show mac

Use the **show mac** command to display MAC counters.

show mac [*mod_num*[/*port_num*]]

Syntax Description

mod_num (Optional) Number of the module. If you do not specify a number, all modules are shown.

/port_num (Optional) Number of the port on the module. If you do not specify a number, all ports are shown.

Default

This command has no default setting.

Command Type

Switch command.

Command Mode

Normal.

Usage Guideline

If you are using a Catalyst 2948G series switch, the Catalyst 2948G is a fixed configuration switch. All ports are located on module 2; for this reason, if you enter *mod_num* **1/N**, an error message will be displayed.

Example

This example shows how to display MAC information for port 3 on module 4:

```
Console> show mac 3/4
MAC      Rcv-Frms   Xmit-Frms  Rcv-Multi  Xmit-Multi Rcv-Broad  Xmit-Broad
-------- ---------- ---------- ---------- ---------- ---------- ----------
 3/4              0          0          0          0          0          0

MAC      Dely-Exced MTU-Exced  In-Discard Lrn-Discrd In-Lost    Out-Lost
-------- ---------- ---------- ---------- ---------- ---------- ----------
 3/4              0          0          0          0          0          0

MAC     SMT-Address       Curr-Path  TReq     TNeg     TMax     TVX
------- ----------------- ---------- -------- -------- -------- --------
3/4     00:06:7c:b3:bc:98 primary      165000   165000   165004     2509
        00-60-3e-cd-3d-19

MAC     Upstream-Nbr      Downstream-Nbr    Old-Upstrm-Nbr    Old-Downstrm-Nbr
------- ----------------- ----------------- ----------------- -----------------
3/4 00:00:1f:00:00:00 00:00:1f:00:00:00 00:00:1f:00:00:00 00:00:1f:00:00:00
        00-00-f8-00-00-00 00-00-f8-00-00-00 00-00-f8-00-00-00 00-00-f8-00-00-00

MAC     Rcv-Smt    Xmit-Smt   Rcv-llc    Xmit-llc   Tvx-Exp-Ct RingOp-Ct
```

```
------- ---------- ---------- ---------- ---------- ---------- ----------
3/4              0          0          1         61          0          1

Port     Rcv-Unicast          Rcv-Multicast        Rcv-Broadcast
-------- -------------------- -------------------- --------------------
3/4                        0                    0                    0

Port     Xmit-Unicast         Xmit-Multicast       Xmit-Broadcast
-------- -------------------- -------------------- --------------------
3/4                        0                    0                    0

Port     Rcv-Octet            Xmit-Octet
-------- -------------------- --------------------
3/4                        0                    0

Last-Time-Cleared
--------------------------
Tue Aug 10 1998, 08:31:20
Console>
```

Table 2-33 describes possible fields displayed in the **show mac** command output.

Table 2-33 show mac Command Output Fields

Field	Description
MAC	Module and port.
Rcv-Frms	Frames received on the port.
Xmit-Frms	Frames transmitted on the port.
Rcv-Multi	Multicast frames received on the port.
Xmit-Multi	Multicast frames transmitted on the port.
Rcv-Broad	Broadcast frames received on the port.
Xmit-Broad	Broadcast frames transmitted on the port.
Dely-Exced	Total transmit frames aborted due to excessive deferral.
MTU-Exced	Frames for which the MTU size was exceeded.
In-Discard	Incoming frames that were discarded because the frame did not need to be switched.
Lrn-Discard	CAM entries discarded due to page full in EARL.
In-Lost	Incoming frames that were lost before being forwarded (due to insufficient buffer space).
On-Lost	Outgoing frames that were lost before being forwarded (due to insufficient buffer space).
SMT-Address	SMT address of the FDDI port.
Curr-Path	Current path used (primary or secondary).
TReq	T-req (token rotation time request) value.
TNeg	T-neg (negotiated token rotation time) value.
TMax	T-max (maximum token rotation time) value.
TVX	Value of the valid transmission timer.
Upstream-Nbr	MAC address of the current upstream neighbor.
Downstream-Nbr	MAC address of the current downstream neighbor.

Table 2-33 show mac Command Output Fields (continued)

Field	Description
Old-Upstrm-Nbr	MAC address of the previous upstream neighbor.
Old-Downstrm-Nbr	MAC address of the previous downstream neighbor.
Rcv-Smt	Number of SMT frames received by the port.
Xmit-Smt	Number of NSMT frames transmitted by the port.
Rcv-llc	Number of NLLC frames received by the port.
Xmit-llc	Number of LLC frames transmitted by the port.
Rcv-Octet	Number of octet frames received on the port.
Xmit-Octet	Number of octet frames transmitted on the port.
Rcv-Unicast	Number of unicast frames received on the port.
Rcv-Multicast	Number of multicast frames received on the port.
Rcv-Broadcast	Number of broadcast frames received on the port.
Xmit-Unicast	Number of unicast frames transmitted on the port.
Xmit-Multicast	Number of multicast frames transmitted on the port.
Xmit-Broadcast	Number of broadcast frames transmitted on the port.
Tvx-Exp-Ct	Number of times the TVX timer expired.
RingOp-Ct	Number of times the ring became operational.
Last-Time-Cleared	Date and time of the last **clear counters** command.

show microcode

Use the **show microcode** command to display the version of the microcode. When you run this command on a Supervisor Engine III, this command also displays module version information.

show microcode

Syntax Description

This command has no arguments.

Default

This command has no default setting.

Command Type

Switch command.

Command Mode

Normal.

Usage Guideline

This command is not supported on the Catalyst 4000 and 2948G series switches.

Examples

This example shows the **show microcode** output for a Supervisor Engine I or II:

```
Console> sh microcode
EARL EPLDs   FLASH/BOOT SRAM
------------ ---------- ----------
EPLD_7K      8.0        -
EPLD_10K     0.0        3.0
Console>
```

Table 2-34 describes possible fields in the **show microcode** command output.

Table 2-34 show microcode Command Output Fields (Supervisor I or II)

Field	Description
EARL EPLDs	Version of EARL EPLDs.
FLASH/BOOT	Version of FLASH/BOOT.
SRAM	Version of SRAM.

This example shows the **show microcode** output for a Supervisor Engine III:

```
Console> sh microcode
NMP EPLDs    FLASH/BOOT SRAM
------------ ---------- ----------
EPLD_4kctl   0.0        -
EPLD_trfc    1.0        -
EPLD_m36d1   5.0        -
EPLD_m36in   1.0        -
EPLD_ppi     0.0        -
EPLD_p_msk   1.0        -
EPLD_bsctl   0.0        -
EPLD_p_ltl   1.0        -

EARL EPLDs   FLASH/BOOT SRAM
------------ ---------- ----------
EPLD_7K      4.0        -
EPLD_10K     2.0        -
EPLD_dec     0.0        -
EPLD_parse   0.0        -
EPLD_rslt1   0.0        -
EPLD_rslt2   0.0        -
EPLD_rslt3   0.0        -

UPLINK EPLDs FLASH/BOOT SRAM
------------ ---------- ----------
EPLD_upl_ctl 0.0        -

Bundled Images  Version              Size    Built
--------------- -------------------- ------- -----------------
LCP51-32        4.4(0.10)              26233 10/27/98 13:05:44
LCP51-64        4.4(0.10)              54342 10/27/98 13:09:04
MCP360          4.4(0.10)             220944 10/27/98 13:15:57
LCP360          4.4(0.10)             129196 10/27/98 13:15:50
TOKEN-RING      4.4(0.10)              31132 10/27/98 13:07:26
ATM/FDDI LCP    4.4(0.10)              25279 10/27/98 13:05:46
C5IP            4.4(0.10)              24663 10/27/98 13:09:06
TREMBLANT       181.33(0.0)             9216
BANFF           85.7(0.0)               9216
LCPXA1          4.4(0.10)              85384 10/27/98 13:15:52
LCPXA2          4.4(0.10)              57128 10/27/98 13:15:54
TATM LCP        4.4(0.10)              25340 10/27/98 13:06:37
TREMBLANT2      7.1(1.0)                9216
Console>
```

Table 2-35 describes possible fields in the **show microcode** command output.

