ip cef accounting

To enable network accounting of Cisco Express Forwarding (CEF), use the **ip cef accounting** command in global configuration mode. To disable network accounting of CEF, use the **no** form of this command.

ip cef accounting [**per-prefix**] [**non-recursive**]

no ip cef accounting [**per-prefix**] [**non-recursive**]

Syntax Description

per-prefix	(Optional) Enables the collection of the number of packets and bytes express forwarded to a destination (or *prefix*).
non-recursive	(Optional) Enables accounting through nonrecursive prefixes. For prefixes with directly connected next hops, enables the collection of the number of packets and bytes express forwarded through a prefix.

Defaults

Accounting is disabled by default.

Command Modes

Global configuration

Command History

Release	Modification
11.2 GS	This command was introduced to support the Cisco 12012 Gigabit Switch Router.
11.1 CC	Multiple platform support was added.

Usage Guidelines

You might want to collect statistics to better understand CEF patterns in your network.

When you enable network accounting for CEF from global configuration mode, accounting information is collected at the route processor when CEF mode is enabled and at the line cards when dCEF mode is enabled.

You can then view the collected accounting information using the **show ip cef** command.

Examples

The following example enables the collection of CEF accounting information:

```
ip cef accounting
```

Related Commands

Command	Description
show ip cef	Displays entries in the FIB that are unresolved or displays a FIB summary.

ip cef traffic-statistics

To change the time intervals used to control the collection of Cisco Express Forwarding (CEF) traffic load statistics, use the **ip cef traffic-statistics** command in global configuration mode. To restore the default values, use the **no** form of this command.

ip cef traffic-statistics [**load-interval** *seconds*] [**update-rate** *seconds*]

no ip cef traffic-statistics

Syntax Description

load-interval *seconds*	(Optional) The interval time over which the CEF traffic load statistics are calculated. The **load-interval** range is from 30 to 300 seconds, in 30-second increments. The default value is 30 seconds.
update-rate *seconds*	(Optional) Frequency with which the port adapter sends the CEF traffic load statistics to the Router Processor (RP). The default value is 10 seconds.

Defaults

load-interval: 30 seconds

update-rate: 10 seconds

Command Modes

Global configuration

Command History

Release	Modification
12.0	This command was introduced.

Usage Guidelines

This command configures the CEF traffic load statistics that are used to determine the behavior of the Next Hop Resolution Protocol (NHRP) — a protocol used by routers to dynamically discover the MAC address of other routers and hosts connected to a nonbroadcast multiaccess (NBMA) network.

The **ip nhrp trigger-svc** command sets the threshold by which NHRP sets up and tears down a connection. The threshold is the CEF traffic load statistics. To change the interval over which that threshold is determined, use the **load-interval** *seconds* keyword and argument of the **ip cef traffic-statistics** command.

Examples

In the following example, the triggering and teardown thresholds are calculated based on an average over 120 seconds:

```
ip cef traffic-statistics load-interval 120
```

Related Commands

Command	Description
ip nhrp trigger-svc	Configures when NHRP will set up and tear down an SVC based on aggregate traffic rates.

ip explicit-path

To enter the subcommand mode for IP explicit paths to create or modify the named path, use the **ip explicit-path** command in global configuration mode. An IP explicit path is a list of IP addresses, each representing a node or link in the explicit path.

ip explicit-path {name *WORD* **| identifier** *number***} [{enable | disable}]**

Syntax Description

name *WORD*	Specifies explicit path by name.
identifier *number*	Specifies explicit path by number. You can specify a number from 1 to 65535.
enable	Sets the state of the path to be enabled.
disable	Prevents the path from being used for routing while it is being configured.

Defaults

Enabled.

Command Modes

Global configuration

Command History

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

Examples

The following command enters the explicit path subcommand mode for IP explicit paths and creates a path with the number 500.

```
ip explicit-path identifier 500
```

Related Commands

Command	Description
append-after	Inserts a path entry after a specific index number.
index	Inserts or modifies a path entry at a specific index.
list	Displays all or part of the explicit path or paths.
next-address	Specifies the next IP address in the explicit path.
show ip explicit-paths	Displays configured IP explicit paths.

ip flow-aggregation cache

To enable aggregation cache configuration mode, use the **ip flow-aggregation cache** command in global configuration mode.

To disable aggregation cache configuration mode, use the **no** form of this command.

ip flow-aggregation cache {*as* | *destination-prefix* | *prefix* | *protocol-port* | *source-prefix*}

no ip flow-aggregation cache {*as* | *destination-prefix* | *prefix* | *protocol-port* | *source-prefix*}

Syntax Description

as	Configures the autonomous system aggregation cache scheme.
destination-prefix	Configures the Destination Prefix aggregation cache scheme.
prefix	Configures the Prefix aggregation cache scheme.
protocol-port	Configures the Protocol Port aggregation cache scheme.
source-prefix	Configures the Source Prefix aggregation cache scheme.

Defaults

This command is not enabled by default.

Command Modes

Global configuration

Command History

Release	Modification
12.0(3)T	This command was introduced.

Examples

The following example shows how to enable an autonomous system aggregation scheme:

```
ip flow-aggregation cache as
enable
```

Related Commands

Command	Description
clear adjacency	Configures aggregation cache operational parameters.
default-name	Enables an aggregation cache.
ip cache-invalidate-delay	Enables the exporting of information from NetFlow aggregation caches.
show ip cache flow aggregation	Displays the aggregation cache configuration.

ip flow-cache entries

To change the number of entries maintained in the NetFlow cache, use the **ip flow-cache entries** command in global configuration mode. Use the **no** form of this command to return to the default number of entries.

ip flow-cache entries *number*

no ip flow-cache entries

Syntax Description

number	Number of entries to maintain in the NetFlow cache. The valid range is from 1024 to 524288 entries. The default is 65536 (64K).

Defaults

65536 entries (64K)

Command Modes

Global configuration

Command History

Release	Modification
12.0(3)T	This command was introduced.

Usage Guidelines

Normally the default size of the NetFlow cache will meet your needs. However, you can increase or decrease the number of entries maintained in the cache to meet the needs of your flow traffic rates. For environments with a high amount of flow traffic (such as an internet core router), a larger value such as 131072 (128K) is recommended. To obtain information on your flow traffic, use the **show ip cache flow** command.

The default is 64K flow cache entries. Each cache entry is approximately 64 bytes of storage. Assuming a cache with the default number of entries, approximately 4MB of DRAM would be required. Each time a new flow is taken from the free flow queue, the number of free flows is checked. If there are only a few free flows remaining, NetFlow attempts to age 30 flows using an accelerated timeout. If there is only one free flow remaining, NetFlow automatically ages 30 flows regardless of their age. The intent is to ensure free flow entries are always available.

