



System Management Commands

- [arp](#), on page 3
- [boot](#), on page 4
- [cat](#), on page 5
- [copy](#), on page 6
- [copy startup-config tftp:](#), on page 7
- [copy tftp: startup-config](#), on page 8
- [debug voice diagnostics mac-address](#), on page 9
- [delete](#), on page 10
- [dir](#), on page 11
- [exit](#), on page 13
- [flash_init](#), on page 14
- [help](#), on page 15
- [hw-module subslot oir power-cycle](#) , on page 16
- [hw-module subslot shutdown](#), on page 17
- [install](#), on page 18
- [l2 traceroute](#), on page 22
- [location](#), on page 23
- [location plm calibrating](#), on page 26
- [mac address-table move update](#), on page 27
- [mgmt_init](#), on page 28
- [mkdir](#), on page 29
- [more](#), on page 30
- [no debug all](#), on page 31
- [rename](#), on page 32
- [reset](#), on page 33
- [rmdir](#), on page 34
- [sdm prefer](#), on page 35
- [set](#), on page 36
- [show avc client](#), on page 39
- [show cable-diagnostics tdr](#), on page 40
- [show debug](#), on page 42
- [show env](#), on page 43
- [show env xps](#), on page 47

- [show flow monitor](#), on page 51
- [show install](#), on page 53
- [show license right-to-use](#), on page 55
- [show location](#), on page 57
- [show location ap-detect](#), on page 59
- [show mac address-table](#), on page 61
- [show mac address-table move update](#), on page 65
- [show platform integrity](#), on page 66
- [show platform sudi certificate](#), on page 67
- [show running-config](#), on page 69
- [show sdm prefer](#), on page 75
- [test cable-diagnostics tdr](#), on page 77
- [traceroute mac](#), on page 78
- [traceroute mac ip](#), on page 81
- [type](#), on page 83
- [unset](#), on page 84
- [version](#), on page 86

arp

To display the contents of the Address Resolution Protocol (ARP) table, use the **arp** command in boot loader mode.

arp [*ip_address*]

Syntax Description	<i>ip_address</i> (Optional) Shows the ARP table or the mapping for a specific IP address.
---------------------------	--

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Boot loader
----------------------	-------------

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

Usage Guidelines	The ARP table contains the IP-address-to-MAC-address mappings.
-------------------------	--

Examples	This example shows how to display the ARP table:
-----------------	--

```
Device: arp 172.20.136.8  
arp'ing 172.20.136.8...  
172.20.136.8 is at 00:1b:78:d1:25:ae, via port 0
```

boot

To load and boot an executable image and display the command-line interface (CLI), use the **boot** command in boot loader mode.

```
boot [-post | -n | -p | flag] filesystem:/file-url...
```

Syntax Description	-post	(Optional) Run the loaded image with an extended or comprehensive power-on self-test (POST). Using this keyword causes POST to take longer to complete.
	-n	(Optional) Pause for the Cisco IOS Debugger immediately after launching.
	-p	(Optional) Pause for the JTAG Debugger right after loading the image.
	filesystem:	Alias for a file system. Use flash: for the system board flash device; use usbflash0: for USB memory sticks.
	/file-url	Path (directory) and name of a bootable image. Separate image names with a semicolon.

Command Default No default behavior or values.

Command Modes Boot loader

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

Usage Guidelines

When you enter the **boot** command without any arguments, the device attempts to automatically boot the system by using the information in the BOOT environment variable, if any.

If you supply an image name for the *file-url* variable, the **boot** command attempts to boot the specified image.

When you specify boot loader **boot** command options, they are executed immediately and apply only to the current boot loader session.

These settings are not saved for the next boot operation.

Filenames and directory names are case sensitive.

Example

This example shows how to boot the device using the *new-image.bin* image:

```
Device: set BOOT flash:/new-images/new-image.bin
Device: boot
```

After entering this command, you are prompted to start the setup program.

cat

To display the contents of one or more files, use the **cat** command in boot loader mode.

cat *filesystem:/file-url...*

Syntax Description	<i>filesystem</i> : Specifies a file system.
	<i>/file-url</i> Specifies the path (directory) and name of the files to display. Separate each filename with a space.

Command Default	No default behavior or values.
-----------------	--------------------------------

Command Modes	Boot loader
---------------	-------------

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

Usage Guidelines	Filenames and directory names are case sensitive.
	If you specify a list of files, the contents of each file appears sequentially.

Examples	This example shows how to display the contents of an image file:
----------	--

```
Device: cat flash:image_file_name
version_suffix: universal-122-xx.SEx
version_directory: image_file_name
image_system_type_id: 0x00000002
image_name: image_file_name.bin
ios_image_file_size: 8919552
total_image_file_size: 11592192
image_feature: IP|LAYER_3|PLUS|MIN_DRAM_MEG=128
image_family: family
stacking_number: 1.34
board_ids: 0x00000068 0x00000069 0x0000006a 0x0000006b
info_end:
```

copy

To copy a file from a source to a destination, use the **copy** command in boot loader mode.

copy *filesystem:/source-file-url filesystem:/destination-file-url*

Syntax Description

<i>filesystem:</i>	Alias for a file system. Use usbflash0: for USB memory sticks.
<i>/source-file-url</i>	Path (directory) and filename (source) to be copied.
<i>/destination-file-url</i>	Path (directory) and filename of the destination.

Command Default

No default behavior or values.

Command Modes

Boot loader

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced.

Usage Guidelines

Filenames and directory names are case sensitive.

Directory names are limited to 127 characters between the slashes (/); the name cannot contain control characters, spaces, deletes, slashes, quotes, semicolons, or colons.

Filenames are limited to 127 characters; the name cannot contain control characters, spaces, deletes, slashes, quotes, semicolons, or colons.

If you are copying a file to a new directory, the directory must already exist.

Examples

This example shows how to copy a file at the root:

```
Device: copy usbflash0:test1.text usbflash0:test4.text
File "usbflash0:test1.text" successfully copied to "usbflash0:test4.text"
```

You can verify that the file was copied by entering the **dir filesystem:** boot loader command.

copy startup-config tftp:

To copy the configuration settings from a switch to a TFTP server, use the **copy startup-config tftp:** command in Privileged EXEC mode.

copy startup-config tftp: *remote host {ip-address}/{name}*

Syntax Description	<i>remote host {ip-address}/{name}</i> Host name or IP-address of Remote host.
---------------------------	--

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	Cisco IOS XE Release 16.1	This command was introduced.

Usage Guidelines	<p>To copy your current configurations from the switch, run the command copy startup-config tftp: and follow the instructions. The configurations are copied onto the TFTP server.</p> <p>Then, login to another switch and run the command copy tftp: startup-config and follow the instructions. The configurations are now copied onto the other switch.</p>
-------------------------	---

Examples	<p>This example shows how to copy the configuration settings onto a TFTP server:</p>
-----------------	--

```
Device: copy startup-config tftp:
Address or name of remote host []?
```

copy tftp: startup-config

To copy the configuration settings from a TFTP server onto a new switch, use the **copy tftp: startup-config** command in Privileged EXEC mode on the new switch.

copy tftp: startup-config *remote host {ip-address}/{name}*

Syntax Description	<i>remote host {ip-address}/{name}</i> Host name or IP-address of Remote host.	
Command Default	No default behavior or values.	
Command Modes	Privileged EXEC	
Command History	Release	Modification
	Cisco IOS XE Release 16.1	This command was introduced.
Usage Guidelines	After the configurations are copied, to save your configurations, use write memory command and then either reload the switch or run the copy startup-config running-config command.	
Examples	<p>This example shows how to copy the configuration settings from the TFTP server onto a switch:</p> <pre>Device: copy tftp: startup-config Address or name of remote host []?</pre>	

debug voice diagnostics mac-address

To enable debugging of voice diagnostics for voice clients, use the **debug voice diagnostics mac-address** command in privileged EXEC mode. To disable debugging, use the **no** form of this command.

debug voice diagnostics mac-address *mac-address1* **verbose** **mac-address** *mac-address2* **verbose**
no debug voice diagnostics mac-address *mac-address1* **verbose** **mac-address** *mac-address2* **verbose**

Syntax Description	voice diagnostics	Configures voice debugging for voice clients.
	mac-address <i>mac-address1</i> mac-address <i>mac-address2</i>	Specifies MAC addresses of the voice clients.
	verbose	Enables verbose mode for voice diagnostics.

Command Default	No default behavior or values.
-----------------	--------------------------------

Command Modes	Privileged EXEC
---------------	-----------------

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

The following is sample output from the **debug voice diagnostics mac-address** command and shows how to enable debugging of voice diagnostics for voice client with MAC address of 00:1f:ca:cf:b6:60:

```
Device# debug voice diagnostics mac-address 00:1f:ca:cf:b6:60
```

delete

To delete one or more files from the specified file system, use the **delete** command in boot loader mode.

delete *filesystem:/file-url...*

Syntax Description	<i>filesystem:</i> Alias for a file system. Use usbflash0: for USB memory sticks.
	<i>/file-url...</i> Path (directory) and filename to delete. Separate each filename with a space.

Command Default	No default behavior or values.
-----------------	--------------------------------

Command Modes	Boot loader
---------------	-------------

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

Usage Guidelines	Filenames and directory names are case sensitive.
	The device prompts you for confirmation before deleting each file.

Examples	This example shows how to delete two files:
----------	---

```
Device: delete usbflash0:test2.text usbflash0:test5.text
Are you sure you want to delete "usbflash0:test2.text" (y/n)?y
File "usbflash0:test2.text" deleted
Are you sure you want to delete "usbflash0:test5.text" (y/n)?y
File "usbflash0:test2.text" deleted
```

You can verify that the files were deleted by entering the **dir usbflash0:** boot loader command.

dir

To display the list of files and directories on the specified file system, use the **dir** command in boot loader mode.

dir *filesystem:/file-url*

Syntax Description	<p><i>filesystem:</i> Alias for a file system. Use flash: for the system board flash device; use usbflash0: for USB memory sticks.</p> <p><i>/file-url</i> (Optional) Path (directory) and directory name that contain the contents you want to display. Separate each directory name with a space.</p>
---------------------------	---

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Boot Loader Privileged EXEC
----------------------	--------------------------------

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

Usage Guidelines	Directory names are case sensitive.
-------------------------	-------------------------------------

Examples	This example shows how to display the files in flash memory:
-----------------	--

```

Device: dir flash:
Directory of flash:/
  2  -rwx      561   Mar 01 2013 00:48:15  express_setup.debug
  3  -rwx    2160256  Mar 01 2013 04:18:48  c2960x-dmon-mz-150-2r.EX
  4  -rwx     1048   Mar 01 2013 00:01:39  multiple-fs
  6  drwx      512   Mar 01 2013 23:11:42  c2960x-universalk9-mz.150-2.EX
645 drwx      512   Mar 01 2013 00:01:11  dc_profile_dir
647 -rwx     4316   Mar 01 2013 01:14:05  config.text
648 -rwx        5   Mar 01 2013 00:01:39  private-config.text

96453632 bytes available (25732096 bytes used)

```

Table 1: dir Field Descriptions

Field	Description
2	Index number of the file.
-rwx	File permission, which can be any or all of the following: <ul style="list-style-type: none"> • d—directory • r—readable • w—writable • x—executable

Field	Description
1644045	Size of the file.
<date>	Last modification date.
env_vars	Filename.

exit

To return to the previous mode or exit from the CLI EXEC mode, use the **exit** command.

exit

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Privileged EXEC Global configuration
----------------------	---

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

This example shows how to exit the configuration mode:

```
Device(config)# exit
Device#
```

flash_init

To initialize the flash: file system, use the **flash_init** command in boot loader mode.

flash_init

Syntax Description

This command has no arguments or keywords.

Command Default

The flash: file system is automatically initialized during normal system operation.

Command Modes

Boot loader

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced.

Usage Guidelines

During the normal boot process, the flash: file system is automatically initialized.

Use this command to manually initialize the flash: file system. For example, you use this command during the recovery procedure for a lost or forgotten password.

help

To display the available commands, use the **help** command in boot loader mode.

help

Syntax Description	This command has no arguments or keywords.	
Command Default	No default behavior or values.	
Command Modes	Boot loader	
Command History	Release	Modification
	Cisco IOS XE Everest 16.6.1	This command was introduced.

Example

This example shows how to display a list of available boot loader commands:

```
Device:help
? -- Present list of available commands
arp -- Show arp table or arp-resolve an address
boot -- Load and boot an executable image
cat -- Concatenate (type) file(s)
copy -- Copy a file
delete -- Delete file(s)
dir -- List files in directories
emergency-install -- Initiate Disaster Recovery
...
...
...
unset -- Unset one or more environment variables
version -- Display boot loader version
```

hw-module subslot oir power-cycle

To reset or power-cycle a module from the CLI, use the **hw-module subslot oir power-cycle** command in privileged EXEC mode.

hw-module switch switch-no subslot slot / subslot oir power-cycle [force]

Syntax Description	<i>switch-no</i>	The switch to access. Valid values are 1 and 2.
	<i>slot</i>	Specifies the Physical slot number on the chassis.
	<i>subslot</i>	Subslot is always 0.
	force	Performs the power cycle without prompting for confirmation.

Command Default No default behavior or values.

Command Modes Privileged EXEC

Command History	Release	Modification
	Cisco IOS XE Everest 16.6.2	This command was introduced.

Usage Guidelines

- The **hw-module subslot oir power-cycle** command resets the specified module.
- This command is not supported on the supervisor slots.
- Do not use the command when the line cards are booting up.

Example

The following example shows how to power-cycle the module in slot 1 of the chassis:

```
Device# hw-module switch 1 subslot 1/0 oir power-cycle force
```

```
*Sep 3 20:11:05.219 UTC: %IOSXE_OIR-6-REMSPA: SPA removed from chassis 1 subslot 1/0,
interfaces disabled
*Sep 3 20:11:05.295 UTC: %SPA_OIR-6-OFFLINECARD: SPA (C9400-LC-24XS) offline in chassis 1
subslot 1/0
*Sep 3 20:11:36.812 UTC: %IOSXE_OIR-6-INSSPA: SPA inserted in chassis 1 subslot 1/0
*Sep 3 20:13:41.316 UTC: %SPA_OIR-6-ONLINECARD: SPA (C9400-LC-24XS) online in chassis 1
subslot 1/0
```


hw-module subslot shutdown

To power down a linecard from the chassis, use the **hw-module subslot shutdown** command in global configuration mode.

hw-module subslot *card slot/subslot-number* **shutdown** [**powered** | **unpowered**]

Syntax Description	powered	Holds the target subslot in reset.
	unpowered	Turns off the power of the target subslot.
Command History	Release	Modification
	Cisco IOS XE Everest 16.6.2	This command was deprecated on the Cisco Catalyst 9400 Series Switches.
	Cisco IOS XE Everest 16.6.1	This command was implemented on the Cisco Catalyst 9400 Series Switches.