Table 2-35 show microcode Command Output Fields (Supervisor Engine III)

Field	Description
EARL EPLDs	Version of EARL EPLDs.
FLASH/BOOT	Version of FLASH/BOOT.
SRAM	Version of SRAM.
Bundled Images	Name of the bundled image.
Version	Version of the image.
Size	Size of the image.
Built	Date image was built.

show mls

Use the **show mls** command set to display MLS Layer 3 packet information in the MLS-based Catalyst 5000, 2926G, and 2926 series switches.

show mls
show mls rp {*ip_addr*} [**noalias**]
show mls entry {[**destination** {*ip_addr_spec*}] [**source** {*ip_addr_spec*}] | [**flow** {*protocol*} {*src_port* [*port_num*]} {*dst_port*}]} [**rp** {*ip_addr*}]
show mls include
show mls nde

Syntax Description

rp	Keyword to specify a route processor.
ip_addr	Route-processor IP address or route-processor name if DNS is used.
noalias	(Optional) Keyword to specify all route processors are present in IP format, instead of their names.
entry	Keyword to specify the MLS packet entry.
destination	(Optional) Keyword to specify the destination IP address.
ip_addr_spec	(Optional) Full IP address or a subnet address in the following formats: *ip_subnet_addr*, *ip_addr*/*subnet_mask*, *ip_addr*/#*subnet_mask_bits*.
source	(Optional) Keyword to specify the source IP address.
flow	(Optional) Keyword to specify additional flow information (protocol family and protocol port pair) to be matched.
protocol	(Optional) Keyword to specify flow information; valid values include **tcp**, **udp**, **icmp**, or a decimal number for other protocol families.
src_port	(Optional) Source port IP address; used with *port_num* to specify the port pair if *protocol* is tcp or udp.
port_num	(Optional) TCP/UDP port number (decimal); used with *src_num* to specify the port pair if *protocol* is tcp or udp.
dst_port	(Optional) Destination port IP address.
include	Keyword to display all route processors currently included to run MLS.
nde	Keyword to display NDE information.

Command Type

Switch command.

Command Mode

Normal.

Usage Guidelines

This command is not supported on the Catalyst 4000 and 2948G series switches.

If you are entering any of the **show mls** commands on Catalyst 5000, 2926G, and 2926 series switches without MLS, the following warning message is displayed: `MLS not supported on feature card.`

If you enter the **show mls** commands with no arguments, general MLS information and all MLS-RP information are displayed.

If DNS is disabled, no name can be specified or shown. If **noalias** is specified and DNS is enabled, all route-processors are presented in IP format.

A value 0 for *src_port* and *dst_port* means "don't care."

Use the following syntax to specify an IP subnet address:

- *ip_subnet_addr*—This is the short subnet address format. The trailing decimal number 00 in an IP address YY.YY.YY.00 specifies the boundary for an IP subnet address. For example, 172.22.36.00 indicates a 24-bit subnet address (subnet mask 172.22.36.00/255.255.255.0), and 173.24.00.00 indicates a 16-bit subnet address (subnet mask 173.24.00.00/255.255.0.0). However, this format can identify only a subnet address with a length of 8, 16, or 24 bits.
- *ip_addr/subnet_mask*—This is the long subnet address format. For example, 172.22.252.00/255.255.252.00 indicates a 22-bit subnet address. This format can specify a subnet address of any bit number. To provide more flexibility, the *ip_addr* is allowed to be a full host address, such as 172.22.253.1/255.255.252.00.
- *ip_addr/maskbits*—This is the simplified long subnet address format. The mask bits specify the number of bits of the network masks. For example, 172.22.252.00/22 indicates a 22-bit subnet address. The *ip_addr* is allowed to be a full host address, such as 172.22.254.1/22, which has the same subnet address as 172.22.252.00/72.

When you enter the **show mls entry** command, the keyword **destination** option specifies the entries matching this destination IP address specification. The keyword **source** option specifies the entries matching this source IP address specification. An *ip_addr_spec* can be a full IP address or a subnet address. If you do not specify a keyword, it is treated as a wildcard, and all entries are displayed.

Examples

These examples show how to use the **show mls** command set:

```
Console> (enable) show mls
Multilayer switching enabled
Multilayer switching aging time = 1800 seconds
Multilayer switching fast aging time = 0 seconds, packet threshold = 1
Current flow mask is Full flow
Configured flow mask is destination-source flow
Total packets switched = 101892
Active entries = 2153
Netflow data export enabled
Netflow data export configured for port 8010 on host 10.0.2.15
Total packets exported = 20
MLS-RP IP         MLS-RP ID       Xtag    MLS-RP              MAC-Vlans
---------------  --------------  ------  ------------------  -----------
172.20.25.2       0000808cece0     2      00-00-80-8c-ec-e0   1-20
                                          00-00-80-8c-ec-e1   21-30
                                          00-00-80-8c-ec-e2   31-40
                                          00-00-80-8c-ec-e3   41-50
                                          00-00-80-8c-ec-e4   51-60
```

```
172.20.27.1       0000808c1214     3      00-00-80-8c-12-14   1-20,31-40
                                          00-00-80-8c-12-15   21-30
Console> (enable)
Console> (enable) show mls entry rp 172.20.27.1
  Destination IP   Source IP     Pr    DstPt    SrcPt   Destination Mac          Vlan  Port
  --------------   ------------  ----  -------  ------  -----------------------  ----  ----
MLS-RP 172.20.27.1:
172.20.22.16       172.20.27.139 TCP   DNS      DNS     00-60-70-6c-fc-24       4     2/3
172.20.21.17       172.20.27.138 TCP   7001     7003    00-60-70-6c-fc-25       3     2/4
Console> (enable)

CConsole> (enable) show mls entry
Destination IP   Source IP     Pr    DstPt    SrcPt   Destination Mac          Vlan  Port
--------------   ------------  ----  -------  ------  -----------------------  ----  ----
MLS-RP 172.20.25.1:
172.20.22.14     172.20.25.10  UDP   80       50648   00-60-70-6c-fc-22       4     2/1
MLS-RP 172.20.26.1:
172.20.20.15     172.20.25.148 UDP   50650    80      00-60-70-6c-fc-23       2     2/2
MLS-RP 172.20.27.1:
172.20.22.16     172.20.27.139 TCP   DNS      DNS     00-60-70-6c-fc-24       4     2/3
172.20.21.17     172.20.27.138 TCP   7001     7003    00-60-70-6c-fc-25       3     2/4
Console> (enable)

Console> (enable) show mls entry destination 172.20.22.14/24
Destination IP   Source IP     Pr    DstPt    SrcPt   Destination Mac          Vlan  Port
--------------   ------------  ----  -------  ------  -----------------------  ----  ----
MLS-RP 172.20.25.1:
172.20.22.14       172.20.25.10  UDP   80       50648   00-60-70-6c-fc-22       4     2/1
MLS-RP 172.20.27.1:
172.20.22.16       172.20.27.139 TCP   DNS      DNS     00-60-70-6c-fc-24       4     2/3
Console> (enable)

Console> (enable) show mls entry rp 172.20.27.1
Destination IP   Source IP     Pr    DstPt    SrcPt   Destination Mac          Vlan  Port
--------------   ------------  ----  -------  ------  -----------------------  ----  ----
MLS-RP 172.20.27.1:
172.20.22.16     172.20.27.139 TCP   DNS      NS      00-60-70-6c-fc-24       4     2/3
172.20.21.17     172.20.27.138 TCP   7001     7003    00-60-70-6c-fc-25       3     2/4
Console> (enable)

Console> (enable) show mls include
Included MLS-RP
---------------------------------------
170.67.2.13
170.67.2.12
Console> (enable)

Console> (enable) show mls nde
Netflow data export enabled.
Netflow data export configured for UDP port 1098 on host 172.20.15.1
Source filter is 171.69.194.140/255.255.255.0
Destination port filter is 23
Total Netflow Data Export packets = 26784
Console>(enable)
```