Caution Cisco recommends that you do not change the NetFlow cache entries. Improper use of this command could cause network problems. To return to the default NetFlow cache entries, use the **no ip flow-cache entries** global configuration command.

Examples

The following example increases the number of entries in the NetFlow cache to 131072 (128K):

```
ip flow-cache entries 131072
```

Related Commands

Command	Description
show mpoa client	Displays the routing table cache used to fast switch IP traffic.

ip flow-export

To enable the exporting of information in NetFlow cache entries, use the **ip flow-export** command in global configuration mode. To disable the exporting of information, use the **no** form of this command.

ip flow-export *ip-address udp-port* [**version 1** | **version 5** [**origin-as** | **peer-as**]]

no ip flow-export

Syntax Description

ip-address	IP address of the workstation to which you want to send the NetFlow information.
udp-port	UDP protocol-specific port number.
version 1	(Optional) Specifies that the export packet uses the version 1 format. This is the default. The version field occupies the first two bytes of the export record. The number of records stored in the datagram is a variable from 1 to 24 for version 1.
version 5	(Optional) Specifies that the export packet uses the version 5 format. The number of records stored in the datagram is a variable between 1 and 30 for version 5.
origin-as	(Optional) Specifies that export statistics include the origin autonomous system (AS) for the source and destination.
peer-as	(Optional) Specifies that export statistics include the peer AS for the source and destination.

Defaults

Disabled

Command Modes

Global configuration

Command History

Release	Modification
11.1 CA	This command was introduced.

Usage Guidelines

There is a lot of information in a NetFlow cache entry. When NetFlow is enabled with the **ip route-cache flow** command, you can use the **ip flow-export** command to configure the router to export the flow cache entry to a workstation when a flow expires. This feature can be useful for purposes of statistics, billing, and security.

Version 5 format includes the source and destination AS addresses, source and destination prefix masks, and a sequence number. Because this change may appear on your router as a maintenance release, support for version 1 format is maintained with the **version 1** keyword.

Caution Entering the **ip flow-export** or **no ip flow-export** command on the Cisco 12000 Series Internet Routers and specifying any version format other than version 1 (in other words, entering the **ip flow-export** or **no ip flow-export** command and specifying the **version 5** keyword) causes packet forwarding to stop

for a few seconds while NetFlow reloads the route processor and line card CEF tables. To avoid interruption of service to a live network, apply this command during a change window, or include it in the startup-config file to be executed during a router reboot.

For more information on version 1 and version 5 data format, refer to the "NetFlow Data Format" section in "Configuring NetFlow" chapter of the *Cisco IOS Switching Services Configuration Guide*.

Examples

The following example configures the router to export the NetFlow cache entry to UDP port 125 on the workstation at 134.22.23.7 when the flow expires using version 1 format:

```
ip flow-export 134.22.23.7 125
```

The following example configures the router to export the NetFlow cache entry to UDP port 2048 on the workstation at 134.22.23.7 when the flow expires using version 5 format and including the peer AS information:

```
ip flow-export 134.22.23.7 2048 version 5 peer-as
```

Related Commands

Command	Description
ip route-cache flow	Enables NetFlow for IP routing.

ip flow-export source

To specify the source interface IP address used in the NetFlow export datagram, use the **ip flow-export source** command in global configuration mode. To remove the source address, use the **no** form of this command.

ip flow-export source *interface*

no ip flow-export source

Syntax Description

interface	Interface from which the router gets the source IP address for the packet.

Defaults

No source interface is specified.

Command Modes

Global configuration

Command History

Release	Modification
11.1 CA	This command was introduced.

Usage Guidelines

After you configure NetFlow data export, you can also specify the source interface used in the UDP datagram containing the export data. The NetFlow Collector on the workstation uses the IP address of the source interface to determine which router sent the information. The NetFlow Collector also performs SNMP queries to the router using the IP address of the source interface. Because the IP address of the source interface can change (for example, the interface might flap so a different interface is used to send the data), we recommend you configure a loopback source interface. A loopback interface is always up and can respond to SNMP queries from the NetFlow Collector on the workstation.

Examples

The following example shows the configuration for a loopback source interface. The loopback interface has the IP address 4.0.0.1 and is used by the serial interface in slot 5, port 0.

```
Router# configure terminal
Router(config)# interface loopback0
Router(config-if)# ip address 4.0.0.1 255.0.0.0
Router(config-if)# exit
Router(config)# interface serial 5/0:0
Router(config-if)# ip unnumbered loopback0
Router(config-if)# no ip mroute-cache
Router(config-if)# encapsulation ppp
Router(config-if)# ip route-cache flow
Router(config-if)# exit
Router(config)# ip flow-export source loopback0
Router(config)# exit
```

Related Commands

Command	Description
ip flow-cache	Enables the exporting of information in NetFlow cache entries.

ip load-sharing

To enable load balancing for Cisco Express Forwarding (CEF), use the **ip load-sharing** command in interface configuration mode. To disable load balancing for CEF, use the **no** form of this command.

ip load-sharing [**per-packet**] [**per-destination**]

no ip cef [**per-packet**]

Syntax Description

per-packet	(Optional) Enables per-packet load balancing on the interface.
per-destination	(Optional) Enables per-destination load balancing on the interface.

Defaults

Per-destination load balancing is enabled by default when you enable CEF.

Command Modes

Interface configuration

Command History

Release	Modification
11.2 GS	This command was introduced to support the Cisco 12012 Gigabit Switch Router.
11.1 CC	Multiple platform support was added.

Usage Guidelines

Per-packet load balancing allows the router to send data packets over successive equal-cost paths without regard to individual destination hosts or user sessions. Path utilization is good, but packets destined for a given destination host might take different paths and might arrive out of order.

Note Per-packet load balancing via CEF is not supported on Engine 2 Gigabit Switch Router (GSR) line cards (LCs).

Per-destination load balancing allows the router to use multiple, equal-cost paths to achieve load sharing. Packets for a given source-destination host pair are guaranteed to take the same path, even if multiple, equal-cost paths are available. Traffic for different source-destination host pairs tend to take different paths.

Note If you want to enable per-packet load sharing to a particular destination, then all interfaces that can forward traffic to the destination must be enabled for per-packet load sharing.

Examples

The following example enables per-packet load balancing:

```
interface E0
 ip load-sharing per-packet
```

The following example enables per-destination load balancing:

```
interface E0
 ip load-sharing per-destination
```

Related Commands

Command	Description
interface	Configures an interface type and enters interface configuration mode.
ip cef	Enables CEF on the route processor card.

ip mroute-cache

To configure IP multicast fast switching or multicast distributed switching (MDS), use the **ip mroute-cache** command in interface configuration mode. To disable either of these features, use the **no** form of this command.

ip mroute-cache [**distributed**]

no ip mroute-cache [**distributed**]

Syntax Description

distributed	(Optional) Enables MDS on the interface. In the case of RSP, this keyword is optional; if it is omitted, fast switching occurs. On the GSR, this keyword is required because the GSR does only distributed switching.

