# show through show fm summary

# show through show fm summary

## show

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

**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. |

**Command Default**  This command has no default settings.

**Command Modes**  MST configuration (config-mst)

**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.. |

| Release | Modification |
|---------|--------------|
| 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 terminate 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 terminate 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. |

| Command | Description |
|---|---|
| **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*}

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

**Command Modes**    EXEC

<table>
<tr><td><strong>Command History</strong></td><td><strong>Release</strong></td><td><strong>Modification</strong></td></tr>
<tr><td></td><td>12.0(1)T</td><td>This command was introduced.</td></tr>
<tr><td></td><td>12.2(33)SRA</td><td>This command was integrated into Cisco IOS Release 12.2(33)SRA.</td></tr>
</table>

**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. |

**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: <br> • **bootflash** <br> • **flash** <br> • **slot0** <br> • **slot1** <br> • **slavebootflash** <br> • **slaveslot0** <br> • **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. <br><br> On Class A Flash file systems, the **all** keyword displays the following information: <br> • The information displayed when no keywords are used. <br> • The information displayed by the **filesys** keyword. <br> • 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. |

| Release | Modification |
|---------|--------------|
| 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. The table below 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 1: 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

The table below describes the significant fields shown in the displays.

*Table 2: 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. |
| Copy-Mode | Method by which the partition can be copied to:<br><br>• RXBOOT-MANUAL indicates a user can copy manually by reloading to the boot ROM image.<br><br>• RXBOOT-FLH indicates user can copy via Flash load helper.<br><br>• Direct indicates user can copy directly into Flash memory.<br><br>• None indicates that it is not possible to copy into that partition. |
| fcksum | Checksum recorded in Flash memory. |

| Field | Description |
|---|---|
| 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:<br><br>• Read-Only indicates the partition that is being executed from.<br><br>• 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 the table above 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 device. 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.

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

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

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

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.

```
Device# 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.
Device#
```

The table below describes the significant fields shown in the display.

*Table 3: 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:

```
Device# 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
Device#
```

The table below describes the significant fields shown in the display.

*Table 4: 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:

```
Device# 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 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. |
| Cisco IOS XE Release 3.9S | This command was integrated into Cisco IOS XE Release 3.9S. |

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

```
Device# 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.

```
Device# 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
```

The table below describes the significant fields shown in the displays.

*Table 5: show archive Field Descriptions*

| Field | Description |
|---|---|
| Archive # | Indicates the number of the running configuration file saved to the Cisco 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 configuration archive. |

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

| Release | Modification |
|---------|--------------|
| 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. |
| Cisco IOS XE Release 3.9S | This command was integrated into Cisco IOS XE Release 3.9S. |

**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. The table below shows the configuration files used for this example.

*Table 6: 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 the table above.

```
Device# 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. |

| Release | Modification |
|---------|-------------|
| 12.2(33)SB | This command was integrated into Cisco IOS Release 12.2(33)SB and implemented on the Cisco 10000 series. |
| Cisco IOS XE Release 3.9S | This command was integrated into Cisco IOS XE Release 3.9S. |

**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. The table below shows the configuration files used for this example.

*Table 7: 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 the above table.

```
Device# 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 view the timed rollback settings, such as the timer type (idle timer or absolute timer), timer value, and so on, 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
```

The table below describes the significant fields in the sample output.

*Table 8: show mpls forwarding-table Field Descriptions*

| Field | Description |
|---|---|
| Time configured (or reconfigured) | The time with which the timer refreshes every time the ENTER key is presses. |
| 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 user name. |

**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. |
| 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. |
| Cisco IOS XE Release 3.9S | This command was integrated into Cisco IOS XE Release 3.9S. |

**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 device if desired.

**Note**  Any command that is configured internally and not through the standard method such as entered by the user on the console or by copy command will not be logged in the archive logger buffer. Such commands are not shown as a part of the **show archive log config all** command output.

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

```
Device# 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
```

The table below describes the significant fields shown in the display.

*Table 9: 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.

```
Device# 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:

```
Device# 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:

```
Device# 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
```

The table below describes the significant fields shown in the display.

*Table 10: 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. |

**Related Commands**

| Command | Description |
|---|---|
| **as** | Defines an application server on a gateway. |

# show async bootp

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
```

The table below describes the significant fields shown in the display.

