IPv6 Commands: show bgp ipv6 ne to show ipv6 cef sw

show bgp ipv6 neighbors

To display information about IPv6 Border Gateway Protocol (BGP) connections to neighbors, use the **show bgp ipv6 neighbors** command in user EXEC or privileged EXEC mode.

show bgp ipv6 {**unicast** | **multicast**} **neighbors** [*ipv6-address*] [{**received-routes** | **routes** | **flap-statistics** | **advertised-routes** | **paths** *regular-expression* | **dampened-routes**}]

Syntax Description

unicast	Specifies IPv6 unicast address prefixes.
multicast	Specifies IPv6 multicast address prefixes.
ipv6-address	(Optional) Address of the IPv6 BGP-speaking neighbor. If you omit this argument, all IPv6 neighbors are displayed. This argument must be in the form documented in RFC 2373 where the address is specified in hexadecimal using 16-bit values between colons.
received-routes	(Optional) Displays all received routes (both accepted and rejected) from the specified neighbor.
routes	(Optional) Displays all routes received and accepted. This is a subset of the output from the **received-routes** keyword.
flap-statistics	(Optional) Displays flap statistics for the routes learned from the neighbor.
advertised-routes	(Optional) Displays all the routes the networking device advertised to the neighbor.
paths *regular-expression*	(Optional) Regular expression used to match the paths received.
dampened-routes	(Optional) Displays the dampened routes to the neighbor at the IP address specified.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(2)T	This command was introduced.
12.0(21)ST	This command was integrated into Cisco IOS Release 12.0(21)ST.
12.0(22)S	IPv6 capability information was added to the display.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.3(2)T	The **unicast** keyword was added.
12.0(26)S	The **unicast** and **multicast** keywords were added.

Release	Modification
12.3(4)T	The **multicast**keyword was added.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(25)SG	This command was integrated into Cisco IOS Release 12.2(25)SG.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
Cisco IOS XE Release 3.1S	This command was integrated into Cisco IOS XE Release 3.1S.

Usage Guidelines

The **show bgp ipv6 unicast neighbors**and **show bgp ipv6 multicast neighbors**commands provide output similar to the **show ip bgp neighbors** command, except they are IPv6-specific.

The **unicast** keyword is available in Cisco IOS Release 12.3(2)T and later releases. It is not available in releases prior to 12.3(2)T. Use of the **unicast** keyword is mandatory starting with Cisco IOS Release 12.3(2)T.

The **multicast**keyword is available in Cisco IOS Release 12.0(26)S and later releases. It is not available in releases prior to 12.0(26)S. Use of either the **unicast** or **multicast** keyword is mandatory starting with Cisco IOS Release 12.0(26)S.

Examples

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

Note The output is the same whether or not the **unicast** or **multicast** keyword is used. The **unicast** keyword is available in Cisco IOS Release 12.3(2)T and Cisco IOS Release 12.0(26)S and later releases, and the **multicast** keyword is available only in Cisco IOS Release 12.0(26)S and later releases.

```
Router# show bgp ipv6 unicast neighbors
BGP neighbor is 3FFE:700:20:1::11,  remote AS 65003, external link
 Member of peer-group 6BONE for session parameters
  BGP version 4, remote router ID 192.168.2.27
  BGP state = Established, up for 13:40:17
  Last read 00:00:09, hold time is 180, keepalive interval is 60 seconds
  Neighbor capabilities:
    Route refresh: advertised and received
    Address family IPv6 Unicast: advertised and received
  Received 31306 messages, 20 notifications, 0 in queue
  Sent 14298 messages, 1 notifications, 0 in queue
  Default minimum time between advertisement runs is 30 seconds
 For address family: IPv6 Unicast
  BGP table version 21880, neighbor version 21880
  Index 1, Offset 0, Mask 0x2
  Route refresh request: received 0, sent 0
  6BONE peer-group member
  Community attribute sent to this neighbor
  Outbound path policy configured
  Incoming update prefix filter list is bgp-in
  Outgoing update prefix filter list is aggregate
  Route map for outgoing advertisements is uni-out
  77 accepted prefixes consume 4928 bytes
  Prefix advertised 4303, suppressed 0, withdrawn 1328
```

```
  Number of NLRIs in the update sent: max 1, min 0
  1 history paths consume 64 bytes
  Connections established 22; dropped 21
  Last reset 13:47:05, due to BGP Notification sent, hold time expired
Connection state is ESTAB, I/O status: 1, unread input bytes: 0
Local host: 3FFE:700:20:1::12, Local port: 55345
Foreign host: 3FFE:700:20:1::11, Foreign port: 179
Enqueued packets for retransmit: 0, input: 0  mis-ordered: 0 (0 bytes)
Event Timers (current time is 0x1A0D543C):
Timer          Starts    Wakeups            Next
Retrans          1218          5             0x0
TimeWait            0          0             0x0
AckHold          3327       3051             0x0
SendWnd             0          0             0x0
KeepAlive           0          0             0x0
GiveUp              0          0             0x0
PmtuAger            0          0             0x0
DeadWait            0          0             0x0
iss: 1805423033  snduna: 1805489354  sndnxt: 1805489354     sndwnd:  15531
irs:  821333727  rcvnxt:  821591465  rcvwnd:      15547  delrcvwnd:    837
SRTT: 300 ms, RTTO: 303 ms, RTV: 3 ms, KRTT: 0 ms
minRTT: 8 ms, maxRTT: 300 ms, ACK hold: 200 ms
Flags: higher precedence, nagle
Datagrams (max data segment is 1420 bytes):
Rcvd: 4252 (out of order: 0), with data: 3328, total data bytes: 257737
Sent: 4445 (retransmit: 5), with data: 4445, total data bytes: 244128
```

