

# show kerberos creds

Use the **show kerberos creds** command to display all the Kerberos credentials on the switch.

**show kerberos creds**

---

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

---

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

---

**Command Types** Switch command.

---

**Command Modes** Normal.

---

**Examples** This example shows how to display Kerberos credentials information:

```
Console> show kerberos creds
No Kerberos credentials.
Console>
```

---

**Related Commands** [clear kerberos creds](#)  
[show kerberos](#)

# show log

Use the **show log** command to display the error log for the system or a specific module.

**show log** [*mod*]

**show log dump** [*-count*]

Syntax Description	
<i>mod</i>	(Optional) Number of the module for which the log is displayed.
<b>dump</b>	Keyword to display dump log information.
<i>-count</i>	(Optional) Number of dump log entries to display.

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

**Command Types** Switch command.

**Command Modes** Normal.

**Examples** This example shows how to display the error log for the system:

```
Console> show log
```

```
Network Management Processor (ACTIVE NMP) Log:
Reset count: 86
Re-boot History: Nov 11 1998 7:27: 4 0, Oct 01 1998 16:15:25 0
                  Oct 01 1998 16:12:11 0, Aug 27 1998 15:13:42 0
                  Aug 27 1998 15:10: 5 0, Aug 27 1998 15: 7:19 0
                  Aug 27 1998 14:45:53 0, Aug 27 1998 14:44:40 0
                  Aug 27 1998 14:43:16 0, Aug 27 1998 14:33:19 0
Bootrom Checksum Failures: 0   UART Failures: 0
Flash Checksum Failures: 0   Flash Program Failures: 0
Power Supply 1 Failures: 21  Power Supply 2 Failures: 23
Swapped to CLKA: 0         Swapped to CLKB: 0
Swapped to Processor 1: 0   Swapped to Processor 2: 0
DRAM Failures: 0
Exceptions: 8

Last software reset by user: 11/11/98,07:26:28
```

```

Switching bus Timeout NMI

switching bus Last Card Grant(Slot No) = 0
Last Exception occurred on Aug 27 1998 15:07:55 ...
NVRAM log:

01. 5/26/97,01:56:33: convert_post_SAC_CiscoMIB:Nvram block 0 size
mismatch: 340
88(33960)

Module 3 Log:
Reset Count: 7
Reset History: Wed Nov 11 1998, 08:38:55
                Wed Nov 11 1998, 01:28:43
                Wed Nov 11 1998, 00:57:02
                Tue Nov 10 1998, 14:56:37

Module 4 Log:
Reset Count: 1
Reset History: Wed Mar 11 1998, 10:09:55

Module 5 Log:
Reset Count: 6
Reset History: Wed Mar 11 1998, 08:39:03
                Wed Mar 11 1998, 00:57:10
                Tue Mar 10 1998, 14:56:45
                Tue Mar 10 1998, 14:43:15

Console>

```

This example shows how to display dump log information:

```

Console> show log dump
Total logs: 1
Console>

```

[Table 2-31](#) describes the fields in the **show log** command output.

**Table 2-31 show log Command Output Fields**

Field	Description
Network Management Processor (ACTIVE NMP) Log	Log that applies to the NMP on the supervisor engine module.
Reset Count	Number of times the system has reset.
Re-boot History	Date and times the system has rebooted.
Bootrom Checksum Failures	Number of bootrom checksum failures.
UART Failures	Number of times the UART has failed.
Flash Checksum Failures	Number of times the Flash Checksum has failed.
Flash Program Failures	Number of times the Flash Program has failed.

**Table 2-31 show log Command Output Fields (continued)**

<b>Field</b>	<b>Description</b>
Power Supply 1 Failures	Number of times Power Supply 1 has failed.
Power Supply 2 Failures	Number of times Power Supply 2 has failed.
DRAM Failures	Number of times the DRAM has failed.
Exceptions:	Exceptions log.
NVRAM log	Number of times NVRAM errors have occurred.
Reset History	Date and times the system has reset.
Total logs	Number of entries.

**Related Commands** [clear log](#)

# show log command

Use the **show log command** to display the command log entries.

