

# show access-group mode interface

To display the ACL configuration on a Layer 2 interface, use the **show mac access-group interface** command.

**show access-group mode interface** [*interface interface-number*]

<b>Syntax Description</b>	<i>interface</i>	(Optional) Interface type; valid values are <b>ethernet</b> , <b>FastEthernet</b> , <b>GigabitEthernet</b> , and <b>port-channel</b> .
	<i>interface-number</i>	(Optional) Interface number.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
		12.1(19)EW

**Usage Guidelines** Valid values for the port number depend on the chassis used.

**Examples** This example shows how to display the ACL configuration on interface fast 6/1:

```
Switch# show access-group mode interface fast 6/1
Interface FastEthernet6/1:
  Access group mode is: merge
```

**Related Commands** [access-group mode](#)

# show arp access-list

To display detailed information on an ARP access list, use the **show arp** command.

```
show arp access-list
```

---

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

---

**Defaults** This command has no default settings.

---

**Command Modes** EXEC

---

Command History	Release	Modification
	12.1(19)EW	Support for this command was introduced on the Catalyst 4500 series switch.

---



---

**Examples** This example shows how to display the ARP ACL information for a switch:

```
Switch# show arp access-list
ARP access list rose
  permit ip 10.101.1.1 0.0.0.255 mac any
  permit ip 20.3.1.0 0.0.0.255 mac any
```

---

**Related Commands**

- [access-group mode](#)
- [arp access-list](#)
- [ip arp inspection filter vlan](#)

# show auto qos

To display the automatic quality of service (auto-QoS) configuration that is applied, use the **show auto qos** user EXEC command.

```
show auto qos [interface interface-id] [{begin | exclude | include} expression]
```

## Syntax Description

<b>interface</b> <i>interface-id</i>	(Optional) Displays auto-QoS information for the specified interface or for all interfaces. Valid interfaces include physical ports.
<b>begin</b>	(Optional) Begins with the line that matches the expression.
<b>exclude</b>	(Optional) Excludes lines that match the expression.
<b>include</b>	(Optional) Includes lines that match the specified expression.
<i>expression</i>	(Optional) Expression in the output to use as a reference point.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(19)EW	Support for this command was introduced on the Catalyst 4500 series switch.

## Usage Guidelines

The **show auto qos interface *interface-id*** command displays the auto-QoS configuration; it does not display any user changes to the configuration that might be in effect.

To display information about the QoS configuration that might be affected by auto-QoS, use one of these commands:

- **show qos**
- **show qos map**
- **show qos interface *interface-id***
- **show running-config**

Expressions are case sensitive. For example, if you enter **exclude output**, the lines that contain *output* do not appear, but the lines that contain *Output* appear.

**Examples**

This example shows output from the **show auto qos** command when auto-QoS is enabled:

```
Switch# show auto qos
00:00:55:qos
00:00:56:qos map cos 3 to dscp 26
00:00:57:qos map cos 5 to dscp 46
00:00:58:qos map dscp 16 to tx-queue 1
00:00:58:qos map dscp 32 to tx-queue 1
00:00:58:qos dbl
00:00:59:policy-map autoqos-voip-policy
00:00:59: class class-default
00:00:59: dbl
00:00:59:interface GigabitEthernet1/1
00:00:59: qos trust device cisco-phone
00:00:59: qos trust cos
00:00:59: tx-queue 3
00:00:59: priority high
00:00:59: shape percent 70
00:00:59: service-policy output autoqos-voip-policyend
```

This example shows output from the **show auto qos interface** command when the **auto qos voip cisco-phone** interface configuration command is entered:

```
Switch# show auto qos interface
Initial configuration applied by AutoQoS:
!
interface GigabitEthernet1/1
qos trust device cisco-phone
qos trust cos
tx-queue 3
priority high
shape percent 70
service-policy output autoqos-voip-policy
!
interface GigabitEthernet1/2
qos trust device cisco-phone
qos trust cos
tx-queue 3
priority high
shape percent 70
service-policy output autoqos-voip-policy
```

This example shows output from the **show auto qos interface gigabitethernet1/1** command when the **auto qos voip cisco-phone** interface configuration command is entered:

```
Switch# show auto qos interface gigabitethernet1/1
Initial configuration applied by AutoQoS:
!
interface GigabitEthernet1/1
qos trust device cisco-phone
qos trust cos
tx-queue 3
priority high
shape percent 70
service-policy output autoqos-voip-policy
```

This example shows output from the **show auto qos** command when auto-QoS is disabled:

```
Switch# show auto qos
AutoQoS is disabled
```

**Related Commands**    [auto qos voip](#)

# show bootflash:

To display information about the bootflash: file system, use the **show bootflash:** command.

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

Syntax Description	all	(Optional) Displays all possible Flash information.
	<b>chips</b>	(Optional) Displays Flash chip information.
	<b>fileys</b>	(Optional) Displays file system information.

**Defaults** This command has no default settings.

**Command Modes** EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display file system status information:

```
Switch> show bootflash: fileys

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

## ■ show bootflash:

This example shows how to display system image information:

```
Switch> show bootflash:
-# - ED --type-- --crc--- -seek-- nlen -length- -----date/time----- name
1  .. image      8C5A393A  237E3C   14  2063804 Aug 23 1999 16:18:45 c4-boot-mz
2  .. image      D86EE0AD  957CE8    9  7470636 Sep 20 1999 13:48:49 rp.halley
Switch>
```

This example shows how to display all bootflash information:

```
Switch> show bootflash: all
-# - ED --type-- --crc--- -seek-- nlen -length- -----date/time----- name
1  .. image      8C5A393A  237E3C   14  2063804 Aug 23 1999 16:18:45 c4-boot-
mz
2  .. image      D86EE0AD  957CE8    9  7470636 Sep 20 1999 13:48:49 rp.halley

6456088 bytes available (9534696 bytes used)

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

# show bootvar

To display BOOT environment variable information, use the **show bootvar** command.

**show bootvar**

---

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

---

**Defaults** This command has no default settings.

---

**Command Modes** Privileged EXEC

---

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

---

---

**Examples** This example shows how to display BOOT environment variable information:

```
Switch# show bootvar
BOOT variable = sup:1;
CONFIG_FILE variable does not exist
BOOTLDR variable does not exist
Configuration register is 0x0
Switch#
```

# show class-map

To display class map information, use the **show class-map** command.

**show class-map** *class\_name*

<b>Syntax Description</b>	<i>class_name</i> Name of the class map.				
<b>Defaults</b>	This command has no default settings.				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>12.1(8a)EW</td> <td>Support for this command was introduced on the Catalyst 4500 series switch.</td> </tr> </tbody> </table>	Release	Modification	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
Release	Modification				
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.				

## Examples

This example shows how to display class map information for all class maps:

```
Switch# show class-map
Class Map match-any class-default (id 0)
  Match any
Class Map match-any class-simple (id 2)
  Match any
Class Map match-all ipp5 (id 1)
  Match ip precedence 5
Class Map match-all agg-2 (id 3)
Switch#
```

This example shows how to display class map information for a specific class map:

```
Switch# show class-map ipp5
Class Map match-all ipp5 (id 1)
  Match ip precedence 5
Switch#
```

## Related Commands

[class-map](#)  
[show policy-map](#)  
[show policy-map interface](#)



# show diagnostic result module

To display module-based diagnostic test results, use the **show diagnostic result module** command.

**show diagnostic result module** [*slot-num* | **all**] [**test** [*test-id* | *test-id-range* | **all**]] [**detail**]

Syntax Description	
<i>slot-num</i>	(Optional) Specifies the slot on which diagnostics are displayed.
<b>all</b>	(Optional) Displays diagnostics for all slots.
<b>test</b>	(Optional) Displays selected tests on the specified module.
<i>test-id</i>	(Optional) Specifies a single test ID.
<i>test-id-range</i>	(Optional) Specifies a range of test IDs.
<b>all</b>	(Optional) Displays diagnostics for all tests.
<b>detail</b>	(Optional) Displays complete test results.

**Defaults** A summary of the test results for all modules in the chassis is displayed.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.2(18)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display the summary results for all modules in the chassis:

```
Switch# show diagnostic result module

Current bootup diagnostic level: minimal

module 1:

  Overall diagnostic result: PASS
  Diagnostic level at card bootup: bypass

  Test results: (. = Pass, F = Fail, U = Untested)

    1) supervisor-bootup -----> U
    2) packet-memory-bootup -----> U
    3) packet-memory-ongoing -----> U

module 4:

  Overall diagnostic result: PASS
  Diagnostic level at card bootup: minimal

  Test results: (. = Pass, F = Fail, U = Untested)

    1) linecard-online-diag -----> .
```

```

module 5:

Overall diagnostic result: PASS
Diagnostic level at card bootup: minimal

Test results: (. = Pass, F = Fail, U = Untested)

  1) linecard-online-diag -----> .

```

```

module 6:

Overall diagnostic result: PASS
Diagnostic level at card bootup: minimal

Test results: (. = Pass, F = Fail, U = Untested)

  1) linecard-online-diag -----> .

```

This example shows how to display online diagnostics for module 1:

```

Switch# show diagnostic result module 1 detail

Current bootup diagnostic level: minimal

module 1:

Overall diagnostic result: PASS
Diagnostic level at card bootup: minimal

Test results: (. = Pass, F = Fail, U = Untested)

-----

  1) supervisor-bootup -----> .

      Error code -----> 0 (DIAG_SUCCESS)
      Total run count -----> 0
      Last test execution time -----> n/a
      First test failure time -----> n/a
      Last test failure time -----> n/a
      Last test pass time -----> n/a
      Total failure count -----> 0
      Consecutive failure count -----> 0

Power-On-Self-Test Results for ACTIVE Supervisor

Power-on-self-test for Module 1: WS-X4014
Port/Test Status: (. = Pass, F = Fail)
Reset Reason: PowerUp Software/User

Port Traffic: L2 Serdes Loopback ...
0: . 1: . 2: . 3: . 4: . 5: . 6: . 7: . 8: . 9: . 10: . 11: .
12: . 13: . 14: . 15: . 16: . 17: . 18: . 19: . 20: . 21: . 22: . 23: .
24: . 25: . 26: . 27: . 28: . 29: . 30: . 31: .

```

```
Port Traffic: L2 Asic Loopback ...
0: . 1: . 2: . 3: . 4: . 5: . 6: . 7: . 8: . 9: . 10: . 11: .
12: . 13: . 14: . 15: . 16: . 17: . 18: . 19: . 20: . 21: . 22: . 23: .
24: . 25: . 26: . 27: . 28: . 29: . 30: . 31: .
```

```
Port Traffic: L3 Asic Loopback ...
0: . 1: . 2: . 3: . 4: . 5: . 6: . 7: . 8: . 9: . 10: . 11: .
12: . 13: . 14: . 15: . 16: . 17: . 18: . 19: . 20: . 21: . 22: . 23: .
24: . 25: . 26: . 27: . 28: . 29: . 30: . 31: . au: .
```

```
Switch Subsystem Memory ...
1: . 2: . 3: . 4: . 5: . 6: . 7: . 8: . 9: . 10: . 11: . 12: .
13: . 14: . 15: . 16: . 17: . 18: . 19: . 20: . 21: . 22: . 23: . 24: .
25: . 26: . 27: . 28: . 29: . 30: . 31: . 32: . 33: . 34: . 35: . 36: .
37: . 38: . 39: . 40: . 41: . 42: . 43: . 44: . 45: . 46: . 47: . 48: .
49: . 50: . 51: . 52: . 53: . 54: .
```

Module 1 Passed

---

```
2) packet-memory-bootup -----> .
    Error code -----> 0 (DIAG_SUCCESS)
    Total run count -----> 0
    Last test execution time -----> n/a
    First test failure time -----> n/a
    Last test failure time -----> n/a
    Last test pass time -----> n/a
    Total failure count -----> 0
    Consecutive failure count -----> 0
packet buffers on free list: 64557 bad: 0 used for ongoing tests: 979
```

```
Number of errors found: 0
Cells with hard errors (failed two or more tests): 0
Cells with soft errors (failed one test, includes hard): 0
Suspect bad cells (uses a block that tested bad): 0
total buffers: 65536
bad buffers: 0 (0.0%)
good buffers: 65536 (100.0%)
Bootup test results:1
No errors.
```

---

```
3) packet-memory-ongoing -----> U
    Error code -----> 0 (DIAG_SUCCESS)
    Total run count -----> 0
    Last test execution time -----> n/a
    First test failure time -----> n/a
    Last test failure time -----> n/a
    Last test pass time -----> n/a
    Total failure count -----> 0
    Consecutive failure count -----> 0
packet buffers on free list: 64557 bad: 0 used for ongoing tests: 979
```

## show diagnostic result module

```

Packet memory errors: 0 0
Current alert level: green
Per 5 seconds in the last minute:
  0 0 0 0 0 0 0 0 0 0
  0 0
Per minute in the last hour:
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
Per hour in the last day:
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0
Per day in the last 30 days:
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
Direct memory test failures per minute in the last hour:
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
Potential false positives: 0 0
Ignored because of rx errors: 0 0
Ignored because of cdm fifo overrun: 0 0
Ignored because of oir: 0 0
Ignored because isl frames received: 0 0
Ignored during boot: 0 0
Ignored after writing hw stats: 0 0
Ignored on high gigaport: 0
Ongoing diag action mode: Normal
Last 1000 Memory Test Failures:
Last 1000 Packet Memory errors:
First 1000 Packet Memory errors:

```

---

Switch#

## show diagnostic result module test 2

To display the results of the bootup packet memory test, use the **show diagnostic result module test 2** command. The output indicates whether the test passed, failed, or was not run.

**show diagnostic result module *N* test 2 [detail]**

Syntax Description	
<i>N</i>	Specifies the module number.
<b>detail</b>	(Optional) Specifies the display of detailed information for analysis.

**Defaults** Non-detailed results

**Command Modes** EXEC mode

Command History	Release	Modification
	12.2(18)EW	This command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** The **detail** keyword is intended for use by Cisco support personnel when analyzing failures.

### Examples

This example shows how to display the results of the bootup packet memory tests:

```
Switch# show diagnostic result module 1 test 2

Test results: (. = Pass, F = Fail, U = Untested)

    2) packet-memory-bootup -----> .
```

This example shows how to display detailed results from the bootup packet memory tests:

```
Switch# show diagnostic result module 2 test 2 detail

Test results: (. = Pass, F = Fail, U = Untested)

-----

    2) packet-memory-bootup -----> .

        Error code -----> 0 (DIAG_SUCCESS)
        Total run count -----> 0
        Last test execution time ----> n/a
        First test failure time ----> n/a
        Last test failure time ----> n/a
        Last test pass time -----> n/a
        Total failure count -----> 0
        Consecutive failure count ----> 0
packet buffers on free list: 64557 bad: 0 used for ongoing tests: 979
```

**show diagnostic result module test 2**

```
Number of errors found: 0
Cells with hard errors (failed two or more tests): 0
Cells with soft errors (failed one test, includes hard): 0
Suspect bad cells (uses a block that tested bad): 0
total buffers: 65536
bad buffers: 0 (0.0%)
good buffers: 65536 (100.0%)
Bootup test results:
No errors.
```

**Related Commands**

[diagnostic monitor action](#)  
[show diagnostic result module test 3](#)

# show diagnostic result module test 3

To display results from the ongoing packet memory test, use the **show diagnostic result module test 3** command. The output indicates whether the test passed, failed, or was not run.

**show diagnostic result module *N* test 3 [detail]**

Syntax Description	
<i>N</i>	Specifies the module number.
<b>detail</b>	(Optional) Specifies the display of detailed information for analysis.

**Defaults** Non-detailed results

**Command Modes** EXEC mode

Command History	Release	Modification
	12.2(18)EW	This command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** The **detail** keyword is intended for use by Cisco support personnel when analyzing failures.

**Examples** This example shows how to display results from the ongoing packet memory tests:

```
Switch# show diagnostic result module 1 test 3
Test results: (. = Pass, F = Fail, U = Untested)
    3) packet-memory-ongoing -----> .
```

This example shows how to display detailed results from the ongoing packet memory tests:

```
Switch# show diagnostic result module 1 test 3 detail
Test results: (. = Pass, F = Fail, U = Untested)

    3) packet-memory-ongoing -----> .
       Error code -----> 0 (DIAG_SUCCESS)
       Total run count -----> 0
       Last test execution time ----> n/a
       First test failure time ----> n/a
       Last test failure time ----> n/a
       Last test pass time -----> n/a
       Total failure count -----> 0
       Consecutive failure count ----> 0
packet buffers on free list: 64557 bad: 0 used for ongoing tests: 979
```

---

**show diagnostic result module test 3**

```

Packet memory errors: 0 0
Current alert level: green
Per 5 seconds in the last minute:
  0 0 0 0 0 0 0 0 0 0
  0 0
Per minute in the last hour:
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
Per hour in the last day:
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0
Per day in the last 30 days:
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
Direct memory test failures per minute in the last hour:
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
  0 0 0 0 0 0 0 0 0 0
Potential false positives: 0 0
  Ignored because of rx errors: 0 0
  Ignored because of cdm fifo overrun: 0 0
  Ignored because of oir: 0 0
  Ignored because isl frames received: 0 0
  Ignored during boot: 0 0
  Ignored after writing hw stats: 0 0
  Ignored on high gigaport: 0
Ongoing diag action mode: Normal
Last 1000 Memory Test Failures: v
Last 1000 Packet Memory errors:
First 1000 Packet Memory errors:

```

**Related Commands**

[diagnostic monitor action](#)  
[show diagnostic result module test 2](#)



# show dot1x

To display 802.1X statistics and operational status for the entire switch or for a specified interface, use the **show dot1x** command.

```
show dot1x [interface interface-id] | [statistics [interface interface-id]] | [all]
```

Syntax Description	
<b>interface</b> <i>interface-id</i>	(Optional) Displays the 802.1X status for the specified port.
<b>statistics</b>	(Optional) Displays 802.1X statistics for the switch or the specified interface.
<b>all</b>	(Optional) Displays per-interface 802.1X configuration information for all interfaces with a non-default 802.1X configuration.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(12c)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(19)EW	Display enhanced to show the guest-VLAN value.

**Usage Guidelines**

If you do not specify an interface, global parameters and a summary are displayed. If you specify an interface, details for that interface are displayed.

If you specify the **statistics** keyword without the **interface** *interface-id* option, statistics are displayed for all interfaces. If you specify the **statistics** keyword with the **interface** *interface-id* option, statistics are displayed for the specified interface.

Expressions are case sensitive. For example, if you enter **exclude output**, the lines that contain *output* are not displayed, but the lines that contain *Output* are displayed.

**Examples** This is an example of output from the **show dot1x** privileged EXEC command:

```
Switch# show dot1x
Sysauthcontrol = Disabled
Dot1x Protocol Version = 1
Dot1x Oper Controlled Directions = Both
Dot1x Admin Controlled Directions = Both
Switch#
```

This example shows how to display 802.1x statistics for a specific port:

```
Switch# show dot1x interface fastethernet3/2

AuthSM State      = AUTHENTICATED(GUEST_VLAN)
BendSM State      = IDLE
PortStatus        = AUTHORIZED
MaxReq            = 2
MultiHosts       = Disabled
Port Control      = Auto
QuietPeriod       = 60 Seconds
Re-authentication = Disabled
ReAuthPeriod      = 3600 Seconds
ServerTimeout     = 30 Seconds
SuppTimeout       = 30 Seconds
TxPeriod          = 30 Seconds
Guest-Vlan        = 91
Switch#
```

**Note**

Table 2-12 provides a partial list of the displayed fields. The remaining fields in the display show internal state information. For a detailed description of these state machines and their settings, refer to the IEEE 802.1X specification.

**Table 2-12 show dot1x interface Field Description**

Field	Description
PortStatus	Status of the port (authorized or unauthorized). The status of a port is displayed as authorized if the <b>dot1x port-control</b> interface configuration command is set to <b>auto</b> and has successfully completed authentication.
Port Control	Setting of the <b>dot1x port-control</b> interface configuration command.
MultiHosts	Setting of the <b>dot1x multiple-hosts</b> interface configuration command (allowed or disallowed).

This is an example of output from the **show dot1x statistics interface gigabitethernet1/1** command. Table 2-13 describes the fields in the display.

```
Switch# show dot1x statistics interface gigabitethernet1/1

PortStatistics Parameters for Dot1x
-----
TxReqId = 0    TxReq = 0    TxTotal = 0
RxStart = 0    RxLogoff = 0  RxRespId = 0  RxResp = 0
RxInvalid = 0  RxLenErr = 0  RxTotal = 0
RxVersion = 0  LastRxSrcMac 0000.0000.0000
Switch#
```

**Table 2-13 show dot1x statistics Field Descriptions**

Field	Description
TxReq/TxReqId	Number of EAP-request/identity frames that have been sent.
TxTotal	Number of EAPOL frames of any type that have been sent.
RxStart	Number of valid EAPOL-start frames that have been received.
RxLogoff	Number of EAPOL-logoff frames that have been received.

**Table 2-13** *show dot1x statistics Field Descriptions (continued)*

Field	Description
RxRespId	Number of EAP-response/identity frames that have been received.
RxResp	Number of valid EAP-response frames (other than response/identity frames) that have been received.
RxInvalid	Number of EAPOL frames that have been received and have an unrecognized frame type.
RxLenError	Number of EAPOL frames that have been received in which the packet body length field is invalid.
RxTotal	Number of valid EAPOL frames of any type that have been received.
RxVersion	Protocol version number carried in the most recently received EAPOL frame.
LastRxSrcMac	Source MAC address carried in the most recently received EAPOL frame.

**Related Commands**

[dot1x guest-vlan](#)  
[dot1x max-reauth-req](#)  
[dot1x port-control](#)

# show environment

To display environment alarm, operational status, and the current reading for the chassis, use the **show environment** command.

```
show environment [alarm] | [status [chassis | fantray | powersupply | supervisor]] |
[temperature]
```

## Syntax Description

<b>alarm</b>	(Optional) Specifies alarm status of the chassis.
<b>status</b>	(Optional) Specifies operational status information.
<b>chassis</b>	(Optional) Specifies operational status of the chassis.
<b>fantray</b>	(Optional) Specifies status of the fan tray, and shows fan tray power consumption.
<b>powersupply</b>	(Optional) Specifies status of the power supply.
<b>supervisor</b>	(Optional) Specifies status of the supervisor engine.
<b>temperature</b>	(Optional) Specifies current chassis temperature readings.

## Defaults

This command has no default settings.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
12.1(12c)EW	Support for the ability to display generic environment information with the <b>show environment</b> command was added.

## Examples

This example shows how to display information about environment alarms, operational status, and the current temperature readings for the chassis:

```
Switch# show environment
no alarm

Chassis Temperature           = 32 degrees Celsius
Chassis Over Temperature Threshold = 75 degrees Celsius
Chassis Critical Temperature Threshold = 95 degrees Celsius

Power Supply Model No      Type      Fan Status      Sensor
-----
PS1    PWR-C45-1400AC    AC 1400W    good      good
PS2    none                --          --        --

Power Supply Max      Min      Max      Min      Absolute
(Nos in Watts) Inline  Inline  System  System  Maximum
-----
PS1           0       0      1360    1360    1400
PS2           --      --       --      --      --
```

```

Power supplies needed by system : 1

Chassis Type : WS-C4507R

Supervisor Led Color : Green

Fantray : good

Power consumed by Fantray : 50 Watts

```

This example shows how to display information about environment alarms:

```

Switch# show environment alarm
no alarm
Switch#

```

This example shows how to display information about power supplies, chassis type, and fan trays:

```

Switch# show environment status
Power
Supply  Model No          Type          Status        Fan
-----  -----
PS1     PWR-C45-1400AC      AC 1400W     good          good
PS2     none                --           --           --

Power Supply      Max      Min      Max      Min      Absolute
(Nos in Watts)   Inline  Inline  System  System  Maximum
-----
PS1                0        0    1360    1360    1400
PS2                --        --        --        --        --

Power supplies needed by system : 1

Chassis Type : WS-C4507R

Supervisor Led Color : Green

Fantray : good

Power consumed by Fantray : 50 Watts

Switch#

```

This example shows how to display information about the chassis:

```

Switch# show environment status chassis
Chassis Type :WS-C4006
Switch#

```

This example shows how to display information about the fan tray:

```

Switch# show environment status fantray
Fantray : good
Power consumed by Fantray : 50 Watts
Switch#

```

This example shows how to display information about the power supply:

```
Switch# show environment status powersupply
Power                               Fan
Supply Model No                    Type      Status   Sensor
-----
PS1   WS-X4008                       AC 400W   good     good
PS2   WS-X4008                       AC 400W   good     good
PS3   none                             --        --       --
Switch#
```

This example shows how to display information about the supervisor engine:

```
Switch# show environment status supervisor
Supervisor Led Color :Green
Switch#
```

This example shows how to display information about the temperature of the chassis:

```
Switch# show environment temperature
Chassis Temperature                = 32 degrees Celsius
Chassis Over Temperature Threshold = 75 degrees Celsius
Chassis Critical Temperature Threshold = 95 degrees Celsius
Switch#
```

# show errdisable detect

To display error disable detection status, use the **show errdisable detect** command.

## show errdisable detect

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

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(19)EW	Display includes the status of storm control.

**Examples** This example shows how to display error disable detection status:

```
Switch# show errdisable detect
ErrDisable Reason      Detection status
-----
udld                    Enabled
bpduguard              Enabled
security-violatio     Enabled
channel-misconfig     Disabled
psecure-violation     Enabled
vmps                   Enabled
pagp-flap              Enabled
dtp-flap               Enabled
link-flap              Enabled
l2ptguard              Enabled
gbic-invalid           Enabled
dhcp-rate-limit       Enabled
unicast-flood          Enabled
storm-control         Enabled
ilpower                Enabled
arp-inspection         Enabled
Switch#
```

**Related Commands**

- [errdisable detect](#)
- [errdisable recovery](#)
- [show interfaces status](#)

# show errdisable recovery

To display error disable recovery timer information, use the **show errdisable recovery** command.

**show errdisable recovery**

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

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(19)EW	Display includes the status of storm control.

**Examples** This example shows how to display recovery timer information for error disable:

```
Switch# show errdisable recovery
ErrDisable Reason      Timer Status
-----
udld                    Disabled
bpduguard               Disabled
security-violatio      Disabled
channel-misconfig      Disabled
vmps                    Disabled
paggp-flap              Disabled
dtp-flap                Disabled
link-flap               Disabled
l2ptguard               Disabled
psecure-violation      Disabled
gbic-invalid            Disabled
dhcp-rate-limit         Disabled
unicast-flood           Disabled
storm-control           Disabled
arp-inspection          Disabled

Timer interval:30 seconds

Interfaces that will be enabled at the next timeout:

Interface      Errdisable reason      Time left(sec)
-----
Fa7/32         arp-inspect             13
```

**Related Commands**

- [errdisable detect](#)
- [errdisable recovery](#)
- [show interfaces status](#)



# show etherchannel

To display EtherChannel information for a channel, use the **show etherchannel** command.

```
show etherchannel [channel-group] { port-channel | brief | detail | summary | port | load-balance
| protocol }
```

Syntax Description	
<i>channel-group</i>	(Optional) Number of the channel group; valid values are from 1 to 64.
<b>port-channel</b>	Displays port channel information.
<b>brief</b>	Displays a summary of EtherChannel information.
<b>detail</b>	Displays detailed EtherChannel information.
<b>summary</b>	Displays a one-line summary per channel group.
<b>port</b>	Displays EtherChannel port information.
<b>load-balance</b>	Displays load-balance information.
<b>protocol</b>	Displays the enabled protocol.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(13)EW	Support for LACP was added to this command.

**Usage Guidelines** If you do not specify a channel group, all channel groups are displayed.

In the output below, the Passive port list field is displayed for Layer 3 port channels only. This field means that the physical interface, which is still not up, is configured to be in the channel group (and indirectly is in the only port channel in the channel group).

**Examples** This example shows how to display port channel information for a specific group:

```
Switch# show etherchannel 1 port-channel
      Port-channels in the group:
      -----
Port-channel: Po1
-----
Age of the Port-channel   = 02h:35m:26s
Logical slot/port        = 10/1           Number of ports in agport = 0
GC                       = 0x00000000    HotStandBy port = null
Passive port list        = Fa5/4 Fa5/5
Port state                = Port-channel L3-Ag Ag-Not-Inuse
```

## show etherchannel

Ports in the Port-channel:

Index Load Port

-----

Switch#

This example shows how to display load-balancing information:

Switch# **show etherchannel load-balance**

Source XOR Destination mac address

Switch#

This example shows how to display a summary of information for a specific group:

Switch# **show etherchannel 1 brief**

Group state = L3

Ports: 2 Maxports = 8

port-channels: 1 Max port-channels = 1

Switch#

This example shows how to display detailed information for a specific group:

Switch# **show etherchannel 1 detail**

Group state = L3

Ports: 2 Maxports = 8

Port-channels: 1 Max Port-channels = 1

Ports in the group:

-----

Port: Fa5/4

-----

Port state = EC-Enbld Down Not-in-Bndl Usr-Config

Channel group = 1 Mode = Desirable Gcchange = 0

Port-channel = null GC = 0x00000000 Psudo-agport = Po1

Port indx = 0 Load = 0x00

Flags: S - Device is sending Slow hello. C - Device is in Consistent state.

A - Device is in Auto mode. P - Device learns on physical port.

Timers: H - Hello timer is running. Q - Quit timer is running.

S - Switching timer is running. I - Interface timer is running.

Local information:

Port	Flags	State	Timers	Hello Interval	Partner Count	PAGP Priority	Learning Method	Group Ifindex
Fa5/4	d	U1/S1		1s	0	128	Any	0

Age of the port in the current state: 02h:33m:14s

Port: Fa5/5

-----

Port state = EC-Enbld Down Not-in-Bndl Usr-Config

Channel group = 1 Mode = Desirable Gcchange = 0

Port-channel = null GC = 0x00000000 Psudo-agport = Po1

Port indx = 0 Load = 0x00

Flags: S - Device is sending Slow hello. C - Device is in Consistent state.