The following is sample output from the **show bgp ipv6 neighbors** command when the router is configured to allow IPv6 traffic to be transported across an IPv4 Multiprotocol Label Switching (MPLS) network (Cisco 6PE) without any software or hardware upgrade in the IPv4 core infrastructure. A new neighbor capability is added to show that an MPLS label is assigned for each IPv6 address prefix to be advertised. 6PE uses multiprotocol BGP to provide the reachability information for the 6PE routers across the IPv4 network so that the neighbor addresses are IPv4.

```
Router# show bgp ipv6 unicast neighbors
BGP neighbor is 10.11.11.1,  remote AS 65000, internal link
  BGP version 4, remote router ID 10.11.11.1
  BGP state = Established, up for 04:00:53
  Last read 00:00:02, hold time is 15, keepalive interval is 5 seconds
  Configured hold time is 15, keepalive interval is 10 seconds
  Neighbor capabilities:
    Route refresh: advertised and received(old & new)
    Address family IPv6 Unicast: advertised and received
    ipv6 MPLS Label capability: advertised and received
  Received 67068 messages, 1 notifications, 0 in queue
  Sent 67110 messages, 16 notifications, 0 in queue
  Default minimum time between advertisement runs is 5 seconds
 For address family: IPv6 Unicast
  BGP table version 91, neighbor version 91
  Index 1, Offset 0, Mask 0x2
  Route refresh request: received 0, sent 0
  Sending Prefix & Label
  4 accepted prefixes consume 288 bytes
  Prefix advertised 90, suppressed 0, withdrawn 2
  Number of NLRIs in the update sent: max 3, min 0
  Connections established 26; dropped 25
  Last reset 04:01:20, due to BGP Notification sent, hold time expired
Connection state is ESTAB, I/O status: 1, unread input bytes: 0
Local host: 10.10.10.1, Local port: 179
Foreign host: 10.11.11.1, Foreign port: 11003
Enqueued packets for retransmit: 0, input: 0  mis-ordered: 0 (0 bytes)
Event Timers (current time is 0x1429F084):
```

```
Timer          Starts    Wakeups            Next
Retrans          2971         77             0x0
TimeWait            0          0             0x0
AckHold          2894       1503             0x0
SendWnd             0          0             0x0
KeepAlive           0          0             0x0
GiveUp              0          0             0x0
PmtuAger            0          0             0x0
DeadWait            0          0             0x0
iss:  803218558  snduna:  803273755  sndnxt:  803273755     sndwnd:  16289
irs: 4123967590  rcvnxt: 4124022787  rcvwnd:      16289  delrcvwnd:     95
SRTT: 300 ms, RTTO: 303 ms, RTV: 3 ms, KRTT: 0 ms
minRTT: 32 ms, maxRTT: 408 ms, ACK hold: 200 ms
Flags: passive open, nagle, gen tcbs
Datagrams (max data segment is 536 bytes):
Rcvd: 4531 (out of order: 0), with data: 2895, total data bytes: 55215
Sent: 4577 (retransmit: 77, fastretransmit: 0), with data: 2894, total data
bytes: 55215
```

The table below describes the significant fields shown in the display.

Table 1: show bgp ipv6 neighbors Field Descriptions

Field	Description
BGP neighbor	IP address of the BGP neighbor and its autonomous system number. If the neighbor is in the same autonomous system as the router, then the link between them is internal; otherwise, it is considered external.
remote AS	Autonomous system of the neighbor.
internal link	Indicates that this peer is an interior Border Gateway Protocol (iBGP) peer.
BGP version	BGP version being used to communicate with the remote router; the router ID (an IP address) of the neighbor is also specified.
remote router ID	A 32-bit number written as 4 octets separated by periods (dotted-decimal format).
BGP state	Internal state of this BGP connection.
up for	Amount of time that the underlying TCP connection has been in existence.
Last read	Time that BGP last read a message from this neighbor.
hold time	Maximum amount of time that can elapse between messages from the peer.
keepalive interval	Time period between sending keepalive packets, which help ensure that the TCP connection is up.
Neighbor capabilities	BGP capabilities advertised and received from this neighbor.
Route refresh	Indicates that the neighbor supports dynamic soft reset using the route refresh capability.

Field	Description
Address family IPv6 Unicast	Indicates that BGP peers are exchanging IPv6 reachability information.
ipv6 MPLS Label capability	Indicates that MPLS labels are being assigned to IPv6 address prefixes.
Received	Number of total BGP messages received from this peer, including keepalives.
notifications	Number of error messages received from the peer.
Sent	Total number of BGP messages that have been sent to this peer, including keepalives.
notifications	Number of error messages the router has sent to this peer.
advertisement runs	Value of the minimum advertisement interval.
For address family	Address family to which the following fields refer.
BGP table version	Indicates that the neighbor has been updated with this version of the primary BGP routing table.
neighbor version	Number used by the software to track the prefixes that have been sent and those that must be sent to this neighbor.
Route refresh request	Number of route refresh requests sent and received from this neighbor.
Community attribute (not shown in sample output)	Appears if the neighbor send-community command is configured for this neighbor.
Inbound path policy (not shown in sample output)	Indicates whether an inbound filter list or route map is configured.
Outbound path policy (not shown in sample output)	Indicates whether an outbound filter list, route map, or unsuppress map is configured.
bgp-in (not shown in sample output)	Name of the inbound update prefix filter list for the IPv6 unicast address family.
aggregate (not shown in sample output)	Name of the outbound update prefix filter list for the IPv6 unicast address family.
uni-out (not shown in sample output)	Name of the outbound route map for the IPv6 unicast address family.
accepted prefixes	Number of prefixes accepted.
Prefix advertised	Number of prefixes advertised.
suppressed	Number of prefixes suppressed.
withdrawn	Number of prefixes withdrawn.

