

# show isis database verbose

To display additional information about the database, use the **show isis database verbose** command in user EXEC or privileged EXEC mode.

## show isis database verbose

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

**Command Modes** User EXEC  
Privileged EXEC

Command History	Release	Modification
	12.0(5)S	This command was introduced.

**Examples** The following is sample output from the **show isis database verbose** command:

```
Router# show isis database verbose

IS-IS Level-1 Link State Database
LSPID                LSP Seq Num  LSP Checksum  LSP Holdtime  ATT/P/OL
dtp-5.00-00          * 0x000000E6  0xC9BB        1042          0/0/0
  Area Address:49.0001
  NLPID:             0xCC
  Hostname:dtp-5
  Router ID:         5.5.5.5
  IP Address:        172.21.39.5
  Metric:10          IP 172.21.39.0/24
dtp-5.00-01          * 0x000000E7  0xAB36        1065          0/0/0
  Metric:10          IS-Extended dtp-5.01
  Affinity:0x00000000
  Interface IP Address:172.21.39.5
  Physical BW:10000000 bits/sec
  Reservable BW:1166000 bits/sec
  BW Unreserved[0]: 1166000 bits/sec, BW Unreserved[1]: 1166000 bits/sec
  BW Unreserved[2]: 1166000 bits/sec, BW Unreserved[3]: 1166000 bits/sec
  BW Unreserved[4]: 1166000 bits/sec, BW Unreserved[5]: 1166000 bits/sec
  BW Unreserved[6]: 1166000 bits/sec, BW Unreserved[7]: 1153000 bits/sec
  Metric:0           ES dtp-5
```

Table 65 describes the fields displayed in this example.

**Table 65** *show isis database verbose Field Descriptions*

Field	Description
LSPID	<p>LSP identifier. The first six octets form the System ID of the router that originated the LSP.</p> <p>The next octet is the pseudonode ID. When this byte is zero, the LSP describes links from the system. When it is nonzero, the LSP is a pseudonode LSP. This is similar to a router LSA in OSPF; the LSP describes the state of the originating router. For each LAN, the designated router for that LAN creates and floods a pseudonode LSP that describes all systems attached to that LAN.</p> <p>The last octet is the LSP number. If all the data cannot fit into a single LSP, the LSP is divided into multiple LSP fragments. Each fragment has a different LSP number. An asterisk (*) indicates that the system issuing this command originated the LSP.</p>
LSP Seq Num	LSP sequence number that allows other systems to determine if they received the latest information from the source.
LSP Checksum	Checksum of the entire LSP packet.
LSP Holdtime	Amount of time that the LSP remains valid (in seconds). An LSP hold time of zero indicates that this LSP was purged and is being removed from all routers' link-state databases (LSDBs). The value indicates how long the purged LSP will stay in the LSDB before it is completely removed.
ATT	Attach bit. This bit indicates that the router is also a Level 2 router, and it can reach other areas. Level 1 routers use the Attach bit to find the closest Level 2 router. They install a default route to the closest Level 2 router.
P	P bit. This bit detects if the IS can repair area partitions. Cisco and other vendors do not support area partition repair.
OL	Overload bit. This bit determines if the IS is congested. If the overload bit is set, other routers do not use this system as a transit router when they calculate routes. Only packets for destinations directly connected to the overloaded router are sent to this router.
Area Address	Reachable area addresses from the router. For Level 1 LSPs, these are the area addresses configured manually on the originating router. For Level 2 LSPs, these are all the area addresses for the area to which this router belongs.
NLPID	Network Layer Protocol identifier.
Hostname	Host name of the node.
Router ID	Traffic engineering router identifier for the node.
IP Address	IPv4 address for the interface.
Metric	IS-IS metric for the cost of the adjacency between the originating router and the advertised neighbor, or the metric of the cost to get from the advertising router to the advertised destination (which can be an IP address, an end system (ES), or a connectionless network service (CLNS) prefix).
Affinity	Link attribute flags that are being flooded.

**Table 65** *show isis database verbose Field Descriptions (continued)*

Field	Description
Physical BW	Link bandwidth capacity (in bits per second).
Reservable BW	Amount of reservable bandwidth on this link.
BW Unreserved	Amount of bandwidth that is available for reservation.

**Related Commands**

Command	Description
<a href="#">show isis mpls traffic-eng adjacency-log</a>	Displays a log of 20 entries of MPLS traffic engineering IS-IS adjacency changes.
<a href="#">show isis mpls traffic-eng advertisements</a>	Displays the last flooded record from MPLS traffic engineering.
<a href="#">show isis mpls traffic-eng tunnel</a>	Displays information about tunnels considered in the IS-IS next hop calculation.

# show isis mpls traffic-eng adjacency-log

To display a log of 20 entries of Multiprotocol Label Switching (MPLS) traffic engineering Intermediate System-to-Intermediate System (IS-IS) adjacency changes, use the **show isis mpls traffic-eng adjacency-log** command in user EXEC or privileged EXEC mode.

**show isis mpls traffic-eng adjacency-log**

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

**Command Modes** User EXEC  
Privileged EXEC

Command History	Release	Modification
	12.0(5)S	This command was introduced.

**Examples** The following is sample output from the **show isis mpls traffic-eng adjacency-log** command:

```
Router# show isis mpls traffic-eng adjacency-log

IS-IS RRR log
When      Neighbor ID      IP Address      Interface Status Level
04:52:52  0000.0024.0004.02  0.0.0.0        Et0/2      Up      level-1
04:52:50  0000.0026.0001.00  170.1.1.2      PO1/0/0    Up      level-1
04:52:37  0000.0024.0004.02  0.0.0.0        Et0/2      Up      level-1
```

[Table 66](#) describes the significant fields shown in the display.

**Table 66** *show isis mpls traffic-eng adjacency-log* Field Descriptions

Field	Description
When	Amount of time since the entry was recorded in the log.
Neighbor ID	Identification value of the neighbor.
IP Address	Neighbor IPv4 address.
Interface	Interface from which a neighbor is learned.
Status	Up (active) or Down (disconnected).
Level	Routing level.

Related Commands	Command	Description
	<a href="#">show isis mpls traffic-eng advertisements</a>	Displays the last flooded record from MPLS traffic engineering.

# show isis mpls traffic-eng advertisements

To display the last flooded record from Multiprotocol Label Switching (MPLS) traffic engineering, use the **show isis mpls traffic-eng advertisements** command in user EXEC or privileged EXEC mode.

## show isis mpls traffic-eng advertisements

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

**Command Modes** User EXEC  
Privileged EXEC

Command History	Release	Modification
	12.0(5)S	This command was introduced.

**Examples** The following is sample output from the **show isis mpls traffic-eng advertisements** command:

```
Router# show isis mpls traffic-eng advertisements

System ID:dtp-5.00
Router ID:5.5.5.5
Link Count:1
Link[1]
  Neighbor System ID:dtp-5.01 (broadcast link)
  Interface IP address:172.21.39.5
  Neighbor IP Address:0.0.0.0
  Admin. Weight:10
  Physical BW:10000000 bits/sec
  Reservable BW:1166000 bits/sec
  BW unreserved[0]:1166000 bits/sec, BW unreserved[1]:1166000 bits/sec
  BW unreserved[2]:1166000 bits/sec, BW unreserved[3]:1166000 bits/sec
  BW unreserved[
4]:1166000 bits/sec, BW unreserved[5]:1166000 bits/sec
  BW unreserved[6]:1166000 bits/sec, BW unreserved[7]:1153000 bits/sec
  Affinity Bits:0x00000000
```

[Table 67](#) describes the significant fields shown in the display.

**Table 67** *show isis mpls traffic-eng advertisements Field Descriptions*

Field	Description
System ID	Identification value for the local system in the area.
Router ID	MPLS traffic engineering router ID.
Link Count	Number of links that MPLS traffic engineering advertised.
Neighbor System ID	Identification value for the remote system in an area.
Interface IP address	IPv4 address of the interface.
Neighbor IP Address	IPv4 address of the neighbor.

**Table 67** *show isis mpls traffic-eng advertisements Field Descriptions (continued)*

Field	Description
Admin. Weight	Administrative weight associated with this link.
Physical BW	Link bandwidth capacity (in bits per second).
Reservable BW	Amount of reservable bandwidth on this link.
BW unreserved	Amount of bandwidth that is available for reservation.
Affinity Bits	Link attribute flags being flooded.

**Related Commands**

Command	Description
<a href="#">show isis mpls traffic-eng adjacency-log</a>	Displays a log of 20 entries of MPLS traffic engineering IS-IS adjacency changes.

# show isis mpls traffic-eng tunnel

To display information about tunnels considered in the Intermediate System-to-Intermediate System (IS-IS) next hop calculation, use the **show isis mpls traffic-eng tunnel** command in privileged EXEC mode.

## show isis mpls traffic-eng tunnel

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

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.0(5)S	This command was introduced.

**Examples** The following is sample output from the **show isis mpls traffic-eng tunnel** command:

```
Router# show isis mpls traffic-eng tunnel
```

Station Id	Tunnel Name	Bandwidth	Nexthop	Metric	Mode
kangpa-router1.00	Tunnel1022	3333	2.2.2.2	-3	Relative
	Tunnel1021	10000	2.2.2.2	11	Absolute
tomklong-route.00	Tunnel1031	10000	3.3.3.3	-1	Relative
	Tunnel1032	10000	3.3.3.3		

[Table 68](#) describes the significant fields shown in the display.