Related Commands

set mls nde
clear mls
show mls statistics

show mls debug

Use the **show mls debug** command to generate a list of all MLS-related debugging information.

show mls debug

Syntax Description

This command has no arguments or keywords.

Default

This command has no default setting.

Command Type

Switch command.

Command Mode

Privileged.

Usage Guidelines

This command is not supported on the Catalyst 4000 and 2948G series switches.

This list should be sent to technical support representatives for analysis.

Example

This example shows how to generate a list of all MLS-related debugging information. The display contains detailed system statistics useful for troubleshooting:

```
Console>(enable) show mls debug
```

Note The output from the **show mls debug** command is extensive and is only useful to your technical support representatives.

show mls statistics

Use the **show mls statistics** command set to display MLS statistics information in the MLS-based Catalyst 5000, 2926G, and 2926 series switches.

show mls statistics protocol
show mls statistics rp [*ip_addr*] [**noalias**]
show mls statistics entry [**destination** {*ip_addr_spec*}] [**source** {*ip_addr_spec*}] | [**flow** {*protocol*} {*src_port*} {*dst_port*}]}

Syntax Description

protocol	Keyword to display the statistics based on protocol category, such as Telnet, FCP, or WWW.
rp	Keyword to specify a route processor.
ip_addr	(Optional) Route-processor IP address or route-processor name if DNS is enabled.
noalias	(Optional) Keyword to specify that all route processors are presented in IP format.
entry	Keyword to display statistics based on the specified option.
destination	(Optional) Keyword to specify the destination IP address.
ip_addr_spec	(Optional) IP subnet address or a full IP address.
source	(Optional) Keyword to specify the source IP address.
flow	(Optional) Keyword to specify additional flow information (protocol family and protocol port pair) to be matched.
protocol	(Optional) Keyword to specify flow information; valid values include **tcp**, **udp**, **icmp**, or a decimal number for other protocol families.
src_port	(Optional) Source port IP address.
dst_port	(Optional) Destination port IP address.

Command Type

Switch command.

Command Mode

Normal.

Usage Guidelines

This command is not supported on the Catalyst 4000 and 2948G series switches.

If you are entering any of the **show mls statistics** commands on Catalyst 5000, 2926G, and 2926 series switches without MLS, the following warning message is displayed:

```
MLS not supported on feature card.
```

If you enter the **show mls statistics protocol** command, the statistics in the protocol category, such as Telnet, FTP, or WWW are displayed. Note that this applies for "full flowmask" only.

A value 0 for *src_port* and *dst_port* means "don't care." Note that this applies for "full flowmask" only.

Use the following syntax to specify an IP subnet address:

- *ip_subnet_addr*—This is the short subnet address format. The trailing decimal number "00" in an IP address YY.YY.YY.YY specifies the boundary for an IP subnet address. For example, 172.22.36.00 indicates a 24-bit subnet address (subnet mask 255.255.255.0), and 173.24.00.00 indicates a 16-bit subnet address (subnet mask 255.255.0.0). However, this format can identify only a subnet address with a length of 8, 16, or 24 bits.
- *ip_addr/subnet_mask*—This is the long subnet address format; for example, 172.22.252.00/255.255.252.00 indicates a 22-bit subnet address. This format can specify a subnet address of any bit number. To provide more flexibility, the *ip_addr* is allowed to be a full host address, such as 172.22.253.1/255.255.252.00, which has the same subnet address as *ip_subnet_addr*.
- *ip_addr/maskbits*—This is the simplified long subnet address format. The mask bits specify the number of bits of the network masks. For example, 172.22.252.00/22 indicates a 22-bit subnet address. The *ip_addr* is allowed to be a full host address, such as 172.22.254.1/22, which has the same subnet address as 172.22.252.00/72.

Examples

These examples show how to use the **show mls statistics** command set:

```
console>(enable) show mls statistics protocol
Protocol  TotalFlows  TotalPackets     Total Bytes
-------   ---------   --------------   ------------
Telnet    900         630              4298
FTP       688         2190             43105
WWW       389         42679            623686
SMTP      802         4966             2873
X         142         2487             6870
DNS       580         52               1046
Others    82          1                73
Total     6583        53005            801951
Console>

Console>(enable) show mls statistics rp
Total Switched
MLS-RP IP       MLS-RP ID           packets           bytes
--------------  ------------------  ----------------  --------------------
172.20.25.2     0000808cece0        3152              347854
172.20.27.1     000080a36c32        4332              532456
Console>
```

```
Console> show mls statistics entry destination 172.20.22.14
                Last Used             Last Used             Total Switched
Destination IP  Source IP       Pr     SrcPt    DstPt    Packets           Bytes
--------------  --------------  -----  -------  -------  ----------------  --------------------
172.20.22.14    172.20.25.10    6      50648    80       3152              347854
Console>
```

Related Commands

show mls
set mls nde
clear mls

show module

Use the **show module** command to display module status and information.

show module [*mod_num*]

Syntax Description

mod_num (Optional) Number of the module. If you do not specify a number, all modules are shown.

Default

This command has no default setting.

Command Type

Switch command.

Command Mode

Normal.

Usage Guidelines

If you remove a module and replace it with a different type module, a message appears in the **show module** display that states that the module configuration is inconsistent with the current module type. To clear the message, you can either enter the **clear config** *mod_num* command for the module or set different parameters for the new module.

For Supervisor Engine III modules, the **show module** command displays the supervisor engine's module number but appends the uplink daughtercard's module type and information.

For Catalyst 4000 series switches, the **show module** command displays the supervisor engine as having "1" slot.

Although me1 resides on the supervisor engine module for the Catalyst 4000 and 2948G series switches, me1 port information is not displayed by the **show module** or **show port** CLI commands.

For Catalyst 2948G series switches, the **show module** command displays two modules, a Switching Supervisor and an Ethernet module. The output implies modularity, but the modules are internal to the box and are not removable. The **show module** command also displays both modules as having "1" slot.

