



Cisco Express Forwarding Commands

This chapter documents commands used to configure Cisco Express Forwarding in Cisco IOS software. For guidelines on configuring Cisco Express Forwarding, refer to the *Cisco IOS Switching Services Configuration Guide*.



Note

Beginning with Cisco IOS Release 11.3, all commands supported on the Cisco 7500 series routers are also supported on Cisco 7000 series routers.

clear adjacency

To clear the Cisco Express Forwarding (CEF) adjacency table, use the **clear adjacency** EXEC command.

clear adjacency

Syntax Description

This command has no arguments or keywords.

Command Modes

EXEC

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

When you issue this command, entries in the adjacency table that resides on the route processor are removed and then repopulated. During repopulation, Layer 2 next hop information is reevaluated.

With Distributed CEF (dCEF) mode, the adjacency tables that reside on line cards are always synchronized to the adjacency table that resides on the route processor. Therefore, clearing the adjacency table on the route processor using the **clear adjacency** command also clears the adjacency tables on the line cards; all changes are propagated to the line cards.

Examples

The following example clears the adjacency table:

```
clear adjacency
```

Related Commands

Command	Description
show adjacency	Displays CEF adjacency table information.

clear cef linecard

To clear Cisco Express Forwarding (CEF) information from line cards, use the **clear cef linecard** EXEC command.

clear cef linecard [*slot-number*] [**adjacency** | **interface** | **prefix**]

Syntax Description		
	<i>slot-number</i>	(Optional) Line card slot number to clear. When you omit this argument, all line card slots are cleared.
	adjacency	(Optional) Clears line card adjacency tables and rebuilds adjacency for the specified line card.
	interface	(Optional) Clears line card interface information and re-creates the interface information for the specified line card.
	prefix	(Optional) Clears line card prefix tables and starts rebuilding the FIB table.

Command Modes EXEC

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 This command is available only on routers with line cards. This command clears CEF information only on the line cards; CEF information on the route processor is not affected.

Once you clear CEF information from line cards, the corresponding information from the route processor is propagated to the line cards. Inter Process Communication (IPC) ensures that CEF information on the route processor matches the CEF information on the line cards.

Examples The following example clears the CEF information from the line cards:

```
clear cef linecard
```

Related Commands	Command	Description
	show cef linecard	Displays CEF-related interface information by line card.

clear ip cef prefix-statistics

To clear Cisco Express Forwarding (CEF) counters by resetting the packet and byte count to zero (0), use the **clear ip cef prefix-statistics** EXEC command.

```
clear ip cef {network [mask] | *} prefix-statistics
```

Syntax Description

<i>network</i>	Clears counters for a FIB entry specified by network.
<i>mask</i>	(Optional) Clears counters for a FIB entry specified by network and mask.
*	Clears counters for all FIB entries.

Command Modes

EXEC

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.

Examples

The following example resets the CEF packet and byte count to zero:

```
clear ip cef prefix-statistics
```

Related Commands

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

ip cef

To enable Cisco Express Forwarding (CEF) on the route processor card, use the **ip cef** global configuration command. To disable CEF, use the **no** form of this command.

ip cef [distributed]

no ip cef [distributed]

Syntax Description

distributed	(Optional) Enables distributed CEF (dCEF) operation. Distributes CEF information to line cards. Line cards perform express forwarding.
--------------------	--

Defaults

On this platform...	The default is...
Cisco 7000 series equipped with RSP7000	CEF is not enabled.
Cisco 7200 series	CEF is not enabled.
Cisco 7500 series	CEF is enabled.
Cisco 12000 series Gigabit Switch Router	Distributed CEF is enabled.

Command Modes

Global configuration

Command History

Release	Modification
11.1 CC	This command was introduced.

Usage Guidelines

This command is not available on the Cisco 12000 series GSR because that router series operates only in distributed CEF mode.

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

Examples

The following example enables standard CEF operation:

```
ip cef
```

The following example enables dCEF operation:

```
ip cef distributed
```

Related Commands

Command	Description
ip route-cache cef	Reenables disabled CEF or DCEF operation on an interface.

ip cef accounting

To enable network accounting of Cisco Express Forwarding (CEF), use the **ip cef accounting** global configuration command. 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 <i>prefix</i>).
non-recursive	(Optional) Enables accounting through non-recursive 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.