**Table 68** *show isis mpls traffic-eng tunnel Field Descriptions*

Field	Description
Station Id	Name or system ID of the MPLS traffic engineering tailend router.
Tunnel Name	Name of the MPLS traffic engineering tunnel interface.
Bandwidth	MPLS traffic engineering specified bandwidth of the tunnel.
Nexthop	MPLS traffic engineering destination IP address of the tunnel.
Metric	MPLS traffic engineering metric of the tunnel.
Mode	MPLS traffic engineering metric mode of the tunnel. It can be relative or absolute.

Related Commands	Command	Description
	<b>show mpls traffic-eng autoroute</b>	Displays tunnels that are announced to IGP, including interface, destination, and bandwidth.

# show lane

To display detailed information for all the LAN Emulation (LANE) components configured on an interface or any of its subinterfaces, on a specified subinterface, or on an emulated LAN (ELAN), use the **show lane** command in user EXEC or privileged EXEC mode.

**AIP on the Cisco 7500 Series Routers; ATM Port Adapter on the Cisco 7200 Series**

```
show lane [interface atm slot/port[.subinterface-number] | name elan-name] [brief]
```

**ATM Port Adapter on the Cisco 7500 Series Routers**

```
show lane [interface atm slot/port-adapter/port[.subinterface-number] | name elan-name] [brief]
```

**Cisco 4500 and 4700 Routers**

```
show lane [interface atm number[.subinterface-number] | name elan-name] [brief]
```

Syntax Description		
<b>interface atm</b> <i>slot/port</i>	(Optional) ATM interface slot and port for the following:	<ul style="list-style-type: none"> <li>AIP on the Cisco 7500 series routers.</li> <li>ATM port adapter on the Cisco 7200 series routers.</li> </ul>
<b>interface atm</b> <i>slot/port-adapter/port</i>	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.	
<b>interface atm</b> <i>number</i>	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.	
<i>.subinterface-number</i>	(Optional) Subinterface number.	
<b>name</b> <i>elan-name</i>	(Optional) Name of the ELAN. The maximum length of the name is 32 characters.	
<b>brief</b>	(Optional) Keyword used to display the brief subset of available information.	

Command Modes	
	User EXEC Privileged EXEC

Command History	Release	Modification
	11.0	This command was introduced.

Usage Guidelines	
	Using the <b>show lane</b> command is equivalent to using the <b>show lane config</b> , <b>show lane server</b> , <b>show lane bus</b> , and <b>show lane client</b> commands. The <b>show lane</b> command shows all LANE-related information except the <b>show lane database</b> command information.

## Examples

The following is sample output from the **show lane** command for an Ethernet ELAN:

```
Router# show lane

LE Config Server ATM2/0 config table: cisco_eng
Admin: up State: operational
LECS Mastership State: active master
list of global LECS addresses (30 seconds to update):
39.020304050607080910111213.00000CA05B43.00 <----- me
ATM Address of this LECS: 39.020304050607080910111213.00000CA05B43.00 (auto)
vcd rxCnt txCnt callingParty
  50      2      2  39.020304050607080910111213.00000CA05B41.02 LES elan2 0 active
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 30
cumulative total number of config failures so far: 12
  cause of last failure: no configuration
  culprits for the last failure: 39.020304050607080910111213.00602F557940.01

LE Server ATM2/0.2 ELAN name: elan2 Admin: up State: operational
type: ethernet Max Frame Size: 1516
ATM address: 39.020304050607080910111213.00000CA05B41.02
LECS used: 39.020304050607080910111213.00000CA05B43.00 connected, vcd 51
control distribute: vcd 57, 2 members, 2 packets

proxy/ (ST: Init, Conn, Waiting, Adding, Joined, Operational, Reject, Term)
lecid ST vcd pkts Hardware Addr ATM Address
  1 O 54 2 0000.0ca0.5b40 39.020304050607080910111213.00000CA05B40.02
  2 O 81 2 0060.2f55.7940 39.020304050607080910111213.00602F557940.02

LE BUS ATM2/0.2 ELAN name: elan2 Admin: up State: operational
type: ethernet Max Frame Size: 1516
ATM address: 39.020304050607080910111213.00000CA05B42.02
data forward: vcd 61, 2 members, 0 packets, 0 unicasts

lecid vcd pkts ATM Address
  1 58 0 39.020304050607080910111213.00000CA05B40.02
  2 82 0 39.020304050607080910111213.00602F557940.02

LE Client ATM2/0.2 ELAN name: elan2 Admin: up State: operational
Client ID: 1 LEC up for 11 minutes 49 seconds
Join Attempt: 1
HW Address: 0000.0ca0.5b40 Type: ethernet Max Frame Size: 1516

ATM Address: 39.020304050607080910111213.00000CA05B40.02

VCD rxFrames txFrames Type ATM Address
  0 0 0 configure 39.020304050607080910111213.00000CA05B43.00
  55 1 4 direct 39.020304050607080910111213.00000CA05B41.02
  56 6 0 distribute 39.020304050607080910111213.00000CA05B41.02
  59 0 1 send 39.020304050607080910111213.00000CA05B42.02
  60 3 0 forward 39.020304050607080910111213.00000CA05B42.02
  84 3 5 data 39.020304050607080910111213.00602F557940.02
```

The following is sample output from the **show lane** command for a Token Ring LANE network:

```
Router# show lane

LE Config Server ATM4/0 config table: eng
Admin: up State: operational
LECS Mastership State: active master
list of global LECS addresses (35 seconds to update):
39.020304050607080910111213.006047704183.00
ATM Address of this LECS: 39.020304050607080910111213.006047704183.00 (auto)
vcd rxCnt txCnt callingParty
```

```

7      1      1 39.020304050607080910111213.006047704181.01 LES elan1 0 active
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 2
cumulative total number of config failures so far: 0

```

```

LE Server ATM4/0.1 ELAN name: elan1 Admin: up State: operational
type: token ring           Max Frame Size: 4544           Segment ID: 2048
ATM address: 39.020304050607080910111213.006047704181.01
LECS used: 39.020304050607080910111213.006047704183.00 connected, vcd 9
control distribute: vcd 12, 1 members, 2 packets

```

```

proxy/ (ST: Init, Conn, Waiting, Adding, Joined, Operational, Reject, Term)
lecid ST vcd      pkts Hardware Addr ATM Address
   1  O   8        3 100.2          39.020304050607080910111213.006047704180.01
                                0060.4770.4180 39.020304050607080910111213.006047704180.01

```

```

LE BUS ATM4/0.1 ELAN name: elan1 Admin: up State: operational
type: token ring           Max Frame Size: 4544           Segment ID: 2048
ATM address: 39.020304050607080910111213.006047704182.01
data forward: vcd 16, 1 members, 0 packets, 0 unicasts

```

```

lecid vcd      pkts ATM Address
   1  13        0 39.020304050607080910111213.006047704180.01

```

```

LE Client ATM4/0.1 ELAN name: elan1 Admin: up State: operational
Client ID: 1          LEC up for 2 hours 25 minutes 39 seconds
Join Attempt: 3
HW Address: 0060.4770.4180 Type: token ring           Max Frame Size: 4544
Ring:100 Bridge:2      ELAN Segment ID: 2048
ATM Address: 39.020304050607080910111213.006047704180.01

```

```

VCD  rxFrames  txFrames  Type      ATM Address
  0         0         0  configure 39.020304050607080910111213.006047704183.00
 10         1         3  direct   39.020304050607080910111213.006047704181.01
 11         2         0  distribute 39.020304050607080910111213.006047704181.01
 14         0         0  send      39.020304050607080910111213.006047704182.01
 15         0         0  forward   39.020304050607080910111213.006047704182.01

```

Table 69 describes significant fields shown in the display.

**Table 69** *show lane Field Descriptions*

Field	Description
LE Config Server	Identifies the following lines as applying to the LANE configuration server. These lines are also displayed in output from the <b>show lane config</b> command. See the <b>show lane config</b> command for explanations of the output.
LE Server	Identifies the following lines as applying to the LANE server. These lines are also displayed in output from the <b>show lane server</b> command. See the <b>show lane server</b> command for explanations of the output.
LE BUS	Identifies the following lines as applying to the LANE broadcast and unknown server. These lines are also displayed in output from the <b>show lane bus</b> command. See the <b>show lane bus</b> command for explanations of the output.
LE Client	Identifies the following lines as applying to a LANE client. These lines are also displayed in output from the <b>show lane client</b> command. See the <b>show lane bus</b> command for explanations of the output.

# show lane bus

To display detailed LAN Emulation (LANE) information for the broadcast and unknown server (BUS) configured on an interface or any of its subinterfaces, on a specified subinterface, or on an emulated LAN (ELAN), use the **show lane bus** command in user EXEC or privileged EXEC mode.

AIP on the Cisco 7500 Series Routers; ATM Port Adapter on the Cisco 7200 Series

```
show lane bus [interface atm slot/port[.subinterface-number] | name elan-name] [brief]
```

ATM Port Adapter on the Cisco 7500 Series Routers

```
show lane bus [interface atm slot/port-adapter/port[.subinterface-number] | name elan-name] [brief]
```

Cisco 4500 and 4700 Routers

```
show lane bus [interface atm number[.subinterface-number] | name elan-name] [brief]
```

Syntax Description		
<b>interface atm</b> <i>slot/port</i>	(Optional) ATM interface slot and port for the following:	<ul style="list-style-type: none"> <li>AIP on the Cisco 7500 series routers.</li> <li>ATM port adapter on the Cisco 7200 series routers.</li> </ul>
<b>interface atm</b> <i>slot/port-adapter/port</i>	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.	
<b>interface atm</b> <i>number</i>	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.	
<i>.subinterface-number</i>	(Optional) Subinterface number.	
<b>name</b> <i>elan-name</i>	(Optional) Name of the ELAN. The maximum length of the name is 32 characters.	
<b>brief</b>	(Optional) Displays the brief subset of available information.	