**show log command** [*mod*]

<b>Syntax Description</b>	<i>mod</i> (Optional) Number of the module.
<b>Defaults</b>	This command has no default settings.
<b>Command Types</b>	Switch command.
<b>Command Modes</b>	Privileged.
<b>Usage Guidelines</b>	The command log entry table is a history log of the input of the commands to the switch from the console or Telnet.
<b>Examples</b>	<p>This example shows how to display the command log for a specific module:</p> <pre> Console&gt; (enable) <b>show log command 1</b> Active Command log:  001. Oct 04 09:44:35 Pid = 86 show mod 002. Oct 04 09:44:55 Pid = 86 clear log command 3 003. Oct 04 10:09:07 Pid = 86 show port membership 004. Oct 04 10:10:15 Pid = 86 en 005. Oct 04 10:10:19 Pid = 86 clear port help 006. Oct 04 10:10:47 Pid = 86 clear spantree help 007. Oct 04 10:12:42 Pid = 86 show 008. Oct 04 10:12:57 Pid = 86 show qos help 009. Oct 04 10:14:46 Pid = 86 show log 5 010. Oct 04 10:14:53 Pid = 86 show log 1 011. Oct 04 10:15:04 Pid = 86 show log command 5 012. Oct 04 10:15:08 Pid = 86 show log command 1  Console&gt; (enable) </pre>
<b>Related Commands</b>	<a href="#">clear log command</a>

# show logging

Use the **show logging** command to display the system message log configuration.

**show logging [noalias]**

Syntax Description	noalias	(Optional) Keyword to display syslog servers in IP dotted format.
--------------------	---------	---

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

Command Types	Switch command.
---------------	-----------------

Command Modes	Normal.
---------------	---------

Examples	This example shows the default system message log configuration:
----------	--

Console **show logging**

```

Logging buffer size:          500
      timestamp option:      enabled
Logging history size:         1
Logging console:              enabled
Logging server:               disabled
      server facility:       LOCAL7
      server severity:       warnings (4)

```

Facility	Default Severity	Current Session Severity
-----	-----	-----
cdp	4	4
cops	3	3
drip	2	2
dtp	5	5
earl	2	2
fddi	2	2
filesys	2	2
gvrp	2	2
ip	2	2
kernel	2	2
mcast	2	2
mgmt	5	5
mls	5	5
pagp	5	5
protfilt	2	2
pruning	2	2
qos	3	3
radius	2	2
security	2	2
snmp	2	2
spantree	2	2
sys	5	5
tac	2	2

```

tcp                2                2
telnet             2                2
tftp               2                2
udld               4                4
vmps               2                2
vtp

0 (emergencies)   1 (alerts)       2 (critical)
3 (errors)         4 (warnings)     5 (notifications)
6 (information)   7 (debugging)
Console>

```

Table 2-32 describes the fields in the **show logging** command output.

**Table 2-32 show logging Command Output Fields**

Field	Description
Logging console	Status of whether logging to the console is enabled or disabled.
Logging server	Status of whether logging to the logging server is enabled or disabled.
Current Logging Session	Status of whether system logging messages are sent to the current login session.
Facility	Name of the facility to be logged.
Server/Default Severity	Default severity level at which point an error from that facility is logged.
Current Session Severity	Severity level at which point an error from that facility is logged during the current session.
0 (emergencies), 1 (alerts)...	Key to the numeric severity level codes.

#### Related Commands

```

clear logging server
set logging buffer
set logging level
set logging server
set logging session
show logging buffer

```

# show logging buffer

Use the **show logging buffer** command to display system messages from the internal buffer.

**show logging buffer** [-] [*number\_of\_messages*]

<b>Syntax Description</b>	-	(Optional) Keyword to force the display to show system messages starting from the end of the buffer.
	<i>number_of_messages</i>	(Optional) Number of system messages to be displayed; valid values are from <b>1</b> to <b>1023</b> .

**Defaults** Default setting is -20, the last 20 messages in the buffer are displayed.

**Command Types** Switch command.

**Command Modes** Normal.

**Usage Guidelines** If the - keyword is not used, system messages are displayed from the beginning of the buffer. If the *number\_of\_messages* value is not specified, the last 20 messages in the buffer are displayed.

If the logging timestamp option is enabled, a timestamp is also included in the display. Use the [set logging timestamp](#) command to enable the timestamp option.

If the logging timestamp option is enabled, the +00:00 or -00:00 in the output indicates the hours and minutes offset from UTC.

