deletion.
squeeze	Removes files from bootflash that have been marked for deletion.

show bootvar

To display the contents of the BOOT variable, the name of the configuration file pointed to by the CONFIG_FILE variable, the contents of the BOOTLDR variable, and the configuration register setting, use the **show bootvar** command in user EXEC or privileged EXEC mode.

show bootvar

Syntax Description

This command has no arguments or keywords.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
11.3 AA	This command was introduced.
12.2(14)SX	Support for this command was implemented on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was integrated into Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Supported Platforms Other than the Cisco 7600 Series Router

The **show bootvar** command replaces the **show boot** command.

The **show bootvar** command allows you to view the current settings for the following variables:

- BOOT
- CONFIG_FILE
- BOOTLDR

The BOOT variable specifies a list of bootable images on various devices. The CONFIG_FILE variable specifies the configuration file used during system initialization. The BOOTLDR variable specifies the flash device and filename containing the rxboot image that ROM uses for booting. You set these variables with the **boot system**, **boot config**, and **boot bootldr** global configuration commands, respectively.

When you use this command on a device with multiple Route Switch Processor (RSP) cards (Dual RSPs), this command also shows you the variable settings for both the master and slave RSP card.

Cisco 7600 Series Router

The **show bootvar** command displays information about the BOOT environmental variable.

The command output depends on how you configure the boot statement as follows:

- If you enter the **boot system flash bootflash:***sup720_image* command in the boot configuration, then the **show bootvar** command output displays the bootflash information.

- If you enter the **boot system flash sup-bootflash:***sup720_image* command in the boot configuration, then the **show bootvar** command output displays the sup-bootflash information. This action is the correct way of configuring the boot statement.

The **show bootvar** command is available from the switch processor command-line interface (CLI) and the route processor CLI. From the switch processor CLI, the display is always bootflash. With either the bootflash or the sup-bootflash boot statement, the switch boots correctly. You should use sup-bootflash in the boot configuration statement because the image is stored in the switch processor bootflash; the route processor sees the image as sup-bootflash.

The number displayed after the image name (for example, c6sup12-js-mz.121-13.E,12) indicates the number of times that the Cisco 7600 series router tries to reboot the file before giving up.

Examples

Supported Platforms Other than the Cisco 7600 Series Router

The following is sample output from the **show bootvar** command:

```
Router# show bootvar

BOOT variable =
CONFIG_FILE variable = nvram:
Current CONFIG_FILE variable = slot0:router-config
BOOTLDR variable not exist

Configuration register is 0x0
```

In this example, the BOOT variable contains a null string; that is no bootable images are specified.

The CONFIG_FILE variable points to the configuration file in NVRAM as the startup (initialization) configuration. The run-time value for the CONFIG_FILE variable points to the router-configuration file on the flash memory card inserted in the first slot of the RSP card. That is, during the run-time configuration, you have modified the CONFIG_FILE variable using the **boot config** command, but you have not saved the run-time configuration to the startup configuration. To save your run-time configuration to the startup configuration, use the **copy system:running-config nvram:startup-config** command. If you do not save the run-time configuration to the startup configuration, then the system reverts to the saved CONFIG_FILE variable setting for initialization information upon reload. In this sample, the system reverts to NVRAM for the startup configuration file.

The BOOTLDR variable does not yet exist. That is, you have not created the BOOTLDR variable using the **boot bootldr** global configuration command.

The following example is output from the **show bootvar** command for a Cisco 7513 router configured for high system availability (HSA):

```
Router# show bootvar

BOOT variable =
CONFIG_FILE variable =
Current CONFIG_FILE variable =
BOOTLDR variable does not exist

Configuration register is 0x0

current slave is in slot 7
BOOT variable =
CONFIG_FILE variable =
BOOTLDR variable does not exist

Configuration register is 0x0
```

Table 60 describes the significant fields shown in the displays.

Table 60 show bootvar Field Descriptions

Field	Description
BOOT variable	Displays a list of specified bootable images.
CONFIG_FILE variable	Indicates where to locate the startup (initialization) configuration file.
Current CONFIG_FILE variable	Identifies the run-time configuration file.
BOOTLDR variable	Identifies the location of the boot image that ROM uses for booting, if it is specified.
Configuration register	Specifies router behavior, such as how the router boots, options while booting, and console speed (baud rate for a terminal emulation session).
current slave is in slot 7	Indicates the slot where the redundant system is located in HSA configurations.

Cisco 7600 Series Router

This example shows how to display information about the BOOT environment variable:

```
Router# show bootvar

BOOT variable = sup-bootflash:c6sup12-js-mz.121-13.E,12
CONFIG_FILE variable =
BOOTLDR variable = bootflash:c6msfc2-boot-mz.121-13.E.bin
Configuration register is 0x2102

Standby is up
Standby has 112640K/18432K bytes of memory.

Standby BOOT variable = bootflash:c6sup12-js-mz.121-13.E,12
Standby CONFIG_FILE variable =
Standby BOOTLDR variable = bootflash:c6msfc2-boot-mz.121-13.E.bin
Standby Configuration register is 0x2102
```

The number displayed after the image name (for example, c6sup12-js-mz.121-13.E,12) indicates the number of times that the Cisco 7600 series router tries to reboot the file before giving up.

Related Commands

Command	Description
boot bootldr	Specifies the location of the boot image that ROM uses for booting.
boot bootstrap	Configures the filename that is used to boot a secondary bootstrap image.
boot config	Specifies the device and filename of the configuration file from which the router configures itself during initialization (startup).
boot system	Specifies the system image that the router loads at startup.
copy	Copies a file from source to a destination.
show version	Displays the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images.

show buffers

To display detailed information about the buffer pools on the network server when Cisco IOS, Cisco IOS Software Modularity, or Cisco IOS XE images are running, use the **show buffers** command in user EXEC or privileged EXEC mode.

show buffers [{**address** *hex-address* | **failures** | **pool** *pool-name* | **detailed** | **processes** | {**all** | **assigned** [*process-id*] | **free** | **old** | **input-interface** *interface-type interface-number*} [**pool** *pool-name*]} [**dump** | **header** | **packet** | **location** *pool-location*]]

Cisco Catalyst 4500e Series Switches running IOS XE software

show buffers [**detailed process** *id* {**address** *hex-address* | **all** | **assigned** | **failures** | **free** | **input-interface** *interface-type interface-number* | **old** | **pool** *pool-name*}[**dump** | **header** | **packet** | **location** *pool-location*]]

Syntax Description

address	(Optional) Displays buffers at a specified address.
hex-address	(Optional) Address in hexadecimal notation.
failures	(Optional) Displays buffer allocation failures.
pool	(Optional) Displays buffers in a specified buffer pool.
pool-name	(Optional) Name of buffer pool.
detailed process	(Optional) Displays detailed buffer information.
processes	(Optional) For Cisco IOS Software Modularity images only. Displays buffers connected to Packet Manager.
all	(Optional) Displays all buffers.
assigned	(Optional) Displays the buffers in use.
process-id	(Optional) For Cisco IOS Software Modularity images only. POSIX process identifier.
free	(Optional) Displays the buffers available for use.
old	(Optional) Displays buffers older than one minute.
input-interface	(Optional) Displays interface pool information. If an interface type is specified and this interface has its own buffer pool, information for that pool is displayed.
interface-type	(Optional) Interface type.
interface-number	(Optional) Interface number.
dump	(Optional) Displays the buffer header and all data.
header	(Optional) Displays the buffer header only.
packet	(Optional) Displays the buffer header and packet data.
location *pool-location*	(Optional) Displays all the buffer pools in a given location. The global buffer pools come first, followed up with process-level buffer pools.

Command Default

If no options are specified, all buffer pool information is displayed.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
10.0	This command was introduced.
12.3	The option to filter display output based on specific buffer pools was expanded.
12.2(18)SXF4	Two additional fields were added to the output to support Cisco IOS Software Modularity.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
Cisco IOS XE Release 3.1.0.SG	This command was introduced on the Cisco Catalyst 4500e Serfies Switches with support for the **detailed process** command option.

Examples

Example output varies between Cisco IOS, Cisco IOS Software Modularity, and Cisco IOS XE software images. To view the appropriate output, choose one of the following sections:

- Cisco IOS Software
- Cisco IOS Software Modularity
- Cisco Catalyst 4500e Series Switches running IOS XE software

Cisco IOS Software

The following is sample output from the **show buffers** command with no arguments, showing all buffer pool information:

```
Router# show buffers

Buffer elements:
     398 in free list (500 max allowed)
     1266 hits, 0 misses, 0 created

Public buffer pools:
Small buffers, 104 bytes (total 50, permanent 50):
     50 in free list (20 min, 150 max allowed)
     551 hits, 0 misses, 0 trims, 0 created
Middle buffers, 600 bytes (total 25, permanent 25):
     25 in free list (10 min, 150 max allowed)
     39 hits, 0 misses, 0 trims, 0 created
Big buffers, 1524 bytes (total 50, permanent 50):
     49 in free list (5 min, 150 max allowed)
     27 hits, 0 misses, 0 trims, 0 created
VeryBig buffers, 4520 bytes (total 10, permanent 10):
     10 in free list (0 min, 100 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
Large buffers, 5024 bytes (total 0, permanent 0):
     0 in free list (0 min, 10 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
Huge buffers, 18024 bytes (total 0, permanent 0):
     0 in free list (0 min, 4 max allowed)
     0 hits, 0 misses, 0 trims, 0 created

Interface buffer pools:
Ethernet0 buffers, 1524 bytes (total 64, permanent 64):
     16 in free list (0 min, 64 max allowed)
```

```
     48 hits, 0 fallbacks
     16 max cache size, 16 in cache
Ethernet1 buffers, 1524 bytes (total 64, permanent 64):
     16 in free list (0 min, 64 max allowed)
     48 hits, 0 fallbacks
     16 max cache size, 16 in cache
Serial0 buffers, 1524 bytes (total 64, permanent 64):
     16 in free list (0 min, 64 max allowed)
     48 hits, 0 fallbacks
     16 max cache size, 16 in cache
Serial1 buffers, 1524 bytes (total 64, permanent 64):
     16 in free list (0 min, 64 max allowed)
     48 hits, 0 fallbacks
     16 max cache size, 16 in cache
TokenRing0 buffers, 4516 bytes (total 48, permanent 48):
     0 in free list (0 min, 48 max allowed)
     48 hits, 0 fallbacks
     16 max cache size, 16 in cache
TokenRing1 buffers, 4516 bytes (total 32, permanent 32):
     32 in free list (0 min, 48 max allowed)
     16 hits, 0 fallbacks
     0 failures (0 no memory)
```

The following is sample output from the **show buffers** command with no arguments, showing onlybuffer pool information for Huge buffers. This output shows a highest total of five Huge buffers created five days and 18 hours before the command was issued.

```
Router# show buffers

Huge buffers, 18024 bytes (total 5, permanent 0, peak 5 @ 5d18h):
     4 in free list (3 min, 104 max allowed)
     0 hits, 1 misses, 101 trims, 106 created
     0 failures (0 no memory)
```

The following is sample output from the **show buffers** command with no arguments, showing only buffer pool information for Huge buffers. This output shows a highest total of 184 Huge buffers created one hour, one minute, and 15 seconds before the command was issued.

```
Router# show buffers

Huge buffers, 65280 bytes (total 4, permanent 2, peak 184 @ 01:01:15):
     4 in free list (0 min, 4 max allowed)
     32521 hits, 143636 misses, 14668 trims, 14670 created
     143554 failures (0 no memory)
```

The following is sample output from the **show buffers** command with an interface type and interface number:

```
Router# show buffers Ethernet 0

Ethernet0 buffers, 1524 bytes (total 64, permanent 64):
     16 in free list (0 min, 64 max allowed)
     48 hits, 0 fallbacks
     16 max cache size, 16 in cache
```

Table 61 describes the significant fields shown in the display.

Table 61 show buffers (Cisco IOS Software) Field Descriptions

Field	Description
Buffer elements	Small structures used as placeholders for buffers in internal operating system queues. Used when a buffer may need to be on more than one queue.
free list	Total number of the currently unallocated buffer elements.
max allowed	Maximum number of buffers that are available for allocation.
hits	Count of successful attempts to allocate a buffer when needed.
misses	Count of buffer allocation attempts that resulted in growing the buffer pool to allocate a buffer.
created	Count of new buffers created to satisfy buffer allocation attempts when the available buffers in the pool have already been allocated.
Public Buffer Pools	
Small buffers	Buffers that are 104 bytes long.
Middle buffers	Buffers that are 600 bytes long.
Big buffers	Buffers that are 1524 bytes long.
VeryBig buffers	Buffers that are 4520 bytes long.
Large buffers	Buffers that are 5024 bytes long.
Huge buffers	Buffers that are 18,024 bytes long.
total	Total number of this type of buffer.
permanent	Number of these buffers that are permanent.
peak	Maximum number of buffers created (highest total) and the time when that peak occurred. Formats include weeks, days, hours, minutes, and seconds. Not all systems report a peak value, which means this field may not display in output.
free list	Number of available or unallocated buffers in that pool.
min	Minimum number of free or unallocated buffers in the buffer pool.
max allowed	Maximum number of free or unallocated buffers in the buffer pool.
hits	Count of successful attempts to allocate a buffer when needed.
misses	Count of buffer allocation attempts that resulted in growing the buffer pool in order to allocate a buffer.
trims	Count of buffers released to the system because they were not being used. This field is displayed only for dynamic buffer pools, not interface buffer pools, which are static.
created	Count of new buffers created in response to misses. This field is displayed only for dynamic buffer pools, not interface buffer pools, which are static.
Interface Buffer Pools	
total	Total number of this type of buffer.
permanent	Number of these buffers that are permanent.
free list	Number of available or unallocated buffers in that pool.
min	Minimum number of free or unallocated buffers in the buffer pool.

Table 61 show buffers (Cisco IOS Software) Field Descriptions (continued)

Field	Description
max allowed	Maximum number of free or unallocated buffers in the buffer pool.
hits	Count of successful attempts to allocate a buffer when needed.
fallbacks	Count of buffer allocation attempts that resulted in falling back to the public buffer pool that is the smallest pool at least as big as the interface buffer pool.
max cache size	Maximum number of buffers from the pool of that interface that can be in the buffer pool cache of that interface. Each interface buffer pool has its own cache. These are not additional to the permanent buffers; they come from the buffer pools of the interface. Some interfaces place all of their buffers from the interface pool into the cache. In this case, it is normal for the *free list* to display 0.
failures	Total number of times a buffer creation failed. The failure may have occurred because of a number of different reasons, such as low processor memory, low IOMEM, or no buffers in the pool when called from interrupt context.
no memory	Number of times there has been low memory during buffer creation. Low or no memory during buffer creation may not necessarily mean that buffer creation failed; memory can be obtained from an alternate resource such as a fallback pool.

Cisco IOS Software Modularity

The following is sample output from the **show buffers** command using a Cisco IOS Modularity image from Cisco IOS Release 12.2(18)SXF4 and later releases. Two new output fields were introduced—Public buffer heads and Temporary buffer heads—and are shown within comments in the following sample output.

```
Router# show buffers

Buffer elements:
    500 in free list (500 max allowed)
    106586 hits, 0 misses, 0 created

Public buffer pools:
Small buffers, 104 bytes (total 50, permanent 50, peak 54 @ 1d13h):
    49 in free list (20 min, 150 max allowed)
    54486 hits, 0 misses, 4 trims, 4 created
    0 failures (0 no memory)
Middle buffers, 600 bytes (total 25, permanent 25, peak 27 @ 1d13h):
    25 in free list (10 min, 150 max allowed)
    20 hits, 0 misses, 2 trims, 2 created
    0 failures (0 no memory)
Big buffers, 1536 bytes (total 50, permanent 50):
    50 in free list (40 min, 150 max allowed)
    6 hits, 0 misses, 0 trims, 0 created
    0 failures (0 no memory)
VeryBig buffers, 4520 bytes (total 10, permanent 10):
    10 in free list (0 min, 100 max allowed)
    0 hits, 0 misses, 0 trims, 0 created
    0 failures (0 no memory)
Large buffers, 5024 bytes (total 0, permanent 0):
    0 in free list (0 min, 10 max allowed)
    0 hits, 0 misses, 0 trims, 0 created
    0 failures (0 no memory)
Huge buffers, 18024 bytes (total 1, permanent 0, peak 1 @ 1d13h):
```

```
    0 in free list (0 min, 4 max allowed)
    1 hits, 0 misses, 0 trims, 0 created
    0 failures (0 no memory)

! Start of Cisco IOS Software Modularity fields
Public buffer headers:
Header buffers, 880 bytes (total 1000, peak 142 @ 1d13h):
    864 in permanent free list
    142 hits, 0 misses

Temporary buffer headers:
Header buffers, 896 bytes (total 0):
    0 in free list
    0 hits, 0 misses, 0 trims, 0 created
    0 failures
! End of Cisco IOS Software Modularity fields

Interface buffer pools:
Logger Pool buffers, 600 bytes (total 150, permanent 150):
    150 in free list (150 min, 150 max allowed)
    22 hits, 0 misses
```

Table 62 describes the significant fields shown in the display that are different from the fields in Table 61.

Table 62 show buffers (Cisco IOS Software Modularity) Field Descriptions

Field	Description
Public Buffer Headers	
Header buffers	Buffers that are 880 bytes long.
total	Total number of this type of buffer.
permanent free list	Number of available or unallocated permanent header buffers.
hits	Count of successful attempts to allocate a header buffer when needed.
misses	Count of buffer allocation attempts that resulted in growing the buffer pool in order to allocate a buffer.
Temporary Buffer Headers	
Header buffers	Buffers that are 896 bytes long.
total	Total number of this type of buffer.
free list	Number of available or unallocated header buffers in that pool.
hits	Count of successful attempts to allocate a buffer when needed.
misses	Count of buffer allocation attempts that resulted in growing the buffer pool in order to allocate a buffer.
trims	Count of buffers released to the system because they were not being used. This field is displayed only for dynamic buffer pools, not interface buffer pools, which are static.
created	Count of new buffers created in response to misses. This field is displayed only for dynamic buffer pools, not interface buffer pools, which are static.
failures	Total number of allocation requests that have failed because no buffer was available for allocation; the datagram was lost. Such failures normally occur at interrupt level.

Cisco Catalyst 4500e Series Switches running IOS XE software

The following is sample output from the **show buffers** command on a Cisco Catalyst 4500e switch, using a Cisco IOS image from Cisco IOS XE Release 3.1.0.SG and later releases. PDS Public buffers and Packet information was added—and are shown within comments in the following sample output.

```
Switch#show buffers
PDS public buffers
Public buffer pools:
Packet buffer, 2048 bytes (total 1000, permanent 1000):
     1000 in free list (1000 max allowed)

Header pools:
Packet Header Memory, 0 bytes (total 0, permanent 0):
     0 in free list (0 max allowed)
Buffer Header Memory, 0 bytes (total 0, permanent 0):
     0 in free list (0 max allowed)

IOSd private buffers:

Buffer elements:
     354 in free list (500 max allowed)
     27134 hits, 0 misses, 500 created

Public buffer pools:
Small buffers, 104 bytes (total 134, permanent 50, peak 134 @ 01:04:39):
     134 in free list (20 min, 150 max allowed)
     2554 hits, 28 misses, 0 trims, 84 created
     0 failures (0 no memory)
Middle buffers, 600 bytes (total 52, permanent 25, peak 52 @ 01:04:39):
     52 in free list (10 min, 150 max allowed)
     61 hits, 9 misses, 0 trims, 27 created
     0 failures (0 no memory)
Big buffers, 1536 bytes (total 50, permanent 50):
     50 in free list (5 min, 150 max allowed)
     157 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
VeryBig buffers, 4520 bytes (total 10, permanent 10):
     10 in free list (0 min, 100 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
Large buffers, 5024 bytes (total 0, permanent 0):
     0 in free list (0 min, 10 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
Huge buffers, 18024 bytes (total 0, permanent 0):
     0 in free list (0 min, 4 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)

Interface buffer pools:
CF Small buffers, 104 bytes (total 100, permanent 100):
     100 in free list (100 min, 200 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
BIPC small buffers, 128 bytes (total 250, permanent 250):
     250 in free list (250 min, 250 max allowed)
     92 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
BIPC middle buffers, 600 bytes (total 300, permanent 300):
     300 in free list (300 min, 300 max allowed)
     36 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
CF Middle buffers, 600 bytes (total 100, permanent 100):
```

```
     100 in free list (100 min, 200 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
Syslog ED Pool buffers, 600 bytes (total 132, permanent 132):
     131 in free list (132 min, 132 max allowed)
     5 hits, 0 misses
CF Big buffers, 1536 bytes (total 25, permanent 25):
     25 in free list (25 min, 50 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
BIPC buffers, 4096 bytes (total 2, permanent 2):
     2 in free list (1 min, 8 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
IPC Emergency buffers, 4096 bytes (total 301, permanent 300, peak 302 @ 01:05:07):
     301 in free list (300 min, 300 max allowed)
     39 hits, 1 fallbacks, 66 trims, 67 created
     0 failures (0 no memory)
     0 max cache size, 0 in cache
     0 hits in cache, 0 misses in cache
CF VeryBig buffers, 4520 bytes (total 2, permanent 2):
     2 in free list (2 min, 4 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
CF Large buffers, 5024 bytes (total 1, permanent 1):
     1 in free list (1 min, 2 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
BIPC Medium buffers, 16384 bytes (total 5, permanent 5):
     5 in free list (5 min, 5 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
BIPC Large buffers, 65535 bytes (total 2, permanent 2):
     2 in free list (2 min, 2 max allowed)
     0 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)
IPC small buffers, 128 bytes (total 250, permanent 250):
     228 in free list (250 min, 250 max allowed)
     124 hits, 0 fallbacks
     0 max cache size, 0 in cache
     0 hits in cache, 0 misses in cache
IPC middle buffers, 600 bytes (total 200, permanent 200):
     200 in free list (200 min, 200 max allowed)
     293 hits, 0 fallbacks
     0 max cache size, 0 in cache
     0 hits in cache, 0 misses in cache
IPC buffers, 4096 bytes (total 300, permanent 300):
     298 in free list (300 min, 300 max allowed)
     72 hits, 0 fallbacks
     0 max cache size, 0 in cache
     0 hits in cache, 0 misses in cache
IPC Medium buffers, 16384 bytes (total 30, permanent 30):
     30 in free list (30 min, 30 max allowed)
     100 hits, 0 fallbacks
     0 max cache size, 0 in cache
     0 hits in cache, 0 misses in cache
IPC Large buffers, 65535 bytes (total 13, permanent 13):
     11 in free list (13 min, 13 max allowed)
     19 hits, 0 misses
     0 max cache size, 0 in cache
     0 hits in cache, 0 misses in cache

Header pools:
Catalyst 4000 buffers, 0 bytes (total 14600, permanent 14600):
```

```
     14600 in free list (0 min, 14601 max allowed)
     14600 hits, 0 misses, 0 trims, 0 created
     0 failures (0 no memory)


Switch#
```

The following is sample shows how to run the **show buffers detailed** command on a Cisco Catalyst 4500e switch, using a Cisco IOS image from Cisco IOS XE Release 3.1.0.SG and later releases and the various keywords and arguments (Explained in the Syntax Description Table) available.

```
Switch#
Switch#show buffers ?
  detailed  Show detailed buffer statistics
  |         Output modifiers
  <cr>

Switch#show buffers detailed ?
  process  Show detailed process buffer info

Switch#show buffers detailed process ?
  iosd  IOSd Process

Switch#show buffers detailed process iosd ?
  address          Buffer at a given address
  all              All buffers
  assigned         Buffers in use
  failures         Buffer allocation failures
  free             Buffers available for use
  input-interface  Buffers assigned to an input interface
  old              Buffers older than one minute
  pool             Buffers in a specified pool
  |                Output modifiers
  <cr>
```

show buffers summary

To display the buffers usage summary for all caller and for all buffer pools, use the **show buffers summary** command in privileged EXEC mode.

show buffers summary

Syntax Description

This command has no arguments or keywords.

Command Default

All buffer usage summary information is displayed.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXI	This command was introduced.

Examples

The following is sample output from the **show buffers summary** command:

```
Router# show buffers summary

Pool: Small
Non-aligned packet(s): 25
 Caller Summary
    pc = 0x40612F74 count = 37
    pc = 0x418D77FC count = 24
    pc = 0x418571E0 count = 1
    pc = 0x41860488 count = 1

Pool: Medium
Non-aligned packet(s): 39
 Caller Summary
    pc = 0x418D77FC count = 38
    pc = 0x41860488 count = 1
    pc = 0x40612F74 count = 23

Pool: Middle
Non-aligned packet(s): 333
 Caller Summary
    pc = 0x418D77FC count = 333
    pc = 0x40612F74 count = 2
    pc = 0x4049FFD8 count = 3

Pool: Big
Non-aligned packet(s): 32078
 Caller Summary
    pc = 0x418D77FC count = 32006
    pc = 0x4065FD40 count = 7
    pc = 0x409E915C count = 1
    pc = 0x40652A58 count = 65

Pool: VeryBig
```

```
Non-aligned packet(s): 10
 Caller Summary
    pc = 0x418D77FC count = 10

Pool: Large
Non-aligned packet(s): 8
 Caller Summary
    pc = 0x418D77FC count = 8

Pool: Huge
Non-aligned packet(s): 2
 Caller Summary
    pc = 0x418D77FC count = 2
```

Table 61 describes the significant fields shown in the display.

Table 63 show buffers summary Field Descriptions

Field	Description
Non-alligned	Indicates the number of packets not alligned to 32 bits
PC	Specifies who allocated buffer from this pool, for example, small buffer pool, middle buffer pool and so on.
Public Buffer Pools	
Small buffers	Buffers that are 104 bytes long.
Middle buffers	Buffers that are 600 bytes long.
Big buffers	Buffers that are 1524 bytes long.
VeryBig buffers	Buffers that are 4520 bytes long.
Large buffers	Buffers that are 5024 bytes long.
Huge buffers	Buffers that are 18,024 bytes long.