Field	Description
history paths (not shown in sample output)	Number of path entries held to remember history.
Connections established	Number of times the router has established a TCP connection and the two peers have agreed to speak BGP with each other.
dropped	Number of times that a good connection has failed or been taken down.
Last reset	Elapsed time (in hours:minutes:seconds) since this peering session was last reset.
Connection state	State of the BGP peer.
unread input bytes	Number of bytes of packets still to be processed.
Local host, Local port	Peering address of the local router, plus the port.
Foreign host, Foreign port	Peering address of the neighbor.
Event Timers	Table that displays the number of starts and wakeups for each timer.
iss	Initial send sequence number.
snduna	Last send sequence number for which the local host sent but has not received an acknowledgment.
sndnxt	Sequence number the local host will send next.
sndwnd	TCP window size of the remote host.
irs	Initial receive sequence number.
rcvnxt	Last receive sequence number the local host has acknowledged.
rcvwnd	TCP window size of the local host.
delrecvwnd	Delayed receive window--data the local host has read from the connection, but has not yet subtracted from the receive window the host has advertised to the remote host. The value in this field gradually increases until it is larger than a full-sized packet, at which point it is applied to the rcvwnd field.
SRTT	A calculated smoothed round-trip timeout (in milliseconds).
RTTO	Round-trip timeout (in milliseconds).
RTV	Variance of the round-trip time (in milliseconds).
KRTT	New round-trip timeout (in milliseconds) using the Karn algorithm. This field separately tracks the round-trip time of packets that have been re-sent.

Field	Description
minRTT	Smallest recorded round-trip timeout (in milliseconds) with hard wire value used for calculation.
maxRTT	Largest recorded round-trip timeout (in milliseconds).
ACK hold	Time (in milliseconds) the local host will delay an acknowledgment in order to "piggyback" data on it.
Flags	IP precedence of the BGP packets.
Datagrams: Rcvd	Number of update packets received from neighbor.
with data	Number of update packets received with data.
total data bytes	Total number of bytes of data.
Sent	Number of update packets sent.
with data	Number of update packets with data sent.
total data bytes	Total number of data bytes.

The following is sample output from the **show bgp ipv6 neighbors** command with the **advertised-routes** keyword:

```
Router# show bgp ipv6 unicast neighbors 3FFE:700:20:1::11 advertised-routes
BGP table version is 21880, local router ID is 192.168.7.225
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network          Next Hop            Metric LocPrf Weight Path
*> 2001:200::/35    3FFE:700:20:1::11                       0 293 3425 2500 i
*> 2001:208::/35    3FFE:C00:E:B::2                         0 237 7610 i
*> 2001:218::/35    3FFE:C00:E:C::2                         0 3748 4697 i
```

The following is sample output from the **show bgp ipv6 neighbors** command with the **routes** keyword:

```
Router# show bgp ipv6 unicast neighbors 3FFE:700:20:1::11 routes
BGP table version is 21885, local router ID is 192.168.7.225
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network          Next Hop            Metric LocPrf Weight Path
*> 2001:200::/35    3FFE:700:20:1::11                       0 293 3425 2500 i
*  2001:208::/35    3FFE:700:20:1::11                       0 293 7610 i
*  2001:218::/35    3FFE:700:20:1::11                       0 293 3425 4697 i
*  2001:230::/35    3FFE:700:20:1::11                       0 293 1275 3748 i
```

The table below describes the significant fields shown in the display.

Table 2: show bgp ipv6 neighbors advertised-routes and routes Field Descriptions

Field	Description
BGP table version	Internal version number of the table. This number is incremented whenever the table changes.

Field	Description
local router ID	A 32-bit number written as 4 octets separated by periods (dotted-decimal format).
Status codes	Status of the table entry. The status is displayed at the beginning of each line in the table. It can be one of the following values: • s--The table entry is suppressed. • d--The table entry is dampened. • h--The table entry is history. • *--The table entry is valid. • >--The table entry is the best entry to use for that network. • i--The table entry was learned via an internal BGP session.
Origin codes	Indicates the origin of the entry. The origin code is placed at the end of each line in the table. It can be one of the following values: • i--Entry originated from the Interior Gateway Protocol (IGP) and was advertised with a **network** router configuration command. • e--Entry originated from the Exterior Gateway Protocol (EGP). • ?--Origin of the path is not clear. Usually, this is a router that is redistributed into BGP from an IGP.
Network	IPv6 address of the network the entry describes.
Next Hop	IPv6 address of the next system that is used when forwarding a packet to the destination network. An entry of two colons (::) indicates that the router has some non-BGP routes to this network.
Metric	The value of the interautonomous system metric. This field is frequently not used.
LocPrf	Local preference value as set with the **set local-preference** route-map configuration command. The default value is 100.
Weight	Weight of the route as set via autonomous system filters.
Path	Autonomous system paths to the destination network. There can be one entry in this field for each autonomous system in the path.

The following is sample output from the **show bgp ipv6 neighbors** command with the **paths** keyword:

```
Router# show bgp ipv6 unicast neighbors 3FFE:700:20:1::11 paths ^293
Address    Refcount Metric Path
0x6131D7DC        2      0 293 3425 2500 i
0x6132861C        2      0 293 7610 i
0x6131AD18        2      0 293 3425 4697 i
0x61324084        2      0 293 1275 3748 i
0x61320E0C        1      0 293 3425 2500 2497 i
0x61326928        1      0 293 3425 2513 i
0x61327BC0        2      0 293 i
```

```
0x61321758        1      0 293 145 i
0x61320BEC        1      0 293 3425 6509 i
0x6131AAF8        2      0 293 1849 2914 ?
0x61320FE8        1      0 293 1849 1273 209 i
0x613260A8        2      0 293 1849 i
0x6132586C        1      0 293 1849 5539 i
0x6131BBF8        2      0 293 1849 1103 i
0x6132344C        1      0 293 4554 1103 1849 1752 i
0x61324150        2      0 293 1275 559 i
0x6131E5AC        2      0 293 1849 786 i
0x613235E4        1      0 293 1849 1273 i
0x6131D028        1      0 293 4554 5539 8627 i
0x613279E4        1      0 293 1275 3748 4697 3257 i
0x61320328        1      0 293 1849 1273 790 i
0x6131EC0C        2      0 293 1275 5409 i
```

Note The caret (^) symbol in the example is a regular expression that is entered by simultaneously pressing the Shift and 6 keys on your keyboard. A caret (^) symbol at the beginning of a regular expression matches the start of a line.