Examples

This example shows how to display status and information for all modules on the switch (Catalyst 5000, 2926G, and 2926 series switches):

```
Console> show module
Mod Module-Name         Ports Module-Type           Model    Serial-Num Status
--- ------------------- ----- --------------------- --------- ---------- -------
1                       2     100BaseTX Supervisor  WS-X5509  007404361 ok
2                       12    100BaseTX Ethernet    WS-X5113  003152544 ok
3                       16    Token Ring            WS-X5030  007381080 ok
4                       2     MM MIC FDDI           WS-X5101  003492532 ok
```

```
5                       1     MM OC-3 ATM           WS-X5155  003414463 ok
Mod MAC-Address(es)                               Hw        Fw       Sw
----------------------------------------          -----     -----    -----
1   00-10-14-0f-f4-00 to 00-10-14-0f-f7-ff    2.3       3.1(2)   4.3(0.16)
2   00-60-3e-d1-ab-38 to 00-60-3e-d1-ab-43    1.6       1.2      4.3(0.16)
3   00:05:77:05:d4:e2 to 00:05:77:05:d4:f2    1.1       1.0(117) 3.2(2)
4   00-e0-1e-a9-21-19                         1.1       1.1      3.1(1)
5   00-e0-1e-a9-20-41                         1.2       1.3      3.2(7)

Mod Sub-Type Sub-Model Sub-Serial Sub-Hw
--- -------- --------- ---------- ------
1   EARL 1+  WS-F5520  0007418874 1.0
1   uplink   WS-U5531  0007464204 1.1

Mod SMT User-Data              T-Notify CF-St    ECM-St    Bypass
--- -------------------------- -------- -------- --------- -------
4   WorkGroup Stack            30       thru     in        absent

Console>
```

This example shows how to display status and information for module 3:

```
Console> show module 2
Mod Module-Name         Ports Module-Type           Model    Serial-Num Status
--- ------------------- ----- --------------------- -------- ---------- -------
3                        16   100BaseTX Supervisor  WS-X5509  007404361 ok

Mod MAC-Address(es)                         Hw     Fw         Sw
--- --------------------------------------- ------ ---------- -----------------
3   00:05:77:05:d4:e2 to 00:05:77:05:d4:f2 1.1    1.0(117)   3.2(2)

Console>
```

This example shows how to display status and information for Catalyst 4000 series switch:

```
Console> show module
Mod Slot Ports Module-Type               Model               Status
--- ---- ----- ------------------------- ------------------- --------
1   1    0     Switching Supervisor      WS-X4012            ok
2   2    6     1000BaseX Ethernet        WS-X4306            ok
3   3    48    10/100BaseTx Ethernet     WS-X4148            ok

Mod Module-Name         Serial-Num
--- ------------------- --------------------
1                       JAB023806JR
2                       JAB0240004D
3                       JAB023402QJ

Mod MAC-Address(es)                         Hw     Fw         Sw
--- --------------------------------------- ------ ---------- -----------------
1   00-10-7b-f8-03-00 to 00-10-7b-f8-06-ff 0.1    0.0        4.4(0.14)
2   00-10-7b-f6-b1-a8 to 00-10-7b-f6-b1-ad 0.2
3   00-50-0f-10-2b-e0 to 00-50-0f-10-2c-0f 1.0
Console>
```

This example shows how to display status and information for Catalyst 2948G series switch:

```
Console> show module
Mod Slot Ports Module-Type               Model               Status
--- ---- ----- ------------------------- ------------------- --------
1   1    0     Switching Supervisor      WS-X2948            ok
2   1    50    10/100/1000 Ethernet      WS-X2948G           ok

Mod Module-Name         Serial-Num
--- ------------------- --------------------
1                       JAB023806JR
2                       JAB0240004D

Mod MAC-Address(es)                         Hw     Fw          Sw
--- --------------------------------------- ------ ----------
-----------------
1   00-10-7b-f4-e6-00 to 00-10-7b-f4-e9-ff 0.1    4.4(0.14-E 4.4(0.18)
2   00-10-7b-f4-e9-9e to 00-10-7b-f4-e9-fd 0.1
Console>
```

Table 2-36 describes the possible fields in the **show module** command output.

Table 2-36 show module Command Output Fields

Field	Description
Mod	Module number.
Slot	Slot number.
Module-Name	Name, if configured, of the module.
Ports	Number of ports on the module.
Module-Type	Module type (such as 10BaseT Ethernet or Token Ring).
Model	Model number of the module.
Serial-Num	Serial number of the module.
Status	Status of the module. Possible status strings are ok, disable, faulty, other, standby, error.
MAC-Address(es)	MAC address or MAC address range for the module. Token Ring module MAC addresses appear in noncanonical format.
Hw	Hardware version of the module[1].
Fw	Firmware version of the module[2].
Sw	Software version on the module.
SMT User-Data	User-data string defined for the FDDI module.
T-Notify	T-Notify timer value configured for the FDDI module.
CF-St	Configuration management state of the FDDI module.
ECM-St	Entity Coordination Management state of the FDDI module.
Bypass	Status of whether an optical bypass switch is present.
Sub-Type[3]	Submodule type.
Sub-Model[3]	Model number of the submodule.
Sub-Serial[3]	Serial number of the submodule.
Sub-Hw[3]	Hardware version of the submodule.

1 Hw for the supervisor engine module displays the supervisor engine module's EARL hardware version.
2 Fw for the supervisor engine module displays the supervisor engine module's boot version.
3 This field displays EARL information; this field is not supported on the Catalyst 4000 and 2948G series switches.

show mpoa client

Use the **show mpoa client** command to display a summary of information regarding one or all MPCs.

show mpoa client [**name** *mpc-name*] [**brief**]

Syntax Description

name *mpc-name*	(Optional) Keyword to specify the name of the MPC.
brief	(Optional) Keyword to specify the output limit of the command.

Default

The default is that all MPC information is displayed.

Command Type

Cisco IOS ATM command.

Command Mode

EXEC.

Usage Guidelines

This command is not supported on the Catalyst 4000 and 2948G series switches.

If you omit the **name** keyword, the command displays information for all MPCs.

Example

This example shows output from the **show mpoa client** command:

```
ATM#show mpoa client name ip_mpc brief
MPC Name: ip_mpc, Interface: ATM1/0, State: Up
MPC actual operating address: 47.00918100000000613E5A2F01.0010A6943825.00
Shortcut-Setup Count: 1, Shortcut-Setup Time: 1
Lane clients bound to MPC ip_mpc: ATM1/0.1
Discovered MPS neighbours                    kp-alv   vcd     rxPkts     txPkts
47.00918100000000613E5A2F01.006070174824.00     59    30         28          2
Remote Devices known                                  vcd     rxPkts     txPkts
47.00918100000000613E5A2F01.00000C5A0C5D.00           35          0         10
ATM#
```

Table 2-37 describes the fields in the **show mpoa client** output.

Table 2-37 show mpoa client Command Output Fields

Field	Description
MPC Name	Name specified for the MPC.
Interface	Interface to which the MPC is attached.
State	Current state of the MPC.

Table 2-37 show mpoa client Command Output Fields (continued)

Field	Description
MPC actual operating address	ATM address of the MPC.
Shortcut-Setup Count	Current number specified by the **shortcut-frame-count** command.
Shortcut-Setup Time	Current value specified by the **shortcut-frame-time** command.
Lane clients bound to MPC ip_mpc	List of LANE clients currently bound to the MPC ip_mpc.
Discovered MPS neighbours	List of learned MPS addresses.
kp-alv	Number of seconds until the next keepalive message should be received.
vcd	Number that identifies the virtual connection.
rxPkts	Number of packets received from the learned MPS.
txPkts	Number of packets transmitted to the learned MPS.
Remote Devices known	List of other devices (typically other MPCs) not in this ELAN.
vcd	Number that identifies the virtual connection to that MPC.
rxPkts	Number of packets received from the learned remote device.
txPkts	Number of packets transmitted to the learned remote device.