Defaults

On the RSP, IP multicast fast switching is enabled; MDS is disabled.
On the GSR, MDS is disabled.

Command Modes

Interface configuration

Command History

Release	Modification
10.0	This command was introduced.
11.2(11)GS	The **distributed** keyword was added.

Usage Guidelines

On the RSP

If multicast fast switching is disabled on an incoming interface for a multicast routing table entry, the packet will be sent at process level for all interfaces in the outgoing interface list.

If multicast fast switching is disabled on an outgoing interface for a multicast routing table entry, the packet is process-level-switched for that interface, but may be fast-switched for other interfaces in the outgoing interface list.

When multicast fast switching is enabled (like unicast routing), debug messages are not logged. If you want to log debug messages, disable fast switching.

If MDS is not enabled on an incoming interface that is capable of MDS, incoming multicast packets will not be distributed switched; they will be fast-switched at the RP as before. Also, if the incoming interface is not capable of MDS, packets will get fast-switched or process-switched at the RP as before.

If MDS is enabled on the incoming interface, but at least one of the outgoing interfaces cannot fast-switch, packets will be process-switched. So it is a good idea not to disable fast switching on any interface when MDS is enabled.

On the GSR

On the GSR, all interfaces should be configured for MDS because that is the only switching mode.

Examples

The following example enables IP multicast fast switching on the interface:

```
ip mroute-cache
```

The following example disables IP multicast fast switching on the interface:

```
no ip mroute-cache
```

The following example enables MDS on the interface:

```
ip mroute-cache distributed
```

The following example disables MDS and IP multicast fast switching on the interface:

```
no ip mroute-cache distributed
```

ip multicast-routing

To enable IP multicast routing, use the **ip multicast-routing** command in global configuration mode. To disable IP multicast routing, use the **no** form of this command.

ip multicast-routing [**distributed**]

no ip multicast-routing

Syntax Description

distributed	(Optional) Enables MDS.

Defaults

Disabled.

Command Modes

Global configuration

Command History

Release	Modification
10.0	This command was introduced.
11.2(11)GS	The **distributed** keyword was introduced.
12.0(5)T	The effect of this command was modified. If IP multicast Multilayer Switching (MLS) is enabled, using the **no** form of this command now disables IP multicast routing on the MMLS-RP and purges all multicast MLS cache entries on the MMLS-SE.

Usage Guidelines

When IP multicast routing is disabled, the Cisco IOS software does not forward any multicast packets.

Examples

The following example enables IP multicast routing:

```
ip multicast-routing
```

Related Commands

Command	Description
ip pim	Enables PIM on an interface.

ip route-cache

To control the use of high-speed switching caches for IP routing, use the **ip route-cache** command in interface configuration mode. To disable any of these switching modes, use the **no** form of this command.

ip route-cache [**cbus**]

no ip route-cache [**cbus**]

ip route-cache same-interface

no ip route-cache same-interface

ip route-cache [**flow**]

no ip route-cache [**flow**]

ip route-cache distributed

no ip route-cache distributed

Syntax Description

cbus	(Optional) Enables both autonomous switching and fast switching.
same-interface	Enables fast-switching packets to back out through the interface on which they arrived.
flow	(Optional) Enables the RSP to use NetFlow on the interface.
distributed	Enables VIP distributed switching on the interface. This feature can be enabled on Cisco 7500 series routers with an RSP and Versatile Interface Processor (VIP) controllers.

Defaults

IP autonomous switching is disabled.

Fast switching varies by interface and media.

Distributed switching is disabled.

Command Modes

Interface configuration

Command History

Release	Modification
10.0	This command was introduced.
11.2	The **distributed** keyword was added.

Usage Guidelines

Using the route cache is often called *fast switching*. The route cache allows outgoing packets to be load-balanced on a *per-destination* basis.

The **ip route-cache** command with no additional keywords enables fast switching.

Cisco routers generally offer better packet transfer performance when fast switching is enabled, with one exception. On networks using slow serial links (64K and below), disabling fast switching to enable the per-packet load sharing is usually best.

You can enable IP fast switching when the input and output interfaces are the same interface by using the **ip route-cache same-interface** command. This normally is not recommended, although it is useful when you have partially meshed media, such as Frame Relay or you are running Web Cache Communication Protocol (WCCP) redirection. You could use this feature on other interfaces, although it is not recommended because it would interfere with redirection of packets to the optimal path.

When the Route Switch Processor (RSP) has NetFlow enabled, it uses a flow cache instead of a destination network cache to switch IP packets. The flow cache uses source and destination network address, protocol, and source and destination port numbers to distinguish entries.

The flow caching option can also be used to allow statistics to be gathered with a finer granularity. The statistics include IP subprotocols, well-known ports, total flows, average number of packets per flow, and average flow lifetime.

On Cisco 7500 series routers with RSP and Versatile Interface Processor (VIP) controllers, the VIP hardware can be configured to switch packets received by the VIP with no per-packet intervention by the RSP. When VIP distributed switching is enabled, the input VIP interface tries to switch IP packets instead of forwarding them to the RSP for switching. Distributed switching helps decrease the demand on the RSP.

Entering the **ip route-cache** command has no effect on a subinterface. Subinterfaces accept the **no** form of the command; however, this disables CEF or dCEF on the physical interface as well as all subinterfaces associated with the physical interface.

Not all switching methods are available on all platforms. Refer to the *Cisco Product Catalog* for information about features available on the platform you are using.

Examples

The following example enables both fast switching and autonomous switching:

```
ip route-cache cbus
```

The following example disables both fast switching and autonomous switching:

```
no ip route-cache
```

The following example turns off autonomous switching only:

```
no ip route-cache cbus
```

The following example enables VIP distributed NetFlow on the interface:

```
interface ethernet 0/5/0
 ip address 17.252.245.2 255.255.255.0
 ip route-cache distributed
 ip route-cache flow
```

The following example restores the defaults (fast switching enabled; autonomous switching disabled):

```
ip route-cache
```

Related Commands

Command	Description
exit	Leaves aggregation cache mode.
show mpoa client	Displays the routing table cache used to fast switch IP traffic.

ip route-cache cef

To enable Cisco Express Forwarding (CEF) operation on an interface after CEF operation has been disabled, use the **ip route-cache cef** command in interface configuration mode. To disable CEF operation on an interface, use the **no** form of this command.

ip route-cache cef

no ip route-cache cef

Syntax Description

This command has no arguments or keywords.

Defaults

When standard CEF or dCEF operation is enabled globally, all interfaces that support CEF are enabled by default.

