Cisco Express Forwarding Commands on Cisco IOS-XR Software

This chapter describes the commands used to configure and monitor Cisco Express Forwarding (CEF) on Cisco IOS-XR software.

cef ipv4 unicast check-consistency

To enable periodic background consistency checking for IPv4 unicast prefixes stored in the Routing Information Base (RIB) and the Cisco Express Forwarding (CEF) table, use the **cef ipv4 unicast check-consistency** command in global configuration mode. To disable IPv4 unicast prefix consistency checking, use the **no** form of this command.

cef ipv4 unicast check-consistency [**count** *max-entries* | **period** *seconds*]

no cef ipv4 unicast check-consistency [**count** *max-entries* | **period** *seconds*]

Syntax Description

count *max-entries*	(Optional) Specifies the maximum number of prefix entries scanned per consistency check. The range is from 1 to 100000 entries. The default is 1000.
period *seconds*	(Optional) Specifies the period between consistency checks. The range is from 30 to 3600 seconds. The default is 60 seconds.

Defaults

max-entries: 1000 prefix entries
seconds: 60 seconds

Command Modes

Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

When this command is enabled, the consistency check scans the prefixes stored in the RIB against the prefixes stored in the CEF table, inspecting those tables for missing prefixes, incorrect paths, and incorrect next hops.

To display the results of IPv4 unicast consistency checks, use the **show cef ipv4 unicast check-consistency log** command.

Examples

The following example shows how to enable consistency checking for IPv4 unicast prefixes:

```
RP/0/RP0/CPU0:router(config)# cef ipv4 unicast check-consistency
```

Related Commands

Command	Description
show cef ipv4 unicast check-consistency	Displays the results of IPv4 unicast prefix consistency checking.

clear adjacency ipv4

To clear the IPv4 Cisco Express Forwarding (CEF) adjacency table, use the **clear adjacency ipv4** command in EXEC mode.

clear adjacency ipv4 [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Clears the IPv4 CEF adjacency table for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

When you issue the **clear adjacency ipv4** command, entries in the adjacency table that reside on the Route Processor (RP) are removed and then repopulated.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will clear the CEF adjacency table for the node on which the command is issued.

Examples

The following example shows how to clear the IPv4 CEF adjacency table on the RP:

```
RP/0/RP0/CPU0:router# clear adjacency ipv4
```

Related Commands

Command	Description
show adjacency	Displays the IPv4 CEF adjacency table.

clear adjacency statistics

To clear adjacency packet and byte counter statistics, use the **clear adjacency statistics** command in EXEC mode.

clear adjacency statistics [**ipv4** [**nexthop** *ipv4-address*] | **mpls** | **ipv6**] [*type instance* | **location** *node-id*]

Syntax Description

ipv4	(Optional) Clears only IPv4 adjacency packet and byte counter statistics.
nexthop *ipv4-address*	(Optional) Clears adjacency statistics that are destined to the specified IPv4 nexthop.
mpls	(Optional) Clears only MPLS adjacency statistics.
ipv6	(Optional) Clears only IPv6 adjacency statistics.
type	(Optional) Clears interface type. For more information, use the question mark (**?**) online help function.
instance	(Optional) Clears either a physical interface instance or a virtual interface instance: • Physical interface instance. Naming notation is rack/slot/module/port and a slash mark between values is required as part of the notation. – rack: Chassis number of the rack. – slot: Physical slot number of the line card. – module: Module number. A Physical Layer Interface Module (PLIM) is always 0. – port: Physical port number of the interface. **Note** In references to a Management Ethernet interface located on a Route Processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0. • Virtual interface instance. Number range will vary depending on interface type. For more information about the syntax for the router, use the question mark (**?**) online help function.
location *node-id*	(Optional) Clears detailed adjacency statistics for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

This command is useful for troubleshooting network connection and forwarding problems.

If you do not specify any of the optional keywords, all adjacency statistics will be cleared for the node on which the command is issued.

Examples

The following example shows how to clear the IPv4 CEF adjacency statistics:

```
RP/0/RP0/CPU0:router# clear adjacency statistics
```

Related Commands

Command	Description
show adjacency	Displays the IPv4 CEF adjacency table.

clear cef ipv4 drop

To clear Cisco Express Forwarding (CEF) IPv4 packet drop counters, use the **clear cef ipv4 drop** command in EXEC mode.

clear cef ipv4 drop [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Clears IPv4 packet drop counters for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will clear IPv4 CEF drop counters for all nodes.

Examples

The following example shows how to clear IPv4 CEF drop counters for all nodes:

```
RP/0/RP0/CPU0:router# clear cef ipv4 drop
```

Related Commands

Command	Description
show cef ipv4 drop	Displays IPv4 packet drop counters.

clear cef ipv4 exceptions

To clear IPv4 Cisco Express Forwarding (CEF) exception packet counters, use the **clear cef ipv4 exceptions** command in EXEC mode.

clear cef ipv4 exceptions [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Clears IPv4 CEF exception packet counters for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will clear IPv4 CEF exception packet counters for all nodes.

Examples

The following example shows how to clear IPv4 CEF exception packets for all nodes:

```
RP/0/RP0/CPU0:router# clear cef ipv4 exceptions
```

Related Commands

Command	Description
show cef ipv4 exceptions	Displays IPv4 CEF exception packet counters.

clear cef ipv4 prefix

To clear the IPv4 Cisco Express Forwarding (CEF) table, use the **clear cef ipv4 prefix** command in EXEC mode.

clear cef ipv4 prefix [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Clears the IPv4 CEF table for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, the command is only effective for the node on which the command is issued. Otherwise, it is effective on the node specified by the **location** keyword and *node-id* argument.