Command Modes	
	User EXEC Privileged EXEC

Command History	Release	Modification
	11.0	This command was introduced.

**Examples**

The following is sample output from the **show lane bus** command for an Ethernet ELAN:

```
Router# show lane bus

LE BUS ATM2/0.2 ELAN name: elan2 Admin: up State: operational
type: ethernet Max Frame Size: 1516
ATM address: 39.020304050607080910111213.00000CA05B42.02
data forward: vcd 61, 2 members, 0 packets, 0 unicasts

lecid vcd pkts ATM Address
  1 58 0 39.020304050607080910111213.00000CA05B40.02
  2 82 0 39.020304050607080910111213.00602F557940.02
```

The following is sample output from the **show lane bus** command for a Token Ring LANE:

```
show lane bus

LE BUS ATM3/0.1 ELAN name: anubis Admin: up State: operational
type: token ring Max Frame Size: 4544 Segment ID: 2500
ATM address: 47.009181000000000000000000.00000CA01662.01
data forward: vcd 14, 2 members, 0 packets, 0 unicasts

lecid vcd pkts ATM Address
  1 11 0 47.009181000000000000000000.00000CA01660.01
  2 17 0 47.009181000000000000000000.00000CA04960.01
```

[Table 70](#) describes significant fields shown in the display.

**Table 70** *show lane bus Field Descriptions*

Field	Description
LE BUS ATM2/0.2	Interface and subinterface for which information is displayed.
ELAN name	Name of the ELAN for this BUS.
Admin	Administrative state, either up or down.
State	Status of this LANE BUS. Possible states include down and operational.
type	Type of ELAN.
Max Frame Size	Maximum frame size (in bytes) on the ELAN.
Segment ID	The ring number of the ELAN. This field appears only for Token Ring LANE.
ATM address	ATM address of this LANE BUS.
data forward	Virtual channel descriptor of the Data Forward VCC, the number of LANE clients attached to the VCC, and the number of packets sent on the VCC.
lecid	Identifier assigned to each LANE client on the Data Forward VCC.
vcd	Virtual channel descriptor used to reach the LANE client.
pkts	Number of packets sent by the BUS to the LANE client.
ATM Address	ATM address of the LANE client.

# show lane client

To display detailed LAN Emulation (LANE) information for all the LANE clients configured on an interface or any of its subinterfaces, on a specified subinterface, or on an emulated LAN (ELAN), use the **show lane client** command in user EXEC or privileged EXEC mode.

**AIP on the Cisco 7500 Series Routers; ATM Port Adapter on the Cisco 7200 Series**

```
show lane client detail [interface atm slot/port[.subinterface-number] | name elan-name] [brief]
```

**ATM Port Adapter on the Cisco 7500 Series Routers**

```
show lane client detail [interface atm slot/port-adapter/port[.subinterface-number] | name elan-name] [brief]
```

**Cisco 4500 and 4700 Routers**

```
show lane client detail [interface atm number[.subinterface-number] | name elan-name] [brief]
```

Syntax Description	detail	Displays additional FSSRP information.
	<b>interface atm</b> <i>slot/port</i>	(Optional) ATM interface slot and port for the following: <ul style="list-style-type: none"> <li>AIP on the Cisco 7500 series routers.</li> <li>ATM port adapter on the Cisco 7200 series routers.</li> </ul>
	<b>interface atm</b> <i>slot/port-adapter/port</i>	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.
	<b>interface atm</b> <i>number</i>	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.
	<i>.subinterface-number</i>	(Optional) Subinterface number.
	<b>name</b> <i>elan-name</i>	(Optional) Name of ELAN. The maximum length of the name is 32 characters.
	<b>brief</b>	(Optional) Displays the brief subset of available information.

Command Modes	User EXEC Privileged EXEC
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Command History	Release	Modification
	11.0	This command was introduced.
	12.0(5)T	The <b>detail</b> option and command output line “This client is running in FSSRP mode” were added.

**Examples**

The following is sample output from the **show lane client** command for an Ethernet ELAN:

```
Router# show lane client

LE Client ATM2/0.2 ELAN name: elan2 Admin: up State: operational
Client ID: 1 LEC up for 11 minutes 49 seconds
Join Attempt: 1
HW Address: 0000.0ca0.5b40 Type: ethernet Max Frame Size: 1516

ATM Address: 39.020304050607080910111213.00000CA05B40.02

VCD  rxFrames  txFrames  Type      ATM Address
  0         0         0  configure 39.020304050607080910111213.00000CA05B43.00
 55         1         4  direct   39.020304050607080910111213.00000CA05B41.02
 56         6         0  distribute 39.020304050607080910111213.00000CA05B41.02
 59         0         1  send     39.020304050607080910111213.00000CA05B42.02
 60         3         0  forward  39.020304050607080910111213.00000CA05B42.02
 84         3         5  data     39.020304050607080910111213.00602F557940.02
```

The following is sample output from the **show lane client** command for a Token Ring LANE:

```
Router# show lane client

LE Client ATM4/0.1 ELAN name: elan1 Admin: up State: operational
Client ID: 1 LEC up for 2 hours 26 minutes 3 seconds
Join Attempt: 3
HW Address: 0060.4770.4180 Type: token ring Max Frame Size: 4544
Ring:100 Bridge:2 ELAN Segment ID: 2048
ATM Address: 39.020304050607080910111213.006047704180.01

VCD  rxFrames  txFrames  Type      ATM Address
  0         0         0  configure 39.020304050607080910111213.006047704183.00
 10         1         3  direct   39.020304050607080910111213.006047704181.01
 11         2         0  distribute 39.020304050607080910111213.006047704181.01
 14         0         0  send     39.020304050607080910111213.006047704182.01
 15         0         0  forward  39.020304050607080910111213.006047704182.01
```

The following is sample output from the **show lane client detail** command.

```
Router# show lane client detail

LE Client ATM1/0.1 ELAN name:xxx Admin:up State:operational
Client ID:2 LEC up for 5 days 40 minutes 45 seconds
ELAN ID:0
This client is running in FSSRP mode.
Join Attempt:14
Known LE Servers:1
Configured Idle Time:5 seconds
Last Fail Reason:Config VC being released
HW Address:00e0.8fcf.d820 Type:ethernet Max Frame Size:1516

ATM Address:47.0091810000000061705B0C01.00E08FCFD820.01
VCD rxFramestxFramesTypeATM Address
  0  0  0  configure 47.00918100000000613E5A2F01.006070174823.00

LEC ID:2, State:LESBUS_ACTIVE

52 17783556direct47.00918100000000613E5A2F01.00000C5A0C59.01
53 17780 distribute47.00918100000000613E5A2F01.00000C5A0C59.01
54 0 0 send47.00918100000000613E5A2F01.00000C5A0C5A.01
55 0 0 forward47.00918100000000613E5A2F01.00000C5A0C5A.01

LEC ID:3, State:LESBUS_ACTIVE
```

## show lane client

```

93 122 234 direct47.00918100000000613E5A2F01.00000ABCD001.09
94 122 0   distribute47.00918100000000613E5A2F01.00000ABCD001.09
97 0 0    send47.00918100000000613E5A2F01.00000ABCD002.09
08 0 0    forward47.00918100000000613E5A2F01.00000ABCD002.09

```

Table 71 describes significant fields shown in the display.

**Table 71** show lane client Field Descriptions

Field	Description
LE Client ATM2/0.2	Interface and subinterface of this client.
ELAN name	Name of the ELAN.
Admin	Administrative state, either up or down.
State	Status of this LANE client. Possible states include initialState, lecsConnect, configure, join, busConnect, and operational.
Client ID	The LANE 2-byte client ID assigned by the LANE server.
Join Attempt	The number of attempts made before successfully joining the ELAN.
HW Address	MAC address of this LANE client.
Type	Type of ELAN.
Max Frame Size	Maximum frame size (in bytes) on the ELAN.
Ring	The ring number for the client. This field appears only for Token Ring LANE.
Bridge	The bridge number for the client. This field appears only for Token Ring LANE.
ELAN Segment ID	The ring number for the ELAN. This field appears only for Token Ring LANE.
ATM Address	ATM address of this LANE client.
VCD	Virtual channel descriptor for each of the VCCs established for this LANE client.
rxFrames	Number of frames received.
txFrames	Number of frames sent.
Type	Type of VCC. The Configure Direct VCC is shown in this display as <i>configure</i> . The Control Direct VCC is shown as <i>direct</i> ; the Control Distribute VCC is shown as <i>distribute</i> . The Multicast Send VCC and Multicast Forward VC are shown as <i>send</i> and <i>forward</i> , respectively. The Data Direct VCC is shown as <i>data</i> .
ATM Address	ATM address of the LANE component at the other end of this VCC.

## Related Commands

Command	Description
<b>lane client</b>	Activates a LANE client on the specified subinterface.
<b>lane fssrp</b>	Enables the special LANE features so that LANE components (such as the LANE configuration server, the LANE client, the LANE server, and the BUS) become aware of FSSRP.

Command	Description
<b>lane server</b>	Activates a LANE server on the specified subinterface.
<b>show lane config</b>	Displays global LANE information for the configuration server configured on an interface.

# show lane config

To display global LAN Emulation (LANE) information for the configuration server configured on an interface, use the **show lane config** command in user EXEC or privileged EXEC mode.