Command Modes Global configuration (config)

Usage Guidelines This command is not supported on SUP slots.

A linecard need not be shut down before removing it, since surprise/live OIR is supported. This command is primarily for debugging, or when some issue is narrowed down to be caused by a particular linecard(s).

If you choose to power down a linecard by executing the **hw-module subslot shutdown** command in global configuration mode and save to startup-config, the linecard will not boot no matter how many times the switch is rebooted. This command is useful when you need to shut down a linecard located in a remote location and ensure that it does not boot automatically when the switch is rebooted. To begin using the linecard again, you must manually re-enable the linecard using the **no hw-module subslot shutdown** command.

```
Device(config)# hw-module subslot 5 shutdown
```

```
*Nov 23 13:49:48.294 UTC: %SPA_OIR-6-SHUTDOWN: subslot 5/0 is administratively shutdown;
Use 'no hw-module shutdown' to enable
```

```
*Nov 23 13:49:48.332 UTC: %SPA_OIR-6-OFFLINECARD: SPA (C9400-LC-48U) offline in subslot 5/0
```

install

To install Software Maintenance Upgrade (SMU) packages, use the **install** command in privileged EXEC mode.

install **abort** | **activate** | **file** **bootflash:** | **flash:** | **harddisk:** | **webui:** [**auto-abort-timer** **timer** *timer* **prompt-level** **all** | **none**] | **add** **file** **bootflash:** | **flash:** | **ftp:** | **harddisk:** | **http:** | **https:** | **pram:** | **rcp:** | **scp:** | **tftp:** | **webui:** [**activate** [**auto-abort-timer** *timer* **prompt-level** **all** | **nonecommit**]] | **commit** | **auto-abort-timer** **stop** | **deactivate** **file** **bootflash:** | **flash:** | **harddisk:** | **webui:** | **label** *id* **description** *description* | **label-name** *name* | **remove** **file** **bootflash:** | **flash:** | **harddisk:** | **webui:** | **inactive** | **rollback** **to base** | **committed** | **id** *install-ID* | **label** *label-name*

Syntax Description

abort	Terminates the current install operation.
activate	<p>Validates whether the SMU is added through the install add command.</p> <p>This keyword runs a compatibility check, updates package status, and if the package can be restarted, it triggers post-install scripts to restart the necessary processes, or triggers a reload for non-restartable packages.</p>
file	Specifies the package to be activated.
{ bootflash: flash: harddisk: webui: }	Specifies the location of the installed package.
auto-abort-timer <i>timer</i>	(Optional) Installs an automatic timer to terminate the installation.
prompt-level { all none }	<p>(Optional) Prompts the user about installation activities.</p> <p>For example, the activate keyword, automatically triggers a reload for packages that require a reload. Before activating the package, a message will prompt users as to whether they want to continue.</p> <p>The all keyword allows you to enable prompts. The none keyword disables prompts.</p>
add	<p>Copies files from a remote location (via FTP, TFTP) to a device and performs Software Maintenance Upgrade (SMU) compatibility check for the platform and image versions.</p> <p>This keyword runs base compatibility checks to ensure that a specified package is supported on a platform. It also adds an entry in the package file, so that the status can be monitored and maintained.</p>
{ bootflash: flash: ftp: harddisk: http: https: pram: rcp: scp: tftp: webui: }	Specifies the package to be added.

commit	Makes SMU changes persistent over reloads. You can do a commit after activating a package, while the system is up, or after the first reload. If a package is activated, but not committed, it remains active after the first reload, but not after the second reload.
auto-abort-timer stop	Stops the automatic timer for installation.
deactivate	Deactivates an installed package. Deactivating a package also updates the package status and triggers a process restart or a reload.
label <i>id</i>	Specifies the id of the install point to label.
description	Adds a description to specified install point.
label-name <i>name</i>	Adds a description to specified install point.
remove	Remove installed packages. The package file is removed from the file system. The remove keyword can only be used on packages that are currently inactive.
inactive	Removes all inactive packages from the device.
rollback	Rollbacks the data model interface (DMI) package (DMP) SMU to the base version, the last committed version, or a known commit ID.
to base	Returns to the base image.
committed	Returns to the installation state when the last commit operation was performed.
id <i>install-ID</i>	Returns to the specific install point ID. Valid values are from 1 to 4294967295.

Command Default Packages are not installed.

Command Modes Privileged EXEC (#)

Command History	Release	Modification
	Cisco IOS XE Everest 16.6.3	This command was introduced.

Usage Guidelines An SMU is a package that can be installed on a system to provide a patch fix or security resolution to a released image. This package contain a minimal set of files for patching the release along with some metadata that describes the contents of the package.

Packages must be added prior to activating the SMU.

A package must be deactivated, before it is removed from the bootflash. A removed packaged must be added again.

Example

The following example shows how to add an install package on a device:

```
Device# install add file tftp://172.16.0.1/tftpboot/folder1/cat3k-
universalk9.2017-01-10_13.15.1.CSCxxxxxxx.SSA.dmp.bin

install_add: START Sun Feb 26 05:57:04 UTC 2017
Downloading file tftp://172.16.0.1/tftpboot/folder1/cat3k-universalk9.2017-01-10_13.15.1.
CSCvb12345.SSA.dmp.bin
Finished downloading file
tftp://172.16.0.1/tftpboot/folder1/cat3k-universalk9.2017-01-10_13.15.1.
CSCxxxxxxx.SSA.dmp.bin to
bootflash:cat3k-universalk9.2017-01-10_13.15.1.CSCxxxxxxx.SSA.dmp.bin
SUCCESS: install_add /bootflash/cat3k-universalk9.2017-01-10_13.15.1.CSCxxxxxxx.SSA.dmp.bin

Sun Feb 26 05:57:22 UTC 2017
```

The following example shows how to activate an install package:

```
Device# install activate file bootflash:cat3k-universalk9.2017-01-10_13.15.1.
CSCxxxxxxx.SSA.dmp.bin

install_activate: START Sun Feb 26 05:58:41 UTC 2017
DMP package.
Netconf processes stopped
SUCCESS: install_activate
/bootflash/cat3k-universalk9.2017-01-10_13.15.1.CSCxxxxxxx.SSA.dmp.bin
Sun Feb 26 05:58:58 UTC 2017
*Feb 26 05:58:47.655: %DMI-4-CONTROL_SOCKET_CLOSED: SIP0: nesd:
ConfD control socket closed Lost connection to ConfD (45): EOF on socket to ConfD.
*Feb 26 05:58:47.661: %DMI-4-SUB_READ_FAIL: SIP0: vtyserverutild:
ConfD subscription socket read failed Lost connection to ConfD (45):
EOF on socket to ConfD.
*Feb 26 05:58:47.667: %DMI-4-CONTROL_SOCKET_CLOSED: SIP0: syncfd:
ConfD control socket closed Lost connection to ConfD (45): EOF on socket to ConfD.
*Feb 26 05:59:43.269: %DMI-5-SYNC_START: SIP0: syncfd:
External change to running configuration detected.
The running configuration will be synchronized to the NETCONF running data store.
*Feb 26 05:59:44.624: %DMI-5-SYNC_COMPLETE: SIP0: syncfd:
The running configuration has been synchronized to the NETCONF running data store.
```

The following example shows how to commit an installed package:

```
Device# install commit

install_commit: START Sun Feb 26 06:46:48 UTC 2017
SUCCESS: install_commit Sun Feb 26 06:46:52 UTC 2017
```

The following example shows how to rollback to the base SMU package:

```
Device# install rollback to base

install_rollback: START Sun Feb 26 06:50:29 UTC 2017
7 install_rollback: Restarting impacted processes to take effect
7 install_rollback: restarting confd

*Feb 26 06:50:34.957: %DMI-4-CONTROL_SOCKET_CLOSED: SIP0: syncfd:
```

```

Confd control socket closed Lost connection to Confd (45): EOF on socket to Confd.
*Feb 26 06:50:34.962: %DMI-4-CONTROL_SOCKET_CLOSED: SIP0: nescd:
Confd control socket closed Lost connection to Confd (45): EOF on socket to Confd.
*Feb 26 06:50:34.963: %DMI-4-SUB_READ_FAIL: SIP0: vtyserverutil:
Confd subscription socket read failed Lost connection to Confd (45):
EOF on socket to Confd.Netconf processes stopped
7 install_rollback: DMP activate complete
SUCCESS: install_rollback Sun Feb 26 06:50:41 UTC 2017
*Feb 26 06:51:28.901: %DMI-5-SYNC_START: SIP0: syncfd:
External change to running configuration detected.
The running configuration will be synchronized to the NETCONF running data store.
*Feb 26 06:51:30.339: %DMI-5-SYNC_COMPLETE: SIP0: syncfd:
The running configuration has been synchronized to the NETCONF running data store.

```

Related Commands

Command	Description
show install	Displays information about install packages.

l2 traceroute

To enable the Layer 2 traceroute server, use the **l2 traceroute** command in global configuration mode. Use the **no** form of this command to disable the Layer 2 traceroute server.

l2 traceroute
no l2 traceroute

Syntax Description

This command has no arguments or keywords.

Command Modes

Global configuration (config#)

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	The command was introduced.

Usage Guidelines

Layer 2 traceroute is enabled by default and opens a listening socket on User Datagram Protocol (UDP) port 2228. To close the UDP port 2228 and disable Layer 2 traceroute, use the **no l2 traceroute** command in global configuration mode.

The following example shows how to configure Layer 2 traceroute using the **l2 traceroute** command.

```
Device# configure terminal  
Device(config)# l2 traceroute
```

location

To configure location information for an endpoint, use the **location** command in global configuration mode. To remove the location information, use the **no** form of this command.

location **admin-tag** *string* | **civic-location identifier** *hostid* | **civic-location identifier** *hostid* | **elin-location** {*string* | **identifier** *id*} | **geo-location identifier** *hostid* | **prefer** {**cdp weight** *priority-value* | **lldp-med weight** *priority-value* | **static config weight** *priority-value* }
no location **admin-tag** *string* | **civic-location identifier** *hostid* | **civic-location identifier** *hostid* | **elin-location** {*string* | **identifier** *id*} | **geo-location identifier** *hostid* | **prefer** {**cdp weight** *priority-value* | **lldp-med weight** *priority-value* | **static config weight** *priority-value* }

Syntax Description	admin-tag <i>string</i>	Configures administrative tag or site information. Site or location information in alphanumeric format.
	civic-location	Configures civic location information.
	identifier	Specifies the name of the civic location, emergency, or geographical location.
	host	Defines the host civic or geo-spatial location.
	<i>id</i>	Name of the civic, emergency, or geographical location.
	Note	The identifier for the civic location in the LLDP-MED switch TLV is limited to 250 bytes or less. To avoid error messages about available buffer space during switch configuration, be sure that the total length of all civic-location information specified for each civic-location identifier does not exceed 250 bytes.
	elin-location	Configures emergency location information (ELIN).
	geo-location	Configures geo-spatial location information.
	prefer	Sets location information source priority.

Command Default No default behavior or values.

Command Modes Global configuration

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

Usage Guidelines After entering the **location** **civic-location** **identifier** global configuration command, you enter civic location configuration mode. After entering the **location** **geo-location** **identifier** global configuration command, you enter geo location configuration mode.

The civic-location identifier must not exceed 250 bytes.

The host identifier configures the host civic or geo-spatial location. If the identifier is not a host, the identifier only defines a civic location or geo-spatial template that can be referenced on the interface.

The **host** keyword defines the device location. The civic location options available for configuration using the **identifier** and the **host** keyword are the same. You can specify the following civic location options in civic location configuration mode:

- **additional-code**—Sets an additional civic location code.
- **additional-location-information**—Sets additional civic location information.
- **branch-road-name**—Sets the branch road name.
- **building**—Sets building information.
- **city**—Sets the city name.
- **country**—Sets the two-letter ISO 3166 country code.
- **county**—Sets the county name.
- **default**—Sets a command to its defaults.
- **division**—Sets the city division name.
- **exit**—Exits from the civic location configuration mode.
- **floor**—Sets the floor number.
- **landmark**—Sets landmark information.
- **leading-street-dir**—Sets the leading street direction.
- **name**—Sets the resident name.
- **neighborhood**—Sets neighborhood information.
- **no**—Negates the specified civic location data and sets the default value.
- **number**—Sets the street number.
- **post-office-box**—Sets the post office box.
- **postal-code**—Sets the postal code.
- **postal-community-name**—Sets the postal community name.
- **primary-road-name**—Sets the primary road name.
- **road-section**—Sets the road section.
- **room**—Sets room information.
- **seat**—Sets seat information.
- **state**—Sets the state name.
- **street-group**—Sets the street group.
- **street-name-postmodifier**—Sets the street name postmodifier.
- **street-name-premodifier**—Sets the street name premodifier.
- **street-number-suffix**—Sets the street number suffix.
- **street-suffix**—Sets the street suffix.
- **sub-branch-road-name**—Sets the sub-branch road name.
- **trailing-street-suffix**—Sets the trailing street suffix.
- **type-of-place**—Sets the type of place.
- **unit**—Sets the unit.

You can specify the following geo-spatial location information in geo-location configuration mode:

- **altitude**—Sets altitude information in units of floor, meters, or feet.
- **latitude**—Sets latitude information in degrees, minutes, and seconds. The range is from -90 degrees to 90 degrees. Positive numbers indicate locations north of the equator.

- **longitude**—Sets longitude information in degrees, minutes, and seconds. The range is from -180 degrees to 180 degrees. Positive numbers indicate locations east of the prime meridian.
- **resolution**—Sets the resolution for latitude and longitude. If the resolution value is not specified, default value of 10 meters is applied to latitude and longitude resolution parameters. For latitude and longitude, the resolution unit is measured in meters. The resolution value can also be a fraction.
- **default**—Sets the geographical location to its default attribute.
- **exit**—Exits from geographical location configuration mode.
- **no**—Negates the specified geographical parameters and sets the default value.

Use the **no lldp med-tlv-select location information** interface configuration command to disable the location TLV. The location TLV is enabled by default.

This example shows how to configure civic location information on the switch:

```
Device(config)# location civic-location identifier 1
Device(config-civic)# number 3550
Device(config-civic)# primary-road-name "Cisco Way"
Device(config-civic)# city "San Jose"
Device(config-civic)# state CA
Device(config-civic)# building 19
Device(config-civic)# room C6
Device(config-civic)# county "Santa Clara"
Device(config-civic)# country US
Device(config-civic)# end
```

You can verify your settings by entering the **show location civic-location** privileged EXEC command.