**Table 11: 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 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. |
| Cisco IOS XE Release 3.9S | This command was integrated into Cisco IOS XE Release 3.9S. |

**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 image which was upgraded using the Cisco IOS Auto-Upgrade Manager (AUM). 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 software image, upgraded on the device using AUM, does not understand:

```
Device# 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

Device#
```

**Related Commands**

| Command | Description |
|---|---|
| **upgrade automatic abortversion** | Cancels a scheduled reloading of the device with a new Cisco software image. |
| **upgrade automatic getversion** | Downloads a Cisco software image directly from www.cisco.com or from a non-Cisco server. |
| **upgrade automatic runversion** | Reloads the device with a new Cisco 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. |

**Command Default**

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 primary and secondary 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  is in slot 7
BOOT variable =
CONFIG_FILE variable =
BOOTLDR variable does not exist
Configuration register is 0x0
```

The table below describes the significant fields shown in the displays.

*Table 12: 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 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. |

## Usage Guidelines

**Note** When you use the **show  buffers  input-interface**  [**packet** | **dump**] command, some of the data packets are not displayed correctly because of the way packets are assembled for display on the CLI.

Pointers to the memory location of the header and data for the packet are stored in local memory. By the time the pointers are de-referenced, it is possible that the memory storing the header or packet data is overwritten. For example, in the **show  buffers  input-interface  packet** command output, the source and destination addresses might not match the actual source and destination address if the packet data were decoded by some secondary means such as analyzing manually or by other means. It is recommended that the users of this command must validate packets by a secondary means.

## 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. |

### 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 only buffer 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

The table below describes the significant fields shown in the display.

**Table 13: 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. |

| Field | Description |
|---|---|
| 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. |
| 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
```

The table below describes the significant fields shown in the display that are different from the fields in the first table.

**Table 14: 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. |

| Field | Description |
|---|---|
| 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 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
```

The table below describes the significant fields shown in the display.

**Table 15: 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. |

| 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 terminate. |
| 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 chassis, 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. |

**Command Default**   The default is **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. |
| 12.2(33)SXI | The output of the **show catalyst6000 traffic-meter** command was changed to include traffic monitor status information. |

**Usage Guidelines**    If you enter the **switching-clock** keywords, the output displays whether switching of the redundant clock sources on the backplane is allowed if the active clock source fails.

There are 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.

In Cisco IOS Release 12.2(33)SXI and later releases, the traffic monitor status information is displayed in the output. In earlier releases, only the current and peak traffic-meter readings are displayed.

**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#
```

The following example shows how to display the current and peak traffic-meter readings and the traffic monitor status:

```
Router
>
show catalyst6000 traffic-meter
traffic meter =   0%  Never cleared
          peak =   0%        reached at 10:54:49 UTC Wed Mar 19 2008
     ---=== Traffic Utilization Monitor Status ==---
           State   Interval   Threshold  MsgCount  LastMsgTime
--------------------------------------------------------------------------
Backplane   Off      60s        80%          0      --
Fpoe#0  In  Off      60s        80%          0      --
    out     Off      60s        80%          0      --
Fpoe#1  In  Off      60s        80%          0      --
    out     Off      60s        80%          0      --
Fpoe#2  In  Off      60s        80%          0      --
```

```
        out   Off     60s      80%         0      --
Fpoe#3  In    Off     60s      80%         0      --
        out   Off     60s      80%         0      --
Fpoe#4  In    Off     60s      80%         0      --
        out   Off     60s      80%         0      --
.
.
.
Fpoe#19 In    Off     60s      80%         0      --
        out   Off     60s      80%         0      --
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 |
|---|---|
| **monitor  traffic-utilbackplane** | Enables the backplane traffic utilization monitor or sets the traffic monitor interval. |
| **monitor traffic-util fpoe** | Sets the fabric channel traffic utilization monitor to generate SYSLOG messages. |
| **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. |
|---|---|

**Command Default**  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. |
| Cisco IOS XE Release 3.9S | This command was integrated into Cisco IOS XE Release 3.9S. |

**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.:

```
Device# 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:

```
Device# 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. |

| Release | Modification |
|---|---|
| 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. |
| Cisco IOS XE Release 3.9S | This command was integrated into Cisco IOS XE Release 3.9S. |

**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

```
Device# configure terminal

Enter configuration commands, one per line. End with CNTL/Z.
Device(config)# configuration mode exclusive ?
auto      Lock configuration mode automatically
manual    Lock configuration mode on-demand
Device(config)# configuration mode exclusive auto

Device(config)# end
Device# show running-config
| include configuration

configuration mode exclusive auto
Device# configure terminal
               !<---------- Acquires the lock
Enter configuration commands, one per line. End with CNTL/Z.
Device(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
Device(config)#
Device(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.

```
Device# 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

```
Device# 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
```

The table below describes the significant fields shown in the displays.

*Table 16: 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). |

| Field | Description |
|-------|-------------|
| 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 configurationcommand (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.

```
Device# configure terminal
Device(config)# configuration mode exclusive auto
Device(config)# end
Device# configure terminal
Device(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 CLI. |
| **configure replace** | Replaces the current running configuration with a saved Cisco configuration file. |
| **debug configuration lock** | Enables debugging of the Cisco 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
```

The table below describes the significant fields shown in the display.

*Table 17: 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)

T o 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-element*  [*end-queue-element*] | **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.<br><br>**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. |

| Release | Modification |
|---------|-------------|
| 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 *0x600000000* 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 --
 .
 .
 .
```

The table below describes the significant fields shown in the display.