**Examples** This example shows how to display all the system messages from the internal buffer; this example displays the output with the timestamp option enabled:

```
Console show logging buffer
1999 Mar 09 19:33:05 +00:00%SYS-5:Module 1 is online
1999 Mar 09 19:33:05 +00:00%SYS-5:Module 5 is online
1999 Mar 09 19:33:05 +00:00%SYS-5:Module 3 failed configuration
1999 Mar 09 19:33:05 +00:00%SYS-5:Module 3 failed configuration
1999 Mar 09 19:33:05 +00:00%SYS-5:Module 4 is online
1999 Mar 09 19:33:05 +00:00%SNMP-6:Subagent 2 connected
1999 Mar 09 19:33:05 +00:00%SNMP-5:Cold Start Trap
Console
```

This example shows how to display the first four system messages from the internal buffer; this example displays the output with the timestamp option disabled:

```
Console show logging buffer 4
%SYS-5:Module 1 is online
%SYS-5:Module 5 is online
%SYS-5:Module 3 failed configuration
Console
```

This example shows how to display the last four system messages from the internal buffer; this example displays the output with the timestamp option enabled:

```
Console show logging buffer -4
1999 Mar 09 19:33:05 +00:00%SYS-5:Module 3 failed configuration
1999 Mar 09 19:33:05 +00:00%SYS-5:Module 4 is online
1999 Mar 09 19:33:05 +00:00%SNMP-6:Subagent 2 connected
1999 Mar 09 19:33:05 +00:00%SNMP-5:Cold Start Trap
Console
```

---

**Related Commands**

[set logging buffer](#)  
[set logging timestamp](#)

# show mac

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

**show mac** [*mod*[/*port*]]

Syntax Description	<i>mod</i>	(Optional) Number of the module. If you do not specify a number, all modules are shown.
	<i>/port</i>	(Optional) Number of the port on the module. If you do not specify a number, all ports are shown.

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

**Command Types** Switch command.

**Command Modes** Normal.

**Examples** 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 Apr 13 1999, 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.
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.

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

<b>Field</b>	<b>Description</b>
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 <b>clear counters</b> 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 or keywords.

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

**Command Types** Switch command.

**Command Modes** Normal.

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

```
Console> show 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 Engine 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> show 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         -
```

## show microcode

```

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 to display IP and IPX MLS configuration and status information.

**show mls [ip | ipx]**

## Syntax Description

<b>ip</b>	(Optional) Keyword to display IP MLS information.
<b>ipx</b>	(Optional) Keyword to display IPX MLS information.

## Defaults

The default displays both IP and IPX MLS information.

## Command Types

Switch command.

## Command Modes

Normal.

## Usage Guidelines

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

## Examples

This example shows how to display IP MLS information:

```
Console> show mls ip
Total packets switched = 101892
Total Active MLS entries = 2153
IP Multilayer switching enabled
IP Multilayer switching aging time = 256 seconds
IP Multilayer switching fast aging time = 0 seconds, packet threshold =0
IP Current flow mask is Destination flow
Configured flow mask is Destination flow
Active IP MLS entries = 0
Netflow Data Export enabled
Netflow Data Export configured for port 8010 on host 10.0.2.15.
Total packets exported = 20
```

IP	MLS-RP	IP	MLS-RP	ID	XTAG	MLS-RP	MAC-Vlans
172.20.25.2			0000808cece0	20		00-80-8c-ec-e0-20	2-15
						00-80-8c-ec-e1-30	66
						00-80-8c-ec-e2-40	67
						00-80-8c-ec-e3-50	88
						00-80-8c-ec-e4-60	99
172.20.27.1			0000808c1214	30		00-80-8c-12-14-20	31-40
						00-80-8c-12-15-30	12

Console>

This example shows how to display IPX MLS information:

```
Console> show mls ipx
IPX Multilayer switching disabled
IPX Multilayer switching aging time = 256 seconds
```

## ■ show mls

```

IPX flow mask is Destination flow
IPX max hop is 16
Active IPX MLS entries = 0

```

IPX	MLS-RP	IP	MLS-RP	ID	XTAG	MLS-RP	MAC-Vlans
22.1.0.55			00906dfc5800		5	00-10-07-38-29-17	2-15,66,77,88,99
						00-90-6d-fc-58-00	20-21

Console>

**Related Commands**

```

clear mls entry ip
clear mls entry ipx
clear mls include ip
clear mls include ipx
clear mls nde flow
clear mls statistics
set mls nde
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.

---

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

---

**Command Types** Switch command.

---

**Command Modes** Privileged.

---

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

---

**Examples** 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. For this reason, the output is not displayed in this publication.