Related Command

mpoa client name

show mpoa client cache

Use the **show mpoa client cache** command to display the ingress or egress cache entries matching the IP addresses for the MPCs.

show mpoa client [**name** *mpc-name*] **cache** [**ingress** | **egress**] [**ip-address** *ip-address*]

Syntax Description

name *mpc-name*	(Optional) Keyword to specify the name of the MPC.
ingress	(Optional) Keyword to display ingress cache entries associated with an MPC.
egress	(Optional) Keyword to display egress cache entries associated with an MPC.
ip-address *ip-address*	(Optional) Keyword to display cache entries that match the specified IP address.

Defaults

The system defaults are:

- All MPC information is displayed.
- Both caches are shown.
- All IP address entries are shown.

Command Type

Cisco IOS ATM command.

Command Mode

EXEC.

Usage Guidelines

This command is not supported on the Catalyst 4000 and 2948G series switches.

The more optional parameters specified, the more filtering is applied to the **show** command.

Example

This example shows output from the **show mpoa client cache** command for a specific MPC:

```
ATM#show mpoa client ip_mpc cache
MPC Name: ip-mpc, Interface: ATM1/0, State: Up
MPC actual operating address: 47.00918100000000613E5A2F01.0010A6943825.00
Shortcut-Setup Count: 1, Shortcut-Setup Time: 1
Number of Ingress cache entries: 1
MPC Ingress Cache Information:
```

```
Dst IP addr     State   vcd Expires Egress MPC Atm address
20.20.20.1      RSVLD    35   11:38 47.00918100000000613E5A2F01.00000C5A0C5D.00
Number of Egress cache entries: 1
MPC Egress Cache Information:
Dst IP addr         Dst MAC       Src MAC     MPSid  Elan Expires  CacheId  Tag
10.10.10.1      0000.0c5a.0c58 0060.7017.4820     9     2   11:55        1    1
ATM#
```

Table 2-38 describes the fields in the **show mpoa client cache** output.

Table 2-38 show mpoa client cache Command Output Fields

Field	Description
MPC Name	Name specified for the MPC.
Interface	Interface to which the MPC is attached.
State	Current state of the MPC (up or down).
MPC actual operating address	ATM address of the MPC.
Shortcut-Setup Count	Current number specified by the **shortcut-frame-count** command.
Number of Ingress cache entries	Number of entries in the ingress cache.
MPC Ingress Cache Information:	
Dst IP addr	IP address of the destination.
State	State of the ingress cache entry[1].
vcd	Number that identifies the virtual connection.
Expires	Time in minutes/seconds until the ingress cache entry expires.
Egress MPC Atm address	ATM address of the egress MPC.
Number of Egress cache entries	Number of entries in the egress cache.
MPC Egress Cache Information:	
Dst IP addr	IP address of the destination.
Dst MAC	MAC[2] address of the destination.
Src MAC	MAC address of the source.
MPSid	Unique number representing the egress MPS.
Elan	ELAN[3] identifier of the ELAN serving this destination IP address.
Expires	Time in minutes/seconds until the egress cache entry expires.
CacheID	Cache identifier.
Tag	Tag identifier.

1 Valid states are initialized, trigger, refresh, hold_down, resolved, and suspended.
2 MAC=Media Access Control
3 ELAN=Emulated LAN

Related Command

clear mpoa client cache

show mpoa client statistics

Use the **show mpoa client statistics** command to display all the statistics collected by an MPC.

show mpoa client [**name** *mpc-name*] **statistics**

Syntax Description

name *mpc-name* (Optional) Keyword to specify the name of the MPC.

Default

The defaults are that all the statistics collected by an MPC are displayed.

Command Type

Cisco IOS ATM command.

Command Mode

EXEC.

Usage Guidelines

This command is not supported on the Catalyst 4000 and 2948G series switches.

This command displays all the statistics collected by an MPC.

Example

This example shows output from the **show mpoa client statistics** command for the MPC ip_mpc:

```
ATM#show mpoa client name ip_mpc statistics
MPC Name: ip_mpc, Interface: ATM1/0, State: Up
MPC actual operating address: 47.00918100000000613E5A2F01.0010A6943825.00
Shortcut-Setup Count: 1, Shortcut-Setup Time: 1

                            Transmitted       Received
MPOA Resolution Requests              2              0
MPOA Resolution Replies               0              2
MPOA Cache Imposition Requests        0              0
MPOA Cache Imposition Replies         0              0
MPOA Cache Purge Requests             0              0
MPOA Cache Purge Replies              0              0
MPOA Trigger Request                  0              0
NHRP Purge Requests                   0              0


Invalid MPOA Data Packets Received: 0
ATM#
```

Related Command

show mpoa client

show mpoa default-atm-addresses

Use the **show mpoa default-atm-addresses** command to display the default ATM addresses for the MPC.

show mpoa default-atm-addresses

Syntax Description

This command has no keywords or arguments.

Default

This command has no default setting.

Command Type

Cisco IOS ATM command.

Command Mode

EXEC.

Usage Guideline

This command is not supported on the Catalyst 4000 and 2948G series switches.

Examples

This example shows output from the **show mpoa default-atm-addresses** command when the switch prefix is NOT available:

```
ATM#show mpoa default-atm-addresses
interface ATM1/0:
MPOA Server: ...006070174824.**
MPOA Client: ...006070174825.**
note: ** is the MPS/MPC instance number in hex

interface ATM2/0:
MPOA Server: ...006070174844.**
MPOA Client: ...006070174845.**
note: ** is the MPS/MPC instance number in hex
ATM#
```

This example shows output from the **show mpoa default-atm-addresses** command when the switch prefix is available:

```
ATM#show mpoa default-atm-addresses
interface ATM1/0:
MPOA Server: 47.00918100000000613E5A2F01.006070174824.**
MPOA Client: 47.00918100000000613E5A2F01.006070174825.**
note: ** is the MPS/MPC instance number in hex

interface ATM2/0:
MPOA Server: 47.100000000000000000000000.006070174844.**
MPOA Client: 47.100000000000000000000000.006070174845.**
note: ** is the MPS/MPC instance number in hex
ATM#
```

Related Command

atm-address

show multicast group

Use the **show multicast group** command to display the multicast group configuration.

show multicast group [**cgmp** | **igmp**] [*mac_addr*] [*vlan_id*]

Syntax Description

cgmp	(Optional) Keyword to display only the information learned via CGMP.
igmp	(Optional) Keyword to display only the information learned via IGMP.
mac_addr	(Optional) Destination MAC address.
vlan_id	(Optional) Number of the VLAN.

Default

There is no default setting for this command.

Command Type

Switch command.

Command Mode

Normal.

Usage Guidelines

If you specify the **cgmp** or **igmp** keyword, an error message displays if CGMP or IGMP is not enabled.

The **igmp** keyword is not supported by the Catalyst 4000 and 2948G series switches.

Examples

This example shows how to display the multicast group configuration for VLAN 1:

```
Console> show multicast group cgmp 1
CGMP enabled

VLAN  Dest MAC/Route Des  Destination Ports or VCs / [Protocol Type]
----  ------------------  -----------------------------------------------------
1     01-00-5e-00-01-28*  3/1,12/9
1     01-00-5e-63-7f-6f*  3/1,12/5,12/9
Total Number of Entries = 2
Console>
```

This example shows how to display the multicast group configuration for a specific MAC address on VLAN 5:

```
Console> show multicast group 01-00-5E-00-00-5C 5
CGMP enabled

VLAN  Dest MAC/Route Des  Destination Ports or VCs / [Protocol Type]
----  ------------------  -----------------------------------------------------
5     01-00-5E-00-00-5C   3/1, 3/9
Total Number of Entries = 1
Console>
```

This example shows the error message displayed if the **cgmp** keyword is entered and CGMP is not enabled:

```
Console> show multicast group cgmp
CGMP feature is disabled.
```

This example shows the error message displayed if the **igmp** keyword is entered and IGMP is not enabled:

```
Console> show multicast group igmp
IGMP Snooping feature is disabled.
```

Table 2-39 describes the fields in the **show multicast group** command output.