*Table 18: 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.<br><br>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.<br><br>Enabled using the **logging monitor** command. |

| Field | Description |
|---|---|
| Buffer logging | Logging to the standard syslog buffer. Shows "disabled" or, if enabled, the severity level limit and number of messages logged.<br><br>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.<br><br>(The word "trap" means a trigger in the system software for sending error messages to a remote host.)<br><br>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. |
| **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
```

!

The following is sample output from the show debugging command when SNAP debugging is configured:

```
Router# show debugging
```

Persistent variable debugging is currently All

SNAP Server Debugging ON

SNAP Client Debugging ON

Router#

The table below describes the significant fields in the output.

*Table 19: 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. |

| Field | Description |
|-------|-------------|
| 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
```

The table below describes the significant fields shown in the display.

*Table 20: show declassify Field Descriptions*

| Field | Description |
| --- | --- |
| Enabled | A "Yes" value indicates that zeroization is enabled.<br>A "No" value indicates that zeroization is disabled. |
| In Progress | A "Yes" value indicates that zeroization is currently in progress.<br>A "No" value indicates that zeroization is currently not in progress. |
| Erase flash | A "Yes" value indicates that erasure of Flash memory is enabled.<br>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.<br>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. |
| 15.1(2)S | This command was modified. The output was extended to include information about service instances and xconnects that are downloaded and provisioned. |

**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.

On Performance Routing Version 3 (PfRv3) configured device, this command is used to display automatically configured components.

**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
```

The following sample output from the **show running-config** and **show derived-config** commands show service instance and xconnect configurations.

```
Router# show running-config interface ethernet 0/0

Building configuration...

Current configuration : 201 bytes
!
interface Ethernet0/0
 no ip address
 service-policy type control mypolicy
 service instance dynamic 1 ethernet
  encapsulation dot1q 2-99
  ethernet subscriber
  initiator unclassified vlan
 !
end

Router# show derived-config interface ethernet 0/0
```

```
Building configuration...

Derived configuration : 306 bytes
!
interface Ethernet0/0
 no ip address
 service-policy type control mypolicy
 service instance dynamic 1 ethernet
  encapsulation dot1q 2-99
  ethernet subscriber
  initiator unclassified vlan
 !
 service instance 2 ethernet
  encapsulation dot1q 22
  xconnect 33.33.33.34 12346 encapsulation mpls
 !
end
```

This following is a sample output of the **show derived-config | section eigrp** command displaying that EIGRP SAF is automatically configured.

Check the following fields in the output to ensure that the hub-master controller is configured accurately:

- EIGRP SAF configuration is auto enabled

- EIGRP SAF peering status between hub and branch sites

```
HubMC# show derived-config | section eigrp

-----------------------------------------------------------------------------------------------------------------

router eigrp #AUTOCFG# (API-generated auto-configuration, not user configurable)
 !
 service-family ipv4 autonomous-system 59501
  !
  sf-interface Loopback0
   hello-interval 120
   hold-time 600
  exit-sf-interface
  !
  topology base
  exit-sf-topology
  remote-neighbors source Loopback0 unicast-listen
 exit-service-family
-----------------------------------------------------------------------------
```

| 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**}

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

**Syntax Description**

**Command Default**  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.

**Command Default**  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
Manufacturer Name      SMART ATA Flash Card
   Model Number         SMART ATA FLASH DISK
   Serial Number        00000155000000704162
   Firmware Revision    V1.01
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 disk0:**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
```

This example shows how to update and display the time settings on a device using the **show disk0** command.

```
7206-1#
7206-1#sh disk0:
-#- --length-- -----date/time------ path
1    47495056 Aug 8 2009 02:04:06 -08:00 c7200-adventerprisek9-mz.124-24.6.PI11
j
2    29211500 Sep 11 2009 23:09:24 -08:00 c7200-p-mz.CSCsz11391-eagle_cnh
3           0 Aug 24 2009 02:03:40 -08:00 dtdlog
4    16089368 Sep 8 2009 08:53:58 -08:00 c7200-p-mz.CSCsz11391-v122_18_sxf_thro
```

```
ttle-test
419250176 bytes available (92807168 bytes used)
7206-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
7206-1(config)#clock timezone UTC 0 0
7206-1(config)#end
7206-1#
*Sep 12 07:13:56.447: %SYS-6-CLOCKUPDATE: System clock has been updated from 23:13:56 PST
Fri S
ep 11 2009 to 07:13:56 UTC Sat Sep 12 2009, configured from console by console.
7206-1#
7206-1#
7206-1#
*Sep 12 07:13:57.239: %SYS-5-CONFIG_I: Configured from console by console
7206-1#
7206-1#
7206-1#sh disk0
:
-#- --length-- -----date/time------ path
1    47495056 Aug 8 2009 10:04:06 +00:00 c7200-adventerprisek9-mz.124-24.6.PI11j
2    29211500 Sep 12 2009 07:09:24 +00:00 c7200-p-mz.CSCsz11391-eagle_cnh
3           0 Aug 24 2009 10:03:40 +00:00 dtdlog
4    16089368 Sep 8 2009 16:53:58 +00:00 c7200-p-mz.CSCsz11391-v122_18_sxf_throttle-test
419250176 bytes available (92807168 bytes used)
```