---

# show mls entry

Use the **show mls entry** command to display IP and IPX MLS cache entries.

```
show mls entry [ip] [qos] [rp ip_addr] [destination ip_addr_spec] [source ip_addr_spec] [flow
protocol src_port dst_port]
```

```
show mls entry [ipx] [rp ip_addr] [destination ipx_addr_spec] [source ipx_addr_spec]
```

## Syntax Description

<b>ip</b>	(Optional) Keyword to display IP MLS cache entries.
<b>qos</b>	(Optional) Keyword QoS entries.
<b>rp</b>	(Optional) Keyword the MLS-RP.
<i>ip_addr</i>	(Optional) IP address or host name of the MLS-RP.
<b>destination</b>	(Optional) Keyword to specify the destination IP address.
<i>ip_addr_spec</i>	(Optional) Full IP address or a subnet address.
<b>source</b>	(Optional) Keyword to specify the source IP address.
<b>flow</b>	(Optional) Keyword to specify additional flow information (protocol family and protocol port pair) to be matched.
<i>protocol</i>	(Optional) Protocol family; valid values include tcp, udp, icmp, or a decimal number for other protocol families.
<i>src_port</i>	(Optional) Source protocol port.
<i>dst_port</i>	(Optional) Destination protocol port.
<b>ipx</b>	(Optional) Keyword to display IPX MLS cache entries.
<i>ipx_addr_spec</i>	(Optional) Full IPX address or a network address.

## Defaults

The default displays all IP and IPX MLS cache entries.

## Command Types

Switch command.

## Command Modes

Normal.

## Usage Guidelines

If you do not specify the source or destination addresses, all entries are displayed.

When entering the *ip\_addr\_spec*, use the full IP address or a subnet address in the following formats:

- *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 172.22.252.00/22.

When entering the IPX address syntax, use the following format:

- IPX network address—1..FFFFFFE
- IPX node address—x.x.x where x is 0..FFFF
- IPX address—*ipx\_net.ipx\_node* (for example, 3.0034.1245.AB45 or A43.0000.0000.0001)

A value of 0 for *src\_port* or *dst\_port* means “don’t care” (the port number information is not considered).

## Examples

This example shows how to display all IP MLS cache entries:

```

Console> show mls entry ip
                Last Used          Last   Used
Destination IP  Source IP      Prot DstPrt SrcPrt Destination Mac
Vlan Port
-----
IP MLS-RP 172.20.25.1:
172.20.22.14   172.20.25.10   UDP  8050   648   00-60-70-6c-fc-22
4 2/1
IP MLS-RP 172.20.26.1:
172.20.20.15   172.20.25.148  UDP  506    5080  00-60-70-6c-fc-23
2 2/2
IP 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>

```

This example shows how to display all IPX MLS cache entries:

```

Console> show mls entry ipx
Destination IPX          Source IPX net   Destination Mac  Vlan  Port
-----
MLS-RP 72.0.72.199:
1.0002.00e0.fefc.6000   1.0003 08-00-20-7a-07-75   10   11/12
1.0003.00e0.a3a8.f7ff   1.0002 00-10-0d-82-10-ff   1    1/9
Console>

```

This example shows how to display IP MLS cache entries for a specific MLS-RP:

```

Console> show mls entry ip rp 172.20.27.1
                Last Used          Last   Used
Destination IP  Source IP      Prot DstPrt SrcPrt Destination Mac  Vlan  Port
-----
IP 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>

```

## ■ show mls entry

This example shows how to display IPX MLS cache entries for a specific MLS-RP:

```

Console> show mls entry ipx rp 172.0.72.199
Destination IPX                Source IPX net      Destination Mac  Vlan  Port
-----
MLS-RP 172.0.72.199:
1.0002.00e0.fefc.6000          1.0003 08-00-20-7a-07-75          10   11/12
1.0003.00e0.a3a8.f7ff          1.0002 00-10-0d-82-10-ff          1    1/9
Console>

```

This example shows how to display QoS-related MLS cache entries:

```

Console> show mls entry qos
Destination IP  Source IP      Prot  DstPrt  SrcPrt  QoS
-----
172.20.22.14   172.20.25.10  UDP   80       50648   0
172.20.20.15   172.20.25.148 UDP   50650    80      0
172.20.21.17   172.20.27.138
CP 7001 7003 0
Console>

```

This example shows how to display IP MLS cache entries for a destination IP address:

```

Console> show mls entry destination 172.20.22.14/24
                Last Used      Last   Used
Destination IP  Source IP      Prot  DstPrt  SrcPrt  Destination Mac  Vlan  Port
-----
IP 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
IP 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>

```

**Related Commands**

[clear mls entry ip](#)  
[clear mls entry ipx](#)  
[clear mls include ip](#)  
[clear mls include ipx](#)  
[clear mls statistics](#)  
[show mls statistics](#)

# show mls include

Use the **show mls include** command to display information about the routers in the IP MLS-RP include list and the IPX MLS-RP include list.

**show mls include [ip | ipx] [noalias]**

Syntax Description	
<b>ip</b>	(Optional) Keyword to display the IP MLS-RP include list.
<b>ipx</b>	(Optional) Keyword to display the IPX MLS-RP include list.
<b>noalias</b>	(Optional) Keyword to display IP addresses instead of host names in the output.