A - Device is in Auto mode. P - Device learns on physical port.

Timers: H - Hello timer is running. Q - Quit timer is running.

S - Switching timer is running. I - Interface timer is running.

Local information:

Port	Flags	State	Timers	Hello Interval	Partner Count	PAGP Priority	Learning Method	Group Ifindex
Fa5/5	d	U1/S1		1s	0	128	Any	0

```

Age of the port in the current state: 02h:33m:17s
  Port-channels in the group:
  -----

Port-channel: Po1
-----
Age of the Port-channel    = 02h:33m:52s
Logical slot/port         = 10/1           Number of ports in agport = 0
GC                        = 0x00000000    HotStandBy port = null
Passive port list        = Fa5/4 Fa5/5
Port state                = Port-channel L3-Ag Ag-Not-Inuse

```

Ports in the Port-channel:

```

Index  Load  Port
-----
Switch#

```

This example shows how to display a one-line summary per channel group:

```

Switch# show etherchannel summary
U-in use I-in port-channel S-suspended D-down i-stand-alone d-default

Group Port-channel Ports
-----
1      Po1(U)         Fa5/4(I) Fa5/5(I)
2      Po2(U)         Fa5/6(I) Fa5/7(I)
Switch#

```

This example shows how to display EtherChannel port information for all ports and all groups:

```

Switch# show etherchannel port
      Channel-group listing:
      -----

Group: 1
-----

      Ports in the group:
      -----

Port: Fa5/4
-----
Port state    = EC-Enbl'd Down Not-in-Bndl Usr-Config
Channel group = 1           Mode = Desirable      Gcchange = 0
Port-channel  = null       GC = 0x00000000    Pseudo-agport = Po1
Port indx     = 0           Load = 0x00

Flags: S - Device is sending Slow hello.  C - Device is in Consistent state.
      A - Device is in Auto mode.          P - Device learns on physical port.
Timers: H - Hello timer is running.        Q - Quit timer is running.
      S - Switching timer is running.      I - Interface timer is running.

Local information:

Port      Flags State  Timers  Hello  Partner  PAgP  Learning  Group
Fa5/4    d    U1/S1  1s      Interval Count  Priority Method  Ifindex
Age of the port in the current state: 02h:40m:35s
Port: Fa5/5
-----

Port state    = EC-Enbl'd Down Not-in-Bndl Usr-Config
Channel group = 1           Mode = Desirable      Gcchange = 0
Port-channel  = null       GC = 0x00000000    Pseudo-agport = Po1
Port indx     = 0           Load = 0x00

```

**show etherchannel**

```

Flags: S - Device is sending Slow hello.   C - Device is in Consistent state.
       A - Device is in Auto mode.         P - Device learns on physical port.
Timers: H - Hello timer is running.       Q - Quit timer is running.
        S - Switching timer is running.   I - Interface timer is running.

```

<...output truncated...>

Switch#

This example shows how to display the protocol enabled:

```

Switch# show etherchannel protocol
          Channel-group listing:
          -----

Group: 12
-----
Protocol: PAgP

Group: 24
-----
Protocol: - (Mode ON)
Switch#

```

**Related Commands**

[channel-group](#)  
[interface port-channel](#)

# show flowcontrol

To display the per-interface status and statistics related to flow control, use the **show flowcontrol** command.

```
show flowcontrol [module slot | interface interface]
```

Syntax Description	module slot	(Optional) Limits the display to interfaces on a specific module.
	interface interface	(Optional) Displays the status on a specific interface.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** Table 2-14 describes the fields in the **show flowcontrol** command output.

**Table 2-14 show flowcontrol Command Output**

Field	Description
Port	Module and port number.
Send-Flowcontrol-Admin	Flow-control administration. Possible settings: <b>on</b> indicates the local port sends flow control to the far end; <b>off</b> indicates the local port does not send flow control to the far end; <b>desired</b> indicates the local end sends flow control to the far end if the far end supports it.
Send-Flowcontrol-Oper	Flow-control operation. Possible setting: <b>disagree</b> indicates the two ports could not agree on a link protocol.
Receive-Flowcontrol-Admin	Flow-control administration. Possible settings: <b>on</b> indicates the local port requires the far end to send flow control; <b>off</b> indicates the local port does not allow the far end to send flow control; <b>desired</b> indicates the local end allows the far end to send flow control.
Receive-Flowcontrol-Oper	Flow-control operation. Possible setting: <b>disagree</b> indicates the two ports could not agree on a link protocol.
RxPause	Number of pause frames received.
TxPause	Number of pause frames transmitted.

**Examples**

This example shows how to display flow control status on all the gigabit interfaces:

```
Switch# show flowcontrol
Port      Send FlowControl  Receive FlowControl  RxPause TxPause
         admin   oper    admin   oper
-----
Gi1/1    desired  off     off     off     0       0
Gi1/2    on        disagree on      on      0       0
Gi3/1    on        on      on      on      0       0
Gi3/2    desired  off     off     off     0       0
Gi3/3    desired  off     off     off     0       0
Gi3/4    off       off     on      on      0       0
Gi3/5    desired  off     off     off     0       0
Gi3/6    desired  off     off     off     0       0
Switch#
```

This example shows how to display the flow control status on module 1:

```
Switch# show flowcontrol module 1
Port      Send FlowControl  Receive FlowControl  RxPause TxPause
         admin   oper    admin   oper
-----
Gi1/1    desired  off     off     off     0       0
Gi1/2    on        disagree on      on      0       0
Switch#
```

This example shows how to display the flow control status on interface 3/4:

```
Switch# show flowcontrol interface gigabitethernet 3/4
Port      Send FlowControl  Receive FlowControl  RxPause TxPause
         admin   oper    admin   oper
-----
Gi3/4    off       off     on      on      0       0
Switch#
```

**Related Commands**

[flowcontrol](#)  
[show interfaces status](#)

# show idprom

To display IDPROMs for the chassis, supervisor engine, module, power supplies, fan trays, clock module, and multiplexor (mux) buffer, use the **show idprom** command.

```
show idprom { all | chassis | module [mod] | interface int_name | supervisor | power-supply
number | fan-tray }
```

Syntax Description		
<b>all</b>		Displays information for all IDPROMs.
<b>chassis</b>		Displays information for chassis IDPROMs.
<b>module</b>		Displays information for module IDPROMs.
<i>mod</i>		(Optional) Specifies the module name.
<b>interface</b> <i>int_name</i>		Displays information for GBIC or SFP IDPROMs.
<b>supervisor</b>		Displays information for supervisor engine IDPROMs.
<b>power-supply</b> <i>number</i>		Displays information for power supply IDPROMs.
<b>fan-tray</b>		Displays information for the fan tray IDPROMs.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(12c)EW	Support for the <b>power-supply</b> , <b>fan-tray</b> , <b>clock-module</b> , and <b>mux-buffer</b> keywords was added.
	12.1(13)EW	Support for <b>interface</b> keyword was added.
	12.2(18)EW	Enhanced the <b>show idprom interface</b> output to include the hexadecimal display of the GBIC/SFP SEEPROM contents.

**Usage Guidelines** When you enter the **show idprom interface** command, the output lines for Calibration type and Rx (receive) power measurement may not be displayed for all GBICs.

**Examples** This example shows how to display IDPROM information for module 4:

```
Switch# show idprom module 4
Module 4 Idprom:
Common Block Signature = 0xABAB
Common Block Version = 1
Common Block Length = 144
Common Block Checksum = 4199
Idprom Size = 256
Block Count = 2
```

```

FRU Major Type = 0x4201
FRU Minor Type = 303
OEM String = Cisco Systems, Inc.
Product Number = WS-X4306
Serial Number = 00000135
Part Number = <tbid>
Hardware Revision = 0.2
Manufacturing Bits = 0x0000
Engineering Bits = 0x0000
Snmp OID = 0.0.0.0.0.0.0
Power Consumption = 0
RMA Failure Code = 0 0 0 0
Linecard Block Signature = 0x4201
Linecard Block Version = 1
Linecard Block Length = 24
Linecard Block Checksum = 658
Feature Bits = 0x0000000000000000
Card Feature Index = 50
MAC Base = 0010.7bab.9830
MAC Count = 6
Switch#

```

This example shows how to display IDPROM information for the GBICs on the Gigabit Ethernet interface 1/2:

```

Switch# show idprom interface GigabitEthernet 1/2
GBIC Serial EEPROM Contents:
Common Block:
Identifier          = GBIC [0x1]
Extended Id        = Not specified/compliant with defined MOD_DEF [0x0]
Connector          = SC connector [0x1]
Transceiver
  Speed            = Not available [0x0]
  Media            = Not available [0x0]
  Technology       = Not available [0x0]
  Link Length     = Not available [0x0]
  GE Comp Codes   = Not available [0x0]
  SONET Comp Codes = Not available [0x0]
Encoding          = 8B10B [0x1]
BR, Nominal       = 1300000000 MHz
Length(9u) in km  = GBIC does not support single mode fibre, or the length
                  must be determined from the transceiver technology.
Length(9u)        = > 25.4 km
Length(50u)       = GBIC does not support 50 micron multi-mode fibre, or the
                  length must be determined from the transceiver technology.
Length(62.5u)    = GBIC does not support 62.5 micron multi-mode fibre, or
                  the length must be determined from transceiver technology.
Length(Copper)   = GBIC does not support copper cables, or the length must
                  be determined from the transceiver technology.
Vendor name       = CISCO-FINISAR
Vendor OUI        = 36965
Vendor Part No.   = FTR-0119-CSC
Vendor Part Rev.  = B
Wavelength       = Not available
CC_BASE          = 0x1A

Extended ID Fields
Options          = Loss of Signal implemented TX_FAULT signal implemented TX_DISABLE is
implemented and disables the serial output [0x1A]
BR, max         = Unspecified
BR, min         = Unspecified
Vendor Serial No. = K1273DH
Date code       = 030409
Diag monitoring  = Implemented

```



```

Calibration type = Internal
Rx pwr measuremnt = Optical Modulation Amplitude (OMA)
Address change = Required
CC_EXT = 0xB2

Vendor Specific ID Fields:
20944D30 29 00 02 80 22 33 38 3D C7 67 83 E8 DF 65 6A AF )..."38=Gg^Ch_ej/
20944D40 1A 80 ED 00 00 00 00 00 00 00 00 00 38 23 3C 1B .....8#<.

SEEPROM contents (hex) size 128:
0x0000 01 00 01 00 00 00 00 00 00 00 01 0D 00 00 FF .....
0x0010 00 00 00 00 43 49 53 43 4F 2D 46 49 4E 49 53 41 .... CISCO-FINISA
0x0020 52 20 20 20 00 00 90 65 46 54 52 2D 30 31 31 39 R ..^PeFTR-0119
0x0030 2D 43 53 43 20 20 20 20 42 20 20 20 00 00 00 1A -CSC B ....
0x0040 00 1A 00 00 4B 31 32 37 33 44 48 20 20 20 20 20 ....K1273DH
0x0050 20 20 20 20 30 33 30 34 30 39 20 20 64 00 00 B2 030409 d..2
0x0060 29 00 02 80 22 33 38 3D C7 67 83 E8 DF 65 6A AF )..^@"38=Gg^C._ej.
0x0070 1A 80 ED 00 00 00 00 00 00 00 00 00 38 23 3C 1B .^@m.....8#<.
Switch#

```

This example shows how to display IDPROM information for the supervisor engine:

```

Switch# show idprom supervisor
Supervisor Idprom:
Common Block Signature = 0xABAB
Common Block Version = 1
Common Block Length = 144
Common Block Checksum = 4153
Idprom Size = 256
Block Count = 2
FRU Major Type = 0x4101
FRU Minor Type = 333
OEM String = Cisco Systems, Inc.
Product Number = WS-X4014
Serial Number = JAB05320CCE
Part Number = 73-6854-04
Part Revision = 05
Manufacturing Deviation String = 0
Hardware Revision = 0.4
Manufacturing Bits = 0x0000
Engineering Bits = 0x0000
Snmp OID = 0.0.0.0.0.0.0.0
Power Consumption = 0
RMA Failure Code = 0 0 0 0
Supervisor Block Signature = 0x4101
Supervisor Block Version = 1
Supervisor Block Length = 24
Supervisor Block Checksum = 548
Feature Bits = 0x0000000000000000
Card Feature Index = 95
MAC Base = 0007.0ee5.2a44
MAC Count = 2
Switch#

```

This example shows how to display IDPROM information for the chassis:

```

Switch# show idprom chassis
Chassis Idprom:
Common Block Signature = 0xABAB
Common Block Version = 1
Common Block Length = 144
Common Block Checksum = 4285
Idprom Size = 256

```

```

Block Count = 2
FRU Major Type = 0x4001
FRU Minor Type = 24
OEM String = Cisco Systems, Inc.
Product Number = WS-C4006
Serial Number = FOX04473737
Part Number = 73-4289-02
Part Revision = 02
Manufacturing Deviation String = 0x00
Hardware Revision = 0.2
Manufacturing Bits = 0x0000
Engineering Bits = 0x0000
Snmp OID = 0.0.0.0.0.0.0
Chassis Block Signature = 0x4001
Chassis Block Version = 1
Chassis Block Length = 22
Chassis Block Checksum = 421
Feature Bits = 0x0000000000000000
MAC Base = 0004.dd42.2600
MAC Count = 1024
Switch#

```

This example shows how to display IDPROM information for power supply 1:

```

Switch# show idprom power-supply 1
Power Supply 0 Idprom:
Common Block Signature = 0xABAB
Common Block Version = 1
Common Block Length = 144
Common Block Checksum = 10207
Idprom Size = 256
Block Count = 1
FRU Major Type = 0xAB01
FRU Minor Type = 8224
OEM String = Cisco Systems, Inc.
Product Number = WS-CAC-1440W
Serial Number = ACP05180002
Part Number = 34-XXXX-01
Part Revision = A0
Manufacturing Deviation String =
Hardware Revision = 1.1
Manufacturing Bits = 0x0000
Engineering Bits = 0x3031
Snmp OID = 9.12.3.65535.65535.65535.65535.65535
Power Consumption = -1
RMA Failure Code = 255 255 255 255
Power Supply Block Signature = 0xFFFF
PowerSupply Block Version = 255
PowerSupply Block Length = 255
PowerSupply Block Checksum = 65535
Feature Bits = 0x00000000FFFFFFFF
Current @ 110V = -1
Current @ 220V = -1
StackMIB OID = 65535
Switch#

```

This example shows how to display IDPROM information for the fan tray:

```

Switch# show idprom fan-tray
Fan Tray Idprom :
Common Block Signature = 0xABAB
Common Block Version = 1
Common Block Length = 144
Common Block Checksum = 19781

```

```
Idprom Size = 256
Block Count = 1
FRU Major Type = 0x4002
FRU Minor Type = 0
OEM String = "Cisco Systems"
Product Number = WS-X4502-fan
Serial Number =
Part Number =
Part Revision =
Manufacturing Deviation String =
Hardware Revision = 0.1
Manufacturing Bits = 0xFFFF
Engineering Bits = 0xFFFF
Snmp OID = 65535.65535.65535.65535.65535.65535.65535.65535
Power Consumption = -1
RMA Failure Code = 255 255 255 255
Switch#
```

# show interfaces

To display traffic on a specific interface, use the **show interfaces** command.

```
show interfaces [{FastEthernet mod/interface-number} | {GigabitEthernet
  mod/interface-number} | {null interface-number} | vlan vlan_id} | status]
```

## Syntax Description

<b>FastEthernet</b> <i>mod/interface-number</i>	(Optional) Specifies the Fast Ethernet module and interface.
<b>GigabitEthernet</b> <i>mod/interface-number</i>	(Optional) Specifies the Gigabit Ethernet module and interface.
<b>null</b> <i>interface-number</i>	(Optional) Specifies the null interface; the valid value is 0.
<b>vlan</b> <i>vlan_id</i>	(Optional) Specifies the VLAN; valid values are from 1 to 4094.
<b>status</b>	(Optional) Displays status information.

## Defaults

This command has no default settings.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
12.1(12c)EW	Support for extended VLAN addresses was added.

## Usage Guidelines

Statistics are collected on a per-VLAN basis for Layer 2-switched packets and Layer 3-switched packets. Statistics are available for both unicast and multicast. The Layer 3-switched packet counts are available for both ingress and egress directions. The per-VLAN statistics are updated every 5 seconds.

In some cases, you might see a difference in the duplex mode displayed between the **show interfaces** command and the **show running-config** commands. The duplex mode displayed in the **show interfaces** command is the actual duplex mode the interface is running. The **show interfaces** command shows the operating mode for an interface, while the **show running-config** command shows the configured mode for an interface.

If you do not enter any keywords, all counters for all modules are displayed.

## Examples

This example shows how to display traffic for a specific interface:

```
Switch# show interfaces GigabitEthernet 2/5
GigabitEthernet9/5 is up, line protocol is up
Hardware is C4k 1000Mb 802.3, address is 0001.64f8.3fa5 (bia 0001.64f8.3fa5)
Internet address is 172.20.20.20/24
MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
```

```

Full-duplex, 1000Mb/s
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:00, output never, output hang never
Last clearing of "show interface" counters never
Queueing strategy: fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 1000 bits/sec, 2 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
L2 Switched: ucast: 8199 pkt, 1362060 bytes - mcast: 6980 pkt, 371952 bytes
L3 in Switched: ucast: 0 pkt, 0 bytes - mcast: 0 pkt, 0 bytes mcast
L3 out Switched: ucast: 0 pkt, 0 bytes - mcast: 0 pkt, 0 bytes
300114 packets input, 27301436 bytes, 0 no buffer
Received 43458 broadcasts, 0 runts, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
0 input packets with dribble condition detected
15181 packets output, 1955836 bytes, 0 underruns
0 output errors, 0 collisions, 3 interface resets
0 babbles, 0 late collision, 0 deferred
0 lost carrier, 0 no carrier
0 output buffer failures, 0 output buffers swapped out
Switch#

```

This example shows how to display status information for Gigabit Ethernet interface 1/2:

```

Switch# show interfaces Gi1/2 status
Port      Name      Status      Vlan      Duplex  Speed Type
Gi1/2                    notconnect  1          auto     1000 1000-XWDM-RXONLY
Switch#

```

# show interfaces capabilities

To display the interface capabilities for an interface or for all the interfaces on a switch, use the **show interfaces capabilities** command.

```
show interfaces capabilities [{module mod}]
```

```
show interfaces [interface interface-number] capabilities
```

## Syntax Description

<b>module mod</b>	(Optional) Keyword and variable to display information for the specified module only.
<b>interface</b>	(Optional) Specifies the interface type. Valid values are <b>fastethernet</b> , <b>gigabitethernet</b> , and <b>port-channel</b> .
<b>interface-number</b>	(Optional) Specifies the port number.

## Defaults

This command has no default settings.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(19)EW	Support for this command was introduced on the Catalyst 4500 series switch.

## Usage Guidelines

The *interface-number* variable designates the module and port number. Valid values for *interface-number* depend on the chassis and module used. For example, if you have a 48-port 10/100-Mbps Fast Ethernet RJ-21 (telco connector) switching module installed in a Catalyst 4507 chassis, valid values for the slot number are from 2 to 13 and valid values for the port number are 1 to 48.

## Examples

This example shows how to display interface capabilities for a module:

```
Router# show interfaces capabilities module 1
GigabitEthernet1/1
  Model: WS-X4516-Gbic
  Type: Unsupported GBIC
  Speed: 1000
  Duplex: full
  Trunk encap. type: 802.1Q, ISL
  Trunk mode: on, off, desirable, nonegotiate
  Channel: yes
  Broadcast suppression: percentage(0-100), hw
  Flowcontrol: rx-(off, on, desired), tx-(off, on, desired)
  VLAN Membership: static, dynamic
  Fast Start: yes
  Queuing: rx-(N/A), tx-(4q1t, Sharing/Shaping)
  CoS rewrite: yes
  ToS rewrite: yes
```

```

Inline power:          no
SPAN:                  source/destination
UDLD                   yes
Link Debounce:        no
Link Debounce Time:   no
Port Security          yes
Dot1x                  yes
GigabitEthernet1/2
Model:                 WS-X4516-Gbic
Type:                  Unsupported GBIC
Speed:                 1000
Duplex:                full
Trunk encap. type:    802.1Q, ISL
Trunk mode:            on, off, desirable, nonegotiate
Channel:               yes
Broadcast suppression: percentage(0-100), hw
Flowcontrol:           rx- (off, on, desired), tx- (off, on, desired)
VLAN Membership:      static, dynamic
Fast Start:            yes
Queuing:               rx- (N/A), tx- (4q1t, Sharing/Shaping)
CoS rewrite:           yes
ToS rewrite:           yes
Inline power:          no
SPAN:                  source/destination
UDLD                   yes
Link Debounce:        no
Link Debounce Time:   no
Port Security          yes
Dot1x                  yes
Router#

```

This example shows how to display interface capabilities for interface gi1/1:

```

Switch# show interface gigabitethernet1/1 capabilities
GigabitEthernet1/1
Model:                 WS-X4014-Gbic
Type:                  No Gbic
Speed:                 1000
Duplex:                full
Trunk encap. type:    802.1Q, ISL
Trunk mode:            on, off, desirable, nonegotiate
Channel:               yes
Broadcast suppression: percentage(0-100), hw
Flowcontrol:           rx- (off, on, desired), tx- (off, on, desired)
VLAN Membership:      static, dynamic
Fast Start:            yes
Queuing:               rx- (N/A), tx- (4q1t, Sharing/Shaping)
CoS rewrite:           yes
ToS rewrite:           yes

Inline power:          no
SPAN:                  source/destination
UDLD                   yes
Link Debounce:        no
Link Debounce Time:   no
Port Security          yes
Dot1x                  yes
MTU Supported:        jumbo frames, baby giants
Switch#

```

This example shows how to display interface capabilities for interface fa3/1:

```
Switch#show interface fastethernet3/1 capabilities
FastEthernet3/1
  Model:                WS-X4148-RJ-RJ-45
  Type:                 10/100BaseTX
  Speed:               10,100,auto
  Duplex:              half,full,auto
  Trunk encap. type:   802.1Q,ISL
  Trunk mode:         on,off,desirable,nonegotiate
  Channel:             yes
  Broadcast suppression:percentage(0-100), sw
  Flowcontrol:        rx-(none),tx-(none)
  VLAN Membership:    static, dynamic
  Fast Start:         yes
  Queuing:            rx-(N/A), tx-(4q1t, Shaping)
  CoS rewrite:       yes
  ToS rewrite:       yes
  Inline power:      no
  SPAN:              source/destination
  UDLD:              yes
  Link Debounce:     no
  Link Debounce Time: no
  Port Security:     yes
  Dot1x:             yes
  MTU Supported:     no jumbo frames, baby giants
Switch#
```

**Related Commands**    [show interfaces counters](#)



# show interfaces counters

To display traffic on the physical interface, use the **show interfaces counters** command.

**show interfaces counters** [**all** | **detail** | **errors** | **storm-control** | **trunk**] [**module** *mod*]

Syntax Description	
<b>all</b>	(Optional) Displays all interface counters including errors, trunk, and detail.
<b>detail</b>	(Optional) Displays detailed interface counters.
<b>errors</b>	(Optional) Displays interface error counters.
<b>storm-control</b>	(Optional) Displays the number of packets discarded due to suppression on the interface.
<b>trunk</b>	(Optional) Displays interface trunk counters.
<b>module</b> <i>mod</i>	(Optional) Limits the display to interfaces on a specific module.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(19)EW	Support for storm control.
	12.2(18)EW	Support for the display of total suppression discards.

**Usage Guidelines** If you do not enter any keywords, all counters for all modules are displayed. The display for the **storm-control** keyword includes suppressed multicast bytes.

**Examples** This example shows how to display error counters for a specific module:

```
Switch# show interfaces counters errors module 1
```

```
Port          Align-Err    FCS-Err    Xmit-Err    Rcv-Err    UnderSize
Gi1/1         0            0          0           0          0
Gi1/2         0            0          0           0          0
```

```
Port          Single-Col  Multi-Col  Late-Col  Excess-Col  Carri-Sen    Runts    Giants
Gi1/1         0          0          0         0           0           0        0
Gi1/2         0          0          0         0           0           0        0
Switch#
```

**show interfaces counters**

This example shows how to display traffic seen by a specific module:

```
Switch# show interfaces counters module 1

Port          InOctets  InUcastPkts  InMcastPkts  InBcastPkts
Gi1/1         0          0             0             0
Gi1/2         0          0             0             0

Port          OutOctets  OutUcastPkts  OutMcastPkts  OutBcastPkts
Gi1/1         0          0             0             0
Gi1/2         0          0             0             0
Switch#
```

This example shows how to display trunk counters for a specific module:

```
Switch# show interfaces counters trunk module 1

Port          TrunkFramesTx  TrunkFramesRx  WrongEncap
Gi1/1         0              0              0
Gi1/2         0              0              0
Switch#
```

This example shows how to display the number of packets discarded due to suppression:

```
Switch# show interfaces counters storm-control

Multicast Suppression : Enabled

Port          BcastSuppLevel  TotalSuppressionDiscards
Fa5/35        10.00%          6278550
Switch#
```

---

**Related Commands**    [show interfaces capabilities](#)

# show interfaces description

To display a description and status of an interface, use the **show interfaces description** command.

**show interfaces** [*interface*] **description**

---

<b>Syntax Description</b>	<i>interface</i> (Optional) Type of interface.
---------------------------	--

---



---

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

---



---

<b>Command Modes</b>	Privileged EXEC
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---



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<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>12.1(8a)EW</td> <td>Support for this command was introduced on the Catalyst 4500 series switch.</td> </tr> </tbody> </table>	Release	Modification	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
Release	Modification				
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.				

---



---

<b>Examples</b>	This example shows how to display information for all interfaces:
-----------------	---

```
Switch# show interfaces description
Interface Status      Protocol Description
PO0/0     admin down          down    First interface
PO0/1     admin down          down
Gi1/1     up                  up      GigE to server farm
Switch#
```

---

<b>Related Commands</b>	<b>description</b> (refer to Cisco IOS documentation)
-------------------------	---

---

# show interfaces link

To display how long a cable has been disconnected from an interface, use the **show interfaces link** command:

```
show interfaces link [module mod_num]
```

<b>Syntax Description</b>	<b>module <i>mod_num</i></b> (Optional) Limits the display to interfaces on a module.
---------------------------	---

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

<b>Command Modes</b>	Privileged EXEC
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Command History	Release	Modification
	12.2(18)EW	Support for this command was introduced on the Catalyst 4500 series switch.

<b>Usage Guidelines</b>	If the interface state is up, the command displays 0:00. If the interface state is down, the time (in hours, minutes, and seconds) is displayed.
-------------------------	--

<b>Examples</b>	This example shows how to display active link-level information:
-----------------	--

```
Switch# show interfaces link
```

```
Port      Name           Down Time
Gi1/1     Gi1/1          00:00:00
Gi1/2     Gi1/2          00:00:00
Gi3/1     Gi3/1          00:00:00
Gi3/2     Gi3/2          00:00:00
Fa4/1     Fa4/1          00:00:00
Fa4/2     Fa4/2          00:00:00
Fa4/3     Fa4/3          00:00:00
Fa4/4     Fa4/4          00:00:00
```

This example shows how to display inactive link-level information:

```
Switch# show interfaces link
```

```
Port      Name           Down Time
Gi3/4     Gi3/4          1 minute 28 secs
Gi3/5     Gi3/5          1 minute 28 secs
Gi3/6     Gi3/6          1 minute 28 secs
Gi4/1     Gi4/1          1 minute 28 secs
```

In this example, the cable has been disconnected from the port for 1 minute and 28 seconds.

# show interfaces mtu

To display the maximum transmission unit (MTU) size of all the physical interfaces and SVIs on the switch, use the **show interfaces mtu** command.

```
show interfaces mtu [module mod]
```

Syntax Description	<b>module mod</b> (Optional) Limits the display to interfaces on a specific module.
--------------------	---

Defaults	This command has no default settings.
----------	---------------------------------------

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

Command History	Release	Modification
	12.1(13)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display the MTU size for all interfaces on module 1:

```
Switch> show interfaces mtu module 1

Port      Name           MTU
Gi1/1     Gi1/1          1500
Gi1/2     Gi1/2          1500
Switch>
```

Related Commands	<a href="#">mtu</a>
------------------	---------------------

# show interfaces private-vlan mapping

To display PVLAN mapping information for VLAN SVIs, use the **show interface private-vlan mapping** command.

**show interface private-vlan mapping [active]**

<b>Syntax Description</b>	<b>active</b> (Optional) Displays active interfaces only.
---------------------------	---

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

<b>Usage Guidelines</b>	This command displays SVI information only.
-------------------------	---

<b>Examples</b>	This example shows how to display PVLAN mapping information:
-----------------	--

```
Switch# show interface private-vlan mapping
Interface Secondary VLAN Type
-----
vlan2      301          isolated
vlan2      302          isolated
Switch#
```

<b>Related Commands</b>	<a href="#">private-vlan</a> <a href="#">private-vlan mapping</a>
-------------------------	--

# show interfaces status

To display interface status or a list of interfaces in error-disabled state, use the **show interfaces status** command.

**show interfaces status [err-disabled]**

<b>Syntax Description</b>	<b>err-disabled</b> (Optional) Displays interfaces in error-disabled state.				
<b>Defaults</b>	This command has no default settings.				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>12.1(8a)EW</td> <td>Support for this command was introduced on the Catalyst 4500 series switch.</td> </tr> </tbody> </table>	Release	Modification	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
Release	Modification				
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.				