Examples

The following example shows how to clear the IPv4 CEF table for node 0/1/0:

```
RP/0/RP0/CPU0:router# clear ipv4 cef prefix location 0/1/0
```

Related Commands

Command	Description
show cef ipv4	Displays IPv4 CEF table entries or statistics.

clear cef ipv4 prefix-statistics

To clear IPv4 Cisco Express Forwarding (CEF) counters, use the **clear cef ipv4 prefix-statistics** command in EXEC mode.

clear cef ipv4 {*prefix* [*mask*] | *****} **prefix-statistics**

Syntax Description

prefix	IPv4 destination prefix. Specifying the optional *prefix* argument will clear the longest matching CEF entry for the designated IPv4 destination prefix.
mask	(Optional) IPv4 prefix mask. Specifying the optional *prefix* and *mask* arguments will clear the exact CEF entry for the designated IPv4 prefix and mask.
*	Clears counters for all CEF entries.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

This command clears the IPv4 CEF table statistics that display when you issue the **show cef ipv4** *prefix* [*mask*] **detail** command.

Examples

The following example shows how to clear all CEF prefix entry counters for all nodes:

```
RP/0/RP0/CPU0:router# clear cef ipv4 * prefix-statistics
```

Related Commands

Command	Description
show cef ipv4	Displays IPv4 CEF table entries or statistics.

clear cef ipv6 drop

To clear Cisco Express Forwarding (CEF) IPv6 packet drop counters, use the **clear cef ipv6 drop** command in EXEC mode.

clear cef ipv6 drop [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Clears IPv4 packet drop counters for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will clear IPv6 CEF drop counters for all nodes.

Examples

The following example shows how to clear IPv6 CEF drop counters for all nodes:

```
RP/0/RP0/CPU0:router# clear cef ipv6 drop
```

Related Commands

Command	Description
show cef ipv6 drop	Displays IPv6 packet drop counters.

clear cef ipv6 exceptions

To clear IPv6 Cisco Express Forwarding (CEF) exception packet counters, use the **clear cef ipv6 exceptions** command in EXEC mode.

clear cef ipv6 exceptions [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Clears IPv6 CEF exception packet counters for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will clear IPv6 CEF exception packet counters for all nodes.

Examples

The following example shows how to clear IPv6 CEF exception packets for all nodes:

```
RP/0/RP0/CPU0:router# clear cef ipv6 exceptions
```

Related Commands

Command	Description
show cef ipv6 exceptions	Displays IPv6 CEF exception packet counters.

ip cef accounting non-recursive

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

ip cef accounting non-recursive

no ip cef accounting non-recursive

Syntax Description

This command has no arguments or keywords.

Defaults

Network accounting of CEF nonrecursive prefixes is disabled.

Command Modes

Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

You might want to collect statistics to better understand CEF patterns in your network. Nonrecursive accounting allows you to display how much traffic is going through nonrecursive prefixes. When you enable network accounting for CEF nonrecursive prefixes with the **ip cef accounting non-recursive** command, the number of packets and bytes that are forwarded through a prefix will be collected.

Note Per prefix accounting is not supported.

Examples

The following example shows how to enable the collection of CEF nonrecursive prefix accounting statistics:

```
RP/0/RP0/CPU0:router(config)# ip cef accounting non-recursive
```

Related Commands

Command	Description
show cef ipv4 non-recursive	Displays IPv4 CEF nonrecursive prefix entries in the CEF table.

ip cef purge-delay

To configure a delay in purging routes when the Routing Information Base (RIB) or other related processes experience a failure, use the **ip cef purge-delay** command in global configuration mode. To restore the default value, use the **no** form of this command.

ip cef purge-delay *seconds*

no ip cef purge-delay *seconds*

Syntax Description

seconds	Number of seconds configured to delay the purge routes from 1 to 3600 seconds. The default is 360 seconds.

Defaults

seconds: 360 seconds

Command Modes

Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

Examples

The following example shows how to configure the delay in purging routes when the RIB process experiences a failure to 180 seconds:

```
RP/0/RP0/CPU0:router(config)# ip cef purge-delay 180
```

ipv4 verify unicast source reachable-via

To enable IPv4 unicast Reverse Path Forwarding (RPF) checking, use the **ipv4 verify unicast source reachable-via** command in interface configuration mode. To disable unicast RPF, use the **no** form of this command.

ipv4 verify unicast source reachable-via {**any** | **rx**} [**allow-default**] [**allow-self-ping**]

no ipv4 verify unicast source reachable-via {**any** | **rx**} [**allow-default**] [**allow-self-ping**]

Syntax Description

any	Enables loose unicast RPF checking. If loose unicast RPF is enabled, a packet will not be forwarded unless its source prefix exists in the routing table.
rx	Enables strict unicast RPF checking. If strict unicast RPF is enabled, a packet will not be forwarded unless its source prefix exists in the routing table and the output interface matches the interface on which the packet was received.
allow-default	(Optional) Enables the matching of default routes. This option applies only to loose RPF.
allow-self-ping	(Optional) Enables the router to ping out an interface. This option applies only to loose RPF.

Defaults

IPv4 unicast RPF is disabled.

Command Modes

Interface configuration

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

Use the **ipv4 verify unicast source reachable-via** interface command to mitigate problems caused by malformed or forged (spoofed) IP source addresses that pass through a router. Malformed or forged source addresses can indicate denial-of-service (DoS) attacks based on source IP address spoofing.

When strict unicast RPF is enabled on an interface, the router examines all packets received on that interface. The router checks to make sure that the source address appears in the routing table and matches the interface on which the packet was received.