**Defaults** The default displays both IP and IPX MLS-RP include list information.

**Command Types** Switch command.

**Command Modes** Normal.

**Examples** This example shows how to display the IP MLS-RP include list:

```
Console> show mls include ip
Included IP MLS-RP
-----
172.16.2.13
172.16.2.12
Console>
```

This example shows how to display the IPX MLS-RP include list:

```
Console> show mls include ipx
Included IPX MLS-RP
-----
172.16.2.13
172.16.2.12
Console>
```

**Related Commands**

- [clear mls entry ip](#)
- [clear mls entry ipx](#)
- [clear mls include ip](#)
- [clear mls include ipx](#)
- [clear mls nde flow](#)
- [clear mls statistics](#)
- [set mls nde](#)
- [show mls statistics](#)

# show mls multicast entry

Use the **show mls multicast entry** command to display IP multicast MLS cache entries.

```
show mls multicast entry [rp rp_ip_addr] [vlan vlan_id] [group group_ip_addr] [source
source_ip_addr] [all] [short | long]
```

Syntax Description		
<b>rp</b>	(Optional) Keyword to specify a MMLS-RP.	
<i>rp_ip_addr</i>	(Optional) IP address or host name of the MMLS-RP for which to display entries.	
<b>vlan</b>	(Optional) Keyword to specify a VLAN.	
<i>vlan_id</i>	(Optional) VLAN ID for which to display entries.	
<b>group</b>	(Optional) Keyword to specify a multicast group address.	
<i>group_ip_addr</i>	(Optional) IP multicast group address for which to display entries.	
<b>source</b>	(Optional) Keyword to specify a multicast traffic source.	
<i>source_ip_addr</i>	(Optional) IP address or host name of the multicast source for which to display entries.	
<b>all</b>	(Optional) Keyword to display all IP multicast MLS entries on the switch.	
<b>short</b>	(Optional) Keyword to specify command output for terminals that support output that is less than 80 characters wide.	
<b>long</b>	(Optional) Keyword to specify command output for terminals that support output that is 80 characters wide.	

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

**Command Types** Switch command.

**Command Modes** Normal.

**Usage Guidelines** This command is supported on Supervisor Engine II G or III G, or Supervisor Engine III. If you enter the **show mls multicast entry** command with no arguments or keywords, all the IP multicast MLS entries are displayed.

**Examples**

This example shows how to display IP multicast MLS cache entries for a specific MMLS-RP and a specific multicast source address:

```
Console> show mls multicast entry rp 10.1.5.252 source 10.1.11.1
Router IP      Dest IP      Source IP    Pkts        Bytes      InVlan OutVlans
-----
10.1.5.252    224.1.1.1   10.1.11.1   16080       2797920    20
Total Entries: 1
Console>
```

This example shows how to display IP multicast MLS cache entries for a specific multicast group address:

```
Console> show mls multicast entry group 226.0.1.3
Router IP      Dest IP      Source IP    InVlan Pkts    Bytes    OutVlans
-----
172.16.2.1    226.0.1.3   172.2.3.8 20     171     23512    10,201,22,45
172.16.2.1    226.0.1.3   172.3.4.9 12     25      3120     8,20
Total Entries: 2
Console>
```

**Related Commands**

[clear mls multicast include](#)  
[clear mls multicast statistics](#)  
[set mls multicast](#)

# show mls multicast include

Use the **show mls multicast include** command to display information about the routers in the IP multicast MLS-RP include list.

## show mls multicast include

---

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

---

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

---

**Command Types** Switch command.

---

**Command Modes** Normal.

---

**Examples** This example shows how to display the IP multicast MLS-RP route processors currently included to run MLS:

```
Console> show mls multicast include
Router IP           Router Name
-----
172.16.2.13        gorgonzola
172.16.2.12        mothra
Console>
```

---

**Related Commands** [clear mls multicast include](#)  
[clear mls multicast statistics](#)  
[set mls multicast](#)

# show mls multicast statistics rp

Use the **show mls multicast statistics rp** command to display IP multicast MLS statistics for MMLS-RPs.

```
show mls multicast statistics rp [ip_addr]
```