Related Commands

Command	Description
show buffers	Displays statistics for the buffer pools on the network server.

show c2600

To display information for troubleshooting the Cisco 2600 series router, use the **show c2600** command in EXEC mode.

show c2600

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.3 XA	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The **show c2600** command provides complex troubleshooting information that pertains to the platform's shared references rather than to a specific interface.

Examples

The following is sample output from the **show c2600** command:

```
Router# show c2600

C2600 Platform Information:
Interrupts:

 Assigned Handlers...
  Vect  Handler   # of Ints   Name
    00  801F224C   00000000   Xilinx bridge error interrupt
    01  801DE768   0D3EE155   MPC860 TIMER INTERRUPT
    02  801E94E0   0000119E   16552 Con/Aux Interrupt
    04  801F0D94   00000000   PA Network Management Int Handler
    05  801E6C34   00000000   Timebase Reference Interrupt
    06  801F0DE4   00002C1A   PA Network IO Int Handler
    07  801F0EA0   0000015D   MPC860 CPM INTERRUPT
    14  801F224C   00000000   Xilinx bridge error interrupt

 IOS Priority Masks...
  Level 00 = [ EF020000 ]
  Level 01 = [ EC020000 ]
  Level 02 = [ E8020000 ]
  Level 03 = [ E0020000 ]
  Level 04 = [ E0020000 ]
  Level 05 = [ E0020000 ]
  Level 06 = [ C0020000 ]
  Level 07 = [ 00000000 ]

 SIU_IRQ_MASK  = FFFFFFFF  SIEN   = EF02xxxx   Current Level = 00
 Spurious IRQs = 00000000  SIPEND = 0000xxxx
 Interrupt Throttling:
  Throttle Count = 00000000   Timer Count      = 00000000
```

```
  Netint usec    = 00000000   Netint Mask usec = 000003E8
  Active         =        0   Configured       =        0
  Longest IRQ    = 00000000

IDMA Status:
 Requests = 00000349      Drops                = 00000000
 Complete = 00000349      Post Coalesce Frames = 00000349
 Giant    = 00000000
 Available Blocks = 256/256

ISP Status:
 Version string burned in chip: "A986122997"
 New version after next program operation: "B018020998"
 ISP family type: "2096"
 ISP chip ID: 0x0013
 Device is  programmable
```

Table 64 describes the significant fields shown in the display.

Table 64 show c2600 Field Descriptions

Field	Description
Interrupts	Denotes that the next section describes the status of the interrupt services.
Assigned Handlers	Denotes a subsection of the Interrupt section that displays data about the interrupt handlers.
Vect	The processor vector number.
Handler	The execution address of the handler assigned to this vector.
# of Ints	The number of times this handler has been called.
Name	The name of the handler assigned to this vector.
IOS Priority Masks	Denotes the subsection of the Interrupt section that displays internal Cisco IOS priorities. Each item in this subsection indicates a Cisco IOS interrupt level and the bit mask used to mask out interrupt sources when that Cisco IOS level is being processed. Used exclusively for debugging.
SIU_IRQ_MASK	For engineering level debug only.
Spurious IRQs	For engineering level debug only.
Interrupt Throttling:	This subsection describes the behavior of the Interrupt Throttling mechanism on the platform.
Throttle Count	Number of times throttle has become active.
Timer Count	Number of times throttle has deactivated because the maximum masked out time for network interrupt level has been reached.
Netint usec	Maximum time network level is allowed to run (in microseconds).
Netint Mask usec	Maximum time network level interrupt is masked out to allow process level code to run (in microseconds).
Active	Indicates that the network level interrupt is masked or that the router is in interrupt throttle state.
Configured	Indicates that throttling is enabled or configured when set to 1.

Table 64 show c2600 Field Descriptions (continued)

Field	Description
Longest IRQ	Duration of longest network level interrupt (in microseconds).
IDMA Status	Monitors the activity of the Internal Direct Memory Access (IDMA) hardware and software. Used to coalesce packets (turn particularized packets into non particularized packets) for transfer to the process level switching mechanism.
Requests	Number of times the IDMA engine is asked to coalesce a packet.
Drops	Number of times the coalescing operation was aborted.
Complete	Number of times the operation was successful.
Post Coalesce Frames	Number of Frames completed post coalesce processing.
Giant	Number of packets too large to coalesce.
Available Blocks	Indicates the status of the request queue, in the format N/M where N is the number of empty slots in queue and M is the total number of slots; for example, 2/256 indicates that the queue has 256 entries and can accept two more requests before it is full.
ISP Status	Provides status of In-System-Programmable (ISP) hardware.
Version string burned in chip	Current version of ISP hardware.
New version after next program operation	Version of ISP hardware after next ISP programming operation.
ISP family type	Device family number of ISP hardware.
ISP chip ID	Internal ID of ISP hardware as designated by the chip manufacturer.
Device is programmable	"Yes" or "No." Indicates if an ISP operation is possible on this board.

Related Commands

Command	Description
show context	Displays information stored in NVRAM when the router crashes.

show c7200

To display information about the CPU and midplane for Cisco 7200 series routers, use the **show c7200** command in EXEC mode.

show c7200

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.2	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

You can use the output of this command to determine whether the hardware version level and upgrade is current. The information is generally useful for diagnostic tasks performed by technical support only.

Examples

The following is sample output from the **show c7200** command:

```
Router# show c7200

C7200 Network IO Interrupt Throttling:
 throttle count=0, timer count=0
 active=0, configured=0
 netint usec=3999, netint mask usec=200

C7200 Midplane EEPROM:
        Hardware revision 1.2           Board revision A0
        Serial number     2863311530    Part number    170-43690-170
        Test history      0xAA          RMA number     170-170-170
        MAC=0060.3e28.ee00, MAC Size=1024
        EEPROM format version 1, Model=0x6
        EEPROM contents (hex):
          0x20: 01 06 01 02 AA AA AA AA AA AA AA AA 00 60 3E 28
          0x30: EE 00 04 00 AA AA AA AA AA AA AA 50 AA AA AA AA

C7200 CPU EEPROM:
        Hardware revision 2.0           Board revision A0
        Serial number     3509953       Part number     73-1536-02
        Test history      0x0           RMA number      00-00-00
        EEPROM format version 1
        EEPROM contents (hex):
          0x20: 01 15 02 00 00 35 8E C1 49 06 00 02 00 00 00 00
          0x30: 50 00 00 00 FF FF FF FF FF FF FF FF FF FF FF FF
```

show catalyst6000

To display the information about the Cisco 7600 series router, use the **show catalyst6000** command in user EXEC or privileged EXEC mode.

show catalyst6000 {**all** | **chassis-mac-address** | **switching-clock** | **traffic-meter**}

Syntax Description

all	Displays the MAC-address ranges and the current and peak traffic-meter reading.
chassis-mac-address	Displays the MAC-address range.
switching-clock	Displays the failure recovery mode of the switching clock.
traffic-meter	Displays the percentage of the backplane (shared bus) utilization.

Defaults

all

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

If you enter the **switching-clock** keywords, the Cisco 7600 series router displays whether switching of the redundant clock sources on the backplane is allowed if the active clock source fails.

The Cisco 7600 series router has either 64 or 1024 MAC addresses that are available to support the software features. You can enter the **show catalyst6000 chassis-mac-address** command to display the MAC-address range on your chassis.

Examples

This example shows how to display the MAC-address ranges and the current and peak traffic-meter readings:

```
Router> show catalyst6000 all

chassis MAC addresses: 64 addresses from 0001.6441.60c0 to 0001.6441.60ff
  traffic meter =   0%  Never cleared
           peak =   0%  reached at 08:14:38 UTC Wed Mar 19 2003
  switching-clock: clock switchover and system reset is allowed
Router>
```

This example shows how to display the MAC-address ranges:

```
Router# show catalyst6000 chassis-mac-address
```

```
chassis MAC addresses: 1024 addresses from 00d0.004c.1800 to 00d0.004c.1c00
Router#
```

This example shows how to display the current and peak traffic-meter readings:

```
Router> show catalyst6000 traffic-meter

traffic meter = 0%   peak = 0%  at  09:57:58 UTC Mon Nov 6 2000
Router#
```

This example shows how to display the failure recovery mode of the switching clock:

```
Router> show catalyst6000 switching-clock

switching-clock: clock switchover and system reset is allowed
Router>
```

Related Commands

Command	Description
show environment alarm	Displays the information about the environmental alarm.
show fm summary	Displays a summary of FM Information.
show environment status	Displays the information about the operational FRU status.

show cls

To display the current status of all Cisco link services (CLS) sessions on the router, use the **show cls** command in EXEC mode.

show cls [**brief**]

Syntax Description

brief	(Optional) Displays a brief version of the output.

Defaults

Without the **brief** keyword, displays complete output.

Command Modes

EXEC

Command History

Release	Modification
11.0	This command was introduced in a release prior to Cisco IOS Release 11.0.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The Cisco link service (CLS) is used as the interface between data link users (DLUs), such as DLSw, LAN Network Manager (LNM), downstream physical unit (DSPU), and SNASw, and their corresponding data link circuits (DLCs) such as Logic Link Control (LLC), VDLC, and Qualified Logic Link Control (QLLC). Each DLU registers a particular service access point (SAP) with CLS, and establishes circuits through CLS over the DLC.

The **show cls** command displays the SAP values associated with the DLU and the circuits established through CLS.

For further information about CLS, use the Release 12.2 *Cisco IOS Bridging and IBM Networking Configuration Guide*.

Examples

The following is sample output from the **show cls** command:

```
IBD-4500B# show cls

DLU user:SNASW
   SSap:0x04  VDLC VDLC650
    DTE:1234.4000.0001 1234.4000.0002 04 04
    T1 timer:0   T2 timer:0  Inact timer:0
    max out:0    max in:0    retry count:10
    XID retry:10 XID timer:5000  I-Frame:0
    flow:0       DataIndQ:0   DataReqQ:0
DLU user:DLSWDLUPEER
DLU user:DLSWDLU
   Bridging  VDLC VDLC1000
   Bridging  VDLC VDLC650
```

The following is sample output from the **show cls brief** command:

```
IBD-4500B# show cls brief

DLU user:SNASW
   SSap:0x04  VDLC VDLC650
    DTE:1234.4000.0001 1234.4000.0002 04 04
DLU user:DLSWDLUPEER
DLU user:DLSWDLU
   Bridging  VDLC VDLC1000
   Bridging  VDLC VDLC650
```

The examples show two DLUs—SNASw and DLSw—active in the router. SNASw uses a SAP value of 0x04, and the associated DLC port is VDLC650. SNASw has a circuit established between MAC addresses 1234.4000.0001 and 1234.4000.0002 using source and destination SAPs 04 and 04. DLSw is a bridging protocol and uses VDLC1000 and VDLC650 ports. There are no circuits in place at this time.

In the output from the **show cls** command (without the **brief** argument), the values of timers and counters applicable to this circuit are displayed.

Related Commands

Command	Description
stun peer-name	Enables STUN for an IP address and uses Cisco Link Services (CLS) to access the Frame Relay network.

show config id

The configuration change tracking identifier (CTID) assigns a version number to each saved version of the running-config file. To display output about the versions, use the **show config id** command in privileged EXEC mode.

show config id [**detail**]

Syntax Description

detail	(Optional) Expands the output of the command to include the ID of the last user to make a configuration change and the process in which the changes were made.

Command Default

This command is disabled by default. If this command is not entered, the management system has to query the device for the current running-config file and then compare the results to the last known configuration to determine if a change has been made.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SRC	This command was introduced.
12.2(33)SB	This command was integrated into Cisco IOS Release 12.2(33)SB and implemented on the Cisco 10000 series.
12.4(20)T	This command was integrated into Cisco IOS Release 12.4(20)T.

Usage Guidelines

This configuration infrastructure command assigns a version number that is updated every time the running-config file is changed. This version number is called the configuration change tracking identifier or CTID. The CTID can be used to compare configuration files to track configuration changes and take appropriate actions (for example, a configuration rollback). Config Logger can also use the CTID to determine if there have been any changes to the running-config file.

CTID makes the management system more efficient by presenting information that indicates a change has been made to the running-config file. Without CTID, the management system has to query the device for the current running-config file and then compare the results to the last known configuration to determine if a change has been made.

Examples

The following example shows that the current running-config file is version 4 and that this file was saved on June 15, 2006 at 7.572 seconds after 3:02 p.m.:

```
Router# show config id

version:4 time:2006-06-15T15:02:07.572Z
```

The following example shows that the current running-config file is version 9 and that this file was last saved on June 18, 2006 at 34.431 seconds after 6:34 p.m. The file was saved by the system and changed from Init:

```
Router# show config id detail

Configuration version : 9
Last change time : 2006-06-18T18:34:34.431Z
Changed by user : system
Changed from process : Init
```

Field descriptions are self-explanatory.

Related Commands

Command	Description
copy running-config startup-config	Copies the current running-config file (source) to the startup-config file (destination).
show running-config	Displays the contents of the currently running configuration file or the configuration for a specific class map, interface, map class, policy map, or virtual-circuit class.

show configuration id

To display output about configuration versions, use the **show configuration id** command in privileged EXEC mode.

show configuration id [**detail**]

Syntax Description

detail	(Optional) Expands the output of the command to include the ID of the last user to make a configuration change and the process in which the changes were made.

Command Default

This command is disabled by default. If this command is not entered, the management system has to query the device for the current running-config file and then compare the results to the last known configuration to determine if a change has been made.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SRC	This command was introduced.
12.2(33)SB	This command was integrated into Cisco IOS Release 12.2(33)SB and implemented on the Cisco 10000 series.
12.4(20)T	This command was integrated into Cisco IOS Release 12.4(20)T.
Cisco IOS XE Release 2.5	This command was implemented on Cisco ASR 1000 Series Aggregation Services Routers.

Usage Guidelines

This configuration infrastructure command assigns a version number that is updated every time the running-config file is changed. This version number is called the configuration change tracking identifier (CTID). The CTID assigns a version number to each saved version of the running-config file. The CTID can be used to compare configuration files to track configuration changes and take appropriate actions (for example, a configuration rollback). Config Logger can also use the CTID to determine if there have been any changes to the running-config file.

CTID makes the management system more efficient by presenting information that indicates a change has been made to the running-config file. Without CTID, the management system has to query the device for the current running-config file and then compare the results to the last known configuration to determine if a change has been made.

Examples

The following example shows that the current running-config file is version 4 and that this file was saved on June 15, 2006 at 7.572 seconds after 3:02 p.m.:

```
Router# show configuration id

version:4 time:2006-06-15T15:02:07.572Z
```

The following example shows that the current running-config file is version 9 and that this file was last saved on June 18, 2006 at 34.431 seconds after 6:34 p.m. The file was saved by the system and changed from Init. The field descriptions are self-explanatory.

```
Router# show configuration id detail

Configuration version : 9
Last change time : 2006-06-18T18:34:34.431Z
Changed by user : system
Changed from process : Init
```

Related Commands

Command	Description
copy running-config startup-config	Copies the current running-config file (source) to the startup-config file (destination).
show running-config	Displays the contents of the currently running configuration file or the configuration for a specific class map, interface, map class, policy map, or virtual-circuit class.

show configuration lock

To display information about the lock status of the running configuration file during a configuration replace operation, use the **show configuration lock** command in privileged EXEC mode.

show configuration lock

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(25)S	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T. The output of this command was updated to display the configuration locking class.
12.0(31)S	The command output was enhanced.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(31)SB2	This command was implemented on the Cisco 10000 series.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.2(33)SB	This command was integrated into Cisco IOS Release 12.2(33)SB and implemented on the Cisco 10000 series.

Examples

The following is sample output from the **show configuration lock** command when the running configuration file is locked by another user.

Cisco IOS Release 12.2(25)S, Release 12.2(28)SB, Release 12.3(14)T, and Later Releases

```
Router# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Router(config)# configuration mode exclusive ?

auto     Lock configuration mode automatically
manual   Lock configuration mode on-demand

Router(config)# configuration mode exclusive auto
Router(config)# end

Router# show running-config | include configuration

configuration mode exclusive auto

Router# configure terminal                !<----------- Acquires the lock

Enter configuration commands, one per line. End with CNTL/Z.
```

```
Router(config)# show configuration lock

Parser Configure Lock
---------------------
Owner PID : 3
User : unknown
TTY : 0
Type : EXCLUSIVE
State : LOCKED
Class : EXPOSED
Count : 1
Pending Requests : 0
User debug info : configure terminal
Router(config)#
Router(config)# end              ! <------------ Releases the lock
```

The following is sample output from the **show configuration lock** command when the running configuration file is not locked by another user.

```
Router# show configuration lock

Parser Configure Lock
---------------------
Owner PID : -1
User : unknown
TTY : -1
Type : NO LOCK
State : FREE
Class : unknown
Count : 0
Pending Requests : 0
User debug info :
```

Cisco IOS Release 12.0(31)S, 12.2(33)SRA, and Later Releases

```
Router# show configuration lock

Parser Configure Lock
-----------------------------------------------------
Owner PID                          : 3
User                               : unknown
TTY                                : 0
Type                               : EXCLUSIVE
State                              : LOCKED
Class                              : EXPOSED
Count                              : 1
Pending Requests                   : 0
User debug info                    : configure terminal
Session idle state                 : TRUE
No of exec cmds getting executed   : 0
No of exec cmds blocked            : 0
Config wait for show completion    : FALSE
Remote ip address                  : Unknown
Lock active time (in Sec)          : 6
Lock Expiration timer (in Sec)     : 593
```

Table 65 describes the significant fields shown in the displays.

Table 65 show configuration lock Field Descriptions

Field	Description
Owner PID	Process identifier (PID) of the process that owns the lock.
User	Owner's username.
TTY	Owner's terminal number.
Type	Lock type (EXCLUSIVE/COUNTER/NO LOCK).
State	State of the lock (FREE/LOCKED).
Class	Classification of users of the lock (EXPOSED/ROLLBACK). Processes other than ROLLBACK belong to the EXPOSED class.
Count	In the case of a counter lock, total number of processes holding the lock.
Pending Requests	Total number of processes blocked by the lock.
User debug info	Any string given by the process (used for debugging only).
Session idle state	Indicates whether the user in an access session locking session is idle. Displays TRUE or FALSE.
No of exec cmds getting executed	Total number of EXEC commands (**show** and **clear**) being executed simultaneously from different sessions.
No of exec cmds blocked	Total number of EXEC commands (**show** and **clear**) waiting for the configuration command (running from the access session locking session) to complete its execution.
Config wait for show completion	Indicates whether a configuration command executed in an access session locking session is waiting for the completion of the **show** command being executed simultaneously from a different session. Displays TRUE or FALSE.
Remote ip address	IP address of the terminal from which the user telneted to the router.
Lock active time (in Sec)	Amount of time, in seconds, that elapsed since the lock was acquired.
Lock Expiration timer (in Sec)	The amount of time, in seconds, that expires before the lock is automatically released.

The following example shows how to configure the configuration file for single user auto configuration mode (using the **configuration mode exclusive auto** command). Use the **configure terminal** command to enter global configuration mode and lock the configuration mode exclusively. Once the Cisco IOS configuration mode is locked exclusively, you can verify the lock using the **show configuration lock** command.

```
Router# configure terminal
Router(config)# configuration mode exclusive auto
Router(config)# end

Router# configure terminal

Router(config)# show configuration lock

Parser Configure Lock
```

```
Owner PID        :  10
User             :  User1
TTY              :  3
Type             :  EXCLUSIVE
State            :  LOCKED
Class            :  Exposed
Count            :  0
Pending Requests :  0
User debug info  :  0
```

Related Commands

Command	Description
configuration mode exclusive	Enables single-user (exclusive) access functionality for the Cisco IOS CLI.
configure replace	Replaces the current running configuration with a saved Cisco IOS configuration file.
debug configuration lock	Enables debugging of the Cisco IOS configuration lock.

show context

To display information stored in NVRAM when an unexpected system reload (system exception) occurs, use the **show context** command in user EXEC or priviledged EXEC mode.

show context [**summary** | **all** | **slot** *slot-number* [*crash-index*] [**all**] [**debug**]]

Syntax Description

summary	Displays a summary of all the crashes recorded.
all	Displays all crashes for all the slots. When optionally used with the **slot** keyword, displays crash information for the specified slot.
slot *slot-number* [*crash-index*]	Displays information for a particular line card. Slot numbers range from 0 to 11 for the Cisco 12012 router and from 0 to 7 for the Cisco 12008. The index number allows you to look at previous crash contexts. Contexts from the last 24 line card crashes are saved on the GRP card. If the GRP reloads, the last 24 line card crash contexts are lost. For example, **show context slot 3 2** shows the second most recent crash for line card in slot 3. Index numbers are displayed by the **show context summary** command.
debug	(Optional) Displays crash information as a hex record dump in addition to one of the options listed.

Command Modes

User EXEC

Privileged EXEC

Command History

Release	Modification
10.3	This command was introduced.
11.2 GS	The **slot** *slot-number* [*crash-index*] [**all**] [**debug**] syntax was added for Cisco 12000 series routers.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The display from the **show context** command includes the following information:

- Reason for the system reboot
- Stack trace
- Software version
- The signal number, code, and router uptime information
- All the register contents at the time of the crash

Note This command is primarily for use by Cisco technical support representatives for analyzing unexpected system reloads.

Output for this command will vary by platform. Context information is specific to processors and architectures. For example, context information for the Cisco 2600 series router differs from that for other router types because the Cisco 2600 runs with an M860 processor.

Examples

The following is sample output from the **show context** command following a system failure:

```
Router> show context

System was restarted by error - a Software forced crash, PC 0x60189354
GS Software (RSP-PV-M), Experimental Version 11.1(2033) [ganesh 111]
Compiled Mon 31-Mar-97 13:21 by ganesh
Image text-base: 0x60010900, data-base: 0x6073E000
Stack trace from system failure:
FP: 0x60AEA798, RA: 0x60189354
FP: 0x60AEA798, RA: 0x601853CC
FP: 0x60AEA7C0, RA: 0x6015E98C
FP: 0x60AEA7F8, RA: 0x6011AB3C
FP: 0x60AEA828, RA: 0x601706CC
FP: 0x60AEA878, RA: 0x60116340
FP: 0x60AEA890, RA: 0x6011632C
Fault History Buffer:
GS Software (RSP-PV-M), Experimental Version 11.1(2033) [ganesh 111]
Compiled Mon 31-Mar-97 13:21 by ganesh
Signal = 23, Code = 0x24, Uptime 00:04:19
$0 : 00000000, AT : 60930120, v0 : 00000032, v1 : 00000120
a0 : 60170110, a1 : 6097F22C, a2 : 00000000, a3 : 00000000
t0 : 60AE02A0, t1 : 8000FD80, t2 : 34008F00, t3 : FFFF00FF
t4 : 00000083, t5 : 3E840024, t6 : 00000000, t7 : 11010132
s0 : 00000006, s1 : 607A25F8, s2 : 00000001, s3 : 00000000
s4 : 00000000, s5 : 00000000, s6 : 00000000, s7 : 6097F755
t8 : 600FABBC, t9 : 00000000, k0 : 30408401, k1 : 30410000
gp : 608B9860, sp : 60AEA798, s8 : 00000000, ra : 601853CC
EPC : 60189354, SREG : 3400EF03, Cause : 00000024
Router>
```

The following is sample output from the **show context summary** command on a Cisco 12012 router. The **show context summary** command displays a summary of all the crashes recorded for each slot (line card).

```
Router# show context summary

CRASH INFO SUMMARY
  Slot 0 : 0 crashes
  Slot 1 : 0 crashes
  Slot 2 : 0 crashes
  Slot 3 : 0 crashes
  Slot 4 : 0 crashes
  Slot 5 : 0 crashes
  Slot 6 : 0 crashes
  Slot 7 : 2 crashes
    1 - crash at 18:06:41 UTC Tue Nov 5 1996
    2 - crash at 12:14:55 UTC Mon Nov 4 1996
  Slot 8 : 0 crashes
  Slot 9 : 0 crashes
  Slot 10: 0 crashes
  Slot 11: 0 crashes
Router#
```

The following is sample output from the **show context** command following an unexpected system reload on a Cisco 2600 series router.

```
router# show context

S/W Version: Cisco IOS Software
Cisco IOS (tm) c2600 Software (c2600-JS-M), Released Version 11.3(19980115:184921]
Copyright (c) 1986-2003 by Cisco Systems, Inc.
Compiled Thu 15-Jan-98 13:49 by mmagno
Exception occurred at: 00:02:26 UTC Mon Mar 1 1993
Exception type: Data TLB Miss (0x1200)
CPU Register Context:
PC  = 0x80109964  MSR = 0x00009030  CR  = 0x55FFFD35  LR    = 0x80109958
CTR = 0x800154E4  XER = 0xC000BB6F  DAR = 0x00000088  DSISR = 0x00000249
DEC = 0x7FFFDFCA  TBU = 0x00000000  TBL = 0x15433FCF  IMMR  = 0x68010020
R0  = 0x80000000  R1  = 0x80E80BD0  R2  = 0x80000000  R3    = 0x00000000
R4  = 0x80E80BC0  R5  = 0x40800000  R6  = 0x00000001  R7    = 0x68010000
R8  = 0x00000000  R9  = 0x00000060  R10 = 0x00001030  R11   = 0xFFFFFFFF
R12 = 0x00007CE6  R13 = 0xFFF379E8  R14 = 0x80D50000  R15   = 0x00000000
R16 = 0x00000000  R17 = 0x00000000  R18 = 0x00000000  R19   = 0x00000000
R20 = 0x00000000  R21 = 0x00000001  R22 = 0x00000010  R23   = 0x00000000
R24 = 0x00000000  R25 = 0x80E91348  R26 = 0x01936010  R27   = 0x80E92A80
R28 = 0x00000001  R29 = 0x019BA920  R30 = 0x00000000  R31   = 0x00000018
Stack trace:
Frame 00: SP = 0x80E80BD0    PC = 0x80109958
Frame 01: SP = 0x80E80C28    PC = 0x8010A720
Frame 02: SP = 0x80E80C40    PC = 0x80271010
Frame 03: SP = 0x80E80C50    PC = 0x8025EE64
Frame 04: SP = 0x80DEE548    PC = 0x8026702C
Frame 05: SP = 0x80DEE558    PC = 0x8026702C
```

Table 66 describes the significant fields shown in the display.