Examples

The following example shows how to configure strict RPF on POS interface 0/1/1/0:

```
RP/0/RP0/CPU0:router(config)# interface pos 0/1/1/0
RP/0/RP0/CPU0:router(config-if)# ipv4 verify unicast source reachable-via rx
```

Related Commands

Command	Description
ipv6 verify unicast source reachable-via any	Enables loose IPv6 unicast RPF checking.

ipv6 verify unicast source reachable-via any

To enable loose IPv6 unicast Reverse Path Forwarding (RPF) checking, use the **ipv6 verify unicast source reachable-via any** command in interface configuration mode. To disable loose IPv6 unicast RPF checking, use the **no** form of this command.

ipv6 verify unicast source reachable-via any

no ipv6 verify unicast source reachable-via any

Syntax Description

This command has no arguments or keywords.

Defaults

Loose IPv6 unicast RPF is disabled.

Command Modes

Interface configuration

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

Examples

The following example shows how to enable loose RPF checking on POS interface 0/1/1/0:

```
RP/0/RP0/CPU0:router(config)# interface pos 0/1/1/0
RP/0/RP0/CPU0:router(config-if)# ipv6 verify unicast source reachable-via any
```

Related Commands

Command	Description
ipv4 verify unicast source reachable-via	Enables IPv4 unicast RPF checking.

rp mgmtethernet forwarding

To enable switching from the line card to the Route Processor Management Ethernet interfaces, use the **rp mgmtethernet forwarding** command in global configuration mode. To disable switching from the line card to the Route Processor Management Ethernet interfaces, use the **no** form of this command.

rp mgmtethernet forwarding

no rp mgmtethernet forwarding

Syntax Description

This command has no arguments or keywords.

Defaults

Disabled

Command Modes

Global configuration

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

Examples

The following example shows how to enable switching from the line card to the RP Management Ethernet interfaces:

```
RP/0/RP0/CPU0:router# rp mgmtethernet forwarding
```

show adjacency

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

show adjacency [**ipv4** [**nexthop** *ipv4-address*] | **mpls** | **ipv6**] [*type instance*] [**remote**] [**detail**] [**location** *node-id*]

Syntax Description

ipv4	(Optional) Displays only IPv4 adjacencies.
nexthop *ipv4-address*	(Optional) Displays adjacencies that are destined to the specified IPv4 nexthop.
mpls	(Optional) Displays only MPLS adjacencies.
ipv6	(Optional) Displays only IPv6 adjacencies.
type	(Optional) Displays interface type. For more information, use the question mark (**?**) online help function.
instance	Displays either a physical interface instance or a virtual interface instance: • Physical interface instance. Naming notation is rack/slot/module/port and a slash mark between values is required as part of the notation. – rack: Chassis number of the rack. – slot: Physical slot number of the line card. – module: Module number. A Physical Layer Interface Module (PLIM) is always 0. – port: Physical port number of the interface. **Note** In references to a Management Ethernet interface located on a Route Processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0. • Virtual interface instance. Number range will vary depending on interface type. For more information about the syntax for the router, use the question mark (**?**) online help function.
remote	(Optional) Displays only remote adjacencies. A remote adjacency is an internal adjacency used to forward packets between line cards.
detail	(Optional) Displays detailed adjacency information, including Layer 2 information.
location *node-id*	(Optional) Displays detailed CEF information for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

This command is used to verify that an adjacency exists for a connected device, that the adjacency is valid, and that the MAC header rewrite string is correct.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will display the CEF adjacency table for the node on which the command is issued.

Examples

The following is sample output from **show adjacency** command with the **location** keyword specified:

```
RP/0/RP0/CPU0:router# show adjacency location 0/0/CPU0

Interface                  Address                Version  Refcount  Protocol
POS0/0/1/2                 (src mac only)               6         1     ipv4
POS0/0/1/2                 point to point               7    100004
POS0/0/1/2                 (interface)                  3         1
```

The following is sample output from the **show adjacency** command with the **detail** and **location** keywords specified:

```
RP/0/RP0/CPU0:router# show adjacency ipv4 POS 0/0/1/2 detail location 0/0/CPU0

Interface                  Address                Version  Refcount  Protocol
POS0/0/1/2                 point to point               7    100004     ipv4
                           0f000800
                           mtu: 4470, flags 0 0 40000000
                           0 packets, 0 bytes
                           0xffffffff
```

The following is sample output from the **show adjacency ipv4 nexthop** command with the **detail** and **location** keywords specified:

```
RP/0/RP0/CPU0:router: show adjacency ipv4 nexthop 10.10.10.1 detail location 0/3/CPU0

Interface                  Address                Version  Refcount  Protocol
POS0/3/1/0             10.10.10.1                  11         6     ipv4
                           000c86f33d330800453a21c10800
                           mtu: 1500, flags 0 0 40000000
                           0 packets, 0 bytes
                           0xffffffff
```

Related Commands

Command	Description
clear adjacency ipv4	Clears the IPv4 CEF adjacency table.

show cef ipv4

To display the IPv4 Cisco Express Forwarding (CEF) table, use the **show cef ipv4** command in EXEC mode.

show cef ipv4 [*prefix* [*mask*] | *type instance*] [**detail**] [**location** *node-id*]

Syntax Description

prefix	(Optional) Displays the longest matching CEF entry for the specified IPv4 destination prefix.
mask	(Optional) Displays the exact CEF entry for the specified IPv4 prefix and mask.
type	(Optional) Displays interface type. For more information, use the question mark (**?**) online help function.
instance	Displays either a physical interface instance or a virtual interface instance: • Physical interface instance. Naming notation is rack/slot/module/port and a slash mark between values is required as part of the notation. – rack: Chassis number of the rack. – slot: Physical slot number of the line card. – module: Module number. A Physical Layer Interface Module (PLIM) is always 0. – port: Physical port number of the interface. **Note** In references to a Management Ethernet interface located on a Route Processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0. • Virtual interface instance. Number range will vary depending on interface type. For more information about the syntax for the router, use the question mark (**?**) online help function.
detail	(Optional) Displays full CEF entry information.
location *node-id*	(Optional) Displays the IPv4 CEF table for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will display the CEF table on the node in which the command is issued. Otherwise, the command is effective on the node specified by the **location** *node-id* keyword and argument.