Table 2-39 show multicast group Command Output Fields

Field	Description
CGMP enabled	Status of whether CGMP (or IGMP) is enabled or disabled.
VLAN	VLAN number.
Dest MAC/Route Des	Group destination MAC address.
*	Status of whether the port was configured manually as a multicast router port.
Destination Ports or VCs	List of all the ports that belong to this multicast group. Traffic destined to this group address will be forwarded on all these ports.
Total Number of Entries	Total number of entries in the multicast group table that match the criteria specified by the command.

Related Commands

clear multicast router
set cgmp
set igmp
set multicast router
show multicast router

show multicast group count

Use the **show multicast group count** command to show the total count of multicast addresses (groups) in a VLAN.

show multicast group count [**cgmp** | **igmp**] [*vlan_id*]

Syntax Description

cgmp	(Optional) Keyword to display only the information learned via CGMP.
igmp	(Optional) Keyword to display only the information learned via IGMP.
vlan_id	(Optional) Number of the VLAN.

Default

This command has no default setting.

Command Type

Switch command.

Command Mode

Normal.

Usage Guidelines

If you specify the **cgmp** or **igmp** keyword, an error message displays if CGMP or IGMP is not enabled.

The **igmp** keyword is not supported by the Catalyst 4000 and 2948G series switches.

Examples

This example shows how to display the total count of multicast groups in VLAN 5:

```
Console> show multicast group 5
CGMP enabled
IGMP disabled

Total Number of Entries = 2
Console>
```

This example shows the error message displayed if the **cgmp** keyword is entered and CGMP is not enabled:

```
Console> sh multicast group count cgmp
CGMP feature is disabled
Console>
```

This example shows the error message displayed if the **igmp** keyword is entered and IGMP is not enabled:

```
Console> sh multicast group count igmp
IGMP Snooping feature is disabled
Console>
```

Related Commands

clear multicast router
set cgmp
set igmp
set multicast router
show multicast router

show multicast router

Use the **show multicast router** command to display which ports have CGMP-capable routers assigned to them.

show multicast router [**cgmp** | **igmp**] [*mod_num/port_num*] [*vlan_id*]

Syntax Description

cgmp	(Optional) Keyword to display only the configuration information learned through CGMP.
igmp	(Optional) Keyword to display only the configuration information learned through IGMP.
mod_num	(Optional) Number of the module.
port_num	(Optional) Number of the port on the module.
vlan_id	(Optional) Number of the VLAN.

Default

This command has no default setting.

Command Type

Switch command.

Command Mode

Normal.

Usage Guideline

The **igmp** keyword is not supported by the Catalyst 4000 and 2948G series switches.

The Catalyst 2948G is a fixed configuration switch. All ports are located on module 2; for this reason, if you enter *mod_num/port_num* **1/N**, an error message will be displayed.

Examples

This example show how to display the multicast router configuration:

```
Console> show multicast router
CGMP enabled
IGMP disabled

Port       Vlan
---------  ----------------
2/1        99
2/2        255
3/1     *  1
7/9        2,99
11/1       99
12/9       1
```

```
Total Number of Entries = 6
'*' - Configured
Console>
```

This example show how to display the multicast router configuration for VLAN 99:

```
Console> show multicast router 99
CGMP enabled

Port       Vlan
---------  ----------------
2/1        99
7/9        2,99
11/1       99

Total Number of Entries = 3
'*' - Configured
Console>
```

This example shows how to display only the configuration information learned through CGMP:

```
Console> show multicast router cgmp
CGMP enabled
IGMP disabled

Port       Vlan
---------  ----------------
2/1        99
2/2        255
7/9        2,99
11/1       99
12/9       1

Total Number of Entries = 6
'*' - Configured
Console>
```

Table 2-40 describes the fields in the **show multicast router** command output.

Table 2-40 show multicast router Command Output Fields

Field	Description
CGMP enabled	Status of whether CGMP is enabled or disabled.
IGMP enabled	Status of whether IGMP is enabled or disabled.
Port	Port through which a multicast router can be reached.
*	Status of whether the port was manually configured as a multicast router port.
Vlan	VLAN associated with the port.
Total Number of Entries	Total number of entries in the table that match the criteria specified by the command.

Related Commands

clear multicast router
set cgmp
set igmp
set multicast router
show multicast group count

show netstat

Use the **show netstat** command to display the currently active network connections and to list statistics for the various protocols in the TCP/IP.

show netstat [**tcp** | **udp** | **ip** | **icmp** | **routes** | **stats** | **interfaces**]

Syntax Description

tcp	(Optional) Keyword to show TCP statistics.
udp	(Optional) Keyword to show UDP statistics.
ip	(Optional) Keyword to show IP statistics.
icmp	(Optional) Keyword to show ICMP statistics.
routes	(Optional) Keyword to show the IP routing table.
stats	(Optional) Keyword to show all statistics for TCP, UDP, IP, and ICMP.
interfaces	(Optional) Keyword to show interface statistics.

Default

This command has no default setting.

Command Type

Switch command.

Command Mode

Normal.

Usage Guideline

Counter information for me1 is viewed by entering the **show netstat interface** command.

Examples

This example shows how to display the current active network connections:

```
Console> show netstat
Active Internet connections (including servers)
Proto Recv-Q Send-Q  Local Address          Foreign Address        (state)
tcp        0    128  172.20.25.142.23       171.68.10.75.44720     ESTABLISHED
tcp        0      0  *.7161                 *.*                    LISTEN
tcp        0      0  *.23                   *.*                    LISTEN
udp        0      0  *.*                    *.*
udp        0      0  *.161                  *.*
udp        0      0  *.123                  *.*
Console>
```

This example shows how to display TCP statistics:

```
Console> show netstat tcp
tcp:
        5122 packets sent
                4642 data packets (102292 bytes)
                28 data packets (6148 bytes) retransmitted
                434 ack-only packets (412 delayed)
                0 URG only packets
                0 window probe packets
                1 window update packet
                17 control packets
        7621 packets received
                4639 acks (for 103883 bytes)
                69 duplicate acks
                0 acks for unsent data
                3468 packets (15367 bytes) received in-sequence
                12 completely duplicate packets (20 bytes)
                0 packets with some dup. data (0 bytes duped)
                4 out-of-order packets (0 bytes)
                0 packets (0 bytes) of data after window
                0 window probes
                0 window update packets
                0 packets received after close
                0 discarded for bad checksums
                0 discarded for bad header offset fields
                0 discarded because packet too short
        6 connection requests
        6 connection accepts
        10 connections established (including accepts)
        11 connections closed (including 1 drop)
        2 embryonic connections dropped
        4581 segments updated rtt (of 4600 attempts)
        28 retransmit timeouts
                0 connections dropped by rexmit timeout
        0 persist timeouts
        66 keepalive timeouts
                63 keepalive probes sent
                3 connections dropped by keepalive
Console>
```

Table 2-41 describes the fields in the **show netstat tcp** command output.