Note

CEF per-prefix accounting is not supported on Gigabit Switch Router Engine 2 line cards (LCs).

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** global configuration command. 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 <i>seconds</i>	(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 <i>seconds</i>	(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 load-sharing

To enable load balancing for Cisco Express Forwarding (CEF), use the **ip load-sharing** interface configuration command. 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 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** interface configuration command. 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 reenoble 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.

show adjacency

To display Cisco Express Forwarding (CEF) adjacency table information, use the **show adjacency EXEC** command.

show adjacency [detail]

Syntax Description

detail	(Optional) Displays detailed adjacency information, including Layer 2 information.
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Command Modes

EXEC

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

This command is available only on routers that have RP cards.

Examples

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

```
Router# show adjacency detail
```

```
Protocol Interface Address
IP Ethernet1/0/0 9.2.61.1(7)
0 packets, 0 bytes
00107BC30D5C
00500B32D8200800
ARP 02:01:49
```

The encapsulation string 00107BC30D5C00500B32D8200800 is that of an adjacency used for traffic switched out of a router on an Ethernet link using Ethernet II encapsulation.

Table 97 describes the significant fields shown in the display.

Table 97 show adjacency detail Field Descriptions

Field	Description
Protocol	The routed protocol to which the adjacency is related.
Interface	The outgoing interface associated with the adjacency.

Table 97 *show adjacency detail Field Descriptions (continued)*

Field	Description
Address	The address can represent one of these addresses: <ul style="list-style-type: none"> • Next Hop address • Point-to-Point address The number (in parentheses) that follows this field indicates the number of internal references to the adjacency.
Source	The source where the adjacency was learned.
Encapsulation string	The string which is prepended to a packet before the packet is transmitted.
Time stamp	The time left before the adjacency rolls out of the adjacency table. A packet must use the same next hop to the destination.

Related Commands

Command	Description
clear adjacency	Clears CEF adjacency table.

show cef

To display which packets the line cards dropped or to display which packets were not express forwarded, use the **show cef EXEC** command.

show cef [drop | not-cef-switched]

Syntax Description	drop	(Optional) Displays which packets were dropped by each line card.
	not-cef-switched	(Optional) Displays which packets were sent to a different switching path.

Command Modes EXEC

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

This command is available only on routers that have RP cards.

A line card might drop packets due to encapsulation failure, no route information, or no adjacency information.

A packet is sent to a different switching path because Cisco Express Forwarding (CEF) does not support the encapsulation or feature, the packet is destined for the router, or the packet has IP options, such as time stamp and record route. IP options are process switched.

Examples

The following is sample output from the **show cef drop** command:

```
Router# show cef drop
```

```
CEF Drop Statistics
Slot  Encap_fail  Unresolved  Unsupported  No_route  No_adj  ChksumErr
RP
1      0             0           0           0         0       0
2      0             0           5           0         0       5
```

Table 98 describes the fields shown in the output.

Table 98 show cef drop Field Descriptions

Field	Description
Slot	The slot number on which the packets were received.
Encap_fail	Indicates the number of packets dropped after the limit was reached for incomplete packets with no adjacency route.

Table 98 *show cef drop Field Descriptions (continued)*

Field	Description
Unresolved	Indicates the number of packets dropped because the route for the prefix was not resolved.
Unsupported	Indicates the number of packets received for which the adjacency route information was dropped due to unsupported features.
No_route	No route definition is included in the prefix table.
No_adj	The prefix is resolved, but the adjacent route is not indicated.
ChksumErr	Indicates the number of packets received with a checksum error.

The following is sample output from the **show cef not-cef-switched** command:

```
Router# show cef not-cef-switched
```

```
CEF Packets passed on to next switching layer
Slot No_adj No_encap Unsupp'ted Redirect Receive Options Access Frag
RP      0      0      0      0      91584      0      0      0
1       0      0      0      0      0          0      0      0
2       0      0      0      0      0          0      0      0
```

Table 99 describes the fields shown in the output.