Examples

The following is sample output from the **show ip cef ipv4** command:

```
RP/0/RP0/CPU0:router# show cef ipv4

Prefix              Next Hop            Interface
0.0.0.0/32          broadcast
10.0.0.0/8          attached            POS0/1/1/2
10.0.0.0/32         broadcast           POS0/1/1/2
10.1.1.2/32         receive             POS0/1/1/2
10.255.255.255/32   broadcast           POS0/1/1/2
11.0.0.0/8          attached            POS0/1/1/2
11.0.0.0/32         broadcast           POS0/1/1/2
11.10.10.2/32       receive             POS0/1/1/2
11.255.255.255/32   broadcast           POS0/1/1/2
12.31.0.0/16        attached            MgmtEth0/33/1/0
12.31.0.0/32        broadcast           MgmtEth0/33/1/0
12.31.12.1/32       receive             MgmtEth0/33/1/0
12.31.46.1/32       12.31.46.1          MgmtEth0/33/1/0
12.31.46.10/32      12.31.46.10         MgmtEth0/33/1/0
12.31.255.255/32    broadcast           MgmtEth0/33/1/0
22.22.22.0/24       attached            POS0/0/1/0
22.22.22.0/32       broadcast           POS0/0/1/0
22.22.22.23/32      receive             POS0/0/1/0
22.22.22.255/32     broadcast           POS0/0/1/0
111.111.111.111/32  receive             Loopback20
192.50.20.0/24      attached            POS0/2/1/1
192.50.20.0/32      broadcast           POS0/2/1/1
192.50.20.2/32      receive             POS0/2/1/1
192.50.20.255/32    broadcast           POS0/2/1/1
193.10.10.0/24      attached            POS0/2/1/1
193.10.10.0/32      broadcast           POS0/2/1/1
193.10.10.2/32      receive             POS0/2/1/1
193.10.10.255/32    broadcast           POS0/2/1/1
223.255.254.254/32  attached            MgmtEth0/33/1/0
224.0.0.0/4         0.0.0.0
224.0.0.1/32        0.0.0.0
255.255.255.255/32  broadcast
```

Related Commands

Command	Description
clear cef ipv4 prefix	Clears the IPv4 CEF table.
clear cef ipv4 prefix-statistics	Clears IPv4 CEF counters.

show cef ipv4 drop

To display IPv4 Cisco Express Forwarding (CEF) table packet drop counters, use the **show cef ipv4 drop** command in EXEC mode.

show cef ipv4 drop [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Displays IPv4 CEF table packet drop counters for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

A packet might be dropped from the IPv4 CEF table because of unresolved CEF entries, unsupported features, absence of route information, absence of adjacency information, or an IP checksum error.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will display IPv4 CEF packet drop counters for all nodes.

Examples

The following is sample output from the **show cef ipv4 drop** command:

```
RP/0/RP0/CPU0:router# show cef ipv4 drop

CEF Drop Statistics
Node: 0/0/CPU0
  Unresolved drops     packets :               0
  Unsupported drops    packets :               0
  No route drops       packets :               0
  No Adjacency drops   packets :               0
  Checksum error drops packets :               0
  RPF drops            packets :               0
Node: 0/1/CPU0
  Unresolved drops     packets :               0
  Unsupported drops    packets :               0
  No route drops       packets :               0
  No Adjacency drops   packets :               0
  Checksum error drops packets :               0
  RPF drops            packets :               0
Node: 0/2/CPU0
  Unresolved drops     packets :               0
  Unsupported drops    packets :               0
  No route drops       packets :             308
  No Adjacency drops   packets :               0
```

```
  Checksum error drops packets :              0
  RPF drops            packets :              0
Node: 0/3/1
  Unresolved drops     packets :              0
  Unsupported drops    packets :              0
  No route drops       packets :              0
  No Adjacency drops   packets :              0
  Checksum error drops packets :              0
  RPF drops            packets :              0
Node: 0/33/1
  Unresolved drops     packets :              0
  Unsupported drops    packets :              0
  No route drops       packets :              0
  No Adjacency drops   packets :              0
  Checksum error drops packets :              0
  RPF drops            packets :              0
```

Related Commands

Command	Description
clear cef ipv4 drop	Clears IPv4 CEF packet drop counters.

show cef ipv4 exceptions

To display IPv4 Cisco Express Forwarding (CEF) exception packet counters, use the **show cef ipv4 exceptions** command in EXEC mode.

show cef ipv4 exceptions [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Displays CEF exception packet counters for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

CEF exception packets are those packets which have been sent from the hardware to the software because they require additional handling. The types of IPv4 CEF exception packets are displayed in the command's output and are defined.

If you do not specify a location with the **location** keyword and *node-id* argument, this command will display IPv4 CEF exception packet counters on all nodes.