## Examples

This example shows how to display the status of all interfaces:

```
Switch# show interfaces status

Port      Name           Status      Vlan      Duplex Speed Type
Gi1/1     Gi1/1          disabled    routed    full   1000 missing
Gi1/2     Gi1/2          notconnect  1         full   1000 unknown (4)
Fa5/1     Fa5/1          disabled    routed    auto   auto 10/100BaseTX
Fa5/2     Fa5/2          disabled    routed    auto   auto 10/100BaseTX
Fa5/3     Fa5/3          disabled    routed    auto   auto 10/100BaseTX
Fa5/4     Fa5/4          disabled    routed    auto   auto 10/100BaseTX
...
Fa5/15    Fa5/15         disabled    routed    auto   auto 10/100BaseTX
Fa5/16    Fa5/16         disabled    routed    auto   auto 10/100BaseTX
Fa5/17    Fa5/17         disabled    routed    auto   auto 10/100BaseTX
Switch#
```

This example shows how to display the status of interfaces in error-disabled state:

```
Switch# show interfaces status err-disabled

Port      Name           Status      Reason
Fa9/4     Fa9/4          notconnect  link-flap

informational error message when the timer expires on a cause
-----

5d04h:%PM-SP-4-ERR_RECOVER:Attempting to recover from link-flap err-disable state on Fa9/4
Switch#
```

## Related Commands

[errdisable detect](#)  
[show errdisable recovery](#)

# show interfaces switchport

To display the administrative and operational status of a switching (nonrouting) port, use the **show interfaces switchport** command.

```
show interfaces [interface-id] switchport [module mod]
```

Syntax Description	
<i>interface-id</i>	(Optional) Specifies the interface ID for the physical port.
<b>module mod</b>	(Optional) Limits the display to interfaces on the specified module; valid values are from 1 to 6.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(19)EW	Support for per-interface display.
	12.2(18)EW	Support for displaying the status of native VLAN tagging in the command output.

**Examples** This example shows how to display switch-port information using the **begin** output modifier:

```
Switch# show interfaces switchport | include VLAN
Name: Fa5/6
Access Mode VLAN: 200 (VLAN0200)
Trunking Native Mode VLAN: 1 (default)
Trunking VLANs Enabled: ALL
Pruning VLANs Enabled: ALL
Switch#
```

This example shows how to display switch-port information for module 1:

```
Switch# show interfaces switchport module 1
Name:Gi1/1
Switchport:Enabled
Administrative Mode:dynamic auto
Operational Mode:down
Administrative Trunking Encapsulation:negotiate
Negotiation of Trunking:On
Access Mode VLAN:1 (default)
Trunking Native Mode VLAN:1 (default)
Administrative private-vlan host-association:none
Administrative private-vlan mapping:none
Operational private-vlan:none
Trunking VLANs Enabled:ALL
Pruning VLANs Enabled:2-1001

Name:Gi1/2
Switchport:Enabled
```



```

Administrative Mode:dynamic auto
Operational Mode:down
Administrative Trunking Encapsulation:negotiate
Negotiation of Trunking:On
Access Mode VLAN:1 (default)
Trunking Native Mode VLAN:1 (default)
Administrative private-vlan host-association:none
Administrative private-vlan mapping:none
Operational private-vlan:none
Trunking VLANs Enabled:ALL
Pruning VLANs Enabled:2-1001
Switch#

```

This example shows how to display the status of native VLAN tagging on the port:

```

Switch# show interfaces g1/2 switchport
Name: Gi1/2
Switchport: Enabled
Administrative Mode: dynamic auto
Operational Mode: static access
Administrative Trunking Encapsulation: negotiate
Operational Trunking Encapsulation: native
Negotiation of Trunking: On
Access Mode VLAN: 1 (default)
Trunking Native Mode VLAN: 1 (default)
Native VLAN tagging: Disabled **
Voice VLAN: none
Administrative private-vlan host-association: none
Administrative private-vlan mapping: none
Administrative private-vlan trunk native VLAN: none
Administrative private-vlan trunk encapsulation: dot1q
Administrative private-vlan trunk normal VLANs: none
Administrative private-vlan trunk private VLANs: none
Administrative private-vlan trunk Native VLAN tagging: Disabled
Operational private-vlan: none
Trunking VLANs Enabled: ALL
Pruning VLANs Enabled: 2-1001
Capture Mode Disabled
Capture VLANs Allowed: ALL
Unknown unicast blocked: disabled
Unknown multicast blocked: disabled

```

#### Related Commands

[show interfaces capabilities](#)  
[show interfaces counters](#)

# show interfaces transceiver

To display diagnostic-monitoring data for all interfaces that have transceivers installed, use the **show interfaces transceiver** command.

```
show interfaces int_name transceiver detail | transceiver module mod | detail
module mod}}
```

Syntax Description	
<i>int_name</i>	(Optional) Specifies an interface.
<b>detail</b>	(Optional) Displays the calibrated values and the A2D readouts if the readout values differ from the calibrated values. Also displays the high-alarm, high-warning, low-warning, and low-alarm thresholds.
<b>module mod</b>	(Optional) Limits the display to interfaces on a specific module.

## Defaults

The non-interface-specific versions of the **show interfaces transceiver** command are enabled by default.

The interface-specific versions of these commands are enabled by default if the specified interface has a transceiver (GBIC or SFP) configured for diagnostic monitoring, and the transceiver is in a module that supports diagnostic monitoring.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(20)EW	Support for this command was introduced on the Catalyst 4500 series switch.
12.2(18)EW	Support for the <b>calibration</b> keyword was withdrawn.

## Usage Guidelines

The **show interfaces transceiver** command provides useful information under the following conditions:

- At least one transceiver is installed on a chassis that is configured for diagnostic monitoring.
- The transceiver is in a module that supports diagnostic monitoring.

If you notice that alarm and warning flags have been set on a transceiver, reenter the command to confirm.

**Examples**

This example shows how to display diagnostic monitoring data for all interfaces with transceivers installed on the switch:

```
Switch# show interfaces transceiver
If device is externally calibrated, only calibrated values are printed.
++ : high alarm, + : high warning, - : low warning, -- : low alarm.
NA or N/A: not applicable, Tx: transmit, Rx: receive.
mA: milliamperes, dBm: decibels (milliwatts).

      Temperature  Voltage  Current  Optical  Optical
Port   (Celsius)   (Volts) (mA)     (dBm)    (dBm)
-----
Gi1/1   48.1          3.30    0.0      8.1 ++   N/A
Gi1/2   33.0          3.30    1.8     -10.0   -36.9
Gi2/1   43.7          5.03    50.6 +   -16.7 --  N/A
Gi2/2   39.2          5.02    25.7     0.8     N/A

Switch#
```



**Note** The value for Optical Tx Power (in dBm) equals ten times log (Tx Power in mW). If the Tx Power value is 3 mW, then the Optical Tx Power value equals  $10 * \log(3)$ , which equals  $10 * .477$  or 4.77 dBm. The Optical Rx Power value behaves similarly. If Tx Power or Rx Power is zero, then its dBm value is undefined and is shown as N/A (not applicable).

This example shows how to display detailed diagnostic monitoring data, including calibrated values, alarm and warning thresholds, A2D readouts, and alarm and warning flags. The A2D readouts are reported separately in parentheses only if they differ from the calibrated values:

```
Switch# show interfaces transceiver detail
mA: milliamperes, dBm: decibels (milliwatts), NA or N/A: not applicable.
++ : high alarm, + : high warning, - : low warning, -- : low alarm.
A2D readouts (if they differ), are reported in parentheses.
The threshold values are calibrated.
```

Port	Temperature (Celsius)	High Alarm Threshold (Celsius)	High Warn Threshold (Celsius)	Low Warn Threshold (Celsius)	Low Alarm Threshold (Celsius)
Gi1/1	48.1	100.0	100.0	0.0	0.0
Gi1/2	34.9	100.0	100.0	0.0	0.0
Gi2/1	43.5	70.0	60.0	5.0	0.0
Gi2/2	39.1	70.0	60.0	5.0	0.0

Port	Voltage (Volts)	High Alarm Threshold (Volts)	High Warn Threshold (Volts)	Low Warn Threshold (Volts)	Low Alarm Threshold (Volts)
Gi1/1	3.30	6.50	6.50	N/A	N/A
Gi1/2	3.30	6.50	6.50	N/A	N/A
Gi2/1	5.03	5.50	5.25	4.75	4.50
Gi2/2	5.02	5.50	5.25	4.75	4.50

Port	Current (milliamperes)	High Alarm Threshold (mA)	High Warn Threshold (mA)	Low Warn Threshold (mA)	Low Alarm Threshold (mA)
Gi1/1	0.0	130.0	130.0	N/A	N/A
Gi1/2	1.7	130.0	130.0	N/A	N/A
Gi2/1	50.6 +	60.0	40.0	10.0	5.0
Gi2/2	25.8	60.0	40.0	10.0	5.0

## show interfaces transceiver

Port	Optical Transmit Power (dBm)		High Alarm Threshold (dBm)	High Warn Threshold (dBm)	Low Warn Threshold (dBm)	Low Alarm Threshold (dBm)
Gi1/1	8.1	++	8.1	8.1	N/A	N/A
Gi1/2	-9.8		8.1	8.1	N/A	N/A
Gi2/1	-16.7 (-13.0)	--	3.4	3.2	-0.3	-0.5
Gi2/2	0.8 ( 5.1)		3.4	3.2	-0.3	-0.5

  

Port	Optical Receive Power (dBm)		High Alarm Threshold (dBm)	High Warn Threshold (dBm)	Low Warn Threshold (dBm)	Low Alarm Threshold (dBm)
Gi1/1	N/A		8.1	8.1	N/A	N/A
Gi1/2	-30.9		8.1	8.1	N/A	N/A
Gi2/1	N/A (-28.5)		5.9	-6.7	-28.5	-28.5
Gi2/2	N/A (-19.5)		5.9	-6.7	-28.5	-28.5

Switch#

This example shows how to display monitoring data for the interfaces that have transceivers installed on module 2:

Switch# **show interfaces transceiver module 2**

If device is externally calibrated, only calibrated values are printed.  
 ++ : high alarm, + : high warning, - : low warning, -- : low alarm.  
 NA or N/A: not applicable, Tx: transmit, Rx: receive.  
 mA: milliamperes, dBm: decibels (milliwatts).

Port	Temperature (Celsius)	Voltage (Volts)	Current (mA)	Optical Tx Power (dBm)	Optical Rx Power (dBm)
Gi2/1	43.7	5.03	50.6 +	-16.7 --	N/A
Gi2/2	39.2	5.02	25.7	0.8	N/A

Switch#

This example shows how to display detailed monitoring data for the interfaces that have transceivers installed on module 2:

Switch# **show interfaces transceiver detail module 2**

mA: milliamperes, dBm: decibels (milliwatts), NA or N/A: not applicable.  
 ++ : high alarm, + : high warning, - : low warning, -- : low alarm.  
 A2D readouts (if they differ), are reported in parentheses.  
 The threshold values are calibrated.

Port	Temperature (Celsius)	High Alarm Threshold (Celsius)	High Warn Threshold (Celsius)	Low Warn Threshold (Celsius)	Low Alarm Threshold (Celsius)
Gi2/1	43.5	70.0	60.0	5.0	0.0
Gi2/2	39.1	70.0	60.0	5.0	0.0

  

Port	Voltage (Volts)	High Alarm Threshold (Volts)	High Warn Threshold (Volts)	Low Warn Threshold (Volts)	Low Alarm Threshold (Volts)
Gi2/1	5.03	5.50	5.25	4.75	4.50
Gi2/2	5.02	5.50	5.25	4.75	4.50

Port	Current (milliamperes)		High Alarm Threshold (mA)	High Warn Threshold (mA)	Low Warn Threshold (mA)	Low Alarm Threshold (mA)
Gi2/1	50.6	+	60.0	40.0	10.0	5.0
Gi2/2	25.8		60.0	40.0	10.0	5.0

  

Port	Optical Transmit Power (dBm)		High Alarm Threshold (dBm)	High Warn Threshold (dBm)	Low Warn Threshold (dBm)	Low Alarm Threshold (dBm)
Gi2/1	-16.7 (-13.0)	--	3.4	3.2	-0.3	-0.5
Gi2/2	0.8 ( 5.1)		3.4	3.2	-0.3	-0.5

  

Port	Optical Receive Power (dBm)		High Alarm Threshold (dBm)	High Warn Threshold (dBm)	Low Warn Threshold (dBm)	Low Alarm Threshold (dBm)
Gi2/1	N/A (-28.5)		5.9	-6.7	-28.5	-28.5
Gi2/2	N/A (-19.5)		5.9	-6.7	-28.5	-28.5

Switch#

This example shows how to display monitoring data for the transceivers on interface Gi1/2:

```
Switch# show interfaces g1/2 transceiver
ITU Channel 23 (1558.98 nm),
Transceiver is externally calibrated.
If device is externally calibrated, only calibrated values are printed.
++ : high alarm, + : high warning, - : low warning, -- : low alarm.
NA or N/A: not applicable, Tx: transmit, Rx: receive.
mA: milliamperes, dBm: decibels (milliwatts).
```

Port	Temperature (Celsius)	Voltage (Volts)	Current (mA)	Optical Tx Power (dBm)	Optical Rx Power (dBm)
Gi2/1	43.7	5.03	50.6 +	-16.7 --	N/A

Switch#

This example shows how to display detailed monitoring data for the transceivers on interface Gi1/2:

```
Switch# show interfaces g1/2 transceiver detail
ITU Channel 23 (1558.98 nm),
Transceiver is externally calibrated.
mA: milliamperes, dBm: decibels (milliwatts), NA or N/A: not applicable.
++ : high alarm, + : high warning, - : low warning, -- : low alarm.
A2D readouts (if they differ), are reported in parentheses.
The threshold values are calibrated.
```

Port	Temperature (Celsius)	High Alarm Threshold (Celsius)	High Warn Threshold (Celsius)	Low Warn Threshold (Celsius)	Low Alarm Threshold (Celsius)
Gi2/1	43.5	70.0	60.0	5.0	0.0

  

Port	Voltage (Volts)	High Alarm Threshold (Volts)	High Warn Threshold (Volts)	Low Warn Threshold (Volts)	Low Alarm Threshold (Volts)
Gi2/1	5.03	5.50	5.25	4.75	4.50

**show interfaces transceiver**

```

Port          Current          High Alarm    High Warn    Low Warn    Low Alarm
-----          (milliamperes) Threshold    Threshold    Threshold    Threshold
Gi2/1         50.6            +            60.0         40.0         10.0         5.0

Port          Optical          High Alarm    High Warn    Low Warn    Low Alarm
-----          Transmit Power  Threshold    Threshold    Threshold    Threshold
              (dBm)
Gi2/1         -16.7 (-13.0) -- 3.4          3.2          -0.3         -0.5

Port          Optical          High Alarm    High Warn    Low Warn    Low Alarm
-----          Receive Power  Threshold    Threshold    Threshold    Threshold
              (dBm)
Gi2/1         N/A (-28.5)    5.9          -6.7         -28.5        -28.5
Switch#

```

**Related Commands**

[show idprom](#)  
[show interfaces status](#)

# show interfaces trunk

To display port and module interface-trunk information, use the **show interfaces trunk** command.

```
show interfaces trunk [module mod]
```

Syntax Description	<b>module</b> <i>mod</i>	(Optional) Limits the display to interfaces on the specified module; valid values are from 1 to 6.
--------------------	--------------------------	--

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** If you do not specify a keyword, only information for trunking ports is displayed.

**Examples** This example shows how to display interface-trunk information for module 5:

```
Switch# show interfaces trunk module 5

Port      Mode      Encapsulation  Status      Native vlan
Fa5/1     routed    negotiate       routed      1
Fa5/2     routed    negotiate       routed      1
Fa5/3     routed    negotiate       routed      1
Fa5/4     routed    negotiate       routed      1
Fa5/5     routed    negotiate       routed      1
Fa5/6     off       negotiate       not-trunking 10
Fa5/7     off       negotiate       not-trunking 10
Fa5/8     off       negotiate       not-trunking 1
Fa5/9     desirable n-isl         trunking     1
Fa5/10    desirable negotiate       not-trunking 1
Fa5/11    routed    negotiate       routed      1
Fa5/12    routed    negotiate       routed      1
...
Fa5/48    routed    negotiate       routed      1

Port      Vlans allowed on trunk
Fa5/1     none
Fa5/2     none
Fa5/3     none
Fa5/4     none
Fa5/5     none
Fa5/6     none
Fa5/7     none
Fa5/8     200
Fa5/9     1-1005
```

■ **show interfaces trunk**

```

Fa5/10    none
Fa5/11    none
Fa5/12    none

Fa5/48    none

Port      Vlans allowed and active in management domain
Fa5/1     none
Fa5/2     none
Fa5/3     none
Fa5/4     none
Fa5/5     none
Fa5/6     none
Fa5/7     none
Fa5/8     200
Fa5/9     1-6,10,20,50,100,152,200,300,303-305,349-351,400,500,521,524,570,801-8
02,850,917,999,1002-1005
Fa5/10    none
Fa5/11    none
Fa5/12    none

Fa5/48    none

Port      Vlans in spanning tree forwarding state and not pruned
Fa5/1     none
Fa5/2     none
Fa5/3     none
Fa5/4     none
Fa5/5     none
Fa5/6     none
Fa5/7     none
Fa5/8     200
Fa5/9     1-6,10,20,50,100,152,200,300,303-305,349-351,400,500,521,524,570,801-8
02,850,917,999,1002-1005
Fa5/10    none
Fa5/11    none

Fa5/48    none
Switch#

```

This example shows how to display trunking information for active trunking ports:

Switch# **show interfaces trunk**

```

Port      Mode           Encapsulation  Status        Native vlan
Fa5/9     desirable     n-isl          trunking      1

Port      Vlans allowed on trunk
Fa5/9     1-1005

Port      Vlans allowed and active in management domain
Fa5/9     1-6,10,20,50,100,152,200,300,303-305,349-351,400,500,521,524,570,801-8
02,850,917,999,1002-1005

Port      Vlans in spanning tree forwarding state and not pruned
Fa5/9     1-6,10,20,50,100,152,200,300,303-305,349-351,400,500,521,524,570,801-8
02,850,917,999,1002-1005
Switch#

```



# show ip arp inspection

To show the status of dynamic ARP inspection for a specific range of VLANs, use the **show ip arp inspection** command.

```
show ip arp inspection {[statistics] vlan vlan-range | interfaces [interface-name]}
```

Syntax Description		
<b>statistics</b>	(Optional) Displays statistics for the following types of packets that have been processed by this feature: forwarded, dropped, MAC validation failure, and IP validation failure.	
<b>vlan</b> <i>vlan-range</i>	(Optional) When used with the <b>statistics</b> keyword, displays the statistics for the selected range of VLANs. Without the <b>statistics</b> keyword, displays the configuration and operating state of DAI for the selected range of VLANs.	
<b>interfaces</b> <i>interface-name</i>	(Optional) Displays the trust state and the rate limit of ARP packets for the provided interface. When the interface name is not specified, the command displays the trust state and rate limit for all applicable interfaces in the system.	

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(19)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display the statistics of packets that have been processed by DAI for VLAN 3:

```
Switch# show ip arp inspection statistics vlan 3

Vlan      Forwarded      Dropped      DHCP Drops      ACL Drops
-----
3         31753         102407         102407           0

Vlan      DHCP Permits    ACL Permits    Source MAC Failures
-----
3         31753           0              0

Vlan      Dest MAC Failures  IP Validation Failures
-----
3         0                 0

Switch#
```

## show ip arp inspection

This example shows how to display the statistics of packets that have been processed by DAI for all active VLANs:

```
Switch# show ip arp inspection statistics
```

Vlan	Forwarded	Dropped	DHCP Drops	ACL Drops
1	0	0	0	0
2	0	0	0	0
3	68322	220356	220356	0
4	0	0	0	0
100	0	0	0	0
101	0	0	0	0
1006	0	0	0	0
1007	0	0	0	0

Vlan	DHCP Permits	ACL Permits	Source MAC Failures
1	0	0	0
2	0	0	0
3	68322	0	0
4	0	0	0
100	0	0	0
101	0	0	0
1006	0	0	0
1007	0	0	0

Vlan	Dest MAC Failures	IP Validation Failures
1	0	0
2	0	0
3	0	0
4	0	0
100	0	0
101	0	0
1006	0	0
1007	0	0

```
Switch#
```

This example shows how to display the configuration and operating state of DAI for VLAN 1:

```
Switch# show ip arp inspection vlan 1
```

```
Source Mac Validation      : Disabled
Destination Mac Validation : Disabled
IP Address Validation      : Disabled
```

Vlan	Configuration	Operation	ACL Match	Static ACL
1	Enabled	Active		

Vlan	ACL Logging	DHCP Logging
1	Deny	Deny

```
Switch#
```

This example shows how to display the trust state of interface Fa6/3:

```
Switch# show ip arp inspection interfaces fastEthernet 6/3
```

Interface	Trust State	Rate (pps)	Burst Interval
Fa6/1	Untrusted	20	5

```
Switch#
```

This example shows how to display the trust state of the interfaces on the switch:

```
Switch# show ip arp inspection interfaces
Interface          Trust State      Rate (pps)
-----
Gi1/1              Untrusted       15
Gi1/2              Untrusted       15
Gi3/1              Untrusted       15
Gi3/2              Untrusted       15
Fa3/3              Trusted         None
Fa3/4              Untrusted       15
Fa3/5              Untrusted       15
Fa3/6              Untrusted       15
Fa3/7              Untrusted       15
Switch#
```

**Related Commands**

[arp access-list](#)  
[clear ip arp inspection log](#)  
[show ip arp inspection](#)

# show ip arp inspection log

To show the status of the log buffer, use the **show ip arp inspection log** command.

**show ip arp inspection log**

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

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(19)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display the current contents of the log buffer before and after the buffers are cleared:

```
Switch# show ip arp inspection log
Total Log Buffer Size : 10
Syslog rate : 0 entries per 10 seconds.
```

Interface	Vlan	Sender MAC	Sender IP	Num of Pkts
Fa6/3	1	0002.0002.0002	1.1.1.2	1(12:02:52 UTC Fri Apr 25 2003)
Fa6/3	1	0002.0002.0002	1.1.1.3	1(12:02:52 UTC Fri Apr 25 2003)
Fa6/3	1	0002.0002.0002	1.1.1.4	1(12:02:52 UTC Fri Apr 25 2003)
Fa6/3	1	0002.0002.0002	1.1.1.5	1(12:02:52 UTC Fri Apr 25 2003)
Fa6/3	1	0002.0002.0002	1.1.1.6	1(12:02:52 UTC Fri Apr 25 2003)
Fa6/3	1	0002.0002.0002	1.1.1.7	1(12:02:52 UTC Fri Apr 25 2003)
Fa6/3	1	0002.0002.0002	1.1.1.8	1(12:02:52 UTC Fri Apr 25 2003)
Fa6/3	1	0002.0002.0002	1.1.1.9	1(12:02:52 UTC Fri Apr 25 2003)
Fa6/3	1	0002.0002.0002	1.1.1.10	1(12:02:52 UTC Fri Apr 25 2003)
Fa6/3	1	0002.0002.0002	1.1.1.11	1(12:02:52 UTC Fri Apr 25 2003)
--	--	--	--	5(12:02:52 UTC Fri Apr 25 2003)

```
Switch#
```

This example shows how to clear the buffer with the **clear ip arp inspection log** command:

```
Switch# clear ip arp inspection log
Switch# show ip arp inspection log
Total Log Buffer Size : 10
Syslog rate : 0 entries per 10 seconds.
No entries in log buffer.
Switch#
```

**Related Commands** [arp access-list](#)  
[clear ip arp inspection log](#)

# show ip cef vlan

To view IP CEF VLAN interface status and configuration information and display the prefixes for a specific interface, use the **show ip cef vlan** command.

**show ip cef vlan** *vlan\_num* [**detail**]

## Syntax Description

<i>vlan_num</i>	Number of the VLAN.
<b>detail</b>	(Optional) Displays detailed information.

## Defaults

This command has no default settings.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

## Examples

This example shows how to display the prefixes for a specific VLAN:

```
Switch# show ip cef vlan 1003
Prefix          Next Hop          Interface
0.0.0.0/0       172.20.52.1       FastEthernet3/3
0.0.0.0/32      receive
10.7.0.0/16     172.20.52.1       FastEthernet3/3
10.16.18.0/23   172.20.52.1       FastEthernet3/3
Switch#
```

This example shows how to display detailed IP CEF information for a specific VLAN:

```
Switch# show ip cef vlan 1003 detail
IP Distributed CEF with switching (Table Version 2364), flags=0x0
 1383 routes, 0 reresolve, 0 unresolved (0 old, 0 new)
 1383 leaves, 201 nodes, 380532 bytes, 2372 inserts, 989 invalidations
 0 load sharing elements, 0 bytes, 0 references
 universal per-destination load sharing algorithm, id 9B6C9823
 3 CEF resets, 0 revisions of existing leaves
 refcounts: 54276 leaf, 51712 node

Adjacency Table has 5 adjacencies
Switch#
```

# show ip dhcp snooping

To display the DHCP snooping configuration, use the **show ip dhcp snooping** command.

**show ip dhcp snooping**

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

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(12c)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display the DHCP snooping configuration:

```
Switch# show ip dhcp snooping
Switch DHCP snooping is enabled
DHCP snooping is configured on following VLANs:
5 10
Insertion of option 82 is enabled
Interface           Trusted      Rate limit (pps)
-----
FastEthernet6/11    no          10
FastEthernet6/36    yes         50
Switch#
```

**Related Commands**

- [ip dhcp snooping](#)
- [ip dhcp snooping information option](#)
- [ip dhcp snooping limit rate](#)
- [ip dhcp snooping trust](#)
- [ip dhcp snooping vlan](#)

# show ip dhcp snooping binding

To display DHCP snooping binding entries, use the **show ip dhcp snooping binding** command.

```
show ip dhcp snooping binding [ip-address] [mac-address] [vlan vlan_num]
[interface interface_num]
```

Syntax Description		
<i>ip-address</i>	(Optional)	Specifies the binding entries IP address.
<i>mac-address</i>	(Optional)	Specifies the binding entries MAC address.
<b>vlan</b> <i>vlan_num</i>	(Optional)	Specifies a VLAN.
<b>interface</b> <i>interface_num</i>	(Optional)	Specifies an interface.

**Defaults** If no argument is specified the switch will display the entire DHCP snooping binding table.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(12c)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** DHCP snooping is enabled on a VLAN only if both the global snooping and the VLAN snooping are enabled.

To configure a range of VLANs, use the optional *last\_vlan* variable to specify the end of the VLAN range.

**Examples** This example shows how to display the DHCP snooping binding entries for a switch:

```
Switch# show ip dhcp snooping binding
```

```
MacAddress      IP Address      Lease (seconds)  Type              VLAN      Interface
-----
0000.0100.0201  10.0.0.1        1600             dhcp-snooping     100       FastEthernet3/1
Switch#
```

This example shows how to display a DHCP snooping binding entries IP address:

```
Switch# show ip dhcp snooping binding 172.100.101.102
```

```
MacAddress      IP Address      Lease (seconds)  Type              VLAN      Interface
-----
0000.0100.0201  172.100.101.102  1600             dhcp-snooping     100       FastEthernet3/1
Switch#
```

## show ip dhcp snooping binding

This example shows how to display the DHCP snooping binding entries MAC address:

```
Switch# show ip dhcp snooping binding 55.5.5.2 0002.b33f.3d5f
```

MacAddress	IpAddress	Lease(sec)	Type	VLAN	Interface
00:02:B3:3F:3D:5F	55.5.5.2	492	dhcp-snooping	99	FastEthernet6/36

This example shows how to display the DHCP snooping binding entries MAC address for a specific VLAN:

```
Switch# show ip dhcp snooping binding 55.5.5.2 0002.b33f.3d5f vlan 99
```

MacAddress	IpAddress	Lease(sec)	Type	VLAN	Interface
00:02:B3:3F:3D:5F	55.5.5.2	479	dhcp-snooping	99	FastEthernet6/36

This example shows how to display dynamic DHCP snooping binding entries:

```
Switch# show ip dhcp snooping binding dynamic
```

MacAddress	IP Address	Lease (seconds)	Type	VLAN	Interface
0000.0100.0201	10.0.0.1	1600	dhcp-snooping	100	FastEthernet3/1

This example shows how to display DHCP snooping binding entries on VLAN 100:

```
Switch# show ip dhcp snooping binding vlan 100'
```

MacAddress	IP Address	Lease (seconds)	Type	VLAN	Interface
0000.0100.0201	10.0.0.1	1600	dhcp-snooping	100	FastEthernet3/1

This example shows how to display DHCP snooping binding entries on Ethernet interface 0/1:

```
Switch# show ip dhcp snooping binding interface FastEthernet3/1
```

MacAddress	IP Address	Lease (seconds)	Type	VLAN	Interface
0000.0100.0201	10.0.0.1	1600	dhcp-snooping	100	FastEthernet3/1

Table 2-15 describes the fields in the `show ip dhcp snooping` command output.

**Table 2-15 show ip dhcp snooping Command Output**

Field	Description
Mac Address	Client hardware MAC address
IP Address	Client IP address assigned from the DHCP server
Lease (seconds)	IP address lease time
Type	Binding type; statically configured from CLI or dynamically learned
VLAN	VLAN number of the client interface
Interface	Interface that connects to the DHCP client host



**Related Commands**

[ip dhcp snooping information option](#)  
[ip dhcp snooping limit rate](#)  
[ip dhcp snooping trust](#)  
[ip igmp snooping](#)  
[ip igmp snooping vlan](#)

# show ip dhcp snooping database

To display the status of DHCP snooping database agent, use the **show ip dhcp snooping database** command.