This example shows how to configure the emergency location information on the switch:

```
Device(config)# location elin-location 14085553881 identifier 1
```

You can verify your settings by entering the **show location elin** privileged EXEC command.

The example shows how to configure geo-spatial location information on the switch:

```
Device(config)# location geo-location identifier host
Device(config-geo)# latitude 12.34
Device(config-geo)# longitude 37.23
Device(config-geo)# altitude 5 floor
Device(config-geo)# resolution 12.34
```

You can use the **show location geo-location identifier** command to display the configured geo-spatial location details.

location plm calibrating

To configure path loss measurement (CCX S60) request for calibrating clients, use the **location plm calibrating** command in global configuration mode.

location plm calibrating multiband | uniband

Syntax Description	multiband	Specifies the path loss measurement request for calibrating clients on the associated 802.11a or 802.11b/g radio.
	uniband	Specifies the path loss measurement request for calibrating clients on the associated 802.11a/b/g radio.
Command Default	No default behavior or values.	
Command Modes	Global configuration	
Command History	Release	Modification
	Cisco IOS XE Everest 16.6.1	This command was introduced.
Usage Guidelines	The uniband is useful for single radio clients (even if the radio is a dual band and can operate in the 2.4-GHz and the 5-GHz bands). The multiband is useful for multiple radio clients.	
	<p>This example shows how to configure the path loss measurement request for calibrating clients on the associated 802.11a/b/g radio:</p> <pre> Device# configure terminal Device(config)# location plm calibrating uniband Device(config)# end </pre>	

mac address-table move update

To enable the MAC address table move update feature, use the **mac address-table move update** command in global configuration mode on the switch stack or on a standalone switch. To return to the default setting, use the **no** form of this command.

mac address-table move update receive | transmit
no mac address-table move update receive | transmit

Syntax Description	<table> <tr> <td>receive</td><td>Specifies that the switch processes MAC address-table move update messages.</td></tr> <tr> <td>transmit</td><td>Specifies that the switch sends MAC address-table move update messages to other switches in the network if the primary link goes down and the standby link comes up.</td></tr> </table>	receive	Specifies that the switch processes MAC address-table move update messages.	transmit	Specifies that the switch sends MAC address-table move update messages to other switches in the network if the primary link goes down and the standby link comes up.
receive	Specifies that the switch processes MAC address-table move update messages.				
transmit	Specifies that the switch sends MAC address-table move update messages to other switches in the network if the primary link goes down and the standby link comes up.				
Command Default	By default, the MAC address-table move update feature is disabled.				
Command Modes	Global configuration				
Command History					
Command History	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Cisco IOS XE Everest 16.6.1</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Cisco IOS XE Everest 16.6.1	This command was introduced.
Release	Modification				
Cisco IOS XE Everest 16.6.1	This command was introduced.				
Usage Guidelines	<p>The MAC address-table move update feature allows the switch to provide rapid bidirectional convergence if a primary (forwarding) link goes down and the standby link begins forwarding traffic.</p> <p>You can configure the access switch to send the MAC address-table move update messages if the primary link goes down and the standby link comes up. You can configure the uplink switches to receive and process the MAC address-table move update messages.</p>				

Examples

This example shows how to configure an access switch to send MAC address-table move update messages:

```
Device# configure terminal
Device(config)# mac address-table move update transmit
Device(config)# end
```

This example shows how to configure an uplink switch to get and process MAC address-table move update messages:

```
Device# configure terminal
Device(config)# mac address-table move update receive
Device(config)# end
```

You can verify your setting by entering the **show mac address-table move update** privileged EXEC command.

mgmt_init

To initialize the Ethernet management port, use the **mgmt_init** command in boot loader mode.

mgmt_init

Syntax Description

This command has no arguments or keywords.

Command Default

No default behavior or values.

Command Modes

Boot loader

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced.

Usage Guidelines

Use the **mgmt_init** command only during debugging of the Ethernet management port.

Examples

This example shows how to initialize the Ethernet management port:

```
Device: mgmt_init
```

mkdir

To create one or more directories on the specified file system, use the **mkdir** command in boot loader mode.

mkdir *filesystem:/directory-url...*

Syntax Description	<i>filesystem:</i> Alias for a file system. Use usbflash0: for USB memory sticks.
	<i>/directory-url...</i> Name of the directories to create. Separate each directory name with a space.
Command Default	No default behavior or values.
Command Modes	Boot loader
Command History	Release
	Modification
	Cisco IOS XE Everest 16.6.1 This command was introduced.
Usage Guidelines	Directory names are case sensitive.
	Directory names are limited to 127 characters between the slashes (/); the name cannot contain control characters, spaces, deletes, slashes, quotes, semicolons, or colons.

Example

This example shows how to make a directory called Saved_Configs:

```
Device: mkdir usbflash0:Saved_Configs
Directory "usbflash0:Saved_Configs" created
```

more

To display the contents of one or more files, use the **more** command in boot loader mode.

more *filesystem:/file-url...*

Syntax Description	<i>filesystem:</i> Alias for a file system. Use flash: for the system board flash device. <i>/file-url...</i> Path (directory) and name of the files to display. Separate each filename with a space.
---------------------------	---

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Boot loader
----------------------	-------------

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

Usage Guidelines	<p>Filenames and directory names are case sensitive.</p> <p>If you specify a list of files, the contents of each file appears sequentially.</p>
-------------------------	---

Examples	This example shows how to display the contents of a file:
-----------------	---

```
Device: more flash:image_file_name
version_suffix: universal-122-xx.SEx
version_directory: image_file_name
image_system_type_id: 0x00000002
image_name: image_file_name.bin
ios_image_file_size: 8919552
total_image_file_size: 11592192
image_feature: IP|LAYER_3|PLUS|MIN_DRAM_MEG=128
image_family: family
stacking_number: 1.34
board_ids: 0x00000068 0x00000069 0x0000006a 0x0000006b
info_end:
```

no debug all

To disable debugging on a switch, use the **no debug all** command in Privileged EXEC mode.

no debug all

Command Default

No default behavior or values.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Release 16.1	This command was introduced.

Examples

This example shows how to disable debugging on a switch.

```
Device: no debug all
All possible debugging has been turned off.
```

rename

To rename a file, use the **rename** command in boot loader mode.

rename *filesystem:/source-file-url filesystem:/destination-file-url*

Syntax Description

<i>filesystem:</i>	Alias for a file system. Use usbflash0: for USB memory sticks.
<i>/source-file-url</i>	Original path (directory) and filename.
<i>/destination-file-url</i>	New path (directory) and filename.

Command Default

No default behavior or values.

Command Modes

Boot loader

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced.

Usage Guidelines

Filenames and directory names are case sensitive.

Directory names are limited to 127 characters between the slashes (/); the name cannot contain control characters, spaces, deletes, slashes, quotes, semicolons, or colons.

Filenames are limited to 127 characters; the name cannot contain control characters, spaces, deletes, slashes, quotes, semicolons, or colons.

Examples

This example shows a file named *config.text* being renamed to *config1.text*:

Device: **rename usbflash0:config.text usbflash0:config1.text**

You can verify that the file was renamed by entering the **dir filesystem:** boot loader command.

reset

To perform a hard reset on the system, use the **reset** command in boot loader mode. A hard reset is similar to power-cycling the device; it clears the processor, registers, and memory.

reset

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Boot loader
----------------------	-------------

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

Examples

This example shows how to reset the system:

```
Device: reset  
Are you sure you want to reset the system (y/n)? y  
System resetting...
```

rmdir

To remove one or more empty directories from the specified file system, use the **rmdir** command in boot loader mode.

rmdir *filesystem:/directory-url...*

Syntax Description	<i>filesystem:</i>	Alias for a file system. Use usbflash0: for USB memory sticks.
	<i>/directory-url...</i>	Path (directory) and name of the empty directories to remove. Separate each directory name with a space.

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Boot loader
----------------------	-------------

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

Usage Guidelines

Directory names are case sensitive and limited to 45 characters between the slashes (/); the name cannot contain control characters, spaces, deletes, slashes, quotes, semicolons, or colons.

Before removing a directory, you must first delete all of the files in the directory.

The device prompts you for confirmation before deleting each directory.

Example

This example shows how to remove a directory:

```
Device: rmdir usbflash0:Test
```

You can verify that the directory was deleted by entering the **dir filesystem:** boot loader command.

sdm prefer

To specify the SDM template for use on the switch, use the **sdm prefer** command in global configuration mode.

sdm prefer
{ **advanced** }

Syntax Description

advanced Supports advanced features such as NetFlow.

Command Default

No default behavior or values.

Command Modes

Global configuration

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced.

Usage Guidelines

In a device stack, all stack members must use the same SDM template that is stored on the active device.

When a new device is added to a stack, the SDM configuration that is stored on the active device overrides the template configured on an individual device.

Example

This example shows how to configure the advanced template:

```
Device(config)# sdm prefer advanced
Device(config)# exit
Device# reload
```

set

To set or display environment variables, use the **set** command in boot loader mode. Environment variables can be used to control the boot loader or any other software running on the device.

set *variable value*

Syntax Description

<i>variable</i> <i>value</i>	<p>Use one of the following keywords for <i>variable</i> and the appropriate value for <i>value</i>:</p> <p>MANUAL_BOOT—Decides whether the device automatically or manually boots.</p> <p>Valid values are 1/Yes and 0/No. If it is set to 0 or No, the boot loader attempts to automatically boot the system. If it is set to anything else, you must manually boot the device from the boot loader mode.</p>
	<p>BOOT <i>filesystem:/file-url</i>—Identifies a semicolon-separated list of executable files to try to load and execute when automatically booting.</p> <p>If the BOOT environment variable is not set, the system attempts to load and execute the first executable image it can find by using a recursive, depth-first search through the flash: file system. If the BOOT variable is set but the specified images cannot be loaded, the system attempts to boot the first bootable file that it can find in the flash: file system.</p>
	<p>ENABLE_BREAK—Allows the automatic boot process to be interrupted when the user presses the Break key on the console.</p> <p>Valid values are 1, Yes, On, 0, No, and Off. If set to 1, Yes, or On, you can interrupt the automatic boot process by pressing the Break key on the console after the flash: file system has initialized.</p>
	<p>HELPER <i>filesystem:/file-url</i>—Identifies a semicolon-separated list of loadable files to dynamically load during the boot loader initialization. Helper files extend or patch the functionality of the boot loader.</p>
	<p>PS1 <i>prompt</i>—Specifies a string that is used as the command-line prompt in boot loader mode.</p>
	<p>CONFIG_FILE flash: <i>/file-url</i>—Specifies the filename that Cisco IOS uses to read and write a nonvolatile copy of the system configuration.</p>
	<p>BAUD <i>rate</i>—Specifies the number of bits per second (b/s) that is used for the baud rate for the console. The Cisco IOS software inherits the baud rate setting from the boot loader and continues to use this value unless the configuration file specifies another setting. The range is from 0 to 128000 b/s. Valid values are 50, 75, 110, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, 7200, 9600, 14400, 19200, 28800, 38400, 56000, 57600, 115200, and 128000.</p> <p>The most commonly used values are 300, 1200, 2400, 9600, 19200, 57600, and 115200.</p>
	<p>SWITCH_NUMBER <i>stack-member-number</i>—Changes the member number of a stack member.</p>
	<p>SWITCH_PRIORITY <i>priority-number</i>—Changes the priority value of a stack member.</p>

Command Default

The environment variables have these default values:

MANUAL_BOOT: No (0)

BOOT: Null string

ENABLE_BREAK: No (Off or 0) (the automatic boot process cannot be interrupted by pressing the **Break** key on the console).

HELPER: No default value (helper files are not automatically loaded).

PS1 device:

CONFIG_FILE: config.text

BAUD: 9600 b/s

SWITCH_NUMBER: 1

SWITCH_PRIORITY: 1



Note

Environment variables that have values are stored in the flash: file system in various files. Each line in the files contains an environment variable name and an equal sign followed by the value of the variable.

A variable has no value if it is not listed in these files; it has a value if it is listed even if the value is a null string. A variable that is set to a null string (for example, "") is a variable with a value.

Many environment variables are predefined and have default values.

Command Modes

Boot loader

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced.

Usage Guidelines

Environment variables are case sensitive and must be entered as documented.

Environment variables that have values are stored in flash memory outside of the flash: file system.

Under typical circumstances, it is not necessary to alter the setting of the environment variables.

The MANUAL_BOOT environment variable can also be set by using the **boot manual** global configuration command.

The BOOT environment variable can also be set by using the **boot system filesystem:/file-url** global configuration command.

The ENABLE_BREAK environment variable can also be set by using the **boot enable-break** global configuration command.

The HELPER environment variable can also be set by using the **boot helper filesystem: /file-url** global configuration command.

The CONFIG_FILE environment variable can also be set by using the **boot config-file flash: /file-url** global configuration command.

The SWITCH_NUMBER environment variable can also be set by using the **switch current-stack-member-number renumber new-stack-member-number** global configuration command.

The SWITCH_PRIORITY environment variable can also be set by using the device *stack-member-number* **priority** *priority-number* global configuration command.

The boot loader prompt string (PS1) can be up to 120 printable characters not including the equal sign (=).

Example

This example shows how to set the SWITCH_PRIORITY environment variable:

```
Device: set SWITCH_PRIORITY 2
```

You can verify your setting by using the **set** boot loader command.

show avc client

To display information about top number of applications, use the **show avc client** command in privileged EXEC mode.

show avc client *client-mac* **top** *n* **application** [**aggregate** | **upstream** | **downstream**]

Syntax Description	client <i>client-mac</i> Specifies the client MAC address.
	top <i>n</i> application Specifies the number of top "N" applications for the given client.
Command Default	No default behavior or values.
Command Modes	Privileged EXEC
Command History	Release Modification
	This command was introduced.

The following is sample output from the **show avc client** command:

Device# **sh avc client 0040.96ae.65ec top 10 application aggregate**

Cumulative Stats:

No.	AppName	Packet-Count	Byte-Count	AvgPkt-Size	usage%
1	skinny	7343	449860	61	94
2	unknown	99	13631	137	3
3	dhcp	18	8752	486	2
4	http	18	3264	181	1
5	tftp	9	534	59	0
6	dns	2	224	112	0

Last Interval (90 seconds) Stats:

No.	AppName	Packet-Count	Byte-Count	AvgPkt-Size	usage%
1	skinny	9	540	60	100

show cable-diagnostics tdr

To display the Time Domain Reflector (TDR) results, use the **show cable-diagnostics tdr** command in privileged EXEC mode.

show cable-diagnostics tdr interface *interface-id*

Syntax Description	<i>interface-id</i> Specifies the interface on which TDR is run.				
Command Default	No default behavior or values.				
Command Modes	Privileged EXEC				
Command History	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Cisco IOS XE Everest 16.6.1</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Cisco IOS XE Everest 16.6.1	This command was introduced.
Release	Modification				
Cisco IOS XE Everest 16.6.1	This command was introduced.				
Usage Guidelines	TDR is supported only on 10/100/100 copper Ethernet ports. It is not supported on 10-Gigabit Ethernet ports and small form-factor pluggable (SFP) module ports.				