| 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. |

| Release | Modification |
|---------|--------------|
| 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 drops

To display the packet drops information, use the **show drops** command.

**show drops** { **bqs** | **crypto**| **firewall**| **interface**| **ip-all**| **nat**| **punt**| **qfp**| **qos**|**history**}

**Syntax Description**

| | |
|---|---|
| **bqs** | Shows information about BQS related drops. |
| **crypto** | Specifies IPSEC related drops. |
| **firewall** | Displays Firewall related drops. |
| **interface** | Displays Interface drop statistics. |
| **ip-all** | Shows information about IP related drops. |
| **nat** | Specifies NAT related drops. |
| **punt** | Shows information about Punt path related drops. |

| | |
|---|---|
| **qfp** | Displays QFP drop statistics. |
| **qos** | Displays QoS related drops. |
| **history** | Displays History of drops. |

**Command Default**   No default behaviour or values.

**Command Modes**   Privileged EXEC mode

**Command History**

| Release | Modification |
|---|---|
| Cisco IOS XE 17.6 | Command introduced |
| Cisco IOS XE 17.13.1a | This command was modified. The history keyword was added. |

**Usage Guidelines**   Use the **show drops** command to view the packet drop informaKon.

### Example

The following example shows the packet drops information.

```
Router#show drops

------------------ show platform hardware qfp active statistics drop
detail ------------------
Last clearing of QFP drops statistics : never
------------------------------------------------------------------
------------
ID Global Drop Stats Packets
Octets
------------------------------------------------------------------
------------
2 BadUidbIdx 15
2106
------------------ show platform hardware qfp active interface all
statistics drop_summary ------------------
```

# 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 commandshow 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 commandshow environment** [{**all** | **last** | **table**}]

**Cisco ASR 1000 Series**
**show environment** {**all** | **counters** | **history** *sensor* | **location** *sensor* | **sensor** *sensor* | **table** *sensor*}

**Cisco uBR10012 Routers**

**show environment** [{**all** | **last** | **subslot** *slot* / *subslot* | **table**}]

**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. |
| **summary** | Displays a summary of all the environment monitoring sensors |
| *sensor* | Sensor name. |
| **subslot** | (Optional) Displays environmental monitor parameters for a subslot. |
| *slot* | Slot number. Valid values range from 1 to 8. |
| *subslot* | Subslot number. Valid values are 0 and 1. |

**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. |
| 12.2(33)SCD2 | This command was integrated into Cisco IOS Release 12.2(33)SCD2. The sublsot keyword option and slot/sublot parameters were introduced. |
| Cisco IOS XE release 17.14.1a | You use the **show environment** command to display the Power Entry Module (PEM) sensor readings in mV (millivolt) and mA (milliampere) for your devices for the Cisco ASR 1000 and Cisco Catalyst 8500 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.

The temperature history of the Cisco uBR-MC20X20V line card, used in Cisco uBR10012 universal broadband router, can be viewed using the show environment subslot command. The show environment subslot command displays the thermal and power status of the Cisco uBR-MC20X20V line card. The slot/subslot option of the show environment subslot command helps to identify the location of the line card.

**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
```

The following table describes the significant fields shown in the display.

*Table 21: show environment all Field Descriptions*

| Field | Description |
|---|---|
| Sensor | Sensor name. |
| Location | Chassis slot. |
| State | State description. One of the following values:<br><br>• Critical--Critical alarm indicating a service-affecting condition.<br><br>• Fan Speed--Fan speed (65% is normal).<br><br>• Major--Major alarm indicating immediate action is needed.<br><br>• Minor--Minor alarm indicating warning conditions.<br><br>• Normal--Sensor reading is in acceptable range.<br><br>• 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
```

The following table describes the significant fields shown in the display.