Table 99 *show cef not-cef-switched Field Descriptions*

Field	Meaning
No_adj	Indicates the number of packets sent to the processor due to incomplete adjacency.
No_encap	Indicates the number of packets sent to the processor for ARP resolution.
Unsupp'ted	Indicates the number of packets punted to the next switching level due to unsupported features.
Redirect	Indicates the number of packets punted to the processor to generate an ICMP redirect.
Receive	Indicates the number of packets destined to the router. These packets are process switched.
Options	Indicates the number of packets with options. Packets with IP options are only handled at the process level.
Access	Indicates the number of packets punted due to access-list failure.
Frag	Indicates the number of packets punted due to fragmentation failure.

Related Commands

Command	Description
show cef interface	Displays CEF-related interface information.
show cef linecard	Displays CEF-related interface information by line card.

show cef interface

To display Cisco Express Forwarding (CEF) related interface information, use the **show cef interface EXEC** command.

show cef interface *type number* [**detail**]

Syntax Description

<i>type number</i>	Interface type and number about which to display CEF-related information.
detail	(Optional) Displays detailed CEF information for the specified interface type and number.

Command Modes

EXEC

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

This command is available on routers that have RP cards and line cards.

The **detail** command displays more CEF-related information for the specified interface.

You can use this command to show the CEF state on an individual interface.

Examples

The following is sample output from the **show cef interface detail** command for Ethernet interface 0:

```
Router# show cef interface E0 detail

Ethernet1/0/0 is up (if_number 6)
Internet address is 172.19.177.20/24
ICMP redirects are always sent
Per-packet load balancing is disabled
Inbound access list is 10
Outbound access list is not set
Hardware idb is Ethernet1/0/0
Fast switching type 1, interface type 5
IP Distributed CEF switching enabled
IP Feature CEF switching turbo vector
Fast flags 0x4. ifindex 5(5)
Slot 1 Slot unit 0 VC -1
Hardware transmit queue ptr 0x48001A00 (0x48001A00) >- debugging purposes Transmit limit
accumulator 0x48001A02 (0x48001A02) IP MTU 1500
```

Table 100 describes the fields shown in the output.

Table 100 *show cef interface detail Field Descriptions*

Field	Description
<i>interface type number</i> is {up down}	Indicates status of the interface.
Internet address	Internet address of the interface
ICMP packets are {always sent never sent}	Indicates how packet forwarding is configured.
Per-packet load balancing	Status of load balancing in use on the interface (enabled or disabled).
Inbound access list {# Not set}	Number of access lists defined for the interface.
Outbound access list	Number of access lists defined for the interface.
Hardware idb is <i>type number</i>	Interface type and number configured.
Fast switching type	Used for troubleshooting; indicates switching mode in use.
IP Distributed CEF switching {enabled disabled}	Indicates the switching path used.
Slot <i>n</i> Slot unit <i>n</i>	The slot number.
Hardware transmit queue	Indicates the number of packets in the transmit queue.
Transmit limit accumulator	Indicates the maximum number of packets allowed in the transmit queue.
IP MTU	The value of the MTU size set on the interface.

Related Commands

Command	Description
show cef	Displays which packets the line cards dropped or displays which packets were not express forwarded.
show cef linecard	Displays CEF-related interface information by line card.

show cef linecard

To display Cisco Express Forwarding (CEF) related interface information by line card, use the **show cef linecard** EXEC command.

show cef linecard [*slot-number*] [**detail**]

Syntax Description

<i>slot-number</i>	(Optional) Slot number containing the line card about which to display CEF-related information. When you omit this argument, information about all line cards is displayed.
detail	(Optional) Displays detailed CEF information for the specified line card.

Command Modes

EXEC

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

This command is available only on routers that have RP cards.

When you omit the *slot-number* argument, information about all line cards is displayed. When you omit the *slot-number* argument and include the **detail** keyword, detailed information is displayed for all linecards. When you omit all keywords and arguments, the **show cef linecard** command displays important information about all line cards in table format.

Examples

The following is sample output from the **show cef linecard** command. The command displays information for the line cards.

```
Router# show cef linecard

CEF table version 115705, 45877 routes
Slot CEF-ver MsgSent XdrSent Seq MaxSeq LowQ HighQ Flags
1      238      668      9641 616      616      0      0 up, sync
2      238      683     10782 619      629      0      0 up, sync
```

Table 101 describes the fields shown in the output.

Table 101 show cef linecard Field Descriptions

Field	Description
CEF table version	The FIB table version.
XdrSent	IPC information elements (xdrs) packed into IPC messages sent from the RP to the line card.