Examples

This example shows the output from the **show cable-diagnostics tdr interface** *interface-id* command on a device:

```
Device# show cable-diagnostics tdr interface gigabitethernet1/0/23
TDR test last run on: March 01 00:04:08
Interface  Speed  Local pair  Pair length      Remote pair  Pair status
-----
Gi1/0/23   1000M  Pair A      1 +/- 1 meters   Pair A       Normal
           Pair B      1 +/- 1 meters   Pair B       Normal
           Pair C      1 +/- 1 meters   Pair C       Normal
           Pair D      1 +/- 1 meters   Pair D       Normal
```

Table 2: Field Descriptions for the show cable-diagnostics tdr Command Output

Field	Description
Interface	The interface on which TDR is run.
Speed	The speed of connection.
Local pair	The name of the pair of wires that TDR is testing on the local interface.

Field	Description
Pair length	<p>The location of the problem on the cable, with respect to your device. TDR can only find the location in one of these cases:</p> <ul style="list-style-type: none"> • The cable is properly connected, the link is up, and the interface speed is 1000 Mb/s. • The cable is open. • The cable has a short.
Remote pair	<p>The name of the pair of wires to which the local pair is connected. TDR can learn about the remote pair only when the cable is properly connected and the link is up.</p>
Pair status	<p>The status of the pair of wires on which TDR is running:</p> <ul style="list-style-type: none"> • Normal—The pair of wires is properly connected. • Not completed—The test is running and is not completed. • Not supported—The interface does not support TDR. • Open—The pair of wires is open. • Shorted—The pair of wires is shorted. • ImpedanceMis—The impedance is mismatched. • Short/Impedance Mismatched—The impedance mismatched or the cable is short. • InProgress—The diagnostic test is in progress.

This example shows the output from the **show interface** *interface-id* command when TDR is running:

```
Device# show interface gigabitethernet1/0/2
gigabitethernet1/0/2 is up, line protocol is up (connected: TDR in Progress)
```

This example shows the output from the **show cable-diagnostics tdr interface** *interface-id* command when TDR is not running:

```
Device# show cable-diagnostics tdr interface gigabitethernet1/0/2
% TDR test was never issued on gigabitethernet1/0/2
```

If an interface does not support TDR, this message appears:

```
% TDR test is not supported on device 1
```

show debug

To display all the debug commands available on a switch, use the **show debug** command in Privileged EXEC mode.

show debug

show debug condition *Condition identifier* / *All conditions*

Syntax Description	<i>Condition identifier</i>	Sets the value of the condition identifier to be used. Range is between 1 and 1000.
	<i>All conditions</i>	Shows all conditional debugging options available.

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	Cisco IOS XE Release 16.1	This command was introduced.

Usage Guidelines	Because debugging output is assigned high priority in the CPU process, it can render the system unusable. For this reason, use debug commands only to troubleshoot specific problems or during troubleshooting sessions with Cisco technical support staff. Moreover, it is best to use debug commands during periods of lower network traffic and fewer users. Debugging during these periods decreases the likelihood that increased debug command processing overhead will affect system use.
-------------------------	--

Examples	This example shows the output of a show debug command:
-----------------	---

```
Device# show debug condition all
```

To disable debugging, use the **no debug all** command.

show env

To display the list of sensors and all details like location, operational counters, status, history and so on, for the sensors, use the **show env** command in EXEC modes.

show env { **all** | **counters** | **history** *sensor-name* | **location** *sensor-name* | **sensor** *sensor-name* | **status** | **summary** | **table** *sensor-name* }

Syntax Description	all		Displays a list of sensors on the switch.
	counters		Displays the operational counters.
	history <i>sensor-name</i>		Displays the sensor state change history.
	location		Displays sensors by location.
	sensor <i>sensor-name</i>		Displays sensor summary.
	status		Displays the environmental status of the power fan units (PFU).
	summary		Displays a summary of all environmental monitoring sensors.
	table <i>sensor-name</i>		Displays sensor state table.
Command Default	No default behavior or values.		
Command Modes	User EXEC		
	Privileged EXEC		
Command History	Release	Modification	
	Cisco IOS XE Everest 16.6.1 This command was introduced.		
Usage Guidelines	Use the show env privileged EXEC command to display the device sensor information.		

```
Sensor: Temp:   Outlet   Location: 6/0
Current State: Normal      Reading: 39 Celsius
```

```
Sensor: Temp:   Inlet    Location: 6/0
Current State: Normal      Reading: 36 Celsius
```

```
Sensor: Temp:   Outlet   Location: 5/0
Current State: Normal      Reading: 33 Celsius
```

```
Sensor: Temp:   Inlet    Location: 5/0
Current State: Normal      Reading: 28 Celsius
```

The following example shows how to display the status of different sensors:

```
Switch#show env status
Power
Supply  Model No                Type  Capacity  Status      Fan States
-----
PS2     WS-XP3200AC                 AC    3200 W    active      good  good  good  good
PS3     WS-XP3200AC                 AC    3200 W    active      good  good  good  good

PS Current Configuration Mode : Combined
PS Current Operating State    : Combined

Power supplies currently active   : 2
Power supplies currently available : 2

Fantray : good
Power consumed by Fantray : 350 Watts
Fantray airflow direction : side-to-side
Fantray beacon LED: off
Fantray status LED: green
SYSTEM : GREEN
```

The following example shows how to display the sensor state table:

```
Switch#show env table Temp
Sensor State Table: Environmental Monitoring
Sensor: Temp: Coretemp   Location: R0
Current State: Normal      Reading: 46 Celsius
0-Normal      Low:-2147483647  High:106      Margin:0
  Action:RECORD           Alarm:NONE
  Poll:60000              Reminder:3600000
1-Minor       Low:107         High:116      Margin:0
  Action:RECORD           Alarm:MINOR
  Poll:60000              Reminder:3600000
2-Major       Low:117         High:122      Margin:0
  Action:RECORD           Alarm:MAJOR
  Poll:60000              Reminder:3600000
3-Critical    Low:123         High:124      Margin:0
  Action:RECORD           Alarm:CRITICAL
  Poll:60000              Reminder:3600000
4-Shutdown    Low:125         High:2147483647 Margin:0
  Action:SHUTDOWN        Alarm:NONE
  Poll:60000              Reminder:3600000

Sensor State Table: Environmental Monitoring
Sensor: Temp: DopplerD   Location: R0
Current State: Normal      Reading: 86 Celsius
0-Normal      Low:-2147483647  High:106      Margin:0
  Action:RECORD           Alarm:NONE
  Poll:60000              Reminder:3600000
1-Minor       Low:107         High:116      Margin:0
```

```

        Action:RECORD          Alarm:MINOR
        Poll:60000             Reminder:3600000
2-Major          Low:117      High:122          Margin:0
        Action:RECORD          Alarm:MAJOR
        Poll:60000             Reminder:3600000
3-Critical       Low:123      High:124          Margin:0
        Action:RECORD          Alarm:CRITICAL
        Poll:60000             Reminder:3600000
4-Shutdown       Low:125      High:2147483647   Margin:0
        Action:RECORD          Alarm:CRITICAL
        Poll:60000             Reminder:3600000

```

```

Sensor State Table:  Environmental Monitoring
Sensor: Temp:  outlet      Location: R0
Current State: Normal      Reading: 43 Celsius
0-Normal          Low:-2147483648 High:54          Margin:0
        Action:RECORD          Alarm:NONE
        Poll:60000             Reminder:3600000
1-Minor          Low:55      High:64          Margin:0
        Action:RECORD          Alarm:MINOR
        Poll:60000             Reminder:3600000
2-Major          Low:65      High:74          Margin:0
        Action:RECORD          Alarm:MAJOR
        Poll:60000             Reminder:3600000
3-Critical       Low:75      High:99          Margin:0
        Action:RECORD          Alarm:CRITICAL
        Poll:60000             Reminder:3600000
4-Shutdown       Low:100     High:2147483647   Margin:0
        Action:SHUTDOWN        Alarm:CRITICAL
        Poll:60000             Reminder:3600000

```

```

Sensor State Table:  Environmental Monitoring
Sensor: Temp:  inlet      Location: R0
Current State: Normal      Reading: 43 Celsius
0-Normal          Low:-2147483648 High:44          Margin:0
        Action:RECORD          Alarm:NONE
        Poll:60000             Reminder:3600000
1-Minor          Low:45      High:54          Margin:0
        Action:RECORD          Alarm:MINOR
        Poll:60000             Reminder:3600000
2-Major          Low:55      High:64          Margin:0
        Action:RECORD          Alarm:MAJOR
        Poll:60000             Reminder:3600000
3-Critical       Low:65      High:71          Margin:0
        Action:RECORD          Alarm:CRITICAL
        Poll:60000             Reminder:3600000
4-Shutdown       Low:72      High:2147483647   Margin:0
        Action:SHUTDOWN        Alarm:CRITICAL
        Poll:60000             Reminder:3600000

```

```

Sensor State Table:  Environmental Monitoring
Sensor: Temp:  Outlet     Location: 6/0
Current State: Normal      Reading: 39 Celsius
0-Normal          Low:-2147483648 High:54          Margin:0
        Action:RECORD          Alarm:NONE
        Poll:60000             Reminder:3600000
1-Minor          Low:55      High:64          Margin:0
        Action:RECORD          Alarm:MINOR
        Poll:60000             Reminder:3600000
2-Major          Low:65      High:74          Margin:0
        Action:RECORD          Alarm:MAJOR
        Poll:60000             Reminder:3600000
3-Critical       Low:75      High:99          Margin:0
        Action:RECORD          Alarm:CRITICAL

```

show env

```

Poll:60000          Reminder:3600000
4-Shutdown          Low:100          High:2147483647   Margin:0
Action:SHUTDOWN     Alarm:CRITICAL
Poll:60000          Reminder:3600000

```

Sensor State Table: Environmental Monitoring

Sensor: Temp: Inlet Location: 6/0

Current State: Normal Reading: 36 Celsius

```

0-Normal          Low:-2147483648   High:44           Margin:0
Action:RECORD     Alarm:NONE
Poll:60000        Reminder:3600000

1-Minor           Low:45            High:54           Margin:0
Action:RECORD     Alarm:MINOR
Poll:60000        Reminder:3600000

2-Major           Low:55            High:64           Margin:0
Action:RECORD     Alarm:MAJOR
Poll:60000        Reminder:3600000

3-Critical        Low:65            High:71           Margin:0
Action:RECORD     Alarm:CRITICAL
Poll:60000        Reminder:3600000

4-Shutdown        Low:72            High:2147483647   Margin:0
Action:SHUTDOWN   Alarm:CRITICAL
Poll:60000        Reminder:3600000

```

Sensor State Table: Environmental Monitoring

Sensor: Temp: Outlet Location: 5/0

Current State: Normal Reading: 33 Celsius

```

0-Normal          Low:-2147483648   High:54           Margin:0
Action:RECORD     Alarm:NONE
Poll:60000        Reminder:3600000

1-Minor           Low:55            High:64           Margin:0
Action:RECORD     Alarm:MINOR
Poll:60000        Reminder:3600000

2-Major           Low:65            High:74           Margin:0
Action:RECORD     Alarm:MAJOR
Poll:60000        Reminder:3600000

3-Critical        Low:75            High:99           Margin:0
Action:RECORD     Alarm:CRITICAL
Poll:60000        Reminder:3600000

4-Shutdown        Low:100           High:2147483647   Margin:0
Action:SHUTDOWN   Alarm:CRITICAL
Poll:60000        Reminder:3600000

```

Sensor State Table: Environmental Monitoring

Sensor: Temp: Inlet Location: 5/0

Current State: Normal Reading: 28 Celsius

```

0-Normal          Low:-2147483648   High:44           Margin:0
Action:RECORD     Alarm:NONE
Poll:60000        Reminder:3600000

1-Minor           Low:45            High:54           Margin:0
Action:RECORD     Alarm:MINOR
Poll:60000        Reminder:3600000

2-Major           Low:55            High:64           Margin:0
Action:RECORD     Alarm:MAJOR
Poll:60000        Reminder:3600000

3-Critical        Low:65            High:71           Margin:0
Action:RECORD     Alarm:CRITICAL
Poll:60000        Reminder:3600000

4-Shutdown        Low:72            High:2147483647   Margin:0
Action:SHUTDOWN   Alarm:CRITICAL
Poll:60000        Reminder:3600000

```

show env xps

To display budgeting, configuration, power, and system power information for the Cisco eXpandable Power System (XPS) 2200, use the **show env xps** command in privileged EXEC mode.

show env xps { **budgeting** | **configuration** | **port** [**all** | *number*] | **power** | **system** | **thermal** | **upgrade** | **version** }

Syntax Description		
budgeting		Displays XPS power budgeting, the allocated and budgeted power of all switches in the power stack.
configuration		Displays the configuration resulting from the power xps privileged EXEC commands. The XPS configuration is stored in the XPS. Enter the show env xps configuration command to retrieve the non-default configuration.
port [all <i>number</i>]		Displays the configuration and status of all ports or the specified XPS port. Port numbers are from 1 to 9.
power		Displays the status of the XPS power supplies.
system		Displays the XPS system status.
thermal		Displays the XPS thermal status.
upgrade		Displays the XPS upgrade status.
version		Displays the XPS version details.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.2(55)SE1	This command was introduced.

Usage Guidelines Use the **show env xps** privileged EXEC command to display the information for XPS 2200.