Table 66 show context Field Descriptions

Field	Description
S/W Version	Standard Cisco IOS version string as displayed.
Exception occurred at	Router real time when exception occurred. The router must have the clock time properly configured for this to be accurate.
Exception type	Technical reason for exception. For engineering analysis.
CPU Register Context	Technical processor state information. For engineering analysis.
Stack trace	Technical processor state information. For engineering analysis.

Related Commands

Command	Description
show processes	Displays information about the active processes.
show stacks	Monitors the stack usage of processes and interrupt routines.

show controllers (GRP image)

To display information that is specific to the hardware, use the **show controllers** command in privileged EXEC mode.

show controllers [**atm** *slot-number* | **clock** | **csar** [**register**] | **csc-fpga** | **dp83800** | **fab-clk** | **fia** [**register**] | **pos** [*slot-number*] [**details**] | **queues** [*slot-number*] | **sca** | **xbar**]

Syntax Description

atm *slot-number*	(Optional) Displays the ATM controllers. Number is slot-number/port-number (for example, 4/0). Slot numbers range from 0 to 11 for the Cisco 12012 router and from 0 to 7 for the Cisco 12008 router.
clock	(Optional) Displays the clock card configuration.
csar [**register**]	(Optional) Displays the Cisco Cell Segmentation and Reassembly (CSAR) information. CSAR is the name of the chip on the card that handles traffic between the GRP and the switch fabric interface ASICs.
csc-fpga	(Optional) Displays the clock and scheduler card register information in the field programmable gate array (FPGA).
dp83800	(Optional) Displays the Ethernet information on the GRP card.
fab-clk	(Optional) Display the switch fabric clock register information. The switch fabric clock FPGA is a chip that monitors the incoming fabric clock generated by the switch fabric. This clock is needed by each card connecting to the switch fabric to properly communicate with it. Two switch fabric clocks arrive at each card; only one can be used. The FPGA monitors both clocks and selects which one to use if only one of them is running.
fia [**register**]	(Optional) Displays the fabric interface ASIC information and optionally displays the register information.
pos [slot-*number*] [**details**]	(Optional) Displays the POS framer state and optionally displays all the details for the interface. Number is slot-number/port-number (for example, 4/0). Slot numbers range from 0 to 11 for the Cisco 12012 router and from 0 to 7 for the Cisco 12008 router.
queues [*slot-number*]	(Optional) Displays the SDRAM buffer carve information and optionally displays the information for a specific line card. The SDRAM buffer carve information displayed is suggested carve information from the GRP card to the line card. Line cards might change the shown percentages based on SDRAM available. Slot numbers range from 0 to 11 for the Cisco 12012 router and from 0 to 7 for the Cisco 12008.
sca	(Optional) Displays the SCA register information. The SCA is an ASIC that arbitrates among the line cards requests to use the switch fabric.
xbar	(Optional) Displays the crossbar register information. The XBAR is an ASIC that switches the data as it passes through the switch fabric.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.2 GS	This command was introduced to support the Cisco 12000 series routers.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

This information provided by this command is intended for use only by technical support representatives in analyzing system failures in the field.

Examples

The following is sample output from the **show controllers pos** command for a Cisco 12012:

```
Router# show controllers pos 7/0

POS7/0
SECTION
  LOF = 2          LOS = 0                          BIP(B1) = 5889
  Active Alarms: None
LINE
  AIS = 2          RDI = 2          FEBE = 146      BIP(B2) = 2106453
  Active Alarms: None
PATH
  AIS = 2          RDI = 4          FEBE = 63       BIP(B3) = 3216
  LOP = 0          PSE = 8          NSE = 3         NEWPTR = 2
  Active Alarms: None
APS
  COAPS = 3          PSBF = 2
  State: PSBF_state = False
  Rx(K1/K2): F0/15  Tx(K1/K2): 00/00
  S1S0 = 00, C2 = 64
PATH TRACE BUFFER : STABLE
  Remote hostname : GSR-C
  Remote interface: POS10/0
  Remote IP addr  : 10.201.101.2
  Remote Rx(K1/K2): F0/15  Tx(K1/K2): 00/00
Router#
```

Related Commands

Command	Description
clear controllers	Resets the T1 or E1 controller.
show controllers (line card image)	Displays information that is specific to the hardware on a line card.

show controllers (line card image)

To display information that is specific to the hardware on a line card, use the **attach** command in privileged EXEC mode to connect to the line card and then use the **show controllers** command in privileged EXEC mode or the **execute-on** command in privileged EXEC mode.

show controllers atm [[*port-number*] [**all** | **sar** | **summary**]]

show controllers fia [**register**]

show controllers {**frfab** | **tofab**} {**bma** {**microcode** | **ms-inst** | **register**} | **qelem** *start-queue-element* [*end-queue-element*] | **qnum** *start-queue-number* [*end-queue-number*] | **queues** | **statistics**}

show controllers io

show controllers l3

show controllers pos {**framers** | **queues** | **registers** | **rxsram** *port-number queue-start-address* [*queue-length*] | **txsram** *port-number queue-start-address* [*queue-length*]}

show controllers events [**clear** | **punt-sniff** [**none** | **word1** | **word2**] | **punt-verbose** [**all**]]

Syntax Description

atm	Displays the ATM controller information.
port-number	(Optional) Displays request for the physical interface on the ATM card. The range of choices is from 0 to 3.
all	(Optional) Lists all details.
sar	(Optional) Lists SAR interactive command.
summary	(Optional) Lists SAR status summary.
fia	Displays the fabric interface ASIC information.
register	(Optional) Displays the register information.
frfab	(Optional) Displays the "from" (transmit) fabric information.
tofab	(Optional) Displays the "to" (receive) fabric information.
bma	For the **frfab** or **tofab** keywords, displays microcode, micro sequencer, or register information for the silicon queuing engine (SQE), also known as the buffer management ASIC (BMA).
microcode	Displays SQE information for the microcode bundled in the line card and currently running version.
mis-inst	Displays SQE information for the micro sequencer instruction.
register	Displays silicon queuing engine (SQE) information for the register.
qelem	For the **frfab** or **tofab** keywords, displays the SDRAM buffer pool queue element summary information.
start-queue-element	Specifies the start queue element number from 0 to 65535.
end-queue-element	(Optional) Specifies the end queue element number from 0 to 65535).

qnum	For the **frfab** or **tofab** keywords, displays the SDRAM buffer pool queue detail information.
start-queue-number	Specifies the start free queue number (from 0 to 127).
end-queue-number	(Optional) Specifies the end free queue number (from 0 to 127).
queues	For the **frfab** or **tofab** keywords, displays the SDRAM buffer pool information.
statistics	For the **frfab** or **tofab** keywords, displays the BMA counters.
io	Displays input/output registers.
l3	Displays Layer 3 ASIC information.
pos	Displays packet-over-sonic (POS) information for framer registers, framer queues, and ASIC registers.
framers	Displays the POS framer registers.
queues	Displays the POS framer queue information.
registers	Displays the ASIC registers.
rxsram	Displays the receive queue SRAM.
port-number	Specifies a port number (valid range is from 0 to 3).
queue-start-address	Specifies the queue SRAM logical starting address.
queue-length	(Optional) Specifies the queue SRAM length.
txsram	Displays the transmit queue SRAM.
events	Displays the line card counter information of events generated from line card.
clear	(Optional) Clears all the line card event counter output details that are displayed using the commands: **show controllers events**, **show controllers events punt-verbose**, and **show controllers events punt-sniff**.
punt-sniff	(Optional) Sniffs the packets sent to route processor from line card by specifying the word and location. **Note** Punt sniff is enabled only if one of the word is configured.
none	(Optional) Clears the attributes and packets to be sniffed from route processor and resets the counters to zero.
word1	(Optional) Sniffs packets sent to the route processor for the specified hexa decimal value of word1. Location of the word is optional.
word2	(Optional) Sniffs packets sent to the route processor matching the specified hexa decimal value of word2. Location of the word is optional.
punt-verbose	(Optional) Displays application-wise packets punt to route processor (RP) from line card (LC). Displays non-zero punt counters if the command is executed without the **all** keyword.
all	(Optional) Displays zero and non-zero punt counters of packets punt to RP from LC. The all keyword is used along with the command **show controllers events punt-verbose all**.

Command Modes Privileged EXEC

Command History

Release	Modification
11.2 GS	This command was added to support the Cisco 12000 series Gigabit Switch Routers.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(31)SB	This command was integrated in Cisco IOS Release 12.2(31)SB.
12.2(33)SB	This command' behavior was modified on the Cisco 10000 series router for the PRE3 and PRE4.
12.0(33)S	The keywords **punt-sniff** and **punt-verbose** were added in the command **show controllers events** for the Cisco 12000 Series Routers.

Usage Guidelines This information displayed by this command is of use only to technical support representatives in analyzing unexpected system failures in the field. It is documented here in case you need to provide the displayed statistics to an technical support engineer.

Cisco 10000 Series Router Usage Guidelines

In releases prior to Cisco IOS Release 12.2(33)SB, when you configure the **t1 loopback remote** command on the local router, the command also displays in the running-config file of the far-end router. This is due to the route processor (RP) updating an incorrect parameter when it receives the loopback event message from the line card for loopback requests from the far end.

In Cisco IOS Release 12.2(33)SB, the RP updates the correct parameter and the **show controllers** command correctly displays the loopback CLI commands applied on the local end and displays the loopback events and status received from the line card in response to loopback requests from the far end.

This change in behavior affects the following line cards and is documented in the CSCsm84447 caveat:

- 4-port channelized STM1
- 1-port channelized OC-12
- 6-port channelized T3
- 4-port half-height channelized T3

In Cisco IOS Release 12.2(33)SB, the output from the **show controller** command includes line code information for the 6-port channelized T3 line card and the 8-port E3/DS3 line card. However, because SONET line cards do not have a direct physical link at the T3 or E3 level, the output from the **show controller t3** command does not include line code information.

In Cisco IOS Release 12.2(31)SB, the output from the **show controller** command displays line code information. The output of the **show controller t3** command for SONET-based T3 also includes line code information.

Cisco 12000 Series Router Usage Guidelines

The packets processed by a line card are either sent to a route processor or a line card in the form of Cisco cells. To track the packets sent to a route processor from a line card is essential for troubleshooting. The keywords **punt-sniff** and **punt-verbose** have been added for the command show controllers events to identify the packets sent to RP from LC.

By default, the feature is enabled and packets punt to route processor are displayed using the command **show controllers events punt-verbose**. To view all the zero and non-zero punt counters use the command **show controllers events punt-verbose all**.

To clear all the line card events and counters including resetting the packets to be sniffed to zero, executing the command **show controllers events clear**.

Packets sent to route processor from line card can be sniffed by specifying the hexa-decimal value of the word. Packets can only be sniffed if the word along with the hexa-decimal value is specified. Specifying the location of the word, sniffs packets from the particular location. To reset the counters of packets to be sniffed to zero, execute the command **show controllers events punt-sniff none**.

For example, use the command **show controllers events punt-sniff word1** *0x60000000* to sniff packets punt to RP with the hexa-decimal value 0x60000000. As the location is not specified, it searches the entire buffer for the value 0x60000000. Packets punt to RP can also be sniffed by specifying a particular location using the command **show controllers events punt-sniff word1** *0x60000000 34*.

Examples

Because you are executing this command on the line card, you must use the **execute-on** command to use the **show** command, or you must connect to the card using the **attach** command. All examples in this section use the **execute-on** command

The following is partial sample output from the **show controllers atm** command:

```
Router# execute-on slot 4 show controllers atm 0

TX SAR (Beta 1.0.0) is Operational;
RX SAR (Beta 1.0.0) is Operational;

Interface Configuration Mode:
        STS-12c

Active Maker Channels: total # 6
VCID  ChnnlID  Type  OutputInfo    InPkts   InOAMs  MacString
   1   0888    UBR    0C010010          0         0  08882000AAAA030000000800
   2   0988    VBR    04010020          0         0  09882000
   3   8BC8    UBR    0C010030          0         0  8BC82000AAAA030000000800
   4   0E08    UBR    0C010040          0         0  0E082000AAAA030000000800
  10   1288    VBR    040100A0          0         0  12882000
  11   8BE8    VBR    0C0100B0          0         0  8BE82000AAAA030000000800

SAR Total Counters:
total_tx_idle_cells 215267  total_tx_paks 0  total_tx_abort_paks 0
total_rx_paks 0  total_rx_drop_paks 0  total_rx_discard_cells 15

Switching Code Counters:
total_rx_crc_err_paks 0  total_rx_giant_paks 0
total_rx_abort_paks 0  total_rx_crc10_cells 0
total_rx_tmout_paks 0  total_rx_unknown_paks 0
total_rx_out_buf_paks 0  total_rx_unknown_vc_paks 0
BATMAN Asic Register Values:
hi_addr_reg 0x8000, lo_addr_reg 0x000C, boot_msk_addr 0x0780,
rmcell_msk_addr 0x0724, rmcnt__msk_addr 0x07C2, txbuf_msk_addr 0x070C,
.
.
.
CM622 SAR Boot Configuration:
txind_q_addr 0x14000 txcmd_q_addr 0x20000
.
.
.
SUNI-622 Framer Register Values:
```

```
Master Rst and Ident/Load Meters Reg (#0x0): 0x10
Master Configuration Reg (#0x1): 0x1F
Master Interrupt Status Reg (#0x2): 0x00
PISO Interrupt Reg (#0x3): 0x04
Master Auto Alarm Reg (#0x4): 0x03
Master Auto Alarm Reg (#0x5): 0x07
Parallel Output Port Reg (#0x6): 0x02
.
.
.
BERM Line BIP Threshold LSB Reg (#0x74): 0x00
BERM Line BIP Threshold MSB Reg (#0x75): 0x00
Router#
```

The following is partial sample output from the **show controllers** command:

```
Router# execute-on slot 6 show controllers

Interface POS0
Hardware is BFLC POS
lcpos_instance struct   60311B40
RX POS ASIC addr space  12000000
TX POS ASIC addr space  12000100
SUNI framer addr space  12000400
SUNI rsop intr status   00
CRC32 enabled, HDLC enc, int clock
no loop

Interface POS1
Hardware is BFLC POS
lcpos_instance struct   603142E0
RX POS ASIC addr space  12000000
TX POS ASIC addr space  12000100
SUNI framer addr space  12000600
SUNI rsop intr status   00
CRC32 enabled, HDLC enc, int clock
no loop
.
.
.
Router#
```

The following is partial sample output from the **show controllers pos framers** command:

```
Router# execute-on slot 6 show controllers pos framers

Framer 0, addr=0x12000400:
master reset            C0
master config           1F        rrate sts3c trate sts3c fixptr
master control          00
clock rcv cntrl         D0
RACP control            84
RACP gfc control        0F
TACP control status     04        hcsadd
RACP intr enable        04
RSOP cntrl intr enable  00
RSOP intr status        00
TPOP path sig lbl (c2)  13
SPTB control            04        tnull
SPTB status             00

Framer 1, addr=0x12000600:
master reset            C0
master config           1F        rrate sts3c trate sts3c fixptr
```

```
master control          00
clock rcv cntrl         D0
RACP control            84
RACP gfc control        0F
TACP control status     04        hcsadd
RACP intr enable        04
RSOP cntrl intr enable  00
RSOP intr status        00
TPOP path sig lbl (c2)  13
SPTB control            04        tnull
SPTB status             00

Framer 2, addr=0x12000800:
master reset            C0
master config           1F        rrate sts3c trate sts3c fixptr
master control          00
clock rcv cntrl         D0
RACP control            84
RACP gfc control        0F
TACP control status     04        hcsadd
RACP intr enable        04
RSOP cntrl intr enable  00
RSOP intr status        00
TPOP path sig lbl (c2)  13
SPTB control            04        tnull
SPTB status             00
.
.
.
Router#
```

The following is partial sample output from the **show controllers fia** command:

```
Router# execute-on slot 7 show controllers fia

========= Line Card (Slot 7) =======

Fabric configuration: Full bandwidth redundant
Master Scheduler: Slot 17

From Fabric FIA Errors
----------------------
redund fifo parity 0          redund overflow 0          cell drops 0
crc32 lkup parity  0          cell parity     0          crc32      0
          0          1          2          3          4
       --------   --------   --------   --------   --------
los    0          0          0          0          0
crc16  0          0          0          0          0

To Fabric FIA Errors
--------------------
sca not pres 0          req error     0          uni fifo overflow 0
grant parity 0          multi req     0          uni fifo undrflow 0
cntrl parity 0          uni req       0          crc32 lkup parity 0
multi fifo   0          empty dst req 0          handshake error   0
```

The following is a sample output from the **show controllers events** command:

```
Router# execute-on slot 7 show controllers events

Switching Stats
  Packets punt to RP: 935
  HW engine punt: 62
  HW engine reject: 38113520
```

```
RX HW Engine Reject Counters
  Unrecognized Protocol ID: 19182546
  IP TTL Expired: 14706652
  Unrecognized L2 Frame: 4224320
  IPv6 Control pkts: 2
```

The following is a sample output from the **show controllers events punt-verbose** command:

```
Router# execute-on slot 7 show controllers events punt-verbose

RP Punted L2 Statistics in Verbose
-----------------------------------
  HDLC Encap                :  927

 RP Punted L3 Statistics in Verbose
-----------------------------------
  ICMP                      :  40
  UDP                       :  441
  OSPF                      :  211
  IPV6                      :  40

 RP Punted L3 Application Statistics in Verbose
-----------------------------------------------
  LDP                       :  441
  DF Bit not Set            :  692
```

The following is a partial sample output from the **show controllers events punt-verbose** all command which displays the zero and non-zero value of packets punt to RP from LC:

```
Router# execute-on slot 7 show controllers events punt-verbose all

RP Punted L2 Statistics in Verbose
-----------------------------------
  L2 Protocol - 0            :  0
  ARPA Encap                 :  0
  L2 Protocol - 2            :  0
  L2 Protocol - 3            :  0
  L2 Protocol - 4            :  0
  HDLC Encap                 :  941
  L2 Protocol - 6            :  0
  L2 Protocol - 7            :  0
  L2 Protocol - 8            :  0
  L2 Protocol - 9            :  0
  L2 Protocol - 10           :  0
  L2 Protocol - 11           :  0
  L2 Protocol - 12           :  0
  L2 Protocol - 13           :  0
  L2 Protocol - 14           :  0
  L2 Protocol - 15           :  0
  PPP Encap                  :  0
  L2 Protocol - 17           :  0
  L2 Protocol - 18           :  0
  L2 Protocol - 19           :  0
  Frame Relay Encap          :  0
  L2 Protocol - 21           :  0
  L2 Protocol - 22           :  0
  L2 Protocol - 23           :  0
  L2 Protocol - 24           :  0
  L2 Protocol - 25           :  0
  L2 Protocol - 26           :  0
  L2 Protocol - 27           :  0
  L2 Protocol - 28           :  0
  L2 Protocol - 29           :  0
```

```
  L2 Protocol - 30           :  0
  L2 Protocol - 31           :  0
  L2 Protocol - 32           :  0
  ATM Encap                  :  0
  L2 Protocol - 34           :  0
  L2 Protocol - 35           :  0

 RP Punted L3 Statistics in Verbose
-------------------------------------
  HOPOPT                     :  0
  ICMP                       :  40
  IGMP                       :  0
  L3 Protocol - 3            :  0
  IPINIP                     :  0
  L3 Protocol - 5            :  0

 RP Punted L3 Application Statistics in Verbose
-------------------------------------------------
  MPLS OAM                   :  0
  FTP                        :  0
  FTPD                       :  0
  TFTP                       :  0
.....
```

The following is a sample output from the **show controllers events clear** command:

```
Router# execute-on slot 7 show controllers events clear
Drop, switching and reject counters cleared
```

The following is a sample output from the **show controllers events punt-sniff** command:

```
Router# execute-on slot 7 show controllers events punt-sniff
Punt Sniff Statistics
 --------------------------------
 Word         Location   Occurance
 0x60000000   34         0
 0xB6010102   37         5
Note: Location offset taken from the begining of BufferHeader(32 bytes).
```

The following is a sample output from the **show controllers events punt-sniff word1** *0x60000000* command. This command is used to sniff a packet with a hexa-decimal value *0x60000000* from the start of the buffer header of the packet being punt to RP:

```
Router# execute-on slot 7 show controllers events punt-sniff word1 0x60000000
```

The following is a sample output from the **show controllers events punt-sniff word1** *0x60000000 34* command. This command is used to sniff a packet with a hexa-decimal value *0x60000000* 0 at the location 34 from the start of the buffer header of the packet being punt to RP:

```
Router# execute-on slot 7 show controllers events punt-sniff word1 0x60000000 34
```

The following is a sample output from the **show controllers events punt-sniff none** command. This command is used to clear the counter of packets to be sniffed:

```
Router# execute-on slot 7 show controllers events punt-sniff none
```

Related Commands

Command	Description
clear controllers	Resets the T1 or E1 controller.

show controllers logging

To display logging information about a Versatile Interface Processor (VIP) card, use the **show controllers logging** command in privileged EXEC mode.

show controllers vip *slot-number* **logging**

Syntax Description

vip *slot-number*	VIP slot number.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.2	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

This command displays the state of syslog error and event logging, including host addresses, and whether console logging is enabled.

When enabled, “trap logging” allows messages to be sent to a remote host (a syslog server).

Examples

The following is sample output from the **show controllers logging** command:

```
Router# show controllers vip 1 logging

show logging from Slot 1:

Syslog logging:enabled (0 messages dropped, 1 messages rate-limited, 0 flushes, 0
overruns)
     Console logging: disabled
     Monitor logging: level debugging, 0 messages logged
     Buffer logging: level debugging, 24 messages logged
     Trap logging:  level informational, 266 messages logged.
       Logging to 209.165.202.129

     Exception Logging size: 4096 bytes
     Count and timestamp logging messages:disabled

Log Buffer (8192 bytes):
smallest_local_pool_entries = 256, global particles = 5149
highest_local_visible_bandwidth = 155000

00:00:05:%SYS-5-RESTART:System restarted --
 .
 .
 .
```

Table 67 describes the significant fields shown in the display.

Table 67 show controllers logging Field Descriptions

Field	Description
Syslog logging	Shows general state of system logging (enabled or disabled), and status of logged messages (number of messages dropped, rate-limited, or flushed).
Console logging	Logging to the console port. Shows "disabled" or, if enabled, the severity level limit and number of messages logged. Enabled using the **logging console** command.
Monitor logging	Logging to the monitor (all TTY lines). Shows "disabled" or, if enabled, the severity level limit and number of messages logged. Enabled using the **logging monitor** command.
Buffer logging	Logging to the standard syslog buffer. Shows "disabled" or, if enabled, the severity level limit and number of messages logged. Enabled using the **logging buffered** command.
Trap logging	Logging to a remote host (syslog host). Shows "disabled" or, if enabled, the severity level limit and number of messages logged. (The word "trap" means a trigger in the system software for sending error messages to a remote host.) Enabled using the **logging host** command. The severity level limit is set using the **logging trap** command.

Related Commands

Command	Description
show logging	Displays the state of logging (syslog).

show controllers tech-support

To display general information about a Versatile Interface Processor (VIP) card when reporting a problem, use the **show controllers tech-support** command in privileged EXEC mode.

show controllers vip *slot-number* **tech-support**

Syntax Description

vip *slot-number*	VIP slot number.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.2	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Use this command to help collect general information about a VIP card when you are reporting a problem. This command displays the equivalent of the following **show** commands for the VIP card:

- **more system:running-config**
- **show buffers**
- **show controllers**
- **show interfaces**
- **show processes cpu**
- **show processes memory**
- **show stacks**
- **show version**

For a sample display of the **show controllers tech-support** command output, refer to these **show** commands.

Related Commands

Command	Description
more system:running-config	Displays the running configuration.
show buffers	Displays statistics for the buffer pools on the network server.
show controllers	Displays information that is specific to the hardware.
show interfaces	Uses the **show interfaces** EXEC command to display ALC information.
show processes	Displays information about the active processes.
show processes memory	Displays memory used.
show stacks	Monitors the stack usage of processes and interrupt routines.

Command	Description
show tech-support	Displays general information about the router when reporting a problem.
show version	Displays the configuration of the system hardware, the software version, the names and sources of configuration files, and the boot images.

show coverage history

To display the system history table, use the **show coverage history** command in privileged EXEC mode.

show coverage history [**all** | **first** *number-of-entries* | **last** *number-of-entries* | **status**]

Syntax Description

all	(Optional) Displays the entire history table.
first	(Optional) Displays the oldest entries in the history table.
number-of-entries	(Optional) Number of entries to be displayed. The range is from 1 to 100000.
last	(Optional) Displays the latest entries in the history table.
status	(Optional) Displays the status of the history system.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(24)T	This command was introduced in a release earlier than Cisco IOS Release 12.4(24)T.

Examples

The following is sample output from the **show coverage history** command. The output is self-explanatory.

```
Router# show coverage history status

History table size is 23 entries. 0 entries have been used.
Low-level count handler has been called 0 times.
There were 0 entries not traced due to recursion detection.
There were 0 entries not traced due to internal pauses.
```

Related Commands

Command	Description
coverage history	Enables the system to record the history of the events.

show data-corruption

To display data inconsistency errors of the present software version, use the **show data-corruption** command in user EXEC or privileged EXEC mode.

show data-corruption

Syntax Description

This command has no arguments or keywords.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
12.2(22)SE	This command was introduced.
12.2(33)SRB	This command was integrated into Cisco IOS Release 12.2(33)SRB.
12.4(20)T	This command was integrated into Cisco IOS Release 12.4(20)T.
12.2(33)SXI	This command was integrated into Cisco IOS Release 12.2(33)SXI.
Cisco IOS 2.3 XE	This command was integrated into Cisco IOS XE Release 2.3.