Table 2-41 show netstat tcp Command Output Fields

Field	Description
packets sent	Total number of TCP packets sent.
data packets (bytes)	Number of TCP data packets sent and the size of those packets in bytes.
data packets (bytes) retranzmitted	Number of TCP data packets retransmitted and the size of those packets in bytes.
ack-only packets (delayed)	Number of TCP acknowledgment-only packets sent and the number of those packets delayed.
packets received	Total number of TCP packets received.
acks (for *x* bytes)	Number of TCP acknowledgments received and the total bytes acknowledged.
duplicate acks	Number of duplicate TCP acknowledgments received.
acks for unsent data	Number of TCP acknowledgments received for data that was not sent.

Table 2-41 show netstat tcp Command Output Fields (continued)

Field	Description
packets (bytes) received in-sequence	Number of TCP packets (and the size in bytes) received in sequence.
completely duplicate packets (bytes)	Number of duplicate TCP packets (and the size in bytes) received.
packets with some dup. data (bytes duped)	Number of TCP packets received with duplicate data (and the number of bytes of duplicated data).
out-of-order packets (bytes)	Number of out-of-order TCP packets (and the size in bytes) received.
packets (bytes) of data after window	Number of TCP packets (and the size in bytes) received outside of the specified data window.
discarded for bad checksums	Number of TCP packets received and discarded that failed the checksum.
discarded because packet too short	Number of TCP packets received and discarded that were truncated.
connection requests	Total number of TCP connection requests sent.
connection accepts	Total number of TCP connection accepts sent.
connections established (including accepts)	Total number of TCP connections established, including those for which a connection accept was sent.
connections closed (including *x* drops)	Total number of TCP connections closed, including dropped connections.
retransmit timeouts	Number of timeouts that occurred when a retransmission was attempted.
connections dropped by rexmit timeout	Number of connections dropped due to retransmission timeouts.
keepalive timeouts	Number of keepalive timeouts that occurred.
keepalive probes sent	Number of TCP keepalive probes sent.
connections dropped by keepalive	Number of connections dropped.

This example shows how to display UDP statistics:

```
Console> show netstat udp
udp:
        0 incomplete headers
        0 bad data length fields
        0 bad checksums
        0 socket overflows
        1116 no such ports
Console>
```

Table 2-42 describes the fields in the **show netstat udp** command output.

Table 2-42 show netstat udp Command Output Fields

Field	Description
incomplete headers	Number of UDP packets received with incomplete packet headers.
bad data length fields	Number of UDP packets received with a data length field that did not match the actual length of the packet payload.

Table 2-42 show netstat udp Command Output Fields (continued)

Field	Description
bad checksums	Number of UDP packets received that failed the checksum.
socket overflows	Number of socket overflows.
no such ports	Number of UDP packets received destined for nonexistent ports.

This example shows how to display IP statistics:

```
Console> show netstat ip
ip:
        76894 total packets received
        0 bad header checksums
        0 with size smaller than minimum
        0 with data size < data length
        0 with header length < data size
        0 with data length < header length
        0 fragments received
        0 fragments dropped (dup or out of space)
        0 fragments dropped after timeout
        0 packets forwarded
        0 packets not forwardable
        0 redirects sent
Console>
```

Table 2-43 describes the fields in the **show netstat ip** command output.

Table 2-43 show netstat ip Command Output Fields

Field	Description
total packets received	Total number of IP packets received.
bad header checksums	Number of received IP packets that failed the checksum.
with size smaller than minimum	Number of received IP packets that were smaller than the minimum IP packet size.
fragments received	Number of IP packet fragments received.
fragments dropped (dup or out of space)	Number of received IP packet fragments that were dropped because of duplicate data or buffer overflow.
fragments dropped after timeout	Number of received IP packet fragments that were dropped.
packets forwarded	Number of forwarded IP packets.
packets not forwardable	Number of IP packets that the switch did not forward.

This example shows how to display ICMP statistics:

```
Console> show netstat icmp
icmp:
        Redirect enabled
        0 calls to icmp_error
        0 errors not generated 'cuz old message was icmp
        Output histogram:
                echo reply: 1001
        1 message with bad code fields
        0 messages < minimum length
        0 bad checksums
        0 messages with bad length
```

```
        Input histogram:
                echo reply: 12
                destination unreachable: 3961
                echo: 1001
        1001 message responses generated
Console>
```

Table 2-44 describes the fields in the **show netstat icmp** command output.

Table 2-44 show netstat icmp Command Output Fields

Field	Description
Redirect enabled	Status of whether ICMP redirection is enabled or disabled.
Output histogram	Frequency distribution statistics for output ICMP packets.
echo reply	Number of output echo reply ICMP packets.
messages with bad code fields	Number of ICMP packets with an invalid code field.
messages < minimum length	Number of ICMP packets with less than the minimum packet length.
bad checksums	Number of ICMP packets that failed the checksum.
messages with bad length	Number of ICMP packets with an invalid length.
Input histogram	Frequency distribution statistics for input ICMP packets.
echo reply	Number of input echo reply ICMP packets.
destination unreachable	Number of input destination unreachable ICMP packets.
echo	Number of input echo ICMP packets.
message responses generated	Number of ICMP message responses the system generated.

This example shows how to display the IP routing table:

```
Console> show netstat routes
DESTINATION     GATEWAY         FLAGS   USE             INTERFACE
default         172.16.1.201    UG      6186            sc0
172.16.0.0      172.16.25.142   U       6383            sc0
default         default         UH      0               sl0
Console>
```

Table 2-45 describes the fields in the **show netstat routes** command output.

Table 2-45 show netstat routes Command Output Fields

Field	Description
DESTINATION	Destination IP address or network.
GATEWAY	Next hop to the destination.
INTERFACE	Interface out of which packets to the destination should be forwarded.

This example shows how to display interface statistics:

```
Console> show netstat interface
Interface          InPackets InErrors OutPackets OutErrors
sl0                        0        0          0         0
sc0                       33        0     117192         0
me1                        2        0      57075         0
Interface Rcv-Octet            Xmit-Octet
--------- -------------------- --------------------
sc0       2389                 0
me1       1172                 0
sl0       0                    0
Interface Rcv-Unicast          Xmit-Unicast
--------- -------------------- --------------------
sc0       28                   0
me1       28                   0
sl0       0                    0
Console>
```

Table 2-46 describes the fields in the **show netstat interface** command output.

Table 2-46 show netstat interface Command Output Fields

Field	Description
Interface	Interface number (sl0 is the SLIP interface; sc0 is the in-band interface; me1 is the out-of-band interface).
InPackets	Number of input packets on the interface.
InErrors	Number of input errors on the interface.
OutPackets	Number of output packets on the interface.
OutErrors	Number of output errors on the interface.
Rcv-Octet	Number of octet frames received on the port.
Xmit-Octet	Number of octet frames transmitted on the port.
Rcv-Unicast	Number of unicast frames received on the port.
Xmit-Unicast	Number of unicast frames transmitted on the port.

Related Commands

set interface
set ip route

show ntp

Use the **show ntp** command to display the current NTP status.

show ntp

Syntax Description

This command has no arguments or keywords.

Default

This command has no default setting.

Command Type

Switch command.

Command Mode

Normal.

Example

This example shows how to display the current NTP status:

```
Console> show ntp
Current time: Thu Oct 15 1998, 11:19:03 pst
Timezone: 'pst', offset from UTC is -8 hours
Summertime: 'pst', enabled
Last NTP update:
Broadcast client mode: enabled
Broadcast delay: 3000 microseconds
Client mode: disabled

NTP-Server
---------------------------------------
time_server.cisco.com
Console>
```

Table 2-47 describes the fields in the **show ntp** command output.