Examples

This is an example of output from the show env xps budgeting command:

```
Switch#
=====

XPS 0101.0100.0000 :
=====
Data          Current    Power      Power Port  Switch #  PS A  PS B  Role-State
Committed
Budget
-----
223          1543

```

show env xps

```

2      -      -      -      SP-PS      223      223
3      -      -      -      -          -          -
4      -      -      -      -          -          -
5      -      -      -      -          -          -
6      -      -      -      -          -          -
7      -      -      -      -          -          -
8      -      -      -      -          -          -
9      1      1100 -      RPS-NB      223      070
XPS    -      -      1100 -          -          -

```

This is an example of output from the show env xps configuration command:

```

Switch# show env xps configuration
=====
XPS 0101.0100.0000 :
=====
power xps port 4 priority 5
power xps port 5 mode disable
power xps port 5 priority 6
power xps port 6 priority 7
power xps port 7 priority 8
power xps port 8 priority 9
power xps port 9 priority 4

```

This is an example of output from the show env xps port all command:

```

Switch#
XPS 010

```

```

-----
Port name      : -
Connected      : Yes
Mode           : Enabled (On)
Priority       : 1
Data stack switch # : - Configured role      : Auto-SP
Run mode      : SP-PS : Stack Power Power-Sharing Mode
Cable faults   : 0x0 XPS 0101.0100.0000 Port 2
-----
Port name      : -
Connected      : Yes
Mode           : Enabled (On)
Priority       : 2
Data stack switch # : - Configured role      : Auto-SP
Run mode      : SP-PS : Stack Power Power-Sharing Mode
Cable faults   : 0x0 XPS 0101.0100.0000 Port 3
-----
Port name      : -
Connected      : No
Mode           : Enabled (On)
Priority       : 3
Data stack switch # : - Configured role      : Auto-SP Run mode      : -
Cable faults   :
<output truncated>

```

This is an example of output from the show env xps power command:

```

=====
XPS 0101.0100.0000 :
=====
Port-Supply SW PID      Serial#      Status      Mode Watts
-----
XPS-A      Not present
XPS-B      NG3K-PWR-1100WAC  LIT13320NTV OK      SP  1100
1-A      -      -      -      -

```



```

1-B          - -          -          -          SP    715
2-A          - -          -          -
2-B          - -          -          -
9-A          100WAC      LIT141307RK OK          RPS   1100
9-B          esent

```

This is an example of output from the show env xps system command:

```

Switch#
=====

```

```

XPS 0101.0100.0000 :
=====
XPS          Cfg  Cfg          RPS Switch  Current    Data Port  XPS Port Name

Mode Role    Pri Conn    Role-State  Switch #

-----
1      -          On  Auto-SP  1  Yes      SP-PS      -
2      -          On  Auto-SP  2  Yes      SP-PS      -
3      -          On  Auto-SP  3  No        -          -
4      none       On  Auto-SP  5  No        -          -
5      -          Off Auto-SP  6  No        -          -
6      -          On  Auto-SP  7  No        -          -
7      -          On  Auto-SP  8  No        -          -
8      -          On  Auto-SP  9  No        -          -
9      test       On  Auto-SP  4  Yes      RPS-NB

```

This is an example of output from the show env xps thermal command:

```

Switch#
=====

```

```

XPS 0101.0100.0000 :
=====
Fan  Status
----
1      OK
2      OK
3      NOT PRESENT PS-1  NOT PRESENT PS-2  OK Temperature is OK

```

This is an example of output from the show env xps upgrade command when no upgrade is occurring:

```

Switch# show env xps upgrade
No XPS is connected and upgrading.

```

These are examples of output from the show env xps upgrade command when an upgrade is in process:

```

Switch# show env xps upgrade
XPS Upgrade Xfer

SW Status Prog
--
1 Waiting 0%
Switch#
*Mar 22 03:12:46.723: %PLATFORM_XPS-6-UPGRADE_START: XPS 0022.bdd7.9b14 upgrade has
started through the Service Port.
Switch# show env xps upgrade
XPS Upgrade Xfer
SW Status Prog
--
1 Receiving 1%
Switch# show env xps upgrade

```

```

XPS Upgrade Xfer
SW Status Prog
-- -----
1 Receiving 5%
Switch# show env xps upgrade
XPS Upgrade Xfer
SW Status Prog
-- -----
1 Reloading 100%
Switch#
*Mar 22 03:16:01.733: %PLATFORM_XPS-6-UPGRADE_DONE: XPS 0022.bdd7.9b14 upgrade has
completed and the XPS is reloading.

```

This is an example of output from the show env xps version command:

```

Switch# show env xps version
=====
XPS 0022.bdd7.9b14:
=====
Serial Number: FDO13490KUT
Hardware Version: 8
Bootloader Version: 7
Software Version: 18

```

Table 3: Related Commands

Command	Description
power xps(global configuration command)	Configures XPS and XPS port names.
power xps(privileged EXEC command)	Configures the XPS ports and system.

show flow monitor

To display the status and statistics for a flow monitor, use the **show flow monitor** command in privileged EXEC mode.

Syntax Description	name	(Optional) Specifies the name of a flow monitor.
	<i>monitor-name</i>	(Optional) Name of a flow monitor that was previously configured.
	cache	(Optional) Displays the contents of the cache for the flow monitor.
	format	(Optional) Specifies the use of one of the format options for formatting the display output.
	csv	(Optional) Displays the flow monitor cache contents in comma-separated variables (CSV) format.
	record	(Optional) Displays the flow monitor cache contents in record format.
	table	(Optional) Displays the flow monitor cache contents in table format.
	statistics	(Optional) Displays the statistics for the flow monitor.

Command Modes Privileged EXEC

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

Usage Guidelines The **cache** keyword uses the record format by default.

The uppercase field names in the display output of the **show flowmonitor monitor-name cache** command are key fields that uses to differentiate flows. The lowercase field names in the display output of the **show flow monitor monitor-name cache** command are nonkey fields from which collects values as additional data for the cache.

Examples

The following example displays the status for a flow monitor:

```
Device# show flow monitor FLOW-MONITOR-1

Flow Monitor FLOW-MONITOR-1:
  Description:      Used for basic traffic analysis
  Flow Record:     flow-record-1
  Flow Exporter:   flow-exporter-1
                  flow-exporter-2
  Cache:
    Type:          normal
    Status:        allocated
    Size:          4096 entries / 311316 bytes
    Inactive Timeout: 15 secs
    Active Timeout: 1800 secs
```

This table describes the significant fields shown in the display.

Table 4: show flow monitor monitor-name Field Descriptions

Field	Description
Flow Monitor	Name of the flow monitor that you configured.
Description	Description that you configured or the monitor, or the default description User defined.
Flow Record	Flow record assigned to the flow monitor.
Flow Exporter	Exporters that are assigned to the flow monitor.
Cache	Information about the cache for the flow monitor.
Type	Flow monitor cache type. The value is always normal, as it is the only supported cache type.
Status	<p>Status of the flow monitor cache.</p> <p>The possible values are:</p> <ul style="list-style-type: none"> • allocated—The cache is allocated. • being deleted—The cache is being deleted. • not allocated—The cache is not allocated.
Size	Current cache size.
Inactive Timeout	Current value for the inactive timeout in seconds.
Active Timeout	Current value for the active timeout in seconds.

The following example displays the status, statistics, and data for the flow monitor named FLOW-MONITOR-1:

This table describes the significant fields shown in the display.

The following example displays the status, statistics, and data for the flow monitor named FLOW-MONITOR-1 in a table format:

The following example displays the status, statistics, and data for the flow monitor named FLOW-MONITOR-IPv6 (the cache contains IPv6 data) in record format:

The following example displays the status and statistics for a flow monitor:

show install

To display information about install 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 install package.	

Example

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

```
Device# show install package bootflash:cat3k-universalk9.2017-01-10_13.15.1.
CSCxxx.SSA.dmp.bin
Name: cat3k-universalk9.2017-01-10_13.15.1.CSCxxx.SS
Version: 16.6.1.0.199.1484082952..Everest
Platform: Catalyst3k
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:cat3k-universalk9.2017-01-10_13.15.1.CSCxxx.SSA.dmp.bin
Inactive Packages:
    No packages
Committed Packages:
    bootflash:cat3k-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.

Table 5: show install summary Field Descriptions

Field	Description
Active Packages	Name of the active install package.
Inactive Packages	List of inactive packages.
Committed Packages	Install packages that have saved or committed changes to the harddisk, so that the changes become persistent across reloads.
Uncommitted Packages	Intall package activations that are nonpersistent.

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/cat3k-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 license right-to-use

To display detailed information for apcount adder licenses installed on the device, use the **show license right-to-use** command in EXEC modes.

show license right-to-use **default** | **detail** | **eula** | **mismatch** | **slot** | **summary** | **usage**

Syntax Description	default	Displays the default license information.
	detail	Displays details of all the licenses in the stack.
	eula	Displays the EULA text.
	mismatch	Displays mismatch license information.
	slot	Specifies the switch number.
	summary	Displays consolidated stack-wide license information.
	usage	Displays the usage details of all licenses.

Command Default No default behavior or values.

Command Modes User EXEC
Privileged EXEC

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

The following is sample output from the **show license right-to-use usage** command and displays all the detailed information:

Device# **show license right-to-use usage**

Slot#	License Name	Type	usage-duration(y:m:d)	In-Use	EULA
1	ipservices	permanent	0 :0 :1	yes	yes
1	ipbase	permanent	0 :0 :0	no	no
1	ipbase	evaluation	0 :0 :0	no	no
1	lanbase	permanent	0 :0 :7	no	yes
1	apcount	evaluation	0 :0 :0	no	no
1	apcount	base	0 :0 :0	no	no
1	apcount	adder	0 :0 :0	no	yes
1	apcount	adder	0 :0 :0	no	yes
1	apcount	adder	0 :0 :0	no	yes
1	apcount	adder	0 :0 :0	no	yes
1	apcount	adder	0 :0 :0	no	yes

Device#

The following is sample output from the **show license right-to-use detail** command and displays the detailed information of licenses:

```
Device# show license right-to-use detail

Index 1:  License Name: apcount
          Period left: 16
          License Type: evaluation
          License State: Not Activated
          License Count: 1000
          License Location: Slot 1
Index 2:  License Name: apcount
          Period left: Lifetime
          License Type: adder
          License State: Active, In use
          License Count: 125
          License Location: Slot 1
```

The following is sample output from the **show license right-to-use summary** command when the evaluation license is active:

```
Device# show license right-to-use summary
  License Name    Type      Count    Period left
-----
  apcount        evaluation  1000     50
-----

Evaluation AP-Count: Enabled
Total AP Count Licenses: 1000
AP Count Licenses In-use: 100
AP Count Licenses Remaining: 900
```

The following is sample output from the **show license right-to-use summary** command when the adder licenses are active:

```
Device# show license right-to-use summary
  License Name    Type      Count    Period left
-----
  apcount        adder       125     Lifetime
-----

Evaluation AP-Count: Disabled
Total AP Count Licenses: 125
AP Count Licenses In-use: 100
AP Count Licenses Remaining: 25
```


show location

To display location information for an endpoint, use the **show location** command in privileged EXEC mode.

show location

[**admin-tag** | **civic-location***identifier identifier-string* | **interface** *type number* | **static** | **custom-location***identifier identifier-string* | **interface** *type number* | **static** | **elin-location***identifier identifier-string* | **interface** *type number* | **static** | **geo-location***identifier identifier-string* | **interface** *type number* | **static** | **host**]

Syntax Description		
admin-tag		Displays administrative tag or site information.
civic-location		Specifies civic location information.
identifier <i>identifier-string</i>		Information identifier of the civic location, custom location, or geo-spatial location.
interface <i>type number</i>		Interface type and number. For information about the numbering syntax for your device, use the question mark (?) online help function.
static		Displays configured civic, custom, or geo-spatial location information.
custom-location		Specifies custom location information.
elin-location		Specifies emergency location information (ELIN).
geo-location		Specifies geo-spatial location information.
host		Specifies the civic, custom, or geo-spatial host location information.

Command Default No default behavior or values.

Command Modes Privileged EXEC

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

The following sample output of the **show location civic-location** command displays civic location information for the specified identifier (*identifier 1*):

```
Device# show location civic-location identifier 1
Civic location information
-----
Identifier           : 1
County              : Santa Clara
Street number       : 3550
Building            : 19
Room                : C6
Primary road name    : Example
```

 show location

```
City           : San Jose
State          : CA
Country        : US
```

Related Commands

Command	Description
location	Configures location information for an endpoint.

show location ap-detect

To display the location information detected by specified access point, use the **show location ap-detect** command in privileged EXEC mode.

show location ap-detect *all* | *client* | *rfid* | *rogue-ap* | *rogue-client* *ap-name*

Syntax Description		
all	Displays information of the client, RFID, rogue access point, and rogue client.	
client	Displays the client information.	
rfid	Displays RFID information.	
rogue-ap	Displays rogue access point information.	
rogue-client	Displays rogue client information.	
<i>ap-name</i>	Specified access point name.	

Command Default No default behavior or values.

Command Modes Privileged EXEC

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

The following is sample output from the **show location ap-detect client** command:

Device# **show location ap-detect client AP02**

Clients

MAC Address	Status	Slot	Antenna	RSSI
2477.0389.96ac	Associated	1	0	-60
2477.0389.96ac	Associated	1	1	-61
2477.0389.96ac	Associated	0	0	-46
2477.0389.96ac	Associated	0	1	-41

RFID Tags

Rogue AP's

Rogue Clients

MAC Address	State	Slot	Rssi
0040.96b3.bce6	Alert	1	-58
586d.8ff0.891a	Alert	1	-72

 show location ap-detect

show mac address-table

To display the MAC address table, use the **show mac address-table** command in privileged EXEC mode.