*Table 22: 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 23: 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. |

| Field | Description |
|---|---|
| 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. |
| Voltage readings:<br>+3.30 V measured at +3.32 V<br>+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.<br>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.<br>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 24: 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. |
| +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 25: 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. <br><br> **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. <br><br> **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. <br><br> **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. <br><br> **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. |

| 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. |
| 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. |

| Field | Description |
|---|---|
| System shutdown for NPE Inlet is 80C/176F | This is the HighShut temperature threshold for the NPE Inlet.<br><br>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.<br><br>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.<br><br>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:<br><br>• +2.30 is the LowShut voltage threshold.<br><br>• +3.12 is the LowCrit voltage threshold.<br><br>• +3.47 is the HighCrit voltage threshold.<br><br>• +4.29 is the HighShut voltage threshold.<br><br>**Note**     The LowWarn and HighWarn voltage levels are not checked and their thresholds are not displayed on the NPE-G2. |
| VDD_CPU +0.89 +1.21 +1.36 +1.71 | The voltage thresholds for the VDD_CPU power rail are as follows:<br><br>• +0.89 is the LowShut voltage threshold.<br><br>• +1.21 is the LowCrit voltage threshold.<br><br>• +1.36 is the HighCrit voltage threshold.<br><br>• +1.71 is the HighShut voltage threshold.<br><br>**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:<br><br>• +1.71 is the LowShut voltage threshold.<br><br>• +2.34 is the LowCrit voltage threshold.<br><br>• +2.61 is the HighCrit voltage threshold.<br><br>• +3.28 is the HighShut voltage threshold.<br><br>**Note**     The LowWarn and HighWarn voltage levels are not checked and their thresholds are not displayed on the NPE-G2. |

| Field | Description |
|---|---|
| VTT +0.85 +1.17 +1.32 +1.64 | The voltage thresholds for the VTT power rail are as follows:<br><br>• +0.85 is the LowShut voltage threshold.<br><br>• +1.17 is the LowCrit voltage threshold.<br><br>• +1.32 is the HighCrit voltage threshold.<br><br>• +1.64 is the HighShut voltage threshold.<br><br>**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)
```

The following table describes the significant fields shown in the display.

*Table 26: 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. |

| Field | Description |
|---|---|
| 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)
```

The following table describes the significant fields shown in the display.

*Table 27: 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<br>Upper Power Supply | For the Cisco 7000 router, indicates the status of the two 700W power supplies.<br><br>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
```

The following table describes the significant fields shown in the display.

*Table 28: 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
```

The following table describes the significant fields shown in the display.

Table 29: 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
```

The following table describes the significant fields shown in the display.

**Table 30: 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# s
how 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
```

The following table describes the significant fields shown in the display.

**Table 31: 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
```

The following table describes the significant fields shown in the display.

*Table 32: 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. |

| Field | Description |
|---|---|
| 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
```

The following table describes the significant fields shown in the display.

Table 33: 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
```

The following table describes the significant fields shown in the display.

**Table 34: 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. |
| 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
```

The following table 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 35: 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. |

| Field | Description |
|---|---|
| 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
```

The following table describes the significant fields shown in the display.

*Table 36: 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. |
| 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. |

### Cisco uBR10012 Router

The following is sample output from the **show environment subslot slot/subslot**command on a Cisco uBR10012 router:

```
Router# show environment subslot 7/0
----------------------------------------------------------------------
TEMPERATURE/POWER INFORMATION
----------------------------------------------------------------------
Number of Temperature Sensors : 11
Sampling frequency            : 2 minutes
----------------------------------------------------------------------
Sensor       | ID | Current    | Minor | Major | Critical | Alarm     |
             |    | Temperature |        Threshold        | Condition |
```

```
              |    |    0C       |         0C                    |           |
--------------------------------------------------------------------------
Nickel 10G     1    48          82   87    92           Normal
Inlet #1       2    36          68   73    78           Normal
CPU            3    44          73   78    83           Normal
Remora         4    48          82   87    92           Normal
Coldplay       5    40          75   80    85           Normal
Waxbill        6    53          92   97    102          Normal
Fauna          7    46          82   87    92           Normal
Flora          8    47          80   85    90           Normal
Toucan FPGA A  9    45          94   97    100          Normal
Toucan FPGA B  10   36          94   97    100          Normal
Toucan FPGA C  11   47          94   97    100          Normal
--------------------------------------------------------------------------
Power: 168.813 watts
--------------------------------------------------------------------------
------------------------------------------------------------------------------------------