Usage Guidelines

Use this command to display all data inconsistency errors or the corrupt data. If there are no data errors, the “No data inconsistency errors have been recorded” message is displayed.

Examples

The following is sample output from **show data-corruption** command. The fields are self-explanatory.

```
Router# show data-corruption

Data inconsistency records for:
3800 Software (C3845-ADVIPSERVICESK9-M), Version 12.4(24)T, RELEASE
SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Compiled Thu 17-Dec-09 09:02 by xyz

Count           Traceback
   1842        60523C58, 616E85FC 60523C58 62A9F648
              1: Jun 12 18:24:33.960
              2: Jun 12 18:24:33.960
              3: Jun 12 18:24:33.960
           1842: Jun 19 00:30:51.350
```

show debugging

To display information about the types of debugging that are enabled for your router, use the **show debugging** command in privileged EXEC mode.

show debugging

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
11.1	This command was introduced.
12.3(7)T	The output of this command was enhanced to show TCP Explicit Congestion Notification (ECN) configuration.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(31)SB2	This command was integrated into Cisco IOS Release 12.2(31)SB2.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
12.4(20)T	The output of this command was enhanced to show the user-group debugging configuration.

Examples

The following is sample output from the **show debugging** command. In this example, the remote host is not configured or connected.

```
Router# show debugging
!
TCP:
  TCP Packet debugging is on
  TCP ECN debugging is on
!
Router# telnet 10.1.25.234
!
Trying 10.1.25.234 ...
!
00:02:48: 10.1.25.31:11001 <---> 10.1.25.234:23 out ECN-setup SYN
00:02:48: tcp0: O CLOSED 10.1.25.234:11001 10.1.25.31:23 seq 1922220018
        OPTS 4 ECE CWR SYN  WIN 4128
00:02:50: 10.1.25.31:11001 <---> 10.1.25.234:23 congestion window changes
00:02:50: cwnd from 1460 to 1460, ssthresh from 65535 to 2920
00:02:50: tcp0: R SYNSENT 10.1.25.234:11001 10.1.25.31:23 seq 1922220018
        OPTS 4 ECE CWR SYN  WIN 4128
00:02:54: 10.1.25.31:11001 <---> 10.1.25.234:23 congestion window changes
00:02:54: cwnd from 1460 to 1460, ssthresh from 2920 to 2920
00:02:54: tcp0: R SYNSENT 10.1.25.234:11001 10.1.25.31:23 seq 1922220018
        OPTS 4 ECE CWR SYN  WIN 4128
00:03:02: 10.1.25.31:11001 <---> 10.1.25.234:23 congestion window changes
00:03:02: cwnd from 1460 to 1460, ssthresh from 2920 to 2920
```

```
00:03:02: tcp0: R SYNSENT 10.1.25.234:11001 10.1.25.31:23 seq 1922220018
        OPTS 4 ECE CWR SYN  WIN 4128
00:03:18: 10.1.25.31:11001 <---> 10.1.25.234:23 SYN with ECN disabled
00:03:18: 10.1.25.31:11001 <---> 10.1.25.234:23 congestion window changes
00:03:18: cwnd from 1460 to 1460, ssthresh from 2920 to 2920
00:03:18: tcp0: O SYNSENT 10.1.25.234:11001 10.1.25.31:23 seq 1922220018
        OPTS 4 SYN  WIN 4128
00:03:20: 10.1.25.31:11001 <---> 10.1.25.234:23 congestion window changes
00:03:20: cwnd from 1460 to 1460, ssthresh from 2920 to 2920
00:03:20: tcp0: R SYNSENT 10.1.25.234:11001 10.1.25.31:23 seq 1922220018
        OPTS 4 SYN  WIN 4128
00:03:24: 10.1.25.31:11001 <---> 10.1.25.234:23 congestion window changes
00:03:24: cwnd from 1460 to 1460, ssthresh from 2920 to 2920
00:03:24: tcp0: R SYNSENT 10.1.25.234:11001 10.1.25.31:23 seq 1922220018
        OPTS 4 SYN  WIN 4128
00:03:32: 10.1.25.31:11001 <---> 10.1.25.234:23 congestion window changes
00:03:32: cwnd from 1460 to 1460, ssthresh from 2920 to 2920
00:03:32: tcp0: R SYNSENT 10.1.25.234:11001 10.1.25.31:23 seq 1922220018
        OPTS 4 SYN  WIN 4128
!Connection timed out; remote host not responding
```

The following is sample output from the **show debugging** command when user-group debugging is configured:

```
Router# show debugging
!
usergroup:
 Usergroup Deletions debugging is on
 Usergroup Additions debugging is on
 Usergroup Database debugging is on
 Usergroup API debugging is on
!
```

Table 68 describes the significant fields in the output.

Table 68 show debugging Field Descriptions

Field	Description
OPTS 4	Bytes of TCP expressed as a number. In this case, the bytes are 4.
ECE	Echo congestion experience.
CWR	Congestion window reduced.
SYN	Synchronize connections—Request to synchronize sequence numbers, used when a TCP connection is being opened.
WIN 4128	Advertised window size, in bytes. In this case, the bytes are 4128.
cwnd	Congestion window (cwnd)—Indicates that the window size has changed.
ssthresh	Slow-start threshold (ssthresh)—Variable used by TCP to determine whether or not to use slow-start or congestion avoidance.
usergroup	Statically defined usergroup to which source IP addresses are associated.

show declassify

To display the state of the declassify function (enabled, in progress, and so forth) and the sequence of declassification steps that will be performed, use the **show declassify** command in global configuration mode.

show declassify

Syntax Description

This command has no arguments or keywords.

Note The **show declassify** command is supported on the Cisco 3200 series routers only.

Command Modes

Global configuration

Command History

Release	Modification
12.3(8)YD	This command was introduced.
12.4(2)T	This command was integrated into Cisco IOS Release 12.4(2)T.

Examples

The following example is sample output for the **show declassify** command:

```
Router# show declassify

Declassify facility: Enabled=Yes  In Progress=No
    Erase flash=Yes  Erase nvram=Yes
    Obtain memory size
    Shutdown Interfaces
    Declassify Console and Aux Ports
    Erase flash
    Declassify NVRAM
    Declassify Communications Processor Module
    Declassify RAM, D-Cache, and I-Cache
```

Table 69 describes the significant fields shown in the display.

Table 69 show declassify Field Descriptions

Field	Description
Enabled	A “Yes” value indicates that zeroization is enabled. A “No” value indicates that zeroization is disabled.
In Progress	A “Yes” value indicates that zeroization is currently in progress. A “No” value indicates that zeroization is currently not in progress.

Table 69 show declassify Field Descriptions (continued)

Field	Description
Erase flash	A “Yes” value indicates that erasure of Flash memory is enabled. A “No” value indicates that the erasure of Flash memory is disabled.
Erase nvram	A “Yes” value indicates that the erasure of NVRAM is enabled. A “No” value indicates that the erasure of NVRAM is disabled.
Obtain memory size	Obtain the main memory size in order to understand how much of the memory is to be scrubbed.
Shutdown Interfaces	Shut down any and all network interfaces.
Declassify Console and AUX Ports	Remove potentially sensitive information from console and AUX port FIFOs.
Erase flash	Erase Flash memory.
Declassify NVRAM	Erase NVRAM.
Declassify Communications Processor Module	Erase the memory in the Communications Processor Module (CPM).
Declassify RAM, D-Cache, and I-Cache	Scrub the main memory, erase the Data Cache (D-Cache), and erase the Instruction Cache (I-Cache).

Related Commands

Command	Description
service declassify	Invokes declassification.

show derived-config

To display the composite results of all the configuration commands that apply to an interface, including commands that come from sources such as static templates, dynamic templates, dialer interfaces, and authentication, authorization, and accounting (AAA) per-user attributes, use the **show derived-config** command in privileged EXEC mode.

show derived-config [interface *type number*]

Syntax Description

interface *type number*	(Optional) Displays the derived configuration for a specific interface. If you use the **interface** keyword, you must specify the interface type and the interface number (for example, interface ethernet 0).

Command Modes

Privileged EXEC

Command History

Release	Modification
12.1	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Configuration commands can be applied to an interface from sources such as static templates, dynamic templates bound by resource pooling, dialer interfaces, AAA per-user attributes and the configuration of the physical interface. The **show derived-config** command displays all the commands that apply to an interface.

The output for the **show derived-config** command is nearly identical to that of the **show running-config** command. It differs when the configuration for an interface is derived from a template, a dialer interface, or some per-user configuration. In those cases, the commands derived from the template, dialer interface, and so on, will be displayed for the affected interface.

If the same command is configured differently in two different sources that apply to the same interface, the command coming from the source that has the highest precedence will appear in the display.

Examples

The following examples show sample output for the **show running-config** and **show derived-config** commands for serial interface 0:23 and dialer interface 0. The output of the **show running-config** and **show derived-config** commands is the same for dialer interface 0 because none of the commands that apply to that interface are derived from any sources other than the configuration of the dialer interface. The output for the **show running-config** and **show derived-config** commands for serial interface 0:23 differs because some of the commands that apply to serial interface 0:23 come from dialer interface 0.

```
Router# show running-config interface Serial0:23

Building configuration...

Current configuration :296 bytes
!
interface Serial0:23
 description PRI to ADTRAN (#4444150)
```

```
 ip unnumbered Loopback0
 encapsulation ppp
 dialer rotary-group 0
 isdn switch-type primary-dms100
 isdn incoming-voice modem
 isdn calling-number 4444150
 peer default ip address pool old_pool
end

Router# show running-config interface Dialer0

Building configuration...

Current configuration :257 bytes
!
interface Dialer0
 description Dialin Users
 ip unnumbered Loopback0
 no ip proxy-arp
 encapsulation ppp
 dialer in-band
 dialer idle-timeout 30
 dialer-group 1
 peer default ip address pool new_pool
 ppp authentication pap chap callin
end

Router# show derived-config interface Serial0:23

Building configuration...

Derived configuration :332 bytes
!
interface Serial0:23
 description PRI to ADTRAN (#4444150)
 ip unnumbered Loopback0
 encapsulation ppp
 dialer rotary-group 0
 isdn switch-type primary-dms100
 isdn incoming-voice modem
 isdn calling-number 4444150
 peer default ip address pool new_pool
 ppp authentication pap chap callin
end

Router# show derived-config interface Dialer0

Building configuration...

Derived configuration :257 bytes
!
interface Dialer0
 description Dialin Users
 ip unnumbered Loopback0
 no ip proxy-arp
 encapsulation ppp
 dialer in-band
 dialer idle-timeout 30
 dialer-group 1
 peer default ip address pool new_pool
 ppp authentication pap chap callin
end
```

Related Commands

Command	Description
show running-config	Displays the contents of the currently running configuration file or the configuration for a specific interface.

show diagnostic cns

To display the information about the CNS subject, use the **show diagnostic cns** command in user EXEC or privileged EXEC mode.

show diagnostic cns {**publish** | **subscribe**}

Syntax Description

publish	Displays the subject with which the diagnostic results is published.
subscribe	Displays the subscribed subjects.

Defaults

This command has no default settings.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

This command is not supported on Cisco 7600 series routers that are configured with a Supervisor Engine 2.

The CNS subsystem communicates with remote network applications through the CNS-event agent and follows the publish and subscribe model. An application sets itself up to receive events by subscribing to the approprate event subject name.

Examples

This example shows how to display the subject with which the diagnostic results is published:

```
Router# show diagnostic cns publish
Subject: cisco.cns.device.diag_results
```

This example shows how to display the subscribed subject:

```
Router# show diagnostic cns subscribe
Subject: cisco.cns.device.diag_get_results
```

Related Commands

Command	Description
diagnostic cns	Configures the CNS diagnostics.

show diagnostic sanity

To display sanity check results, use the **show diagnostic sanity** command in privileged EXEC mode.

show diagnostic sanity

Syntax Description

This command has no arguments or keywords.

Defaults

Displays information for all the Gigabit Ethernet WAN interfaces in the Cisco 7600 series router.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(18)SXE	Support for this command was introduced on the Supervisor Engine 720.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The sanity check runs a set of predetermined checks on the configuration with a possible combination of certain system states to compile a list of warning conditions. The checks are designed to look for anything that seems out of place and are intended to serve as an aid to maintaining the system sanity.

The following is a list of the checks that are run and the action taken when the condition is found:

- Checks whether the default gateways are reachable. If so, the system stops pinging.
- If a port auto-negotiates to half duplex, the system flags it.

Trunking Checks

- If a trunk port has the mode set to “on,” the system flags it.
- If a port is trunking and mode is auto, the system flags it.
- If a trunk port is not trunking and the mode is desirable, the system flags it.
- If a trunk port negotiates to half duplex, the system flags it.

Channeling Checks

- If a port has channeling mode set to on, the system flags it.
- If a port is not channeling and the mode is set to desirable, the system flags it.
- If a VLAN has a Spanning-Tree root of 32K (root is not set), the system flags it.

Spanning-Tree VLAN Checks

- If a VLAN has a max age on the Spanning-Tree root that is different than the default, the system flags it.
- If a VLAN has a fwd delay on the Spanning-Tree root that is different than the default, the system flags it.
- If a VLAN has a fwd delay on the bridge that is different than the default, the system flags it.

- If a VLAN has a fwd delay on the bridge that is different than the default, the system flags it.
- If a VLAN has a hello time on the bridge that is different than the default, the system flags it.

Spanning-Tree Port Checks

- If a port has a port cost that is different than the default, the system flags it.
- If a port has a port priority that is different than the default, the system flags it.

UDLD Checks

- If a port has UDLD disabled, the system flags it.
- If a port had UDLD shut down, the system flags it.
- If a port had a UDLD undetermined state, the system flags it.

Assorted Port Checks

- If a port had receive flow control disabled, the system flags it.
- If a trunk port had PortFast enabled, the system flags it.
- If a inline power port has any of the following states:
  - denied
  - faulty
  - other
  - off

  The system flags it.
- If a port has a native VLAN mismatch, the system flags it.
- If a port has a duplex mismatch, the system flags it.

Bootstring and Config Register Checks

- The config register on the primary supervisor engine (and on the secondary supervisor engine if present) must be one of the following values: 0x2 , 0x102, or 0x2102.
- The system verifies the bootstring on the primary supervisor engine (and on the secondary supervisor engine if present). The system displays a message if the bootstring is empty.
- The system verifies that every file is specified in the bootstring. The system displays a message if the file is absent or shows up with a wrong checksum.

  If only *device***:** is specified as a filename, then the system verifies that the first file is on the device.

Assorted Checks

- The system displays a message if IGMP snooping is disabled.
- The system displays a message if any of the values of the snmp community access strings {RO,RW,RW-ALL} is the same as the default.
- The system displays a message if any of the modules are in states other than “Ok.”
- The system displays a message that lists all the tests that failed (displayed as an “F”) in the **show test all** command.
- The system displays a message if *fast is not configured on the switch anywhere.
- The system displays a message if there is enough room for the crashinfo file on the bootflash:.
- The system displays a message if multicast routing is enabled globally but is not applied to all interfaces.

- The system displays a message if IGMP snooping is disabled and RGMP is enabled.

Examples

This example displays samples of the messages that could be displayed with the **show diagnostic sanity** command:

```
Router# show diagnostic sanity

Pinging default gateway 10.6.141.1 ....
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.6.141.1, timeout is 2 seconds:
..!!.
Success rate is 0 percent (0/5)

IGMP snooping disabled please enable it for optimum config.

IGMP snooping disabled but RGMP enabled on the following interfaces,
please enable IGMP for proper config :
Vlan1, Vlan2, GigabitEthernet1/1

Multicast routing is enabled globally but not enabled on the following
interfaces:
GigabitEthernet1/1, GigabitEthernet1/2

A programming algorithm mismatch was found on the device bootflash:
Formatting the device is recommended.

The bootflash: does not have enough free space to accomodate the crashinfo file.

Please check your confreg value : 0x0.

Please check your confreg value on standby: 0x0.

The boot string is empty. Please enter a valid boot string .
Could not verify boot image "disk0:" specified in the boot string on the
slave.

Invalid boot image "bootflash:asdasd" specified in the boot string on the
slave.

Please check your boot string on the slave.

UDLD has been disabled globally - port-level UDLD sanity checks are
being bypassed.
OR
[
The following ports have UDLD disabled. Please enable UDLD for optimum
config:
Fa9/45

The following ports have an unknown UDLD link state. Please enable UDLD
on both sides of the link:
Fa9/45
]

The following ports have portfast enabled:
Fa9/35, Fa9/45

The following ports have trunk mode set to on:
Fa4/1, Fa4/13

The following trunks have mode set to auto:
Fa4/2, Fa4/3
```

```
The following ports with mode set to desirable are not trunking:
Fa4/3, Fa4/4

The following trunk ports have negotiated to half-duplex:
Fa4/3, Fa4/4

The following ports are configured for channel mode on:
Fa4/1, Fa4/2, Fa4/3, Fa4/4

The following ports, not channeling are configured for channel mode
desirable:
Fa4/14

The following vlan(s) have a spanning tree root of 32768:
1

The following vlan(s) have max age on the spanning tree root different from
the default:
1-2

The following vlan(s) have forward delay on the spanning tree root different
from the default:
1-2

The following vlan(s) have hello time on the spanning tree root different
from the default:
1-2

The following vlan(s) have max age on the bridge different from the
default:
1-2

The following vlan(s) have fwd delay on the bridge different from the
default:
1-2

The following vlan(s) have hello time on the bridge different from the
default:
1-2

The following vlan(s) have a different port priority than the default
on the port FastEthernet4/1
1-2

The following ports have recieve flow control disabled:
Fa9/35, Fa9/45

The following inline power ports have power-deny/faulty status:
Gi7/1, Gi7/2

The following ports have negotiated to half-duplex:
Fa9/45

The following vlans have a duplex mismatch:
Fas 9/45

The following interafaces have a native vlan mismatch:
interface (native vlan - neighbor vlan)
 Fas 9/45 (1 - 64)

The value for Community-Access on read-only operations for SNMP is the same
as default. Please verify that this is the best value from a security point
of view.
```

```
The value for Community-Access on write-only operations for SNMP is the same
as default. Please verify that this is the best value from a security point
of view.

The value for Community-Access on read-write operations for SNMP is the same
as default. Please verify that this is the best value from a security point
of view.

Please check the status of the following modules:
8,9

Module 2 had a MINOR_ERROR.

The Module 2 failed the following tests:
TestIngressSpan

The following ports from Module2 failed test1:
1,2,4,48
```

show disk

To display flash or file system information for a disk, use the **show disk** command in user or privileged EXEC mode.

show {**disk0** | **disk1**} [**all** | **filesys**]

Syntax Description

disk0	Selects disk 0 as the disk to display information about.
disk1	Selects disk 1 as the disk to display information about.
all	(Optional) Specifies that all flash information will be displayed for the selected disk.
filesys	(Optional) Specifies that file system information will be displayed for the selected disk.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2	This command was introduced in a release prior to Cisco IOS Release 12.2.
12.3(7)T	This command was enhanced to display information about the ATA ROM monitor library (monlib) file.
12.2(25)S	This command was integrated into the Cisco IOS Release 12.2(25)S.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The **show disk** command is supported only on platforms that have a disk file system.

Note The name of the ATA monlib file may contain a platform name that does not match the platform that you are using. Different platforms may have a similar or the same name for their ATA monlib file.

Examples

The following example displays information about disk 0. The output is self-explanatory.

```
Router# show disk0 all

-#- --length-- -----date/time------ path
1     19539160 Jan 27 2004 23:08:40 c7200-is-mz.123-5.7.PI3a

1011679232 bytes available (19546112 bytes used)

******** ATA Flash Card Geometry/Format Info ********

ATA CARD GEOMETRY
   Number of Heads:      16
   Number of Cylinders    1999
   Sectors per Track      63
```

```
   Sector Size            512
   Total Sectors          2014992
ATA CARD FORMAT
   Number of FAT Sectors  246
   Sectors Per Cluster    32
   Number of Clusters     62941
   Number of Data Sectors 2014789
   Base Root Sector       632
   Base FAT Sector        140
   Base Data Sector       664

ATA MONLIB INFO
   Image Monlib size = 67256
   Disk monlib size = 71680
   Name = c7200-atafslib-m
   Monlib Start sector = 2
   Monlib End sector = 133
   Monlib updated by = C7200-IS-M12.3(5.7)PI3a
   Monlib version = 1
```

show disk0:

To display flash or file system information for a disk located in slot 0, use the **show disk** command in user EXEC or privileged EXEC mode.

show disk0: [**all** | **filesys**]

Syntax Description

all	(Optional) The **all** keyword displays complete information about flash memory, including information about the individual devices in flash memory and the names and sizes of all system image files stored in flash memory, including those that are invalid.
filesys	(Optional) Displays the device information block, the status information, and the usage information.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
11.3AA	This command was introduced.
12.2	This command was incorporated into Cisco IOS Release 12.2.
12.3(7)T	This command was enhanced to display information about the ATA ROM monitor library (monlib) file.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The **show disk0:** command is supported only on platforms that have a disk file system located in slot 0. Use the **show disk0:** command to display details about the files in a particular ATA PCMCIA flash disk memory card.

For more information regarding file systems and flash cards, access the *PCMCIA Filesystem Compatibility Matrix and Filesystem Information* document at the following URL:

http://www.cisco.com/en/US/partner/products/hw/routers/ps341/products_tech_note09186a00800a7515.shtml

Note The name of the ATA monlib file may contain a platform name that does not match the platform that you are using. Different platforms may have a similar name or the same name for their ATA monlib file.

Examples

The following examples show displays of information about the flash disks or file system information for a disk. The output is self-explanatory.

```
c7200# show disk0:

-#- --length-- -----date/time------ path
```

```
1     29505176 Feb 27 2006 17:56:52 +00:00 c7200-jk9o3s-mz.124-6.T
2        32768 Feb 24 2006 13:30:30 +00:00 file1.log

34738176 bytes available (29540352 bytes used)

c7200# show disk0: all

-#- --length-- -----date/time------ path
1     29505176 Feb 27 2006 17:56:52 +00:00 c7200-jk9o3s-mz.124-6.T
2        32768 Feb 24 2006 13:30:30 +00:00 file1.log

34738176 bytes available (29540352 bytes used)

******** ATA Flash Card Geometry/Format Info ********

ATA CARD GEOMETRY
   Number of Heads:       4
   Number of Cylinders    984
   Sectors per Cylinder   32
   Sector Size            512
   Total Sectors          125952

ATA CARD FORMAT
   Number of FAT Sectors  62
   Sectors Per Cluster    8
   Number of Clusters     15693
   Number of Data Sectors 125812
   Base Root Sector       232
   Base FAT Sector        108
   Base Data Sector       264

ATA MONLIB INFO
   Image Monlib size = 73048
   Disk monlib size = 55296
   Name = NA
   Monlib end sector = NA
   Monlib Start sector = NA
   Monlib updated by = NA
   Monlib version = NA

c7200# show disk0: filesys

******** ATA Flash Card Geometry/Format Info ********

ATA CARD GEOMETRY
   Number of Heads:       4
   Number of Cylinders    984
   Sectors per Cylinder   32
   Sector Size            512
   Total Sectors          125952

ATA CARD FORMAT
   Number of FAT Sectors  62
   Sectors Per Cluster    8
   Number of Clusters     15693
   Number of Data Sectors 125812
   Base Root Sector       232
   Base FAT Sector        108
   Base Data Sector       264

ATA MONLIB INFO
   Image Monlib size = 73048
   Disk monlib size = 55296
   Name = NA
```

```
Monlib end sector = NA
Monlib Start sector = NA
Monlib updated by = NA
Monlib version = NA
```

Related Commands

Command	Description
dir disk0:	Displays a directory listing of files on an ATA PCMCIA flash disk card located in slot 0.
dir disk1:	Displays a directory listing of files on an ATA PCMCIA flash disk card located in slot 1.
show disk1:	Displays flash or file system information for a disk located in slot 1.

show disk1:

To display flash or file system information for a disk located in slot 1, use the **show disk1:** command in user EXEC or privileged EXEC mode.

show disk1: [**all** | **filesys**]

Syntax Description

all	(Optional) The **all** keyword displays complete information about flash memory, including information about the individual devices in flash memory and the names and sizes of all system image files stored in flash memory, including those that are invalid.
filesys	(Optional) Displays the device information block, the status information, and the usage information.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
11.3AA	This command was introduced.
12.2	This command was incorporated into Cisco IOS Release 12.2.
12.3(7)T	This command was enhanced to display information about the ATA ROM monitor library (monlib) file.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The **show disk1:** command is supported only on platforms that have a disk file system. Use the **show disk01:** command to display details about the files in a particular ATA PCMCIA flash disk memory card located in slot 1.

For more information regarding file systems and flash cards, access the *PCMCIA Filesystem Compatibility Matrix and Filesystem Information* document at the following URL:

http://www.cisco.com/en/US/partner/products/hw/routers/ps341/products_tech_note09186a00800a7515.shtml

Note The name of the ATA monlib file may contain a platform name that does not match the platform that you are using. Different platforms may have a similar name or the same name for their ATA monlib file.