```
show mac address-table [ address mac-addr [ interface type/number | vlan vlan-id ] | aging-time
[ routed-mac | vlan vlan-id ] | control-packet-learn | count [ summary | vlan vlan-id ] | [ dynamic
| secure | static ] [ address mac-addr ] [ interface type/number | vlan vlan-id ] | interface type/number
| learning [ vlan vlan-id ] | multicast [ count ] [ igmp-snooping | mld-snooping | user ] [ vlan
vlan-id ] | notification change [ interface [ type/number ] ] | mac-move | threshold | vlan vlan-id
]
```

Syntax	Description
address <i>mac-addr</i>	(Optional) Displays information about the MAC address table for a specific MAC address.
interface <i>type/number</i>	(Optional) Displays addresses for a specific interface.
vlan <i>vlan-id</i>	(Optional) Displays addresses for a specific VLAN.
aging-time [routed-mac vlan <i>vlan-id</i>]	(Optional) Displays the aging time for the routed MAC or VLAN.
control-packet-learn	(Optional) Displays the controlled packet MAC learning parameters.
count	(Optional) Displays the number of entries that are currently in the MAC address table.
dynamic	(Optional) Displays only the dynamic addresses.
secure	(Optional) Displays only the secure addresses.
static	(Optional) Displays only the static addresses.
learning	(Optional) Displays learnings of a VLAN or interface.
multicast	(Optional) Displays information about the multicast MAC address table entries only.
igmp-snooping	(Optional) Displays the addresses learned by Internet Group Management Protocol (IGMP) snooping.
mld-snooping	(Optional) Displays the addresses learned by Multicast Listener Discover version 2 (MLDv2) snooping.
user	(Optional) Displays the manually entered (static) addresses.
notification change	Displays the MAC notification parameters and history table.
notification mac-move	Displays the MAC-move notification status.
notification threshold	Displays the Counter-Addressable Memory (CAM) table utilization notification status.

Command Modes Privileged EXEC (#)

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

Usage Guidelines The *mac-addr* value is a 48-bit MAC address. The valid format is H.H.H.

The interface *number* argument designates the module and port number. Valid values 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 following is sample output from the **show mac address-table** command:

Device# **show mac address-table**

```

Mac Address Table
-----
Vlan    Mac Address      Type      Ports
----
A11     0100.0ccc.cccc   STATIC    CPU
A11     0100.0ccc.cccd   STATIC    CPU
A11     0180.c200.0000   STATIC    CPU
A11     0180.c200.0001   STATIC    CPU
A11     0180.c200.0002   STATIC    CPU
A11     0180.c200.0003   STATIC    CPU
A11     0180.c200.0004   STATIC    CPU
A11     0180.c200.0005   STATIC    CPU
A11     0180.c200.0006   STATIC    CPU
A11     0180.c200.0007   STATIC    CPU
A11     0180.c200.0008   STATIC    CPU
A11     0180.c200.0009   STATIC    CPU
A11     0180.c200.000a   STATIC    CPU
A11     0180.c200.000b   STATIC    CPU
A11     0180.c200.000c   STATIC    CPU
A11     0180.c200.000d   STATIC    CPU
A11     0180.c200.000e   STATIC    CPU
A11     0180.c200.000f   STATIC    CPU
A11     0180.c200.0010   STATIC    CPU
A11     0180.c200.0021   STATIC    CPU
A11     ffff.ffff.ffff   STATIC    CPU
1       780c.f0e1.1dc3   STATIC    Vl1
51      0000.1111.2222   STATIC    Vl51
51      780c.f0e1.1dc6   STATIC    Vl51
1021    0000.0c9f.f45c   STATIC    Vl1021
1021    0002.02cc.0002   STATIC    Gi6/0/2
1021    0002.02cc.0003   STATIC    Gi6/0/3
1021    0002.02cc.0004   STATIC    Gi6/0/4
1021    0002.02cc.0005   STATIC    Gi6/0/5
1021    0002.02cc.0006   STATIC    Gi6/0/6
1021    0002.02cc.0007   STATIC    Gi6/0/7
1021    0002.02cc.0008   STATIC    Gi6/0/8
1021    0002.02cc.0009   STATIC    Gi6/0/9
1021    0002.02cc.000a   STATIC    Gi6/0/10

```

<output truncated>

The following example shows how to display MAC address table information for a specific MAC address:

Device# **show mac address-table address fc58.9a02.7382**

```

          Mac Address Table
-----
Vlan    Mac Address      Type        Ports
----    -
1       fc58.9a02.7382    DYNAMIC     Te1/0/1
Total Mac Addresses for this criterion: 1

```

The following example shows how to display the currently configured aging time for a specific VLAN:

Device# **show mac address-table aging-time vlan 1**

```

Global Aging Time: 300
Vlan    Aging Time
----    -
1       300

```

The following example shows how to display the information about the MAC address table for a specific interface:

Device# **show mac address-table interface TenGigabitEthernet1/0/1**

```

          Mac Address Table
-----
Vlan    Mac Address      Type        Ports
----    -
1       fc58.9a02.7382    DYNAMIC     Te1/0/1
Total Mac Addresses for this criterion: 1

```

The following example shows how to display the MAC-move notification status:

Device# **show mac address-table notification mac-move**

MAC Move Notification: Enabled

The following example shows how to display the CAM-table utilization-notification status:

Device# **show mac address-table notification threshold**

```

      Status      limit      Interval
-----+-----+-----
enabled          50          120

```

The following example shows how to display the MAC notification parameters and history table for a specific interface:

Device# **show mac address-table notification change interface tenGigabitEthernet1/0/1**

```

MAC Notification Feature is Disabled on the switch
Interface                                     MAC Added Trap  MAC Removed Trap
-----
TenGigabitEthernet1/0/1                      Disabled        Disabled

```

The following example shows how to display the information about the MAC-address table for a specific VLAN:

show mac address-table

Device# **show mac address-table vlan 1021**

```

          Mac Address Table
-----
Vlan      Mac Address      Type      Ports
----      -
1021      0000.0c9f.f45c    STATIC    Vl1021
1021      0002.02cc.0002    STATIC    Gi6/0/2
1021      0002.02cc.0003    STATIC    Gi6/0/3
1021      0002.02cc.0004    STATIC    Gi6/0/4
1021      0002.02cc.0005    STATIC    Gi6/0/5
1021      0002.02cc.0006    STATIC    Gi6/0/6
1021      0002.02cc.0007    STATIC    Gi6/0/7
1021      0002.02cc.0008    STATIC    Gi6/0/8
1021      0002.02cc.0009    STATIC    Gi6/0/9
1021      0002.02cc.000a    STATIC    Gi6/0/10
1021      0002.02cc.000b    STATIC    Gi6/0/11
1021      0002.02cc.000c    STATIC    Gi6/0/12
1021      0002.02cc.000d    STATIC    Gi6/0/13
1021      0002.02cc.000e    STATIC    Gi6/0/14
1021      0002.02cc.000f    STATIC    Gi6/0/15
1021      0002.02cc.0010    STATIC    Gi6/0/16
1021      0002.02cc.0011    STATIC    Gi6/0/17
1021      0002.02cc.0012    STATIC    Gi6/0/18
1021      0002.02cc.0013    STATIC    Gi6/0/19
1021      0002.02cc.0014    STATIC    Gi6/0/20

```

<output truncated>

The table below describes the significant fields shown in the **show mac address-table** display.

Table 6: show mac address-table Field Descriptions

Field	Description
VLAN	VLAN number.
Mac Address	MAC address of the entry.
Type	Type of address.
Ports	Port type.
Total MAC addresses	Total MAC addresses in the MAC address table.

Related Commands

Command	Description
clear mac address-table	Deletes dynamic entries from the MAC address table.

show mac address-table move update

To display the MAC address-table move update information on the device, use the **show mac address-table move update** command in EXEC mode.

show mac address-table move update

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	User EXEC Privileged EXEC
----------------------	------------------------------

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

Example

This example shows the output from the **show mac address-table move update** command:

```
Device# show mac address-table move update

Switch-ID : 010b.4630.1780
Dst mac-address : 0180.c200.0010
Vlans/Macs supported : 1023/8320
Default/Current settings: Rcv Off/On, Xmt Off/On
Max packets per min : Rcv 40, Xmt 60
Rcv packet count : 10
Rcv conforming packet count : 5
Rcv invalid packet count : 0
Rcv packet count this min : 0
Rcv threshold exceed count : 0
Rcv last sequence# this min : 0
Rcv last interface : Po2
Rcv last src-mac-address : 0003.fd6a.8701
Rcv last switch-ID : 0303.fd63.7600
Xmt packet count : 0
Xmt packet count this min : 0
Xmt threshold exceed count : 0
Xmt pak buf unavail cnt : 0
Xmt last interface : None
```

show platform integrity

To display checksum record for the boot stages , use the **show platform integrity** command in privileged EXEC mode.

show platform integrity [**sign** [**nonce** <nonce>]]

Syntax Description	sign	(Optional) Show signature
	nonce	(Optional) Enter a nonce value
Command Modes	Privileged EXEC (#)	
Command History	Release	Modification
	This command was introduced.	

Examples

This example shows how to view the checksum record for boot stages :

```
Device# show platform integrity sign

PCR0: EE47F8644C2887D9BD4DE3E468DD27EB93F4A606006A0B7006E2928C50C7C9AB
PCR8: E7B61EC32AFA43DA1FF4D77F108CA266848B32924834F5E41A9F6893A9CB7A38
Signature version: 1
Signature:
816C5A29741BBAC1961C109FFC36DA5459A44DBF211025F539AFB4868EF91834C05789
5DAFBC7474F301916B7D0D08ABE5E05E66598426A73E921024C21504383228B6787B74
8526A305B17DAD3CF8705BACFD51A2D55A333415CABC73DAFDEEFD8777AA77F482EC4B
731A09826A41FB3EFFC46DC02FBA666534DBEC7DCC0C029298DB8462A70DBA26833C2A
1472D1F08D721BA941CB94A418E43803699174572A5759445B3564D8EAE57D64AE304
EE1D2A9C53E93E05B24A92387E261199CED8D8A0CE7134596FF8D2D6E6DA773757C70C
D3BA91C43A591268C248DF32658999276FB972153ABE823F0ACFE9F3B6F0AD1A00E257
4A4CC41C954015A59FB8FE
Platform: WS-C3650-12X48UZ
```

show platform sudi certificate

To display checksum record for the specific SUDI, use the **show platform sudi certificate** command in privileged EXEC mode.

show platform sudi certificate [**sign** [**nonce** <nonce>]]

Syntax Description	sign	(Optional) Show signature
	nonce	(Optional) Enter a nonce value
Command Modes	Privileged EXEC (#)	
Command History	Release	Modification
	This command was introduced.	

Examples

This example shows how to view the checksum record for a specific SUDI :

```
Device# show platform sudi certificate

-----BEGIN CERTIFICATE-----
MIIDQzCCAiugAwIBAgIQX/h7KctU3I1CoxW1aMmt/zANBgkqhkiG9w0BAQUFADA1
MRYwFAYDVQQKEw1DaXNjbyBTeXN0ZW1zMRswGQYDVQQDExJDAXNjbyBSb290IENB
IDwNDgwHhcnMDQwNTE0MjAxNzEyWhcNMjkwNTE0MjAyNTQyWjA1MRYwFAYDVQQK
Ew1DaXNjbyBTeXN0ZW1zMRswGQYDVQQDExJDAXNjbyBSb290IENBIDwNDgwggEg
MA0GCSqGSIb3DQEBAAUAA4IBDQAwggEIAoIBAQCwmrmrp68Kd6ficba0ZmKUEIhH
xmJVhEAYv8CrLqUccda8bnuoqrpu0hWISEwdovyD0My5jOamaHBKeN8hF570YQXJ
FcjPftolYYmUQ6iEqDGYeJu5Tm8sUxJsZr2tKyS7McQr/4NEb7Y9JHcJ6r8qqB9q
VvYgDxFU14F1pyXOWWqCZe+36ufijXWLBvLdT6ZeYpzPEApk0E5tzivMW/VggsdH
jWn0f84bcN5wGyDWbs2mAag8EtKpP6BrXruOIIt6keO1a06g58QBdKhTCytKmg9l
Eg6CTY5j/e/rmxrbU6YTYK/CfdfHbBcl1HP7R2RQgYCUTOG/rksc35LtLgXfAgED
o1EwTzALBgNVHQ8EBAMCAYYwDwYDVR0TAQH/BAUwAwEB/zAdBgNVHQ4EFgQUJ/PI
FR5umgIJFq0roIlgX9p7L6owEAYJKwYBBAGCNxUBBAMCAQAwDQYJKoZIhvcNAQEF
BQADggEBAJ2dhISjQa18dwy3U8pORFbi71R803UXHOjgxkhLtv5MOhmBvrbW7hmW
Yqpao2TB9k5UM8Z3/sUcuuVdJcr18JOagxEu5sv4dEX+5wW4q+ffY0vhN4TauYuX
cB7w4ovXsNgOnbFp1iqRe6lJT37mjpXYgyC81WhJDtSd9i7rp77rMKSsH0T8lasz
Bvt9YAretIpjsJyp8qS5UwGH0GikJ3+r/+n6yUA4iGe00caEb1fJU9u6ju7AQ7L4
CYNu/2bPPu8XslgYJQk0XuPL1hS27PKSb3TkL4Eq1ZKR4OCXPDJoBYVL0fdX4lId
kxPUnwVwwEpxYB5DC2Ae/qPOgRnhCzU=
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
MIIEPDCCAYsGAWIBAgIKYQlufQAAAAADDANBgkqhkiG9w0BAQUFADA1MRYwFAYD
VQQKEw1DaXNjbyBTeXN0ZW1zMRswGQYDVQQDExJDAXNjbyBSb290IENBIDwNDgw
HhcnMTENwNjMwMTc1NjU3WhcNMjkwNTE0MjAyNTQyWjA1MRYwFAYDVQQKEw1DaXNj
bzEVMBMGA1UEAxMMQUNUMiBTVURJENBMTIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8A
MIIBCgKCAQEAOm5l3THIxA9tN/hS5qR/6UZRpdd+9aE2JbFknjht6gfHKd477AkS
5XAtUs5oxDYvt/zEbs1Zq3+LR6qrqKKQVu6JYvH05UYLBqCj38s76NLk53905Wzp
9pRcmRCPuX+a6tHF/qRuOiJ44mdeDYZo3qPCpxzprWJDPclM4iYKHuMQmqmgm+
xghHIOoWS80BocdiynEbeP5rZ7qRuewKMpl1TiI3WdBNjZjnpfjg66F+P4SaDkGb
BXdgJ13oVeF+EyFWLrFjj97fL2+8oauV43Qrvnf3d/GfqXj7ew+z/sX1XtEOjSXJ
URsyMEj53Rdd9tJwHky8neapszS+r+kdVQIDAQABo4IBWjCCAVYwCwYDVR0PBAQD
AgHGMB0GA1UdDgQWBWBR12PHxwnDVW7t8cwmTr7i4MAP4fzAfBgNVHSMEGDAWgBQn
88gVHm6aAgkWrSugiWBf2nsqvqjBDBgNVHR8EPDA6MDI9NQA0hjJodHRwOi8vd3d3
LmNpc2NvLmNvbS9zZW50cm10eS9wa2kvY3JsL2NyY2EyMDQ4LmNybDBQBggrBgEF
```

show platform sudi certificate