The table below describes the significant fields shown in the display.

Table 3: show bgp ipv6 neighbors paths Field Descriptions

Field	Description
Address	Internal address where the path is stored.
Refcount	Number of routes using that path.
Metric	The Multi Exit Discriminator (MED) metric for the path. (The name of this metric for BGP versions 2 and 3 is INTER_AS.)
Path	The autonomous system path for that route, followed by the origin code for that route.

The following sample output from the **show bgp ipv6 neighbors** command shows the dampened routes for IPv6 address 3FFE:700:20:1::11:

```
Router# show bgp ipv6 unicast neighbors 3FFE:700:20:1::11 dampened-routes
BGP table version is 32084, local router ID is 192.168.7.225
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network          From            Reuse    Path
*d 3FFE:8030::/28   3FFE:700:20:1::11 00:24:20 293 1275 559 8933 i
```

The following sample output from the **show bgp ipv6 neighbors** command shows the flap statistics for IPv6 address 3FFE:700:20:1::11:

```
Router# show bgp ipv6 unicast neighbors 3FFE:700:20:1::11 flap-statistics
BGP table version is 32084, local router ID is 192.168.7.225
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network          From            Flaps Duration Reuse    Path
*d 2001:668::/35    3FFE:700:20:1:: 4923  2d12h    00:59:50 293 1849 3257
*d 3FFE::/24        3FFE:700:20:1:: 4799  2d12h    00:59:30 293 1849 5609 4554
*d 3FFE:8030::/28   3FFE:700:20:1:: 95    11:48:24 00:23:20 293 1275 559 8933
```

The following sample output from the **show bgp ipv6 neighbors** command shows the received routes for IPv6 address 2000:0:0:4::2:

```
Router#
show bgp ipv6 unicast neighbors 2000:0:0:4::2 received-routes
BGP table version is 2443, local router ID is 192.168.0.2
Status codes:s suppressed, d damped, h history, * valid, > best, i - internal
Origin codes:i - IGP, e - EGP, ? - incomplete
Network                Next Hop           Metric LocPrf Weight Path
*> 2000:0:0:1::/64      2000:0:0:4::2                        0 2 1 i
*> 2000:0:0:2::/64      2000:0:0:4::2                        0 2 i
*> 2000:0:0:2:1::/80    2000:0:0:4::2                        0 2 ?
*> 2000:0:0:3::/64      2000:0:0:4::2                        0 2 ?
*  2000:0:0:4::1/64     2000:0:0:4::2                        0 2 ?
```

Related Commands

Command	Description
neighbor activate	Enables the exchange of information with a neighboring router.

show bgp ipv6 paths

To display all the IPv6 Border Gateway Protocol (BGP) paths in the database, use the **show bgp ipv6 paths**command in user EXEC or privileged EXEC mode.

show bgp ipv6 {**unicast** | **multicast**} **paths** *regular-expression*

Syntax Description

unicast	Specifies IPv6 unicast address prefixes.
multicast	Specifies IPv6 multicast address prefixes.
regular-expression	Regular expression that is used to match the received paths in the database.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(2)T	This command was introduced.
12.0(21)ST	This command was integrated into Cisco IOS Release 12.0(21)ST.
12.0(22)S	This command was integrated into Cisco IOS Release 12.0(22)S.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.3(2)T	The **unicast** keyword was added.
12.0(26)S	The **unicast** and **multicast** keywords were added.
12.3(4)T	The **multicast**keyword was added.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(25)SG	This command was integrated into Cisco IOS Release 12.2(25)SG.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.

Usage Guidelines

The **show bgp ipv6 unicast paths**and **show bgp ipv6 multicast paths**commands provide output similar to the **show ip bgp paths** command, except they are IPv6-specific.

The **unicast** keyword is available in Cisco IOS Release 12.3(2)T and later releases. It is not available in releases prior to 12.3(2)T. Use of the **unicast** keyword is mandatory starting with Cisco IOS Release 12.3(2)T.

The **multicast**keyword is available in Cisco IOS Release 12.0(26)S and later releases. It is not available in releases prior to 12.0(26)S. Use of either the **unicast** or **multicast** keyword is mandatory starting with Cisco IOS Release 12.0(26)S.

Examples

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

Note The output is the same whether or not the **unicast** or **multicast** keyword is used. The **unicast** keyword is available in Cisco IOS Release 12.3(2)T and Cisco IOS Release 12.0(26)S and later, and the **multicast** keyword is available only in Cisco IOS Release 12.0(26)S and later releases.

```
Router# show bgp ipv6 unicast paths
Address    Hash Refcount Metric Path
0x61322A78    0        2      0 i
0x6131C214    3        2      0 6346 8664 786 i
0x6131D600   13        1      0 3748 1275 8319 1273 209 i
0x613229F0   17        1      0 3748 1275 8319 12853 i
0x61324AE0   18        1      1 4554 3748 4697 5408 i
0x61326818   32        1      1 4554 5609 i
0x61324728   34        1      0 6346 8664 9009 ?
0x61323804   35        1      0 3748 1275 8319 i
0x61327918   35        1      0 237 2839 8664 ?
0x61320504   38        2      0 3748 4697 1752 i
0x61320988   41        2      0 1849 786 i
0x6132245C   46        1      0 6346 8664 4927 i
```

The table below describes the significant fields shown in the display.