Examples

The following examples show displays of information about the flash disks or file system information for a disk. The output is self-explanatory.

```
c7200# show disk1:

-#- --length-- -----date/time------ path
```

```
1     29505176 Feb 27 2006 17:56:52 +00:00 c7200-jk9o3s-mz.124-6.T
2        32768 Feb 24 2006 13:30:30 +00:00 file1.log

34738176 bytes available (29540352 bytes used)

c7200# show disk1: all

-#- --length-- -----date/time------ path
1     29505176 Feb 27 2006 17:56:52 +00:00 c7200-jk9o3s-mz.124-6.T
2        32768 Feb 24 2006 13:30:30 +00:00 file1.log

34738176 bytes available (29540352 bytes used)

******** ATA Flash Card Geometry/Format Info ********

ATA CARD GEOMETRY
   Number of Heads:       4
   Number of Cylinders    984
   Sectors per Cylinder   32
   Sector Size            512
   Total Sectors          125952

ATA CARD FORMAT
   Number of FAT Sectors  62
   Sectors Per Cluster    8
   Number of Clusters     15693
   Number of Data Sectors 125812
   Base Root Sector       232
   Base FAT Sector        108
   Base Data Sector       264

ATA MONLIB INFO
   Image Monlib size = 73048
   Disk monlib size = 55296
   Name = NA
   Monlib end sector = NA
   Monlib Start sector = NA
   Monlib updated by = NA
   Monlib version = NA

c7200# show disk1: filesys

******** ATA Flash Card Geometry/Format Info ********

ATA CARD GEOMETRY
   Number of Heads:       4
   Number of Cylinders    984
   Sectors per Cylinder   32
   Sector Size            512
   Total Sectors          125952

ATA CARD FORMAT
   Number of FAT Sectors  62
   Sectors Per Cluster    8
   Number of Clusters     15693
   Number of Data Sectors 125812
   Base Root Sector       232
   Base FAT Sector        108
   Base Data Sector       264

ATA MONLIB INFO
   Image Monlib size = 73048
   Disk monlib size = 55296
   Name = NA
```

```
Monlib end sector = NA
Monlib Start sector = NA
Monlib updated by = NA
Monlib version = NA
```

Related Commands

Command	Description
dir disk0:	Displays a directory listing of files on an ATA PCMCIA flash disk card located in slot 0.
dir disk1:	Displays a directory listing of files on an ATA PCMCIA flash disk card located in slot 1.
show disk0:	Displays flash or file system information for a disk located in slot 0.

show environment

To display temperature, voltage, fan, and power supply information, use the **show environment** command in user EXEC or privileged EXEC mode.

show environment [**alarms** | **all** | **fans** | **hardware** | **last** | **leds** | **power-supply** | **table** | **temperature** | **voltages**]

Cisco 7000 Series, Cisco 7200 Series, Cisco 7304, and Cisco 7500 Series

show environment [**all** | **last** | **table**]

Cisco ASR 1000 Series

show environment {**all** | **counters** | **history** *sensor* | **location** *sensor* | **sensor** *sensor* | **table** *sensor*}

Syntax Description

alarms	(Optional) Displays the alarm contact information.
all	(Optional) Displays a detailed listing of all environmental monitor parameters (for example, the power supplies, temperature readings, voltage readings, and blower speeds). This is the default.
fans	(Optional) Displays blower and fan information.
hardware	(Optional) Displays hardware-specific information.
last	(Optional) Displays information on the last measurement made.
leds	(Optional) Displays the status of the MBus LEDs on the clock and scheduler cards and switch fabric cards.
power-supply	(Optional) Displays power supply voltage and current information. If applicable, displays the status of the redundant power supply.
table	(Optional) Displays the temperature, voltage, and blower ranges and thresholds. On the Cisco 7200 series, including the NPE-G2 in the Cisco 7200 VXR, the Cisco 7304 routers, and the Cisco 7500 series routers, the **table** keyword displays only the temperature and voltage thresholds.
temperature	(Optional) Displays temperature information.
voltages	(Optional) Displays voltage information.
counters	Displays operational counters.
history	Displays sensor state change history.
location	Displays sensors by location.
sensor	Displays sensor summary.
sensor	Sensor name.

Command Default

If no options are specified, the default is **all**.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
10.0	This command was introduced.
11.2 GS	The **alarms**, **fans**, **hardware**, **leds**, **power-supply**, **table, temperature**, and **voltages** keywords were added for the Cisco 12000 series GSRs.
11.3(6)AA	This command was expanded to monitor the RPS and board temperature for the Cisco AS5300 platform, Cisco 3600 series routers, Cisco 7200 series routers, and the Cisco 12000 series GSRs.
12.2(20)S	This command was integrated into Cisco IOS Release 12.2(20)S.
12.2(20)S2	This command was integrated into Cisco IOS Release 12.2(20)S2 to support MSCs and SPAs on the Cisco 7304 router using the **all**, **last**, and **table** keywords.
12.4(4)XD	This command was integrated into Cisco IOS Release 12.4(4)XD to support the NPE-G2 on the Cisco 7200 VXR using the **all**, **last**, and **table** keywords. Command output was modified for the NPE-G2.
12.2(31)SB2	This command was integrated into Cisco IOS Release 12.2(31)SB2.
Cisco IOS XE Release 2.1	This command was integrated into Cisco IOS XE Release 2.1 on the Cisco ASR 1000 Series Routers.

Usage Guidelines

The availability of keywords depends on your system and platform. The command does not support SPAs on the Cisco 7200 series and on the NPE-G2 in the Cisco 7200 VXR routers.

A routine runs once a minute that reads environmental measurements from sensors and stores the output into a buffer. For shared port adapters (SPAs), the temperature and voltage sensors are read every few seconds to get environmental data. The environmental buffer is displayed on the console when you use the **show environment** command.

If a measurement exceeds desired margins, but has not exceeded fatal margins, a warning message is printed to the system console. The system software queries the sensors for measurements once a minute, but warnings for a given test point are printed at most once every hour for sensor readings in the warning range and once every 5 minutes for sensor readings in the critical range. If a measurement is out of line within these time segments, an automatic warning message appears on the console. As noted, you can query the environmental status with the **show environment** command at any time to determine whether a measurement is at the warning or critical tolerance.

A SPA is shut down when any of the SPA environment readings exceed the shutdown threshold.

If a shutdown occurs because of detection of fatal environmental margins, the last measured value from each sensor is stored in internal nonvolatile memory.

For environmental specifications, refer to the hardware installation and configuration publication for your individual chassis.

For network processor engines (NPEs), network services engines (NSEs), line cards, and modular services cards (MSCs), environmental information is recorded in the CISCO-ENVMON-MIB. SPAs are not supported by the CISCO-ENVMON-MIB. In Cisco IOS Release 12.2(20)S2 and later, the CISCO-ENTITY-SENSOR-MIB supports environmental information for SPAs, as well as NPEs, NSEs, line cards, and MSCs.

If the Cisco 12000 series GSR exceeds environmental conditions, a message similar to the following is displayed on the console:

```
%GSR_ENV-2-WARNING: Slot 3 Hot Sensor Temperature exceeds 40 deg C;
Check cooling systems
```

Note Blower temperatures that exceed environmental conditions do not generate a warning message.

You can also enable Simple Network Management Protocol (SNMP) notifications (traps or informs) to alert a network management system (NMS) when environmental thresholds are reached using the **snmp-server enable traps envmon** and **snmp-server host** global configuration commands.

Whenever Cisco IOS software detects a failure or recovery event from the DRPS unit, it sends an SNMP trap to the configured SNMP server. Unlike console messages, only one SNMP trap is sent when the failure event is first detected. Another trap is sent when the recovery is detected.

Cisco AS5300 DRPS software reuses the MIB attributes and traps defined in CISCO-ENVMON-MIB and CISCO-ACCESS-ENVMON-MIB. CISCO-ENVMON-MIB is supported by all Cisco routers with RPS units, and CISCO-ACCESS-ENVMON-MIB is supported by the Cisco 3600 series routers.

A power supply trap defined in CISCO-ENVMON-MIB is sent when a failure is detected and when a failure recovery occurs for the following events: input voltage fail, DC output voltage fail, thermal fail, and multiple failure events.

A fan failure trap defined in CISCO-ENVMON-MIB is sent when a fan failure or recovery event is detected by Cisco IOS software.

A temperature trap defined in CISCO-ACCESS-ENVMON-MIB is sent when a board over-temperature condition is detected by Cisco IOS software.

CISCO-ACCESS-ENVMON-MIB also defines an over-voltage trap. A similar trap is defined in CISCO-ENVMON-MIB, but it requires the ciscoEnvMonVoltageStatusValue in varbinds. This value indicates the current value of the voltage in the RPS. With Cisco AS5300 RPS units, the current voltage value is not sent to the motherboard.

CISCO-ENVMON-MIB is extended to add a new enumerated value, internalRedundant(5), for MIB attribute ciscoEnvMonSupplySource. This is used to identify a RPS unit.

Examples

Cisco ASR 1000 Series Routers

In the following example, the **show environment all** command displays system temperature, voltage, fan, and power supply conditions. (It does not display environmental information for SPAs.) The State column in **show environment all** output should show "Normal" except for fans where it indicates fan speed. A fan speed of 65% is normal.

```
Router# show environment all
Sensor List:  Environmental Monitoring
 Sensor           Location          State             Reading
 V1: VMA          F0                Normal            1801 mV
 V1: VMB          F0                Normal            1206 mV
 V1: VMC          F0                Normal            1206 mV
 V1: VMD          F0                Normal            1103 mV
 V1: VME          F0                Normal            1005 mV
 V1: 12v          F0                Normal            11967 mV
 V1: VDD          F0                Normal            3295 mV
 V1: GP1          F0                Normal            905 mV
 V2: VMA          F0                Normal            3295 mV
 V2: VMB          F0                Normal            2495 mV
 V2: VMC          F0                Normal            1499 mV
 V2: VMD          F0                Normal            1098 mV
```

```
 V2: VME          F0               Normal           1000 mV
 V2: VMF          F0               Normal           1000 mV
 V2: 12v          F0               Normal           11923 mV
 V2: VDD          F0               Normal           3295 mV
 V2: GP1          F0               Normal           751 mV
 Temp: Inlet      F0               Normal           27 Celsius
 Temp: Asic1      F0               Normal           44 Celsius
 Temp: Exhaust1   F0               Normal           36 Celsius
 Temp: Exhaust2   F0               Normal           34 Celsius
 Temp: Asic2      F0               Normal           40 Celsius
 V1: VMA          0                Normal           1103 mV
 V1: VMB          0                Normal           1201 mV
 V1: VMC          0                Normal           1503 mV
 V1: VMD          0                Normal           1801 mV
 V1: VME          0                Normal           2495 mV
 V1: VMF          0                Normal           3295 mV
 V1: 12v          0                Normal           11967 mV
 V1: VDD          0                Normal           3295 mV
 V1: GP1          0                Normal           751 mV
 V1: GP2          0                Normal           903 mV
 V2: VMB          0                Normal           1201 mV
 V2: 12v          0                Normal           11967 mV
 V2: VDD          0                Normal           3291 mV
 V2: GP2          0                Normal           903 mV
 Temp: Left       0                Normal           28 Celsius
 Temp: Center     0                Normal           29 Celsius
 Temp: Asic1      0                Normal           42 Celsius
 Temp: Right      0                Normal           27 Celsius
 V1: VMA          1                Normal           1103 mV
 V1: VMB          1                Normal           1201 mV
 V1: VMC          1                Normal           1503 mV
 V1: VMD          1                Normal           1801 mV
 V1: VME          1                Normal           2495 mV
 V1: VMF          1                Normal           3295 mV
 V1: 12v          1                Normal           11953 mV
 V1: VDD          1                Normal           3291 mV
 V1: GP1          1                Normal           754 mV
 V1: GP2          1                Normal           903 mV
 V2: VMB          1                Normal           1206 mV
 V2: 12v          1                Normal           11967 mV
 V2: VDD          1                Normal           3291 mV
 V2: GP2          1                Normal           905 mV
 Temp: Left       1                Normal           28 Celsius
 Temp: Center     1                Normal           30 Celsius
 Temp: Asic1      1                Normal           44 Celsius
 Temp: Right      1                Normal           28 Celsius
 PEM Iout         P0               Normal           37 A
 PEM Vout         P0               Normal           12 V AC
 PEM Vin          P0               Normal           116 V AC
 Temp: PEM        P0               Normal           28 Celsius
 Temp: FC         P0               Fan Speed 65%    25 Celsius
 Temp: FM         P1               Normal           1 Celsius
Temp: FC         P1               Fan Speed 65%    25 Celsius
 V1: VMA          R0               Normal           1118 mV
 V1: VMB          R0               Normal           3315 mV
 V1: VMC          R0               Normal           2519 mV
 V1: VMD          R0               Normal           1811 mV
 V1: VME          R0               Normal           1513 mV
 V1: VMF          R0               Normal           1220 mV
 V1: 12v          R0               Normal           12011 mV
 V1: VDD          R0               Normal           3300 mV
 V1: GP1          R0               Normal           913 mV
 V1: GP2          R0               Normal           1247 mV
 Temp: CPU        R0               Normal           29 Celsius
```

```
Temp: Outlet     R0               Normal           30 Celsius
Temp: Inlet      R0               Normal           25 Celsius
Temp: Asic1      R0               Normal           30 Celsius
```

Table 70 describes the significant fields shown in the display.

Table 70 show environment all Field Descriptions

Field	Description
Sensor	Sensor name.
Location	Chassis slot.
State	State description. One of the following values: • Critical—Critical alarm indicating a service-affecting condition. • Fan Speed—Fan speed (65% is normal). • Major—Major alarm indicating immediate action is needed. • Minor—Minor alarm indicating warning conditions. • Normal—Sensor reading is in acceptable range. • Shutdown—If automatic shutdown is enabled, indicates that the router will shut down.
Reading	Voltage or temperature detected by the sensor.

Cisco 7000 Series Routers, Cisco 7200 Series Routers

In the following example, the typical **show environment** display is shown when no warning conditions are in the system for the Cisco 7000 series and Cisco 7200 series routers. This information may vary slightly depending on the platform you are using. The date and time of the query are displayed, along with the data refresh information and a message indicating that there are no warning conditions.

```
Router> show environment

Environmental Statistics
  Environmental status as of 13:17:39 UTC Thu Jun 6 1996
  Data is 7 second(s) old, refresh in 53 second(s)

  All Environmental Measurements are within specifications
```

Table 71 describes the significant fields shown in the display.

Table 71 show environment Field Descriptions

Field	Description
Environmental status as of...	Current date and time.
Data is..., refresh in...	Environmental measurements are output into a buffer every 60 seconds, unless other higher-priority processes are running.
Status message	If environmental measurements are not within specification, warning messages are displayed.

NPE-G2 in Cisco 7200 VXR Routers

In the following example, additional temperature and voltage readings for the NPE-G2 in the Cisco 7200 VXR router are displayed by the **show environment all** command. Power supplies 1 and 2 are on, and all monitored variables are within the normal operating range.

```
Router_npe-g2# show environment all
Power Supplies:
Power Supply 1 is Zytek AC Power Supply. Unit is on.
Power Supply 2 is Zytek AC Power Supply. Unit is on.
Temperature readings:
NPE Inlet measured at 25C/77F
NPE Outlet measured at 28C/82F
CPU Die measured at 56C/132F            =======> additional temperature reading on NPE-G2
Voltage readings:
+3.30 V measured at +3.32 V             =======> additional voltage reading on NPE-G2
+1.50 V measured at +1.48 V             =======> additional voltage reading on NPE-G2
+2.50 V measured at +2.46 V             =======> additional voltage reading on NPE-G2
+1.80 V measured at +1.75 V             =======> additional voltage reading on NPE-G2
+1.20 V measured at +1.17 V             =======> additional voltage reading on NPE-G2
VDD_CPU measured at +1.28 V             =======> additional voltage reading on NPE-G2
VDD_MEM measured at +2.50 V             =======> additional voltage reading on NPE-G2
VTT measured at +1.25 V                 =======> additional voltage reading on NPE-G2
+3.45 V measured at +3.39 V
-11.95 measured at -11.93 V
+5.15 V measured at +4.96 V
+12.15 V measured at +12.18 V
Envm stats saved 0 time(s) since reload
```

Table 72 show environment all Field Descriptions for NPE-G2 in Cisco 7200 VXR Router

Field	Description
Power Supply *x* is present.	Specifies whether the indicated (*x*) power supply slot is populated. If a power supply slot is populated, the manufacturer name and whether it is an AC or DC power supply is displayed.
Unit is ...	Indicates whether the power supply status is on or off.
Temperature readings	Indicates the temperature of air coming in and going out of the NPE Inlet, NPE Outlet, and CPU Die areas.
NPE Inlet measured at 25C/77F	Indicates that the temperature measurements at the inlet area of the chassis is 25C/77F, which is within normal operating range. System shutdown for NPE Inlet is 80C/176F.
NPE Outlet measured at 28C/82F	Indicates that the temperature measurements at the outlet area of the chassis is 28C/82F, which is within normal operating range. System shutdown for NPE Outlet is 84C/183F.
CPU Die measured at 56C/132F	Indicates that the temperature measurement at the CPU Die (internal silicon of the CPU) area of the chassis is 56C/132F, which is within normal operating range. System shutdown for CPU Die is 100C/212F.

Table 72 show environment all Field Descriptions for NPE-G2 in Cisco 7200 VXR Router

Field	Description
Voltage readings: +3.30 V measured at +3.32 V +1.50 V measured at +1.48 V	System voltage measurements that indicate the actual measured value for the specified power rail, which is named after the expected target value. For example, the +3.30 V rail, with an expected value of +3.30 V, actually measures at +3.32 V. This is within the target range. For example, the +1.50 V rail, with an expected value of +1.50 V, actually measures at +1.48 V. This is within the target range.
VDD_CPU measured at +1.28 V	Indicates +1.28 V is the measured voltage of the VDD_CPU power rail, which is within normal operating range. The expected value is 1.3 V.
VDD_MEM measured at +2.50 V	Indicates +2.50 V is the measured voltage of the VDD_MEM power rail, which is within normal operating range. The expected value is 2.5 V.
VTT measured at +1.25 V	Indicates +1.25 V is the measured voltage of the VTT power rail, which is within normal operating range. The expected value is 1.25 V.

In the following example, the **show environment last** command displays the previously saved measurements (readings) from the last environmental reading before the router was shut down. The command also displays the reason why the router was shut down, which was "power supply shutdown" in this case.

```
Router_npe-g2# show environment last
NPE Inlet previously measured at 26C/78F
NPE Outlet previously measured at 28C/82F
CPU Die previously measured at 56C/132F
+3.30 V previously measured at +3.32
+1.50 V previously measured at +1.48
+2.50 V previously measured at +2.46
+1.80 V previously measured at +1.75
+1.20 V previously measured at +1.17
VDD_CPU previously measured at +1.28
VDD_MEM previously measured at +2.50
VTT previously measured at +1.25
+3.45 V previously measured at +3.39
-11.95 previously measured at -11.93
+5.15 V previously measured at +4.96
+12.15 V previously measured at +12.18
last shutdown reason - power supply shutdown
```

Table 73 show environment last Field Descriptions for NPE-G2 in Cisco 7200 VXR Router

Field	Description
NPE Inlet previously measured at 26C/78F	The last measured temperature of the inlet air of the router prior to shutdown.
NPE Outlet previously measured at 28C/82F	The last measured temperature of the outlet air of the router prior to shutdown.
CPU Die previously measured at 56C/132F	The last measured temperature of the CPU Die prior to shutdown.

Table 73 show environment last Field Descriptions for NPE-G2 in Cisco 7200 VXR Router

Field	Description
+3.30 V previously measured at +3.32	The last measured voltage of the 3.30 V power rail prior to shutdown.
VDD_CPU previously measured at +1.28	The last measured voltage of the VDD_CPU power rail prior to shutdown.
VDD_MEM previously measured at +2.50	The last measured voltage of the VDD_MEM power rail prior to shutdown.
VTT previously measured at +1.25	The last measured voltage of the VTT power rail prior to shutdown.
last shutdown reason	Indicates the reason for the shutdown.

In the following example, the **show environment table** command displays threshold levels in a table format of the environmental monitor parameters. It displays the high warning, high critical, and high shutdown temperature thresholds of the NPE inlet, NPE outlet, and CPU Die. It also displays the low and high critical voltage thresholds, and low and high shut down voltage thresholds for the power rails on the NPE-G2 in the Cisco 7200 VXR.

Note The low range temperatures, such as the LowShut, LowCrit, and LowWarn temperature thresholds, are not checked and are not displayed on the NPE-G2. Also the warning voltage thresholds, such as LowWarn and HighWarn, are not checked and are not displayed on the NPE-G2.

```
Router_npe-g2# show environment table
Sample Point LowShut LowCrit LowWarn HighWarn HighCrit HighShut
NPE Inlet                           44C/111F 59C/138F
NPE Outlet                          49C/120F 64C/147F
CPU Die                             75C/167F 85C/185F
System shutdown for NPE Inlet is 80C/176F
System shutdown for NPE Outlet is 84C/183F
System shutdown for CPU Die is 100C/212F
+3.30 V      +2.30   +3.12                  +3.47    +4.29
+1.50 V      +1.05   +1.40                  +1.56    +1.95
+2.50 V      +1.71   +2.34                  +2.61    +3.28
+1.80 V      +1.25   +1.67                  +1.91    +2.34
+1.20 V      +0.82   +1.13                  +1.28    +1.56
VDD_CPU      +0.89   +1.21                  +1.36    +1.71
VDD_MEM      +1.71   +2.34                  +2.61    +3.28
VTT          +0.85   +1.17                  +1.32    +1.64
+3.45 V      +2.38   +3.28                  +3.63    +4.49
-11.95 V     -8.44   -11.56                 -12.84   -15.78
+5.15 V      +3.59   +4.88                  +5.42    +6.71
+12.15 V     +8.55   +11.48                 +12.77   +15.82
```

Table 74 show environment table Field Descriptions for NPE-G2 in Cisco 7200 VXR Router

Field	Description
Sample Point	This is the area for which temperature or system voltage thresholds are displayed.
LowShut	This is the LowShut voltage threshold. If the voltage value is below the LowShut threshold, the router shuts down. **Note** The LowShut temperature value is not checked and its threshold is not displayed on the NPE-G2.
LowCrit	This is the low critical voltage threshold. If the voltage value is below the LowCrit threshold, a critical message is issued for an out-of-tolerance voltage value. The system continues to operate. However, the system is approaching shutdown. **Note** The LowCrit temperature value is not checked and its threshold is not displayed on the NPE-G2.
LowWarn	The LowWarn temperature threshold and LowWarn voltage threshold are not checked and the threshold information is not displayed on the NPE-G2.
HighWarn	This is the HighWarn temperature threshold. If the temperature reaches the HighWarn threshold, a warning message is issued for an out-of-tolerance temperature value. The system continues to operate, but operator action is recommended to bring the system back to a normal state. **Note** The HighWarn voltage threshold is not checked and its threshold is not displayed on the NPE-G2.
HighCrit	This is the HighCrit temperature or voltage threshold. If the temperature or voltage reaches the HighCrit level, a critical message is issued. The system continues to operate. However, the system is approaching shutdown. **Note** Beware that if the temperature reaches or exceeds the HighShut value, a Shutdown message is issued and the router shuts down.
HighShut	This is the HighShut temperature or voltage threshold. If the temperature or voltage level reaches or exceeds the HighShut value, a Shutdown message is issued and the router shuts down.

Table 74 show environment table Field Descriptions for NPE-G2 in Cisco 7200 VXR Router

Field	Description
NPE Inlet 44C/111F 59C/138F	These are the HighWarn and HighCrit temperature thresholds, respectively, for the NPE Inlet. If the NPE Inlet temperature value reaches the HighWarn (44C/111F) and HighCrit (59C/138F) levels, warning and critical messages, respectively, are issued. If the value reaches 44C/111F or greater, you receive a warning message indicating HighWarn. The system continues to operate, but operator action is recommended to bring the system back to a normal state. If the value reaches 59C/138F or greater, you receive a critical (HighCrit) message instead, that indicates the system continues to operate, but the system is approaching shutdown. **Note** Beware if the temperature reaches or exceeds 80C/176F, which is the HighShut value, a Shutdown message is issued, and the NPE Inlet area shuts down.
NPE Outlet 49C/120F 64C/147F	These are the HighWarn and HighCrit temperature thresholds, respectively, for the NPE Outlet. If the NPE Outlet temperature value reaches the HighWarn (49C/120F) and HighCrit (64C/147F) levels, warning and critical messages, respectively, are issued. If the value reaches 49C/120F or greater, you receive a warning message indicating HighWarn. The system continues to operate, but operator action is recommended to bring the system back to a normal state. If the value reaches 64C/147F or greater, you receive a critical (HighCrit) message instead that indicates the system continues to operate, but the system is approaching shutdown. **Note** Beware if the temperature reaches or exceeds 84C/183F, which is the HighShut value, a Shutdown message is issued, and the NPE Outlet area shuts down.

Table 74 show environment table Field Descriptions for NPE-G2 in Cisco 7200 VXR Router

Field	Description
CPU Die 75C/167F 85C/185F	These are the HighWarn and HighCrit temperature thresholds, respectively, for the CPU Die. If the CPU Die temperature value reaches the HighWarn (75C/167F) and HighCrit (85C/185F) levels, warning and critical messages, respectively, are issued. If the value reaches 75C/167F or greater, you receive a warning message indicating HighWarn. The system continues to operate, but operator action is recommended to bring the system back to a normal state. If the value reaches 85C/185F or greater, you receive a critical (HighCrit) message instead, that indicates the system continues to operate, but the system is approaching shutdown. **Note** Beware if the temperature reaches or exceeds 100C/212F, which is the HighShut value, a Shutdown message is issued and the CPU Die area shuts down.
System shutdown for NPE Inlet is 80C/176F	This is the HighShut temperature threshold for the NPE Inlet. If the temperature reaches or exceeds 80C/176F, a Shutdown message is issued and the NPE Inlet area is shut down.
System shutdown for NPE Outlet is 84C/183F	This is the HighShut temperature threshold for the NPE Outlet. If the temperature reaches or exceeds 84C/183F, a Shutdown message is issued and the NPE Outlet area is shut down.
System shutdown for CPU Die is 100C/212F	This is the HighShut temperature threshold for the CPU Die. If the temperature reaches or exceeds 100C/212F, a Shutdown message is issued and the CPU Die area is shut down.
+3.30 V +2.30 +3.12 +3.47 +4.29	The voltage thresholds for the +3.30 V power rail are as follows: • +2.30 is the LowShut voltage threshold. • +3.12 is the LowCrit voltage threshold. • +3.47 is the HighCrit voltage threshold. • +4.29 is the HighShut voltage threshold. **Note** The LowWarn and HighWarn voltage levels are not checked and their thresholds are not displayed on the NPE-G2.