## show ip dhcp snooping database [detail]

<b>Syntax Description</b>	<b>detail</b> (Optional) Provides additional operating state and statistics information.						
<b>Defaults</b>	This command has no default settings.						
<b>Command Modes</b>	Privileged EXEC						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>12.1(12c)EW</td> <td>Support for this command was introduced on the Catalyst 4500 series switch.</td> </tr> <tr> <td>12.1(19)EW</td> <td>Added support of state and statistics information.</td> </tr> </tbody> </table>	Release	Modification	12.1(12c)EW	Support for this command was introduced on the Catalyst 4500 series switch.	12.1(19)EW	Added support of state and statistics information.
Release	Modification						
12.1(12c)EW	Support for this command was introduced on the Catalyst 4500 series switch.						
12.1(19)EW	Added support of state and statistics information.						

## Examples

This example shows how to display the DHCP snooping database:

```
Switch# show ip dhcp snooping database
Agent URL :
Write delay Timer : 300 seconds
Abort Timer : 300 seconds

Agent Running : No
Delay Timer Expiry : Not Running
Abort Timer Expiry : Not Running

Last Succeeded Time : None
Last Failed Time : None
Last Failed Reason : No failure recorded.

Total Attempts      :          0   Startup Failures :          0
Successful Transfers :          0   Failed Transfers :          0
Successful Reads    :          0   Failed Reads     :          0
Successful Writes   :          0   Failed Writes    :          0
Media Failures      :          0

Switch#
```

This example shows how to view additional operating statistics:

```
Switch# show ip dhcp snooping database detail
Agent URL : tftp://10.1.1.1/directory/file
Write delay Timer : 300 seconds
Abort Timer : 300 seconds

Agent Running : No
Delay Timer Expiry : 7 (00:00:07)
Abort Timer Expiry : Not Running
```

```
Last Succeeded Time : None
Last Failed Time : 17:14:25 UTC Sat Jul 7 2001
Last Failed Reason : Unable to access URL.

Total Attempts      :          21  Startup Failures :          0
Successful Transfers :          0  Failed Transfers :         21
Successful Reads    :          0  Failed Reads     :          0
Successful Writes   :          0  Failed Writes    :         21
Media Failures      :          0

First successful access: Read

Last ignored bindings counters :
Binding Collisions   :          0  Expired leases    :          0
Invalid interfaces   :          0  Unsupported vlans :          0
Parse failures       :          0

Last Ignored Time : None

Total ignored bindings counters:
Binding Collisions   :          0  Expired leases    :          0
Invalid interfaces   :          0  Unsupported vlans :          0
Parse failures       :          0

Switch#
```

**Related Commands**

[ip dhcp snooping](#)  
[ip dhcp snooping database](#)  
[ip dhcp snooping information option](#)  
[ip dhcp snooping limit rate](#)  
[ip dhcp snooping trust](#)  
[ip dhcp snooping vlan](#)

# show ip igmp interface

To view IP IGMP interface status and configuration information, use the **show ip igmp interface** command.

```
show ip igmp interface [FastEthernet slot/port | GigabitEthernet slot/port |
null interface-number | vlan vlan_id]
```

Syntax Description		
<b>FastEthernet</b> <i>slot/port</i>	(Optional) Specifies the Fast Ethernet interface and the number of the slot and port.	
<b>GigabitEthernet</b> <i>slot/port</i>	(Optional) Specifies the Gigabit Ethernet interface and the number of the slot and port; valid values are from 1 to 9.	
<b>null</b> <i>interface-number</i>	(Optional) Specifies the null interface and the number of the interface; the only valid value is <b>0</b> .	
<b>vlan</b> <i>vlan_id</i>	(Optional) Specifies the VLAN and the number of the VLAN; valid values are from 1 to 4094.	

**Defaults** If you do not specify a VLAN, information for VLAN 1 is shown.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(12c)EW	Added support for extended VLAN addresses.

**Usage Guidelines** If you omit the optional arguments, the **show ip igmp interface** command displays information about all interfaces.

**Examples** This example shows how to view IGMP information for VLAN 200:

```
Switch# show ip igmp interface vlan 200
IGMP snooping is globally enabled
IGMP snooping is enabled on this Vlan
IGMP snooping immediate-leave is disabled on this Vlan
IGMP snooping mrouter learn mode is pim-dvmrp on this Vlan
IGMP snooping is running in IGMP-ONLY mode on this VLAN
Switch#
```

**Related Commands** [clear ip igmp group](#)  
[show ip igmp snooping mrouter](#)

# show ip igmp profile

To view all configured IGMP profiles or a specified IGMP profile, use the **show ip igmp profile** privileged EXEC command.

```
show ip igmp profile [profile number]
```

<b>Syntax Description</b>	<i>profile number</i> (Optional) IGMP profile number to be displayed; valid ranges are from 1 to 4294967295.
---------------------------	--

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	12.1(11b)EW	Support for this command was introduced on the Catalyst 4500 series switch.

<b>Usage Guidelines</b>	If no profile number is entered, all IGMP profiles are displayed.
-------------------------	---

<b>Examples</b>	This example shows how to display IGMP profile 40:
-----------------	--

```
Switch# show ip igmp profile 40
IGMP Profile 40
  permit
  range 233.1.1.1 233.255.255.255
Switch#
```

This example shows how to display all IGMP profiles:

```
Switch# show ip igmp profile
IGMP Profile 3
  range 230.9.9.0 230.9.9.0
IGMP Profile 4
  permit
  range 229.9.9.0 229.255.255.255
Switch#
```

<b>Related Commands</b>	<a href="#">ip igmp profile</a>
-------------------------	---------------------------------

# show ip igmp snooping

To display information on dynamically learned and manually configured VLAN switch interfaces, use the **show ip igmp snooping** command.

```
show ip igmp snooping [querier | group | mrouter] [vlan vlan_id] a.b.c.d [summary | sources |
hosts] [count]
```

Syntax Description	
<b>querier</b>	(Optional) Specifies that the display will contain IP address and version information.
<b>group</b>	(Optional) Specifies that the display will list VLAN members sorted by group IP address.
<b>mrouter</b>	(Optional) Specifies that the display will contain information on dynamically learned and manually configured multicast switch interfaces.
<b>vlan <i>vlan_id</i></b>	(Optional) Specifies a VLAN; valid values are from 1 to 1001 and from 1006 to 4094.
<b><i>a.b.c.d</i></b>	(Optional) Specifies a group address.
<b>summary</b>	(Optional) Specifies a display of detailed information for a v2 or v3 group.
<b>sources</b>	(Optional) Specifies a list of the source IPs for the specified group.
<b>hosts</b>	(Optional) Specifies a list of the host IPs for the specified group.
<b>count</b>	(Optional) Specifies a display of the total number of group addresses learned by the system on a global or per-VLAN basis.

**Defaults** This command has no default settings.

**Command Modes** EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(19)EW	Support for extended addressing was added.
	12.1(20)EW	Added support to display configuration state for IGMPv3 explicit host tracking.

**Usage Guidelines** You can also use the **show mac-address-table multicast** command to display entries in the MAC address table for a VLAN that has IGMP snooping enabled.

You can display IGMP snooping information for VLAN interfaces by entering the **show ip igmp snooping** command.

**Examples**

This example shows how to display the global snooping information on the switch:

```
Switch> show ip igmp snooping
Global IGMP Snooping configuration:
-----
IGMP snooping           : Enabled
IGMPv3 snooping        : Enabled
Report suppression     : Enabled
TCN solicit query      : Disabled
TCN flood query count  : 2

Vlan 1:
-----
IGMP snooping           : Enabled
IGMPv2 immediate leave : Disabled
Explicit host tracking  : Enabled
Multicast router learning mode : pim-dvmrp
CGMP interoperability mode : IGMP_ONLY

Vlan 2:
-----
IGMP snooping           : Enabled
IGMPv2 immediate leave : Disabled
Explicit host tracking  : Enabled
Multicast router learning mode : pim-dvmrp
CGMP interoperability mode : IGMP_ONLY
Switch>
```

This example shows how to display the snooping information on VLAN 2:

```
Switch> show ip igmp snooping vlan 2
Global IGMP Snooping configuration:
-----
IGMP snooping           : Enabled
IGMPv3 snooping        : Enabled
Report suppression     : Enabled
TCN solicit query      : Disabled
TCN flood query count  : 2

Vlan 2:
-----
IGMP snooping           : Enabled
IGMPv2 immediate leave : Disabled
Explicit host tracking  : Enabled
Multicast router learning mode : pim-dvmrp
CGMP interoperability mode : IGMP_ONLY
Switch>
```

This example shows how to display IGMP querier information for all VLANs on a switch:

```
Switch# show ip igmp snooping querier
Vlan      IP Address      IGMP Version      Port
-----
2         10.10.10.1     v2                 Router
3         172.20.50.22  v3                 Fa3/15
Switch>
```

## show ip igmp snooping

This example shows how to display IGMP querier information for VLAN 5 when running IGMPv2:

```
Switch# show ip igmp snooping querier vlan 5
IP address          :5.5.5.10
IGMP version        :v2
Port                :Fa3/1
Max response time   :10s
Switch>
```

This example shows how to display IGMP querier information for VLAN 5 when running IGMPv3:

```
Switch# show ip igmp snooping querier vlan 5
IP address          :5.5.5.10
IGMP version        :v3
Port                :Fa3/1
Max response time   :10s
Query interval      :60s
Robustness variable :2
Switch>
```

This example shows how to display snooping information for a specific group:

```
Switch# show ip igmp snooping group

Vlan      Group          Version  Ports
-----
2         224.0.1.40      v3       Router
2         224.2.2.2       v3       Fa6/2
Switch>
```

This example shows how to display the group's host types and ports in VLAN 1:

```
Switch# show ip igmp snooping group vlan 1

Vlan      Group          Host Type  Ports
-----
1         229.2.3.4      v3         fa2/1 fa2/3
1         224.2.2.2      v3         Fa6/2
Switch>
```

This example shows how to display the group's host types and ports in VLAN 1:

```
Switch# show ip igmp snooping group vlan 10 226.6.6.7

Vlan      Group          Version  Ports
-----
10        226.6.6.7      v3       Fa7/13, Fa7/14
Switch>
```

This example shows how to display the current state of a group with respect to a source IP address:

```
Switch# show ip igmp snooping group vlan 10 226.6.6.7 sources
Source information for group 226.6.6.7:
Timers: Expired sources are deleted on next IGMP General Query

SourceIP      Expires      Uptime      Inc Hosts  Exc Hosts
-----
2.0.0.1       00:03:04    00:03:48    2          0
2.0.0.2       00:03:04    00:02:07    2          0
Switch>
```



This example shows how to display the current state of a group with respect to a host MAC address:

```
Switch# show ip igmp snooping group vlan 10 226.6.6.7 hosts
IGMPv3 host information for group 226.6.6.7
Timers: Expired hosts are deleted on next IGMP General Query

Host (MAC/IP)  Filter mode    Expires    Uptime     # Sources
-----
175.1.0.29     INCLUDE      stopped    00:00:51   2
175.2.0.30     INCLUDE      stopped    00:04:14   2
Switch>
```

This example shows how to display summary information for a v3 group:

```
Switch# show ip igmp snooping group vlan 10 226.6.6.7 summary
Group Address (Vlan 10)      : 226.6.6.7
Host type                    : v3
Member Ports                 : Fa7/13, Fa7/14
Filter mode                  : INCLUDE
Expires                      : stopped
Sources                      : 2
Reporters (Include/Exclude) : 2/0
Switch>
```

This example shows how to display multicast router information for VLAN 1:

```
Switch# show ip igmp snooping mrouter vlan 1
vlan          ports
-----+-----
1            Gi1/1,Gi2/1,Fa3/48,Router
Switch#
```

This example shows how to display the total number of group addresses learned by the system globally:

```
Switch# show ip igmp snooping group count
Total number of groups: 54
Switch>
```

This example shows how to display the total number of group addresses learned on VLAN 5:

```
Switch# show ip igmp snooping group vlan 5 count
Total number of groups: 30
Switch>
```

## Related Commands

- [ip igmp snooping](#)
- [ip igmp snooping vlan immediate-leave](#)
- [ip igmp snooping vlan mrouter](#)
- [ip igmp snooping vlan static](#)
- [show ip igmp interface](#)
- [show ip igmp snooping mrouter](#)
- [show mac-address-table multicast](#)

# show ip igmp snooping membership

To display host membership information, use the **show ip igmp snooping membership** command.

```
show ip igmp snooping membership [interface interface_num] [vlan vlan_id]
[reporter a.b.c.d] [source a.b.c.d group a.b.c.d]
```

Syntax Description	
<b>interface</b> <i>interface_num</i>	(Optional) Displays IP address and version information of an interface.
<b>vlan</b> <i>vlan_id</i>	(Optional) Displays VLAN members sorted by group IP address of a VLAN; valid values are from 1 to 1001 and from 1006 to 4094.
<b>reporter</b> <i>a.b.c.d</i>	(Optional) Displays membership information for a specified reporter.
<b>source</b> <i>a.b.c.d</i>	(Optional) Specifies a reporter, source, or group IP address.
<b>group</b> <i>a.b.c.d</i>	(Optional) Displays all members of a channel (source, group), sorted by interface or VLAN.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(20)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** This command is valid only if explicit host tracking is enabled on the switch.

**Examples** This example shows how to display host membership for interface gi4/1:

```
Switch# show ip igmp snooping membership interface gi4/1
#channels: 5
#hosts : 1
Source/Group Interface Reporter Uptime Last-Join Last-Leave

40.40.40.2/224.10.10.10 Gi4/1 20.20.20.20 00:23:37 00:06:50 00:20:30
40.40.40.4/224.10.10.10Gi4/1 20.20.20.20 00:39:42 00:09:17 -
Switch#
```

This example shows how to display host membership for VLAN 20 and group 224.10.10.10:

```
Switch# show ip igmp snooping membership vlan 20 source 40.40.40.2 group 224.10.10.10
#channels: 5
#hosts : 1
Source/Group Interface Reporter Uptime Last-Join Last-Leave

40.40.40.2/224.10.10.10 Gi4/1 20.20.20.20 00:23:37 00:06:50 00:20:30
Switch#
```

This example shows how to display host membership information for VLAN 20 and to delete the explicit host tracking:

```
Switch# show ip igmp snooping membership vlan 20
Snooping Membership Summary for Vlan 20
-----
Total number of channels:5
Total number of hosts   :4

Source/Group                Interface  Reporter          Uptime   Last-Join/
-----
40.0.0.1/224.1.1.1          Fa7/37    0002.4ba0.a4f6    00:00:04 00:00:04 /
                               -
40.0.0.2/224.1.1.1          Fa7/37    0002.fd80.f770    00:00:17 00:00:17 /
                               -
40.0.0.3/224.1.1.1          Fa7/36    20.20.20.20       00:00:04 00:00:04 /
                               -
40.0.0.4/224.1.1.1          Fa7/35    20.20.20.210     00:00:17 00:00:17 /
                               -
40.0.0.5/224.1.1.1          Fa7/37    0002.fd80.f770    00:00:17 00:00:17 /
                               -

Switch# clear ip igmp snooping membership vlan 20
Switch#
```

#### Related Commands

[clear ip igmp snooping membership](#)  
[ip igmp snooping vlan explicit-tracking](#)  
[show ip igmp snooping vlan](#)

# show ip igmp snooping mrouter

To display information on dynamically learned and manually configured multicast switch interfaces, use the **show ip igmp snooping mrouter** command.

```
show ip igmp snooping mrouter [{vlan vlan-id}]
```

<b>Syntax Description</b>	<b>vlan <i>vlan-id</i></b> (Optional) Specifies a VLAN; valid values are from 1 to 1001 and from 1006 to 4094.
---------------------------	--

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(19)EW	Added support for extended VLAN addresses.

<b>Usage Guidelines</b>	<p>You can also use the <a href="#">show mac-address-table multicast</a> command to display entries in the MAC address table for a VLAN that has IGMP snooping enabled.</p> <p>You can display IGMP snooping information for VLAN interfaces by entering the <b>show ip igmp interface vlan <i>vlan-num</i></b> command.</p>
-------------------------	--

<b>Examples</b>	This example shows how to display snooping information for a specific VLAN:
-----------------	---

```
Switch# show ip igmp snooping mrouter vlan 1
vlan                ports
-----+-----
 1                Gi1/1,Gi2/1,Fa3/48,Switch
Switch#
```

<b>Related Commands</b>	<a href="#">ip igmp snooping vlan mrouter</a> <a href="#">show ip igmp interface</a> <a href="#">show mac-address-table multicast</a>
-------------------------	---

# show ip igmp snooping vlan

To display information on dynamically learned and manually configured VLAN switch interfaces, use the **show ip igmp snooping vlan** command.

```
show ip igmp snooping vlan vlan_num
```

<b>Syntax Description</b>	<i>vlan_num</i> Number of the VLAN; valid values are from 1 to 1001 and from 1006 to 4094.
---------------------------	--

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(12c)EW	Support for extended addressing was added.

<b>Usage Guidelines</b>	You can also use the <a href="#">show mac-address-table multicast</a> command to display entries in the MAC address table for a VLAN that has IGMP snooping enabled.
-------------------------	--

<b>Examples</b>	This example shows how to display snooping information for a specific VLAN:
-----------------	---

```
Switch# show ip igmp snooping vlan 2
vlan 2
-----
IGMP snooping is globally enabled
IGMP snooping TCN solicit query is globally enabled
IGMP snooping global TCN flood query count is 2
IGMP snooping is enabled on this Vlan
IGMP snooping immediate-leave is disabled on this Vlan
IGMP snooping mrouter learn mode is pim-dvmrp on this Vlan
IGMP snooping is running in IGMP_ONLY mode on this Vlan
Switch#
```

<b>Related Commands</b>	<a href="#">ip igmp snooping</a> <a href="#">ip igmp snooping vlan immediate-leave</a> <a href="#">ip igmp snooping vlan mrouter</a> <a href="#">ip igmp snooping vlan static</a> <a href="#">show ip igmp interface</a> <a href="#">show ip igmp snooping mrouter</a> <a href="#">show mac-address-table multicast</a>
-------------------------	---

# show ip mfib

To display all active Multicast Forwarding Information Base (MFIB) routes, use the **show ip mfib** command.

```
show ip mfib [all | counters | log [n]]
```

## Syntax Description

<b>all</b>	(Optional) Specifies all routes in the MFIB, including those routes that are used to accelerate fast switching but that are not necessarily in the upper-layer routing protocol table.
<b>counters</b>	(Optional) Specifies the counts of MFIB-related events. Only non-zero counters are shown.
<b>log</b>	(Optional) Specifies a log of the most recent number of MFIB-related events. The most recent event is first.
<b>n</b>	(Optional) Specifies the number of events.

## Defaults

This command has no default settings.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

## Usage Guidelines

The MFIB table contains a set of IP multicast routes; each route in the MFIB table contains several flags that associate to the route.

The route flags indicate how a packet that matches a route is forwarded. For example, the IC flag on an MFIB route indicates that some process on the switch needs to receive a copy of the packet. The following flags are associated with MFIB routes:

- Internal Copy (IC) flag—Set on a route when a process on the switch needs to receive a copy of all packets matching the specified route.
- Signaling (S) flag—Set on a route when a switch process needs notification that a packet matching the route is received. In the expected behavior, the protocol code updates the MFIB state in response to having received a packet on a signaling interface.
- Connected (C) flag—When set on a route, the C flag has the same meaning as the S flag, except that the C flag indicates that only packets sent by directly connected hosts to the route should be signaled to a protocol process.

A route can also have a set of flags associated with one or more interfaces. For an (S,G) route, the flags on interface 1 indicate how ingress packets should be treated and whether packets matching the route should be forwarded onto interface 1. The following per-interface flags are associated with MFIB routes:

- Accepting (A)—Set on the RPF interface when a packet that arrives on the interface and that is marked as Accepting (A) is forwarded to all Forwarding (F) interfaces.

- Forwarding (F)—Used in conjunction with the A flag as described above. The set of forwarding interfaces together form a multicast list or output interface list.
- Signaling (S)—Set on an interface when a multicast routing protocol process in Cisco IOS needs to be notified of ingress packets on that interface.
- Not Platform (NP) fast-switched—Used in conjunction with the F flag. A forwarding interface is also marked as Not Platform fast-switched whenever that output interface cannot be fast-switched by the platform hardware and requires software forwarding.

For example, the Catalyst 4006 switch with Supervisor Engine III cannot switch tunnel interfaces in hardware so these interfaces are marked with the NP flag. When an NP interface is associated with a route, a copy of every ingress packet arriving on an Accepting interface is sent to the switch software forwarding path for software replication and then forwarded to the NP interface.

## Examples

This example shows how to display all active MFIB routes:

```
Switch# show ip mfib
IP Multicast Forwarding Information Base
Entry Flags: C - Directly Connected, S - Signal,
             IC - Internal Copy
Interface Flags: A - Accept, F - Forward, NS - Signal,
                NP - Not platform switched
Packets: Fast/Partial/Slow Bytes: Fast/Partial/Slow:
(171.69.10.13, 224.0.1.40), flags (IC)
  Packets: 2292/2292/0, Bytes: 518803/0/518803
  Vlan7 (A)
  Vlan100 (F NS)
  Vlan105 (F NS)
(*, 224.0.1.60), flags ()
  Packets: 2292/0/0, Bytes: 518803/0/0
  Vlan7 (A NS)
(*, 224.0.1.75), flags ()
  Vlan7 (A NS)
(10.34.2.92, 239.192.128.80), flags ()
  Packets: 24579/100/0, 2113788/15000/0 bytes
  Vlan7 (F NS)
  Vlan100 (A)
(*, 239.193.100.70), flags ()
  Packets: 1/0/0, 1500/0/0 bytes
  Vlan7 (A)
Switch#
```

## Related Commands

[clear ip mfib counters](#)

# show ip mfib fastdrop

To show all currently active fast drop entries and to show whether fast drop is enabled, use the **show ip mfib fastdrop** command.

**show ip mfib fastdrop**

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

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display all currently active fast drop entries and whether fast drop is enabled.

```
Switch# show ip mfib fastdrop
MFIB fastdrop is enabled.
MFIB fast-dropped flows:
(10.0.0.1, 224.1.2.3, Vlan9 ) 00:01:32
(10.1.0.2, 224.1.2.3, Vlan9 ) 00:02:30
(1.2.3.4, 225.6.7.8, Vlan3) 00:01:50
Switch#
```

**Related Commands** [clear ip mfib fastdrop](#)



# show ip mroute

To display IP multicast routing table information, use the **show ip mroute** command.

```
show ip mroute [interface_type slot/port | host_name | host_address [source] | active [kbps | interface_type num] | count | pruned | static | summary]
```

Syntax Description	
<i>interface_type slot/port</i>	(Optional) Interface type and number of the slot and port; valid values for <i>interface type</i> are <b>FastEthernet</b> , <b>GigabitEthernet</b> , <b>null</b> , and <b>vlan</b> .
<i>host_name</i>	(Optional) Name or IP address as defined in the DNS hosts table.
<i>host_address source</i>	(Optional) IP address or name of a multicast source.
<b>active</b>	(Optional) Displays the rate that active sources are sending to multicast groups.
<i>kbps interface_type num</i>	(Optional) Minimum rate at which active sources are sending to multicast groups; active sources sending at this rate or greater will be displayed. Valid values are from 1 to 4294967295 kbps.
<b>count</b>	(Optional) Displays route and packet count information.
<b>pruned</b>	(Optional) Displays pruned routes.
<b>static</b>	(Optional) Displays static multicast routes.
<b>summary</b>	(Optional) Displays a one-line, abbreviated summary of each entry in the IP multicast routing table.

## Defaults

This command has no default settings.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

## Usage Guidelines

If you omit all optional arguments and keywords, the **show ip mroute** command displays all entries in the IP multicast routing table.

The **show ip mroute active kbps** command displays all sources sending at a rate greater than or equal to *kbps*.

The multicast routing table is populated by creating source, group (S,G) entries from star, group (\*,G) entries. The star refers to all source addresses, the “S” refers to a single source address, and the “G” is the destination multicast group address. In creating (S,G) entries, the software uses the best path to that destination group found in the unicast routing table (that is, through Reverse Path Forwarding (RPF)).

**Examples**

This example shows how to display all entries in the IP multicast routing table:

```
Switch# show ip mroute

IP Multicast Routing Table
Flags:D - Dense, S - Sparse, s - SSM Group, C - Connected, L - Local,
      P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
      J - Join SPT, M - MSDP created entry, X - Proxy Join Timer Running
      A - Advertised via MSDP, U - URD, I - Received Source Specific Host
      Report
Outgoing interface flags:H - Hardware switched
Timers:Uptime/Expires
Interface state:Interface, Next-Hop or VCD, State/Mode

(*, 230.13.13.1), 00:16:41/00:00:00, RP 10.15.1.20, flags:SJC
  Incoming interface:GigabitEthernet4/8, RPF nbr 10.15.1.20
  Outgoing interface list:

GigabitEthernet4/9, Forward/Sparse-Dense, 00:16:41/00:00:00, H

(*, 230.13.13.2), 00:16:41/00:00:00, RP 10.15.1.20, flags:SJC

  Incoming interface:GigabitEthernet4/8, RPF nbr 10.15.1.20, RPF-MFD
  Outgoing interface list:
    GigabitEthernet4/9, Forward/Sparse-Dense, 00:16:41/00:00:00, H

(10.20.1.15, 230.13.13.1), 00:14:31/00:01:40, flags:CJT

  Incoming interface:GigabitEthernet4/8, RPF nbr 10.15.1.20, RPF-MFD
  Outgoing interface list:
    GigabitEthernet4/9, Forward/Sparse-Dense, 00:14:31/00:00:00, H
(132.206.72.28, 224.2.136.89), 00:14:31/00:01:40, flags:CJT
  Incoming interface:GigabitEthernet4/8, RPF nbr 10.15.1.20, RPF-MFD

  Outgoing interface list:Null
Switch#
```

This example shows how to display the rate that active sources are sending to multicast groups and to display only active sources sending at greater than the default rate:

```
Switch# show ip mroute active

Active IP Multicast Sources - sending > = 4 kbps

Group: 224.2.127.254, (sdr.cisco.com)
  Source: 146.137.28.69 (mbone.ipd.anl.gov)
  Rate: 1 pps/4 kbps(1sec), 4 kbps(last 1 secs), 4 kbps(life avg)

Group: 224.2.201.241, ACM 97
  Source: 130.129.52.160 (webcast3-e1.acm97.interop.net)
  Rate: 9 pps/93 kbps(1sec), 145 kbps(last 20 secs), 85 kbps(life avg)

Group: 224.2.207.215, ACM 97
  Source: 130.129.52.160 (webcast3-e1.acm97.interop.net)
  Rate: 3 pps/31 kbps(1sec), 63 kbps(last 19 secs), 65 kbps(life avg)
Switch#
```

This example shows how to display route and packet count information:

```
Switch# show ip mroute count

IP Multicast Statistics
56 routes using 28552 bytes of memory
13 groups, 3.30 average sources per group
Forwarding Counts: Pkt Count/Pkts per second/Avg Pkt Size/Kilobits per second
```

```

Other counts:Total/RPF failed/Other drops(OIF-null, rate-limit etc)

Group:224.2.136.89, Source count:1, Group pkt count:29051
  Source:132.206.72.28/32, Forwarding:29051/-278/1186/0, Other:85724/8/56665
Switch#

```

This example shows how to display summary information:

```

Switch# show ip mroute summary
IP Multicast Routing Table
Flags: D - Dense, S - Sparse, s - SSM Group, C - Connected, L - Local,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT, M - MSDP created entry, X - Proxy Join Timer Running
       A - Advertised via MSDP, U - URD, I - Received Source Specific Host
       Report
Outgoing interface flags: H - Hardware switched
Timers: Uptime/Expires
Interface state: Interface, Next-Hop or VCD, State/Mode

Switch#

```

Table 2-16 describes the fields shown in the output.

**Table 2-16** show ip mroute Field Descriptions

Field	Description
Flags:	Information about the entry.
D - Dense	Entry is operating in dense mode.
S - Sparse	Entry is operating in sparse mode.
s - SSM Group	Entry is a member of an SSM group.
C - Connected	Member of the multicast group is present on the directly connected interface.
L - Local	Switch itself is a member of the multicast group.
P - Pruned	Route has been pruned. This information is retained in case a downstream member wants to join the source.
R - Rp-bit set	Status of the (S,G) entry; is the (S,G) entry pointing toward the RP. The R - Rp-bit set is typically a prune state along the shared tree for a particular source.
F - Register flag	Status of the software; is the software registered for a multicast source.
T - SPT-bit set	Status of the packets; have the packets been received on the shortest path source tree.

Table 2-16 show ip mroute Field Descriptions (continued)

Field	Description
J - Join SPT	<p>For (*, G) entries, indicates that the rate of traffic flowing down the shared tree is exceeding the SPT-Threshold set for the group. (The default SPT-Threshold setting is 0 kbps.) When the J - Join SPT flag is set, the next (S,G) packet received down the shared tree triggers an (S,G) join in the direction of the source causing the switch to join the source tree.</p> <p>For (S, G) entries, indicates that the entry was created because the SPT-Threshold for the group was exceeded. When the J - Join SPT flag is set for (S,G) entries, the switch monitors the traffic rate on the source tree and attempts to switch back to the shared tree for this source if the traffic rate on the source tree falls below the group's SPT-Threshold for more than one minute.</p> <p>The switch measures the traffic rate on the shared tree and compares the measured rate to the group's SPT-Threshold once every second. If the traffic rate exceeds the SPT-Threshold, the J- Join SPT flag is set on the (*, G) entry until the next measurement of the traffic rate. The flag is cleared when the next packet arrives on the shared tree and a new measurement interval is started.</p> <p>If the default SPT-Threshold value of 0 Kbps is used for the group, the J- Join SPT flag is always set on (*, G) entries and is never cleared. When the default SPT-Threshold value is used, the switch immediately switches to the shortest-path tree when traffic from a new source is received.</p>
Outgoing interface flag:	Information about the outgoing entry.
H - Hardware switched	Entry is hardware switched.
Timer:	Uptime/Expires.
Interface state:	Interface, Next-Hop or VCD, State/Mode.
(*, 224.0.255.1) (198.92.37.100/32, 224.0.255.1)	<p>Entry in the IP multicast routing table. The entry consists of the IP address of the source switch followed by the IP address of the multicast group. An asterisk (*) in place of the source switch indicates all sources.</p> <p>Entries in the first format are referred to as (*,G) or "star comma G" entries. Entries in the second format are referred to as (S,G) or "S comma G" entries. (*,G) entries are used to build (S,G) entries.</p>
uptime	How long (in hours, minutes, and seconds) the entry has been in the IP multicast routing table.
expires	How long (in hours, minutes, and seconds) until the entry is removed from the IP multicast routing table on the outgoing interface.