Table 4: show bgp ipv6 paths Field Descriptions

Field	Description
Address	Internal address where the path is stored.
Hash	Hash bucket where the path is stored.
Refcount	Number of routes using that path.
Metric	The Multi Exit Discriminator (MED) metric for the path. (The name of this metric for BGP versions 2 and 3 is INTER_AS.)
Path	The autonomous system path for that route, followed by the origin code for that route.

show bgp ipv6 peer-group

To display information about Border Gateway Protocol (BGP) peer groups, use the **show bgp ipv6 peer-group**command in user EXEC or privileged EXEC mode.

show bgp ipv6 {**unicast** | **multicast**} **peer-group** [*name*]

Syntax Description

unicast	Specifies IPv6 unicast address prefixes.
multicast	Specifies IPv6 multicast address prefixes.
name	(Optional) Peer group name.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.3(2)T	This command was introduced.
12.0(26)S	The **unicast** and **multicast** keywords were added.
12.3(4)T	The unicast and **multicast**keywords were added.
12.2(25)SG	This command was integrated into Cisco IOS Release 12.2(25)SG.

Usage Guidelines

If a user does not specify a peer group name, then all BGP peer groups will be displayed.

The **multicast**keyword is available in Cisco IOS Release 12.0(26)S and later releases. It is not available in releases prior to 12.0(26)S. Use of either the **unicast** or **multicast** keyword is mandatory starting with Cisco IOS Release 12.0(26)S.

Examples

The following is sample output from the **show bgp ipv6 peer-group**command:

```
Router# show bgp ipv6 unicast peer-group
BGP peer-group is external-peerings,  remote AS 20
  BGP version 4
  Default minimum time between advertisement runs is 30 seconds
 For address family:IPv6 Unicast
  BGP neighbor is external-peerings, peer-group external, members:
  1::1
  Index 0, Offset 0, Mask 0x0
  Update messages formatted 0, replicated 0
  Number of NLRIs in the update sent:max 0, min 0
```

The table below describes the significant fields shown in the display.

Table 5: show bgp ipv6 peer-group Field Descriptions

Field	Description
BGP peer-group is	Type of BGP peer group.
remote AS	Autonomous system of the peer group.
BGP version	BGP version being used to communicate with the remote router.
For address family: IPv4 Unicast	IPv6 unicast-specific properties of this neighbor.

show bgp ipv6 prefix-list

To display routes that match a prefix list, use the **show bgp ipv6 prefix-list**command in user EXEC or privileged EXEC mode.

show bgp ipv6 {**unicast** | **multicast**} **prefix-list** *name*

Syntax Description

unicast	Specifies IPv6 unicast address prefixes.
multicast	Specifies IPv6 multicast address prefixes.
name	The specified prefix list.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.3(2)T	This command was introduced.
12.0(26)S	The **unicast** and **multicast** keywords were added.
12.3(4)T	The unicast and **multicast**keywords were added.

Usage Guidelines

The specified prefix list must be an IPv6 prefix list, which is similar in format to an IPv4 prefix list.

The **multicast**keyword is available in Cisco IOS Release 12.0(26)S and later releases. It is not available in releases prior to 12.0(26)S. Use of either the **unicast** or **multicast** keyword is mandatory starting with Cisco IOS Release 12.0(26)S.

Examples

The following is sample output from the **show bgp ipv6 prefix-list**command:

```
Router# show bgp ipv6 unicast prefix-list pin
ipv6 prefix-list pin:
   count:4, range entries:3, sequences:5 - 20, refcount:2
   seq 5 permit 747::/16 (hit count:1, refcount:2)
   seq 10 permit 747:1::/32 ge 64 le 64 (hit count:2, refcount:2)
   seq 15 permit 747::/32 ge 33 (hit count:1, refcount:1)
   seq 20 permit 777::/16 le 124 (hit count:2, refcount:1)
The ipv6 prefix-list match the following prefixes:
   seq 5: matches the exact match 747::/16
   seq 10:first 32 bits in prefix must match with a prefixlen of /64
   seq 15:first 32 bits in prefix must match with any prefixlen up to /128
   seq 20:first 16 bits in prefix must match with any prefixlen up to /124
```

The table below describes the significant fields shown in the display.

Table 6: show bgp ipv6 prefix-list Field Descriptions

Field	Description
BGP table version	Internal version number of the table. This number is incremented whenever the table changes.
local router ID	A 32-bit number written as 4 octets separated by periods (dotted-decimal format).
Status codes	Status of the table entry. The status is displayed at the beginning of each line in the table. It can be one of the following values: • s--The table entry is suppressed. • d--The table entry is dampened. • h--The table entry is history. • *--The table entry is valid. • >--The table entry is the best entry to use for that network. • i--The table entry was learned via an internal BGP session.
Origin codes	Indicates the origin of the entry. The origin code is placed at the end of each line in the table. It can be one of the following values: • i--Entry originated from the Interior Gateway Protocol (IGP) and was advertised with a **network** router configuration command. • e--Entry originated from the Exterior Gateway Protocol (EGP). • ?--Origin of the path is not clear. Usually, this is a router that is redistributed into BGP from an IGP.
Network	IPv6 address of the network the entry describes.
Next Hop	IPv6 address of the next system that is used when forwarding a packet to the destination network. An entry of two colons (::) indicates that the router has some non-BGP routes to this network.
Metric	The value of the interautonomous system metric. This field is frequently not used.
LocPrf	Local preference value as set with the **set local-preference** route-map configuration command. The default value is 100.
Weight	Weight of the route as set via autonomous system filters.
Path	Autonomous system paths to the destination network. There can be one entry in this field for each autonomous system in the path.