Command Modes

Interface configuration

Command History

Release	Modification
11.2 GS	This command was introduced to support the Cisco 12012 Gigabit Switch Router.
11.1 CC	Multiple platform support was added.

Usage Guidelines

CEF is advanced Layer 3 switching technology for IP. CEF optimizes network performance and scalability for networks with dynamic, topologically dispersed traffic patterns, such as those associated with Web-based applications and interactive type sessions.

Because all interfaces that support CEF or dCEF are enabled by default when you enable standard CEF or dCEF operation globally, you use the **no** form of the command to turn off CEF operation on a particular interface.

You might want to disable CEF or dCEF on a particular interface because that interface is configured with a feature that CEF or dCEF does not support. For example, policy routing and CEF cannot be used together. You might want one interface to support policy routing while the other interfaces support CEF. In this case, you would turn on CEF globally, but turn off CEF on the interface configured for policy routing, enabling all but one interface to express forward.

When you disable CEF or dCEF, Cisco IOS software switches packets using the next-fastest switching path. In the case of dCEF, the next-fastest switching path is CEF on the route processor.

If you have disabled CEF or dCEF operation on an interface and want to reenable it, you can do so by using the **ip route-cache cef** command in interface configuration mode.

Note On the Cisco 12000 series routers, you must not disable dCEF on an interface.

Examples

The following example enables CEF operation on the router (globally), but turns off CEF operation on Ethernet interface 0:

```
ip cef
interface e0
 no ip route-cache cef
```

The following example enables dCEF operation on the router (globally), but turns off CEF operation on Ethernet interface 0:

```
ip cef distributed
interface e0
 no ip route-cache cef
```

The following example reenables dCEF operation on Ethernet interface 0:

```
ip cef distributed
interface e0
 ip route-cache cef
```

Related Commands

Command	Description
interface	Configures an interface type and enters interface configuration mode.
ip cef	Enables CEF on the route processor card.

ip route-cache flow

To enable NetFlow for IP routing, use the **ip route-cache flow** command in interface configuration mode. To disable NetFlow, use the **no** form of this command.

ip route-cache flow

no ip route-cache flow

Syntax Description

This command has no arguments or keywords.

Defaults

Disabled.

Command Modes

Interface configuration

Command History

Release	Modification
11.1	This command was introduced.

Usage Guidelines

NetFlow captures a rich set of traffic statistics. These traffic statistics include user, protocol, port, and type of service information that can be used for a wide variety of purposes such as network analysis and planning, accounting, and billing. To export NetFlow data, use the **ip flow-export** global configuration command.

NetFlow is supported on IP and IP encapsulated traffic over all interface types and encapsulations except for ISL/VLAN, ATM and Frame Relay interfaces when more than one input access control list is used on the interface, and ATM LANE.

A network flow is identified as a unidirectional stream of packets between a source and destination—both defined by a network-layer IP address and transport-layer port number. Specifically, a flow is identified as the combination of the following fields:

- Source IP address
- Destination IP address
- Source port number
- Destination port number
- Protocol type
- Type of service
- Input interface

NetFlow operates by creating a flow cache. Flow information is maintained within the NetFlow cache for all active flows. With NetFlow, you can export data (traffic statistics) to a remote workstation for further processing.

NetFlow is based on identifying packet flows. It does not involve any connection-setup protocol either between routers or to any other networking device or end station and does not require any change externally—either to the traffic or packets themselves or to any other networking device. Thus, NetFlow is completely transparent to the existing network, including end stations and application software and network devices like LAN switches. Also, because NetFlow is performed independently on each internetworking device, it does not need to be operational on each router in the network. Network planners can selectively invoke NetFlow (and NetFlow data export) on a router/interface basis to gain traffic performance, control, or accounting benefits in specific network locations.

Note NetFlow does consume additional memory and CPU resources; therefore, it is important to understand the resources required on your router before enabling NetFlow.

Examples

The following example enables NetFlow on the interface:

```
interface ethernet 0/5/0
 ip address 17.252.245.2 255.255.255.0
 ip route-cache flow
```

The following example returns the interface to its defaults (fast switching enabled; autonomous switching disabled):

```
interface ethernet 0/5/0
 ip route-cache
```

Related Commands

Command	Description
ip flow-export	Enables the exporting of information in NetFlow cache entries.
show mpoa client	Displays the routing table cache used to fast switch IP traffic.

ip route-cache policy

To enable fast-switch Policy Based Routing (PBR), use the **ip route-cache policy** command in interface configuration mode. To disable fast-switched PBR, use the **no** form of this command.

[no] ip route-cache policy

Syntax Description

This command has no arguments or keywords.

Defaults

Not enabled.

Command Modes

Interface configuration

Command History

Release	Modification
12.0	This command was introduced.

Usage Guidelines

1. If Cisco Express Forwarding (CEF) is already enabled, the present command isn't needed, because PBR packets are CEF switched by default.
2. Before you can enable fast-switch PBR, PBR itself must be configured.
3. FSPBR supports all of PBR's **match** commands and most of PBR's **set** commands, with the following restrictions:
   - The **set ip default next-hop** and **set default interface** commands are not supported.
   - The **set interface** command is supported only over point-to-point links, unless a route cache entry exists using the same interface specified in the **set interface** command in the route map. Also, at the process level, the routing table is consulted to determine if the interface is on a reasonable path to the destination. During fast switching, the software does not make this check. Instead, if the packet matches, the software blindly forwards the packet to the specified interface.

Examples

The following example enables fast-switch Policy Based Routing on an Ethernet interface:

```
Router# config t
    Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)# int e 1/3
Router(config-if)# ip route-cache policy
Router(config-if)# end
```

Related Commands

Command	Description
show ip cache policy	Displays cache entries in the policy route-cache.

ip route vrf

To establish static routes for a VRF, use the **ip route vrf** command in global configuration mode. To disable static routes, use the **no** form of this command.

ip route vrf *vrf-name prefix mask* [*next-hop-address*] [*interface* {*interface-number*}] [**global**] [*distance*] [**permanent**] [**tag** *tag*]

no ip route vrf *vrf-name prefix mask* [*next-hop-address*] [*interface* {*interface-number*}] [**global**] [*distance*] [**permanent**] [**tag** *tag*]

Syntax Description

vrf-name	Name of the VPN routing/forwarding instance (VRF) for the static route.
prefix	IP route prefix for the destination, in dotted-decimal format.
mask	Prefix mask for the destination, in dotted-decimal format.
next-hop-address	(Optional) IP address of the next hop (the forwarding router that can be used to reach that network).
interface	(Optional) Type of network interface to use: ATM, Ethernet, loopback, POS (packet over SONET), or null.
interface-number	Number identifying the network interface to use.
global	(Optional) Specifies that the given next hop address is in the non-VRF routing table.
distance	(Optional) An administrative distance for this route.
permanent	(Optional) Specifies that this route will not be removed, even if the interface shuts down.
tag *tag*	(Optional) Label (tag) value that can be used for controlling redistribution of routes through route maps.