**Table 2-16** show ip mroute Field Descriptions (continued)

Field	Description
RP	Address of the RP switch. For switches and access servers operating in sparse mode, this address is always 0.0.0.0.
flags:	Information about the entry.
Incoming interface	Expected interface for a multicast packet from the source. If the packet is not received on this interface, it is discarded.
RPF neighbor	IP address of the upstream switch to the source. “Tunneling” indicates that this switch is sending data to the RP encapsulated in Register packets. The hexadecimal number in parentheses indicates to which RP it is registering. Each bit indicates a different RP if multiple RPs per group are used.
DVMRP or Mroute	Status of whether the RPF information is obtained from the DVMRP routing table or the static mroutes configuration.
Outgoing interface list	Interfaces through which packets are forwarded. When the <b>ip pim nbma-mode</b> command is enabled on the interface, the IP address of the PIM neighbor is also displayed.
Ethernet0	Name and number of the outgoing interface.
Next hop or VCD	Next hop specifies downstream neighbor’s IP address. VCD specifies the virtual circuit descriptor number. VCD0 means the group is using the static-map virtual circuit.
Forward/Dense	Status of the packets; are they forwarded on the interface if there are no restrictions due to access lists or the TTL threshold. Following the slash (/), mode in which the interface is operating (dense or sparse).
Forward/Sparse	Sparse mode interface is in forward mode.
time/time (uptime/expiration time)	Per interface, how long (in hours, minutes, and seconds) the entry has been in the IP multicast routing table. Following the slash (/), how long (in hours, minutes, and seconds) until the entry is removed from the IP multicast routing table.

**Related Commands****ip multicast-routing** (refer to Cisco IOS documentation)**ip pim** (refer to Cisco IOS documentation)

# show ip source binding

To display IP source bindings configured on the system, use the **show ip source binding** EXEC command.

```
show ip source binding [ip-address] [mac-address] [dhcp-snooping | static] [vlan vlan-id]
[interface interface-name]
```

Syntax Description	
<i>ip-address</i>	(Optional) Binding IP address.
<i>mac-address</i>	(Optional) Binding MAC address.
<b>dhcp-snooping</b>	(Optional) DHCP-snooping type binding.
<b>static</b>	(Optional) Statically configured binding.
<b>vlan</b> <i>vlan-id</i>	(Optional) VLAN number.
<b>interface</b> <i>interface-name</i>	(Optional) Binding interface.

**Defaults** Displays both static and DHCP snooping bindings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(19)EW	This command was first introduced.

**Usage Guidelines** The optional parameters filter the display output result.

**Examples** This example shows how to display the IP source bindings:

```
Switch# show ip source binding
MacAddress      IpAddress      Lease(sec)  Type           VLAN  Interface
-----
00:00:00:0A:00:0B  11.0.0.1      infinite    static         10    FastEthernet6/10

Switch#
```

This example shows how to display the static IP binding entry of IP address 11.0.0.1:

```
Switch# show ip source binding 11.0.0.1 0000.000A.000B static vlan 10 interface Fa6/10
show ip source binding 11.0.0.1 0000.000A.000B static vlan 10 interface Fa6/10
MacAddress      IpAddress      Lease(sec)  Type           VLAN  Interface
-----
00:00:00:0A:00:0B  11.0.0.1      infinite    static         10    FastEthernet6/10

Switch#
```

**Related Commands** [ip source binding](#)

# show ip verify source

To display IP source guard configuration and filters on a particular interface, use the **show ip verify source** command.

**show ip verify source** [**interface** *interface\_num*]

<b>Syntax Description</b>	<b>interface</b> <i>interface_num</i> (Optional) Specifies an interface.				
<b>Defaults</b>	This command has no default settings.				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>12.1(19)EW</td> <td>Support for this command was introduced on the Catalyst 4500 series switch.</td> </tr> </tbody> </table>	Release	Modification	12.1(19)EW	Support for this command was introduced on the Catalyst 4500 series switch.
Release	Modification				
12.1(19)EW	Support for this command was introduced on the Catalyst 4500 series switch.				

**Examples** These examples show how to display IP source guard configuration and filters on a particular interface with the **show ip verify source interface** command:

- The following output appears when DHCP snooping is enabled on VLAN 10-20, interface fa6/1 has IP source filter mode configured as IP, and an existing IP address binding 10.0.0.1 is on VLAN 10:

Interface	Filter-type	Filter-mode	IP-address	Mac-address	Vlan
fa6/1	ip	active	10.0.0.1		10
fa6/1	ip	active	deny-all		11-20



**Note** The second entry shows that a default PVACL (deny all IP traffic) is installed on the port for those snooping-enabled VLANs that do not have a valid IP source binding.

- The following output appears when you enter the **show ip verify source interface fa6/2** command and DHCP snooping is enabled on VLAN 10-20, interface fa6/1 has IP source filter mode configured as IP, and there is an existing IP address binding 10.0.0.1 on VLAN 10:

Interface	Filter-type	Filter-mode	IP-address	Mac-address	Vlan
fa6/2	ip	inactive-trust-port			

- The following output appears when you enter the **show ip verify source interface fa6/3** command and the interface fa6/3 does not have a VLAN enabled for DHCP snooping:

Interface	Filter-type	Filter-mode	IP-address	Mac-address	Vlan
fa6/3	ip	inactive-no-snooping-vlan			

## show ip verify source

- The following output appears when you enter the **show ip verify source interface fa6/4** command and the interface fa6/4 has IP source filter mode configured as IP MAC, and existing IP MAC that binds 10.0.0.2/aaaa.bbbb.cccc on VLAN 10 and 11.0.0.1/aaaa.bbbb.cccd on VLAN 11 :

Interface	Filter-type	Filter-mode	IP-address	Mac-address	Vlan
fa6/4	ip-mac	active	10.0.0.2	aaaa.bbbb.cccc	10
fa6/4	ip-mac	active	11.0.0.1	aaaa.bbbb.cccd	11
fa6/4	ip-mac	active	deny-all	deny-all	12-20

- The following output appears when you enter the **show ip verify source interface fa6/5** command and the interface fa6/5 has IP source filter mode configured as IP MAC, and existing IP MAC binding 10.0.0.3/aaaa.bbbb.cccc on vlan 10, but port security is not enabled on fa6/5:

Interface	Filter-type	Filter-mode	IP-address	Mac-address	Vlan
fa6/5	ip-mac	active	10.0.0.3	permit-all	10
fa6/5	ip-mac	active	deny-all	permit-all	11-20



**Note** Enable port security first because the DHCP security MAC filter cannot apply to the port or VLAN.

- The following output appears when you enter the **show ip verify source interface fa6/6** command and the interface fa6/6 does not have IP source filter mode configured:

```
DHCP security is not configured on the interface fa6/6.
```

This example shows how to display all interfaces on the switch that have DHCP snooping security enabled with the **show ip verify source** command.

The output is an accumulation of per-interface **show** CLIs:

Interface	Filter-type	Filter-mode	IP-address	Mac-address	Vlan
fa6/1	ip	active	10.0.0.1		10
fa6/1	ip	active	deny-all		11-20
fa6/2	ip	inactive-trust-port			
fa6/3	ip	inactive-no-snooping-vlan			
fa6/4	ip-mac	active	10.0.0.2	aaaa.bbbb.cccc	10
fa6/4	ip-mac	active	11.0.0.1	aaaa.bbbb.cccd	11
fa6/4	ip-mac	active	deny-all	deny-all	12-20
fa6/5	ip-mac	active	10.0.0.3	permit-all	10
fa6/5	ip-mac	active	deny-all	permit-all	11-20

### Related Commands

[ip igmp snooping](#)  
[ip dhcp snooping information option](#)  
[ip dhcp snooping limit rate](#)  
[ip dhcp snooping trust](#)  
[ip igmp snooping vlan](#)  
[ip source binding](#)  
[ip verify source vlan dhcp-snooping](#)  
[show ip source binding](#)



# show ipc

To display IPC information, use the **show ipc** command.

**show ipc { nodes | ports | queue | status }**

Syntax Description	nodes	Displays participating nodes.
	ports	Displays local IPC ports.
	queue	Displays the contents of the IPC retransmission queue.
	status	Displays the status of the local IPC server.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(12c)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display participating nodes:

```
Switch# show ipc nodes
There are 3 nodes in this IPC realm.
  ID      Type      Name                               Last Sent  Last Heard
  10000   Local      IPC Master                        0          0
  2010000 Local      GALIOS IPC:Card 1                 0          0
  2020000 Ethernet  GALIOS IPC:Card 2                 12         26
Switch#
```

This example shows how to display local IPC ports:

```
Switch# show ipc ports
There are 11 ports defined.
Port ID      Type      Name                               (current/peak/total)
  10000.1     unicast   IPC Master:Zone
  10000.2     unicast   IPC Master:Echo
  10000.3     unicast   IPC Master:Control
  10000.4     unicast   Remote TTY Server Port
  10000.5     unicast   GALIOS RF :Active
  index = 0  seat_id = 0x2020000  last sent = 0  heard = 1635  0/1/1635
  10000.6     unicast   GALIOS RED:Active
  index = 0  seat_id = 0x2020000  last sent = 0  heard = 2  0/1/2
  2020000.3   unicast   GALIOS IPC:Card 2:Control
  2020000.4   unicast   GALIOS RFS :Standby
  2020000.5   unicast   Slave: Remote TTY Client Port
  2020000.6   unicast   GALIOS RF :Standby
  2020000.7   unicast   GALIOS RED:Standby
```

```
RPC packets: current/peak/total
                                                0/1/17
Switch#
```

This example shows how to display the contents of the IPC retransmission queue:

```
Switch# show ipc queue
There are 0 IPC messages waiting for acknowledgement in the transmit queue.
There are 0 IPC messages waiting for a response.
There are 0 IPC messages waiting for additional fragments.
There are 0 IPC messages currently on the IPC inboundQ.
There are 0 messages currently in use by the system.
Switch#
```

This example shows how to display the status of the local IPC server:

```
Switch# show ipc status
IPC System Status:

This processor is the IPC master server.

6000 IPC message headers in cache
3363 messages in, 1680 out, 1660 delivered to local port,
1686 acknowledgements received, 1675 sent,
0 NACKS received, 0 sent,
0 messages dropped on input, 0 messages dropped on output
0 no local port, 0 destination unknown, 0 no transport
0 missing callback or queue, 0 duplicate ACKs, 0 retries,
0 message timeouts.
0 ipc_output failures, 0 mtu failures,
0 msg alloc failed, 0 emer msg alloc failed, 0 no origs for RPC replies
0 pak alloc failed, 0 memd alloc failed
0 no hwq, 1 failed opens, 0 hardware errors
No regular dropping of IPC output packets for test purposes
Switch#
```

# show l2protocol-tunnel

To display information about Layer 2 protocol tunnel ports, use the **show l2protocol-tunnel** command. This command displays information for interfaces with protocol tunneling enabled.

```
show l2protocol-tunnel [interface interface-id] [[summary] | {begin | exclude | include}
                        expression]
```

Syntax Description	
<b>interface</b> <i>interface-id</i>	(Optional) Specifies the interface for which protocol tunneling information appears. Valid interfaces are physical ports and port channels; the port channel range is 1 to 64.
<b>summary</b>	(Optional) Displays only Layer 2 protocol summary information.
<b>begin</b>	(Optional) Displays information beginning with the line that matches the <i>expression</i> .
<b>exclude</b>	(Optional) Displays information that excludes lines that match the <i>expression</i> .
<b>include</b>	(Optional) Displays lines that match the specified <i>expression</i> .
<i>expression</i>	(Optional) Expression in the output to use as a reference point.

Command Modes	
User EXEC	

Command History	Release	Modification
	12.2(18)EW	This command was first introduced on the Catalyst 4500 series switch.

**Usage Guidelines** After enabling Layer 2 protocol tunneling on an access or 802.1Q tunnel port with the **l2protocol-tunnel** command, you can configure some or all of these parameters:

- Protocol type to be tunneled
- Shutdown threshold
- Drop threshold

If you enter the **show l2protocol-tunnel [interface *interface-id*]** command, only information about the active ports on which all the parameters are configured appears.

If you enter the **show l2protocol-tunnel summary** command, only information about the active ports on which some or all of the parameters are configured appears.

Expressions are case sensitive. For example, if you enter **exclude output**, the lines that contain *output* do not appear, but the lines that contain *Output* appear.

**Examples**

This is an example of output from the **show l2protocol-tunnel** command:

```
Switch> show l2protocol-tunnel
COS for Encapsulated Packets: 5
```

Port	Protocol	Shutdown Threshold	Drop Threshold	Encapsulation Counter	Decapsulation Counter	Drop Counter
Fa0/10	stp	----	----	9847	1866	0
	vtp	----	----	77	12	0
	pagp	----	----	859	860	0
	lacp	----	----	0	0	0
	udld	----	----	219	211	0
Fa0/11	cdp	1100	----	2356	2350	0
	stp	1100	----	116	13	0
	vtp	1100	----	3	67	0
	pagp	----	900	856	5848	0
	lacp	----	900	0	0	0
Fa0/12	udld	----	900	0	0	0
	cdp	----	----	2356	0	0
	stp	----	----	11787	0	0
	vtp	----	----	81	0	0
	pagp	----	----	0	0	0
Fa0/13	lacp	----	----	849	0	0
	udld	----	----	0	0	0
	cdp	----	----	2356	0	0
	stp	----	----	11788	0	0
	vtp	----	----	81	0	0
Fa0/14	pagp	----	----	0	0	0
	lacp	----	----	849	0	0
	udld	----	----	0	0	0
	cdp	----	----	2356	0	0
	stp	----	----	11788	0	0

This is an example of output from the **show l2protocol-tunnel summary** command:

```
Switch> show l2protocol-tunnel summary
COS for Encapsulated Packets: 5
```

Port	Protocol	Shutdown Threshold (cdp/stp/vtp) (pagp/lacp/udld)	Drop Threshold (cdp/stp/vtp) (pagp/lacp/udld)	Status
Fa0/10	stp vtp	----/----/----	----/----/----	up
	pagp lacp udld	----/----/----	----/----/----	
Fa0/11	cdp stp vtp	1100/1100/1100	----/----/----	up
	pagp lacp udld	----/----/----	900/ 900/ 900	
Fa0/12	cdp stp vtp	----/----/----	----/----/----	up
	pagp lacp udld	----/----/----	----/----/----	
Fa0/13	cdp stp vtp	----/----/----	----/----/----	up
	pagp lacp udld	----/----/----	----/----/----	
Fa0/14	cdp stp vtp	----/----/----	----/----/----	down
	pagp ---- udld	----/----/----	----/----/----	
Fa0/15	cdp stp vtp	----/----/----	----/----/----	down
	pagp ---- udld	----/----/----	----/----/----	
Fa0/16	cdp stp vtp	----/----/----	----/----/----	down
	pagp lacp udld	----/----/----	----/----/----	
Fa0/17	cdp stp vtp	----/----/----	----/----/----	down
	pagp lacp udld	----/----/----	----/----/----	

**Related Commands**

**clear l2protocol-tunnel counter** (refer to Cisco IOS documentation)  
**l2protocol-tunnel**  
**l2protocol-tunnel cos**

# show lacp

To display LACP information, use the **show lacp** command.

```
show lacp [channel-group] {counters | internal | neighbors | sys-id}
```

Syntax Description	
<i>channel-group</i>	(Optional) Number of the channel group; valid values are from 1 to 64.
<b>counters</b>	Displays the LACP statistical information.
<b>internal</b>	Displays the internal information.
<b>neighbors</b>	Displays the neighbor information.
<b>sys-id</b>	Displays the LACP system identification.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(13)EW	Support for this command was introduced on the Catalyst 4500 series switches.

**Usage Guidelines** This command is not supported on systems configured with a Supervisor Engine 1.

If you do not specify a *channel-group* value, all channel groups are displayed.

You can enter the optional *channel-group* value, to specify a channel group for all keywords, except the **sys-id** keyword.

**Examples** This example shows how to display LACP statistical information for a specific channel group:

```
Switch# show lacp 1 counters
          LACPDU      Marker      LACPDU
Port      Sent  Recv      Sent  Recv      Pkts  Err
-----
Channel group: 1
  Fa4/1    8    15         0    0         3    0
  Fa4/2   14   18         0    0         3    0
  Fa4/3   14   18         0    0         0
  Fa4/4   13   18         0    0         0
Switch#
```

The output displays the following information:

- The LACPDU Sent and Recv columns display the LACPDU sent and received on each specific interface.
- The LACPDU Pkts and Err columns display the marker protocol packets.

This example shows how to display internal information for the interfaces belonging to a specific channel:

```
Switch# show lacp 1 internal
Flags: S - Device sends PDUs at slow rate. F - Device sends PDUs at fast rate.
      A - Device is in Active mode.           P - Device is in Passive mode.

Channel group 1

Port      Flags   State   LACPDU  LACP Port  Admin  Oper   Port   Port
Port      Flags   State   Interval Priority    Key    Key    Number State
Fa4/1    saC     bndl   30s     32768      100   100   0xc1   0x75
Fa4/2    saC     bndl   30s     32768      100   100   0xc2   0x75
Fa4/3    saC     bndl   30s     32768      100   100   0xc3   0x75
Fa4/4    saC     bndl   30s     32768      100   100   0xc4   0x75
Switch#
```

Table 2-17 lists the output field definitions.

**Table 2-17 show lacp internal Command Output Fields**

Field	Description
State	State of the specific port at the current moment is displayed; allowed values are as follows: <ul style="list-style-type: none"> <li><i>bndl</i>—Port is attached to an aggregator and bundled with other ports.</li> <li><i>susp</i>—Port is in a suspended state; it is not attached to any aggregator.</li> <li><i>indep</i>—Port is in an independent state (not bundled but able to switch data traffic. In this case, LACP is not running on the partner port).</li> <li><i>hot-sby</i>—Port is in a Hot-standby state.</li> <li><i>down</i>—Port is down.</li> </ul>
LACPDU Interval	Interval setting.
LACP Port Priority	Port priority setting.
Admin Key	Administrative key.
Oper Key	Operator key.
Port Number	Port number.
Port State	State variables for the port encoded as individual bits within a single octet with the following meaning [1]: <ul style="list-style-type: none"> <li><b>bit0:</b> <i>LACP_Activity</i></li> <li><b>bit1:</b> <i>LACP_Timeout</i></li> <li><b>bit2:</b> <i>Aggregation</i></li> <li><b>bit3:</b> <i>Synchronization</i></li> <li><b>bit4:</b> <i>Collecting</i></li> <li><b>bit5:</b> <i>Distributing</i></li> <li><b>bit6:</b> <i>Defaulted</i></li> <li><b>bit7:</b> <i>Expired</i></li> </ul>

This example shows how to display LACP neighbors information for a specific port channel:

```
Switch# show lacp 1 neighbor
Flags: S - Device sends PDUs at slow rate. F - Device sends PDUs at fast rate.
       A - Device is in Active mode.           P - Device is in Passive mode.

Channel group 1 neighbors

Port      Partner                Partner
System ID System ID              Port Number   Age    Flags
Fa4/1     8000,00b0.c23e.d84e   0x81          29s    P
Fa4/2     8000,00b0.c23e.d84e   0x82          0s     P
Fa4/3     8000,00b0.c23e.d84e   0x83          0s     P
Fa4/4     8000,00b0.c23e.d84e   0x84          0s     P

Port      Admin Oper   Port
Priority  Key   Key   State
Fa4/1     32768 200   200   0x81
Fa4/2     32768 200   200   0x81
Fa4/3     32768 200   200   0x81
Fa4/4     32768 200   200   0x81
Switch#
```

In the case where no PDUs have been received, the default administrative information is displayed in braces.

This example shows how to display the LACP system identification:

```
Switch> show lacp sys-id
8000,AC-12-34-56-78-90
Switch>
```

The system identification is made up of the system priority and the system MAC address. The first two bytes are the system priority, and the last six bytes are the globally administered individual MAC address associated to the system.

## Related Commands

[lacp port-priority](#)  
[lacp system-priority](#)



# show mac access-group interface

To display the ACL configuration on a Layer 2 interface, use the **show mac access-group interface** command.

**show mac access-group interface** [*interface interface-number*]

Syntax Description	
<i>interface</i>	(Optional) Specifies the interface type. Valid values are <b>ethernet</b> , <b>fastethernet</b> , <b>gigabitethernet</b> , <b>tengigabitethernet</b> , <b>pos</b> , <b>atm</b> , <b>port-channel</b> , and <b>ge-wan</b> .
<i>interface-number</i>	(Optional) Specifies the port number.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(19)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** Valid values for the port number depend on the chassis used.

**Examples** This example shows how to display the ACL configuration on interface fast 6/1:

```
Switch# show mac access-group interface fast 6/1
Interface FastEthernet6/1:
  Inbound access-list is simple-mac-acl
  Outbound access-list is not set
```

**Related Commands** [access-group mode](#)

## show mac-address-table address

To display MAC address table information for a specific MAC address, use the **show mac-address-table address** command.

```
show mac-address-table address mac_addr [interface type slot/port | protocol protocol | vlan
vlan_id]
```

Syntax Description	
<i>mac_addr</i>	48-bit MAC address; the valid format is H.H.H.
<b>interface</b> <i>type slot/port</i>	(Optional) Displays information for a specific interface; valid values for <i>type</i> are <b>FastEthernet</b> and <b>GigabitEthernet</b> .
<b>protocol</b> <i>protocol</i>	(Optional) Specifies a protocol. See “Usage Guidelines” for more information.
<b>vlan</b> <i>vlan_id</i>	(Optional) Displays entries for the specific VLAN only; valid values are from 1 to 4094.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(12c)EW	Added support for extended VLAN addresses.

**Usage Guidelines** For MAC address table entries used by routed ports, the routed port name is displayed in the “vlan” column rather than the internal VLAN number.

The keyword definitions for the *protocol* variable are as follows:

- **ip** specifies IP protocol.
- **ipx** specifies IPX protocols.
- **assigned** specifies assigned protocol entries.
- **other** specifies other protocol entries.

**Examples** This example shows how to display MAC address table information for a specific MAC address:

```
Switch# show mac-address-table address 0030.94fc.0dff
Unicast Entries
  vlan  mac address          type          protocols          port
-----+-----+-----+-----+-----
    1   0030.94fc.0dff        static ip, ipx, assigned, other  Switch
Fa6/1   0030.94fc.0dff        static ip, ipx, assigned, other  Switch
Fa6/2   0030.94fc.0dff        static ip, ipx, assigned, other  Switch
Switch#
```

**Related Commands**

[show mac-address-table aging-time](#)  
[show mac-address-table count](#)  
[show mac-address-table dynamic](#)  
[show mac-address-table interface](#)  
[show mac-address-table multicast](#)  
[show mac-address-table protocol](#)  
[show mac-address-table static](#)  
[show mac-address-table vlan](#)

# show mac-address-table aging-time

To display the MAC address aging time, use the **show mac-address-table aging-time** command.

```
show mac-address-table aging-time [vlan vlan_id]
```

<b>Syntax Description</b>	<b>vlan <i>vlan_id</i></b> (Optional) Specifies a VLAN; valid values are from 1 to 4094.
---------------------------	--

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(12c)EW	Support for extended addressing was added.

**Examples** This example shows how to display the currently configured aging time for all VLANs:

```
Switch# show mac-address-table aging-time
Vlan    Aging Time
----    -
100     300
200     1000

Switch#
```

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

```
Switch# show mac-address-table aging-time vlan 100
Vlan    Aging Time
----    -
100     300

Switch#
```

<b>Related Commands</b>	<a href="#">show mac-address-table address</a> <a href="#">show mac-address-table count</a> <a href="#">show mac-address-table dynamic</a> <a href="#">show mac-address-table interface</a> <a href="#">show mac-address-table multicast</a> <a href="#">show mac-address-table protocol</a> <a href="#">show mac-address-table static</a> <a href="#">show mac-address-table vlan</a>
-------------------------	---

# show mac-address-table count

To display the number of entries currently in the MAC address table, use the **show mac-address-table count** command.

```
show mac-address-table count [vlan vlan_id]
```

<b>Syntax Description</b>	<b>vlan <i>vlan_id</i></b> (Optional) Specifies a VLAN; valid values are from 1 to 4094.						
<b>Defaults</b>	This command has no default settings.						
<b>Command Modes</b>	Privileged EXEC						
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>12.1(8a)EW</td> <td>Support for this command was introduced on the Catalyst 4500 series switch.</td> </tr> <tr> <td>12.1(12c)EW</td> <td>Added support for extended VLAN addresses.</td> </tr> </tbody> </table>	Release	Modification	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.	12.1(12c)EW	Added support for extended VLAN addresses.
Release	Modification						
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.						
12.1(12c)EW	Added support for extended VLAN addresses.						

## Examples

This example shows how to display the entry count for a specific VLAN:

```
Switch# show mac-address-table count vlan 1
MAC Entries for Vlan 1:
Dynamic Unicast Address Count:          0
Static Unicast Address (User-defined) Count: 0
Static Unicast Address (System-defined) Count: 1
Total Unicast MAC Addresses In Use:      1
Total Unicast MAC Addresses Available:    32768
Multicast MAC Address Count:             1
Total Multicast MAC Addresses Available:  16384
Switch#
```

## Related Commands

[show mac-address-table address](#)  
[show mac-address-table aging-time](#)  
[show mac-address-table dynamic](#)  
[show mac-address-table interface](#)  
[show mac-address-table multicast](#)  
[show mac-address-table protocol](#)  
[show mac-address-table static](#)  
[show mac-address-table vlan](#)

# show mac-address-table dynamic

To display dynamic MAC address table entries only, use the **show mac-address-table dynamic** command.

```
show mac-address-table dynamic [address mac_addr | interface type slot/port |
                                protocol protocol | vlan vlan_id]
```

## Syntax Description

<b>address</b> <i>mac_addr</i>	(Optional) Specifies a 48-bit MAC address; the valid format is H.H.H.
<b>interface</b> <i>type slot/port</i>	(Optional) Specifies an interface to match; valid values for <i>type</i> are <b>FastEthernet</b> and <b>GigabitEthernet</b> .
<b>protocol</b> <i>protocol</i>	(Optional) Specifies a protocol. See “Usage Guidelines” for more information.
<b>vlan</b> <i>vlan_id</i>	(Optional) Displays entries for a specific VLAN; valid values are from 1 to 4094.

## Defaults

This command has no default settings.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
12.1(12c)EW	Added support for extended VLAN addresses.

## Usage Guidelines

The keyword definitions for the *protocol* argument are as follows:

- **assigned** specifies assigned protocol entries.
- **ip** specifies IP protocol.
- **ipx** specifies IPX protocols.
- **other** specifies other protocol entries.

The **show mac-address-table dynamic** command output for an EtherChannel interface changes the port number designation (for example, 5/7) to a port group number (for example, Po80).

For MAC address table entries used by routed ports, the routed port name is displayed in the “vlan” column rather than the internal VLAN number.

## Examples

This example shows how to display all dynamic MAC address entries:

```
Switch# show mac-address-table dynamic
Unicast Entries
vlan  mac address      type      protocols      port
-----+-----+-----+-----+-----
   1   0000.0000.0201   dynamic  ip              FastEthernet6/15
```

```

1      0000.0000.0202    dynamic ip                               FastEthernet6/15
1      0000.0000.0203    dynamic ip,assigned                      FastEthernet6/15
1      0000.0000.0204    dynamic ip,assigned                      FastEthernet6/15
1      0000.0000.0205    dynamic ip,assigned                      FastEthernet6/15
2      0000.0000.0101    dynamic ip                               FastEthernet6/16
2      0000.0000.0102    dynamic ip                               FastEthernet6/16
2      0000.0000.0103    dynamic ip,assigned                      FastEthernet6/16
2      0000.0000.0104    dynamic ip,assigned                      FastEthernet6/16
2      0000.0000.0105    dynamic ip,assigned                      FastEthernet6/16
Switch#

```

This example shows how to display dynamic MAC address entries with a specific protocol type (in this case, assigned):

```

Switch# show mac-address-table dynamic protocol assigned
Unicast Entries
-----+-----+-----+-----+-----+
vlan  mac address      type      protocols      port
-----+-----+-----+-----+-----+
1      0000.0000.0203    dynamic  ip,assigned    FastEthernet6/15
1      0000.0000.0204    dynamic  ip,assigned    FastEthernet6/15
1      0000.0000.0205    dynamic  ip,assigned    FastEthernet6/15
2      0000.0000.0103    dynamic  ip,assigned    FastEthernet6/16
2      0000.0000.0104    dynamic  ip,assigned    FastEthernet6/16
2      0000.0000.0105    dynamic  ip,assigned    FastEthernet6/16
Switch#

```

#### Related Commands

[show mac-address-table protocol](#)  
[show mac-address-table static](#)  
[show mac-address-table vlan](#)

## show mac-address-table interface

To display the MAC address table information for a specific interface, use the **show mac-address-table interface** command.

```
show mac-address-table interface type slot/port
```

Syntax Description	type	Interface type; valid values are <b>Ethernet</b> , <b>FastEthernet</b> , and <b>GigabitEthernet</b> .
	slot/port	Number of the slot and port.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** For MAC address table entries used by routed ports, the routed port name is displayed in the “vlan” column rather than the internal VLAN number.