```

BQcBAQREMEIwQAYIKwYBBQUHMAKGNGh0dHA6Ly93d3cuY2l2Y28uY29tL3NlY3Vy
aXR5L3BraS9jZXJ0cy9jemNhMjA0OC5jZXIwXAYDVR0gBFUwUzBRBgorBgEEAQkV
AQwAMEMwQQYIKwYBBQUHAgEWNWh0dHA6Ly93d3cuY2l2Y28uY29tL3NlY3VyYXR5
L3BraS9wb2xpY2llcy9pbmRleC5odGlsMBIGA1UdEwEB/wQIMAYBAf8CAQAwDQYJ
KoZIHvcNAQEFBQADggEBAGh1qc1r9tx4hzWgDERm371yeuEmqcIfi9b9+GbMSJbi
ZHc/CcC10lJu0a9zTXA9w47H9/t6leduGxb4WeLxcwCiUgvFtCa51Ik1t8nNbcKY
/4dw1ex+7amATUQ04QggIE67wVIPu6bgAE3Ja/nRS3xKYSnj8H5TehimBSv6TECi
i5jUhOwryAK4dVo8hCjkjEkzu3ufBTJapnv89g9OE+H3VKM4L+/KdkUO+52djFKn
hyl47d7cZR4DY4LIuFM2PlAs8YyjoNpK/urSRI14WdIlplR1nH7KND15618yfVP
0IFJZBGrooCRBjOSwFv8cpWCbmWdPaCQT2nwIjTfY8c=
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
MIIDhjCCAm6gAwIBAgIDctWkMA0GCSqGSIb3DQEBCwUAMCcxZjAMBGNVBAoTBUNp
c2NvMRUwEwYDVQQDEwxBQ1QyIFNVREkgQ0EwHhcNMjUwODA2MDgwODI5WhcNMjUw
ODA2MDgwODI5WjBzMSwwKgYDVQQFEyNQSUQ6V1MtQzM2NTAtMTJYNdhVWibTtjPG
RE8xOTMyWDawQzEOMAwGA1UEChMFQ2l2Y28xGDAwBgNVBAsTD0FDVC0yIEExpdGUg
U1VESTeZMBcGA1UEAxMQV1MtQzM2NTAtMTJYNdhVWjCCASIwdQYJKoZIhvcNAQEB
BQADggEPADCCAQoCggEBANZxOGYI0eU14HcSwjL4HO75qTjl9C2BHG3ufce9ikkN
xwGXi8qg8vKxuB9tRYRaJC5bP1Wmoq7+ZJtQA079xE4X14soNbkq5NaUhh7RB1wD
iRUJvTfCOzVICbNfbzvB30I75tCarFNmpd0K6AFrIa41U988QGqaCj7R1JrYNaj
nC73UXXM/hC0HtNR5mhyqer5Y2qjjzo6tHZYqrrx2eS1XOa262ZSQriAxxmaH/KLC
K97ywyRBdJlxBRX3hGtKlog8nASB8WpXqB9NVCERzUajwU3L/kg2BsCqw9Y2m7HW
U1cerTxxgthuyUkdNI+Jg6iGApm2+s8E9hsHPBPMCdIsCAwEAAANvMG0wDgYDVR0P
AQH/BAQDAgXgMAwGA1UdEwEB/wQCMAAwTQYDVR0RBeywRKBCBgkrBgEEAQkVAgOg
NRMzQ2hpcE1EPVVZSk5ORmRRR1FvN1ZIVmxJRTlqZENBeU9DQXhPRG93TlRveE1T
QVg5eWc9MA0GCSqGSIb3DQEBCwUAA4IBAQBKicTRZbVCRjVIR5MQcWXUT086v6Ej
HahDHTts3PyQoyAVfioNg2x8J6EXcEau4voyVu+eMUuoNL4szPhmmDcULfiCGBcA
/R3EFuoVMIzNT0geziytsCf728KGw1oGuosgVjNGOOahUELu4+F/My7bIJNBH+PD
KjIFmhJpJg0F3q17yClAeXvd13g3W393i35d00Lm5L1WbBfQtyBaOLAbxsHvutrX
u1VZ5sdqSTwTtkO9vKMaQjh7a8J/AmJi93jvzM69pe5711P1zqZfYfpiJ3cyJ0xf
I4brQ1smdczloFD4asF7A+1vor5e4VDBP0ppmeFAJvCQ52JTpj0M0o1D
-----END CERTIFICATE-----

```

show running-config

To display the contents of the current running configuration file or the configuration for a specific module, Layer 2 VLAN, class map, interface, map class, policy map, or virtual circuit (VC) class, use the **show running-config** command in privileged EXEC mode.

show running-config [*options*]

Syntax Description

options (Optional) Keywords used to customize output. You can enter more than one keyword.

- **aaa** [**accounting** | **attribute** | **authentication** | **authorization** | **diameter** | **group** | **ldap** | **miscellaneous** | **radius-server** | **server** | **tacacs-server** | **user-name** | **username**]: Displays AAA configurations.
- **all**: Expands the output to include the commands that are configured with default parameters. If the **all** keyword is not used, the output does not display commands configured with default parameters.
- **bridge-domain** {**id** | **parameterized vlan**}: Displays the running configuration for bridge domains.
- **brief**: Displays the configuration without certification data and encrypted filter details.
- **class-map** [*name*] [**linenum**]: Displays class map information.
- **cts** [**interface** | **policy-server** | **rbm-rbac** | **server** | **sxp**]: Displays Cisco TrustSec configurations.
- **deprecated**: Displays deprecated configuration along with the running configuration.
- **eap** {**method** | **profiles**}: Displays EAP method configurations and profiles.
- **flow** {**exporter** | **monitor** | **record**}: Displays global flow configuration commands.
- **full**: Displays the full configuration.
- **identity** {**policy** | **profile**}: Displays identity profile or policy information.

- **interface** *type number*: Displays interface-specific configuration information. If you use the **interface** keyword, you must specify the interface type and the interface number (for example, **interface GigabitEthernet 1/0/1**). Use the **show run interface ?** command to determine the interfaces available on your system.
- **ip dhcp pool** [*name*]: Displays IPv4 DHCP pool configuration.
- **ipv6 dhcp pool** [*name*]: Displays IPv6 DHCP pool configuration.
- **linenum** [**brief** | **full** | **partition**]: Displays line numbers in the output.
- **map-class** [**atm** | **dialer** | **frame-relay**] [*name*]: Displays map class information.
- **mdns-sd** [**gateway** | **location-group** | **service-definition** | **service-list** | **service-peer** | **service-policy**]: Displays Multicast DNS Service Discovery (mDNS-SD) configurations.
- **partition** {**access-list** | **class-map** | **common** | **global-cdp** | **interface** | **ip-as-path** | **ip-community** | **ip-prefix-list** | **ip-static-routes** | **line** | **policy-map** | **route-map** | **router** | **snmp** | **tacacs**}: Displays the configuration corresponding to a partition.
- **policy-map** [*name*] [*linenum*]: Displays policy map information.
- **switch** *number*: Displays configuration for the specified switch.
- **view** [**full**]: Enables the display of a full running configuration. This is for view-based users who typically can only view the configuration commands that they are entitled to access for that particular view.
- **vlan** [*vlan-id*]: Displays the specific VLAN information; valid values are from 1 to 4094.
- **vrf** [*vrf-name*]: Displays the Virtual routing and forwarding (VRF)-aware configuration module number .

Command Default	The default syntax, show running-config , displays the contents of the running configuration file, except commands configured using the default parameters.	
Command Modes	Privileged EXEC (#)	
Command History	Release	Modification
	Cisco IOS XE Everest 16.6.1	This command was introduced.
Usage Guidelines	The show running-config command is technically a command alias (substitute or replacement syntax) of the more system:running-config command. Although the use of more commands is recommended (because of their uniform structure across platforms and their expandable syntax), the show running-config command remains enabled to accommodate its widespread use, and to allow typing shortcuts such as show run .	
	The show running-config interface command is useful when there are multiple interfaces and you want to look at the configuration of a specific interface.	
	The linenum keyword causes line numbers to be displayed in the output. This option is useful for identifying a particular portion of a very large configuration.	
	You can enter additional output modifiers in the command syntax by including a pipe character () after the optional keyword. For example, show running-config interface GigabitEthernet 1/0/1 linenum begin 3 .	

To display the output modifiers that are available for a keyword, enter `| ?` after the keyword. Depending on the platform you are using, the keywords and the arguments for the *options* argument may vary.

The **show running-config all** command displays complete configuration information, including the default settings and values. For example, if the Cisco Discovery Protocol (abbreviated as CDP in the output) hold-time value is set to its default of 180:

- The **show running-config** command does not display this value.
- The **show running-config all** displays the following output: `cdp holdtime 180`.

If the Cisco Discovery Protocol holdtime is changed to a nondefault value (for example, 100), the output of the **show running-config** and **show running-config all** commands is the same; that is, the configured parameter is displayed.

The **show running-config** command displays ACL information. To exclude ACL information from the output, use the **show running | section exclude ip access | access list** command.

Examples

The following example shows the configuration for GigabitEthernet0/0 interface. The fields are self-explanatory.

```
Device# show running-config interface gigabitEthernet0/0
```

```
Building configuration...
```

```
Current configuration : 130 bytes
!
interface GigabitEthernet0/0
 vrf forwarding Mgmt-vrf
 ip address 10.5.20.10 255.255.0.0
 negotiation auto
 ntp broadcast
end
```

The following example shows how to set line numbers in the command output and then use the output modifier to start the display at line 10. The fields are self-explanatory.

```
Device# show running-config linenum | begin 10
```

```
10 : boot-start-marker
11 : boot-end-marker
12 : !
13 : no logging buffered
14 : enable password #####
15 : !
16 : spe 1/0 1/7
17 :  firmware location bootflash:mica-modem-pw.10.16.0.0.bin
18 : !
19 : !
20 : resource-pool disable
21 : !
22 : no aaa new-model
23 : ip subnet-zero
24 : ip domain name cisco.com
25 : ip name-server 172.16.11.48
26 : ip name-server 172.16.2.133
27 : !
28 : !
29 : isdn switch-type primary-5ess
30 : !
.
```

```
.
.
126 : end
```

In the following sample output from the **show running-config** command, the **shape average** command indicates that the traffic shaping overhead accounting for ATM is enabled. The BRAS-DSLAM encapsulation type is qinq and the subscriber line encapsulation type is snap-rbe based on the ATM adaptation layer 5 (AAL5) service. The fields are self-explanatory.

```
Device# show running-config
.
.
.
subscriber policy recording rules limit 64
no mpls traffic-eng auto-bw timers frequency 0
call rsvp-sync
!
controller T1 2/0
framing sf
linecode ami
!
controller T1 2/1
framing sf
linecode ami
!
!
policy-map unit-test
class class-default
shape average percent 10 account qinq aal5 snap-rbe
!
```

The following is sample output from the **show running-config class-map** command. The fields in the display are self-explanatory.

```
Device# show running-config class-map

Building configuration...

Current configuration : 2157 bytes
!
class-map match-any system-cpp-police-ewlc-control
description EWLC Control
class-map match-any system-cpp-police-topology-control
description Topology control
class-map match-any system-cpp-police-sw-forward
description Sw forwarding, L2 LVX data packets, LOGGING, Transit Traffic
class-map match-any system-cpp-default
description EWLC Data, Inter FED Traffic
class-map match-any system-cpp-police-sys-data
description Openflow, Exception, EGR Exception, NFL Sampled Data, RPF Failed
class-map match-any system-cpp-police-punt-webauth
description Punt Webauth
class-map match-any system-cpp-police-l2lvx-control
description L2 LVX control packets
class-map match-any system-cpp-police-forus
description Forus Address resolution and Forus traffic
class-map match-any system-cpp-police-multicast-end-station
description MCAST END STATION
class-map match-any system-cpp-police-high-rate-app
description High Rate Applications
class-map match-any system-cpp-police-multicast
description MCAST Data
class-map match-any system-cpp-police-l2-control
description L2 control
```



```

class-map match-any system-cpp-police-dot1x-auth
  description DOT1X Auth
class-map match-any system-cpp-police-data
  description ICMP redirect, ICMP_GEN and BROADCAST
class-map match-any system-cpp-police-stackwise-virt-control
  description Stackwise Virtual OOB
...

```

The following example shows that the teletype (tty) line 2 is reserved for communicating with the second core:

Device# **show running**

Building configuration...

Current configuration:

```

!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname device
!
enable password lab
!
no ip subnet-zero
!
!
!
interface Ethernet0
  ip address 10.25.213.150 255.255.255.128
  no ip directed-broadcast
  no logging event link-status
!
interface Serial0
  no ip address
  no ip directed-broadcast
  no ip mroute-cache
  shutdown
  no fair-queue
!
interface Serial1
  no ip address
  no ip directed-broadcast
  shutdown
!
ip default-gateway 10.25.213.129
ip classless
ip route 0.0.0.0 0.0.0.0 10.25.213.129
!
!
line con 0
  transport input none
line 1 6
  no exec
  transport input all
line 7
  no exec
  exec-timeout 300 0
  transport input all
line 8 9
  no exec
  transport input all

```

show running-config

```

line 10
  no exec
  transport input all
  stopbits 1
line 11 12
  no exec
  transport input all
line 13
  no exec
  transport input all
  speed 115200
line 14 16
  no exec
  transport input all
line aux 0
line vty 0 4
  password cisco
  login
!
end

```

Related Commands

Command	Description
copy running-config startup-config	Copies the running configuration to the startup configuration. (Command alias for the copy system:running-config nvram:startup-config command.)
show startup-config	Displays the contents of NVRAM (if present and valid) or displays the configuration file pointed to by the CONFIG_FILE environment variable. (Command alias for the more:nvram startup-config command.)

show sdm prefer

To display information about the templates that can be used to maximize system resources for a particular feature, use the **show sdm prefer** command in privileged EXEC mode. To display the current template, use the command without a keyword.

show sdm prefer [**advanced**]

Syntax Description	advanced (Optional) Displays information on the advanced template.				
Command Default	No default behavior or values.				
Command Modes	Privileged EXEC				
Command History	<table> <tr> <th>Release</th><th>Modification</th></tr> <tr> <td>Cisco IOS XE Everest 16.6.1</td><td>This command was introduced.</td></tr> </table>	Release	Modification	Cisco IOS XE Everest 16.6.1	This command was introduced.
Release	Modification				
Cisco IOS XE Everest 16.6.1	This command was introduced.				
Usage Guidelines	<p>If you did not reload the switch after entering the sdm prefer global configuration command, the show sdm prefer privileged EXEC command displays the template currently in use and not the newly configured template.</p> <p>The numbers displayed for each template represent an approximate maximum number for each feature resource. The actual number might vary, depending on the actual number of other features configured. For example, in the default template if your device had more than 16 routed interfaces (subnet VLANs), the number of possible unicast MAC addresses might be less than 6000.</p>				

Example

The following is sample output from the **show sdm prefer** command:

```
Device# show sdm prefer

Showing SDM Template Info

This is the Advanced template.
Number of VLANs:                        4094
Unicast MAC addresses:                  32768
Overflow Unicast MAC addresses:         512
IGMP and Multicast groups:              8192
Overflow IGMP and Multicast groups:     512
Directly connected routes:              32768
Indirect routes:                        7680
Security Access Control Entries:        3072
QoS Access Control Entries:              3072
Policy Based Routing ACEs:              1024
Netflow ACEs:                           1024
Input Microflow policer ACEs:            256
Output Microflow policer ACEs:           256
Flow SPAN ACEs:                         256
Tunnels:                                256
```

```
Control Plane Entries:          512
Input Netflow flows:           8192
Output Netflow flows:         16384
SGT/DGT entries:               4096
SGT/DGT Overflow entries:      512
These numbers are typical for L2 and IPv4 features.
Some features such as IPv6, use up double the entry size;
so only half as many entries can be created.
```