Examples

The following is sample output from the **show cef ipv4 exceptions** command:

```
RP/0/RP0/CPU0:router# show cef ipv4 exceptions

CEF Exception Statistics
Node: 0/0/CPU0
  Slow encap  packets :               0
  Redirect    packets :               0
  Receive     packets :          306404
  Broadcast   packets :               0
  IP options  packets :               0
  TTL expired packets :               0
  Fragmented  packets :               0
Node: 0/1/CPU0
  Slow encap  packets :               0
  Redirect    packets :               0
  Receive     packets :               0
  Broadcast   packets :               0
  IP options  packets :               0
  TTL expired packets :               0
  Fragmented  packets :               0
Node: 0/2/CPU0
  Slow encap  packets :               0
  Redirect    packets :               0 Receive     packets :               0
```

```
  Broadcast   packets :              0
  IP options  packets :              0
  TTL expired packets :            314
  Fragmented  packets :              0
Node: 0/3/CPU0
  Slow encap  packets :              0
  Redirect    packets :              0
  Receive     packets :              0
  Broadcast   packets :              0
  IP options  packets :              0
  TTL expired packets :              0
  Fragmented  packets :              0
Node: 0/33/CPU0
  Slow encap  packets :              0
  Redirect    packets :              0
  Receive     packets :              0
  Broadcast   packets :             60
  IP options  packets :              0
  TTL expired packets :              0
  Fragmented  packets :              0
```

Related Commands

Command	Description
clear cef ipv4 exceptions	Clears IPv4 CEF exception packet counters.

show cef ipv4 interface

To display IPv4 Cisco Express Forwarding (CEF)-related information for an interface, use the **show cef ipv4 interface** command in EXEC mode.

show cef ipv4 interface *type instance* [**detail**] [**location** *node-id*]

Syntax Description

type	Interface type. For more information, use the question mark (**?**) online help function.
instance	Either a physical interface instance or a virtual interface instance: • Physical interface instance. Naming notation is rack/slot/module/port and a slash mark between values is required as part of the notation. – rack: Chassis number of the rack. – slot: Physical slot number of the line card. – module: Module number. A Physical Layer Interface Module (PLIM) is always 0. – port: Physical port number of the interface. **Note** In references to a Management Ethernet interface located on a Route Processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0. • Virtual interface instance. Number range will vary depending on interface type. For more information about the syntax for the router, use the question mark (**?**) online help function.
detail	(Optional) Displays detailed CEF information for all the interfaces on the node in which the command is issued.
location *node-id*	(Optional) Displays IPv4 CEF-related information for an interface. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will display the CEF-related information for an interface for all nodes.

Examples

The following is sample output from the **show cef ipv4 interface** command:

```
RP/0/RP0/CPU0:router# show cef ipv4 interface MgmtEth0/33/1/0

MgmtEth0/33/1/0 is up (if_handle 0x00180020)
  ICMP redirects are always sent
  IP MTU 1500
  Reference count 14
```

show cef ipv4 non-recursive

To display the IPv4 nonrecursive prefix entries in the IPv4 Cisco Express Forwarding (CEF) table, use the **show cef ipv4 non-recursive** command in EXEC mode.

show cef ipv4 non-recursive [**detail**] [*type instance*] [**location** *node-id*]

Syntax Description

detail	(Optional) Displays detailed information about nonrecursive prefix entries in the IPv4 CEF table.
type	(Optional) Interface type. For more information, use the question mark (**?**) online help function.
instance	(Optional) Either a physical interface instance or a virtual interface instance: • Physical interface instance. Naming notation is rack/slot/module/port and a slash mark between values is required as part of the notation. – rack: Chassis number of the rack. – slot: Physical slot number of the line card. – module: Module number. A Physical Layer Interface Module (PLIM) is always 0. – port: Physical port number of the interface. **Note** In references to a Management Ethernet interface located on a Route Processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0. • Virtual interface instance. Number range will vary depending on interface type. For more information about the syntax for the router, use the question mark (**?**) online help function.
location *node-id*	(Optional) Displays the IPv4 nonrecursive prefix entries in the IPv4 CEF table for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, the output will display the IPv4 CEF nonrecursive routes for the node on which the command is issued.

Examples

The following is sample output from the **show cef ipv4 non-recursive** command:

```
RP/0/RP0/CPU0:router# show cef ipv4 non-recursive

Prefix              Next Hop            Interface
0.0.0.0/32          broadcast
10.0.0.0/8          attached            POS0/1/1/2
10.0.0.0/32         broadcast           POS0/1/1/2
10.1.1.2/32         receive             POS0/1/1/2
10.255.255.255/32   broadcast           POS0/1/1/2
11.0.0.0/8          attached            POS0/1/1/2
11.0.0.0/32         broadcast           POS0/1/1/2
11.10.10.2/32       receive             POS0/1/1/2
11.255.255.255/32   broadcast           POS0/1/1/2
12.31.0.0/16        attached            MgmtEth0/33/1/0
12.31.0.0/32        broadcast           MgmtEth0/33/1/0
12.31.12.1/32       receive             MgmtEth0/33/1/0
12.31.46.1/32       12.31.46.1          MgmtEth0/33/1/0
12.31.46.10/32      12.31.46.10         MgmtEth0/33/1/0
12.31.255.255/32    broadcast           MgmtEth0/33/1/0
22.22.22.0/24       attached            POS0/0/1/0
22.22.22.0/32       broadcast           POS0/0/1/0
22.22.22.23/32      receive             POS0/0/1/0
22.22.22.255/32     broadcast           POS0/0/1/0
111.111.111.111/32  receive             Loopback20
192.50.20.0/24      attached            POS0/2/1/1
192.50.20.0/32      broadcast           POS0/2/1/1
192.50.20.2/32      receive             POS0/2/1/1
192.50.20.255/32    broadcast           POS0/2/1/1
193.10.10.0/24      attached            POS0/2/1/1
193.10.10.0/32      broadcast           POS0/2/1/1
193.10.10.2/32      receive             POS0/2/1/1
193.10.10.255/32    broadcast           POS0/2/1/1
223.255.254.254/32  223.255.254.254     MgmtEth0/33/1/0
224.0.0.0/4         0.0.0.0
224.0.0.1/32        0.0.0.0
255.255.255.255/32  broadcast
```

show cef ipv4 summary

To display a summary of the IPv4 Cisco Express Forwarding (CEF) table, use the **show cef ipv4 summary** command in EXEC mode.

show cef ipv4 summary [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Displays a summary of the IPv4 CEF table for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will display a summary of the IPv4 CEF table for the node on which the command is issued.