**AIP on the Cisco 7500 Series Routers; ATM Port Adapter on the Cisco 7200 Series**

```
show lane config [interface atm slot/0]
```

**ATM Port Adapter on the Cisco 7500 Series Routers**

```
show lane config [interface atm slot/port-adapter/0]
```

**Cisco 4500 and 4700 Routers**

```
show lane config [interface atm number]
```

Syntax Description		
<b>interface atm slot/0</b>	(Optional) ATM interface slot and port for the following:	<ul style="list-style-type: none"> <li>• AIP on the Cisco 7500 series routers.</li> <li>• ATM port adapter on the Cisco 7200 series routers.</li> </ul>
<b>interface atm slot/port-adapter/0</b>	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.	
<b>interface atm number</b>	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.	

Command Modes	
	User EXEC Privileged EXEC

Command History	Release	Modification
	11.0	This command was introduced.

## Examples

The following is sample **show lane config** output for an Ethernet ELAN:

```
Router# show lane config

LE Config Server ATM2/0 config table: cisco_eng
Admin: up State: operational
LECS Mastership State: active master
list of global LECS addresses (30 seconds to update):
39.020304050607080910111213.00000CA05B43.00
ATM Address of this LECS: 39.020304050607080910111213.00000CA05B43.00 (auto)
 vcd rxCnt txCnt callingParty
   50     2     2 39.020304050607080910111213.00000CA05B41.02 LES elan2 0 active
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 30
```

```

cumulative total number of config failures so far: 12
  cause of last failure: no configuration
  culprit for the last failure: 39.020304050607080910111213.00602F557940.01

```

The following example shows sample **show lane config** output for TR-LANE:

```
Router# show lane config
```

```

LE Config Server ATM4/0 config table: eng
Admin: up State: operational
LECS Mastership State: active master
list of global LECS addresses (40 seconds to update):
39.020304050607080910111213.006047704183.00
ATM Address of this LECS: 39.020304050607080910111213.006047704183.00 (auto)
  vcd rxCnt txCnt callingParty
    7   1   1 39.020304050607080910111213.006047704181.01 LES elan1 0 active
cumulative total number of unrecognized packets received so far: 0
cumulative total number of config requests received so far: 2
cumulative total number of config failures so far: 0

```

Table 72 describes significant fields shown in the display.

**Table 72** *show lane config Field Descriptions*

Field	Description
LE Config Server	Major interface on which the LAN emulated Configuration Server (LECS) is configured.
config table	Name of the database associated with the LECS.
Admin	Administrative state, either up or down.
State	State of the configuration server: down or operational. If down, the reasons field indicates why it is down. The reasons include the following: NO-config-table, NO-nsap-address, and NO-interface-up.
LECS Mastership State	Mastership state of the configuration server. If you have configured simple server redundancy, the configuration server with the lowest index is the active LECS.
list of global LECS addresses	List of LECS addresses.
40 seconds to update	Amount of time until the next update.
39.020304050607080910111213.006047704183.00	ATM address of the configuration server.
ATM Address of this LECS	ATM address of the active configuration server.
auto	Method of ATM address assignment for the configuration server. In this example, the address is assigned by the automatic method.
vcd	Virtual circuit descriptor that uniquely identifies the configure VCC.
rxCnt	Number of packets received.
txCnt	Number of packets sent.
callingParty	ATM NSAP address of the LANE component that is connected to the LECS. "elan1" indicates the ELAN name, "0" indicates the priority number, and "active" indicates that the server is active.

# show lane database

To display the database of the configuration server, use the **show lane database** command in user EXEC or privileged EXEC mode.

**show lane database** [*database-name*]

<b>Syntax Description</b>	<i>database-name</i> (Optional) Specific database name.
---------------------------	---

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

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	11.0	This command was introduced.

<b>Usage Guidelines</b>	By default, this command displays the LAN Emulated Configuration Server information displayed by the <b>show lane config</b> command.  If no database name is specified, this command shows all databases.
-------------------------	--

**Examples** The following is sample output of the **show lane database** command for an Ethernet LANE:

```
Router# show lane database

LANE Config Server database table 'engandmkt' bound to interface/s: ATM1/0
default elan: none
elan 'eng': restricted
  server 45.000001415555121f.yyyy.zzzz.0800.200c.1001.01 (prio 0) active
  LEC MAC 0800.200c.1100
  LEC NSAP 45.000001415555121f.yyyy.zzzz.0800.200c.1000.01
  LEC NSAP 45.000001415555124f.yyyy.zzzz.0800.200c.1300.01
elan 'mkt':
  server 45.000001415555121f.yyyy.zzzz.0800.200c.1001.02 (prio 0) active
  LEC MAC 0800.200c.1200
  LEC NSAP 45.000001415555121f.yyyy.zzzz.0800.200c.1000.02
  LEC NSAP 45.000001415555124f.yyyy.zzzz.0800.200c.1300.02
```

The following is sample output of the **show lane database** command for a Token Ring LANE:

```
Router# show lane database

LANE Config Server database table 'eng' bound to interface/s: ATM4/0
default elan: elan1
elan 'elan1': un-restricted, local-segment-id 2048
  server 39.020304050607080910111213.006047704181.01 (prio 0) active
```

Table 73 describes significant fields shown in the display.

**Table 73** *show lane database Field Descriptions*

Field	Description
LANE Config Server database	Name of this database and interfaces bound to it.
default elan	Default name, if one is established.
elan	Name of the ELAN whose data is reported in this line and the following indented lines.
un-restricted	Indicates whether this ELAN is restricted or unrestricted.
local-segment-id 2048	Ring number of the ELAN.
server	ATM address of the configuration server.
(prio 0) active	Priority level and simple server redundancy state of this configuration server. If you have configured simple server redundancy, the configuration server with the lowest priority will be active.
LEC MAC	MAC addresses of an individual LANE client in this ELAN. This display includes a separate line for every LANE client in this ELAN.
LEC NSAP	ATM addresses of all LANE clients in this ELAN.

# show lane default-atm-addresses

To display the automatically assigned ATM address of each LANE component in a router or on a specified interface or subinterface, use the **show lane default-atm-addresses** command in user EXEC or privileged EXEC mode.

AIP on the Cisco 7500 series routers; ATM port adapter on the Cisco 7200 series

```
show lane default-atm-addresses [interface atm slot/port.subinterface-number]
```

ATM Port Adapter on the Cisco 7500 Series Routers

```
show lane default-atm-addresses [interface atm slot/port-adapter/port.subinterface-number]
```

Cisco 4500 and 4700 Routers

```
show lane default-atm-addresses [interface atm number.subinterface-number]
```

## Syntax Description

<b>interface atm slot/port</b>	(Optional) ATM interface slot and port for the following: <ul style="list-style-type: none"> <li>• AIP on the Cisco 7500 series routers.</li> <li>• ATM port adapter on the Cisco 7200 series routers.</li> </ul>
<b>interface atm slot/port-adapter/port</b>	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.
<b>interface atm number</b>	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.
<b>.subinterface-number</b>	(Optional) Subinterface number.

## Command Modes

User EXEC  
Privileged EXEC

## Command History

Release	Modification
11.0	This command was introduced.
11.1	The <i>number.subinterface-number</i> argument was added.

## Usage Guidelines

It is not necessary to have any of the LANE components running on this router before you use this command.

**Examples**

The following is sample output of the **show lane default-atm-addresses** command for the ATM interface 1/0 when all the major LANE components are located on that interface:

```
Router# show lane default-atm-addresses interface atm1/0

interface ATM1/0:
LANE Client:      47.00000000000000000000000000000000.00000C304A98.**
LANE Server:     47.00000000000000000000000000000000.00000C304A99.**
LANE Bus:        47.00000000000000000000000000000000.00000C304A9A.**
LANE Config Server: 47.00000000000000000000000000000000.00000C304A9B.00
note: ** is the subinterface number byte in hex
```

[Table 74](#) describes the significant fields shown in the display.

**Table 74** *show lane default-atm-addresses Field Descriptions*

Field	Description
interface ATM1/0:	Specified interface.
LANE Client:	ATM address of the LANE client on the interface.
LANE Server:	ATM address of the LANE server on the interface.
LANE Bus:	ATM address of the LANE broadcast and unknown server on the interface.
LANE Config Server:	ATM address of the LAN Emulated Configuration Server on the interface.

# show lane le-arp

To display the LANE ARP table of the LANE client configured on an interface or any of its subinterfaces, on a specified subinterface, or on an emulated LAN (ELAN), use the **show lane le-arp** command in user EXEC or privileged EXEC mode.

AIP on the Cisco 7500 series routers; ATM Port Adapter on the Cisco 7200 series

```
show lane le-arp [interface atm slot/port[.subinterface-number] | name elan-name]
```

ATM Port Adapter on the Cisco 7500 Series Routers

```
show lane le-arp [interface atm slot/port-adapter/port[.subinterface-number] | name elan-name]
```

Cisco 4500 and 4700 Routers

```
show lane le-arp [interface atm number[.subinterface-number] | name elan-name]
```

Syntax Description		
<b>interface atm</b> <i>slot/port</i>	(Optional) ATM interface slot and port for the following:	<ul style="list-style-type: none"> <li>• AIP on the Cisco 7500 series routers.</li> <li>• ATM port adapter on the Cisco 7200 series routers.</li> </ul>
<b>interface atm</b> <i>slot/port-adapter/port</i>	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.	
<b>interface atm</b> <i>number</i>	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.	
<i>.subinterface-number</i>	(Optional) Subinterface number.	
<b>name</b> <i>elan-name</i>	(Optional) Name of the ELAN. The maximum length of the name is 32 characters.	