show bgp ipv6 quote-regexp

To display IPv6 Border Gateway Protocol (BGP) routes matching the autonomous system path regular expression as a quoted string of characters, use the **show bgp ipv6 quote-regexp** command in user EXEC or privileged EXEC mode.

show bgp ipv6 {**unicast** | **multicast**} **quote-regexp** *regular-expression*

Syntax Description

unicast	Specifies IPv6 unicast address prefixes.
multicast	Specifies IPv6 multicast address prefixes.
regular-expression	Regular expression that is used to match the BGP autonomous system paths.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(2)T	This command was introduced.
12.0(21)ST	This command was integrated into Cisco IOS Release 12.0(21)ST.
12.0(22)S	This command was integrated into Cisco IOS Release 12.0(22)S.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.3(2)T	The **unicast** keyword was added.
12.0(26)S	The **unicast** and **multicast** keywords were added.
12.3(4)T	The **multicast**keyword was added.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(25)SG	This command was integrated into Cisco IOS Release 12.2(25)SG.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.

Usage Guidelines

The **show bgp ipv6 unicast quote-regexp**and **show bgp ipv6 multicast quote-regexp**commands provide output similar to the **show ip bgp quote-regexp** command, except they are IPv6-specific.

The **unicast** keyword is available in Cisco IOS Release 12.3(2)T and later releases. It is not available in releases prior to 12.3(2)T. Use of the **unicast** keyword is mandatory starting with Cisco IOS Release 12.3(2)T.

The **multicast**keyword is available in Cisco IOS Release 12.0(26)S and later releases. It is not available in releases prior to 12.0(26)S. Use of either the **unicast** or **multicast** keyword is mandatory starting with Cisco IOS Release 12.0(26)S.

Examples

The following is sample output from the **show bgp ipv6 quote-regexp** command that shows paths beginning with 33 or containing 293:

Note The output is the same whether or not the **unicast** or **multicast** keyword is used. The **unicast** keyword is available in Cisco IOS Release 12.3(2)T and Cisco IOS Release 12.0(26)S and later, and the **multicast** keyword is available only in Cisco IOS Release 12.0(26)S and later releases.

```
Router# show bgp ipv6 unicast quote-regexp ^33|293
BGP table version is 69964, local router ID is 192.31.7.225
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network          Next Hop            Metric LocPrf Weight Path
*  2001:200::/35    3FFE:C00:E:4::2          1             0 4554 293 3425 2500 i
*                   2001:0DB8:0:F004::1
                                                           0 3320 293 3425 2500 i
*  2001:208::/35    3FFE:C00:E:4::2          1             0 4554 293 7610 i
*  2001:228::/35    3FFE:C00:E:F::2                        0 6389 1849 293 2713 i
*  3FFE::/24        3FFE:C00:E:5::2                        0 33 1849 4554 i
*  3FFE:100::/24    3FFE:C00:E:5::2                        0 33 1849 3263 i
*  3FFE:300::/24    3FFE:C00:E:5::2                        0 33 293 1275 1717 i
*                   3FFE:C00:E:F::2                        0 6389 1849 293 1275
```

Note The caret (^) symbol in the example is a regular expression that is entered by pressing the Shift and 6 keys on your keyboard. A caret (^) symbol at the beginning of a regular expression matches the start of a line.

The table below describes the significant fields shown in the display.

Table 7: show bgp ipv6 quote-regexp Field Descriptions

Field	Description
BGP table version	Internal version number of the table. This number is incremented whenever the table changes.
local router ID	A 32-bit number written as 4 octets separated by periods (dotted-decimal format).
Status codes	Status of the table entry. The status is displayed at the beginning of each line in the table. It can be one of the following values: • s--The table entry is suppressed. • d--The table entry is dampened. • h--The table entry is history. • *--The table entry is valid. • >--The table entry is the best entry to use for that network. • i--The table entry was learned via an internal BGP session.

Field	Description
Origin codes	Indicates the origin of the entry. The origin code is placed at the end of each line in the table. It can be one of the following values: • i--Entry originated from the Interior Gateway Protocol (IGP) and was advertised with a **network** router configuration command. • e--Entry originated from the Exterior Gateway Protocol (EGP). • ?--Origin of the path is not clear. Usually, this is a router that is redistributed into BGP from an IGP.
Network	IPv6 address of the network the entry describes.
Next Hop	IPv6 address of the next system that is used when forwarding a packet to the destination network. An entry of two colons (::) indicates that the router has some non-BGP routes to this network.
Metric	The value of the interautonomous system metric. This field is frequently not used.
LocPrf	Local preference value as set with the **set local-preference** route-map configuration command. The default value is 100.
Weight	Weight of the route as set via autonomous system filters.
Path	Autonomous system paths to the destination network. There can be one entry in this field for each autonomous system in the path.

Related Commands

Command	Description
show bgp ipv6 regexp	Displays IPv6 BGP routes matching the autonomous system path regular expression.
show ip bgp regexp	Displays routes matching the regular expression.

show bgp ipv6 regexp

To display IPv6 Border Gateway Protocol (BGP) routes matching the autonomous system path regular expression, use the **show bgp ipv6 regexp** command in user EXEC or privileged EXEC mode.

show bgp ipv6 {**unicast** | **multicast**} **regexp** *regular-expression*

Syntax Description

unicast	Specifies IPv6 unicast address prefixes.
multicast	Specifies IPv6 multicast address prefixes.
regular-expression	Regular expression that is used to match the BGP autonomous system paths.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(2)T	This command was introduced.
12.0(21)ST	This command was integrated into Cisco IOS Release 12.0(21)ST.
12.0(22)S	This command was integrated into Cisco IOS Release 12.0(22)S.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.3(2)T	The **unicast** keyword was added.
12.0(26)S	The **unicast** and **multicast** keywords were added.
12.3(4)T	The **multicast**keyword was added.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(25)SG	This command was integrated into Cisco IOS Release 12.2(25)SG.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.