Table 74 show environment table Field Descriptions for NPE-G2 in Cisco 7200 VXR Router

Field	Description
VDD_CPU +0.89 +1.21 +1.36 +1.71	The voltage thresholds for the VDD_CPU power rail are as follows: • +0.89 is the LowShut voltage threshold. • +1.21 is the LowCrit voltage threshold. • +1.36 is the HighCrit voltage threshold. • +1.71 is the HighShut voltage threshold. **Note** The LowWarn and HighWarn voltage levels are not checked and their thresholds are not displayed on the NPE-G2.
VDD_MEM +1.71 +2.34 +2.61 +3.28	The voltage thresholds for the VDD_MEM power rail are as follows: • +1.71 is the LowShut voltage threshold. • +2.34 is the LowCrit voltage threshold. • +2.61 is the HighCrit voltage threshold. • +3.28 is the HighShut voltage threshold. **Note** The LowWarn and HighWarn voltage levels are not checked and their thresholds are not displayed on the NPE-G2.
VTT +0.85 +1.17 +1.32 +1.64	The voltage thresholds for the VTT power rail are as follows: • +0.85 is the LowShut voltage threshold. • +1.17 is the LowCrit voltage threshold. • +1.32 is the HighCrit voltage threshold. • +1.64 is the HighShut voltage threshold. **Note** The LowWarn and HighWarn voltage levels are not checked and their thresholds are not displayed on the NPE-G2.

Cisco 7000 Series Routers

The following are examples of messages that display on the system console when a measurement has exceeded an acceptable margin:

```
ENVIRONMENTAL WARNING: Air flow appears marginal.
ENVIRONMENTAL WARNING: Internal temperature measured 41.3(C)
ENVIRONMENTAL WARNING: +5 volt testpoint measured 5.310(V)
```

The system displays the following message if voltage or temperature exceed maximum margins:

```
SHUTDOWN: air flow problem
```

In the following example, there have been two intermittent power failures since a router was turned on, and the lower power supply is not functioning. The last intermittent power failure occurred on Monday, June 10, 1996, at 11:07 p.m.

```
7000# show environment all

Environmental Statistics
  Environmental status as of 23:19:47 UTC Wed Jun 12 1996
  Data is 6 second(s) old, refresh in 54 second(s)

  WARNING: Lower Power Supply is NON-OPERATIONAL

  Lower Power Supply:700W, OFF     Upper Power Supply: 700W, ON

  Intermittent Powerfail(s): 2     Last on 23:07:05 UTC Mon Jun 10 1996

  +12 volts measured at  12.05(V)
   +5 volts measured at   4.96(V)
  -12 volts measured at -12.05(V)
  +24 volts measured at  23.80(V)

  Airflow temperature measured at 38(C)
  Inlet temperature measured at 25(C)
```

Table 75 describes the significant fields shown in the display.

Table 75 show environment all Field Descriptions for the Cisco 7000 Series Routers

Field	Description
Environmental status as of...	Date and time of last query.
Data is..., refresh in...	Environmental measurements are output into a buffer every 60 seconds, unless other higher-priority processes are running.
WARNING:	If environmental measurements are not within specification, warning messages are displayed.
Lower Power Supply	Type of power supply installed and its status (on or off).
Upper Power Supply	Type of power supply installed and its status (on or off).
Intermittent Powerfail(s)	Number of power hits (not resulting in shutdown) since the system was last booted.
Voltage specifications	System voltage measurements.
Airflow and inlet temperature	Temperature of air coming in and going out.

The following example is for the Cisco 7000 series routers. The router retrieves the environmental statistics at the time of the last shutdown. In this example, the last shutdown was Friday, May 19, 1995, at 12:40 p.m., so the environmental statistics at that time are displayed.

```
Router# show environment last

Environmental Statistics
  Environmental status as of 14:47:00 UTC Sun May 21 1995
  Data is 6 second(s) old, refresh in 54 second(s)

  WARNING: Upper Power Supply is NON-OPERATIONAL

LAST Environmental Statistics
  Environmental status as of 12:40:00 UTC Fri May 19 1995
```

```
  Lower Power Supply: 700W, ON     Upper Power Supply: 700W, OFF

  No Intermittent Powerfails

  +12 volts measured at  12.05(V)
   +5 volts measured at   4.98(V)
  -12 volts measured at -12.00(V)
  +24 volts measured at  23.80(V)

 Airflow temperature measured at 30(C)
  Inlet  temperature measured at 23(C)
```

Table 76 describes the significant fields shown in the display.

Table 76 show environment last Field Descriptions for the Cisco 7000 Series Routers

Field	Description
Environmental status as of...	Date and time of last query.
Data is..., refresh in...	Environmental measurements are output into a buffer every 60 seconds, unless other higher-priority processes are running.
WARNING:	If environmental measurements are not within specification, warning messages are displayed.
LAST Environmental Statistics	Displays test point values at time of the last environmental shutdown.
Lower Power Supply Upper Power Supply	For the Cisco 7000 router, indicates the status of the two 700W power supplies. For the Cisco 7010 router, indicates the status of the single 600W power supply.

The following example shows sample output for the current environmental status in tables that list voltage and temperature parameters. There are three warning messages: one each about the lower power supply, the airflow temperature, and the inlet temperature. In this example, voltage parameters are shown to be in the normal range, airflow temperature is at a critical level, and inlet temperature is at the warning level.

```
Router> show environment table

Environmental Statistics
  Environmental status as of Mon 11-2-1992 17:43:36
  Data is 52 second(s) old, refresh in 8 second(s)

  WARNING: Lower Power Supply is NON-OPERATIONAL
  WARNING: Airflow temperature has reached CRITICAL level at 73(C)
  WARNING: Inlet temperature has reached WARNING level at 41(C)

Voltage Parameters:

 SENSE        CRITICAL               NORMAL               CRITICAL
-------|--------------------|-----------------------|--------------------

+12(V)                10.20        12.05(V)       13.80
 +5(V)                 4.74         4.98(V)        5.26
-12(V)               -10.20       -12.05(V)      -13.80
+24(V)                20.00        24.00(V)       28.00
```

```
Temperature Parameters:

 SENSE     WARNING      NORMAL      WARNING      CRITICAL      SHUTDOWN
-------|-------------|-----------|-------------|--------------|-----------

Airflow            10           60            70    73(C)      88
Inlet              10           39          41(C)   46         64
```

Table 77 describes the significant fields shown in the display.

Table 77 show environment table Field Descriptions for the Cisco 7000 Series Routers

Field	Description
SENSE (Voltage Parameters)	Voltage specification for a DC line.
SENSE (Temperature Parameters)	Air being measured. Inlet measures the air coming in, and Airflow measures the temperature of the air inside the chassis.
WARNING	System is approaching an out-of-tolerance condition.
NORMAL	All monitored conditions meet normal requirements.
CRITICAL	Out-of-tolerance condition exists.
SHUTDOWN	Processor has detected condition that could cause physical damage to the system.

Cisco 7200 Series Routers

The system displays the following message if the voltage or temperature enters the “Warning” range:

```
%ENVM-4-ENVWARN: Chassis outlet 3 measured at 55C/131F
```

The system displays the following message if the voltage or temperature enters the “Critical” range:

```
%ENVM-2-ENVCRIT: +3.45 V measured at +3.65 V
```

The system displays the following message if the voltage or temperature exceeds the maximum margins:

```
%ENVM-0-SHUTDOWN: Environmental Monitor initiated shutdown
```

The following message is sent to the console if a power supply has been inserted or removed from the system. This message relates only to systems that have two power supplies.

```
%ENVM-6-PSCHANGE: Power Supply 1 changed from Zytek AC Power Supply to removed
```

The following message is sent to the console if a power supply has been powered on or off. In the case of the power supply being shut off, this message can be due to the user shutting off the power supply or to a failed power supply. This message relates only to systems that have two power supplies.

```
%ENVM-6-PSLEV: Power Supply 1 state changed from normal to shutdown
```

The following is sample output from the **show environment all** command on the Cisco 7200 series routers when there is a voltage warning condition in the system:

```
7200# show environment all

Power Supplies:
        Power supply 1 is unknown. Unit is off.
        Power supply 2 is Zytek AC Power Supply. Unit is on.

Temperature readings:
        chassis inlet    measured at 25C/77F
        chassis outlet 1 measured at 29C/84F
```

```
        chassis outlet 2 measured at 36C/96F
        chassis outlet 3 measured at 44C/111F
Voltage readings:
        +3.45 V measured at +3.83 V:Voltage in Warning range!
        +5.15 V measured at +5.09 V
        +12.15  measured at +12.42 V
        -11.95  measured at -12.10 V
```

Table 78 describes the significant fields shown in the display.

Table 78 show environment all Field Descriptions for the Cisco 7200 Series Router

Field	Description
Power Supplies	Current condition of the power supplies including the type and whether the power supply is on or off.
Temperature readings	Current measurements of the chassis temperature at the inlet and outlet locations.
Voltage readings	Current measurement of the power supply test points.

The following example is for the Cisco 7200 series routers. This example shows the measurements immediately before the last shutdown and the reason for the last shutdown (if appropriate).

```
7200# show environment last

   chassis inlet      previously measured at 27C/80F
   chassis outlet 1   previously measured at 31C/87F
   chassis outlet 2   previously measured at 37C/98F
   chassis outlet 3   previously measured at 45C/113F
   +3.3 V             previously measured at 4.02
   +5.0 V             previously measured at 4.92
   +12.0 V            previously measured at 12.65
   -12.0 V            previously measured at 11.71

last shutdown reason - power supply shutdown
```

Table 79 describes the significant fields shown in the display.

Table 79 show environment last Field Descriptions for the Cisco 7200 Series Router

Field	Description
chassis inlet	Temperature measurements at the inlet area of the chassis.
chassis outlet	Temperature measurements at the outlet areas of the chassis.
voltages	Power supply test point measurements.
last shutdown reason	Possible shutdown reasons are power supply shutdown, critical temperature, and critical voltage.

The following example is for the Cisco 7200 series routers. This information lists the temperature and voltage shutdown thresholds for each sensor.

```
7200# show environment table

Sample Point      LowCritical    LowWarning     HighWarning    HighCritical
chassis inlet                                   40C/104F       50C/122F
chassis outlet 1                                43C/109F       53C/127F
chassis outlet 2                                75C/167F       75C/167F
```

```
chassis outlet 3                                    55C/131F        65C/149F
+3.45 V           +2.76          +3.10              +3.80           +4.14
+5.15 V           +4.10          +4.61              +5.67           +6.17
+12.15 V          +9.72          +10.91             +13.37          +14.60
-11.95 V          -8.37          -9.57              -14.34          -15.53
Shutdown system at 70C/158F
```

Table 80 describes the significant fields shown in the display.

Table 80 show environment table Field Descriptions for the Cisco 7200 Series Router

Field	Description
Sample Point	Area for which measurements are taken.
LowCritical	Level at which a critical message is issued for an out-of-tolerance voltage condition. The system continues to operate; however, the system is approaching shutdown.
LowWarning	Level at which a warning message is issued for an out-of-tolerance voltage condition. The system continues to operate, but operator action is recommended to bring the system back to a normal state.
HighWarning	Level at which a warning message is issued. The system continues to operate, but operator action is recommended to bring the system back to a normal state.
HighCritical	Level at which a critical message is issued. For the chassis, the router is shut down. For the power supply, the power supply is shut down.
Shutdown system at	The system is shut down if the specified temperature is met.

Cisco 7500 Series Routers

The sample output for the Cisco 7500 series routers may vary depending on the specific model (for example, the Cisco 7513 router). The following is sample output from the **show environment all** command on the Cisco 7500 series routers:

```
7500# show environment all

Arbiter type 1, backplane type 7513 (id 2)
Power supply #1 is 1200W AC (id 1), power supply #2 is removed (id 7)
Active fault conditions: none
Fan transfer point: 100%
Active trip points: Restart_Inhibit
15 of 15 soft shutdowns remaining before hard shutdown

                        1
              0123456789012
Dbus slots:   X     XX    X

card         inlet      hotpoint      exhaust
RSP(6)     35C/95F     47C/116F      40C/104F
RSP(7)     35C/95F     43C/109F      39C/102F

Shutdown temperature source is 'hotpoint' on RSP(6), requested RSP(6)

+12V measured at 12.31
+5V measured at 5.21
-12V measured at -12.07
+24V measured at 22.08
```

```
+2.5 reference is 2.49

PS1 +5V Current      measured at 59.61 A (capacity 200 A)
PS1 +12V Current     measured at 5.08 A (capacity 35 A)
PS1 -12V Current     measured at 0.42 A (capacity 3 A)
PS1 output is 378 W
```

Table 81 describes the significant fields shown in the display.

Table 81 show environment all Field Descriptions for the Cisco 7500 Series Routers

Field	Description
Arbiter type 1	Numbers indicating the arbiter type and backplane type.
Power supply	Number and type of power supply installed in the chassis.
Active fault conditions:	Lists any fault conditions that exist (such as power supply failure, fan failure, and temperature too high).
Fan transfer point:	Software-controlled fan speed. If the router is operating below its automatic restart temperature, the transfer point is reduced by 10 percent of the full range each minute. If the router is at or above its automatic restart temperature, the transfer point is increased in the same way.
Active trip points:	Compares temperature sensor against the values displayed at the bottom of the **show environment table** command output.
15 of 15 soft shutdowns remaining	When the temperature increases above the "board shutdown" level, a soft shutdown occurs (that is, the cards are shut down, and the power supplies, fans, and CI continue to operate). When the system cools to the restart level, the system restarts. The system counts the number of times this occurs and keeps the up/down cycle from continuing forever. When the counter reaches zero, the system performs a hard shutdown, which requires a power cycle to recover. The soft shutdown counter is reset to its maximum value after the system has been up for 6 hours.
Dbus slots:	Indicates which chassis slots are occupied.
card, inlet, hotpoint, exhaust	Temperature measurements at the inlet, hotpoint, and exhaust areas of the card. The (6) and (7) indicate the slot numbers. Dual Route Switch Processor (RSP) chassis can show two RSPs.
Shutdown temperature source	Indicates which of the three temperature sources is selected for comparison against the "shutdown" levels listed with the **show environment table** command.
Voltages (+12V, +5V, -12V, +24V, +2.5)	Voltages measured on the backplane.
PS1	Current measured on the power supply.

The following example is for the Cisco 7500 series routers. This example shows the measurements immediately before the last shutdown.

```
7500# show environment last

 RSP(4) Inlet       previously measured at 37C/98F
 RSP(4) Hotpoint    previously measured at 46C/114F
```

```
RSP(4) Exhaust     previously measured at 52C/125F
+12 Voltage        previously measured at 12.26
+5 Voltage         previously measured at 5.17
-12 Voltage        previously measured at -12.03
+24 Voltage        previously measured at 23.78
```

Table 82 describes the significant fields shown in the display.

Table 82 show environment last Field Descriptions for the Cisco 7500 Series Routers

Field	Description
RSP(4) Inlet, Hotpoint, Exhaust	Temperature measurements at the inlet, hotpoint, and exhaust areas of the card.
Voltages	Voltages measured on the backplane.

The following example is for the Cisco 7500 series router. This information lists the temperature and voltage thresholds for each sensor. These thresholds indicate when error messages occur. There are two level of messages: warning and critical.

```
7500# show environment table

Sample Point      LowCritical    LowWarning     HighWarning    HighCritical
RSP(4) Inlet                                    44C/111F       50C/122F
RSP(4) Hotpoint                                 54C/129F       60C/140F
RSP(4) Exhaust
+12 Voltage       10.90          11.61          12.82          13.38
+5 Voltage        4.61           4.94           5.46           5.70
-12 Voltage       -10.15         -10.76         -13.25         -13.86
+24 Voltage       20.38          21.51          26.42          27.65
2.5 Reference                    2.43           2.51
Shutdown boards at           70C/158F
Shutdown power supplies at   76C/168F
Restart after shutdown below 40C/104F
```

Table 83 describes the significant fields shown in the display.

Table 83 show environment table Field Descriptions for the Cisco 7500 Series Routers

Field	Description
Sample Point	Area for which measurements are taken.
LowCritical	Level at which a critical message is issued for an out-of-tolerance voltage condition. The system continues to operate; however, the system is approaching shutdown.
LowWarning	Level at which a warning message is issued for an out-of-tolerance voltage condition. The system continues to operate, but operator action is recommended to bring the system back to a normal state.
HighWarning	Level at which a warning message is issued. The system continues to operate, but operator action is recommended to bring the system back to a normal state.
HighCritical	Level at which a critical message is issued. For the chassis, the router is shut down. For the power supply, the power supply is shut down.

Table 83 show environment table Field Descriptions for the Cisco 7500 (continued)Series

Field	Description
Shutdown boards at	The card is shut down if the specified temperature is met.
Shutdown power supplies at	The system is shut down if the specified temperature is met.
Restart after shutdown	The system will restart when the specified temperature is met.

Cisco AS5300 Series Access Servers

In the following example, keywords and options are limited according to the physical characteristics of the system is shown:

```
as5300# show environment ?

  all    All environmental monitor parameters
  last   Last environmental monitor parameters
  table  Temperature and voltage ranges
  |      Output modifiers
  <cr>

as5300# show environment table

%This option not available on this platform
```

Cisco 12000 Series GSRs

The following examples are for the Cisco 12000 series GSRs.

The following is sample output from the **show environment** command for a Cisco 12012 router. Slots 0 through 11 are the line cards, slots 16 and 17 are the clock and scheduler cards, slots 18 through 20 are the switch fabric cards, slots 24 through 26 are the power supplies, and slots 28 and 29 are the blowers. An “NA” in the table means that no values were returned. In some cases it is because the equipment is not supported for that environmental parameter (for example, the power supply and blowers in slots 24, 26, 28, and 29 do not have a 3V power supply, so an NA is displayed).

```
Router# show environment

Slot #  3V      5V      MBUS 5V Hot Sensor      Inlet Sensor
        (mv)    (mv)    (mv)     (deg C)          (deg C)
0       3300    4992    5040       42.0           37.0
2       3296    4976    5136       40.0           33.0
4       3280    4992    5120       38.5           31.5
7       3280    4984    5136       42.0           32.0
9       3292    4968    5160       39.5           31.5
11      3288    4992    5152       40.0           30.5
16      3308    NA      5056       42.5           38.0
17      3292    NA      5056       40.5           36.5
18      3304    NA      5176       36.5           35.0
19      3300    NA      5184       37.5           33.5
20      3304    NA      5168       36.5           34.0
24      NA      5536    5120       NA             31.5
26      NA      5544    5128       NA             31.5
28      NA      NA      5128       NA             NA
29      NA      NA      5104       NA             NA

Slot #  48V     AMP_48
        (Volt)  (Amp)
24      46      12
26      46      19
```

```
Slot #  Fan 0    Fan 1    Fan 2
        (RPM)    (RPM)    (RPM)
28      2160     2190     2160
29      2130     2190     2070
```

Table 84 describes the significant fields shown and lists the equipment supported by each environmental parameter. "NA" indicates that the reading could not be obtained, so the command should be run again.

Table 84 show environment Field Descriptions for the Cisco 12000 Series Routers

Field	Description
Slot #	Slot number of the equipment. On the Cisco 12012 router, slots 0 through 11 are the line cards, slots 16 and 17 are the clock and scheduler cards, slots 18 through 20 are the switch fabric cards, slots 24 through 27 are the power supplies, and slots 28 and 29 are the blowers.
3V (mv)	Measures the 3V power supply on the card. The 3V power supply is on the line cards, GRP card, clock and scheduler cards, and switch fabric cards.
5V (mv)	Measures the 5V power supply on the card. The 5V power supply is on the line cards, GRP card, and power supplies.
MBUS 5V (mv)	Measures the 5V MBus on the card. The 5V MBus is on all equipment.
Hot Sensor (deg C)	Measures the temperature at the hot sensor on the card. The hot sensor is on the line cards, GRP card, clock and scheduler cards, switch fabric cards, and blowers.
Inlet Sensor (deg C)	Measures the current inlet temperature on the card. The inlet sensor is on the line cards, GRP card, clock and scheduler cards, switch fabric cards, and power supplies.
48V (Volt)	Measures the DC power supplies.
AMP_48 (Amp)	Measures the AC power supplies.
Fan 0, Fan 1, Fan 2 (RPM)	Measures the fan speed in rotations per minute.

The following is sample output from the **show environment all** command for the Cisco 12008 router. Slots 0 through 7 are the line cards, slots 16 and 17 are the clock scheduler cards (the clock scheduler cards control the fans), slots 18 through 20 are the switch fabric cards, and slots 24 and 26 are the power supplies. The Cisco 12008 router does not support slots 25, 27, 28, and 29. An "NA" in the table means that no values were returned. In some cases it is because the equipment is not supported for that environmental parameter (for example, the power supplies in slots 24 and 26 do not have a hot sensor, so an NA is displayed).

```
Router# show environment all

Slot #  Hot Sensor      Inlet Sensor
         (deg C)          (deg C)
2          31.0             22.0
5          33.5             26.5
16         25.5             21.5
18         22.0             21.0
19         22.5             21.0
24         NA               29.5
26         NA               24.5
```

```
Slot #  3V      5V      MBUS 5V
        (mv)    (mv)    (mv)
2       3292    5008    5136
5       3292    5000    5128
16      3272    NA      5128
18      3300    NA      5128
19      3316    NA      5128

Slot #  5V      MBUS 5V 48V     AMP_48
        (mv)    (mv)    (Volt)  (Amp)
24      0       5096    3       0
26      5544    5144    47      3

Slot #  Fan Information
16      Voltage 16V Speed slow: Main Fans Ok Power Supply fans Ok

Alarm Indicators
No alarms

Slot #  Card Specific Leds
16      Mbus OK SFCs Failed
18      Mbus OK
19      Mbus OK
24      Input Failed
26      Input Ok
```

The following is sample output from the **show environment table** command for a Cisco 12012 router. The **show environment table** command lists the warning, critical, and shutdown limits on your system and includes the GRP card and line cards (slots 0 to 15), clock and scheduler cards (slots 16 and 17), switch fabric cards (slots 18 to 20), and blowers.

```
Router# show environment table

Hot Sensor Temperature Limits (deg C):
                        Warning Critical Shutdown
GRP/GLC (Slots 0-15)       40      46      57
CSC     (Slots 16-17)      46      51      65
SFC     (Slots 18-20)      41      46      60

Inlet Sensor Temperature Limits (deg C):
                        Warning Critical Shutdown
GRP/GLC (Slots 0-15)       35      40      52
CSC     (Slots 16-17)      40      45      59
SFC     (Slots 18-20)      37      42      54

3V Ranges (mv):
                           Warning         Critical        Shutdown
                        Below   Above   Below  Above    Below  Above
GRP/GLC (Slots 0-15)     3200    3400    3100   3500     3050   3550
CSC     (Slots 16-17)    3200    3400    3100   3500     3050   3550
SFC     (Slots 18-20)    3200    3400    3100   3500     3050   3550

5V Ranges (mv):
                           Warning         Critical        Shutdown
                        Below   Above   Below  Above    Below  Above
GRP/GLC (Slots 0-15)     4850    5150    4750   5250     4680   5320

MBUS_5V Ranges (mv):
                           Warning         Critical        Shutdown
                        Below   Above   Below  Above    Below  Above
GRP/GLC (Slots 0-15)     5000    5250    4900   5350     4750   5450
CSC     (Slots 16-17)    4820    5150    4720   5250     4750   5450
SFC     (Slots 17-20)    5000    5250    4900   5350     4750   5450
```

```
Blower Operational Range (RPM):

Top Blower:
                Warning    Critical
                 Below      Below
Fan 0           1000        750
Fan 1           1000        750
Fan 2           1000        750

Bottom Blower:
                Warning    Critical
                 Below      Below
Fan 0           1000        750
Fan 1           1000        750
Fan 2           1000        750
```

The following is sample output from the **show environment leds** command for a Cisco 12012 router. The **show environment leds** command lists the status of the MBus LEDs on the clock, scheduler, and the switch fabric cards.

```
Router# show environment leds

16 leds Mbus OK
18 leds Mbus OK
19 leds Mbus OK
20 leds Mbus OK
```

Cisco 7304 Router

The following is sample output from the **show environment all** command on a Cisco 7304 router with modular services cards (MSCs) and shared port adapters (SPAs) installed:

```
Router# show environment all

Power Supplies:
        Power supply 1 is AC power supply. Unit is on.
        Power supply 2 is empty.
Fans:
        Fan 1 is on.
        Fan 2 is on.
Temperature readings:
  Active RP (NPEG100, slot 0):
        npeg100 outlet       measured at 29C/84F
        npeg100 inlet        measured at 34C/93F
        npeg100 hotspot      measured at 35C/95F
  Line card (7304-MSC-100, slot 4):
        7304-MSC-100         measured at 32C/89F
  Card in subslot 4/0:
        SPA-4FE-7304 inlet   measured at 31C/87F
        SPA-4FE-7304 outlet  measured at 32C/89F
Voltage readings:
  Active RP (NPEG100, slot 0):
        npe outlet  2.5  V   measured at  2.496 V
        npe outlet  3.3  V   measured at  3.302 V
        npe outlet  5.0  V   measured at  4.992 V
        npe outlet 12.0  V   measured at 11.812 V
        npe outlet  3.3c V   measured at  3.199 V
        npe inlet   1.5  V   measured at  1.494 V
        npe outlet  1.8  V   measured at  1.790 V
        npe outlet  1.2  V   measured at  1.198 V
        npe outlet  1.2c V   measured at  1.198 V
```

```
  Line card (7304-MSC-100, slot 4):
        7304-MSC-100 0.75 V  measured at  0.733 V
        7304-MSC-100 1.5 V   measured at  1.494 V
        7304-MSC-100 2.5 V   measured at  2.483 V
        7304-MSC-100 3.3 V   measured at  3.250 V
        7304-MSC-100 12 V    measured at 11.937 V
  Card in subslot 4/0:
        SPA-4FE-7304 1.8V    measured at  1.802 V
        SPA-4FE-7304 1.5V    measured at  1.503 V
        SPA-4FE-7304 2.5V    measured at  2.474 V
        SPA-4FE-7304 3.3V    measured at  3.252 V
        SPA-4FE-7304 1.0V    measured at  1.015 V
Envm stats saved 13 time(s) since reload
```