Examples

The following is sample output from the **show cef ipv4 summary** command:

```
RP/0/RP0/CPU0:router# show cef ipv4 summary

IP CEF with switching (Table Version 45)
  37 routes, 0 reresolve, 0 unresolved (0 old, 0 new)
  27 load sharing elements, 13176 bytes, 27 references
  0 CEF resets, 0 revisions of existing leaves
  Exponential (currently 1s, peak 0s)
  0 prefixes modified in place

Adjacency Table has 16 adjacencies
  1 incomplete adjacency
```

show cef ipv4 unicast check-consistency

To display results of IPv4 unicast consistency checking, use the **show cef ipv4 unicast check-consistency** command in EXEC mode.

show cef ipv4 unicast check-consistency [*prefix mask* | **log**] [**location** *node-id*]

Syntax Description

prefix mask	(Optional) IPv4 prefix and mask. Specifying an IPv4 prefix and mask with the *prefix* and *mask* arguments will display the results of the consistency checks for a range of route entries.
log	(Optional) Displays the contents of the consistency check log, which is a circular buffer that displays up to the last 1000 inconsistencies before starting over.
location *node-id*	(Optional) Displays the results of IPv4 unicast consistency checking for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

Issuing the **show cef ipv4 unicast check-consistency** command causes an instantaneous IPv4 unicast prefix consistency check to be performed, whether or not you have enabled IPv4 unicast prefix consistency checking with the **cef ipv4 unicast check-consistency** command. The output, accordingly, will display the results from that instantaneous consistency check.

To enable periodic background IPv4 unicast prefix consistency checking, you must enable the **cef ipv4 unicast consistency-check** command.

Use the **show cef ipv4 unicast check-consistency log** command to display the contents of the IPv4 unicast consistency check log, which records the number of consistency checks that have been performed and the number of errors that have been detected. The output of the **show cef ipv4 unicast check-consistency** command will display the results of both background and instantaneous consistency checks.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will display IPv4 unicast consistency-check information for the node on which the command is issued.

Examples

The following is sample output from the **show cef ipv4 unicast check-consistency** command:

```
RP/0/RP0/CPU0:router# show cef ipv4 unicast check-consistency

Checking started ...
Checking completed

IPv4-Unicast            enabled
------------------------------------------------------------------------
node                    checks performed                        errors

0/2/CPU0                        20                               1
0/4/CPU0                        20                               1
0/6/CPU0                        20                               1

Mon Aug 25 19:50:08 2003:       10.5.0.0/16 :node 0/6/CPU0 :Path info error
Mon Aug 25 19:50:08 2003:       10.5.0.0/16 :node 0/2/CPU0 :Path info error
Mon Aug 25 19:50:08 2003:       10.5.0.0/16 :node 0/4/CPU0 :Path info error
```

The following is sample output from the **show cef ipv4 unicast check-consistency** command where a range of prefix entries is specified:

```
RP/0/RP0/CPU0:router# show cef ipv4 unicast check-consistency 10.0.0.0 255.255.255.0
Checking started ...
Checking completed

IPv4-Unicast            enabled
------------------------------------------------------------------------
node                    checks performed                        errors

0/4/CPU0                        10                               0
0/2/CPU0                        10                               0
0/6/CPU0                        10                               0
```

The following is sample output from the **show cef ipv4 unicast check-consistency log** command:

```
RP/0/RP0/CPU0:router# show cef ipv4 unicast check-consistency log

IPv4-Unicast            enabled                 table wraps = 36
------------------------------------------------------------------------
node                    checks performed                        errors

0/2/CPU0                       687                              34
0/4/CPU0                       687                              35
0/6/CPU0                       694                              36

Mon Aug 25 19:27:53 2003:       10.5.0.0/16 :node 0/6/CPU0 :Path info error
Mon Aug 25 19:28:53 2003:       10.5.0.0/16 :node 0/6/CPU0 :Path info error
Mon Aug 25 19:28:53 2003:       10.5.0.0/16 :node 0/4/CPU0 :Path info error
Mon Aug 25 19:29:53 2003:       10.5.0.0/16 :node 0/6/CPU0 :Path info error
Mon Aug 25 19:29:53 2003:       10.5.0.0/16 :node 0/4/CPU0 :Path info error
Mon Aug 25 19:29:53 2003:       10.5.0.0/16 :node 0/2/CPU0 :Path info error
Mon Aug 25 19:30:53 2003:       10.5.0.0/16 :node 0/6/CPU0 :Path info error
Mon Aug 25 19:30:53 2003:       10.5.0.0/16 :node 0/4/CPU0 :Path info error
Mon Aug 25 19:31:53 2003:       10.5.0.0/16 :node 0/6/CPU0 :Path info error
Mon Aug 25 19:31:53 2003:       10.5.0.0/16 :node 0/4/CPU0 :Path info error
Mon Aug 25 19:31:53 2003:       10.5.0.0/16 :node 0/2/CPU0 :Path info error
Mon Aug 25 19:32:53 2003:       10.5.0.0/16 :node 0/6/CPU0 :Path info error
Mon Aug 25 19:32:53 2003:       10.5.0.0/16 :node 0/2/CPU0 :Path info erro
```