<b>Syntax Description</b>	<i>ip_addr</i> (Optional) IP address or host name of the MMLS-RP.
<b>Defaults</b>	This command has no default settings.
<b>Command Types</b>	Switch command.
<b>Command Modes</b>	Normal.
<b>Usage Guidelines</b>	<p>This command is supported on Supervisor Engine II G or III G, or Supervisor Engine III.</p> <p>If you do not specify the IP address or host name of the MMLS-RP, statistics for all MMLS-RPs are displayed.</p>
<b>Examples</b>	<p>This example shows how to display IP multicast MLS statistics for a specific MMLS-RP:</p> <pre> Console&gt; show mls multicast statistics rp 172.16.2.12 Router IP      Router Name    Router MAC ----- 172.16.2.12   mothra        00-10-0d-38-a4-00  Transmit:   Delete Notifications      10   Acknowledgements:       100   Flow Statistics:         500 Receive   Open Connection Requests:  2   Keep Alive Messages:      75   Shortcut Messages:   Shortcut Install TLV:     8   Selective Delete TLV:    0   Update TLV:               0   Input VLAN Delete TLV:   2   Output VLAN Delete TLV:  2   Global Delete TLV:       1   MFD Install TLV:         8   MFD Delete TLV:         0 Console&gt; </pre>
<b>Related Commands</b>	<p><a href="#">clear mls multicast statistics</a></p> <p><a href="#">set mls multicast</a></p>

# show mls nde

Use the **show mls nde** command to display NDE configuration and status information.

**show mls nde**

---

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

---

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

---

**Command Types** Switch command.

---

**Command Modes** Normal.

---

**Examples** This example shows how to display NDE information:

```
Console> 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** [clear mls nde flow](#)  
[set mls nde](#)

# show mls rp

Use the **show mls rp** command to display information about a specific MLS-RP.

```
show mls rp {ip | ipx} ip_addr [noalias]
```

Syntax Description	ip	Keyword to display information about an MLS-RP for IP MLS.
	ipx	Keyword to display information about an MLS-RP for IPX MLS.
	ip_addr	IP address or host name of the MLS-RP.
	noalias	(Optional) Keyword to display IP addresses instead of host names in the output.

**Defaults** The default displays MLS-RP information for IP MLS.

**Command Types** Switch command.

**Command Modes** Normal.

**Examples** This example shows how to display information about a specific IPX MLS-RP:

```
Console> show mls rp ipx 172.16.72.199
MLS-RP IPX      MLS-RP ID      XTAG  MLS-RP MAC-Vlans
-----
172.16.72.199  0010298a0c09   2    00-10-29-8a-0c-00  1,10-11,51,53,71
Console>
```

**Related Commands**

- [clear mls entry ip](#)
- [clear mls entry ipx](#)
- [clear mls include ip](#)
- [clear mls include ipx](#)
- [clear mls nde flow](#)
- [clear mls statistics](#)
- [set mls nde](#)
- [show mls statistics](#)

# show mls statistics

Use the **show mls statistics** command to display IP and IPX MLS statistics information.

**show mls statistics protocol**

**show mls statistics [ip | ipx] [rp ip\_addr]**

**show mls statistics entry [ip] [destination ip\_addr\_spec] [source ip\_addr\_spec] [flow protocol src\_port dst\_port]**

**show mls statistics entry [ipx] [destination ipx\_addr\_spec] [source ipx\_addr\_spec]**

Syntax Description		
<b>protocol</b>	Keyword	to display the statistics based on protocol (such as Telnet, FTP, or WWW).
<b>ip</b>	(Optional) Keyword	to specify IP MLS.
<b>ipx</b>	(Optional) Keyword	to specify IPX MLS.
<b>rp</b>	(Optional) Keyword	to specify an MLS-RP.
<i>ip_addr</i>	(Optional) IP address	or host name of the MLS-RP.
<b>entry</b>	Keyword	to display statistics for IP or IPX MLS cache entries.
<b>destination</b>	(Optional) Keyword	to display statistics for the destination IP address.
<i>ip_addr_spec</i>	(Optional) Full IP address	or a subnet address.
<b>source</b>	(Optional) Keyword	to display statistics for the source IP address.
<b>flow</b>	(Optional) Keyword	to display statistics for a flow (based on protocol family and protocol port pair).
<i>protocol</i>	(Optional) The protocol	for which to display statistics; valid values include tcp, udp, icmp, or a decimal number for other protocol families.
<i>src_port</i>	(Optional) Source protocol	port for which to display statistics.
<i>dst_port</i>	(Optional) Destination protocol	port for which to display statistics.
<i>ipx_addr_spec</i>	(Optional) Full IPX address	or a network address.

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

**Command Types** Switch command.

**Command Modes** Normal.

**Usage Guidelines**

If you do not specify the **ip** or **ipx** keywords, IP is assumed. If you do not specify the source or destination addresses or the flow information, all entries are displayed.

When entering the *ip\_addr\_spec*, use the full IP address or a subnet address in the following formats:

- *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 172.22.252.00/22.

When entering the IPX address syntax, use the following format:

- IPX network address—1..FFFFFFFE
- IPX node address—x.x.x where x is 0..FFFF
- IPX address—*ipx\_net.ipx\_node* (for example, 3.0034.1245.AB45 or A43.0000.0000.0001)

The **show mls statistics protocol** command and the **flow protocol src\_port dest\_port** options are supported only when the flow mode is “ip-flow.” A value of 0 for *src\_port* or *dst\_port* means “don’t care” (the port number information is not considered).

**Examples**

This example shows how to display the statistics for all protocol categories:

```
console>(enable) show mls statistics protocol
Protocol  TotalFlows  TotalPackets  Total Bytes
-----  -
Telnet    900          630           4298
FTP       688          2190          3105
WWW       389          42679         623686
SMTP      802          4966          92873
X         142          2487          36870
DNS       1580         52            1046
Total    6583         53005         801951
Console>
```

This example shows how to display the statistics for all protocol categories for all MLS-RPs:

```
Console>(enable) show mls statistics rp
Total packets switched = 3152
Active IP MLS entries = 0
Total packets exported= 0

MLS-RP IP          MLS-RP ID          Total switched
-----  -
172.20.25.2       0000808cece0      3152          347854
172.20.27.1       000080a36c32      4332          532456
Console>
```

This example shows how to display IPX MLS statistics for all MLS-RPs:

```
Console> show mls statistics ipx rp
Total packets switched = 212540292
Active IPX MLS entries = 16
```

MLS-RP IP	MLS-RP ID	Total switched	
		packets	bytes
10.20.26.64	00e0fefc6000	877192	803473584

```
Console>
```

This example shows how to display the statistics for a specific destination IP address:

```
Console> show mls statistics entry destination 172.20.22.14
Last Used          Last Used
Destination IP    Source IP          Prot DstPrt SrcPrt Stat-Pkts Stat-Bytes
-----
172.20.22.14     172.20.25.10     6   50648  80   3152   347854
Console>
```

This example shows how to display the statistics for a specific destination IPX address:

```
Console> show mls statistics entry ipx destination 1.0002.00e0.fefc.6000
Destination IPX          Source IPX net Stat-Pkts Stat-Bytes
-----
MLS-RP 10.20.26.64:
1.0002.00e0.fefc.6000   1.0003          11       521
Console>
```

#### Related Commands

```
clear mls entry ip
clear mls entry ipx
clear mls include ip
clear mls include ipx
clear mls nde flow
clear mls statistics
set mls nde
show mls rp
```

# show module

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

**show module** [*mod*]

Syntax Description	<i>mod</i> (Optional) Number of the module. If a number is not specified, all modules are shown.
--------------------	--

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

Command Types	Switch command.
---------------	-----------------

Command Modes	Normal.
---------------	---------

Usage Guidelines	If you remove a module and replace it with a different type module, a message appears in the <b>show module</b> display that states that the module configuration is inconsistent with the current module type. To clear the message, you can either enter the <b>clear config mod</b> 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.

Examples	This example shows how to display status and information for all modules on the switch:
----------	---

```

Console> show module
Mod Slot Ports Module-Type           Model              Sub Status
-----
1   1   0   Supervisor III       WS-X5530          yes ok
2   2   2   Gigabit Ethernet Ext WS-X5410
3   3   9   Gigabit Ethernet    WS-X5410          no ok
5   5   24  3 Segment 100BaseTX Ether WS-X5223          no ok

Mod Module-Name           Serial-Num
-----
1                          00006839469
2                          00010395610
3                          00010395610
5                          00000000010

Mod MAC-Address(es)      Hw   Fw   Sw
-----
1  00-e0-14-10-98-00 to 00-e0-14-10-9b-ff 1.3   3.1.2
6.2(0.48-Eng)ORL
3  00-10-7b-d6-05-98 to 00-10-7b-d6-05-a3 1.0   4.2(100)  5.2(1)
5  00-60-83-42-e4-1b to 00-60-83-42-e4-1d 0.1   2.2(100)  6.2(0.48)ORL
Mod Sub-Type Sub-Model Sub-Serial Sub-Hw
-----
1  EARL 1+  WS-F5520  0005758039 0.306

```

## show module

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

```

Console> show module 3
Mod Slot Ports Module-Type          Model          Sub Status
-----
3   3   9   Gigabit Ethernet      WS-X5410      no  ok

Mod Module-Name      Serial-Num
-----
3                   00007285650

Mod MAC-Address(es)      Hw   Fw   Sw
-----
3   00-e0-1e-38-48-cc to 00-e0-1e-38-48-d7 0.2   4.1(0.53-E 5.1(0.59))

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 10BASE-T 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 <sup>1</sup> .
Fw	Firmware version of the module <sup>2</sup> .
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 <sup>3</sup>	Submodule type.
Sub-Model <sup>3</sup>	Model number of the submodule.
Sub-Serial <sup>3</sup>	Serial number of the submodule.
Sub-Hw <sup>3</sup>	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.