**Examples** This example shows how to display MAC address table information for a specific interface:

```
Switch# show mac-address-table interface fa6/16
Unicast Entries
vlan  mac address      type      protocols      port
-----+-----+-----+-----+-----
  2    0000.0000.0101    dynamic  other          FastEthernet6/16
  2    0000.0000.0102    dynamic  other          FastEthernet6/16
  2    0000.0000.0103    dynamic  other          FastEthernet6/16
  2    0000.0000.0104    dynamic  other          FastEthernet6/16
  2    0000.0000.0105    dynamic  other          FastEthernet6/16
  2    0000.0000.0106    dynamic  other          FastEthernet6/16

Multicast Entries
vlan  mac address      type      ports
-----+-----+-----+-----
  2    ffff.ffff.ffff    system   Fa6/16
Switch#
```



**Related Commands**

`show mac-address-table address`  
`show mac-address-table aging-time`  
`show mac-address-table count`  
`show mac-address-table dynamic`  
`show mac-address-table multicast`  
`show mac-address-table protocol`  
`show mac-address-table static`  
`show mac-address-table vlan`

## show mac-address-table multicast

To display multicast MAC address table information, use the **show mac-address-table multicast** command.

```
show mac-address-table multicast [count | {igmp-snooping [count]} | {user [count]} |
{vlan vlan_num}]
```

Syntax Description	Parameter	Description
	<b>count</b>	(Optional) Displays number of multicast entries.
	<b>igmp-snooping</b>	(Optional) Displays only addresses learned by IGMP snooping.
	<b>user</b>	(Optional) Displays only user-entered static addresses.
	<b>vlan vlan_num</b>	(Optional) Displays information for a specific VLAN only; valid values are from 1 to 4094.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(12c)EW	Added support for extended VLAN addresses.

**Usage Guidelines** For MAC address table entries used by routed ports, the routed port name is displayed in the “vlan” column rather than the internal VLAN number.

**Examples** This example shows how to display multicast MAC address table information for a specific VLAN:

```
Switch# show mac-address-table multicast vlan 1
Multicast Entries
vlan   mac address      type   ports
-----+-----+-----+-----
    1   ffff.ffff.ffff   system Switch,Fa6/15
Switch#
```

This example shows how to display the number of multicast MAC entries for all VLANs:

```
Switch# show mac-address-table multicast count
MAC Entries for all vlans:
Multicast MAC Address Count:                141
Total Multicast MAC Addresses Available:    16384
Switch#
```

**Related Commands**

`show mac-address-table address`  
`show mac-address-table aging-time`  
`show mac-address-table count`  
`show mac-address-table dynamic`  
`show mac-address-table interface`  
`show mac-address-table protocol`  
`show mac-address-table static`  
`show mac-address-table vlan`

# show mac-address-table protocol

To display MAC address table information based on the protocol, use the **show mac-address-table protocol** command.

```
show mac-address-table protocol { assigned | ip | ipx | other }
```

Syntax Description	Parameter	Description
	<b>assigned</b>	Specifies assigned protocol entries.
	<b>ip</b>	Specifies IP protocol entries.
	<b>ipx</b>	Specifies IPX protocol entries.
	<b>other</b>	Specifies other protocol entries.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** For MAC address table entries used by routed ports, the routed port name is displayed in the “vlan” column rather than the internal VLAN number.

**Examples** This example shows how to display MAC address table entries that have a specific protocol type (in this case, assigned):

```
Switch# show mac-address-table protocol assigned
vlan  mac address      type    protocol  qos      ports
-----+-----+-----+-----+-----+-----
 200  0050.3e8d.6400    static  assigned  --      Switch
 100  0050.3e8d.6400    static  assigned  --      Switch
   5  0050.3e8d.6400    static  assigned  --      Switch
4092  0000.0000.0000    dynamic  assigned  --      Switch
   1  0050.3e8d.6400    static  assigned  --      Switch
   4  0050.3e8d.6400    static  assigned  --      Switch
4092  0050.f0ac.3058    static  assigned  --      Switch
4092  0050.f0ac.3059    dynamic  assigned  --      Switch
   1  0010.7b3b.0978    dynamic  assigned  --      Fa5/9
Switch#
```

This example shows the other output for the previous example:

```
Switch# show mac-address-table protocol other
Unicast Entries
vlan  mac address      type    protocols  port
-----+-----+-----+-----+-----
   1  0000.0000.0201    dynamic  other      FastEthernet6/15
   1  0000.0000.0202    dynamic  other      FastEthernet6/15
```

```

1      0000.0000.0203    dynamic other                FastEthernet6/15
1      0000.0000.0204    dynamic other                FastEthernet6/15
1      0030.94fc.0dff     static ip, ipx, assigned, other Switch
2      0000.0000.0101    dynamic other                FastEthernet6/16
2      0000.0000.0102    dynamic other                FastEthernet6/16
2      0000.0000.0103    dynamic other                FastEthernet6/16
2      0000.0000.0104    dynamic other                FastEthernet6/16
Fa6/1  0030.94fc.0dff     static ip, ipx, assigned, other Switch
Fa6/2  0030.94fc.0dff     static ip, ipx, assigned, other Switch

```

## Multicast Entries

vlan	mac address	type	ports
1	ffff.ffff.ffff	system	Switch, Fa6/15
2	ffff.ffff.ffff	system	Fa6/16
1002	ffff.ffff.ffff	system	
1003	ffff.ffff.ffff	system	
1004	ffff.ffff.ffff	system	
1005	ffff.ffff.ffff	system	
Fa6/1	ffff.ffff.ffff	system	Switch, Fa6/1
Fa6/2	ffff.ffff.ffff	system	Switch, Fa6/2

Switch#

**Related Commands**

[show mac-address-table address](#)  
[show mac-address-table aging-time](#)  
[show mac-address-table count](#)  
[show mac-address-table dynamic](#)  
[show mac-address-table interface](#)  
[show mac-address-table multicast](#)  
[show mac-address-table static](#)  
[show mac-address-table vlan](#)

# show mac-address-table static

To display static MAC address table entries only, use the **show mac-address-table static** command.

```
show mac-address-table static [address mac_addr | interface type number | protocol protocol |
                               vlan vlan_id]
```

Syntax Description	Parameter	Description
	<b>address</b> <i>mac_addr</i>	(Optional) Specifies a 48-bit MAC address to match; the valid format is H.H.H.
	<b>interface</b> <i>type slot/port</i>	(Optional) Specifies an interface to match; valid values for <i>type</i> are <b>FastEthernet</b> and <b>GigabitEthernet</b> .
	<b>protocol</b> <i>protocol</i>	(Optional) Specifies a protocol. See “Usage Guidelines” for more information.
	<b>vlan</b> <i>vlan_id</i>	(Optional) Displays entries for a specific VLAN; valid values are from 1 to 4094.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(12c)EW	Added support for extended VLAN addresses.

**Usage Guidelines** For MAC address table entries used by routed ports, the routed port name is displayed in the “vlan” column rather than the internal VLAN number.

The keyword definitions for the *protocol* argument are as follows:

- **assigned** specifies assigned protocol entries.
- **ip** specifies IP protocol.
- **ipx** specifies IPX protocols.
- **other** specifies other protocol entries.

**Examples** This example shows how to display all static MAC address entries:

```
Switch# show mac-address-table static
Unicast Entries
  vlan  mac address      type      protocols      port
-----+-----+-----+-----+-----
    1   0030.94fc.0dff    static ip, ipx, assigned, other  Switch
 Fa6/1  0030.94fc.0dff    static ip, ipx, assigned, other  Switch
 Fa6/2  0030.94fc.0dff    static ip, ipx, assigned, other  Switch
```

```

Multicast Entries
  vlan      mac address      type      ports
-----+-----+-----+-----
    1      ffff.ffff.ffff      system   Switch,Fa6/15
    2      ffff.ffff.ffff      system   Fa6/16
  1002      ffff.ffff.ffff      system
  1003      ffff.ffff.ffff      system
  1004      ffff.ffff.ffff      system
  1005      ffff.ffff.ffff      system
  Fa6/1     ffff.ffff.ffff      system   Switch,Fa6/1
  Fa6/2     ffff.ffff.ffff      system   Switch,Fa6/2
  .
  .
Switch#

```

This example shows how to display static MAC address entries with a specific protocol type (in this case, assigned):

```

Switch# show mac-address-table static protocol assigned
Unicast Entries
  vlan      mac address      type      protocols      port
-----+-----+-----+-----+-----
    1      0030.94fc.0dff      static   ip,ipx,assigned,other   Switch
  Fa6/1     0030.94fc.0dff      static   ip,ipx,assigned,other   Switch
  Fa6/2     0030.94fc.0dff      static   ip,ipx,assigned,other   Switch

Multicast Entries
  vlan      mac address      type      ports
-----+-----+-----+-----
    1      ffff.ffff.ffff      system   Switch,Fa6/15
    2      ffff.ffff.ffff      system   Fa6/16
  1002      ffff.ffff.ffff      system
  1003      ffff.ffff.ffff      system
  1004      ffff.ffff.ffff      system
  1005      ffff.ffff.ffff      system
  Fa6/1     ffff.ffff.ffff      system   Switch,Fa6/1
  Fa6/2     ffff.ffff.ffff      system   Switch,Fa6/2
Switch#

```

### Related Commands

- [show mac-address-table address](#)
- [show mac-address-table aging-time](#)
- [show mac-address-table count](#)
- [show mac-address-table dynamic](#)
- [show mac-address-table interface](#)
- [show mac-address-table multicast](#)
- [show mac-address-table protocol](#)
- [show mac-address-table vlan](#)

## show mac-address-table vlan

To display MAC address table information for a specific VLAN, use the **show mac-address-table vlan** command.

```
show mac-address-table [vlan vlan_id] [protocol protocol]
```

Syntax Description	Parameter	Description
	<b>vlan</b> <i>vlan_id</i>	(Optional) Displays entries for a specific VLAN; valid values are from 1 to 4094.
	<b>protocol</b> <i>protocol</i>	(Optional) Specifies a protocol. See “Usage Guidelines” for more information.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(12c)EW	Support for extended addressing was added.

**Usage Guidelines** For MAC address table entries used by routed ports, the routed port name is displayed in the “vlan” column rather than the internal VLAN number.

The keyword definitions for the *protocol* variable are as follows:

- **assigned** specifies assigned protocol entries.
- **ip** specifies IP protocol.
- **ipx** specifies IPX protocols.
- **other** specifies other protocol entries.

**Examples** This example shows how to display MAC address table information for a specific VLAN:

```
Switch# show mac-address-table vlan 1
Unicast Entries
vlan  mac address      type      protocols      port
-----+-----+-----+-----+-----
  1    0000.0000.0201    dynamic  ip              FastEthernet6/15
  1    0000.0000.0202    dynamic  ip              FastEthernet6/15
  1    0000.0000.0203    dynamic  other           FastEthernet6/15
  1    0000.0000.0204    dynamic  other           FastEthernet6/15
  1    0030.94fc.0dff    static   ip,ipx,assigned,other  Switch

Multicast Entries
vlan  mac address      type      ports
-----+-----+-----+-----
  1    ffff.ffff.ffff    system   Switch,Fa6/15
Switch#
```



This example shows how to display MAC address table information for a specific protocol type:

```
Switch# show mac-address-table vlan 100 protocol other
Unicast Entries
  vlan  mac address      type      protocols      port
-----+-----+-----+-----+-----
   1    0000.0000.0203    dynamic  other          FastEthernet6/15
   1    0000.0000.0204    dynamic  other          FastEthernet6/15
   1    0030.94fc.0dff      static   ip,ipx,assigned,other  Switch

Multicast Entries
  vlan  mac address      type      ports
-----+-----+-----+-----
   1    ffff.ffff.ffff      system   Switch,Fa6/15
Switch#
```

### Related Commands

- [show mac-address-table address](#)
- [show mac-address-table aging-time](#)
- [show mac-address-table count](#)
- [show mac-address-table dynamic](#)
- [show mac-address-table interface](#)
- [show mac-address-table multicast](#)
- [show mac-address-table protocol](#)
- [show mac-address-table static](#)

# show module

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

```
show module [mod | all]
```

Syntax Description	mod	(Optional) Number of the module; valid values vary from chassis to chassis.
	all	(Optional) Displays information for all modules.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** In the Mod Sub-Module fields in the command output, the **show module** command displays the supervisor engine number but appends the uplink daughter card's module type and information. If the PoE consumed by the module is more than 50 W above the administratively allocated PoE, the "Status" displays as "PwrOver.". If the PoE consumed by the module is more than 50 W above the PoE module limit., the "Status" displays as "PwrFault".

**Examples** This example shows how to display information for all modules.

This example shows the **show module** command output for a system with inadequate power for all installed modules. The system does not have enough power for Module 5; the "Status" displays it as "PwrDeny".

```
Switch# show module all
Mod  Ports Card Type                               Model          Serial No.
-----+-----+-----+-----+-----+-----+-----+-----+-----+
 1     2  1000BaseX (GBIC) Supervisor(active)  WS-X4014       JAB054109GH
 2     6  1000BaseX (GBIC)                               WS-X4306       00000110
 3    18  1000BaseX (GBIC)                               WS-X4418       JAB025104WK
 5     0  Not enough power for module                    WS-X4148-FX-MT 000000000000
 6    48  10/100BaseTX (RJ45)                            WS-X4148       JAB023402RP

M MAC addresses                               Hw  Fw      Sw      Status
-----+-----+-----+-----+-----+-----+-----+-----+
 1 005c.9d1a.f9d0 to 005c.9d1a.f9df 0.5 12.1(11br)EW 12.1(20020313:00  Ok
 2 0010.7bab.9920 to 0010.7bab.9925 0.2                               Ok
 3 0050.7356.2b36 to 0050.7356.2b47 1.0                               Ok
 5 0001.64fe.a930 to 0001.64fe.a95f 0.0                               PwrDeny
 6 0050.0f10.28b0 to 0050.0f10.28df 1.0                               Ok
Switch#
```

This example shows how to display information for a specific module:

```
Switch# show module 2
Mod Ports Card Type                               Model                               Serial No.
-----
  2    2 Catalyst 4000 supervisor 2 (Active)    WS-X6K-SUP2-2GE                    SAD04450LF1
Mod MAC addresses                               Hw  Fw  Sw  Status
-----
  2  0001.6461.39c0 to 0001.6461.39c1  1.1 6.1(3) 6.2(0.97) Ok
Mod Sub-Module                               Model                               Serial                               Hw  Status
-----
  2 Policy Feature Card 2                    WS-F6K-PFC2                        SAD04440HVU                        1.0 Ok
  2 Cat4k MSFC 2 daughterboard              WS-F6K-MSFC2                        SAD04430J9K                        1.1 Ok
Switch#
```

# show monitor

To display SPAN session information, use the **show monitor** command.

**show monitor** [**session**] [**range** *session-range* | **local** | **remote** | **all** | *session-number*] [**detail**]

Syntax Description	
<b>session</b>	(Optional) Displays SPAN information for a session.
<b>range</b>	(Optional) Displays information for a range of sessions.
<i>session-range</i>	(Optional) Specifies a range of sessions.
<b>local</b>	(Optional) Displays all local SPAN sessions.
<b>remote</b>	(Optional) Displays RSPAN source and destination sessions.
<b>all</b>	(Optional) Displays SPAN and RSPAN sessions.
<i>session-number</i>	(Optional) Specifies a session number; valid values are from 1 to 6.
<b>detail</b>	(Optional) Displays detailed SPAN information for a session.

## Defaults

The **detail** keyword only displays lines with a nondefault configuration.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
12.1(13)EW	Added support for differing directions within a single user session.
12.1(19)EW	Output enhanced to display configuration status of SPAN enhancements.
12.1(20)EW	Added support to display configuration state for remote SPAN and learning.

## Examples

This example shows how to display SPAN information for session 2:

```
Switch# show monitor session 2
Session 2
-----
Type : Remote Source Session
Source Ports:
    RX Only:      Fa1/1-3
Dest RSPAN VLAN: 901
Ingress : Enabled, default VLAN=2
Learning : Disabled
Switch#
```

This example shows how to display detailed SPAN information for session 1:

```
Switch# show monitor session 1 detail
Session 1
-----
Type           : Local Session
Source Ports   :
    RX Only    : None
```

```
TX Only      : None
Both         : Gi1/1, CPU
Source VLANs :
RX Only      : None
TX Only      : None
Both         : None
Source RSPAN VLAN : Fa6/1
Destination Ports : Fa6/1
Encapsulation : DOT1Q
  Ingress    : Enabled, default VLAN = 2
Filter VLANs : None
  Filter Types RX : Good
  Filter Types TX : None
Dest Rspan Vlan : 901
Ingress       : Enabled, default VLAN=2
Learning      : Disabled
Switch#
```

This example shows how to display SPAN information for session 1 beginning with the line that starts with Destination:

```
Switch# show monitor session 1 | begin Destination
Destination Ports: None
Filter VLANs:      None
Switch#
Switch#
```

---

**Related Commands**[monitor session](#)

# show pagp

To display port channel information, use the **show pagp** command.

```
show pagp [group-number] {counters | internal | neighbor}
```

## Syntax Description

<i>group-number</i>	(Optional) Channel group number; valid values are from 1 to 64.
<b>counters</b>	Specifies traffic counter information.
<b>internal</b>	Specifies PAgP internal information.
<b>neighbor</b>	Specifies PAgP neighbor information.

## Defaults

This command has no default settings.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

## Usage Guidelines

You can enter any **show pagp** command to display the active PAgP port channel information. To display the nonactive information, enter the **show pagp** command with a group.

## Examples

This example shows how to display PAgP counter information:

```
Switch# show pagp counters
          Information      Flush
Port     Sent  Recv   Sent  Recv
-----
Channel group: 1
  Fa5/4   2660  2452    0    0
  Fa5/5   2676  2453    0    0
Channel group: 2
  Fa5/6   289   261    0    0
  Fa5/7   290   261    0    0
Switch#
```

This example shows how to display internal PAgP information:

```
Switch# show pagp 1 internal
Flags:  S - Device is sending Slow hello.  C - Device is in Consistent state.
        A - Device is in Auto mode.
Timers: H - Hello timer is running.        Q - Quit timer is running.
        S - Switching timer is running.    I - Interface timer is running.

Channel group 1
Port     Flags State  Timers  Hello  Partner  PAgP  Learning  IfIndx
Fa5/4    SC   U6/S7  30s    1      128     Any   129
```

```
Fa5/5    SC    U6/S7          30s    1      128    Any    129
Switch#
```

This example shows how to display PAgP neighbor information for all neighbors:

```
Switch# show pagp neighbor
```

```
Flags: S - Device is sending Slow hello.  C - Device is in Consistent state.
       A - Device is in Auto mode.         P - Device learns on physical port.
```

```
Channel group 1 neighbors
```

Port	Partner Name	Partner Device ID	Partner Port	Age	Partner Flags	Partner Group Cap.
Fa5/4	JAB031301	0050.0f10.230c	2/45	2s	SAC	2D
Fa5/5	JAB031301	0050.0f10.230c	2/46	27s	SAC	2D

```
Channel group 2 neighbors
```

Port	Partner Name	Partner Device ID	Partner Port	Age	Partner Flags	Partner Group Cap.
Fa5/6	JAB031301	0050.0f10.230c	2/47	10s	SAC	2F
Fa5/7	JAB031301	0050.0f10.230c	2/48	11s	SAC	2F

```
Switch#
```

### Related Commands

[pagp learn-method](#)  
[pagp port-priority](#)

# show policy-map

To display policy map information, use the **show policy-map** command.

```
show policy-map [policy_map_name]
```

Syntax Description	
	<i>policy_map_name</i> (Optional) Name of the policy map.

Defaults	
	This command has no default settings.

Command Modes	
	Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

Examples	
	This example shows how to display policy map information for all policy maps:

```
Switch# show policy-map
Policy Map ipp5-policy
  class ipp5
    set ip precedence 6
Switch#
```

This example shows how to display policy map information for a specific policy map:

```
Switch# show policy ipp5-policy
Policy Map ipp5-policy
  class ipp5
    set ip precedence 6
Switch#
```

Related Commands	
	<a href="#">class-map</a> <a href="#">policy-map</a> <a href="#">show class-map</a> <a href="#">show policy-map interface</a>



# show policy-map interface

To display statistics and configurations of input and output policies attached to an interface, use the **show policy-map interface** command.

```
show policy-map interface [{FastEthernet interface-number} | {GigabitEthernet
interface-number} | {port-channel number} | {vlan vlan_id}] [input | output]
```

Syntax Description		
<b>FastEthernet</b> <i>interface-number</i>	(Optional)	Specifies the Fast Ethernet 802.3 interface.
<b>GigabitEthernet</b> <i>interface-number</i>	(Optional)	Specifies the Gigabit Ethernet 802.3z interface.
<b>port-channel</b> <i>number</i>	(Optional)	Specifies the port channel.
<b>vlan</b> <i>vlan_id</i>	(Optional)	Specifies the VLAN ID; valid values are from 1 to 4094.
<b>input</b>	(Optional)	Specifies input policies only.
<b>output</b>	(Optional)	Specifies output policies only.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(12c)EW	Added support for extended VLAN addresses.

**Examples** This example shows how to display statistics and configurations of all input and output policies attached to an interface:

```
Switch# show policy-map interface

FastEthernet6/1

  service-policy input:ipp5-policy

    class-map:ipp5 (match-all)
      0 packets
      match:ip precedence 5
      set:
        ip precedence 6

    class-map:class-default (match-any)
      0 packets
      match:any
      0 packets

  service-policy output:ipp5-policy
```

**show policy-map interface**

```

class-map:ipp5 (match-all)
  0 packets
  match:ip precedence 5
  set:
    ip precedence 6

class-map:class-default (match-any)
  0 packets
  match:any
    0 packets
Switch#

```

This example shows how to display input policy statistics and configurations for a specific interface:

```

Switch# show policy-map interface fastethernet 5/36 input
service-policy input:ipp5-policy

class-map:ipp5 (match-all)
  0 packets
  match:ip precedence 5
  set:
    ip precedence 6

class-map:class-default (match-any)
  0 packets
  match:any
    0 packets
Switch#

```

**Related Commands**

[class-map](#)  
[policy-map](#)  
[show class-map](#)  
[show qos](#)

# show port-security

To display port security settings for an interface or for the switch, use the **show port-security** command.

```
show port-security [address] [interface interface-id]
```

Syntax Description	address	(Optional) Displays all secure MAC addresses for all ports or for a specific port.
	interface interface-id	(Optional) Displays port security settings for a specific interface.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(13)EW	Support for this command was first introduced on the Catalyst 4500 series switch.
	12.2(18)EW	Support was enhanced to display sticky MAC addresses.

**Usage Guidelines**

If you enter the command without keywords, the output includes the administrative and operational status of all secure ports on the switch.

If you enter the *interface-id* value, the **show port-security** command displays port security settings for the interface.

If you enter the **address** keyword, the **show port-security address** command displays the secure MAC addresses for all interfaces and the aging information for each secure address.

If you enter the *interface-id* value and the **address** keyword, the **show port-security address interface** command displays all the MAC addresses for the interface with aging information for each secure address. You can also use this command to display all the MAC addresses for an interface even if you have not enabled port security on it.

## Examples

This is an example of the output from the **show port-security** command:

```
Switch# show port-security
Secure Port      MaxSecureAddr  CurrentAddr    SecurityViolation  Security
Action
                (Count)        (Count)        (Count)
-----
Fa0/1            11              11              0                  Shutdown
Fa0/5            15              5                0                  Restrict
Fa0/11           5                4                0                  Protect
-----

Total Addresses in System :21
Max Addresses limit in System :1024
Switch#
```

## show port-security

This is an example of output from the **show port-security interface fastethernet2/2** command:

```
Switch# show port-security interface fastethernet2/2
Port Security           : Enabled
Port Status            : Secure-up
Violation Mode         : Shutdown
Aging Time             : 20 mins
Aging Type             : Inactivity
SecureStatic Address Aging : Enabled
Maximum MAC Addresses  : 11
Total MAC Addresses    : 11
Configured MAC Addresses : 3
Sticky MAC Addresses   : 0
Last Source Address    : 0000.0000.0000
Security Violation Count : 0
Switch#
```

This is an example of output from the **show port-security address** command:

```
Switch# show port-security address

Secure Mac Address Table
-----
Vlan    Mac Address      Type                Ports    Remaining Age
      (mins)
-----
  1     0001.0001.0001  SecureDynamic      Fa2/1    15 (I)
  1     0001.0001.0002  SecureSticky       Fa2/1    15 (I)
  1     0001.0001.1111  SecureConfigured   Fa2/1    16 (I)
  1     0001.0001.1112  SecureConfigured   Fa2/1    -
  1     0001.0001.1113  SecureConfigured   Fa2/1    -
  1     0005.0005.0001  SecureConfigured   Fa2/5    23
  1     0005.0005.0002  SecureConfigured   Fa2/5    23
  1     0005.0005.0003  SecureConfigured   Fa2/5    23
  1     0011.0011.0001  SecureConfigured   Fa2/11   25 (I)
  1     0011.0011.0002  SecureConfigured   Fa2/11   25 (I)
  1     0000.0111.0111  SecureDynamic(Dot1x) Fa6/1    -

-----
Total Addresses in System :11
Max Addresses limit in System :1024
Switch#
```

This is an example of output from the **show port-security interface fastethernet2/5 address** command:

```
Switch# show port-security interface fastethernet2/5 address

Secure Mac Address Table
-----
Vlan    Mac Address      Type                Ports    Remaining Age
      (mins)
-----
  1     0005.0005.0001  SecureConfigured   Fa0/5    19 (I)
  1     0005.0005.0002  SecureConfigured   Fa0/5    19 (I)
  1     0005.0005.0003  SecureConfigured   Fa0/5    19 (I)

-----
Total Addresses:3Total Addresses in System :10
Max Addresses limit in System :1024
Switch#
```

### Related Commands

[switchport port-security](#)

# show power

To display the status of power information, use the **show power** command.

```
show power [available | capabilities | detail | inline {[interface] | consumption default | module
mod} | module | status | supplies]
```

Syntax Description		
<b>available</b>	(Optional)	Displays available system power.
<b>capabilities</b>	(Optional)	Displays individual power supply capabilities.
<b>detail</b>	(Optional)	Displays detailed information on power resources.
<b>inline</b>	(Optional)	Displays PoE status.
<i>interface</i>	(Optional)	Type of interface; the only valid value is <b>FastEthernet</b> .
<b>consumption default</b>	(Optional)	Displays the PoE consumption.
<b>module</b> <i>mod</i>	(Optional)	Displays PoE consumption for the specified module.
<b>module</b>	(Optional)	Displays power consumption for each module.
<b>status</b>	(Optional)	Displays power supply status.
<b>supplies</b>	(Optional)	Displays the number of power supplies needed by the system.

## Defaults

This command has no default settings.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

## Usage Guidelines

If a powered device is connected to an interface with external power, the switch does not recognize the powered device. The Device column in the output of the **show power inline** command displays as unknown.

If your port is not capable of supporting Power over Ethernet, you will receive the following error message:

```
Power over Ethernet not supported on interface Admin
```

The **show power in-line interface | module** command displays the amount of power used to operate a Cisco 7960 IP Phone. To view the amount of power requested, use the **show cdp neighbors** command.

Because of the PoE consumed by FPGAs and other hardware components on the module the operating PoE consumption for an 802.3af-compliant module can be nonzero, even when there are no powered devices attached to the module. The operating PoE can vary by as much as 20 watts because of fluctuations in the PoE consumed by the hardware components.

**Examples**

This example shows how to display general power supply information:

```
Switch# show power
Power
Supply Model No          Type          Status          Fan          Inline
Sensor Status
-----
PS1     PWR-C45-2800AC        AC 2800W      good           good         good
PS2     PWR-C45-1000AC        AC 1000W      err-disable    good         n.a.

*** Power Supplies of different type have been detected***

Power supplies needed by system   :1
Power supplies currently available :1

Power Summary
(in Watts)          Used          Maximum
-----
System Power (12V)  328           1360
Inline Power (-50V)  0             1400
Backplane Power (3.3V) 10            40
-----
Total Used          338 (not to exceed Total Maximum Available = 750)
Switch#
```

This example shows how to display the amount of available system power:

```
Switch# show power available
Power Summary
(in Watts)  Available  Used  Remaining
-----
System Power  1360      280   1080
Inline Power  1400       0    1400
Maximum Power 2800      280   2520
Switch#
```

This example shows how to display the detailed information for system power.

```
Switch# show power detail
Power
Supply Model No          Type          Status          Fan          Inline
Sensor Status
-----
PS1     PWR-C45-1300ACV      AC 1300W      good           good         good
PS2     none                 --           --            --           --

Power supplies needed by system   :1
Power supplies currently available :1

Power Summary
(in Watts)          Used          Maximum
-----
System Power (12V)  518           1000
Inline Power (-50V)  24            742
Backplane Power (3.3V) 40            40
-----
Total Used          582 (not to exceed Total Maximum Available = 1300)

Mod  Model
-----
1    WS-X4013+          110          110          110
3    WS-X4448-GB-LX    90           90           50
4    WS-X4418           80           80           50
5    WS-X4248-RJ45V    65           65           25

Watts Used of System Power (12V)
currently out of reset in reset
-----
```

6	WS-X4248-RJ45V	65	65	25
7	WS-4548-GB-RJ45	58	58	15
--	Fan Tray	50	--	--
-----				
	Total	518	468	275

Mod	Model	Inline Power Admin		Inline Power Oper		Efficiency
		PS	Device	PS	Device	
1	WS-X4013+	-	-	-	-	-
3	WS-X4448-GB-LX	-	-	-	-	-
4	WS-X4418	-	-	-	-	-
5	WS-X4248-RJ45V	24	22	22	20	89
6	WS-X4248-RJ45V	0	0	22	20	89
7	WS-4548-GB-RJ45	-	-	-	-	-
-----						
	Total	24	22	44	40	

**Note**

The “Inline Power Oper” displays the PoE consumed by the powered devices attached to the module in addition to the PoE consumed by the FPGAs and other hardware components on the module. The “Inline Power Admin” displays only the PoE allocated by the powered devices attached to the module.