Usage Guidelines

The **show bgp ipv6 unicast regexp**and **show bgp ipv6 multicast regexp**commands provide output similar to the **show ip bgp regexp**command, except they are IPv6-specific.

The **unicast** keyword is available in Cisco IOS Release 12.3(2)T and later releases. It is not available in releases prior to 12.3(2)T. Use of the **unicast** keyword is mandatory starting with Cisco IOS Release 12.3(2)T.

The **multicast**keyword is available in Cisco IOS Release 12.0(26)S and later releases. It is not available in releases prior to 12.0(26)S. Use of either the **unicast** or **multicast** keyword is mandatory starting with Cisco IOS Release 12.0(26)S.

Examples

The following is sample output from the **show bgp ipv6 regexp** command that shows paths beginning with 33 or containing 293:

Note The output is the same whether or not the **unicast** or **multicast** keyword is used. The **unicast** keyword is available in Cisco IOS Release 12.3(2)T and Cisco IOS Release 12.0(26)S and later, and the **multicast** keyword is available only in Cisco IOS Release 12.0(26)S and later releases.

```
Router# show bgp ipv6 unicast regexp ^33|293
BGP table version is 69964, local router ID is 192.168.7.225
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete
   Network          Next Hop            Metric LocPrf Weight Path
*  2001:200::/35    3FFE:C00:E:4::2          1             0 4554 293 3425 2500 i
*                   2001:0DB8:0:F004::1
                                                           0 3320 293 3425 2500 i
*  2001:208::/35    3FFE:C00:E:4::2          1             0 4554 293 7610 i
*  2001:228::/35    3FFE:C00:E:F::2                        0 6389 1849 293 2713 i
*  3FFE::/24        3FFE:C00:E:5::2                        0 33 1849 4554 i
*  3FFE:100::/24    3FFE:C00:E:5::2                        0 33 1849 3263 i
*  3FFE:300::/24    3FFE:C00:E:5::2                        0 33 293 1275 1717 i
*                   3FFE:C00:E:F::2                        0 6389 1849 293 1275
```

Note The caret (^) symbol in the example is a regular expression that is entered by pressing the Shift and 6 keys on your keyboard. A caret (^) symbol at the beginning of a regular expression matches the start of a line.

The table below describes the significant fields shown in the display.

Table 8: show bgp ipv6 regexp Field Descriptions

Field	Description
BGP table version	Internal version number of the table. This number is incremented whenever the table changes.
local router ID	A 32-bit number written as 4 octets separated by periods (dotted-decimal format).
Status codes	Status of the table entry. The status is displayed at the beginning of each line in the table. It can be one of the following values: • s--The table entry is suppressed. • d--The table entry is dampened. • h--The table entry is history. • *--The table entry is valid. • >--The table entry is the best entry to use for that network. • i--The table entry was learned via an internal BGP session.

Field	Description
Origin codes	Indicates the origin of the entry. The origin code is placed at the end of each line in the table. It can be one of the following values: • i--Entry originated from the Interior Gateway Protocol (IGP) and was advertised with a **network** router configuration command. • e--Entry originated from the Exterior Gateway Protocol (EGP). • ?--Origin of the path is not clear. Usually, this is a router that is redistributed into BGP from an IGP.
Network	IPv6 address of the network the entry describes.
Next Hop	IPv6 address of the next system that is used when forwarding a packet to the destination network. An entry of two colons (::) indicates that the router has some non-BGP routes to this network.
Metric	The value of the interautonomous system metric. This field is frequently not used.
LocPrf	Local preference value as set with the **set local-preference** route-map configuration command. The default value is 100.
Weight	Weight of the route as set via autonomous system filters.
Path	Autonomous system paths to the destination network. There can be one entry in this field for each autonomous system in the path.

show bgp ipv6 route-map

To display IPv6 Border Gateway Protocol (BGP) routes that failed to install in the routing table, use the **show bgp ipv6 route-map** command in user EXEC or privileged EXEC mode.

show bgp ipv6 {**unicast** | **multicast**} **route-map** *name*

Syntax Description

unicast	Specifies IPv6 unicast address prefixes.
multicast	Specifies IPv6 multicast address prefixes.
name	A specified route map to match.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.3(2)T	This command was introduced.
12.0(26)S	The **unicast** and **multicast** keywords were added.
12.3(4)T	The unicast and **multicast**keywords were added.

Usage Guidelines

The **multicast**keyword is available in Cisco IOS Release 12.0(26)S and later releases. It is not available in releases prior to 12.0(26)S. Use of either the **unicast** or **multicast** keyword is mandatory starting with Cisco IOS Release 12.0(26)S.

Examples

The following is sample output from the **show bgp ipv6 route-map**command for a route map named rmap:

```
Router# show bgp ipv6 unicast route-map rmap
BGP table version is 16, local router ID is 172.30.242.1
Status codes:s suppressed, d damped, h history, * valid, > best, i - internal,
             r RIB-failure, S Stale
Origin codes:i - IGP, e - EGP, ? - incomplete
   Network          Next Hop            Metric LocPrf Weight Path
*>i12:12::/64       2001:0DB8:101::1         0    100     50 ?
*>i12:13::/64       2001:0DB8:101::1         0    100     50 ?
*>i12:14::/64       2001:0DB8:101::1         0    100     50 ?
*>i543::/64         2001:0DB8:101::1         0    100     50 ?
```

The table below describes the significant fields shown in the display.