# show moduleinit

Use the **show moduleinit** command to display contents of the information stored in the system module bringup log.

```
show moduleinit [mod] [log lognum | -logcount]
```

Syntax Description		
<i>mod</i>	(Optional) Number of the module. If you do not specify a number, all modules are shown.	
<b>log</b>	(Optional) Keyword to specify a specific log.	
<i>lognum</i>	(Optional) Number of log to display.	
<i>-logcount</i>	(Optional) Number of previous logs to display.	

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

**Command Types** Switch command.

**Command Modes** Normal.

**Examples** This example shows how to display the last two logs for module 1:

```
Console> show moduleinit 1 log -2
Module 1:   Number of Logs: 3
Log #2:
State 1: Entry/Exit/Elapse Time: 14721/14721/0
      Success_Exit
State 2: Entry/Exit/Elapse Time: 14721/14721/0
      Success
State 3: Entry/Exit/Elapse Time: 14721/32223/17502
      Success_Exit
Log #3:
State 1: Entry/Exit/Elapse Time: 38302/38302/0
      P_PortConfigTokenRingFeatures()
      ConfigModule()
State 2: Entry/Exit/Elapse Time: 38302/38302/0
      Success
State 3: Entry/Exit/Elapse Time: 38302/38310/8
      Success_Exit
Console>
```

This example shows how to display the contents of a specific log for module 1:

```
Console> show moduleinit 1 log 2
Module 1:   Number of Logs: 3
Log #2:
State 1: Entry/Exit/Elapse Time: 14721/14721/0
      Success_Exit
State 2: Entry/Exit/Elapse Time: 14721/14721/0
      Success
Console>
```

Table 2-37 describes the possible fields in the **show moduleinit** command output.

**Table 2-37** *show moduleinit Command Output Fields*

<b>Field</b>	<b>Description</b>
Log #	Number of the log.
State #	Number of the module bringup states. Output includes the entry time into and exit time from all the module bringup states, along with the elapsed time, in milliseconds.

# show multicast group

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

```
show multicast group [mac_addr] [vlan_id]
```

Syntax Description	
<i>mac_addr</i>	(Optional) Destination MAC address.
<i>vlan_id</i>	(Optional) Number of the VLAN.

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

**Command Types** Switch command.

**Command Modes** Normal.

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

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

[Table 2-38](#) describes the fields in the **show multicast group** command output.

**Table 2-38 show multicast group Command Output Fields**

Field	Description
VLAN	VLAN number.
Dest MAC/Route Des	Group destination MAC address.
*	Status of whether the port was configured manually as a multicast router port.
CoS	CoS value.

■ show multicast group

**Table 2-38** show multicast group Command Output Fields (continued)

Field	Description
Destination Ports or VCs	List of all the ports that belong to this multicast group. Traffic sent 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 igmp fastleave](#)  
[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 [vlan_id]
```

<b>Syntax Description</b>	<i>vlan_id</i> (Optional) Number of the VLAN.
<b>Defaults</b>	This command has no default settings.
<b>Command Types</b>	Switch command.
<b>Command Modes</b>	Normal.
<b>Examples</b>	<p>This example shows how to display the total count of multicast groups in VLAN 5:</p> <pre>Console&gt; show multicast group count 5 Total Number of Entries = 2 Console&gt;</pre>
<b>Related Commands</b>	<ul style="list-style-type: none"><li><a href="#">clear multicast router</a></li><li><a href="#">set egmp</a></li><li><a href="#">set igmp</a></li><li><a href="#">set multicast router</a></li><li><a href="#">show multicast router</a></li></ul>

# show multicast protocols status

Use the **show multicast protocols status** command to display multicast protocol configuration status.

**show multicast protocols status**

---

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

---

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

---

**Command Types** Switch command.

---

**Command Modes** Normal.

---

**Examples** This example show how to display the multicast protocol configuration:

```
Console> show multicast protocols status
CGMP disabled
IGMP enabled
IGMP fastleave disabled
RGMP enabled
GMRP disabled
Console>
```

---

**Related Commands**

- [clear multicast router](#)
- [set multicast router](#)
- [show multicast group count](#)
- [show multicast router](#)