This example shows how to display the power status information:

```
Switch# show power status
Power
Supply  Model No          Type          Status        Fan      Inline
Sensor  Status
-----  -
PS1     PWR-C45-2800AC    AC 2800W    good          good     good
PS2     PWR-C45-2800AC    AC 2800W    good          good     good

Power Supply  Max      Min      Max      Min      Absolute
(Nos in Watts)  Inline  Inline  System  System  Maximum
-----  -
PS1          1400    1400    1360    1360    2800
PS2          1400    1400    1360    1360    2800
Switch#
```

This example shows how to verify the PoE consumption for the switch:

```
Switch# show power inline consumption default
Default PD consumption : 5000 mW
Switch#
```

This example shows how to display the status of inline power:

```
Switch# show power inline
Available:677(w)  Used:117(w)  Remaining:560(w)

Interface Admin  Oper          Power(Watts)  Device          Class
          From PS   To Device
-----  -
Fa3/1    auto  on           17.3    15.4    Ieee PD         0
Fa3/2    auto  on           4.5     4.0     Ieee PD         1
Fa3/3    auto  on           7.1     6.3     Cisco IP Phone 7960 0
Fa3/4    auto  on           7.1     6.3     Cisco IP Phone 7960 n/a
Fa3/5    auto  on           17.3    15.4    Ieee PD         0
Fa3/6    auto  on           17.3    15.4    Ieee PD         0
Fa3/7    auto  on           4.5     4.0     Ieee PD         1
Fa3/8    auto  on           7.9     7.0     Ieee PD         2
Fa3/9    auto  on           17.3    15.4    Ieee PD         3
Fa3/10   auto  on           17.3    15.4    Ieee PD         4
```

## show power

```

Fa3/11  auto  off    0      0      n/a      n/a
Fa3/12  auto  off    0      0      n/a      n/a
Fa3/13  auto  off    0      0      n/a      n/a
Fa3/14  auto  off    0      0      n/a      n/a
Fa3/15  auto  off    0      0      n/a      n/a
Fa3/16  auto  off    0      0      n/a      n/a
Fa3/17  auto  off    0      0      n/a      n/a
Fa3/18  auto  off    0      0      n/a      n/a

```

```
-----
Totals:          10  on    117.5    104.6

```

```
Switch#
```

This example shows how to display the number of power supplies needed by the system:

```

Switch# show power supplies
Power supplies needed by system = 2
Switch#

```

This example shows how to display the PoE status for Fast Ethernet interface 3/1:

```

Switch# show power inline fa3/1
Available:677(w)  Used:11(w)  Remaining:666(w)

```

Interface	Admin	Oper	Power (Watts)		Device	Class
			From PS	To Device		
Fa3/1	auto	on	11.2	10.0	Ieee PD	0

Interface	AdminPowerMax (Watts)	AdminConsumption (Watts)
Fa3/1	15.4	10.0

```
Switch#
```

### Related Commands

- [power dc input](#)
- [power inline](#)
- [power inline consumption](#)
- [power redundancy-mode](#)
- [power supplies required](#)



# show qos

To display QoS information, use the **show qos** command.

**show qos**

---

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

---

**Defaults** This command has no default settings.

---

**Command Modes** Privileged EXEC

---

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

---

---

**Examples** This example shows the output that might be displayed if you do not enter any keywords:

```
Switch# show qos
  QoS is enabled globally
Switch#
```

---

**Related Commands** [qos \(global configuration mode\)](#)  
[qos \(interface configuration mode\)](#)

# show qos aggregate policer

To display QoS aggregate policer information, use the **show qos aggregate policer** command.

```
show qos aggregate policer [aggregate_name]
```

<b>Syntax Description</b>	<i>aggregate_name</i> (Optional) Named aggregate policer.
---------------------------	---

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

<b>Usage Guidelines</b>	The aggregate policer name is case sensitive.
-------------------------	---

<b>Examples</b>	This example shows the output if you do not enter any keywords:
-----------------	---

```
Switch# show qos aggregate policer
Policer aggr-1
Rate(bps):10000000 Normal-Burst(bytes):1000000
conform-action:transmit exceed-action:policed-dscp-transmit
Policymaps using this policer:
    ipp5-policy
Switch#
```

<b>Related Commands</b>	<a href="#">qos aggregate-policer</a>
-------------------------	---------------------------------------

# show qos dbl

To display global Dynamic Buffer Limiting (DBL) information, use the **show qos dbl** command.

**show qos dbl**

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

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(13)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display global DBL information:

```
Switch# show qos dbl
DBL is enabled globally
DBL flow includes vlan
DBL flow includes l4-ports
DBL does not use ecn to indicate congestion
DBL exceed-action mark probability:15%
DBL max credits:15
DBL aggressive credit limit:10
DBL aggressive buffer limit:2 packets
Switch#
```

**Related Commands** [qos \(global configuration mode\)](#)  
[qos dbl](#)

# show qos interface

To display queuing information, use the **show qos interface** command.

```
show qos interface {FastEthernet interface-number | GigabitEthernet interface-number} |
[vlan vlan_id | port-channel number]
```

Syntax Description		
<b>FastEthernet</b> <i>interface-number</i>		Specifies the Fast Ethernet 802.3 interface.
<b>GigabitEthernet</b> <i>interface-number</i>		Specifies the Gigabit Ethernet 802.3z interface.
<b>vlan</b> <i>vlan_id</i>		(Optional) Specifies the VLAN ID; valid values are from 1 to 4094.
<b>port-channel</b> <i>number</i>		(Optional) Specifies the port channel; valid ranges are from 1 to 64.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
	12.1(13)EW	Added support for extended VLAN addresses.
	12.1(19)EW	Display changed to include the Port Trust Device.

**Examples** This example shows how to display queuing information:

```
Switch# show qos interface fastethernet 6/1
  QoS is enabled globally
  Port QoS is enabled
  Administrative Port Trust State: 'dscp'
  Operational Port Trust State: 'untrusted'
  Port Trust Device: 'cisco-phone'
  Default DSCP:0 Default CoS:0

  Tx-Queue  Bandwidth  ShapeRate  Priority  QueueSize
            (bps)      (bps)      (bps)      (packets)
  1          31250000  disabled   N/A       240
  2          31250000  disabled   N/A       240
  3          31250000  disabled   normal    240
  4          31250000  disabled   N/A       240
Switch#
```

**Related Commands** [qos map cos](#)  
[show qos](#)  
[tx-queue](#)

# show qos maps

To display QoS map information, use the **show qos maps** command.

```
show qos maps [cos | dscp [policed | tx-queue]]
```

Syntax Description	
<b>cos</b>	(Optional) Displays CoS map information.
<b>dscp</b>	(Optional) Displays DSCP map information.
<b>policed</b>	(Optional) Displays policed map information.
<b>tx-queue</b>	(Optional) Displays tx-queue map information.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display QoS map settings:

```
Switch# show qos maps
DSCP-TxQueue Mapping Table (dscp = d1d2)
d1 :d2  0  1  2  3  4  5  6  7  8  9
-----
0 :    01 01 01 01 01 01 01 01 01 01
1 :    01 01 01 01 01 01 02 02 02 02
2 :    02 02 02 02 02 02 02 02 02 02
3 :    02 02 03 03 03 03 03 03 03 03
4 :    03 03 03 03 03 03 03 03 04 04
5 :    04 04 04 04 04 04 04 04 04 04
6 :    04 04 04 04

Policed DSCP Mapping Table (dscp = d1d2)
d1 :d2  0  1  2  3  4  5  6  7  8  9
-----
0 :    00 01 02 03 04 05 06 07 08 09
1 :    10 11 12 13 14 15 16 17 18 19
2 :    20 21 22 23 24 25 26 27 28 29
3 :    30 31 32 33 34 35 36 37 38 39
4 :    40 41 42 43 44 45 46 47 48 49
5 :    50 51 52 53 54 55 56 57 58 59
6 :    60 61 62 63
```

■ **show qos maps**

```
DSCP-CoS Mapping Table (dscp = d1d2)
d1 :d2  0  1  2  3  4  5  6  7  8  9
-----
0  :   00 00 00 00 00 00 00 00 01 01
1  :   01 01 01 01 01 01 02 02 02 02
2  :   02 02 02 02 03 03 03 03 03 03
3  :   03 03 04 04 04 04 04 04 04 04
4  :   05 05 05 05 05 05 05 05 06 06
5  :   06 06 06 06 06 06 07 07 07 07
6  :   07 07 07 07
```

```
CoS-DSCP Mapping Table
CoS:  0  1  2  3  4  5  6  7
-----
DSCP: 0  8 16 24 32 40 48 56
```

```
Switch#
```

**Related Commands**

**qos (global configuration mode)**  
**qos (interface configuration mode)**

# show redundancy

To display redundancy facility information, use the **show redundancy** command.

**show redundancy { clients | counters | history | states }**

Syntax Description	
<b>clients</b>	Displays the redundancy facility client information.
<b>counters</b>	Displays the redundancy facility counter information.
<b>history</b>	Displays a log of past status and related information for the redundancy facility.
<b>states</b>	Displays the redundancy facility state information.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1.(13)EW	Support for this command was introduced on the Catalyst 4500 series switch (Catalyst 4507R only.)

**Examples** This example shows how to display redundancy facility client information:

```
Switch# show redundancy clients
clientID = 0      clientSeq = 0      RF_INTERNAL_MSG
clientID = 30     clientSeq = 135   Redundancy Mode RF
clientID = 28     clientSeq = 330   GALIOS_CONFIG_SYNC
clientID = 65000  clientSeq = 65000 RF_LAST_CLIIENT Switch
```

The output displays the following information:

- clientID displays the client's ID number.
- clientSeq displays the client's notification sequence number.
- Current redundancy facility state.

This example shows how to display the redundancy facility counter information:

```
Switch# show redundancy counters
Redundancy Facility OMs
      comm link up = 1
      comm link down down = 0

      invalid client tx = 0
      null tx by client = 0
      tx failures = 0
      tx msg length invalid = 0

      client not rxing msgs = 0
      rx peer msg routing errors = 0
      null peer msg rx = 0
```

## show redundancy

```

        errored peer msg rx = 0
            buffers tx = 1535
tx buffers unavailable = 0
            buffers rx = 1530
        buffer release errors = 0

duplicate client registers = 0
failed to register client = 0
Invalid client syncs = 0

```

This example shows how to display redundancy facility history information:

```

Switch# show redundancy history
00:00:01 client added: RF_INTERNAL_MSG(0) seq=0
00:00:01 client added: RF_LAST_CLIEN(65000) seq=65000
00:00:01 client added: GALIOS_CONFIG_SYNC(28) seq=330
00:00:03 client added: Redundancy Mode RF(30) seq=135
00:00:03 *my state = INITIALIZATION(2) *peer state = DISABLED(1)
00:00:03 RF_PROG_INITIALIZATION(100) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:03 RF_PROG_INITIALIZATION(100) Redundancy Mode RF(30) op=0 rc=11
00:00:03 RF_PROG_INITIALIZATION(100) GALIOS_CONFIG_SYNC(28) op=0 rc=11
00:00:03 RF_PROG_INITIALIZATION(100) RF_LAST_CLIEN(65000) op=0 rc=11
00:00:03 *my state = NEGOTIATION(3) peer state = DISABLED(1)
00:00:25 RF_EVENT_GO_ACTIVE(511) op=0
00:00:25 *my state = ACTIVE-FAST(9) peer state = DISABLED(1)
00:00:25 RF_STATUS_MAINTENANCE_ENABLE(403) Redundancy Mode RF(30) op=0
00:00:25 RF_STATUS_MAINTENANCE_ENABLE(403) GALIOS_CONFIG_SYNC(28) op=0
00:00:25 RF_PROG_ACTIVE_FAST(200) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:25 RF_PROG_ACTIVE_FAST(200) Redundancy Mode RF(30) op=0 rc=11
00:00:25 RF_PROG_ACTIVE_FAST(200) GALIOS_CONFIG_SYNC(28) op=0 rc=11
00:00:25 RF_PROG_ACTIVE_FAST(200) RF_LAST_CLIEN(65000) op=0 rc=11
00:00:25 *my state = ACTIVE-DRAIN(10) peer state = DISABLED(1)
00:00:25 RF_PROG_ACTIVE_DRAIN(201) RF_INTERNAL_MSG(0) op=0 rc=11
00:00:25 RF_PROG_ACTIVE_DRAIN(201) Redundancy Mode RF(30) op=0 rc=11
00:00:25 RF_PROG_ACTIVE_DRAIN(201) GALIOS_CONFIG_SYNC(28) op=0 rc=11
00:00:25 RF_PROG_ACTIVE_DRAIN(201) RF_LAST_CLIEN(65000) op=0 rc=11
---cut---cut---cut---
---cut---cut---cut---
00:01:34 RF_PROG_PLATFORM_SYNC(300) RF_INTERNAL_MSG(0) op=0 rc=11
00:01:34 RF_PROG_PLATFORM_SYNC(300) Redundancy Mode RF(30) op=0 rc=11
00:01:34 RF_PROG_PLATFORM_SYNC(300) GALIOS_CONFIG_SYNC(28) op=0 rc=0
00:01:34 RF_EVENT_CLIENT_PROGRESSION(503) GALIOS_CONFIG_SYNC(28) op=1 rc=0
00:01:36 RF_EVENT_PEER_PROG_DONE(506) GALIOS_CONFIG_SYNC(28) op=300
00:01:36 RF_PROG_PLATFORM_SYNC(300) RF_LAST_CLIEN(65000) op=0 rc=0
00:01:36 RF_EVENT_CLIENT_PROGRESSION(503) RF_LAST_CLIEN(65000) op=1 rc=0
00:01:36 RF_EVENT_PEER_PROG_DONE(506) RF_LAST_CLIEN(65000) op=300
00:01:38 *my state = ACTIVE(13) *peer state = STANDBY COLD(4)

```

This example shows how to display redundancy facility state information:

```

Switch# show redundancy state
my state = 13 -ACTIVE
peer state = 4 -STANDBY COLD
Mode = Duplex
Unit = Primary
Unit ID = 1

Redundancy Mode (Operational) = RPR
Redundancy Mode (Configured) = RPR
Split Mode = Disabled
Manual Swact = Enabled
Communications = Up

```



```
client count = 4
client_notification_TMR = 30000 milliseconds
  keep_alive TMR = 4000 milliseconds
    keep_alive count = 1
      keep_alive threshold = 7
        RF debug mask = 0x0
Switch#
```

**Related Commands**

[redundancy](#)  
[redundancy force-switchover](#)

# show running-config

To display module status and configuration, use the **show running-config** command.

```
show running-config [module slot]
```

<b>Syntax Description</b>	<b>module slot</b> (Optional) Specifies the module slot number; valid values are from 1 to 6.				
<b>Defaults</b>	This command has no default settings.				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>12.1(8a)EW</td> <td>Support for this command was introduced on the Catalyst 4500 series switch.</td> </tr> </tbody> </table>	Release	Modification	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
Release	Modification				
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.				

## Usage Guidelines

In some cases, you might see a difference in the duplex mode displayed when you enter the **show interfaces** command and the **show running-config** command. If you do see a difference, the duplex mode displayed in the **show interfaces** command is the actual duplex mode the interface is running. The **show interfaces** command shows the operating mode for an interface, while the **show running-config** command shows the configured mode for an interface.

The **show running-config** command output for an interface may display a duplex mode configuration but no configuration for the speed. When no speed is displayed in the output, it indicates that the interface speed is configured to be auto and that the duplex mode shown becomes the operational setting once the speed is configured to something other than auto. With this configuration, it is possible that the operating duplex mode for that interface does not match the duplex mode shown with the **show running-config** command.

## Examples

This example shows how to display module and status configuration for all modules:

```
Switch# show running-config
03:23:36:%SYS-5-CONFIG_I:Configured from console by consolesh runn
Building configuration...

Current configuration:3268 bytes
!
version 12.1
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname Switch
!
!
power supplies required 1
ip subnet-zero
```

```
!  
!  
!  
interface FastEthernet1  
  no ip address  
  shutdown  
  duplex auto  
  speed auto  
Switch#
```

This example shows the output for the **show running-config** command when you have enabled the **switchport voice vlan** command:

```
Switch# show running-config int fastethernet 6/1  
Building configuration...  
  
Current configuration:133 bytes  
!  
interface FastEthernet6/1  
  switchport voice vlan 2  
  no snmp trap link-status  
  spanning-tree portfast  
  channel-group 1 mode on  
end  
  
Switch#
```

■ **show slavebootflash:**

## show slavebootflash:

To display information about the standby bootflash file system, use the **show slavebootflash:** command.

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

Syntax Description	all	(Optional) Displays all possible Flash information.
	<b>chips</b>	(Optional) Displays Flash chip information.
	<b>filesys</b>	(Optional) Displays file system information.

**Defaults** This command has no default settings.

**Command Modes** EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display file system status information:

```
Switch> show slavebootflash: filesys

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

This example shows how to display system image information:

```
Switch> show slavebootflash:
-# - ED --type-- --crc--- -seek-- nlen -length- -----date/time----- name
1  .. image      8C5A393A 237E3C   14 2063804 Aug 23 1999 16:18:45 c4-boot-mz
2  .. image      D86EE0AD 957CE8    9 7470636 Sep 20 1999 13:48:49 rp.halley
Switch>
```

This example shows how to display all bootflash information:

```
Switch> show slavebootflash: all
-# - ED --type-- --crc--- -seek-- nlen -length- -----date/time----- name
1  .. image      8C5A393A 237E3C   14 2063804 Aug 23 1999 16:18:45 c4-boot-
mz
2  .. image      D86EE0AD 957CE8    9 7470636 Sep 20 1999 13:48:49 rp.halley

6456088 bytes available (9534696 bytes used)

----- F I L E   S Y S T E M   S T A T U S -----
Device Number = 0
DEVICE INFO BLOCK: bootflash
Magic Number      = 6887635   File System Vers = 10000   (1.0)
Length            = 1000000   Sector Size      = 40000
Programming Algorithm = 39   Erased State     = FFFFFFFF
File System Offset = 40000   Length           = F40000
MONLIB Offset     = 100     Length           = C628
Bad Sector Map Offset = 3FFF8   Length           = 8
Squeeze Log Offset = F80000   Length           = 40000
Squeeze Buffer Offset = FC0000   Length           = 40000
Num Spare Sectors = 0

Spares:
STATUS INFO:
Writable
NO File Open for Write
Complete Stats
No Unrecovered Errors
No Squeeze in progress
USAGE INFO:
Bytes Used      = 917CE8   Bytes Available = 628318
Bad Sectors    = 0       Spared Sectors = 0
OK Files       = 2       Bytes          = 917BE8
Deleted Files  = 0       Bytes          = 0
Files w/Errors = 0       Bytes          = 0
Switch>
```

■ `show slaveslot0:`

## show slaveslot0:

To display information about the file system on the standby supervisor engine, use the **show slaveslot0:** command.

**show slot0:** [**all** | **chips** | **filesys**]

Syntax Description	all	(Optional) Displays all Flash information including the output from the <b>show slot0: chips</b> and <b>show slot0: filesys</b> commands.
	<b>chips</b>	(Optional) Displays Flash chip register information.
	<b>filesys</b>	(Optional) Displays file system status information.

**Defaults** This command has no default settings.

**Command Modes** EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display a summary of the file system:

```
Switch> show slaveslot0:
-# - ED --type-- --crc--- -seek-- nlen -length- -----date/time----- name
1  .. image      6375DBB7  A4F144    6 10678468 Nov 09 1999 10:50:42 halley

5705404 bytes available (10678596 bytes used)
Switch>
```

This example shows how to display Flash chip information:

```
Switch> show slaveslot0: chips
***** Intel Series 2+ Status/Register Dump *****
ATTRIBUTE MEMORY REGISTERS:
  Config Option Reg (4000): 2
  Config Status Reg (4002): 0
  Card Status Reg (4100): 1
  Write Protect Reg (4104): 4
  Voltage Cntrl Reg (410C): 0
  Rdy/Busy Mode Reg (4140): 2

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

```

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

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

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

COMMON MEMORY REGISTERS: Bank 4
  Intelligent ID Code : FFFFFFFF
  IID Not Intel -- assuming bank not populated

```

This example shows how to display file system information:

```

Switch> show slaveslot0: filesystems
----- F I L E   S Y S T E M   S T A T U S -----
  Device Number = 0
DEVICE INFO BLOCK: slot0
  Magic Number      = 6887635   File System Vers = 10000   (1.0)
  Length            = 1000000   Sector Size      = 20000
  Programming Algorithm = 4     Erased State     = FFFFFFFF
  File System Offset = 20000    Length = FA0000
  MONLIB Offset     = 100      Length = F568
  Bad Sector Map Offset = 1FFF0  Length = 10
  Squeeze Log Offset = FC0000  Length = 20000
  Squeeze Buffer Offset = FE0000 Length = 20000
  Num Spare Sectors = 0
  Spares:
STATUS INFO:
  Writable
  NO File Open for Write
  Complete Stats
  No Unrecovered Errors
  No Squeeze in progress
USAGE INFO:
  Bytes Used      = 9F365C   Bytes Available = 5AC9A4
  Bad Sectors     = 0        Spared Sectors  = 0
  OK Files        = 1        Bytes = 9F35DC
  Deleted Files   = 0        Bytes = 0
  Files w/Errors  = 0        Bytes =
Switch>

```

■ **show slot0:**

## show slot0:

To display information about the slot0: file system, use the **show slot0:** command.

**show slot0:** [**all** | **chips** | **filesys**]

Syntax Description	all	(Optional) Displays all Flash information including the output from the <b>show slot0: chips</b> and <b>show slot0: filesys</b> commands.
	<b>chips</b>	(Optional) Displays Flash chip register information.
	<b>filesys</b>	(Optional) Displays file system status information.

**Defaults** This command has no default settings.

**Command Modes** EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display a summary of the file system:

```
Switch> show slot0:
-# - ED --type-- --crc--- -seek-- nlen -length- -----date/time----- name
1  .. image      6375DBB7  A4F144      6 10678468 Nov 09 1999 10:50:42 halley

5705404 bytes available (10678596 bytes used)
Switch>
```

This example shows how to display Flash chip information:

```
Switch> show slot0: chips
***** Intel Series 2+ Status/Register Dump *****
ATTRIBUTE MEMORY REGISTERS:
  Config Option Reg (4000): 2
  Config Status Reg (4002): 0
  Card Status Reg (4100): 1
  Write Protect Reg (4104): 4
  Voltage Cntrl Reg (410C): 0
  Rdy/Busy Mode Reg (4140): 2

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



```

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

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

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

COMMON MEMORY REGISTERS: Bank 4
  Intelligent ID Code : FFFFFFFF
  IID Not Intel -- assuming bank not populated
Switch>

```

This example shows how to display file system information:

```

Switch> show slot0: fileSYS
----- F I L E   S Y S T E M   S T A T U S -----
  Device Number = 0
DEVICE INFO BLOCK: slot0
  Magic Number      = 6887635   File System Vers = 10000   (1.0)
  Length            = 1000000   Sector Size      = 20000
  Programming Algorithm = 4     Erased State     = FFFFFFFF
  File System Offset = 20000    Length = FA0000
  MONLIB Offset     = 100      Length = F568
  Bad Sector Map Offset = 1FFF0  Length = 10
  Squeeze Log Offset = FC0000  Length = 20000
  Squeeze Buffer Offset = FE0000 Length = 20000
  Num Spare Sectors = 0
  Spares:
STATUS INFO:
  Writable
  NO File Open for Write
  Complete Stats
  No Unrecovered Errors
  No Squeeze in progress
USAGE INFO:
  Bytes Used      = 9F365C   Bytes Available = 5AC9A4
  Bad Sectors     = 0        Spared Sectors  = 0
  OK Files        = 1        Bytes = 9F35DC
  Deleted Files   = 0        Bytes = 0
  Files w/Errors  = 0        Bytes = 0
Switch>

```

# show spanning-tree

To display spanning tree state information, use the **show spanning-tree** command.

```
show spanning-tree [bridge_group | active | backbonefast | bridge [id] | inconsistentports |
interface type | root | summary [total] | uplinkfast | vlan vlan_id | pathcost method | detail]
```

## Syntax Description

<b>bridge_group</b>	(Optional) Specifies the bridge group number; valid values are from 1 to 255.
<b>active</b>	(Optional) Displays spanning tree information on active interfaces only.
<b>backbonefast</b>	(Optional) Displays spanning tree BackboneFast status.
<b>bridge</b>	(Optional) Displays bridge status and configuration information.
<i>id</i>	(Optional) Name of the bridge.
<b>inconsistentports</b>	(Optional) Displays root inconsistency state.
<b>interface</b> <i>type</i>	(Optional) Specifies the interface type and number; valid values are <b>FastEthernet</b> , <b>GigabitEthernet</b> , <b>port-channel</b> (1 to 64), and <b>vlan</b> (1 to 4094).
<b>root</b>	(Optional) Displays root bridge status and configuration.
<b>summary</b>	(Optional) Specifies a summary of port states.
<b>total</b>	(Optional) Displays the total lines of the spanning tree state section.
<b>uplinkfast</b>	(Optional) Displays spanning tree UplinkFast status.
<b>vlan</b> <i>vlan_id</i>	(Optional) Specifies the VLAN ID; valid values are from 1 to 4094.
<b>pathcost method</b>	(Optional) Displays the default path cost calculation method used.
<b>detail</b>	(Optional) Displays a summary of interface information.

## Defaults

Interface information summary is displayed.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
12.1(12c)EW	Support for extended addressing was added.

## Examples

This example shows how to display spanning tree information on active interfaces only:

```
Switch# show spanning-tree active
UplinkFast is disabled
BackboneFast is disabled
```

```
VLAN1 is executing the ieee compatible Spanning Tree protocol
Bridge Identifier has priority 32768, address 0050.3e8d.6401
Configured hello time 2, max age 20, forward delay 15
Current root has priority 16384, address 0060.704c.7000
Root port is 265 (FastEthernet5/9), cost of root path is 38
Topology change flag not set, detected flag not set
```

```

Number of topology changes 0 last change occurred 18:13:54 ago
Times: hold 1, topology change 24, notification 2
      hello 2, max age 14, forward delay 10
Timers: hello 0, topology change 0, notification 0

Port 265 (FastEthernet5/9) of VLAN1 is forwarding
  Port path cost 19, Port priority 128, Port Identifier 129.9.
  Designated root has priority 16384, address 0060.704c.7000
  Designated bridge has priority 32768, address 00e0.4fac.b000
  Designated port id is 128.2, designated path cost 19
  Timers: message age 3, forward delay 0, hold 0
  Number of transitions to forwarding state: 1
  BPDU: sent 3, received 32852
.
.
.
Switch#

```

This example shows how to display spanning tree BackboneFast status:

```

Switch# show spanning-tree backbonefast
BackboneFast is enabled

BackboneFast statistics
-----
Number of transition via backboneFast (all VLANs) : 0
Number of inferior BPDUs received (all VLANs)    : 0
Number of RLQ request PDUs received (all VLANs)  : 0
Number of RLQ response PDUs received (all VLANs) : 0
Number of RLQ request PDUs sent (all VLANs)      : 0
Number of RLQ response PDUs sent (all VLANs)     : 0
Switch#

```

This example shows how to display spanning tree information for the bridge:

```

Switch# show spanning-tree bridge
VLAN1
  Bridge ID Priority    32768
           Address    0050.3e8d.6401
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
VLAN2
  Bridge ID Priority    32768
           Address    0050.3e8d.6402
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
VLAN3
  Bridge ID Priority    32768
           Address    0050.3e8d.6403
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
.
.
.
Switch#

```

This example shows how to display a summary of interface information:

```

Switch# show spanning-tree

VLAN1
  Spanning tree enabled protocol ieee
  Root ID    Priority    32768
           Address    0030.94fc.0a00
           This bridge is the root
           Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID Priority    32768

```

■ **show spanning-tree**

```

Address      0030.94fc.0a00
Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
Aging Time  300

Interface
Name          Port ID Prio  Cost Sts      Designated
-----
FastEthernet6/15  129.79 128   19 FWD      0 32768 0030.94fc.0a00 129.79

VLAN2
Spanning tree enabled protocol ieee
Root ID      Priority    32768
Address      0030.94fc.0a01
This bridge is the root
Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec

Bridge ID    Priority    32768
Address      0030.94fc.0a01
Hello Time   2 sec  Max Age 20 sec  Forward Delay 15 sec
Aging Time  300

Interface
Name          Port ID Prio  Cost Sts      Designated
-----
FastEthernet6/16  129.80 128   19 FWD      0 32768 0030.94fc.0a01 129.80
Switch#

```

This example shows how to display spanning tree information for a specific interface:

```

Switch# show spanning-tree interface fastethernet 5/9
Interface Fa0/10 (port 23) in Spanning tree 1 is ROOT-INCONSISTENT
Port path cost 100, Port priority 128
Designated root has priority 8192, address 0090.0c71.a400
Designated bridge has priority 32768, address 00e0.1e9f.8940
Designated port is 23, path cost 115
Timers: message age 0, forward delay 0, hold 0
BPDU: sent 0, received 0
The port is in the portfast mode

```

This example shows how to display spanning tree information for a specific VLAN:

```

Switch# show spanning-tree vlan 1
VLAN1 is executing the ieee compatible Spanning Tree protocol
Bridge Identifier has priority 32768, address 0030.94fc.0a00
Configured hello time 2, max age 20, forward delay 15
We are the root of the spanning tree
Topology change flag not set, detected flag not set
Number of topology changes 5 last change occurred 01:50:47 ago
    from FastEthernet6/16
Times: hold 1, topology change 35, notification 2
    hello 2, max age 20, forward delay 15