Related Commands

Command	Description
cef ipv4 unicast check-consistency	Enables periodic background consistency checking for IPv4 unicast prefixes stored in the RIB and the CEF table.

show cef ipv4 unresolved

To display unresolved routes in the IPv4 Cisco Express Forwarding (CEF) table, use the **show cef ipv4 unresolved** command in EXEC mode.

show cef ipv4 unresolved [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Displays the unresolved routes in the IPv4 CEF table for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, the output will display the unresolved routes for the node on which the command is issued.

Examples

The following is sample output from the **show cef ipv4 unresolved** command when an unresolved route is detected:

```
RP/0/RP0/CPU0:router# show cef ipv4 unresolved

Prefix              Next Hop            Interface
3.3.3.3             2.2.2.2               ?
```

show cef ipv6

To display the IPv6 Cisco Express Forwarding (CEF) table, use the **show cef ipv6** command in EXEC mode.

show cef ipv6 [*interface-type interface-number* | *ipv6-prefix/prefix-length*] [**detail**] [**location** *node-id*]

Syntax Description

interface-type interface-number	(Optional) Displays all the IPv6 prefixes going through the specified next hop interface.
ipv6-prefix/prefix-length	(Optional) Displays the longest prefix entry in the CEF table matching the specified IPv6 prefix and prefix length.
detail	(Optional) Displays detailed IPv6 CEF table information.
location *node-id*	(Optional) Displays the IPv6 CEF table for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will display the IPv6 CEF table for the node on which the command is issued.

Examples

The following is sample output from the **show cef ipv6** command:

```
RP/0/RP0/CPU0:router# show cef ipv6

::/0

::/128
  drop
::1/128
  loopback
66::4/128
  receive    Loopback0
2222::/64
  connected  POS0/4/0/0
2222::1/128
  receive    POS0/4/0/0
3333::/64
  connected  POS0/3/0/0
3333::2/128
  receive    POS0/3/0/0
```

```
5656::2/128
  recursive  fe80::3031:48ff:fe53:5533, POS0/3/0/0
7777::/64
  connected  POS0/0/0/0
7777::2/128
  receive    POS0/0/0/0
9999::1/128
  recursive  fe80::205:5fff:fe1d:7600, POS0/4/0/0
ff00::/8
  drop
ff02::1/128
  receive
ff02::2/128
  receive
ff02::5/128
  receive
ff02::6/128
  receive
ff02::1:ff00:0/104
  receive
```

The following is sample output from **show cef ipv6 detail**:

```
RP/0/RP0/CPU0:router# show cef ipv6 detail

::/0
  flags: source_rib
  Loadinfo owner: <this route>
  fast adj: glean
  path 1:
    flags     :
    next hop  : ::
    interface : POS0/0/0/0

::/128
  flags: drop, source_fib
  Loadinfo owner: <this route>
  fast adj: drop
  path 1:
    flags     :
    next hop  : ::
    interface : <not specified>

::1/128
  flags: loopback, source_fib
  Loadinfo owner: <this route>
  fast adj: loopback
  path 1:
    flags     :
    next hop  : ::
    interface : <not specified>

66::4/128
  flags: receive, source_rib
  Loadinfo owner: <this route>
  fast adj: receive
  path 1:
    flags     : point-to-point
    next hop  : ::
    interface : Loopback0

2222::/64
  flags: connected, no_nexthops, source_rib
  Loadinfo owner: <this route>
```

```
  fast adj: fabric
  path 1:
    flags     : non-local
    next hop  : ::
    interface : POS0/4/0/0

2222::1/128
  flags: receive, source_rib
  Loadinfo owner: <this route>
  fast adj: receive
  path 1:
    flags     : non-local
    next hop  : ::
    interface : POS0/4/0/0

3333::/64
  flags: connected, no_nexthops, source_rib
  Loadinfo owner: <this route>
  fast adj: fabric
  path 1:
    flags     : non-local
    next hop  : ::
    interface : POS0/3/0/0

3333::2/128
  flags: receive, source_rib
  Loadinfo owner: <this route>
  fast adj: receive
  path 1:
  flags     : non-local
    next hop  : ::
    interface : POS0/3/0/0

5656::2/128
  flags: recursive, host_route, shared_loadinfo, source_rib
  Loadinfo owner: fe80::/10
  fast adj: fabric
  path 1:
    flags     : recursive
    next hop  : fe80::3031:48ff:fe53:5533
    interface : POS0/3/0/0
    via       : fe80::/10
    via_if    : POS0/3/0/0

7777::/64
  flags: connected, source_rib
  Loadinfo owner: <this route>
  fast adj: glean
  path 1:
    flags     :
    next hop  : ::
    interface : POS0/0/0/0

7777::2/128
  flags: receive, source_rib
  Loadinfo owner: <this route>
  fast adj: receive
  path 1:
    flags     :
    next hop  : ::
    interface : POS0/0/0/0

9999::1/128
  flags: recursive, host_route, shared_loadinfo, source_rib
```

```
  Loadinfo owner: fe80::/10
  fast adj: fabric
  path 1:
    flags     : recursive
    next hop  : fe80::205:5fff:fe1d:7600
    interface : POS0/4/0/0
    via       : fe80::/10
    via_if    : POS0/4/0/0

ff00::/8
  flags: drop, source_fib
  Loadinfo owner: <this route>
  fast adj: drop
  path 1:
    flags     :
    next hop  : ::
    interface : <not specified>

ff02::1/128
  flags: receive, source_fib
  Loadinfo owner: <this route>
  fast adj: receive
  path 1:
    flags     :
    next hop  : ::
    interface : <not specified>

ff02::2/128
  flags: receive, source_fib
  Loadinfo owner: <this route>
  fast adj: receive
  path 1:
    flags     :
    next hop  : ::
    interface : <not specified>

ff02::5/128
  flags: receive, source_fib
  Loadinfo owner: <this route>
  fast adj: receive
  path 1:
    flags     :
    next hop  : ::
    interface : <not specified>

ff02::6/128
  flags: receive, source_fib
  Loadinfo owner: <this route>
  fast adj: receive
  path 1:
    flags     :
    next hop  : ::
    interface : <not specified>

ff02::1:ff00:0/104
  flags: receive, source_fib
  Loadinfo owner: <this route>
  fast adj: receive
  path 1:
    flags     :
    next hop  : ::
    interface : <not specified>
```