Defaults

No default behavior or values.

Command Modes

Global configuration

Command History

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

Usage Guidelines

Use a static route when the Cisco IOS software cannot dynamically build a route to the destination.

If you specify an administrative distance when you set up a route, you are flagging a static route that can be overridden by dynamic information. For example, IGRP-derived routes have a default administrative distance of 100. To set a static route to be overridden by an IGRP dynamic route, specify an administrative distance greater than 100. Static routes each have a default administrative distance of 1.

Static routes that point to an interface are advertised through RIP, IGRP, and other dynamic routing protocols, regardless of whether the routes are redistributed into those routing protocols. That is, static routes configured by specifying an interface lose their static nature when installed into the routing table.

However, if you define a static route to an interface not defined in a network command, no dynamic routing protocols advertise the route unless a redistribute static command is specified for these protocols.

Examples

The following command reroutes packets addressed to network 137.23.0.0 in VRF vpn3 to router 131.108.6.6:

```
ip route vrf vpn3 137.23.0.0 255.255.0.0 131.108.6.6
```

Related Commands

Command	Description
show ip route vrf	Displays the IP routing table associated with a VRF.

ip vrf forwarding

To associate a VRF with an interface or subinterface, use the **ip vrf forwarding** command in global configuration mode or interface configuration mode. To disassociate a VRF, use the **no** form of this command.

ip vrf forwarding *vrf-name*

no ip vrf forwarding *vrf-name*

Syntax Description

vrf-name	Name assigned to a VRF.

Defaults

The default for an interface is the global routing table.

Command Modes

Global configuration

Interface configuration

Command History

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

Usage Guidelines

Use this command to associate an interface with a VRF. Executing this command on an interface removes the IP address. The IP address should be reconfigured.

Examples

The following example shows how to link a VRF to ATM interface 0/0:

```
interface atm0/0
ip vrf forwarding vpn1
```

Related Commands

Command	Description
ip vrf	Configures a VRF routing table.
ip route vrf	Establishes static routes for a VRF.

ip vrf

To configure a VRF routing table, use the **ip vrf** command in global configuration mode or router configuration mode. To remove a VRF routing table, use the **no** form of this command.

ip vrf *vrf-name*

no ip vrf *vrf-name*

Syntax Description

vrf-name	Name assigned to a VRF.

Defaults

No VRFs are defined. No import or export lists are associated with a VRF. No route maps are associated with a VRF.

Command Modes

Global configuration

Router configuration

Command History

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

Usage Guidelines

The **ip vrf** *vrf-name* command creates a VRF routing table and a CEF (forwarding) table, both named *vrf-name*. Associated with these tables is the default route distinguisher value *route-distinguisher*.

Examples

The following example imports a route map to a VRF:

```
ip vrf vpn1
rd 100:2
 route-target both 100:2
 route-target import 100:1
```

Related Commands

Command	Description
ip vrf forwarding	Associates a VRF with an interface or subinterface.

keepalive-lifetime

To specify the duration that a keepalive message from an MPS is considered valid by the MPC, use the **keepalive-lifetime** command in global configuration mode.

keepalive-lifetime *time*

Syntax Description

time	Time, in seconds, for the MPS-p2 variable of the MPS. The default value is 35 seconds.

Defaults

The default is 35 seconds.

Command Modes

Global configuration

Command History

Release	Modification
12.0(3)T	This command was introduced.

Usage Guidelines

The keepalive-lifetime (MPS-p2) must be greater than or equal to three times the value of the keepalive-time (MPS-p1). MPS-p1 specifies the frequency with which a keepalive message is sent from the MPS to the MPC.

Examples

The following example specifies a keepalive lifetime of 60 seconds:

```
keepalive-lifetime 60
```

Related Commands

Command	Description
keepalive-time	Specifies the keepalive time value for the MPS-p1 variable of an MPS.

keepalive-time

To specify the keepalive time value for the MPS-p1variable of an MPS, use the **keepalive-time** command in MPS configuration mode. To revert to the default value, use the **no** form of this command.

keepalive-time *time*

no keepalive-time *time*

Syntax Description

time	Specifies the keepalive time value in seconds.

Defaults

The default keepalive time is 10 seconds.

Command Modes

MPS configuration

Command History

Release	Modification
11.3(3a)WA4(5)	This command was introduced.

Examples

The following example sets the keepalive time to 25 seconds:

```
keepalive-time 25
```

lane auto-config-atm-address

To specify that the configuration server ATM address is computed by our automatic method, use the **lane auto-config-atm-address** command in interface configuration mode. To remove the previously assigned ATM address, use the **no** form of this command.

lane [**config**] **auto-config-atm-address**

no lane [**config**] **auto-config-atm-address**

Syntax Description

config	(Optional) When the **config** keyword is used, this command applies only to the LANE configuration server (LECS). This keyword indicates that the LECS should use the auto-computed LECS address.

Defaults

No specific ATM address is set.

Command Modes

Interface configuration

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

When the **config** keyword is not present, this command causes the LANE server and LANE client on the subinterface to use the automatically assigned ATM address for the configuration server.

When the **config** keyword is present, this command assigns the automatically generated ATM address to the configuration server (LECS) configured on the interface. Multiple commands that assign ATM addresses to the LANE configuration server can be issued on the same interface to assign different ATM addresses to the configuration server. Commands that assign ATM addresses to the LANE configuration server include **lane auto-config-atm-address**, **lane config-atm-address**, and **lane fixed-config-atm-address**.

For a discussion of Cisco's method of automatically assigning ATM addresses, refer to the "Configuring LAN Emulation" chapter in the *Cisco IOS Switching Services Configuration Guide.*

Examples

The following example associates the LANE configuration server with the database named *network1* and specifies that the configuration server's ATM address will be assigned by our automatic method:

```
lane database network1
 name eng server-atm-address 39.020304050607080910111213.0800.AA00.1001.02
 name mkt server-atm-address 39.020304050607080910111213.0800.AA00.4001.01
interface atm 1/0
 lane config database network1
 lane config auto-config-atm-address
```

The following example causes the LANE server and LANE client on the subinterface to use the automatically assigned ATM address to communicate with the configuration server:

```
interface atm 2/0.1
 ip address 172.16.0.4 255.255.255.0
 lane client ethernet
 lane server-bus ethernet eng
 lane auto-config-atm-address
```

Related Commands

Command	Description
lane config-atm-address	Specifies the ATM address of the configuration server explicitly.
lane database	Creates a named configuration database that can be associated with a configuration server.
lane fixed-config-atm-address	Specifies that the fixed configuration server ATM address assigned by the ATM Forum will be used.

lane bus-atm-address

To specify an ATM address—and thus override the automatic ATM address assignment—for the broadcast and unknown server on the specified subinterface, use the **lane bus-atm-address** command in interface configuration mode. To remove the ATM address previously specified for the broadcast and unknown server on the specified subinterface and thus revert to the automatic address assignment, use the **no** form of this command.

lane bus-atm-address *atm-address-template*

no lane bus-atm-address [*atm-address-template*]

Syntax Description

atm-address-template	ATM address or a template in which wildcard characters are replaced by any nibble or group of nibbles of the prefix bytes, the end-system identifier (ESI) bytes, or the selector byte of the automatically assigned ATM address.