Timers:hello 0, topology change 0, notification 0, aging 300

Port 335 (FastEthernet6/15) of VLAN1 is forwarding
Port path cost 19, Port priority 128, Port Identifier 129.79.
Designated root has priority 32768, address 0030.94fc.0a00
Designated bridge has priority 32768, address 0030.94fc.0a00
Designated port id is 129.79, designated path cost 0
Timers:message age 0, forward delay 0, hold 0
Number of transitions to forwarding state:1
BPDU:sent 6127, received 0
Switch#

```

This example shows how to display spanning tree information for a specific bridge group:

```
Switch# show spanning-tree vlan 1
UplinkFast is disabled
BackboneFast is disabled
```

This example shows how to display a summary of port states:

```
Switch# show spanning-tree summary
Root bridge for:VLAN1, VLAN2.
PortFast BPDU Guard is disabled
EtherChannel misconfiguration guard is enabled
UplinkFast is disabled
BackboneFast is disabled
Default pathcost method used is short
```

Name	Blocking	Listening	Learning	Forwarding	STP Active
VLAN1	0	0	0	1	1
VLAN2	0	0	0	1	1
-----					
	2 VLANs 0	0	0	2	2

```
Switch#
```

This example shows how to display the total lines of the spanning tree state section:

```
Switch# show spanning-tree summary totals
Root bridge for:VLAN1, VLAN2.
PortFast BPDU Guard is disabled
EtherChannel misconfiguration guard is enabled
UplinkFast is disabled
BackboneFast is disabled
Default pathcost method used is short
```

Name	Blocking	Listening	Learning	Forwarding	STP Active
-----					
	2 VLANs 0	0	0	2	2

```
Switch#
```

This example shows how to determine whether any ports are in root inconsistent state:

```
Switch# show spanning-tree inconsistentports
```

Name	Interface	Inconsistency
VLAN1	FastEthernet3/1	Root Inconsistent

```
Number of inconsistent ports (segments) in the system:1
Switch#
```

■ show spanning-tree

---

**Related Commands**

[spanning-tree backbonefast](#)  
[spanning-tree cost](#)  
[spanning-tree guard](#)  
[spanning-tree pathcost method](#)  
[spanning-tree portfast default](#)  
[spanning-tree portfast \(interface configuration mode\)](#)  
[spanning-tree port-priority](#)  
[spanning-tree uplinkfast](#)  
[spanning-tree vlan](#)

# show spanning-tree mst

To display MST protocol information, use the **show spanning-tree mst** command.

**show spanning-tree mst** [**configuration**]

**show spanning-tree mst** [*instance-id*] [**detail**]

**show spanning-tree mst** [*instance-id*] **interface** *interface* [**detail**]

## Syntax Description

<b>configuration</b>	(Optional) Displays region configuration information.
<i>instance-id</i>	(Optional) Instance identification number; valid values are from 0 to 15.
<b>detail</b>	(Optional) Displays detailed MST protocol information.
<b>interface</b> <i>interface</i>	(Optional) Interface type and number; valid values for type are <b>FastEthernet</b> , <b>GigabitEthernet</b> , <b>port-channel</b> , and <b>vlan</b> . See “Usage Guidelines” for more information.

## Defaults

This command has no default settings.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(12c)EW	Support for this command was introduced on the Catalyst 4500 series switch.

## Usage Guidelines

This command is not supported on systems configured with a Supervisor Engine 1.

In the output display of the **show spanning-tree mst configuration** command, a warning message might display. This message appears if you do not map secondary VLANs to the same instance as the associated primary VLAN. The display includes a list of the secondary VLANs that are not mapped to the same instance as the associated primary VLAN. The warning message is as follows:

```
These secondary vlans are not mapped to the same instance as their primary:
-> 3
```

See the [show spanning-tree](#) command for output definitions.

## Examples

This example shows how to display region configuration information:

```
Switch# show spanning-tree mst configuration
Name      [leo]
Revision  2702
Instance  Vlans mapped
-----
0         1-9, 11-19, 21-29, 31-39, 41-4094
1         10, 20, 30, 40
-----
```

This example shows how to display additional MST protocol values:

```
Switch# show spanning-tree mst 3 detail
# # # # # MST03 vlans mapped: 3,3000-3999
Bridge address 0002.172c.f400 priority 32771 (32768 sysid 3)
Root this switch for MST03

GigabitEthernet1/1 of MST03 is boundary forwarding
Port info port id 128.1 priority 128
cost 20000
Designated root address 0002.172c.f400 priority 32771
cost 0
Designated bridge address 0002.172c.f400 priority 32771 port
id 128.1
Timers: message expires in 0 sec, forward delay 0, forward transitions 1
Bpdus (MRecords) sent 4, received 0

FastEthernet4/2 of MST03 is backup blocking
Port info port id 128.194 priority 128 cost
200000
Designated root address 0002.172c.f400 priority 32771
cost 0
Designated bridge address 0002.172c.f400 priority 32771 port id
128.193
Timers: message expires in 2 sec, forward delay 0, forward transitions 1
Bpdus (MRecords) sent 3, received 252
Switch#
```

This example shows how to display MST information for a specific interface:

```
Switch# show spanning-tree mst 0 interface fastEthernet 4/1 detail
Edge port: no (trunk) port guard : none
(default)
Link type: point-to-point (point-to-point) bpdu filter: disable
(default)
Boundary : internal bpdu guard : disable
(default)
FastEthernet4/1 of MST00 is designated forwarding
Vlans mapped to MST00 1-2,4-2999,4000-4094
Port info port id 128.193 priority 128 cost
200000
Designated root address 0050.3e66.d000 priority 8193
cost 20004
Designated ist master address 0002.172c.f400 priority 49152
cost 0
Designated bridge address 0002.172c.f400 priority 49152 port id
128.193
Timers: message expires in 0 sec, forward delay 0, forward transitions 1
Bpdus sent 492, received 3
Switch#
```

## Related Commands

- [spanning-tree mst](#)
- [spanning-tree mst forward-time](#)
- [spanning-tree mst hello-time](#)
- [spanning-tree mst max-hops](#)
- [spanning-tree mst root](#)



# show storm-control

To display broadcast storm control settings on the switch or on the specified interface, use the **show storm-control** user EXEC command.

```
show storm-control [interface-id | broadcast]
```

## Syntax Description

<i>interface-id</i>	(Optional) Specifies the interface ID for the physical port.
<b>broadcast</b>	(Optional) Displays broadcast storm threshold setting.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(19)EW	Support for this command was introduced on the Catalyst 4500 series switch.

## Usage Guidelines

When you enter an interface ID, the storm control thresholds are displayed for the specified interface. If you do not enter an interface ID, settings are displayed for broadcast traffic type for all ports on the switch.

## Examples

This is an example of output from the **show storm-control** command when no keywords are entered. Because no traffic type keyword was entered, the broadcast storm control settings are displayed.

```
Switch# show storm-control
Interface  Filter State  Upper    Lower    Current
-----  -
Gi2/1     Forwarding    30.00%  30.00%  N/A
Gi4/1     Forwarding    30.00%  30.00%  N/A
Gi4/3     Forwarding    30.00%  30.00%  N/A
```

This is an example of output from the **show storm-control** command for a specified interface. Because no traffic type keyword was entered, the broadcast storm control settings are displayed.

```
Switch# show storm-control fastethernet2/17
Interface  Filter State  Level    Current
-----  -
Fa2/17     Forwarding    50.00%  0.00%
```

## show storm-control

This is an example of output from the **show storm-control** command for a specified interface and traffic type, where no storm control threshold has been set for that traffic type on the specified interface.

```
Switch# show storm-control gigabitethernet2/1 broadcast
Interface  Filter State  Level  Current
-----  -
Gi2/1     forwarding    100.00%  N/A
<output truncated>
```

Table 2-18 describes the fields in the **show storm-control** display.

**Table 2-18 show storm-control Field Descriptions**

Field	Description
Interface	Displays the ID of the interface.
Filter State	Displays the status of the filter: <ul style="list-style-type: none"> <li>Blocking—Storm control is enabled, and a storm has occurred.</li> <li>Forwarding—Storm control is enabled, and no storms have occurred.</li> <li>Inactive—Storm control is disabled.</li> </ul>
Level	Displays the threshold level set on the interface for broadcast traffic.
Current	Displays the bandwidth utilization of broadcast traffic as a percentage of total available bandwidth. This field is only valid when storm control is enabled. <p><b>Note</b> N/A is displayed for interfaces that do storm control in hardware.</p>

### Related Commands

[storm-control](#)  
[show interfaces counters](#)  
[show running-config](#)

# show system mtu

To display the global MTU setting, use the **show system mtu** command.

**show system mtu**

---

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

---

**Defaults** This command has no default settings.

---

**Command Modes** Privileged EXEC

---

Command History	Release	Modification
	12.1(12c)EW	Support for this command was introduced on the Catalyst 4500 series switch.

---

---

**Examples** This example shows how to display the global MTU setting:

```
Switch# show system mtu
Global Ethernet MTU is 1550 bytes.
Switch#
```

---

**Related Commands** [system mtu](#)

# show tech-support

To display troubleshooting information for TAC, use the **show tech-support** command.

**show tech-support** [**bridging** | **cef** | **ipmulticast** | **isis** | **password** [**page**] | **page**]

Syntax Description	
<b>bridging</b>	(Optional) Specifies bridging-related information.
<b>cef</b>	(Optional) Specifies CEF-related information.
<b>ipmulticast</b>	(Optional) Specifies IP multicast-related information.
<b>isis</b>	(Optional) Specifies CLNS and ISIS-related information.
<b>password</b>	(Optional) Includes passwords and other security information in the output.
<b>page</b>	(Optional) Displays one page of information at a time in the output.

## Defaults

The defaults are as follows:

- Outputs are displayed without page breaks.
- Passwords and other security information are removed from the output.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

## Usage Guidelines

Press the **Return** key to display the next line of output, or press the **Space** bar to display the next page of information. If you do not enter the **page** keyword, the output scrolls. It does not stop for page breaks.

If you enter the **password** keyword, password encryption is enabled, but only the encrypted form appears in the output.

If you do not enter the **password** keyword, passwords and other security-sensitive information in the output are replaced in the output with the word “removed.”

The **show tech-support** commands are a compilation of several **show** commands and the output can be quite lengthy. For a sample display of the output of the **show tech-support** command, see the individual **show** command listed.

If you enter the **show tech-support** command without arguments, the output displays the equivalent of these **show** commands:

- **show version**
- **show running-config**
- **show stacks**
- **show interfaces**
- **show controllers**

- **show process memory**
- **show process cpu**
- **show buffers**
- **show logging**
- **show module**
- **show power**
- **show environment**
- **show interfaces switchport**
- **show interfaces trunk**
- **show vlan**

If you enter the **ipmulticast** keyword, the output displays the equivalent of these **show** commands:

- **show ip pim interface**
- **show ip pim interface count**
- **show ip pim neighbor**
- **show ip pim rp**
- **show ip igmp groups**
- **show ip igmp interface**
- **show ip mroute count**
- **show ip mroute**
- **show ip mcache**
- **show ip dvmrp route**

---

**Examples**

For a sample display of the **show tech-support** command output, see the commands listed in “Usage Guidelines” for more information.

---

**Related Commands**

See “Usage Guidelines.”

# show uddl

To display the administrative and operational UDLD status, use the **show uddl** command.

**show uddl** *interface-id*

<b>Syntax Description</b>	<i>interface-id</i> Name of the interface.				
<b>Defaults</b>	This command has no default settings.				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>12.1(8a)EW</td> <td>Support for this command was introduced on the Catalyst 4500 series switch.</td> </tr> </tbody> </table>	Release	Modification	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
Release	Modification				
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.				

**Usage Guidelines** If you do not enter an interface ID value, administrative and operational UDLD status for all interfaces is displayed.

**Examples** This example shows how to display the UDLD state for a single interface:

```
Switch# show uddl GigabitEthernet2/2
Interface Gi2/2
---
Port enable administrative configuration setting: Follows device default
Port enable operational state: Enabled
Current bidirectional state: Bidirectional
Current operational state: Advertisement
Message interval: 60
Time out interval: 5
No multiple neighbors detected
  Entry 1
  ---
  Expiration time: 146
  Device ID: 1
  Current neighbor state: Bidirectional
  Device name: 0050e2826000
  Port ID: 2/1
  Neighbor echo 1 device: SAD03160954
  Neighbor echo 1 port: Gi1/1
  Message interval: 5
  CDP Device name: 066527791
Switch#
```

**Related Commands** [udld \(global configuration mode\)](#)  
[udld \(interface configuration mode\)](#)

# show vlan

To display VLAN information, use the **show vlan** command.

```
show vlan [brief | id vlan_id | name name]
```

```
show vlan private-vlan [type]
```

Syntax Description	
<b>brief</b>	(Optional) Displays only a single line for each VLAN, naming the VLAN, status, and ports.
<b>id <i>vlan_id</i></b>	(Optional) Displays information about a single VLAN identified by VLAN ID number; valid values are from 1 to 4094.
<b>name <i>name</i></b>	(Optional) Displays information about a single VLAN identified by VLAN name; valid values are an ASCII string from 1 to 32 characters.
<b>private-vlan</b>	Displays private VLAN information.
<b><i>type</i></b>	(Optional) Private VLAN type.

## Defaults

This command has no default settings.

## Command Modes

Privileged EXEC

## Command History

Release	Modification
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
12.1(12c)EW	Added support for extended VLAN addresses.

## Examples

This example shows how to display the VLAN parameters for all VLANs within the administrative domain:

```
Switch# show vlan
VLAN Name                Status      Ports
-----
1    default                active     Fa5/9
2    VLAN0002                active     Fa5/9
3    VLAN0003                active     Fa5/9
4    VLAN0004                active     Fa5/9
5    VLAN0005                active     Fa5/9
6    VLAN0006                active     Fa5/9
10   VLAN0010                active     Fa5/9
20   VLAN0020                active     Fa5/9

<...Output truncated...>
```

## show vlan

```

850 VLAN0850                active   Fa5/9
917 VLAN0917                active   Fa5/9
999 VLAN0999                active   Fa5/9
1002 fddi-default           active   Fa5/9
1003 trcrf-default          active   Fa5/9
1004 fddinet-default        active   Fa5/9
1005 trbrf-default          active   Fa5/9

```

VLAN	Type	SAID	MTU	Parent	RingNo	BridgeNo	Stp	BrdgMode	Trans1	Trans2
1	enet	100001	1500	-	-	-	-	-	0	0
2	enet	100002	1500	-	-	-	-	-	0	0
3	enet	100003	1500	-	-	-	-	-	303	0
4	enet	100004	1500	-	-	-	-	-	304	0
5	enet	100005	1500	-	-	-	-	-	305	0
6	enet	100006	1500	-	-	-	-	-	0	0
10	enet	100010	1500	-	-	-	-	-	0	0
20	enet	100020	1500	-	-	-	-	-	0	0
50	enet	100050	1500	-	-	-	-	-	0	0

<...Output truncated...>

```

850 enet 100850 1500 - - - - - 0 0
917 enet 100917 1500 - - - - - 0 0
999 enet 100999 1500 - - - - - 0 0
1002 fddi 101002 1500 - 0 - - - 0 0
1003 trcrf 101003 4472 1005 3276 - - srb 0 0
1004 fdnet 101004 1500 - - - - ieee - 0 0
1005 trbrf 101005 4472 - - 15 - ibm - 0 0

```

VLAN	AREHops	STEHops	Backup	CRF
802	0	0	off	
1003	7	7	off	

Switch#

This example shows how to display the VLAN name, status, and associated ports only:

```

Switch# show vlan brief
VLAN Name                Status      Ports
-----
1    default                active     Fa5/9
2    VLAN0002                active     Fa5/9
3    VLAN0003                active     Fa5/9
4    VLAN0004                active     Fa5/9
5    VLAN0005                active     Fa5/9
10   VLAN0010                active     Fa5/9
.
.
.
999  VLAN0999                active     Fa5/9
1002 fddi-default            active     Fa5/9
1003 trcrf-default        active     Fa5/9
1004 fddinet-default      active     Fa5/9
1005 trbrf-default        active     Fa5/9
Switch#

```



This example shows how to display the VLAN parameters for VLAN 3 only:

```
Switch# show vlan id 3
```

```

VLAN Name                Status    Ports
-----
3    VLAN0003                active    Fa5/9

VLAN Type  SAID      MTU    Parent RingNo BridgeNo  Stp  BrdgMode Trans1 Trans2
-----
3    enet    100003   1500   -      -        -    -    -        303    0

```

Table 2-19 describes the fields in the **show vlan** command output.

**Table 2-19 show vlan Command Output Fields**

Field	Description
VLAN	VLAN number.
Name	Name, if configured, of the VLAN.
Status	Status of the VLAN (active or suspend).
Ports	Ports that belong to the VLAN.
Type	Media type of the VLAN.
SAID	Security Association Identifier value for the VLAN.
MTU	Maximum transmission unit size for the VLAN.
Parent	Parent VLAN, if one exists.
RingNo	Ring number for the VLAN, if applicable.
BrdgNo	Bridge number for the VLAN, if applicable.
Stp	Spanning Tree Protocol type used on the VLAN.

#### Related Commands

[vlan database](#)  
[vlan \(VLAN Database mode\)](#)  
[vtp \(global configuration mode\)](#)

# show vlan access-map

To display the contents of a VLAN access map, use the **show vlan access-map** command.

```
show vlan access-map [map-name]
```

<b>Syntax Description</b>	<i>map-name</i> (Optional) Name of the VLAN access map.
---------------------------	---

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.1(12c)EW	Support for this command was introduced on the Catalyst 4500 series switch.

<b>Examples</b>	This command shows how to display the contents of a VLAN access map:
-----------------	--

```
Switch# show vlan access-map mordred
Vlan access-map "mordred" 1
    match: ip address 13
    action: forward capture
Switch#
```

<b>Related Commands</b>	<a href="#">vlan access-map</a>
-------------------------	---------------------------------

# show vlan counters

To display software-cached counter values, use the **show vlan counters** command.

**show vlan [id *vlanid*] counters**

<b>Syntax Description</b>	<b>id <i>vlanid</i></b> (Optional) Displays the software-cached counter values for a specific VLAN.
---------------------------	---

<b>Defaults</b>	This command has no default settings.
-----------------	---------------------------------------

<b>Command Modes</b>	Privileged EXEC
----------------------	-----------------

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.1(13)EW	Support for this command was introduced on the Catalyst 4500 series switches.

<b>Usage Guidelines</b>	If you enter the <b>show vlan counters</b> command without specifying the VLAN ID, software-cached counter values for all VLANs are displayed.
-------------------------	--

<b>Examples</b>	This example shows how to display the software-cached counter values for a specific VLAN:
-----------------	---

```
Switch> show vlan counters
* Multicast counters include broadcast packets

Vlan Id                : 1
L2 Unicast Packets     : 0
L2 Unicast Octets      : 0
L3 Input Unicast Packets : 0
L3 Input Unicast Octets : 0
L3 Output Unicast Packets : 0
L3 Output Unicast Octets : 0
L3 Output Multicast Packets : 0
L3 Output Multicast Octets : 0
L3 Input Multicast Packets : 0
L3 Input Multicast Octets : 0
L2 Multicast Packets   : 1
L2 Multicast Octets    : 94
Switch>
```

<b>Related Commands</b>	<a href="#">clear vlan counters</a>
-------------------------	-------------------------------------

# show vlan dot1q tag native

To display all the ports on the switch that are eligible for native VLAN tagging as well as their current native VLAN tagging status, use the **show vlan dot1q tag native** command.

**show vlan dot1q tag native**

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

**Command Modes** User EXEC

Command History	Release	Modification
	12.1(18)EW	This command was introduced on the Catalyst 4500 series switch.

**Examples** This is an example of output from the **show vlan dot1q tag native** command:

```
Switch> show vlan dot1q tag native
dot1q native vlan tagging is disabled globally
```

```
Per Port Native Vlan Tagging State
-----
```

Port	Operational Mode	Native VLAN Tagging State
f3/2	trunk	enabled
f3/16	PVLAN trunk	disabled
f3/16	trunk	enabled

**Related Commands**

- [switchport mode](#)
- vlan (global configuration)** (refer to Cisco IOS documentation)
- vlan (VLAN configuration)** (refer to Cisco IOS documentation)

# show vlan internal usage

Use the **show vlan internal usage** command to display information about the internal VLAN allocation.

**show vlan [id *vlan-id*] internal usage**

<b>Syntax Description</b>	<b>id</b> <i>vlan-id</i> (Optional) Displays internal VLAN allocation information for the specified VLAN; valid values are from 1 to 4094.
---------------------------	--

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.1(19)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** Entering the **show vlan internal usage** command displays the OSM interfaces and subinterfaces in addition to the regular Ethernet interfaces.

**Examples** This example shows how to display information about the current internal VLAN allocation:

```
Switch> show vlan internal usage
```

```
VLAN Usage
-----
1025 -
1026 -
1027 -
1028 -
1029 Port-channel6
1030 GigabitEthernet1/2
1032 FastEthernet3/20
1033 FastEthernet3/21
1129 -
```

This example shows how to display information about the internal VLAN allocation for a specific VLAN:

```
Switch> show vlan id 1030 internal usage
```

```
VLAN Usage
-----
1030 GigabitEthernet1/2
```

**Related Commands** [vlan internal allocation policy](#)

# show vlan mtu

To display the minimum and maximum transmission unit (MTU) sizes of each VLAN, use the **show vlan mtu** command.

**show vlan mtu**

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

**Defaults** This command has no default settings.

**Command Modes** EXEC

Command History	Release	Modification
	12.1(13)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Usage Guidelines** The MTU\_Mismatch column in the command output indicates whether all the ports in the VLAN have the same MTU. When “yes” is displayed in the MTU\_Mismatch column, it means that the VLAN has a port with different MTUs, and packets might be dropped that are switched from a port with a larger MTU to a port with a smaller MTU. If the VLAN does not have an SVI, the hyphen (-) symbol is displayed in the SVI\_MTU column.

For a VLAN, if the MTU-Mismatch column displays yes, the names of the port with the MinMTU and the port with the MaxMTU are displayed. For a VLAN, if the SVI\_MTU is bigger than the MinMTU, “TooBig” is displayed after the SVI\_MTU.

**Examples** This is an example of output from the **show vlan mtu** command:

```
Switch> show vlan mtu
```

VLAN	SVI_MTU	MinMTU (port)	MaxMTU (port)	MTU_Mismatch
1	1500	1500	1500	No

```
Switch>
```

**Related Commands** [mtu](#)

# show vlan private-vlan

To display PVLAN information, use the **show vlan private-vlan** command.

**show vlan private-vlan [type]**

<b>Syntax Description</b>	<b>type</b> (Optional) Displays the PVLAN type; valid types are Isolated and Primary.				
<b>Defaults</b>	This command has no default settings.				
<b>Command Modes</b>	Privileged EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>12.1(8a)EW</td> <td>Support for this command was introduced on the Catalyst 4500 series switch.</td> </tr> </tbody> </table>	Release	Modification	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.
Release	Modification				
12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.				

**Usage Guidelines** In the **show vlan private-vlan type** command output when normal is displayed as a type, a regular VLAN has been configured in a PVLAN. When normal is displayed, two VLANs have been associated before type was set and the PVLAN is not operational. This information is useful for debugging purposes.

**Examples** This example shows how to display all currently configured PVLAN information:

```
Switch# show vlan private-vlan
```

```
Primary Secondary Type Ports
-----
100      101      isolated
150      151      non-operational
401      402      non-operational
Switch#
```

This example shows how to display all currently configured PVLAN type information:

```
Switch# show vlan private-vlan type
```

```
Vlan Type
-----
202 primary
308 normal
440 isolated
Switch#
```

[Table 2-20](#) describes the fields in the **show vlan private-vlan** command output.

**Table 2-20** *show vlan private-vlan Command Output Fields*

<b>Field</b>	<b>Description</b>
Primary	Number of the primary VLAN.
Secondary	Number of the secondary VLAN.
Secondary-Type	Secondary VLAN type is <b>isolated</b> .
Ports	Indicates the ports within a VLAN.
Type	Type of VLAN; possible values are <b>primary, isolated, or normal</b> .

**Related Commands**[private-vlan](#)[private-vlan mapping](#)



# show vlan remote-span

To display a list of Remote SPAN (RSPAN) VLANs, use the **show vlan remote-span** command.

**show vlan remote-span**

---

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

---

**Defaults** This command has no default settings.

---

**Command Modes** Privileged EXEC

---

Command History	Release	Modification
	12.1(12)EW	This command was introduced on the Catalyst 4500 series switches.

---

---

**Examples** This example shows how to display a list of RSPAN VLANs:

```
Router# show vlan remote-span
Remote SPAN VLANs
-----
2,20
```

---

**Related Commands** [remote-span](#)  
[vlan \(VLAN Database mode\)](#)

# show vmps

To display the VLAN Query Protocol (VQP) version, reconfirmation interval, retry count, VLAN Membership Policy Server (VMPS) IP addresses, current servers, and primary servers, use the **show vmps** command.

**show vmps [statistics]**

<b>Syntax Description</b>	<b>statistics</b> (Optional) Displays the client side statistics.				
<b>Defaults</b>	This command has no default settings.				
<b>Command Modes</b>	EXEC				
<b>Command History</b>	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>12.1(13)EW</td> <td>Support for this command was introduced on the Catalyst 4500 series switch.</td> </tr> </tbody> </table>	Release	Modification	12.1(13)EW	Support for this command was introduced on the Catalyst 4500 series switch.
Release	Modification				
12.1(13)EW	Support for this command was introduced on the Catalyst 4500 series switch.				

## Examples

This is an example of output from the **show vmps** command:

```
Switch# show vmps
VQP Client Status:
-----
VMPS VQP Version: 1
Reconfirm Interval: 60 min
Server Retry Count: 3
VMPS domain server: 172.20.50.120 (primary, current)

Reconfirmation status
-----
VMPS Action:          No Dynamic Port
Switch#
```

This is an example of output from the **show vmps statistics** command:

```
Switch# show vmps statistics
VMPS Client Statistics
-----
VQP Queries:          0
VQP Responses:        0
VMPS Changes:          0
VQP Shutdowns:        0
VQP Denied:           0
VQP Wrong Domain:     0
VQP Wrong Version:    0
VQP Insufficient Resource: 0
Switch#
```

**Related Commands**    [vmps reconfirm \(privileged EXEC\)](#)

# show vtp

To display VTP statistics and domain information, use the **show vtp** command.

**show vtp {counters | status}**

Syntax Description	counters	Specifies VTP statistics.
	status	Specifies VTP domain status.

**Defaults** This command has no default settings.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.1(8a)EW	Support for this command was introduced on the Catalyst 4500 series switch.

**Examples** This example shows how to display VTP statistics:

```
Switch# show vtp counters
VTP statistics:
Summary advertisements received      : 1
Subset advertisements received      : 1
Request advertisements received     : 0
Summary advertisements transmitted  : 31
Subset advertisements transmitted   : 1
Request advertisements transmitted  : 0
Number of config revision errors    : 0
Number of config digest errors      : 0
Number of V1 summary errors         : 0

VTP pruning statistics:

Trunk          Join Transmitted Join Received  Summary advts received from
-----          -----          -----          -----
Fa5/9          1555          1564          0
Switch#
```

This example shows how to display the VTP domain status:

```
Switch# show vtp status
VTP Version          : 2
Configuration Revision : 250
Maximum VLANs supported locally : 1005
Number of existing VLANs : 33
VTP Operating Mode   : Server
VTP Domain Name      : Lab_Network
VTP Pruning Mode     : Enabled
VTP V2 Mode          : Enabled
VTP Traps Generation : Disabled
```

```

MD5 digest                : 0xE6 0xF8 0x3E 0xDD 0xA4 0xF5 0xC2 0x0E
Configuration last modified by 172.20.52.18 at 9-22-99 11:18:20
Local updater ID is 172.20.52.18 on interface V11 (lowest numbered VLAN interface found)
Switch#

```

This example shows how to display only those lines in the **show vtp** output that contain the word **Summary**:

```

Switch# show vtp counters | include Summary
Summary advertisements received      : 1
Summary advertisements transmitted : 32
Trunk                               Join Transmitted Join Received   Summary advts received from
Switch#

```

Table 2-21 describes the fields in the **show vtp** command output.

**Table 2-21 show vtp Command Output Fields**

Field	Description
Summary advertisements received	Total number of summary advertisements received.
Subset advertisements received	Total number of subset advertisements received.
Request advertisements received	Total number of request advertisements received.
Summary advertisements transmitted	Total number of summary advertisements transmitted.
Subset advertisements transmitted	Total number of subset advertisements transmitted.
Request advertisements transmitted	Total number of request advertisements transmitted.
Number of config revision errors	Number of config revision errors.
Number of config digest errors	Number of config revision digest errors.
Number of V1 summary errors	Number of V1 summary errors.
Trunk	Trunk port participating in VTP pruning.
Join Transmitted	Number of VTP-Pruning Joins transmitted.
Join Received	Number of VTP-Pruning Joins received.
Summary advts received from non-pruning-capable device	Number of Summary advertisements received from nonpruning-capable devices.
Number of existing VLANs	Total number of VLANs in the domain.
Configuration Revision	VTP revision number used to exchange VLAN information.
Maximum VLANs supported locally	Maximum number of VLANs allowed on the device.
Number of existing VLANs	Number of existing VLANs.
VTP Operating Mode	Indicates whether VTP is enabled or disabled.
VTP Domain Name	Name of the VTP domain.
VTP Pruning Mode	Indicates whether VTP pruning is enabled or disabled.
VTP V2 Mode	Indicates the VTP V2 mode as server, client, or transparent.
VTP Traps Generation	Indicates whether VTP trap generation mode is enabled or disabled.
MD5 digest	Checksum values.

**Related Commands**

[vtp \(global configuration mode\)](#)  
[vtp client](#)  
[vtp domain](#)  
[vtp password](#)  
[vtp pruning](#)  
[vtp server](#)  
[vtp transparent](#)  
[vtp v2-mode](#)

■ show vtp