Command Modes	
	User EXEC
	Privileged EXEC

Command History	Release	Modification
	11.0	This command was introduced.

## Examples

The following is sample output of the **show lane le-arp** command for an Ethernet LANE client:

```
Router# show lane le-arp

Hardware Addr      ATM Address          VCD  Interface
0000.0c15.a2b5    39.00000000000000000000000000000000.00000C15A2B5.01  39  ATM1/0.1
0000.0c15.f3e5    39.00000000000000000000000000000000.00000C15F3E5.01  25* ATM1/0.1
```

The following is sample output of the **show lane le-arp** command for a Token Ring LANE client:

```
Router# show lane le-arp
```

```
Ring Bridge      ATM Address      VCD  Interface
512  6             39.020304050607080910111213.00602F557940.01  47  ATM2/0.1
```

[Table 75](#) describes the significant fields shown in the display.

**Table 75** *show lane le-arp Field Descriptions*

Field	Description
Hardware Addr	MAC address, in dotted hexadecimal notation, assigned to the LANE component at the other end of this VCD.
Ring	Route descriptor segment number for the LANE component.
Bridge	Bridge number for the LANE component.
ATM Address	ATM address of the LANE component at the other end of this VCD.
VCD	Virtual circuit descriptor.
Interface	Interface or subinterface used to reach the specified component.

# show lane server

To display global information for the LANE server configured on an interface, on any of its subinterfaces, on a specified subinterface, or on an emulated LAN (ELAN), use the **show lane server** command in user EXEC or privileged EXEC mode.

**AIP on the Cisco 7500 Series Routers; ATM Port Adapter on the Cisco 7200 Series**

```
show lane server [interface atm slot/port[.subinterface-number] | name elan-name] [brief]
```

**ATM Port Adapter on the Cisco 7500 Series Routers**

```
show lane server [interface atm slot/port-adapter/port[.subinterface-number] | name elan-name] [brief]
```

**Cisco 4500 and 4700 Routers**

```
show lane server [interface atm number[.subinterface-number] | name elan-name] [brief]
```

Syntax Description		
<b>interface atm slot/port</b>	(Optional) ATM interface slot and port for the following:	<ul style="list-style-type: none"> <li>• AIP on the Cisco 7500 series routers.</li> <li>• ATM port adapter on the Cisco 7200 series routers.</li> </ul>
<b>interface atm slot/port-adapter/port</b>	(Optional) ATM interface slot, port adapter, and port number for the ATM port adapter on the Cisco 7500 series routers.	
<b>interface atm number</b>	(Optional) ATM interface number for the NPM on the Cisco 4500 or 4700 routers.	
<b>.subinterface-number</b>	(Optional) Subinterface number.	
<b>name elan-name</b>	(Optional) Name of the ELAN. The maximum length of the name is 32 characters.	
<b>brief</b>	(Optional) Keyword used to display the brief subset of available information.	

**Command Modes** Privileged EXEC

Command History	Release	Modification
	11.0	This command was introduced.

**Examples** The following is sample output from the **show lane server** command for an Ethernet ELAN:

```
Router# show lane server

LE Server ATM2/0.2  ELAN name: elan2  Admin: up  State: operational
type: ethernet      Max Frame Size: 1516
```

```

ATM address: 39.020304050607080910111213.00000CA05B41.02
LECS used: 39.020304050607080910111213.00000CA05B43.00 connected, vcd 51
control distribute: vcd 57, 2 members, 2 packets

proxy/ (ST: Init, Conn, Waiting, Adding, Joined, Operational, Reject, Term)
lecid ST vcd    pkts Hardware Addr  ATM Address
  1  O   54      2 0000.0ca0.5b40 39.020304050607080910111213.00000CA05B40.02
  2  O   81      2 0060.2f55.7940 39.020304050607080910111213.00602F557940.02

```

The following is sample output from the **show lane server** command for a Token Ring ELAN:

```

Router# show lane server

LE Server ATM3/0.1 ELAN name: anubis Admin: up State: operational
type: token ring      Max Frame Size: 4544      Segment ID: 2500
ATM address: 47.009181000000000000000000.00000CA01661.01
LECS used: 47.009181000000000000000000.00000CA01663.00 connected, vcd 6
control distribute: vcd 10, 2 members, 4 packets
proxy/ (ST: Init, Conn, Waiting, Adding, Joined, Operational, Reject, Term)
lecid ST vcd    pkts Hardware Addr  ATM Address
  1  O    7      3 400.1          47.009181000000000000000000.00000CA01660.01
                    0000.0ca0.1660 47.009181000000000000000000.00000CA01660.01
  2  O   16      3 300.1          47.009181000000000000000000.00000CA04960.01
                    0000.0ca0.4960 47.009181000000000000000000.00000CA04960.01

```

Table 76 describes the significant fields shown in the display.

**Table 76** *show lane server Field Descriptions*

Field	Description
LE Server ATM2/0.2	Interface and subinterface of this server.
ELAN name	Name of the ELAN.
Admin	Administrative state, either up or down.
State	Status of this LANE server. Possible states for a LANE server include down, waiting_ILMI, waiting_listen, up_not_registered, operational, and terminating.
type	Type of ELAN.
Max Frame Size	Maximum frame size (in bytes) of this type of emulated LAN.
Segment ID	The ring number of the ELAN. This field appears only for Token Ring LANE.
ATM address	ATM address of this LANE server.
LECS used	ATM address of the LANE configuration server being used. This line also shows the current state of the connection between the LANE server and the LAN Emulated Configuration Server (LECS), and the virtual circuit descriptor (VCD) of the circuit connecting them.
control distribute	VCD of the Control Distribute VCC.
proxy	Status of the LANE client at the other end of the Control Distribute VCC.
lecid	Identifier for the LANE client at the other end of the Control Distribute VCC.

**Table 76** *show lane server Field Descriptions (continued)*

Field	Description
ST	Status of the LANE client at the other end of the Control Distribute VCC. Possible states are Init, Conn, Waiting, Adding, Joined, Operational, Reject, and Term.
vcd	Virtual channel descriptor used to reach the LANE client.
pkts	Number of packets sent by the LANE server on the Control Distribute VCC to the LANE client.
Hardware Addr	The top number in this column is the router descriptor, and the second number is the MAC-layer address of the LANE client.
ATM Address	ATM address of the LANE client.

# show mac-address-table

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

Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers

```
show mac-address-table [static | dynamic | secure | self | aging-time | count] [address
hardware-address] [interface type] [fa | gi slot/port] [vlan vlan-id]
```

Catalyst Switches

```
show mac-address-table [static | dynamic | secure | self | aging-time | count] [address
hardware-address] [interface interface] [atm slot/port] [vlan vlan-id]
```

Syntax	Description
<b>static</b>	(Optional) Displays only the static addresses.
<b>dynamic</b>	(Optional) Displays only the dynamic addresses.
<b>secure</b>	(Optional) Displays only the secure addresses.
<b>self</b>	(Optional) Displays only addresses added by the switch itself.
<b>aging-time</b>	(Optional) Displays aging-time for dynamic addresses for all VLANs.
<b>count</b>	(Optional) Displays a count for different kinds of MAC addresses.
<b>address hardware-address</b>	(Optional) Displays information for a specific hardware address.
<b>interface type</b>	(Optional) Displays addresses for a specific port.
<b>interface interface</b>	(Optional) Displays addresses for a specific port.
<b>fa</b>	(Optional) Specifies FastEthernet.
<b>gi</b>	(Optional) Specifies GigabitEthernet.
<i>slot/port</i>	(Optional) Adds dynamic addresses to module in slot 1 or 2.
<b>atm slot/port</b>	(Optional) Adds dynamic addresses to ATM module <i>slot/port</i> . Use 1 or 2 for the slot number. Use 0 as the port number.
<b>vlan vlan-id</b>	(Optional) Displays addresses for a specific VLAN. Valid IDs are from 1 to 1005; do not enter leading zeroes.

**Command Modes** Privileged EXEC

Command History	Release	Modification
	11.2(8)SA	This command was first introduced.
	11.2(8)SA3	The <b>self</b> , <b>aging-time</b> , <b>count</b> , and <b>vlan vlan-id</b> keywords were added.
	11.2(8)SA5	The <b>atm slot/port</b> keywords were added.
	12.2(2)XT	This command was implemented on Cisco 2600 series, Cisco 3600 series, and Cisco 3700 series routers.
	12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T on Cisco 2600 series, Cisco 3600 series, and Cisco 3700 series routers.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

**Usage Guidelines**

This command displays the MAC address table for the switch. Specific views can be defined by using the optional keywords and values. If more than one optional keyword is used, then all of the conditions must be true in order for that entry to be displayed.