Table 101 *show cef linecard Field Descriptions (continued)*

Field	Description
MsgSent	Number of IPC messages sent.
Seq	Sequence number for the line card.
MaxSeq	Maximum sequence expected by the line card.
LowQ/HighQ	Number of xdr elements in LowQ and HighQ.
Flags	Indicates the status of the line card. Possible states are <ul style="list-style-type: none"> • upLine card is up. • syncLine card is in sync with main FIB. • repopulateRepopulate FIB on line card. • resetLine card FIB is reset. • reloadingLine card FIB is currently being reloaded. • disabledLine card is disabled.

The following is sample output from the **show cef linecard detail** command for the line card in slot number 2:

```
Router# show cef linecard 2 detail

CEF line card slot number 2, status up, sync, disabled
line card CEF version number 238
Sequence number 616, Maximum sequence number expected 616
Send failed 0, Out Of Sequence 0
line card CEF reset 2, reloaded 2
92299/15/91 prefix/adjacency/interface elements queued
49641 elements packed in 668 messages(1341286 bytes) sent
0/0 xdr elements in LowQ/HighQ
Input packets 0, bytes 0<--- line card stats
Output packets 0, bytes 0, drops 0
```

Related Commands

Command	Description
show cef	Displays which packets the line cards dropped or displays which packets were not express forwarded.
show cef interface	Displays CEF-related interface information.

show ip cef

To display entries in the FIB that are unresolved or to display a summary of the FIB, use this form of the **show ip cef** EXEC command:

```
show ip cef [unresolved | summary]
```

To display specific entries in the FIB based on IP address information, use this form of the **show ip cef** EXEC command:

```
show ip cef [network [mask [longer-prefix]]] [detail]
```

To display specific entries in the FIB based on interface information, use this form of the **show ip cef** EXEC command:

```
show ip cef [type number] [detail]
```

Syntax Description

unresolved	(Optional) Displays unresolved FIB entries.
summary	(Optional) Displays a summary of the FIB.
<i>network</i>	(Optional) Displays the FIB entry for the specified destination network.
<i>mask</i>	(Optional) Displays the FIB entry for the specified destination network and mask.
longer-prefix	(Optional) Displays FIB entries for all more specific destinations.
detail	(Optional) Displays detailed FIB entry information.
<i>type number</i>	(Optional) Interface type and number for which to display FIB entries.

Command Modes

EXEC

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

The **show ip cef** command without any keywords or arguments shows a brief display of all FIB entries. The **show ip cef detail** command shows detailed FIB entry information for all FIB entries.

Examples

The following is sample output from the **show ip cef unresolved** command:

```
Router# show ip cef unresolved

IP Distributed CEF with switching (Table Version 136632)
45776 routes, 13 unresolved routes (0 old, 13 new)
45776 leaves, 2868 nodes, 8441480 bytes, 136632 inserts, 90856 invalidations
1 load sharing elements, 208 bytes, 1 references
1 CEF resets, 1 revisions of existing leaves
refcounts: 527292 leaf, 465617 node

148.214.0.0/16, version 136622
0 packets, 0 bytes
via 171.69.233.56, 0 dependencies, recursive
unresolved
148.215.0.0/16, version 136623
0 packets, 0 bytes
via 171.69.233.56, 0 dependencies, recursive
unresolved
148.218.0.0/16, version 136624
0 packets, 0 bytes
```

Table 102 describes the significant fields shown in the display.

Table 102 *show ip cef unresolved Field Descriptions*

Field	Description
routes	Total number of entries in the CEF table
unresolved routes	Number of entries in the CEF table that do not have resolved recursions categorized by old and new routes
leaves, nodes, bytes	Number of elements in the CEF Trie and how much memory they use
inserts	Number of nodes inserted
invalidations	Number of entries that have been invalidated
load sharing elements, bytes, references	Information about load sharing elements: how many, number of associated bytes, and number of associated references
version	Version of the CEF table
packets, bytes	Number of packets and bytes switched through the name entry
dependencies	Number of table entries which point to the named entry
recursive	Indicates that the destination is reachable through another route
unresolved	Number of entries that do not have resolved recursions

The following is sample output from the **show ip cef summary** command:

```
Router# show ip cef summary

IP Distributed CEF with switching (Table Version 135165)
45788 routes, 0 reresolve, 4 unresolved routes (0 old, 4 new)
45788 leaves, 2868 nodes, 8442864 bytes, 135165 inserts, 89377 invalidations
0 load sharing elements, 0 bytes, 0 references
1 CEF resets, 0 revisions of existing leaves
refcounts: 527870 leaf, 466167 node
```

For a description of significant fields in this display, see Table 102.