      Time Stamp       |  Power  |  Sensor Temperature 0C
MM/DD/YYYY HH:MM:SS     |  watts  |  1    2    3    4    5    6    7    8    9    10   11
------------------------------------------------------------------------------------------
09/30/2009 10:24:26       168.813    48   36   44   48   40   53   46   47   45   36   47
09/30/2009 10:22:26       168.813    48   36   44   48   40   53   46   47   45   36   47
09/30/2009 10:20:26       168.813    48   36   44   47   40   53   46   47   45   36   47
09/30/2009 10:18:26       168.813    48   36   44   47   40   53   46   47   45   36   47
09/30/2009 10:16:26       168.813    47   36   44   47   40   53   46   47   45   36   47
09/30/2009 10:14:26       168.813    47   36   44   47   40   53   46   47   45   36   47
09/30/2009 10:12:26       168.813    47   36   44   46   40   52   45   47   45   36   47
09/30/2009 10:10:26       168.813    47   35   44   45   39   51   45   47   45   36   47
09/30/2009 10:08:26       168.132    46   35   44   43   38   50   43   47   45   36   47
------------------------------------------------------------------------------------------
```

The following table describes the significant fields shown in the display.

**Table 37: show environment subslot Field Descriptions for the Cisco uBR10012 Router**

| Field | Description |
|---|---|
| Number of Temperature Sensors | The number of temperature sensors for which measurements are taken. |
| Sampling frequency | Temperature sampling frequency. |
| Sensor | Sensor name. |
| ID | Temperature sensor identifier. |
| Current Temperature | Current temperature level. |
| Minor | Minor temperature tolerance threshold level. |
| Major Threshold | Major temperature tolerance threshold level. |
| Critical | Critical temperature tolerance threshold level. |
| Time Stamp | Temperature level sampling time. |
| Alarm Condition | Alarm state. |
| Power Watts | Current power consumption of the router. |

| Field | Description |
|---|---|
| Sensor | Temperature sensor identifier. |
| Temperature | Temperature level for each sensor at various periods. |

**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*. |

**Command Default**    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 connector

To display the connector rating and power consumption of modules or the backplane, use the **show environment connector** command in user EXEC or privileged EXEC mode.

**show  environment  connector**  [{**all** | **backplane** | **module**  *number*}]

## Syntax Description

| all | (Optional) Displays the connector rating of the backplane and the connector rating and power consumption of all modules. |
| --- | --- |
| backplane | (Optional) Displays the connector rating of the backplane. |
| module *number* | (Optional) Displays the connector rating and power consumption of the specified module. |

## Command Modes

User EXEC (>) Privileged EXEC (#)

## Command History

| Release | Modification |
| --- | --- |
| 12.2(33)SXI 4 | This command was introduced. |

## Usage Guidelines

The output of the **show environment connector** command displays the connector rating of the backplane (chassis) power connector, the connector rating of module connectors, and the power consumption of each installed module.

If your system contains the necessary components for auxiliary power, the auxiliary power connector rating is displayed.

If an installed module contains a voice daughterboard (VDB), the VDB connector rating is displayed.

If you enter the **show environment connector** command with no keywords, the information for the backplane and all modules is displayed.

## Examples

This example shows how to display the connector rating and power consumption of the backplane and all modules:

```
Router>
show environment connector all
chassis connector rating: 1302.00 Watts (31.00 Amps @ 42V)
chassis auxiliary connector rating: 2016.00 Watts (48.00 Amps @ 42V)
module 3
  module 3 connector rating: 1260.00 Watts (30.00 Amps @ 42V)
  module 3 vdb connector rating: 1050.00 Watts (25.00 Amps @ 42V)
  module 3 power consumption: 140.70 Watts ( 3.35 Amps @ 42V)
module 6
  module 6 connector rating: 1260.00 Watts (30.00 Amps @ 42V)
  module 6 power consumption: 282.24 Watts ( 6.72 Amps @ 42V)
module 9
  module 9 connector rating: 1260.00 Watts (30.00 Amps @ 42V)
  module 9 auxiliary connector rating: 2016.00 Watts (48.00 Amps @ 42V)
  module 9 vdb connector rating: 1060.00 Watts (25.24 Amps @ 42V)
  module 9 vdb auxiliary rating: 530.00 Watts (12.62 Amps @ 42V)
  module 9 power consumption: 112.56 Watts ( 2.68 Amps @ 42V)
```

This example shows how to display the connector rating of the backplane:

```
Router>
show environment connector backplane
chassis connector rating: 1302.00 Watts (31.00 Amps @ 42V)
chassis auxiliary connector rating: 2016.00 Watts (48.00 Amps @ 42V)
```

**Related Commands**

| Command | Description |
|---|---|
| **show environment status** | Displays the information about the operational field-replaceable unit (FRU) status. |

# 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.

**Command Default**   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. |
|---|---|

**Command Default**   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
```

The table below describes the fields that are shown in the example.

**Table 38: s how environment status** *Command Output Fields*

| Field | Description |
|---|---|
| operating clock count | Physical clock count. |
| operating VTT count | Physical VTT count. |

| Field | Description |
|---|---|
| fan tray fan operation sensor | System fan tray failure status. The failure of the system fan tray is indicated as a minor alarm. |
| 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. |
|---|---|

**Command Default**     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:<br><br>• The name of the ASIC of this sensor.<br><br>• The names of the ASIC are listed if there is more than one ASIC.<br><br>• The type of sensor is listed if there is more than one sensor on the ASIC.<br><br>• Current temperature.<br><br>• Major/minor threshold as read in the IDPROM.<br><br>• 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>
```

The following table describes the fields that are shown in the example.

**Table 39:** *s how environment temperature* Command Output Fields

| Field | Description |
|---|---|
| outlet temperature | Exhaust temperature value. |
| 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.

**Command Default**    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. |
| **Command Default** | 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
```

The table below describes the fields shown in the display.