Defaults

For the broadcast and unknown server, the default is automatic ATM address assignment.

Command Modes

Interface configuration

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

When applied to a broadcast and unknown server, this command overrides automatic ATM address assignment for the broadcast and unknown server. When applied to a LANE client, this command gives the client the ATM address of the broadcast and unknown server. The client will use this address rather than sending LE ARP requests for the broadcast address.

When applied to a selected interface, but with a different ATM address from what was used previously, this command replaces the broadcast and unknown server's ATM address.

ATM Addresses

A LANE ATM address has the same syntax as an NSAP (but it is not a network-level address). It consists of the following:

- A 13-byte prefix that includes the following fields defined by the ATM Forum:
  - AFI (Authority and Format Identifier) field (1 byte)
  - DCC (Data Country Code) or ICD (International Code Designator) field (2 bytes)
  - DFI field (Domain Specific Part Format Identifier) (1 byte)
  - Administrative Authority field (3 bytes)
  - Reserved field (2 bytes)

  - Routing Domain field (2 bytes)
  - Area field (2 bytes)
- A 6-byte end-system identifier (ESI)
- A 1-byte selector field

Address Templates

LANE ATM address templates can use two types of wildcards: an asterisk (*) to match any single character (nibble), and an ellipsis (...) to match any number of leading, middle, or trailing characters. The values of the characters replaced by wildcards come from the automatically assigned ATM address.

The values of the digits that are replaced by wildcards come from the automatic ATM assignment method.

In LANE, a *prefix template* explicitly matches the prefix but uses wildcards for the ESI and selector fields. An *ESI template* explicitly matches the ESI field but uses wildcards for the prefix and selector.

In our implementation of LANE, the prefix corresponds to the switch, the ESI corresponds to the ATM interface, and the Selector field corresponds to the specific subinterface of the interface.

Examples

The following example uses an ESI template to specify the part of the ATM address corresponding to the interface; the remaining values in the ATM address come from automatic assignment:

```
lane bus-atm-address ...0800.200C.1001.**
```

The following example uses a prefix template to specify the part of the ATM address corresponding to the switch; the remaining values in the ATM address come from automatic assignment:

```
lane bus-atm-address 45.000014155551212f.00.00...
```

Related Commands

Command	Description
lane server-bus	Enables a LANE server and a broadcast and unknown server on the specified subinterface with the ELAN ID.

lane client

To activate a LANE client on the specified subinterface, use the **lane client** command in interface configuration mode. To remove a previously activated LANE client on the subinterface, use the **no** form of this command.

lane client {**ethernet** | **tokenring**} [*elan-name*]

no lane client [{**ethernet** | **tokenring**} [*elan-name*]]

Syntax Description

ethernet	Identifies the emulated LAN attached to this subinterface as an Ethernet ELAN.
tokenring	Identifies the emulated LAN attached to this subinterface as a Token Ring ELAN.
elan-name	(Optional) Name of the emulated LAN. This argument is optional because the client obtains its emulated LAN name from the configuration server. The maximum length of the name is 32 characters.

Defaults

No LANE clients are enabled on the interface.

Command Modes

Interface configuration

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

If a **lane client** command has already been used on the subinterface for a different emulated LAN, then the client initiates termination procedures for that emulated LAN and joins the new emulated LAN.

If you do not provide an *elan-name* value, the client contacts the server to find which emulated LAN to join. If you do provide an emulated LAN name, the client consults the configuration server to ensure that no conflicting bindings exist.

Examples

The following example enables a Token Ring LANE client on an interface:

```
lane client tokenring
```

Related Commands

Command	Description
lane client-atm-address	Specifies an ATM address—and thus overrides the automatic ATM address assignment—for the LANE client on the specified subinterface.

lane client-atm-address

To specify an ATM address—and thus override the automatic ATM address assignment—for the LANE client on the specified subinterface, use the **lane client-atm-address** command in interface configuration mode. To remove the ATM address previously specified for the LANE client on the specified subinterface and thus revert to the automatic address assignment, use the **no** form of this command.

lane client-atm-address *atm-address-template*

no lane client-atm-address [*atm-address-template*]

Syntax Description

atm-address-template	ATM address or a template in which wildcard characters are replaced by any nibble or group of nibbles of the prefix bytes, the ESI bytes, or the selector byte of the automatically assigned ATM address.

Defaults

Automatic ATM address assignment.

Command Modes

Interface configuration

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

Use of this command on a selected subinterface, but with a different ATM address from what was used previously, replaces the LANE client's ATM address.

ATM Addresses

A LANE ATM address has the same syntax as an NSAP (but it is not a network-level address). It consists of the following:

- A 13-byte prefix that includes the following fields defined by the ATM Forum:
  - AFI (Authority and Format Identifier) field (1 byte)
  - DCC (Data Country Code) or ICD (International Code Designator) field (2 bytes)
  - DFI field (Domain Specific Part Format Identifier) (1 byte)
  - Administrative Authority field (3 bytes)
  - Reserved field (2 bytes)
  - Routing Domain field (2 bytes)
  - Area field (2 bytes)
- A 6-byte end-system identifier (ESI)
- A 1-byte selector field

Address Templates

LANE ATM address templates can use two types of wildcards: an asterisk (*) to match any single character (nibble), and an ellipsis (...) to match any number of leading, middle, or trailing characters. The values of the characters replaced by wildcards come from the automatically assigned ATM address.

In LANE, a *prefix template* explicitly matches the ATM address prefix but uses wildcards for the ESI and selector fields. An *ESI template* explicitly matches the ESI field but uses wildcards for the prefix and selector.

In our implementation of LANE, the prefix corresponds to the switch, the ESI corresponds to the ATM interface, and the selector field corresponds to the specific subinterface of the interface.

For a discussion of Cisco's method of automatically assigning ATM addresses, refer to the "Configuring LAN Emulation" chapter in the *Cisco IOS Switching Services Configuration Guide*.