```
Device#
```

test cable-diagnostics tdr

To run the Time Domain Reflector (TDR) feature on an interface, use the **test cable-diagnostics tdr** command in privileged EXEC mode.

test cable-diagnostics tdr interface *interface-id*

Syntax Description	<i>interface-id</i> The interface on which to run TDR.
---------------------------	--

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Privileged EXEC
----------------------	-----------------

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

Usage Guidelines	TDR is supported only on 10/100/100 copper Ethernet ports. It is not supported on 10-Gigabit Ethernet ports or small form-factor pluggable (SFP) module ports.
-------------------------	--

After you run TDR by using the **test cable-diagnostics tdr interface** *interface-id* command, use the **show cable-diagnostics tdr interface** *interface-id* privileged EXEC command to display the results.

This example shows how to run TDR on an interface:

```
Device# test cable-diagnostics tdr interface gigabitethernet1/0/2
TDR test started on interface Gi1/0/2
A TDR test can take a few seconds to run on an interface
Use 'show cable-diagnostics tdr' to read the TDR results
```

If you enter the **test cable-diagnostics tdr interface** *interface-id* command on an interface that has an link up status and a speed of 10 or 100 Mb/s, these messages appear:

```
Device# test cable-diagnostics tdr interface gigabitethernet1/0/3
TDR test on Gi1/0/9 will affect link state and traffic
TDR test started on interface Gi1/0/3
A TDR test can take a few seconds to run on an interface
Use 'show cable-diagnostics tdr' to read the TDR results.
```

tracroute mac

To display the Layer 2 path taken by the packets from the specified source MAC address to the specified destination MAC address, use the **tracroute mac** command in privileged EXEC mode.

tracroute mac [**interface** *interface-id*] *source-mac-address* [**interface** *interface-id*] *destination-mac-address* [**vlan** *vlan-id*] [**detail**]

Syntax Description

interface <i>interface-id</i>	(Optional) Specifies an interface on the source or destination device.
<i>source-mac-address</i>	The MAC address of the source device in hexadecimal format.
<i>destination-mac-address</i>	The MAC address of the destination device in hexadecimal format.
vlan <i>vlan-id</i>	(Optional) Specifies the VLAN on which to trace the Layer 2 path that the packets take from the source device to the destination device. Valid VLAN IDs are 1 to 4094.
detail	(Optional) Specifies that detailed information appears.

Command Default

No default behavior or values.

Command Modes

Privileged EXEC

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced.

Usage Guidelines

For Layer 2 traceroute to function properly, Cisco Discovery Protocol (CDP) must be enabled on all of the devices in the network. Do not disable CDP.

When the device detects a device in the Layer 2 path that does not support Layer 2 traceroute, the device continues to send Layer 2 trace queries and lets them time out.

The maximum number of hops identified in the path is ten.

Layer 2 traceroute supports only unicast traffic. If you specify a multicast source or destination MAC address, the physical path is not identified, and an error message appears.

The **tracroute mac** command output shows the Layer 2 path when the specified source and destination addresses belong to the same VLAN.

If you specify source and destination addresses that belong to different VLANs, the Layer 2 path is not identified, and an error message appears.

If the source or destination MAC address belongs to multiple VLANs, you must specify the VLAN to which both the source and destination MAC addresses belong.

If the VLAN is not specified, the path is not identified, and an error message appears.

The Layer 2 traceroute feature is not supported when multiple devices are attached to one port through hubs (for example, multiple CDP neighbors are detected on a port).

When more than one CDP neighbor is detected on a port, the Layer 2 path is not identified, and an error message appears.

This feature is not supported in Token Ring VLANs.

Examples

This example shows how to display the Layer 2 path by specifying the source and destination MAC addresses:

```
Device# traceroute mac 0000.0201.0601 0000.0201.0201
Source 0000.0201.0601 found on con6[WS-C3750E-24PD] (2.2.6.6)
con6 (2.2.6.6) :Gi0/0/1 => Gi0/0/3
con5          (2.2.5.5       ) :   Gi0/0/3 => Gi0/0/1
con1          (2.2.1.1       ) :   Gi0/0/1 => Gi0/0/2
con2          (2.2.2.2       ) :   Gi0/0/2 => Gi0/0/1
Destination 0000.0201.0201 found on con2[WS-C3550-24] (2.2.2.2)
Layer 2 trace completed
```

This example shows how to display the Layer 2 path by using the **detail** keyword:

```
Device# traceroute mac 0000.0201.0601 0000.0201.0201 detail
Source 0000.0201.0601 found on con6[WS-C3750E-24PD] (2.2.6.6)
con6 / WS-C3750E-24PD / 2.2.6.6 :
      Gi0/0/2 [auto, auto] => Gi0/0/3 [auto, auto]
con5 / WS-C2950G-24-EI / 2.2.5.5 :
      Fa0/3 [auto, auto] => Gi0/1 [auto, auto]
con1 / WS-C3550-12G / 2.2.1.1 :
      Gi0/1 [auto, auto] => Gi0/2 [auto, auto]
con2 / WS-C3550-24 / 2.2.2.2 :
      Gi0/2 [auto, auto] => Fa0/1 [auto, auto]
Destination 0000.0201.0201 found on con2[WS-C3550-24] (2.2.2.2)
Layer 2 trace completed.
```

This example shows how to display the Layer 2 path by specifying the interfaces on the source and destination devices:

```
Device# traceroute mac interface fastethernet0/1 0000.0201.0601 interface fastethernet0/3
0000.0201.0201
Source 0000.0201.0601 found on con6[WS-C3750E-24PD] (2.2.6.6)
con6 (2.2.6.6) :Gi0/0/1 => Gi0/0/3
con5          (2.2.5.5       ) :   Gi0/0/3 => Gi0/0/1
con1          (2.2.1.1       ) :   Gi0/0/1 => Gi0/0/2
con2          (2.2.2.2       ) :   Gi0/0/2 => Gi0/0/1
Destination 0000.0201.0201 found on con2[WS-C3550-24] (2.2.2.2)
Layer 2 trace completed
```

This example shows the Layer 2 path when the device is not connected to the source device:

```
Device# traceroute mac 0000.0201.0501 0000.0201.0201 detail
Source not directly connected, tracing source .....
Source 0000.0201.0501 found on con5[WS-C3750E-24TD] (2.2.5.5)
con5 / WS-C3750E-24TD / 2.2.5.5 :
      Gi0/0/1 [auto, auto] => Gi0/0/3 [auto, auto]
```

```

con1 / WS-C3550-12G / 2.2.1.1 :
      Gi0/1 [auto, auto] => Gi0/2 [auto, auto]
con2 / WS-C3550-24 / 2.2.2.2 :
      Gi0/2 [auto, auto] => Fa0/1 [auto, auto]
Destination 0000.0201.0201 found on con2[WS-C3550-24] (2.2.2.2)
Layer 2 trace completed.

```

This example shows the Layer 2 path when the device cannot find the destination port for the source MAC address:

```

Device# tracert mac 0000.0011.1111 0000.0201.0201
Error:Source Mac address not found.
Layer2 trace aborted.

```

This example shows the Layer 2 path when the source and destination devices are in different VLANs:

```

Device# tracert mac 0000.0201.0601 0000.0301.0201
Error:Source and destination macs are on different vlans.
Layer2 trace aborted.

```

This example shows the Layer 2 path when the destination MAC address is a multicast address:

```

Device# tracert mac 0000.0201.0601 0100.0201.0201
Invalid destination mac address

```

This example shows the Layer 2 path when source and destination devices belong to multiple VLANs:

```

Device# tracert mac 0000.0201.0601 0000.0201.0201
Error:Mac found on multiple vlans.
Layer2 trace aborted.

```


traceroute mac ip

To display the Layer 2 path taken by the packets from the specified source IP address or hostname to the specified destination IP address or hostname, use the **traceroute mac ip** command in privileged EXEC mode.

traceroute mac ip *source-ip-address source-hostname destination-ip-address destination-hostname* [detail]

Syntax Description	<i>source-ip-address</i>	The IP address of the source device as a 32-bit quantity in dotted-decimal format.
	<i>source-hostname</i>	The IP hostname of the source device.
	<i>destination-ip-address</i>	The IP address of the destination device as a 32-bit quantity in dotted-decimal format.
	<i>destination-hostname</i>	The IP hostname of the destination device.
	detail	(Optional) Specifies that detailed information appears.

Command Default No default behavior or values.

Command Modes Privileged EXEC

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

Usage Guidelines For Layer 2 traceroute to function properly, Cisco Discovery Protocol (CDP) must be enabled on each device in the network. Do not disable CDP.

When the device detects a device in the Layer 2 path that does not support Layer 2 traceroute, the device continues to send Layer 2 trace queries and lets them time out.

The maximum number of hops identified in the path is ten.

The **traceroute mac ip** command output shows the Layer 2 path when the specified source and destination IP addresses are in the same subnet.

When you specify the IP addresses, the device uses Address Resolution Protocol (ARP) to associate the IP addresses with the corresponding MAC addresses and the VLAN IDs.

- If an ARP entry exists for the specified IP address, the device uses the associated MAC address and identifies the physical path.
- If an ARP entry does not exist, the device sends an ARP query and tries to resolve the IP address. The IP addresses must be in the same subnet. If the IP address is not resolved, the path is not identified, and an error message appears.

The Layer 2 traceroute feature is not supported when multiple devices are attached to one port through hubs (for example, multiple CDP neighbors are detected on a port).

When more than one CDP neighbor is detected on a port, the Layer 2 path is not identified, and an error message appears.

This feature is not supported in Token Ring VLANs.

Examples

This example shows how to display the Layer 2 path by specifying the source and destination IP addresses and by using the **detail** keyword:

```
Device# tracert mac ip 2.2.66.66 2.2.22.22 detail
Translating IP to mac .....
2.2.66.66 => 0000.0201.0601
2.2.22.22 => 0000.0201.0201

Source 0000.0201.0601 found on con6[WS-C2950G-24-EI] (2.2.6.6)
con6 / WS-C3750E-24TD / 2.2.6.6 :
      Gi0/0/1 [auto, auto] => Gi0/0/3 [auto, auto]
con5 / WS-C2950G-24-EI / 2.2.5.5 :
      Fa0/3 [auto, auto] => Gi0/1 [auto, auto]
con1 / WS-C3550-12G / 2.2.1.1 :
      Gi0/1 [auto, auto] => Gi0/2 [auto, auto]
con2 / WS-C3550-24 / 2.2.2.2 :
      Gi0/2 [auto, auto] => Fa0/1 [auto, auto]
Destination 0000.0201.0201 found on con2[WS-C3550-24] (2.2.2.2)
Layer 2 trace completed.
```

This example shows how to display the Layer 2 path by specifying the source and destination hostnames:

```
Device# tracert mac ip con6 con2
Translating IP to mac .....
2.2.66.66 => 0000.0201.0601
2.2.22.22 => 0000.0201.0201

Source 0000.0201.0601 found on con6
con6 (2.2.6.6) :Gi0/0/1 => Gi0/0/3
con5          (2.2.5.5      ) :      Gi0/0/3 => Gi0/1
con1          (2.2.1.1      ) :      Gi0/0/1 => Gi0/2
con2          (2.2.2.2      ) :      Gi0/0/2 => Fa0/1
Destination 0000.0201.0201 found on con2
Layer 2 trace completed
```

This example shows the Layer 2 path when ARP cannot associate the source IP address with the corresponding MAC address:

```
Device# tracert mac ip 2.2.66.66 2.2.77.77
Arp failed for destination 2.2.77.77.
Layer2 trace aborted.
```

type

To display the contents of one or more files, use the **type** command in boot loader mode.

type *filesystem:/file-url...*

Syntax Description	<i>filesystem:</i> Alias for a file system. Use flash: for the system board flash device; use usbflash0: for USB memory sticks. <i>/file-url...</i> Path (directory) and name of the files to display. Separate each filename with a space.
---------------------------	--

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Boot loader
----------------------	-------------

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

Usage Guidelines	Filenames and directory names are case sensitive.
	If you specify a list of files, the contents of each file appear sequentially.

Examples	This example shows how to display the contents of a file:
-----------------	---

```
Device: type flash:image_file_name
version_suffix: universal-122-xx.SEx
version_directory: image_file_name
image_system_type_id: 0x00000002
image_name: image_file_name.bin
ios_image_file_size: 8919552
total_image_file_size: 11592192
image_feature: IP|LAYER_3|PLUS|MIN_DRAM_MEG=128
image_family: family
stacking_number: 1.34
board_ids: 0x000000068 0x000000069 0x00000006a 0x00000006b
info_end:
```

unset

To reset one or more environment variables, use the **unset** command in boot loader mode.

unset *variable...*

Syntax Description

variable

Use one of these keywords for *variable*:

MANUAL_BOOT—Specifies whether the device automatically or manually boots.

BOOT—Resets the list of executable files to try to load and execute when automatically booting. If the BOOT environment variable is not set, the system attempts to load and execute the first executable image it can find by using a recursive, depth-first search through the flash: file system. If the BOOT variable is set but the specified images cannot be loaded, the system attempts to boot the first bootable file that it can find in the flash: file system.

ENABLE_BREAK—Specifies whether the automatic boot process can be interrupted by using the **Break** key on the console after the flash: file system has been initialized.

HELPER—Identifies the semicolon-separated list of loadable files to dynamically load during the boot loader initialization. Helper files extend or patch the functionality of the boot loader.

PS1—Specifies the string that is used as the command-line prompt in boot loader mode.

CONFIG_FILE—Resets the filename that Cisco IOS uses to read and write a nonvolatile copy of the system configuration.

BAUD—Resets the rate in bits per second (b/s) used for the console. The Cisco IOS software inherits the baud rate setting from the boot loader and continues to use this value unless the configuration file specifies another setting.

Command Default

No default behavior or values.

Command Modes

Boot loader

Command History

Release	Modification
Cisco IOS XE Everest 16.6.1	This command was introduced.

Usage Guidelines

Under typical circumstances, it is not necessary to alter the setting of the environment variables.

The **MANUAL_BOOT** environment variable can also be reset by using the **no boot manual** global configuration command.

The **BOOT** environment variable can also be reset by using the **no boot system** global configuration command.

The **ENABLE_BREAK** environment variable can also be reset by using the **no boot enable-break** global configuration command.

The HELPER environment variable can also be reset by using the **no boot helper** global configuration command.

The CONFIG_FILE environment variable can also be reset by using the **no boot config-file** global configuration command.

Example

This example shows how to unset the SWITCH_PRIORITY environment variable:

Device: **unset SWITCH_PRIORITY**

version

To display the boot loader version, use the **version** command in boot loader mode.

version

Syntax Description	This command has no arguments or keywords.
---------------------------	--

Command Default	No default behavior or values.
------------------------	--------------------------------

Command Modes	Boot loader
----------------------	-------------

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

Examples	This example shows how to display the boot loader version on a device:
-----------------	--