**Table 40: 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. |

| Field | Description |
|-------|-------------|
| 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
```

The table below describes the possible file types.

**Table 41: 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. |

| Types | Description |
|---|---|
| coff | Runnable image in coff format. |
| ebcdic | Text generated on an IBM mainframe. |
| 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. |
| 15.0(01)XO | Note added to explain different byte and usage calculations for **show file systems** and **dir** commands on cat4000 series routers. |
| 15.1(2)SNG | This command was implemented on the Cisco ASR 901 Series Aggregation Services Routers. |

**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:
```

The table below describes the significant fields shown in the display.

**Table 42: show file systems Field Descriptions**

| Field | Description |
|-------|-------------|
| Size(b) | Amount of memory in the file system (in bytes). |
| | The "*" references the default device/directory when flash is used in a generic manner. For example, if you were to type sh flash and the device actually has bootflash:, the output of sh flash will actually be the output of dir bootflash: show file systems shows the devices that this rtr can access. The "*" indicates the default device. |
| 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. |

| Field | Description |
|-------|-------------|
| Flags | Permissions for the file system. The file system can have one of the following permission states:<br><br>• ro--The file system is Read Only.<br><br>• wo--The file system is Write Only.<br><br>• rw--The file system is Read/Write. |
| Prefixes | Alias for the file system. Prefixes marked with a pound symbol (#) indicate a bootable disk. |

**Note**   As of release 15.0(01)XO, on cat4000 series routers, the **show file systems** and **dir**will display slightly different byte count and usage information for the same file system. This is due to slight difference in how IOS computes these figures for this platform.

# 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. |

**Command Default**    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. |

**Command Default**    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 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.

**Command Default**     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.

**Command Default**     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-valuevci-valueconnection-name*} | **ilmi-configuration** | **ilmi-status** [**atm** *atm-interface-number*] | **map** | **pvc**[{*vpi/vci-valuevci-valueconnection-name* | **dbs** | **ppp**}] | **route** | **traffic** | **vp** *atm-vpi-number* | **vc** {*atm-vcd-numberconnection-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. |

# show install

To display information about installed packages, use the **show install** command in privileged EXEC mode.

**show install** {**active** | **committed** | **inactive** | **log** | **package** {**bootflash:** | **flash:** | **webui:**} | **rollback** | **summary** | **uncommitted**}

| **Syntax Description** | **active** | Displays information about active packages. |
| --- | --- | --- |
| | **committed** | Displays package activations that are persistent. |
| | **inactive** | Displays inactive packages. |
| | **log** | Displays entries stored in the logging installation buffer. |
| | **package** | Displays metadata information about the package, including description, restart information, components in the package, and so on. |
| | {**bootflash:** | **flash:** | **harddisk:** | **webui:**} | Specifies the location of the install package. |
| | **rollback** | Displays the software set associated with a saved installation. |
| | **summary** | Displays information about the list of active, inactive, committed, and superseded packages. |
| | **uncommitted** | Displays package activations that are nonpersistent. |

**Command Modes** Privileged EXEC (#)

| **Command History** | **Release** | **Modification** |
| --- | --- | --- |
| | Cisco IOS XE Everest 16.6.1 | This command was introduced. |

**Usage Guidelines**    Use the show commands to view the status of the installed package.

**Example**

The following is sample output from the **show install package** command:

```
Device# show install package bootflash:isr4300-universalk9.2017-01-10_13.15.1.
CSCxxx.SSA.dmp.bin
Name:  isr4300-universalk9.2017-01-10_13.15.1.CSCxxx.SS
Version:  16.5.1.0.199.1484082952..Everest
Platform:  ISR4300
Package Type:  dmp
Defect ID:  CSCxxx
Package State:  Added
Supersedes List:  {}
Smu ID:  1
```

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

```
Device# show install summary

Active Packages:
    bootflash:isr4300-universalk9.2017-01-10_13.15.1.CSCxxx.SSA.dmp.bin
Inactive Packages:
  No packages
Committed Packages:
    bootflash:isr4300-universalk9.2017-01-10_13.15.1.CSCxxx.SSA.dmp.bin
Uncommitted Packages:
  No packages
Device#
```

The table below lists the significant fields shown in the display.