**Examples****Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers**

The following is sample output from the **show mac-address-table** command:

```
Router# show mac-address-table

Dynamic Addresses Count:          9
Secure Addresses (User-defined) Count: 0
Static Addresses (User-defined) Count: 0
System Self Addresses Count:     41
Total MAC addresses:             50
Non-static Address Table:
Destination Address  Address Type  VLAN  Destination Port
-----
0010.0de0.e289      Dynamic      1     FastEthernet0/1
0010.7b00.1540      Dynamic      2     FastEthernet0/5
0010.7b00.1545      Dynamic      2     FastEthernet0/5
0060.5cf4.0076      Dynamic      1     FastEthernet0/1
0060.5cf4.0077      Dynamic      1     FastEthernet0/1
0060.5cf4.1315      Dynamic      1     FastEthernet0/1
0060.70cb.f301      Dynamic      1     FastEthernet0/1
00e0.1e42.9978      Dynamic      1     FastEthernet0/1
00e0.1e9f.3900      Dynamic      1     FastEthernet0/1
```

**Catalyst Switches**

The following is sample output from the **show mac-address-table** command:

```
Switch# show mac-address-table

Dynamic Addresses Count:          9
Secure Addresses (User-defined) Count: 0
Static Addresses (User-defined) Count: 0
System Self Addresses Count:     41
Total MAC addresses:             50
Non-static Address Table:
Destination Address  Address Type  VLAN  Destination Port
-----
0010.0de0.e289      Dynamic      1     FastEthernet0/1
0010.7b00.1540      Dynamic      2     FastEthernet0/5
0010.7b00.1545      Dynamic      2     FastEthernet0/5
0060.5cf4.0076      Dynamic      1     FastEthernet0/1
0060.5cf4.0077      Dynamic      1     FastEthernet0/1
0060.5cf4.1315      Dynamic      1     FastEthernet0/1
0060.70cb.f301      Dynamic      1     FastEthernet0/1
00e0.1e42.9978      Dynamic      1     FastEthernet0/1
00e0.1e9f.3900      Dynamic      1     FastEthernet0/1
```

**Related Commands**

Command	Description
<b>clear mac-address-table</b>	Deletes entries from the MAC address table.

# show mac-address-table aging-time

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

Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers

**show mac-address-table aging-time**

Catalyst Switches

**show mac-address-table aging-time** [**vlan** *vlan*] [[**begin** | **exclude** | **include**] *expression*]

Syntax Description		
<b>Vlan</b> <i>vlan</i>	(Optional) Specifies a VLAN; valid values are from 1 to 1005.	
<b>begin</b>	(Optional) Specifies that the output display begin with the line that matches the <i>expression</i> .	
<b>exclude</b>	(Optional) Specifies that the output display excludes lines that match the <i>expression</i> .	
<b>include</b>	(Optional) Specifies that the output display includes lines that match the specified <i>expression</i> .	
<i>expression</i>	Expression in the output to use as a reference point.	

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	This command was introduced on Catalyst 6000 family switches.
	12.2(2)XT	This command was implemented on Cisco 2600 series, Cisco 3600 series, and Cisco 3700 series routers.
	12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T on Cisco 2600 series, Cisco 3600 series, and Cisco 3700 series routers.
	12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

**Examples** The following example shows how to display the current configured aging time for all VLANs:

Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers

```
Router# show mac-address-table aging-time
```

```
Mac address aging time 300
```

## show mac-address-table aging-time

### Catalyst Switches

```
Router# show mac-address-table aging-time
```

```
Vlan    Aging Time
----    -
100     300
200     1000
```

The following example show how to display the current configured aging time for a specific VLAN:

```
Router# show mac-address-table aging-time vlan 100
```

```
Vlan    Aging Time
----    -
100     300
```

### Related Commands

Command	Description
<b>show mac-address-table address</b>	Displays MAC address table information for a specific MAC address.
<b>show mac-address-table count</b>	Displays the number of entries currently in the MAC address table.
<b>show mac-address-table detail</b>	Displays detailed MAC address table information.
<b>show mac-address-table dynamic</b>	Displays dynamic MAC address table entries only.
<b>show mac-address-table interface</b>	Displays the MAC address table information for a specific interface.
<b>show mac-address-table multicast</b>	Displays multicast MAC address table information.
<b>show mac-address-table protocol</b>	Displays MAC address table information based on protocol.
<b>show mac-address-table static</b>	Displays static MAC address table entries only.
<b>show mac-address-table vlan</b>	Displays the MAC address table information for a specific VLAN.

# show mac-address-table dynamic

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

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**show mac-address-table dynamic** [**address** *mac-address* | **interface** *type slot/port* | **vlan** *vlan*]

Catalyst Switches

**show mac-address-table dynamic** [**address** *mac-address* | **detail** | **interface** *type number* | **protocol** *protocol* | **vlan** *vlan*] [[**begin** | **exclude** | **include**] *expression*]

Syntax	Description
<b>address</b> <i>mac-address</i>	(Optional) Specifies a 48-bit MAC address; valid format is H.H.H.
<b>detail</b>	(Optional) Specifies a detailed display of MAC address table information.
<b>interface</b> <i>type number</i>	(Optional) Specifies an interface to match; valid type values are FastEthernet and GigabitEthernet, valid number values are from 1 to 9.
<b>interface</b> <i>type</i>	(Optional) Specifies an interface to match; valid type values are FastEthernet and GigabitEthernet.
<i>slot</i>	(Optional) Adds dynamic addresses to module in slot 1 or 2.
<i>port</i>	(Optional) Port interface number ranges based on type of Ethernet switch network module used: 0 to 15 for NM-16ESW 0 to 35 for NM-36ESW 0 to 1 for GigabitEthernet
<b>protocol</b> <i>protocol</i>	(Optional) Specifies a protocol. See the “Usage Guidelines” section for keyword definitions.
<b>vlan</b> <i>vlan</i>	(Optional) Displays entries for a specific VLAN; valid values are from 1 to 1005.
<b>begin</b>	(Optional) Specifies that the output display begin with the line that matches the expression.
<b>exclude</b>	(Optional) Specifies that the output display exclude lines that match the expression.
<b>include</b>	(Optional) Specifies that the output display include lines that match the specified expression.
<i>expression</i>	Expression in the output to use as a reference point.

## Command Modes

Privileged EXEC

**Command History**

Release	Modification
12.0(7)XE	This command was introduced on Catalyst 6000 family switches.
12.2(2)XT	This command was implemented on Cisco 2600 series, Cisco 3600 series, and Cisco 3700 series routers.
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T on Cisco 2600 series, Cisco 3600 series, and Cisco 3700 series routers.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

**Usage Guidelines****Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers**

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

**Catalyst Switches**

The keyword definitions for the protocol argument are:

- **ip**—Specifies IP protocol
- **ipx**—Specifies IPX protocols
- **assigned**—Specifies assigned protocol entries
- **other**—Specifies other protocol entries

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

**Examples**

The following examples shows how to display all dynamic MAC address entries:

**Cisco 2600 series, Cisco 3600 series, and Cisco 3700 series Routers**

```
Router# show mac-address-table dynamic
```

```
Non-static Address Table:
Destination Address  Address Type  VLAN  Destination Port
-----
000a.000a.000a      Dynamic      1     FastEthernet4/0
002a.2021.4567      Dynamic      2     FastEthernet4/0
```

**Catalyst Switches**

```
Router# show mac-address-table dynamic
```

```
vlan  mac address  type  protocol  qos  ports
-----+-----+-----+-----+-----+-----
200   0010.0d40.37ff  dynamic  ip  --  5/8
1     0060.704c.73ff  dynamic  ip  --  5/9
4095  0000.0000.0000  dynamic  ip  --  15/1
1     0060.704c.73fb  dynamic  other --  5/9
1     0080.1c93.8040  dynamic  ip  --  5/9
4092  0050.f0ac.3058  dynamic  ip  --  15/1
1     00e0.4fac.b3ff  dynamic  other --  5/9
```

The following example show how to display dynamic MAC address entries with a specific protocol type (in this case, assigned):

```
Router# show mac-address-table dynamic protocol assigned
```

```

vlan  mac address      type   protocol qos      ports
-----+-----+-----+-----+-----+-----+
4092  0000.0000.0000  dynamic assigned -- Router
4092  0050.f0ac.3059  dynamic assigned -- Router
      1  0010.7b3b.0978  dynamic assigned -- Fa5/9

```

```
Router#
```

The following example shows the detailed output for the previous example:

```
Router# show mac-address-table dynamic protocol assigned detail
```

```
MAC Table shown in details
```

```

=====
Type   Always Learn Trap Modified Notify Capture Protocol Flood
-----+-----+-----+-----+-----+-----+-----+
      QoS bit      L3 Spare   Mac Address Age Byte Pvlan Xtag SWbits Index
-----+-----+-----+-----+-----+-----+-----+
DYNAMIC  NO          NO        YES     NO     NO   assigned NO
  Bit Not On          0         0000.0000.0000 255     4092  0    0    0x3
DYNAMIC  NO          NO        YES     NO     NO   assigned NO
  Bit Not On          0         0050.f0ac.3059 254     4092  0    0    0x3
DYNAMIC  NO          NO        YES     NO     NO   assigned NO
  Bit Not On          0         0010.7b3b.0978 254     1     0    0    0x108

```

```
Router#
```

## Related Commands

Command	Description
<b>show mac-address-table address</b>	Displays MAC address table information for a specific MAC address.
<b>show mac-address-table aging-time</b>	Displays the MAC address aging time.
<b>show mac-address-table count</b>	Displays the number of entries currently in the MAC address table.
<b>show mac-address-table detail</b>	Displays detailed MAC address table information.
<b>show mac-address-table interface</b>	Displays the MAC address table information for a specific interface.
<b>show mac-address-table multicast</b>	Displays multicast MAC address table information.
<b>show mac-address-table protocol</b>	Displays MAC address table information based on protocol.
<b>show mac-address-table static</b>	Displays static MAC address table entries only.
<b>show mac-address-table vlan</b>	Displays the MAC address table information for a specific VLAN.