Examples

The following example uses an ESI template to specify the part of the ATM address corresponding to the interface; the remaining parts of the ATM address come from automatic assignment:

```
lane client-atm-address...0800.200C.1001.**
```

The following example uses a prefix template to specify the part of the ATM address corresponding to the switch; the remaining parts of the ATM address come from automatic assignment:

```
lane client-atm-address 47.000014155551212f.00.00...
```

Related Commands

Command	Description
lane client	Activates a LANE client on the specified subinterface.

lane client mpoa client name

To bind a LEC to the named MPC, use the **lane client mpoa client name** command in interface configuration mode. To unbind the named MPC from a LEC, use the **no** form of this command.

lane client mpoa client name *mpc-name*

no lane client mpoa client name *mpc-name*

Syntax Description

mpc-name	Name of the specific MPC.

Defaults

No LEC is bound to a named MPC.

Command Modes

Interface configuration

Command History

Release	Modification
11.3(3a)WA4(5)	This command was introduced.

Usage Guidelines

When you enter this command, the named MPC is bound to a LEC. The named MPC must exist before this command is accepted. If you enter this command before a LEC is configured (not necessarily running), a warning message is issued.

Examples

The following example binds a LEC on a subinterface to the MPC:

```
lane client mpoa client name ip_mpc
```

lane client mpoa server name

To bind a LEC with the named MPS, use the **lane client mpoa server name** command in interface configuration mode. To unbind the server, use the **no** form of this command.

lane client mpoa server name *mps-name*

no lane client mpoa server name *mps-name*

Syntax Description

mps-name	Name of the specific MPOA server.

Defaults

No LEC is bound to a named MPS.

Command Modes

Interface configuration

Command History

Release	Modification
11.3(3a)WA4(5)	This command was introduced.

Usage Guidelines

This command binds a LEC to the named MPS. The specified MPS must exist before this command is accepted. If this command is entered when a LEC is not already configured (not necessarily running), a warning message will be issued.

Examples

The following example binds a LANE client with the MPS named MYMPS:

```
lane client mpoa server name MYMPS
```

lane config-atm-address

To specify a configuration server's ATM address explicitly, use the **lane config-atm-address** command in interface configuration mode. To remove an assigned ATM address, use the **no** form of this command.

lane [**config**] **config-atm-address** *atm-address-template*

no lane [**config**] **config-atm-address** *atm-address-template*

Syntax Description

config	(Optional) When the **config** keyword is used, this command applies only to the LANE configuration server (LECS). This keyword indicates that the LECS should use the 20-byte address that you explicitly entered.
atm-address-template	ATM address or a template in which wildcard characters are replaced by any nibble or group of nibbles of the prefix bytes, the ESI bytes, or the selector byte of the automatically assigned ATM address.

Defaults

No specific ATM address or method is set.

Command Modes

Interface configuration

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

If the **config** keyword is not present, this command causes the LANE server and LANE client on the subinterface to use the specified ATM address for the configuration server.

When the **config** keyword is present, this command adds an ATM address to the configuration server configured on the interface. A LANE configuration server can listen on multiple ATM addresses. Multiple commands that assign ATM addresses to the LANE configuration server can be issued on the same interface to assign different ATM addresses to the LANE configuration server.

ATM Addresses

A LANE ATM address has the same syntax as an NSAP (but it is not a network-level address). It consists of the following:

- A 13-byte prefix that includes the following fields defined by the ATM Forum:
  - AFI (Authority and Format Identifier) field (1 byte)
  - DCC (Data Country Code) or ICD (International Code Designator) field (2 bytes)
  - DFI field (Domain Specific Part Format Identifier) (1 byte)
  - Administrative Authority field (3 bytes)
  - Reserved field (2 bytes)

  - Routing Domain field (2 bytes)
  - Area field (2 bytes)
- A 6-byte end-system identifier (ESI)
- A 1-byte selector field

Address Templates

LANE ATM address templates can use two types of wildcards: an asterisk (*) to match any single character (nibble), and an ellipsis (...) to match any number of leading, middle, or trailing characters. The values of the characters replaced by wildcards come from the automatically assigned ATM address.

In LANE, a *prefix template* explicitly matches the ATM address prefix but uses wildcards for the ESI and selector fields. An *ESI template* explicitly matches the ESI field but uses wildcards for the prefix and selector.

In our implementation of LANE, the prefix corresponds to the switch prefix, the ESI corresponds to a function of ATM interface's MAC address, and the Selector field corresponds to the specific subinterface of the interface.

For a discussion of Cisco's method of automatically assigning ATM addresses, refer to the "Configuring LAN Emulation" chapter in the *Cisco IOS Switching Services Configuration Guide*.

Examples

The following example associates the LANE configuration server with the database named *network1* and explicitly specifies the configuration server's ATM address:

```
lane database network1
 name eng server-atm-address 39.020304050607080910111213.0800.AA00.1001.02
 name mkt server-atm-address 39.020304050607080910111213.0800.AA00.4001.01
interface atm 1/0
 lane config database network1
 lane config config-atm-address 39.020304050607080910111213.0800.AA00.3000.00
```

The following example causes the LANE server and LANE client on the subinterface to use the explicitly specified ATM address to communicate with the configuration server:

```
interface atm 2/0.1
 ip address 172.16.0.4 255.255.255.0
 lane client ethernet
 lane server-bus ethernet eng
 lane config-atm-address 39.020304050607080910111213.0800.AA00.3000.00
```

Related Commands

Command	Description
lane auto-config-atm-address	Specifies that the configuration server ATM address is computed by our automatic method.
lane config database	Associates a named configuration table (database) with the configuration server on the selected ATM interface.
lane database	Creates a named configuration database that can be associated with a configuration server.
lane fixed-config-atm-address	Specifies that the fixed configuration server ATM address assigned by the ATM Forum will be used.

lane config database

To associate a named configuration table (database) with the configuration server on the selected ATM interface, use the **lane config database** command in interface configuration mode. To remove the association between a named database and the configuration server on the specified interface, use the **no** form of this command.

lane config database *database-name*

no lane config

Syntax Description

database-name	Name of the LANE database.

Defaults

No configuration server is defined, and no database name is provided.

Command Modes

Interface configuration

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

This command is valid only on a major interface, not a subinterface, because only one LANE configuration server can exist per interface.

The named database must exist before the **lane config database** command is used. Refer to the **lane database** command for more information.

Multiple **lane config database** commands cannot be used multiple times on the same interface. You must delete an existing association by using the **no** form of this command before you can create a new association on the specified interface.

Activating a LANE configuration server requires the **lane config database** command and one of the following commands: **lane config fixed-config-atm-address**, **lane config auto-config-atm-address**, or **lane config config-atm-address**.