Table 2-47 show ntp Command Output Fields

Field	Description
Current time	Current system time.
Timezone	Time zone and the offset in hours from UTC.
Summertime	Time zone for daylight saving time and whether the daylight saving time adjustment is enabled or disabled.
Last NTP update	Time of the last NTP update.
Broadcast client mode	Status of whether NTP broadcast-client mode is enabled or disabled.
Broadcast delay	Configured NTP broadcast delay.
Client mode	Status of whether NTP client mode is enabled or disabled.
NTP-Server	List of configured NTP servers.

Related Commands

clear ntp server
set ntp broadcastclient
set ntp broadcastdelay
set ntp client
set ntp server

show port

Use the **show port** command to display port status and counters.

show port [*mod_num*[/*port_num*]]

Syntax Description

mod_num	(Optional) Number of the module. If you do not specify a number, the ports on all modules are shown.
/port_num	(Optional) Number of the port on the module. If you do not specify a number, all the ports on the module are shown.

Default

This command has no default setting.

Command Type

Switch command.

Command Mode

Normal.

Usage Guidelines

In the status field for a Catalyst 4000 and 2948G series switch port, the following applies:

- *connected* indicates the port is operational.
- *notconnected* indicates the port is off or there is no GBIC in port.
- *faulty* indicates the port failed diagnostics tests.
- *remfault* indicates the far end station cannot synchronize with its receive signal.
- *disable* indicates the port has been manually disabled.
- *remdisable* indicates the far end port has been manually disabled.
- *configerr* indicates that this port is not satisfied with the output of flow control and or duplex negotiation.
- *remcfgerr* indicates that the far end port is not satisfied with the output of flow control and or duplex negotiation.
- *disagree* indicates the condition when the two ports have failed to agree on a duplex condition or when autonegotiation has failed.

Although me1 resides on the supervisor engine module for the Catalyst 4000 and 2948G series switches, me1 port information is not displayed by the **show module** or **show port** CLI commands.

The Catalyst 2948G is a fixed configuration switch. All ports are located on module 2; for this reason, if you enter *mod_num/port_num* **1/N**, an error message will be displayed.

Examples

This example shows how to display the status and counters for port 1 on module 3 (Catalyst 5000, 2926G, and 2926 series switches):

```
Console> (enable) show port 3/1
Port  Name               Status     Vlan       Duplex Speed Type
----- ------------------ ---------- ---------- ------ ----- ------------
 3/1                     notconnect 1            half   100 100BaseFX MM

Port  Security Secure-Src-Addr   Last-Src-Addr     Shutdown Trap     IfIndex
----- -------- ----------------- ----------------- -------- -------- -------
 3/1  disabled                                     No       disabled 270

Port     Broadcast-Limit Broadcast-Drop
-------- --------------- --------------
 3/1                   -              0

Port  Align-Err  FCS-Err    Xmit-Err   Rcv-Err    UnderSize
----- ---------- ---------- ---------- ---------- ---------
 3/1           0          0          0          0         0

Port  Single-Col Multi-Coll Late-Coll  Excess-Col Carri-Sen Runts     Giants
----- ---------- ---------- ---------- ---------- --------- --------- ---------
 3/1           0          0          0          0         0         0         0

Last-Time-Cleared
--------------------------
Thu Oct 15 1998, 13:05:45
Console>
```

This example shows how to display the status and counters for all ports on a Catalyst 4000 or 2948G series switch:

```
Console> show port
Port  Name               Status      Vlan   Level    Duplex   Speed  Type
----- ------------------ ---------- ------- ------   -------- -----  ------
1/1   Management Port    connected                   a-full   10     10 Base TX
2/1   Gigabit            remfault    trunk  normal   full     1000   1000 BaseCX
2/2   Gigabit            notconnect  trunk  normal   full     1000   1000 BaseSX
2/3   Gigabit            disable     trunk  normal   full     1000   1000 BaseLX
2/4   Gigabit            remdisable  3      normal   full     1000   1000 BaseLX
2/5   Gigabit            faulty      3      normal   full     1000   1000 BaseLX
2/6   Gigabit            configerr   1      normal   full     1000   1000 BaseCX

Last-Time-Cleared
---------------------------
Wed Nov 11 1998, 18:28:51
Console>
```

Table 2-48 describes the possible fields (depending on the port type queried) in the **show port** command output.

Table 2-48 show port Command Output Fields

Field	Description
Port	Module and port number.
Name	Name (if configured) of the port.
Status	Status of the port. For the Catalyst 5000, 2926G, and 2926 series switches, possible displays are connected, notconnect, connecting, standby, faulty, inactive, shutdown, disabled, or monitor; for the Catalyst 4000 and 2948G series switches, possible displays are connected, notconnected, faulty, remfault, disable, remdisable, configerr, remcfgerr, and disagree.
Vlan	VLANs to which the port belongs.
Duplex	Duplex setting for the port (auto, full, fdx, half, hdx, a-half, a-hdx, a-full, or a-fdx).
Speed	Speed setting for the port (auto, 10, 100, 155, a-10, a-100, 4, 16, a-14,or a-16).
Type[1]	Port type, for example, 100BaseFX MM, 100BaseFX SM, 10/100BaseTX, or RSM.
Security	Status of whether port security is enabled or disabled.
Secure-Src-Addr	Secure MAC address for the security enabled port.
Last-Src-Addr	Source MAC address of the last packet received by the port.
Shutdown	Status of whether the port was shut down because of security.
Trap	Status of whether port trap is enabled or disabled.
Broadcast-Limit	Broadcast threshold configured for the port.
Broadcast-Drop	Number of broadcast/multicast packets dropped because the broadcast limit for the port was exceeded.
Align-Err	Number of frames with alignment errors (frames that do not end with an even number of octets and have a bad CRC) received on the port.
FCS-Err	The number of valid size frames with FCS error sbut no framing errors.
Xmit-Err	Number of transmit errors that occurred on the port (indicating that the internal transmit buffer is full).
Rcv-Err	Number of receive errors that occurred on the port (indicating that the internal receive buffer is full).
UnderSize	Number of received frames less than 64 octets long (but are otherwise well-formed).
Single-Coll	Number of times one collision occurred before the port transmitted a frame to the media successfully.
Multi-Coll	Number of times multiple collisions occurred before the port transmitted a frame to the media successfully.
Late-Coll	Number of late collisions (collisions outside the collision domain).
Excess-Col	Number of excessive collisions that occurred on the port (indicating that a frame encountered 16 collisions and was discarded).
Carri-Sen	Number of times the port sensed a carrier (to determine whether the cable is currently being used).
Runts	Number of received runt frames (frames that are smaller than the minimum IEEE 802.3 frame size) on the port.

Table 2-48 show port Command Output Fields (continued)

Field	Description
Giants	Number of received giant frames (frames that exceed the maximum IEEE 802.3 frame size) on the port.
Last-Time-Cleared	Last time the port counters were cleared.
Auto-Part	The number of times the port entered the auto-partition state due to excessive consecutive collisions.
Data-rate mismatch	The number of valid size frames experienced overrun or underrun.
Src-addr change	The number of times the last source address changed.
Good-bytes	The total number of octets in frames with no error.
Short-event	The number of times activity with a duration less than the ShortEventMax Time (74-82 bit times) is dectected.

1 These fields will change according to the system configuration.