show cef ipv6 drop

To display IPv6 Cisco Express Forwarding (CEF) table packet drop counters, use the **show cef ipv6 drop** command in EXEC mode.

show cef ipv6 drop [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Displays IPv6 CEF table packet drop counters for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

A packet might be dropped by the IPv6 CEF table because of unresolved CEF entries, unsupported features, absence of route information, absence of adjacency information, or an IP checksum error.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will display the packet drops for all nodes.

Note Because no hardware forwarding occurs on the Route Processor (RP), no packet drop information will be displayed for that node.

Examples

The following is sample output from the **show cef ipv6 drop** command:

```
RP/0/RP0/CPU0:router# show cef ipv6 drop location 0/2/1

 IPv6 CEF Drop Statistics
  Line status down      ingress :               0 egress :  Not Applicable
  Packet sanity fail    ingress :               0 egress :               0
  PLU set to drop       ingress :               0 egress :               0
  Unknown type,plu drop ingress :               0 egress :               0
  Packet length err     ingress :               0 egress :               0
  TCAM src-comp err     ingress :               0 egress :               0
```

Related Commands

Command	Description
clear cef ipv6 drop	Clears IPv6 CEF packet drop counters.

show cef ipv6 exceptions

To display IPv6 Cisco Express Forwarding (CEF) exception packet counters, use the **show cef ipv6 exceptions** command in EXEC command.

show cef ipv6 exceptions [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Displays IPv6 CEF exception packet counters for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

CEF exception packets are those packets that have been sent from the hardware to the software because they require additional handling. The types of IPv6 CEF exception packets are displayed in the output of **show cef ipv6 exceptions**.

If you do not specify a location with **location** keyword and *node-id* argument, this command will display IPv6 CEF exception packet counters for all nodes.

Examples

The following is sample output from the **show cef ipv6 exceptions** command:

```
RP/0/RP0/CPU0:router: show cef ipv6 exceptions location 0/3/1

IPv6 CEF Exception Statistics
  TTL err               ingress :               0 egress :  Not Applicable
  Link-local dst addr   ingress :               0 egress :               0
  Hop-by-Hop header     ingress :               0 egress :               0
  PLU entry set to punt ingress :               0 egress :              20
  Packet too big        ingress :  Not Applicable egress :               0
  Med priority punt     ingress :               0 egress :  Not Applicable
```

Related Commands

Command	Description
clear cef ipv6 exceptions	Clears IPv6 CEF exception packet counters.

show cef ipv6 non-recursive

To display the IPv6 nonrecursive prefix entries in the IPv6 Cisco Express Forwarding (CEF) table, use the **show cef ipv6 non-recursive** command in EXEC mode.

show cef ipv6 non-recursive [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Displays the nonrecursive prefix entries in the IPv6 CEF table for the designated node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will display the nonrecursive routes for the node on which the command is issued.

Examples

The following is sample output from the **show cef ipv6 non-recursive** command:

```
RP/0/RP0/CPU0:router# show cef ipv6 non-recursive

::/0

::/128
  drop
::1/128
  loopback
66::4/128
  receive    Loopback0
2222::/64
  connected  POS0/4/0/0
2222::1/128
  receive    POS0/4/0/0
3333::/64
  connected  POS0/3/0/0
3333::2/128
  receive    POS0/3/0/0
7777::/64
  connected  POS0/0/0/0
7777::2/128
  receive    POS0/0/0/0
ff00::/8
  drop
ff02::1/128
```

```
  receive
ff02::2/128
  receive
ff02::5/128
  receive
ff02::6/128
  receive
ff02::1:ff00:0/104
  receive
```

show cef ipv6 unresolved

To display the unresolved routes in the IPv6 Cisco Express Forwarding (CEF) table, use the **show cef ipv6 unresolved** command in EXEC mode.

show cef ipv6 unresolved [**location** *node-id*]

Syntax Description

location *node-id*	(Optional) Displays the unresolved routes in the IPv6 CEF table for the specified node. The *node-id* argument is entered in the rack/slot/module notation.

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, refer to the *Configuring AAA Services on Cisco IOS-XR Software* module of the *Cisco IOS-XR System Security Configuration Guide*.

If you do not specify a node with the **location** keyword and *node-id* argument, this command will display the unresolved routes for the node on which the command is issued.

Examples

This following is sample output from **show cef ipv6 unresolved** command when an unresolved route is detected:

```
RP/0/RP0/CPU0:router# show cef ipv6 unresolved

9999::/64
  unresolved
```