Examples

The following example associates the LANE configuration server with the database named *network1* and specifies that the configuration server's ATM address will be assigned by our automatic method:

```
lane database network1
 name eng server-atm-address 39.020304050607080910111213.0800.AA00.1001.02
 name mkt server-atm-address 39.020304050607080910111213.0800.AA00.4001.01
interface atm 1/0
 lane config database network1
 lane config auto-config-atm-address
```

Related Commands

Command	Description
lane auto-config-atm-address	Specifies that the configuration server ATM address is computed by our automatic method.
lane config-atm-address	Specifies the ATM address of the configuration server explicitly.
lane database	Creates a named configuration database that can be associated with a configuration server.
lane fixed-config-atm-address	Specifies that the fixed configuration server ATM address assigned by the ATM Forum will be used.

lane database

To create a named configuration database that can be associated with a configuration server, use the **lane database** command in global configuration mode. To delete the database, use the **no** form of this command.

lane database *database-name*

no lane database *database-name*

Syntax Description

database-name	Database name (32 characters maximum).

Defaults

No name is provided.

Command Modes

Global configuration

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

Use of the **lane database** command places you in database configuration mode, in which you can use the **client-atm-address name, default name, mac-address name, name restricted, name unrestricted, name new-name,** and **name server-atm-address** commands to create entries in the specified database. When you are finished creating entries, type **^Z** or **exit** to return to global configuration mode.

Examples

The following example creates the database named *network1* and associates it with the configuration server on interface ATM 1/0:

```
lane database network1
 name eng server-atm-address 39.020304050607080910111213.0800.AA00.1001.02
 name mkt server-atm-address 39.020304050607080910111213.0800.AA00.4001.01
 default-name eng
interface atm 1/0
 lane config database network1
 lane config auto-config-atm-address
```

Related Commands

Command	Description
client-atm-address name	Adds a LANE client address entry to the configuration database of the configuration server.
default-name	Provides an ELAN name in the database of the configuration server for those client MAC addresses and client ATM addresses that do not have explicit ELAN name bindings.

Command	Description
lane config database	Associates a named configuration table (database) with the configuration server on the selected ATM interface.
mac-address	Sets the MAC layer address of the Cisco Token Ring.
name	Assigns a name to the internal adapter.
name server-atm-address	Specifies or replaces the ATM address of the LANE server for the ELAN in the configuration database of the configuration server.

lane fixed-config-atm-address

To specify that the fixed configuration server ATM address assigned by the ATM Forum will be used, use the **lane fixed-config-atm-address** command in interface configuration mode. To specify that the fixed ATM address will not be used, use the **no** form of this command.

lane [**config**] **fixed-config-atm-address**

no lane [**config**] **fixed-config-atm-address**

Syntax Description

config	(Optional) When the **config** keyword is used, this command applies only to the LANE configuration server (LECS). This keyword indicates that LECS should use the well-known, ATM Forum, LEC address.

Defaults

No specific ATM address or method is set.

Command Modes

Interface configuration

Command History

Release	Modification
11.0	This command was introduced.

Usage Guidelines

When the **config** keyword is not present, this command causes the LANE server and LANE client on the subinterface to use that ATM address, rather than the ATM address provided by the ILMI, to locate the configuration server.

When the **config** keyword is present, and the LECS is already up and running, please be aware of the following scenarios:

- If you configure the LECS with only the well-known address, the LECS will not participate in the SSRP, will act as a standalone master, and will listen only on the well-known LECS address. This scenario is ideal if you want a standalone LECS that does not participate in SSRP, and you would like to listen to only the well-known address.
- If only the well-known address is already assigned, and you assign at least one other address to the LECS (additional addresses are assigned using the **lane config auto-config-atm-address** command and/or the **lane config config-atm-address command**), the LECS will participate in the SSRP and act as the master or slave based on the normal SSRP rules. This scenario is ideal if you would like the LECS to participate in SSRP, and you would like to make the master LECS listen on the well-known address.
- If the LECS is participating in SSRP, has more than one address (one of which is the well-known address), and all the addresses but the well-known address are removed, the LECS will declare itself the master and stop participating in SSRP completely.

- If the LECS is operating as an SSRP slave, and it has the well-known address configured, it will not listen on the well-known address unless it becomes the master.
- If you want the LECS to assume the well-known address only when it becomes the master, configure the LECS with the well-known address and at least one other address.

When you use this command with the **config** keyword, and the LAN Emulation Configuration Server (LECS) is a master, the master will listen on the fixed address. If you use this command when an LECS is not a master, the LECS will listen on this address when it becomes a master. If you do not use this command, the LECS will not listen on the fixed address.

Multiple commands that assign ATM addresses to the LECS can be issued on the same interface in order to assign different ATM addresses to the LECS. Commands that assign ATM addresses to the LECS include **lane auto-config-atm-address, lane config-atm-address**, and **lane fixed-config-atm-address**. The **lane config database** command and at least one command that assigns an ATM address to the LECS are required to activate a LECS.

Examples

The following example associates the LANE configuration server with the database named *network1* and specifies that the configuration server's ATM address is the fixed address:

```
lane database network1
 name eng server-atm-address 39.020304050607080910111213.0800.AA00.1001.02
 name mkt server-atm-address 39.020304050607080910111213.0800.AA00.4001.01
interface atm 1/0
 lane config database network1
 lane config fixed-config-atm-address
```

The following example causes the LANE server and LANE client on the subinterface to use the fixed ATM address to communicate with the configuration server:

```
interface atm 2/0.1
 ip address 172.16.0.4 255.255.255.0
 lane client ethernet
 lane server-bus ethernet eng
 lane fixed-config-atm-address
```

Related Commands

Command	Description
lane auto-config-atm-address	Specifies that the configuration server ATM address is computed by our automatic method.
lane config-atm-address	Specifies the ATM address of the configuration server explicitly.
lane config database	Associates a named configuration table (database) with the configuration server on the selected ATM interface.

lane fssrp

To enable the special LANE features such that LANE components (such as the LANE configuration server, the LANE client, the LANE server, and the BUS) become aware of FSSRP, use the **lane fssrp** command in interface configuration mode. To disable the LANE FSSRP configuration, use the **no** form of this command.

lane fssrp

no lane fssrp

Defaults

FSSRP is not enabled by default.

Command Modes

Interface configuration

Command History

Release	Modification
12.0(4c)W5(10a)	This command was introduced.

Usage Guidelines

You must execute this command on all ATM interfaces to enable FSSRP capability for all LANE components on that interface and hence all its subinterfaces.

Examples

The following example enables FSSRP on an ATM interface:

```
lane fssrp
```

Related Commands

Command	Description
lane client	Activates a LANE client on the specified subinterface.
lane server	Activates a LANE server on the specified subinterface.
show lane client	Generates additional FSSRP information about a LANE client.
show lane config	Displays global LANE information for the configuration server configured on an interface.