The following is sample output from the **show install log** command:

```
Device# show install log

[0|install_op_boot]: START Fri Feb 24 19:20:19 Universal 2017
[0|install_op_boot]: END SUCCESS  Fri Feb 24 19:20:23 Universal 2017
[3|install_add]: START Sun Feb 26 05:55:31 UTC 2017
[3|install_add( FATAL)]: File path (scp) is not yet supported for this command
[4|install_add]: START Sun Feb 26 05:57:04 UTC 2017
[4|install_add]: END SUCCESS
/bootflash/isr4300-universalk9.2017-01-10_13.15.1.CSCvb12345.SSA.dmp.bin
Sun Feb 26 05:57:22 UTC 2017
[5|install_activate]: START Sun Feb 26 05:58:41 UTC 2017
```

**Related Commands**

| Command | Description |
|---------|-------------|
| **install** | Installs SMU packages. |

# show platform software snapshot status

To display the status of a bootflash snapshot action, use the **show platform software snapshot status** command in privilege EXEC mode.

**show  platform  software  snapshot**  *slot*  **status**

**Syntax Description**

| **snapshot** | Requests snapshot actions. |
|---|---|
| *slot* | Specifies the hardware slot. Options include:<br><br>• *number* --The number of the SIP slot of the hardware module where the trace level is being set. For instance, if you wanted to specify the SIP in SIP slot 2 of the router, enter 2 as the *number*.<br><br>• **f0** --The ESP in ESP slot 0.<br><br>• f1 --The ESP in ESP slot 1<br><br>• **fp active** --The active ESP.<br><br>• **fp standby** --The standby ESP.<br><br>• **r0** --The RP in RP slot 0.<br><br>• r1 --The RP in RP slot 1.<br><br>• **rp active** --The active RP.<br><br>• **rp standby** --The standby RP. |
| **status** | Displays the status of snapshot operations. |

**Command Default**     No default behavior or values

**Command Modes**     Privileged EXEC (#) Diagnostic Mode (diag)

**Command History**

| Release | Modification |
|---|---|
| Cisco IOS XE Release 2.1 | This command was introduced. |

**Usage Guidelines**     Use the **show platform software snapshot status** command to view the status of a bootflash snapshot request.

**Examples**     This example shows how to view the status of bootflash snapshot requests on the processor in the RO slot.

```
router#show platform software snapshot R0 status
```

**Related Commands**

| Command | Description |
|---|---|
| **request platform software snapshot** | Use this command to display a snapshot of the bootflash. |

# show power usage

To display the power consumption of each component of the device and the total power consumption of the system, use the **show power usage** command in privileged EXEC mode.

**show power usage**

### Syntax Description

This command has no arguments or keywords.

**Command Default**   This command has no default settings.

**Command Modes**   Privileged EXEC (#)

### Command History

| Release | Modification |
|---|---|
| Cisco IOS XE Release 17.14.1a | This command was introduced on the following platforms: <br> • Cisco Catalyst 8200 Series Edge Platforms <br> • Cisco Catalyst 8300 Series Edge Platforms |

**Usage Guidelines**   The **show power usage** command displays input power for the power supply unit, output power for the power supply unit and power usage by individual system components that include the following:

- Motherboard

- Modules - Network Interface Module (NIM), Switch Module (SM), Physical Interface Module (PIM), and Power over Ethernet (PoE).

- Fan Tray

### Example

The following is a sample output from the **show power usage** command.

```
Device# show power usage
Slot          Type               Allocation            State
 --------      -----------------   --------------------   -----------
P0            PWR-CC1-650WAC      139  Watts (Input)     Normal
P0            PWR-CC1-650WAC      134  Watts (Output)    Normal
P1            PWR-CC1-1000WAC     12   Watts (Input)     Normal
P1            PWR-CC1-1000WAC     4    Watts (Output)    Normal
P2            C8300-FAN-2R        8    Watts             Normal
POE1          PWR-CC1-MOD-POE     102  Watts (Input)     Normal
1             C-SM-NIM-ADPT       3    Watts             Normal
2             C-SM-NIM-ADPT       3    Watts             Normal
1/1           C-NIM-2T            6    Watts             Normal
0/2           NIM-4SHDSL-EA       6    Watts             Normal
0/1           NIM-8CE1T1-PRI      6    Watts             Normal
R0            C8300-2N2S-4T2X     132  Watts             Normal

Total input power: 151 Watts
Total output power: 138 Watts
```

**Table 43: show power usage Field Descriptions**

| Field | Description |
|---|---|
| Slot | The component slot number. |
| Type | The component product ID (PID). |
| Allocation | The power consumption for each component. |
| State | The component power consumption status. |
| Total Intput Power | The number of watts allocated to the power supply units. |
| Total Output Power | The number of watts provided by the power supply units. <br><br> **Note** Inaccuracies in the motherboard sensors may cause readings on C8300-2N2S to be slightly higher than the actual values. |

**show power usage**