# show mac-address-table static

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

Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers

```
show mac-address-table static [address mac-address | interface type slot/port | vlan vlan]
```

Catalyst Switches

```
show mac-address-table static [address mac-address | detail | interface type number | protocol protocol | vlan vlan] [[begin | exclude | include] expression]
```

Syntax Description	
<b>address</b> <i>mac-address</i>	(Optional) Specifies a 48-bit MAC address to match; valid format is H.H.H.
<b>detail</b>	(Optional) Specifies a detailed display of MAC address table information.
<b>interface</b> <i>type number</i>	(Optional) Specifies an interface to match; valid type values are Ethernet, FastEthernet, and Gigabit Ethernet and valid number values are from 1 to 9.
<b>interface</b> <i>type</i>	(Optional) Specifies an interface to match; valid type values are FastEthernet and Gigabit Ethernet.
<i>slot</i>	(Optional) Adds dynamic addresses to module in slot 1 or 2.
<i>port</i>	(Optional) Port interface number ranges based on type of Ethernet switch network module used: 0 to 15 for NM-16ESW 0 to 35 for NM-36ESW 0 to 1 for Gigabit Ethernet
<b>protocol</b> <i>protocol</i>	(Optional) Specifies a protocol. See the “Usage Guidelines” section for keyword definitions.
<b>vlan</b> <i>vlan</i>	(Optional) Displays entries for a specific VLAN; valid values are from 1 to 1005.
<b>begin</b>	(Optional) Specifies that the output display begin with the line that matches the expression.
<b>exclude</b>	(Optional) Specifies that the output display exclude lines that match the expression.
<b>include</b>	(Optional) Specifies that the output display include lines that match the specified expression.
<i>expression</i>	Expression in the output to use as a reference point.

Command Modes Privileged EXEC

Command History	Release	Modification
	12.0(7)XE	This command was introduced on Catalyst 6000 family switches.
	12.2(2)XT	This command was implemented on Cisco 2600 series, Cisco 3600 series, and Cisco 3700 series routers.

Release	Modification
12.2(8)T	This command was integrated into Cisco IOS Release 12.2(8)T on Cisco 2600 series, Cisco 3600 series, and Cisco 3700 series routers.
12.2(11)T	This command was integrated into Cisco IOS Release 12.2(11)T.

## Usage Guidelines

### Catalyst Switches

The keyword definitions for the protocol argument are:

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

## Examples

The following example shows how to display all static MAC address entries:

### Cisco 2600 Series, Cisco 3600 Series, and Cisco 3700 Series Routers

```
Router# show mac-address-table static
```

```
Static Address Table:
Destination Address  Address Type  VLAN  Destination Port
-----
2323.3214.5432      Static       4     FastEthernet4/1
2323.3214.5431      Static       5     FastEthernet4/1
2323.3214.5432      Static       6     FastEthernet4/1
2323.3214.5434      Static       7     FastEthernet4/1
2323.3214.5435      Static       8     FastEthernet4/1
```

### Catalyst Switches

```
Router# show mac-address-table static
```

```
*Oct 22 12:15:35: %SYS-5-CONFIG_I: Configured from console by console
vlan  mac address      type      protocol  qos      ports
-----+-----+-----+-----+-----+-----
 200  0050.3e8d.6400  static   assigned  --      Router
 100  0050.3e8d.6400  static   assigned  --      Router
4092  0050.f0ac.3058  static    other     --      Router
 917  0100.0cdd.dddd  static    other     --      Fa5/9,Router,Switch
   5  0050.3e8d.6400  static   assigned  --      Router
 303  0100.0cdd.dddd  static    other     --      Fa5/9,Router,Switch
 850  0100.0cdd.dddd  static    other     --      Fa5/9,Router,Switch
1002  0100.0cdd.dddd  static    other     --      Fa5/9,Router,Switch
 802  0100.0cdd.dddd  static    other     --      Fa5/9,Router,Switch
   2  0100.0cdd.dddd  static    other     --      Fa5/9,Router,Switch
 304  0100.5e00.0001  static    ip        --      Fa5/9,Switch
.
.
.
```

## show mac-address-table static

The following example shows how to display static MAC address entries with a specific protocol type (in this case, assigned):

```
Router# show mac-address-table static protocol assigned
```

```
vlan  mac address      type    protocol  qos      ports
-----+-----+-----+-----+-----+-----
 200  0050.3e8d.6400  static  assigned  -- Router
 100  0050.3e8d.6400  static  assigned  -- Router
   5   0050.3e8d.6400  static  assigned  -- Router
```

The following example shows the detailed output for the previous example:

```
Router# show mac-address-table static protocol assigned detail
```

```
MAC Table shown in details
=====
Type  Always Learn Trap Modified Notify Capture Protocol Flood
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
      QoS bit      L3 Spare  Mac Address  Age Byte Pvlan Xtag SWbits Index
-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+
STATIC  NO          NO        NO          NO        NO        assigned  NO
  Bit Not On      0         0050.3e8d.6400  254        200    1    0    0x3
STATIC  NO          NO        NO          NO        NO        assigned  NO
  Bit Not On      0         0050.3e8d.6400  254        100    1    0    0x3
STATIC  NO          NO        NO          NO        NO        assigned  NO
  Bit Not On      0         0050.3e8d.6400  254         5     1    0    0x3
S      Bit Not On      0         0050.f0ac.3058  254       4092    1    0    0x3
.
.
.
```

### Related Commands

Command	Description
<b>show mac-address-table address</b>	Displays MAC address table information for a specific MAC address.
<b>show mac-address-table aging-time</b>	Displays the MAC address aging time.
<b>show mac-address-table count</b>	Displays the number of entries currently in the MAC address table.
<b>show mac-address-table detail</b>	Displays detailed MAC address table information.
<b>show mac-address-table dynamic</b>	Displays dynamic MAC address table entries only.
<b>show mac-address-table interface</b>	Displays the MAC address table information for a specific interface.
<b>show mac-address-table multicast</b>	Displays multicast MAC address table information.
<b>show mac-address-table protocol</b>	Displays MAC address table information based on protocol.
<b>show mac-address-table vlan</b>	Displays the MAC address table information for a specific VLAN.

# show mls rp

To display Multilayer Switching (MLS) details, including specifics for the Multilayer Switching Protocol (MLSP), use the **show mls rp** command in user EXEC or privileged EXEC mode.

**show mls rp** [*interface*]

<b>Syntax Description</b>	<i>interface</i>	(Optional) Displays information for one interface. Without this argument, detailed views of all interfaces are displayed.
---------------------------	------------------	---

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

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	11.3(3) WA4(4)	This command was introduced.

**Examples** The following is sample output for the **show mls rp** command:

```
Router# show mls rp

multilayer switching is globally enabled
mls id is 00e0.fefc.6000
mls ip address 10.20.26.64
mls flow mask is ip-flow
vlan domain name: WBU
  current flow mask: ip-flow
  current sequence number: 80709115
  current/maximum retry count: 0/10
  current domain state: no-change
  current/next global purge: false/false
  current/next purge count: 0/0
  domain uptime: 13:03:19
  keepalive timer expires in 9 seconds
  retry timer not running
  change timer not running
  fcp subblock count = 7

1 management interface(s) currently defined:
  vlan 1 on Vlan1

7 mac-vlan(s) configured for multi-layer switching:

  mac 00e0.fefc.6000
  vlan id(s)
  1   10   91   92   93   95   100

router currently aware of following 1 switch(es):
  switch id 0010.1192.b5ff
```

The following is sample output for the **show mls rp** command for a specific interface:

```
Router# show mls rp int vlan 10

mls active on Vlan10, domain WBU
```

#### Related Commands

Command	Description
<b>mls rp ip</b>	Enables MLSP.
<b>mls rp management-interface</b>	Designates an interface as the management interface for MLSP packets.
<b>mls rp nde-address</b>	Specifies a NetFlow Data Export address.
<b>mls rp vlan-id</b>	Assigns a VLAN ID.
<b>mls rp vtp-domain</b>	Selects the router interface to be Layer 3 switched and then adds that interface to a VTP domain.
<b>show mls rp vtp-domain</b>	Displays MLS interfaces for a specific VTP domain.

# show mls rp interface

To display IPX Multilayer Switching (MLS) details for the Route Processor (RP), including specific information about the Multilayer Switching Protocol (MLSP), use the **show mls rp interface** command in user EXEC or privileged EXEC mode.

**show mls rp interface** *type number*

Syntax Description		
	<i>type</i>	Interface type.
	<i>number</i>	Interface number.

Command Modes	
	User EXEC Privileged EXEC

Command History	Release	Modification
	12.0(5)T	This command was introduced.

**Examples** The following displays sample output from the **show mls rp interface** command. The interface type is VLAN, and its number is 10.

```
Router# show mls rp interface vlan 10

      IPX MLS active on Vlan 10, domain WBU
```

Related Commands	Command	Description
	<b>mls rp ipx (global)</b>	Enables the router as an IPX MLS RP.
	<b>mls rp locate ipx</b>	Displays information about all switches currently shortcutting for the specified IPX flow(s).
	<b>mls rp vtp-domain</b>	Assigns an MLS interface to a specific VTP domain on the MLS RP.
	<b>mls rp management-interface</b>	Designates an interface as the management interface for MLSP packets.
	<b>mls rp vlan-id</b>	Assigns a VLAN identification number to an IPX MLS interface.
	<b>show mls rp ipx</b>	Displays details for all IPX MLS interfaces on the IPX MLS router.
	<b>show mls rp vtp-domain</b>	Displays IPX MLS interfaces for a specific VTP domain on the route processor.

# show mls rp ip multicast

To display hardware-switched multicast flow information about IP multicast Multilayer Switching (MLS), use the **show mls rp ip multicast** command in user EXEC or privileged EXEC mode.