The following is sample output from the **show environment last** command on a Cisco 7304 router with MSCs and SPAs installed and an NSE-100:

```
Router# show environment last

Temperature information:
  NSE board:
        nse outlet           is unmeasured
        nse inlet            is unmeasured
        nse hotspot          is unmeasured
        nse db               is unmeasured
  Line card slot 4:
        7304-MSC-100         is unmeasured
  Card in subslot 4/1:
        SPA-4FE-7304 inlet   previously measured at 30C/86F
        SPA-4FE-7304 outlet  previously measured at 32C/89F
Voltage information:
  NSE board:
        nse outlet 1.8 V     is unmeasured
        nse outlet 2.5 V     is unmeasured
        nse outlet 3.3 V     is unmeasured
        nse outlet 5 V       is unmeasured
        nse outlet 12 V      is unmeasured
        nse inlet 1.8 V      is unmeasured
        nse inlet 3.3 V      is unmeasured
        nse inlet 1.5 V      is unmeasured
        nse hotspot 1.8 V    is unmeasured
        nse db 1.65 V        is unmeasured
        nse db 1.8 V         is unmeasured
  Line card slot 4:
        7304-MSC-100 0.75 V  is unmeasured
        7304-MSC-100 1.5 V   is unmeasured
        7304-MSC-100 2.5 V   is unmeasured
        7304-MSC-100 3.3 V   is unmeasured
        7304-MSC-100 12 V    is unmeasured
  Card in subslot 4/1:
        SPA-4FE-7304 1.8V    previously measured at  1.823 V
        SPA-4FE-7304 1.5V    previously measured at  1.512 V
        SPA-4FE-7304 2.5V    previously measured at  2.504 V
        SPA-4FE-7304 3.3V    previously measured at  3.258 V
        SPA-4FE-7304 1.0V    previously measured at  1.014 V
Last shutdown reason: shutdown undefined
```

The following is sample output from the **show environment table** command on a Cisco 7304 router with MSCs and SPAs installed:

```
Router# show environment table

Temperature tables:
  Active RP (NPEG100, slot 0):
        Sample Point        HighWarning     HighCritical HighShutdown
        npeg100 outlet      53C/127F        68C/154F        73C/163F
        npeg100 inlet       53C/127F        68C/154F        73C/163F
        npeg100 hotspot     53C/127F        68C/154F        73C/163F
  Line card (7304-MSC-100, slot 4):
        Sample Point        HighWarning     HighCritical HighShutdown
        7304-MSC-100        48C/118F        63C/145F        68C/154F
  Card in subslot 4/0:
        Sample Point        HighWarning     HighCritical HighShutdown
        SPA-4FE-7304 inlet  52C/125F        67C/152F        72C/161F
        SPA-4FE-7304 outlet 52C/125F        67C/152F        72C/161F
Voltage tables:
  Active RP (NPEG100, slot 0):
        Sample Point       LowShut  LowCrit  LowWarn  HighWarn HighCrit HighShut
        npe outlet  2.5  V 2.275 V  2.375 V  2.400 V  2.600 V  2.625 V  2.725 V
        npe outlet  3.3  V 3.003 V  3.135 V  3.185 V  3.415 V  3.465 V  3.597 V
        npe outlet  5.0  V 4.500 V  4.750 V  4.800 V  5.200 V  5.250 V  5.500 V
        npe outlet 12.0  V 9.960 V 10.440 V 10.800 V 13.200 V 13.560 V 14.040 V
        npe outlet  3.3c V 3.003 V  3.135 V  3.185 V  3.415 V  3.465 V  3.597 V
        npe inlet   1.5  V 1.350 V  1.425 V  1.455 V  1.545 V  1.575 V  1.650 V
        npe outlet  1.8  V 1.620 V  1.710 V  1.728 V  1.872 V  1.890 V  1.980 V
        npe outlet  1.2  V 1.128 V  1.164 V  1.167 V  1.233 V  1.236 V  1.272 V
        npe outlet  1.2c V 1.128 V  1.164 V  1.167 V  1.233 V  1.236 V  1.272 V
  Line card (7304-MSC-100, slot 4):
        Sample Point       LowShut  LowCrit  LowWarn  HighWarn HighCrit HighShut
        7304-MSC-100 0.75  0.559 V  0.600 V  0.600 V  0.900 V  0.900 V  0.941 V
        7304-MSC-100 1.5 V 1.350 V  1.440 V  1.455 V  1.545 V  1.560 V  1.650 V
        7304-MSC-100 2.5 V 2.250 V  2.375 V  2.400 V  2.600 V  2.625 V  2.750 V
        7304-MSC-100 3.3 V 2.970 V  3.135 V  3.168 V  3.432 V  3.465 V  3.630 V
        7304-MSC-100 12 V  9.960 V 10.440 V 10.800 V 13.200 V 13.560 V 14.040 V
  Card in subslot 4/0:
        Sample Point       LowShut  LowCrit  LowWarn  HighWarn HighCrit HighShut
        SPA-4FE-7304 1.8V  1.620 V  1.710 V  1.728 V  1.872 V  1.890 V  1.980 V
        SPA-4FE-7304 1.5V  1.350 V  1.425 V  1.440 V  1.560 V  1.575 V  1.650 V
        SPA-4FE-7304 2.5V  2.250 V  2.375 V  2.400 V  2.600 V  2.625 V  2.750 V
        SPA-4FE-7304 3.3V  2.970 V  3.135 V  3.168 V  3.432 V  3.465 V  3.630 V
        SPA-4FE-7304 1.0V  0.900 V  0.950 V  0.960 V  1.040 V  1.050 V  1.100 V
```

Table 85 describes the significant fields shown in the display.

Table 85 show environment table Field Descriptions for the Cisco 7304 Router

Field	Description
Sample Point	Area for which measurements are taken.
LowShut	Lowest level for an out-of-tolerance condition at which the system shuts itself down. For out-of-tolerance conditions with SPA environment variables, only the SPA is shut down.
LowCrit/LowCritical	Level at which a critical message is issued for an out-of-tolerance voltage condition. The system continues to operate; however, the system is approaching shutdown.

Table 85 show environment table Field Descriptions for the Cisco 7304 Router (continued)

Field	Description
LowWarn/LowWarning	Level at which a warning message is issued for an out-of-tolerance voltage condition. The system continues to operate, but operator action is recommended to bring the system back to a normal state.
HighWarn/HighWarning	Level at which a warning message is issued for an out-of-tolerance voltage condition. The system continues to operate, but operator action is recommended to bring the system back to a normal state.
HighCrit/HighCritical	Level at which a critical message is issued for an out-of-tolerance voltage condition. The system continues to operate; however, the system is approaching shutdown.
HighShut/HighShutdown	Highest level for an out-of-tolerance condition at which the system shuts itself down. For out-of-tolerance conditions with SPA environment variables, only the SPA is shut down.

Related Commands

Command	Description
snmp-server enable traps envmon	Controls (enables or disables) environmental monitoring SNMP notifications.
snmp-server host	Specifies how SNMP notifications should be sent (as traps or informs), the version of SNMP to use, the security level of the notifications (for SNMPv3), and the recipient (host) of the notifications.

show environment alarm

To display the information about the environmental alarm, use the **show environment alarm** command in user EXEC or privileged EXEC mode.

show environment alarm [{**status** | **threshold**} [***frutype***]]

Syntax Description

status	(Optional) Displays the operational FRU status.
threshold	(Optional) Displays the preprogrammed alarm thresholds.
frutype	(Optional) Alarm type; valid values are **all**, **backplane**, **clock** *number*, **earl** *slot*, **fan-tray**, **module** *slot*, **rp** *slot*, **power-supply** *number*, **supervisor** *slot*, and **vtt** *number*. See the Note for a list of valid values for *number* and *slot*.

Defaults

If you do not enter a *frutype*, all the information about the environmental alarm status is displayed.

Command Modes

User EXEC

Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Valid values for the *frutype* are as follows:

- **clock** *number*—1 and 2.
- **earl** *slot*—See the Note for valid values.
- **module** *slot*—See the Note for valid values.
- **rp** *slot*—See the Note for valid values.
- **power-supply** *number*—1 and 2.
- **supervisor** *slot*—See the Note for valid values.
- **vtt** *number*—1 to 3.

Note The *slot* argument designates the module and port number. Valid values for *slot* depend on the chassis and module that are used. For example, if you have a 48-port 10/100BASE-T Ethernet module that is installed in a 13-slot chassis, valid values for the slot number are from 1 to 13 and valid values for the port number are from 1 to 48.

Examples

This example shows how to display all the information about the status of the environmental alarm:

```
Router> show environment alarm threshold

environmental alarm thresholds:

power-supply 1 fan-fail: OK
  threshold #1 for power-supply 1 fan-fail:
    (sensor value != 0) is system minor alarm
power-supply 1 power-output-fail: OK
  threshold #1 for power-supply 1 power-output-fail:
    (sensor value != 0) is system minor alarm
fantray fan operation sensor: OK
  threshold #1 for fantray fan operation sensor:
    (sensor value != 0) is system minor alarm
operating clock count: 2
  threshold #1 for operating clock count:
    (sensor value < 2) is system minor alarm
  threshold #2 for operating clock count:
    (sensor value < 1) is system major alarm
operating VTT count: 3
  threshold #1 for operating VTT count:
    (sensor value < 3) is system minor alarm
  threshold #2 for operating VTT count:
    (sensor value < 2) is system major alarm
VTT 1 OK: OK
  threshold #1 for VTT 1 OK:
    (sensor value != 0) is system minor alarm
VTT 2 OK: OK
  threshold #1 for VTT 2 OK:
    (sensor value != 0) is system minor alarm
VTT 3 OK: OK
  threshold #1 for VTT 3 OK:
    (sensor value != 0) is system minor alarm
clock 1 OK: OK
  threshold #1 for clock 1 OK:
    (sensor value != 0) is system minor alarm
clock 2 OK: OK
  threshold #1 for clock 2 OK:
    (sensor value != 0) is system minor alarm
module 1 power-output-fail: OK
  threshold #1 for module 1 power-output-fail:
    (sensor value != 0) is system major alarm
module 1 outlet temperature: 21C
  threshold #1 for module 1 outlet temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for module 1 outlet temperature:
    (sensor value > 70) is system major alarm
module 1 inlet temperature: 25C
  threshold #1 for module 1 inlet temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for module 1 inlet temperature:
    (sensor value > 70) is system major alarm
module 1 device-1 temperature: 30C
  threshold #1 for module 1 device-1 temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for module 1 device-1 temperature:
    (sensor value > 70) is system major alarm
module 1 device-2 temperature: 29C
  threshold #1 for module 1 device-2 temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for module 1 device-2 temperature:
    (sensor value > 70) is system major alarm
module 5 power-output-fail: OK
```

```
  threshold #1 for module 5 power-output-fail:
    (sensor value != 0) is system major alarm
module 5 outlet temperature: 26C
  threshold #1 for module 5 outlet temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for module 5 outlet temperature:
    (sensor value > 75) is system major alarm
module 5 inlet temperature: 23C
  threshold #1 for module 5 inlet temperature:
    (sensor value > 50) is system minor alarm
  threshold #2 for module 5 inlet temperature:
    (sensor value > 65) is system major alarm
EARL 1 outlet temperature: N/O
  threshold #1 for EARL 1 outlet temperature:
    (sensor value > 60) is system minor alarm
  threshold #2 for EARL 1 outlet temperature:
    (sensor value > 75) is system major alarm
EARL 1 inlet temperature: N/O
  threshold #1 for EARL 1 inlet temperature:
    (sensor value > 50) is system minor alarm
  threshold #2 for EARL 1 inlet temperature:
    (sensor value > 65) is system major alarm
Router>
```

Related Commands

Command	Description
show environment status	Displays the information about the operational FRU status.
show environment temperature	Displays the current temperature readings.

show environment cooling

To display the information about the cooling parameter, use the **show environment cooling** command in user EXEC or privileged EXEC mode.

show environment cooling

Syntax Description

This command has no arguments or keywords.

Defaults

This command has no default settings.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

This command is not supported in Cisco 7600 series routers that are configured with a Supervisor Engine 2.

Examples

This example shows how to display the information about the cooling parameter:

```
Router> show environment cooling

fan-tray 1:
  fan-tray 1 fan-fail: failed
fan-tray 2:
  fan 2 type: FAN-MOD-9
  fan-tray 2 fan-fail: OK
chassis cooling capacity: 690 cfm
ambient temperature: 55C
chassis per slot cooling capacity: 75 cfm

  module 1 cooling requirement: 70 cfm
  module 2 cooling requirement: 70 cfm
  module 5 cooling requirement: 30 cfm
  module 6 cooling requirement: 70 cfm
  module 8 cooling requirement: 70 cfm
  module 9 cooling requirement: 30 cfm
Router>
```

Related Commands

Command	Description
hw-module fan-tray version	Sets the fan-type (high or low power) version.

show environment status

To display the information about the operational FRU status, use the **show environment status** command in user EXEC or privileged EXEC mode.

show environment status [***frutype***]

Syntax Description

frutype	(Optional) FRU type; see the Note for a list of valid values.

Defaults

If you do not enter a *frutype*, all FRU status information is displayed.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(18)SXF	The output of the **show environment status power-supply** command was changed to include information about the high-capacity power supplies.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Valid values for the *frutype* are as follows:

- **all**—No arguments.
- **backplane**—No arguments.
- **clock** *number*—1 and 2.
- **earl** *slot*—See the Note for valid values.
- **fan-tray**—No arguments.
- **module** *slot*—See the Note for valid values.
- **power-supply** *number*—1 and 2.
- **rp** *slot*—See the Note for valid values.
- **supervisor** *slot*—See the Note for valid values.
- **vtt** *number*—1 to 3.

Note The *slot* argument designates the module and port number. Valid values for *slot* depend on the chassis and module that are used. For example, if you have a 48-port 10/100BASE-T Ethernet module that is installed in a 13-slot chassis, valid values for the slot number are from 1 to 13 and valid values for the port number are from 1 to 48.

Examples

This example shows how to display the information about the environmental status:

```
Router> show environment status

backplane:
  operating clock count: 2
  operating VTT count: 3
fan-tray:
  fantray fan operation sensor: OK
VTT 1:
  VTT 1 OK: OK
VTT 2:
  VTT 2 OK: OK
VTT 3:
  VTT 3 OK: OK
clock 1:
  clock 1 OK: OK, clock 1 clock-inuse: not-in-use
clock 2:
  clock 2 OK: OK, clock 2 clock-inuse: in-use
power-supply 1:
  power-supply 1 fan-fail: OK
  power-supply 1 power-output-fail: OK
module 1:
  module 1 power-output-fail: OK
  module 1 outlet temperature: 21C
  module 1 inlet temperature: 25C
  module 1 device-1 temperature: 30C
  module 1 device-2 temperature: 29C
  EARL 1 outlet temperature: N/O
  EARL 1 inlet temperature: N/O
module 5:
  module 5 power-output-fail: OK
  module 5 outlet temperature: 26C
  module 5 inlet temperature: 23C
  module 5 device-1 temperature: 26C
  module 5 device-2 temperature: 27C
Router>
```

This example shows how to display the information about the high-capacity power supplies:

```
Route># show environment status power-supply 2

power-supply 2:
  power-supply 2 fan-fail: OK
  power-supply 2 power-input 1: none
  power-supply 2 power-input 2: AC low
  power-supply 2 power-input 3: AC high
  power-supply 2 power-input 4: AC high
  power-supply 2 power-output: low (mode 1)
  power-supply 2 power-output-fail: OK
```

Table 86 describes the fields that are shown in the example.

Table 86 show environment status Command Output Fields

Field	Description
operating clock count	Physical clock count.
operating VTT count	Physical VTT count.
fan tray fan operation sensor	System fan tray failure status. The failure of the system fan tray is indicated as a minor alarm.

Table 86 show environment status Command Output Fields (continued)

Field	Description
VTT 1, VTT2, and VTT3	Status of the chassis backplane power monitors that are located on the rear of the chassis, under the rear cover. Operation of at least two VTTs is required for the system to function properly. A minor system alarm is signaled when one of the three VTTs fails. A major alarm is signaled when two or more VTTs fail and the supervisor engine is accessible through the console port.
clock # clock-inuse	Clock status. Failure of either clock is considered to be a minor alarm.
power-supply # fan-fail	Fan failure. Fan failures on either or both (if any) power supplies are considered minor alarms.
power-input-fail	Power input failure status (none, AC high, AC low).
power-output-fail	Power output failure status (high, low).
outlet temperature	Exhaust temperature value.
inlet temperature	Intake temperature value.
device-1 and device-2 temperature	Two devices that measure the internal temperature on each indicated module. The temperature shown indicates the temperature that the device is recording. The devices are not placed at an inlet or an exit but are additional reference points.

Related Commands

Command	Description
show environment alarm	Displays the information about the environmental alarm.
show environment temperature	Displays the current temperature readings.

show environment temperature

To display the current temperature readings, use the **show environment temperature** command in user EXEC or privileged EXEC mode.

show environment temperature [*frutype*]

Syntax Description

frutype	(Optional) Field replaceable unit (FRU) type; see the "Usage Guidelines" section for a list of valid values.

Defaults

If you do not enter a *frutype*, the module and EARL temperature readings are displayed.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17a)SX	The **show environment temperature module** command output was updated to include the following information: • The name of the ASIC of this sensor. • The names of the ASIC are listed if there is more than one ASIC. • The type of sensor is listed if there is more than one sensor on the ASIC. • Current temperature. • Major/minor threshold as read in the IDPROM. • Status of whether the current temperature has exceeded any temperature thresholds.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

Valid values for the *frutype* are as follows:

- **earl** *slot*—See the Note below for valid values.
- **module** *slot*—See the Note below for valid values.
- **rp** *slot*—See the the Note below for valid values.
- **vtt** *number*—1 to 3.
- **clock** *number*—1 and 2.

Note The *slot* argument designates the module and port number. Valid values for *slot* depend on the chassis and module that are used. For example, if you have a 48-port 10/100BASE-T Ethernet module that is installed in a 13-slot chassis, valid values for the slot number are from 1 to 13 and valid values for the port number are from 1 to 48.

The **show environment temperature module** command output includes the updated information after an SCP response is received.

In the output display, the following applies:

- N/O means not operational—The sensor is broken, returning impossible values.
- N/A means not available—The sensor value is presently not available; try again later.
- VTT 1, 2, and 3 refer to the power monitors that are located on the chassis backplane under the rear cover.

Examples

This example shows how to display the temperature information for a specific module:

```
Router> show environment temperature module 5

module 5 outlet temperature: 34C
  module 5 inlet temperature: 27C
  module 5 device-1 temperature: 42C
  module 5 device-2 temperature: 41C
  module 5 asic-1 (SSO-1) temp: 29C
  module 5 asic-2 (SSO-2) temp: 29C
  module 5 asic-3 (SSO-3) temp: 29C
  module 5 asic-4 (SSO-4) temp: 28C
  module 5 asic-5 (SSA-1) temp: 29C
  module 5 asic-6 (HYPERION-1) temp: 29C
Router>
```

This example shows how to display the temperature readings for all modules:

```
Router> show environment temperature

VTT 1 outlet temperature: 25C
  VTT 2 outlet temperature: 24C
  VTT 3 outlet temperature: 28C
  module 1 outlet temperature: 24C
  module 1 device-2 temperature: 29C
  RP 1 outlet temperature: 25C
  RP 1 inlet temperature: 29C
  EARL 1 outlet temperature: 25C
  EARL 1 inlet temperature: 22C
  module 5 outlet temperature: 27C
  module 5 inlet temperature: 22C
Router>
```

Table 87 describes the fields that are shown in the example.

Table 87 show environment temperature Command Output Fields

Field	Description
outlet temperature	Exhaust temperature value.

Table 87 show environment temperature Command Output Fields

Field	Description
inlet temperature	Intake temperature value.
device-1 and device-2 temperature	Two devices that measure the internal temperature on the indicated module. The temperature shown indicates the temperature that the device is recording. The devices are not placed at an inlet or an exit but are additional reference points.

Related Commands

Command	Description
show environment alarm	Displays the information about the environmental alarm.
show environment status	Displays the information about the operational FRU status.

show errdisable detect

To display the error-disable detection status, use the **show errdisable detect** command in user EXEC or privileged EXEC mode.

show errdisable detect

Syntax Description

This command has no arguments or keywords.

Defaults

This command has no default settings.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17b)SXA	This command was changed to include packet-buffer error status information.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Examples

This example shows how to display the error-disable detection status:

```
Router> show errdisable detect

ErrDisable Reason    Detection status
-----------------    ----------------
udld                 Enabled
bpduguard            Enabled
rootguard            Enabled
packet-buffer-err    Enabled
pagp-flap            Enabled
dtp-flap             Enabled
link-flap            Enabled
Router#
```

Related Commands

Command	Description
errdisable detect cause	Enables the error-disable detection.

show errdisable recovery

To display the information about the error-disable recovery timer, use the **show errdisable recovery** command in EXEC mode.

show errdisable recovery

Syntax Description

This command has no arguments or keywords.

Defaults

This command has no default settings.

Command Modes

EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Examples

This example shows how to display the information about the error-disable recovery timer:

```
Router# show errdisable recovery

ErrDisable Reason    Timer Status
-----------------    --------------
udld                 Enabled
bpduguard            Enabled
rootguard            Enabled
pagp-flap            Enabled
dtp-flap             Enabled
link-flap            Enabled

Timer interval:300 seconds

Interfaces that will be enabled at the next timeout:

Interface    Errdisable reason    Time left(sec)
---------    -----------------    --------------
Fa9/4           link-flap             279
```

Related Commands

Command	Description
errdisable recovery	Configures the recovery mechanism variables.
show interfaces status	Displays the interface status or a list of interfaces in an error-disabled state on LAN ports only.

show fastblk

To display fast block memory information, use the **show fastblk** command in privileged EXEC mode.

show fastblk [**detailed**]

Syntax Description

detailed	(Optional) Displays detailed allocated fast block memory pool information.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.4(22)T	This command was introduced.

Usage Guidelines

Use this command to display allocated fast block memory pool details. When no memory pools are allocated, the "no fastblk memory pools allocated" message is displayed.

Examples

The following is sample output from the **show fastblk** command using the **detailed** keyword. The fields are self-explanatory.

```
Router# show fastblk detailed

Pool name: SCTP ApplReq      flags:DYN_POOL
 total = 400 inuse = 0, free = 400, max = 0
 increment = 200, threshold = 100, hist max = 400
 alloc failures = 0, sub-pool creation failures = 0
 subpool: blks = 0x62968A2C, total = 400, inuse= 0, free = 400
          delete count = 0, flags:
Pool name: SCTP BufSegHdr      flags:DYN_POOL
 total = 9000 inuse = 0, free = 9000, max = 0
 increment = 4500, threshold = 6750, hist max = 9000
 alloc failures = 0, sub-pool creation failures = 0
 subpool: blks = 0x62B8E2F4, total = 9000, inuse= 0, free = 9000
          delete count = 0, flags:
Pool name: SCTP DestAddr      flags:DYN_POOL
 total = 80 inuse = 0, free = 80, max = 0
 increment = 40, threshold = 20, hist max = 80
 alloc failures = 0, sub-pool creation failures = 0
 subpool: blks = 0x62972534, total = 80, inuse= 0, free = 80
          delete count = 0, flags:
Pool name: SCTP Addr      flags:DYN_POOL POOL_HAS_GRWN
 total = 200 inuse = 100, free = 100, max = 0
 increment = 50, threshold = 50, hist max = 200
 alloc failures = 31, sub-pool creation failures = 0
 subpool: blks = 0x6271B6D0, total = 50, inuse= 0, free = 50
          delete count = 0, flags: DYN_SUBPOOL
 subpool: blks = 0x6271D730, total = 50, inuse= 0, free = 50
          delete count = 0, flags: DYN_SUBPOOL
 subpool: blks = 0x6297680C, total = 100, inuse= 100, free = 0
          delete count = 0, flags:
Pool name: SCTP ChunkDesc      flags:DYN_POOL
```

```
 total = 9000 inuse = 0, free = 9000, max = 0
 increment = 4500, threshold = 6750, hist max = 9000
 alloc failures = 0, sub-pool creation failures = 0
 subpool: blks = 0x62BE6160, total = 1471, inuse= 0, free = 1471
          delete count = 0, flags:
 subpool: blks = 0x62D8D768, total = 7529, inuse= 0, free = 7529
          delete count = 0, flags:
Pool name: SCTP DgramHdr      flags:DYN_POOL
 total = 9000 inuse = 0, free = 9000, max = 0
 increment = 4500, threshold = 6750, hist max = 9000
 alloc failures = 0, sub-pool creation failures = 0
 subpool: blks = 0x62BFE848, total = 9000, inuse= 0, free = 9000
          delete count = 0, flags:
Pool name: SCTP Assoc      flags:DYN_POOL
 total = 100 inuse = 0, free = 100, max = 0
 increment = 50, threshold = 25, hist max = 100
 alloc failures = 0, sub-pool creation failures = 0
 subpool: blks = 0x62E0A778, total = 100, inuse= 0, free = 100
          delete count = 0, flags:
Pool name: SCTP Instance      flags:DYN_POOL
 total = 200 inuse = 50, free = 150, max = 0
 increment = 100, threshold = 50, hist max = 200
 alloc failures = 0, sub-pool creation failures = 0
 subpool: blks = 0x62C33434, total = 200, inuse= 50, free = 150
          delete count = 0, flags:
Pool name: SCTP Assoc Stats      flags:DYN_POOL
 total = 100 inuse = 0, free = 100, max = 0
 increment = 50, threshold = 25, hist max = 100
 alloc failures = 0, sub-pool creation failures = 0
 subpool: blks = 0x62C39EA0, total = 100, inus
```

show file descriptors

To display a list of open file descriptors, use the **show file descriptors** command in EXEC mode.

show file descriptors

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

Command History

Release	Modification
11.3 AA	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

File descriptors are the internal representations of open files. You can use this command to learn if another user has a file open.