The following is sample output from the **show ip cef internal** command; it shows load-sharing details for multiple paths to a prefix. The loadshare table in the example shows load distribution 0 1 0 1 . . . , and traffic share is 1 for each route. This means an equal cost per-destination load sharing between two equal cost routes.

```
Router# show ip cef 192.168.1.0 internal

192.168.1.0/24, version 135490, per-destination sharing
0 packets, 0 bytes
  via 172.19.233.50, 0 dependencies, recursive<-- possible path 1 info
    traffic share 1, current path
    next hop 172.19.233.50, Ethernet0/0 via 172.19.233.50/32
    valid adjacency
  via 172.19.233.49, 0 dependencies, recursive<-- possible path 2 info
    traffic share 1
    next hop 172.19.233.49, Ethernet0/0 via 172.19.233.49/32
    valid adjacency

0 packets, 0 bytes switched through the prefix
Load distribution: 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 (refcount 1) ^
!.. how the load is distributed among the possible paths
```

Hash	OK	Interface	Address	Packets
1	Y	Ethernet0/0	172.19.233.50	0
2	Y	Ethernet0/0	172.19.233.49	0
3	Y	Ethernet0/0	172.19.233.50	0
4	Y	Ethernet0/0	172.19.233.49	0
5	Y	Ethernet0/0	172.19.233.50	0
6	Y	Ethernet0/0	172.19.233.49	0
7	Y	Ethernet0/0	172.19.233.50	0
8	Y	Ethernet0/0	172.19.233.49	0
9	Y	Ethernet0/0	172.19.233.50	0
10	Y	Ethernet0/0	172.19.233.49	0
11	Y	Ethernet0/0	172.19.233.50	0
12	Y	Ethernet0/0	172.19.233.49	0
13	Y	Ethernet0/0	172.19.233.50	0
14	Y	Ethernet0/0	172.19.233.49	0
15	Y	Ethernet0/0	172.19.233.50	0
16	Y	Ethernet0/0	172.19.233.49	0

The following is sample output from the **show ip cef detail** command for Ethernet interface 0. It shows all the prefixes resolving through adjacency pointing to next hop Ethernet interface 0/0 and next-hop interface IP address 172.19.233.33.

```
Router# show ip cef e0/0 172.19.233.33 detail
IP Distributed CEF with switching (Table Version 136808)
45800 routes, 8 unresolved routes (0 old, 8 new) 45800 leaves, 2868 nodes, 8444360 bytes,
136808 inserts, 91008 invalidations 1 load sharing elements, 208 bytes, 1 references 1
CEF resets, 1 revisions of existing leaves refcounts: 527343 leaf, 465638 node

172.19.233.33/32, version 7417, cached adjacency 172.19.233.33 0 packets, 0 bytes,
Adjacency-prefix
via 172.19.233.33, Ethernet0/0, 0 dependencies
next hop 172.19.233.33, Ethernet0/0
valid cached adjacency
Table 103 describes the significant fields in the display.
```

Table 103 *show ip cef detail Field Descriptions*

Field	Description
routes	Total number of entries in the CEF table
unresolved routes	Number of entries in the CEF table that do not have resolved recursions categorized by old and new routes
leaves, nodes, bytes	Number of elements in the CEF Trie and how much memory they use
inserts	Number of nodes inserted
invalidations	Number of entries that have been invalidated
load sharing elements, bytes, references	Information about load sharing elements: how many, number of associated bytes, and number of associated references
version	Version of the CEF table
cached adjacency	Type of adjacency to which this CEF table entry points
packets, bytes	Number of packets and bytes switched through the name entry
dependencies	Number of table entries which point to the named entry
next hop	Type of adjacency or the next hop toward the destination

Related Commands

Command	Description
show cef	Displays which packets the line cards dropped or displays which packets were not express forwarded.
show cef interface	Displays CEF-related interface information.