**show mls rp ip multicast** [**locate**] [*group* [*source*] [*vlan-id*]] | [**statistics**] | [**summary**]

Syntax Description	locate	(Optional) Displays flow information associated with the switch. This keyword applies only to a single router and multiple switches.
	<i>group</i>	(Optional) Address of the IP multicast group about which to display information.
	<i>source</i>	(Optional) IP multicast source sending to the specified multicast <i>group</i> about which to display information.
	<i>vlan-id</i>	(Optional) Source VLAN about which to display information.
	<b>statistics</b>	(Optional) Displays MLS statistics.
	<b>summary</b>	(Optional) Displays MLS summary.

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

Command History	Release	Modification
	12.0(5)T	This command was introduced.

**Examples** The following is sample output of the **show mls rp ip multicast** command using the **locate** keyword:

```
Router# show mls rp ip multicast locate

Source          Group          Vlan  SwitchIP      SwitchMAC
-----          -
192.1.10.6      239.255.158.197  10    1.2.10.199    0010.a60b.b4ff
```

The following is sample output of the **show mls rp ip multicast** command for a specific IP multicast group:

```
Router# show mls rp ip multicast 224.1.1.1

Multicast hardware switched flows:
(1.1.13.1, 224.1.1.1) Incoming interface: Vlan13, Packets switched: 61590
Hardware switched outgoing interfaces: Vlan20 Vlan9
MFD installed: Vlan13

(1.1.9.3, 224.1.1.1) Incoming interface: Vlan9, Packets switched: 0
Hardware switched outgoing interfaces: Vlan20
MFD installed: Vlan9

(1.1.12.1, 224.1.1.1) Incoming interface: Vlan12, Packets switched: 62010
Hardware switched outgoing interfaces: Vlan20 Vlan9
MFD installed: Vlan12
```

```
(1.1.12.3, 224.1.1.1) Incoming interface: Vlan12, Packets switched: 61980
Hardware switched outgoing interfaces: Vlan20 Vlan9
MFD installed: Vlan12
```

```
(1.1.11.1, 224.1.1.1) Incoming interface: Vlan11, Packets switched: 62430
Hardware switched outgoing interfaces: Vlan20 Vlan9
MFD installed: Vlan11
```

```
(1.1.11.3, 224.1.1.1) Incoming interface: Vlan11, Packets switched: 62430
Hardware switched outgoing interfaces: Vlan20 Vlan9
MFD installed: Vlan11
```

```
Total shortcut installed: 6
```

The following is sample output of the **show mls rp ip multicast** command using the **statistics** keyword:

```
Router# show mls rp ip multicast statistics
```

```
MLS Multicast Operation Status:
```

```
MLS Multicast configuration and state:
```

```
Router Mac: 0010.298f.0009
Switch Mac: 0010.0d70.a3ff      Switch IP: 1.2.10.195
MLS Multicast Operating state: ACTIVE
Active management vlan: Vlan1, 192.1.4.1
User configured management vlan: None, 0.0.0.0
Include-List: IP1 = 192.1.28.2, IP2 = 0.0.0.0
Router IP used in MLS Multicast messages: 192.1.28.2
```

```
MLS Multicast statistics:
```

```
Keepalive sent: 90
Keepalive ACK received: 90
Open request sent: 3
Open request ACK received: 3
Delete notifications received: 3
Flow statistics messages received: 181
Flow message sent: 14
Flow message Ack received: 14
Flow message Nack received: 0
```

```
Flow install Ack: 2
Flow install Nack: 0
Flow update Ack: 7
Flow update Nack: 0
Flow delete Ack: 0
Complete flow install Ack: 3
Complete flow install Nack: 0
Complete flow delete Ack: 1
Input vlan delete Ack: 0
Output vlan delete Ack: 0
Global delete sent: 1
```

```
L2 entry not found error: 0
LTL entry not found error: 0
MET entry not found error: 0
L3 entry not found error: 0
L3 entry exists error : 0
Hash collision error : 0
Sequence number error : 0
None-supported error : 0
Generic error : 0
```

The following is sample output of the **show mls rp ip multicast** command using the **summary** keyword:

```
Router# show mls rp ip multicast summary

Switch IP:0.0.0.0  Switch MAC:0000.0000.0000
Number of complete flows: 0
Total hardware-switched flows: 0

Switch IP:1.2.10.199  Switch MAC:0010.a60b.b4ff
Number of complete flows: 1
Total hardware-switched flows: 1
```

---

**Related Commands**

Command	Description
<b>mls rp ip multicast</b>	Enables IP multicast MLS (hardware switching) on an external or internal router in conjunction with Layer 3 switching hardware for the Catalyst 5000 switch.

---

# show mls rp ipx

To display details for all IPX Multilayer Switching (MLS) interfaces on the IPX MLS router, use the **show mls rp ipx** command in privileged EXEC mode.

## show mls rp ipx

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

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.0(5)T	This command was introduced.

**Usage Guidelines** This command gives you details about the following:

- MLS status (enabled or disabled) for switch interfaces and subinterfaces
- Flow mask required when creating Layer 3 switching entries for the router
- Current settings for the keepalive timer, retry timer, and retry count
- MLS identifier used in Multilayer Switching Protocol (MLSP) messages
- List of all interfaces in all Virtual Trunk Protocol (VTP) domains enabled for MLS

**Examples** The following example displays sample output from the **show mls rp ipx** command for all IPX MLS interfaces on an MLS-Route Processor (RP):

```
Router# show mls rp ipx

ipx multilayer switching is globally enabled
ipx mls inbound acl override is globally disabled
mls id is 0050.73ff.b580
mls ip address 5.5.5.155
IPX MLS flow mask is source-destination
number of domains configured for mls 1

vlan domain name:Engineering
  current ipx flow mask:source-destination
  ipx current/next global purge:false/false
  ipx current/next purge count:0/0
  current sequence number:4086390283
  current/maximum retry count:0/10
  current domain state:no-change
  domain uptime:03:13:09
  keepalive timer expires in 3 seconds
  retry timer not running
  change timer not running

1 management interface(s) currently defined:
  vlan 21 on Vlan21
```

## ■ show mls rp ipx

```
2 mac-vlan(s) enabled for ipx multi-layer switching:
```

```
mac 0010.0738.2917
  vlan id(s)
  22
```

```
mac 0050.73ff.b5b8
  vlan id(s)
  21
```

```
router currently aware of following 1 switch(es):
  switch id 00e0.fe4a.aeff
```

## Related Commands

Command	Description
<b>mls rp ipx (global)</b>	Enables the router as an IPX MLS RP.
<b>mls rp locate ipx</b>	Displays information about all switches currently shortcutting for the specified IPX flows.
<b>mls rp management-interface</b>	Designates an interface as the management interface for MLSP packets.
<b>mls rp vlan-id</b>	Assigns a VLAN identification number to an IPX MLS interface.
<b>show mls rp interface</b>	Displays IPX MLS details for the RP, including specific information about the MLSP.
<b>show mls rp vtp-domain</b>	Displays IPX MLS interfaces for a specific VTP domain on the RP.

# show mls rp vtp-domain

To display IPX Multilayer Switching (MLS) interfaces for a specific Virtual Trunk Protocol (VTP) domain on the Route Processor (RP), use the **show mls rp vtp-domain** command in privileged EXEC mode.

**show mls rp vtp-domain** *domain-name*

Syntax Description	<i>domain-name</i>	The name of the VTP domain whose MLS interfaces will be displayed.
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Command Modes	Privileged EXEC
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Command History	Release	Modification
	11.3(3) WA4(4)	This command was introduced.

**Examples** This example shows details about IPX MLS interfaces in a VTP domain named WBU:

```
Router# show mls rp vtp-domain WBU

vlan domain name: WBU
current ipx flow mask: destination
  ipx current/next global purge: false/false
  ipx current/next purge count: 0/0
current ipx flow mask: destination
  ipx current/next global purge: false/false
  ipx current/next purge count: 0/0
current sequence number: 590678296
current/maximum retry count: 0/10
current domain state: no-change
domain uptime: 1d14h
keepalive timer expires in 3 seconds
retry timer not running
change timer not running
fcf subblock count = 20

1 management interface(s) currently defined:
  vlan 2 on Vlan2

20 mac-vlan(s) configured for multi-layer switching

17 mac-vlan(s) enabled for ipx multi-layer switching:

      mac 0010.0738.2917
      vlan id(s)
2      3      4      5      6      7      8      9      10     12     13
14     15     88     99

      mac 0090.6dfc.5800
      vlan id(s)
      20     21

18 mac-vlan(s) enabled for ipx multi-layer switching:
```

## ■ show mls rp vtp-domain

```

mac 0010.0738.2917
  vlan id(s)
    2   3   4   5   6   7   8   9   10  11  12
    13  14  15  66  77  88  99

router currently aware of following 1 switch(es):
  switch id 0010.141f.6fff

```

## Related Commands

Command	Description
<b>mls rp ipx (global)</b>	Enables the router as an IPX MLS RP.
<b>mls rp locate ipx</b>	Displays information about all switches currently shortcutting for the specified IPX flows.
<b>mls rp management-interface</b>	Designates an interface as the management interface for MLSP packets.
<b>mls rp vlan-id</b>	Assigns a VLAN identification number to an IPX MLS interface.
<b>show mls rp interface</b>	Displays IPX MLS details for the RP, including specific information about the MLSP.
<b>show mls rp ipx</b>	Displays details for all IPX MLS interfaces on the IPX MLS router.
<b>show mls rp vtp-domain</b>	Displays IPX MLS interfaces for a specific VTP domain on the RP.