Examples

The following is sample output from the **show file descriptors** command:

```
Router# show file descriptors

File Descriptors:

   FD  Position  Open  PID  Path
    0    187392  0001    2  tftp://dirt/hampton/c4000-i-m.a
    1    184320  030A    2  flash:c4000-i-m.a
```

Table 88 describes the fields shown in the display.

Table 88 show file descriptors Field Descriptions

Field	Description
FD	File descriptor. The file descriptor is a small integer used to specify the file once it has been opened.
Position	Byte offset from the start of the file.
Open	Flags supplied when opening the file.
PID	Process ID of the process that opened the file.
Path	Location of the file.

show file information

To display information about a file, use the **show file information** command in EXEC mode.

show file information *file-url*

Syntax Description

file-url	The URL of the file to display.

Command Modes

EXEC

Command History

Release	Modification
11.3 AA	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Examples

The following is sample output from the **show file information** command:

```
Router# show file information tftp://dirt/hampton/c2500-j-l.a

tftp://dirt/hampton/c2500-j-l.a:
  type is image (a.out) [relocatable, run from flash]
  file size is 8624596 bytes, run size is 9044940 bytes [8512316+112248+420344]
  Foreign image

Router# show file information slot0:c7200-js-mz

slot0:c7200-js-mz:
  type is image (elf) []
  file size is 4770316 bytes, run size is 4935324 bytes
  Runnable image, entry point 0x80008000, run from ram

Router1# show file information nvram:startup-config

nvram:startup-config:
  type is ascii text
```

Table 89 describes the possible file types.

Table 89 Possible File Types

Types	Description
image (a.out)	Runnable image in a.out format.
image (elf)	Runnable image in elf format.
ascii text	Configuration file or other text file.
coff	Runnable image in coff format.
ebcdic	Text generated on an IBM mainframe.

Table 89 Possible File Types (continued)

Types	Description
lzw compression	Lzw compressed file.
tar	Text archive file used by the Channel Interface Processor (CIP).

show file systems

To list available file systems, use the **show file systems** command in privileged EXEC mode.

show file systems

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
11.3AA	This command was introduced.
12.3(7)T	This command was enhanced to display information about the ATA ROM monitor library (monlib) file.
12.2(25)S	This command was integrated into Cisco IOS Release 12.2(25)S.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXI	This command was integrated into Cisco IOS Release 12.2(33)SXI and the output was modified.
12.4(24)T	This command was integrated into Cisco IOS Release 12.4(24)T and the output was modified.

Usage Guidelines

Use this command to learn the alias names, the Prefixes column in the output of the file systems that your router supports.

Examples

The following is sample output from the **show file systems** command:

```
Router# show file systems

File Systems:

        Size(b)       Free(b)      Type  Flags  Prefixes
              -             -       ram     rw   tmp:
              -             -    opaque     rw   system:
       42541056      42541056      disk     rw   disk1: disk1:0:#
*     512065536      30834688      disk     rw   disk0:#
       65536000      19811932     flash     rw   bootflash: sup-bootflash:
              -             -    opaque     ro   ivfs:
         129004        102228     nvram     rw   const_nvram:
      125802334             0    opaque     ro   microcode: sup-microcode:
              0     609689428    opaque     rw   image: sup-image:
              -             -    opaque     rw   null:
              -             -    opaque     ro   tar:
        1964024       1949453     nvram     rw   nvram:
              -             -   network     rw   rcp:
              -             -   network     rw   tftp:
              -             -   network     rw   http:
              -             -   network     rw   ftp:
```

```
          -            -      disk     rw   disk1:1:
          -            -      disk     rw   disk1:2:
  512065536     30842880      disk     rw   slavedisk0:#
          -            -      disk     rw   slavedisk1: slavedisk1:0:
   65536000     19328264     flash     rw   slavesup-bootflash:
    1964024      1919757     nvram     rw   slavenvram:
     129004       102228     nvram     rw   slaveconst_nvram:
   65536000     65536000     flash     rw   slavebootflash:
          -            -     nvram     rw   slavercsf:
          -            -    opaque     rw   slavesystem:
          -            -      disk     rw   slavedisk1:1:
          -            -      disk     rw   slavedisk1:2:
          -            -      disk     rw   slavedisk1:3:
```

Table 90 describes the significant fields shown in the display.

Table 90 show file systems Field Descriptions

Field	Description
Size(b)	Amount of memory in the file system (in bytes).
Free(b)	Amount of free memory in the file system (in bytes).
Type	Type of file system. The file system can be one of the following types: • disk—The file system is for a rotating medium. • flash—The file system is for a flash memory device. • network—The file system is a network file system (TFTP, rcp, FTP, and so on). • nvram—The file system is for an NVRAM device. • opaque—The file system is a locally generated “pseudo” file system (for example, the “system”) or a download interface, such as brimux. • ram—The file system is for a RAM or EPROM device. • tty—The file system is for a collection of terminal devices. • unknown—The file system is of unknown type.
Flags	Permissions for the file system. The file system can have one of the following permission states: • ro—The file system is Read Only. • wo—The file system is Write Only. • rw—The file system is Read/Write.
Prefixes	Alias for the file system. Prefixes marked with a pound symbol (#) indicate a bootable disk.

show flh-log

The **show flh-log** command has been replaced by the **more flh:logfile** command. See the description of the **more flh:logfile** command for more information.

show fm inspect

To display the list and status of the access control lists (ACLs) and ports on which context based access control (CBAC) is configured, use the **show fm inspect** command in user EXEC or privileged EXEC mode.

show fm inspect [detail | interface *type mod/port***]**

Syntax Description

detail	(Optional) Displays all of the flow information.
interface *type*	Interface type; possible valid values are **ethernet**, **fastethernet**, **gigabitethernet**, **tengigabitethernet**, **port-channel**, **pos**, **atm**, **null**, **tunnel**, and **ge-wan**.
mod/port	Module and port number.

Defaults

This command has no default settings.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

If you can configure a VLAN access control list (VACL) on the port before you configure CBAC, the status displayed is INACTIVE; otherwise, it is ACTIVE. If policy feature card (PFC) resources are exhausted, the command displays BRIDGE and is followed by the number of failed currently active NetFlow requests that have been sent to the MSFC2 for processing.

The **show fm inspect** command output includes this information:

- interface:—Interface on which the internet protocol (IP) inspect feature is enabled
- (direction)—Direction in which the IP inspect feature is enabled (IN or OUT)
- acl name:—Name that is used to identify packets being inspected
- status:—(ACTIVE or INACTIVE) displays if HW-assist is provided for this interface+direction (ACTIVE=hardware assisted or INACTIVE)

The optional **detail** keyword displays the ACEs that are part of the ACL that is used for IP inspect on the given interface direction.

Examples

This example shows how to display the list and status of CBAC-configured ACLs and ports:

```
Router> show fm inspect
```

```
interface:Vlan305(in) status :ACTIVE
         acl name:deny
           interfaces:
              Vlan305(out):status ACTIVE
```

Related Commands

Command	Description
show fm summary	Displays a summary of FM Information.

show fm interface

To display the detailed information about the feature manager on a per-interface basis, use the **show fm interface** command in user EXEC or privileged EXEC mode.

show fm interface {**interface** *type mod/port* | **null** *interface-number* | **port-channel** *number* | **vlan** *vlan-id*}

Syntax Description

type	Interface type; possible valid values are **ethernet**, **fastethernet**, **gigabitethernet**, **tengigabitethernet**, **port-channel**, **pos**, **atm**, **null**, **tunnel**, and **ge-wan**.
mod/port	Module and port number.
null *interface-number*	Specifies the null interface; the valid value is **0**.
port-channel *number*	Specifies the channel interface; valid values are a maximum of 64 values ranging from 1 to 282.
vlan *vlan-id*	Specifies the virtual local area network (VLAN); valid values are from 1 to 4094.

Defaults

This command has no default settings.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17a)SX	The order of the information that is displayed in the **show fm interface vlan** command output was changed.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The **pos**, **atm**, and **ge-wan** keywords are supported on Cisco 7600 series routers that are configured with a Supervisor Engine 2.

The *interface-number* argument designates the module and port number. Valid values for *interface-number* depend on the specified interface type and the chassis and module that are used. For example, if you specify a Gigabit Ethernet interface and have a 48-port 10/100BASE-T Ethernet module that is installed in a 13-slot chassis, valid values for the module number are from 1 to 13 and valid values for the port number are from 1 to 48.

The **port-channel** *number* values from 257 to 282 are supported on the CSM and the FWSM only.

Examples

This example shows how to display the detailed information about the feature manager on a specified interface:

```
Router> show fm interface fastethernet 2/26

Interface:FastEthernet2/26 IP is enabled
  hw[EGRESS] = 1, hw[INGRESS] = 0
  hw_force_default[EGRESS] = 0, hw_force_default[INGRESS] = 1
  mcast = 0
  priority = 2
  reflexive = 0
  inbound label:24
        protocol:ip
          feature #:1
          feature id:FM_IP_ACCESS
          ACL:113
                vmr IP value #1:0, 0, 0, 0, 0, 0, 0, 6 - 1
                vmr IP mask #1:0, 0, FFFF, FFFF, 0, 0, 0, FF
                vmr IP value #2:642D4122, 0, 0, 0, 1, 0, 0, 6 - 1
                vmr IP mask #2:FFFFFFFF, 0, 0, 0, 1, 0, 0, FF
                vmr IP value #3:0, 64020302, 0, 0, 6, 0, 0, 6 - 1
                vmr IP mask #3:0, FFFFFFFF, 0, 0, 6, 0, 0, FF
                vmr IP value #4:0, 64020302, 0, 0, A, 0, 0, 6 - 1
                vmr IP mask #4:0, FFFFFFFF, 0, 0, A, 0, 0, FF
                vmr IP value #5:0, 64020302, 0, 0, 12, 0, 0, 6 - 1
                vmr IP mask #5:0, FFFFFFFF, 0, 0, 12, 0, 0, FF
                vmr IP value #6:0, 0, 0, 0, 0, 0, 0, 0 - 2
                vmr IP mask #6:0, 0, 0, 0, 0, 0, 0, 0
  outbound label:3
        protocol:ip
          feature #:1
          feature id:FM_IP_WCCP
          Service ID:0
          Service Type:0
Router>
```

This example shows how to display the detailed information about the feature manager on a specific VLAN:

```
Router> show fm interface vlan 21

Interface: Vlan21 IP is disabled
hw_state[INGRESS] = not reduced, hw_state[EGRESS] = not reduced
mcast = 0
priority = 0
flags = 0x0
inbound label: 8
Feature IP_VACL:
-------------------------------------------------------------------------------
FM_FEATURE_IP_VACL_INGRESS i/f: Vl21 map name: test
===============================================================================
---------------------------------------------------------------
IP Seq. No: 10 Seq. Result : VACL_ACTION_FORWARD_CAPTURE
---------------------------------------------------------------
DPort - Destination Port SPort - Source Port Pro - Protocol
X - XTAG TOS - TOS Value Res - VMR Result
RFM - R-Recirc. Flag MRTNP - M-Multicast Flag R - Reflexive flag
- F-Fragment flag - T-Tcp Control N - Non-cachable
- M-More Fragments - P-Mask Priority(H-High, L-Low)
Adj. - Adj. Index T - M(Mask)/V(Value) FM - Flow Mask
NULL - Null FM SAO - Source Only FM DAO - Dest. Only FM
SADA - Sour.& Dest. Only VSADA - Vlan SADA Only FF - Full Flow
VFF - Vlan Full Flow F-VFF - Either FF or VFF A-VSD - Atleast VSADA
```

```
A-FF - Atleast FF A-VFF - Atleast VFF A-SON - Atleast SAO
A-DON - Atleast DAO A-SD - Atleast SADA SHORT - Shortest
A-SFF - Any short than FF A-EFF - Any except FF A-EVFF- Any except VFF
A-LVFF- Any less than VFF ERR - Flowmask Error
+----+-+---------------+---------------+-----+-----+---+---+-+---+-----+----+------+
|Indx|T| Dest Ip Addr | Source Ip Addr|DPort|SPort|Pro|RFM|X|ToS|MRTNP|Adj.| FM |
+----+-+---------------+---------------+-----+-----+---+---+-+---+-----+----+------+
1 V 22.2.2.2 21.1.1.1 0 0 0 --- 0 0 ----L ---- SHORT
M 255.255.255.255 255.255.255.255 0 0 0 000 0 0
TM_PERMIT_RESULT
2 V 32.2.2.2 31.1.1.1 0 0 0 --- 0 0 ----L ---- SHORT
M 255.255.255.255 255.255.255.255 0 0 0 000 0 0
TM_PERMIT_RESULT
3 V 0.0.0.0 0.0.0.0 0 0 0 --- 0 0 ----L ---- SHORT
M 0.0.0.0 0.0.0.0 0 0 0 000 0 0
TM_L3_DENY_RESULT

------------------------------------------------------------
IP Seq. No: 65536 Seq. Result : VACL_ACTION_DROP
------------------------------------------------------------
+----+-+---------------+---------------+-----+-----+---+---+-+---+-----+----+------+
|Indx|T| Dest Ip Addr | Source Ip Addr|DPort|SPort|Pro|RFM|X|ToS|MRTNP|Adj.| FM |
+----+-+---------------+---------------+-----+-----+---+---+-+---+-----+----+------+
1 V 0.0.0.0 0.0.0.0 0 0 0 --- 0 0 ----L ---- SHORT
M 0.0.0.0 0.0.0.0 0 0 0 000 0 0
TM_PERMIT_RESULT
Router>
```

Related Commands

Command	Description
show fm summary	Displays a summary of FM Information.

show fm reflexive

To display the information about the reflexive entry for the dynamic feature manager, use the **show fm reflexive** command in privileged EXEC mode.

show fm reflexive

Syntax Description

This command has no arguments or keywords.

Defaults

This command has no default settings.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Examples

This example shows how to display the information about the reflexive entry for the dynamic feature manager:

```
Router# show fm reflexive

Reflexive hash table:
        Vlan613:refacl, OUT-REF, 64060E0A, 64060D0A, 0, 0, 7, 783, 6

Router#
```

show fm summary

To display a summary of feature manager information, use the **show fm summary** command in user EXEC or privileged EXEC mode.

show fm summary

Syntax Description

This command has no arguments or keywords.

Defaults

This command has no default settings.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(14)SX	Support for this command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Examples

This example shows how to display a summary of feature manager information:

```
Router> show fm summary

Current global ACL merge algorithm:BDD
Interface:FastEthernet2/10
  ACL merge algorithm used:
    inbound direction:  ODM
    outbound direction:BDD
  TCAM screening for features is ACTIVE outbound
  TCAM screening for features is ACTIVE inbound
Interface:FastEthernet2/26
  ACL merge algorithm used:
    inbound direction:  ODM
    outbound direction:BDD
  TCAM screening for features is ACTIVE outbound
  TCAM screening for features is INACTIVE inbound
.
.
.
Router>
```

Related Commands

Command	Description
show fm interface	Displays the detailed information about the feature manager on a per-interface basis.

show funi

To display the frame-based user-network interface information, use the **show funi** command in user EXEC or privileged EXEC mode.

show funi {**arp-server** [**atm** *atm-interface-number*] | **class-links** {*vpi*/*vci-value* | *vci-value* | *connection-name*} | **ilmi-configuration** | **ilmi-status** [**atm** *atm-interface-number*] | **map** | **pvc** [*vpi*/*vci-value* | *vci-value* | *connection-name* | **dbs** | **ppp**] | **route** | **traffic** | **vp** [*atm-vpi-number*] | **vc** [*atm-vcd-number* | *connection-name* | **detail** [**prefix** {**interface** | **vc_name** | **vcd** | **vpi/vci**}] | **interface atm** *atm-interface-number* [*connection-name* | **detail** [**prefix** {**interface** | **vc_name** | **vcd** | **vpi/vci**}]] | **range** *lower-vcd-limit upper-vcd-limit* [*connection-name* | **detail** [**prefix** {**interface** | **vc_name** | **vcd** | **vpi/vci**}]] | **interface atm** *atm-interface-number* [*connection-name* | **detail** [**prefix** {**interface** | **vc_name** | **vcd** | **vpi/vci**}]] | **summary** [**atm** *atm-interface-number*]]}

Syntax Description

arp-server	Displays Asynchronous Transfer Mode (ATM) address resolution protocol server table information.
atm *atm-interface-number*	(Optional) Specifies the ATM interface and the ATM interface number.
class-links	Displays ATM VC-class links information.
vpi/*vci-value*	(Optional) Specifies the Virtual Path Identifier or Virtual Channel Identifier (VPI/VCI) value (slash is mandatory).
vci-value	(Optional) Specifies the virtual circuit interface value.
connection-name	(Optional) Specifies the connection name.
ilmi-configuration	Displays the top-level Integrated Local Management Interface (ILMI) information.
ilmi-status	Display ATM interface ILMI information.
map	Displays ATM static mapping information.
pvc	Displays ATM Permanent Virtual Circuits (PVC) information.
dbs	Displays the DBS information on a virtual circuit.
ppp	Displays the PPP over ATM information
route	Displays ATM route information.
traffic	Displays ATM statistics.
vp	Displays ATM virtual path information.
atm-vpi-number	(Optional) Specifies the VPI number.
vc	Displays ATM virtual circuit information.
atm-vcd-number	(Optional) Specifies the ATM Virtual Circuit Descriptor (VCD) number.
detail	Displays the detailed information of all VCs.
prefix	(Optional) Specifies the prefix for the output ordering.
interface	Specifies the type of interface. When this keyword is used along with the **prefix** keyword it displays the interface values in ascending order.
vc_name	Displays the VC names in the alphabetical order.
vcd	Displays the VCD value in the ascending order.
vpi/vci	Displays the VPI/VCI value in the ascending order.

range	Displays the range of VCs.
lower-vcd-limit	Specifies the lower limit VCD value.
upper-vcd-limit	Specifies the upper limit VCD value.
summary	Display summary of VCs.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
12.4(24)T	This command was introduced.
Cisco IOS XE 2.3	This command was implemented on Cisco ASR 1000 series routers.

Usage Guidelines

Use this command to display the frame-based user-network interface information with the available keywords and arguments.

Examples

The following is sample output from the **show funi traffic** command. The fields are self-explanatory:

```
Router# show funi traffic

Input OAM Queue: 0/4136 (size/max)
0 Input packets
0 Output packets
0 Broadcast packets
0 Packets received on non-existent VC
0 Packets attempted to send on non-existent VC
0 OAM cells received
F5 InEndloop: 0, F5 InSegloop: 0, F5 InAIS: 0, F5 InRDI: 0
F5 InEndcc: 0, F5 InSegcc: 0,
F4 InEndloop: 0, F4 InSegloop: 0, F4 InAIS: 0, F4 InRDI: 0
0 OAM cells sent
F5 OutEndloop: 0, F5 OutSegloop: 0,     F5 OutAIS: 0    F5 OutRDI: 0
F5 OutEndcc: 0, F5 OutSegcc: 0,
F4 OutEndloop: 0, F4 OutSegloop: 0,     F4 OutRDI: 0    F4 OutAIS: 0
0 OAM cell drops
```

The following is sample out from the **show funi vc detail prefix interface** command. The fields are self-explanatory:

```
Router# show funi vc detail prefix interface

Description: N/A
ATM2/0 ATM2/0: VCD: 1, VPI: 1, VCI: 100
ATM2/0 UBR, PeakRate: 0 (0 cps)
ATM2/0 AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0, Encapsize: 12
ATM2/0 OAM frequency: 0 second(s)
ATM2/0 InARP frequency: 15 minutes(s)
ATM2/0 Transmit priority 6
ATM2/0 InPkts: 0, OutPkts: 0, InBytes: 0, OutBytes: 0
InCells: 0, OutCells: 0
ATM2/0 InPRoc: 0, OutPRoc: 0, Broadcasts: 0
ATM2/0 InFast: 0, OutFast: 0, InAS: 0, OutAS: 0
```

```
ATM2/0 InPktDrops: 0, OutPktDrops: 0
ATM2/0 CrcErrors: 0, SarTimeOuts: 0, OverSizedSDUs: 0, LengthViolation: 0, CPIE0
ATM2/0 Out CLP=1 Pkts: 0, Cells: 0
ATM2/0 OAM cells received: 0
ATM2/0 OAM cells sent: 0
ATM2/0 Status: INACTIVE
Description: N/A
ATM2/0 ATM2/0: VCD: 2, VPI: 1, VCI: 101
ATM2/0 UBR, PeakRate: 0 (0 cps)
ATM2/0 AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0, Encapsize: 12
ATM2/0 OAM frequency: 0 second(s)
```

The following is sample out from the **show funi vc detail prefix vc_name** command. The fields are self-explanatory:

```
Router# show funi vc detail prefix vc_name

Description: N/A
ATM2/0: VCD: 1, VPI: 1, VCI: 100
UBR, PeakRate: 0 (0 cps)
AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0, Encapsize: 12
OAM frequency: 0 second(s)
InARP frequency: 15 minutes(s)
Transmit priority 6
InPkts: 0, OutPkts: 0, InBytes: 0, OutBytes: 0
InCells: 0, OutCells: 0
InPRoc: 0, OutPRoc: 0, Broadcasts: 0
InFast: 0, OutFast: 0, InAS: 0, OutAS: 0
InPktDrops: 0, OutPktDrops: 0
CrcErrors: 0, SarTimeOuts: 0, OverSizedSDUs: 0, LengthViolation: 0, CPIErrors: 0
Out CLP=1 Pkts: 0, Cells: 0
OAM cells received: 0
OAM cells sent: 0
Status: INACTIVE
Description: N/A
ATM2/0: VCD: 2, VPI: 1, VCI: 101
UBR, PeakRate: 0 (0 cps)
AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0, Encapsize: 12
OAM frequency: 0 second(s)
InARP frequency: 15 minutes(s)
```

The following is sample out from the **show funi vc detail prefix pvi/vci** command. The fields are self-explanatory:

```
Router# show funi vc detail prefix vpi/vci

Description: N/A
VPI/VCI: 1/100 ATM2/0: VCD: 1, VPI: 1, VCI: 100
VPI/VCI: 1/100 UBR, PeakRate: 0 (0 cps)
VPI/VCI: 1/100 AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0, Encapsize: 2
VPI/VCI: 1/100 OAM frequency: 0 second(s)
VPI/VCI: 1/100 InARP frequency: 15 minutes(s)
VPI/VCI: 1/100 Transmit priority 6
VPI/VCI: 1/100 InPkts: 0, OutPkts: 0, InBytes: 0, OutBytes: 0
InCells: 0, OutCells: 0
VPI/VCI: 1/100 InPRoc: 0, OutPRoc: 0, Broadcasts: 0
VPI/VCI: 1/100 InFast: 0, OutFast: 0, InAS: 0, OutAS: 0
VPI/VCI: 1/100 InPktDrops: 0, OutPktDrops: 0
VPI/VCI: 1/100 CrcErrors: 0, SarTimeOuts: 0, OverSizedSDUs: 0, LengthViolation:0
VPI/VCI: 1/100 Out CLP=1 Pkts: 0, Cells: 0
VPI/VCI: 1/100 OAM cells received: 0
VPI/VCI: 1/100 OAM cells sent: 0
VPI/VCI: 1/100 Status: INACTIVE
Description: N/A
```

```
VPI/VCI: 1/101 ATM2/0: VCD: 2, VPI: 1, VCI: 101
VPI/VCI: 1/101 UBR, PeakRate: 0 (0 cps)
VPI/VCI: 1/101 AAL5-LLC/SNAP, etype:0x0, Flags: 0xC20, VCmode: 0x0, Encapsize: 2
```

show identity policy

To display identity policy information in a tabular form, use the **show identity policy** command in privileged EXEC mode.

show identity policy [*name*]

Syntax Description

name	(Optional) Name of the identity policy.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(18)SX	This command was introduced.

Examples

The following is output from the **show identity policy** command:

```
Router# show identity policy
Policy Name            ACL             Redirect ACL            Redirect URL
================================================================================
p1                     some-acl        NONE                    NONE
p2                     another-acl     redirect-acl            http://www.foo.com/bar.html
Router#
```

The following is output for the policy named p2:

```
Router# show identity policy p2
Name: p2
Description: NONE
Access-Group: another-acl
URL-Redirect Match ACL: redirect-acl
URL-Redirect URL: http://www.foo.com/bar.html
Router#
```

Related Commands

Command	Description
show running-configuration	Displays the running configuration for a router.

show identity profile

To display identity profile information in a tabular form, use the **show identity profile** command in privileged EXEC mode.

show identity profile [**default** | **dot1x** | **eapoudp**]

Syntax Description

default	(Optional) Displays default identity profile information.
dot1x	(Optional) Displays 802.1x identity profile information.
eapoudp	(Optional) Displays EAPoUDP identity profile information.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(18)SX	This command was introduced.

Examples

The following is output from the **show identity profile** command:

```
Router# show running identity profile
Service Type: default

Default Authorized Device Policy: NONE
Default Non-Authorized Device Policy: NONE
Device / Address / Mask              Allowed        Policy
============================================================
Cisco IP Phone                       Authorized     DEFAULT

Service Type: dot1x

Default Authorized Device Policy: NONE
Default Non-Authorized Device Policy: NONE

Device / Address / Mask              Allowed        Policy
============================================================
0001.0203.0405 /   ffff.ffff.ffff    Authorized     p2

Service Type: eapoudp
Device / Address / Mask              Allowed        Policy
============================================================
10.0.0.0        / 255.0.0.0          Authorized     p1
Router#
```

Related Commands

Command	Description
show running-configuration	Displays the running configuration for a router.