Table 9: show bgp ipv6 route-map Field Descriptions

Field	Description
BGP table version	Internal version number of the table. This number is incremented whenever the table changes.

Field	Description
local router ID	A 32-bit number written as 4 octets separated by periods (dotted-decimal format).
Status codes	Status of the table entry. The status is displayed at the beginning of each line in the table. It can be one of the following values: • s--The table entry is suppressed. • d--The table entry is dampened. • h--The table entry is history. • *--The table entry is valid. • >--The table entry is the best entry to use for that network. • i--The table entry was learned via an internal BGP session. • r --A RIB failure has occurred. • S--The route map is stale.
Origin codes	Indicates the origin of the entry. The origin code is placed at the end of each line in the table. It can be one of the following values: • i--Entry originated from the Interior Gateway Protocol (IGP) and was advertised with a **network** router configuration command. • e--Entry originated from the Exterior Gateway Protocol (EGP). • ?--Origin of the path is not clear. Usually, this is a router that is redistributed into BGP from an IGP.
Network	IPv6 address of the network the entry describes.
Next Hop	IPv6 address of the next system that is used when forwarding a packet to the destination network. An entry of two colons (::) indicates that the router has some non-BGP routes to this network.
Metric	The value of the interautonomous system metric. This field is frequently not used.
LocPrf	Local preference value as set with the **set local-preference** route-map configuration command. The default value is 100.
Weight	Weight of the route as set via autonomous system filters.
Path	Autonomous system paths to the destination network. There can be one entry in this field for each autonomous system in the path.

show bgp ipv6 summary

To display the status of all IPv6 Border Gateway Protocol (BGP) connections, use the **show bgp ipv6 summary** command in user EXEC or privileged EXEC mode.

show bgp ipv6 {**unicast** | **multicast**} **summary**

Syntax Description

unicast	Specifies IPv6 unicast address prefixes.
multicast	Specifies IPv6 multicast address prefixes.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(2)T	This command was introduced.
12.0(21)ST	This command was integrated into Cisco IOS Release 12.0(21)ST.
12.0(22)S	This command was integrated into Cisco IOS Release 12.0(22)S.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.3(2)T	The **unicast** keyword was added.
12.0(26)S	The **unicast** and **multicast** keywords were added.
12.3(4)T	The **unicast** and **multicast** keywords were added.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(25)SG	This command was integrated into Cisco IOS Release 12.2(25)SG.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
Cisco IOS XE Release 2.1	This command was introduced on Cisco ASR 1000 Series devices.
15.2(2)SNG	This command was implemented on the Cisco ASR 901 Series Aggregation Services devices.

Usage Guidelines

The **show bgp ipv6 unicast summary**and **show bgp ipv6 multicast summary**commands provide output similar to the **show ip bgp summary**command, except they are IPv6-specific.

The **unicast** keyword is available in Cisco IOS Release 12.3(2)T and later releases. It is not available in releases prior to 12.3(2)T. Use of the **unicast** keyword is mandatory starting with Cisco IOS Release 12.3(2)T.

The **multicast**keyword is available in Cisco IOS Release 12.0(26)S and later releases. It is not available in releases prior to 12.0(26)S. Use of either the **unicast** or **multicast** keyword is mandatory starting with Cisco IOS Release 12.0(26)S.

Examples

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

Note The output is the same whether or not the **unicast** or **multicast** keyword is used. The **unicast** keyword is available in Cisco IOS Release 12.3(2)T and Cisco IOS Release 12.0(26)S and later, and the **multicast** keyword is available only in Cisco IOS Release 12.0(26)S and later releases.

```
Device# show bgp ipv6 unicast summary
BGP device identifier 172.30.4.4, local AS number 200
BGP table version is 1, main routing table version 1
Neighbor           V    AS  MsgRcvd  MsgSent   TblVer  InQ  OutQ  Up/Down   State/PfxRcd
2001:0DB8:101::2   4    200    6869     6882        0    0     0  06:25:24  Active
```

The table below describes the significant fields shown in the display.

Table 10: show bgp ipv6 summary Field Descriptions

Field	Description
BGP device identifier	IP address of the networking device.
BGP table version	Internal version number of the BGP database.
main routing table version	Last version of BGP database that was injected into the main routing table.
Neighbor	IPv6 address of a neighbor.
V	BGP version number spoken to that neighbor.
AS	Autonomous system.
MsgRcvd	BGP messages received from that neighbor.
MsgSent	BGP messages sent to that neighbor.
TblVer	Last version of the BGP database that was sent to that neighbor.
InQ	Number of messages from that neighbor waiting to be processed.
OutQ	Number of messages waiting to be sent to that neighbor.
Up/Down	The length of time that the BGP session has been in state Established, or the current state if it is not Established.

Field	Description
State/PfxRcd	Current state of the BGP session/the number of prefixes the device has received from a neighbor or peer group. When the maximum number (as set by the **neighbor maximum-prefix** command) is reached, the string "PfxRcd" appears in the entry, the neighbor is shut down, and the connection is Idle. An (Admin) entry with Idle status indicates that the connection has been shut down using the **neighbor shutdown** command.

Related Commands

Command	Description
clear bgp ipv6	Resets an IPv6 BGP TCP connection using BGP soft reconfiguration.
neighbor maximum-prefix	Controls how many prefixes can be received from a neighbor.
neighbor shutdown	Disables a neighbor or peer group.

show bgp vpnv6 unicast

To display Virtual Private Network Version 6 (VPNv6) unicast entries in a Border Gateway Protocol (BGP) table, use the **show bgp vpnv6 unicast** command in user EXEC or privileged EXEC mode.

show bgp vpnv6 unicast [{**all** | **vrf** [*vrf-name*]}]

Syntax Description

all	(Optional) Displays all entries in a BGP table.
vrf	(Optional) Specifies all VPN routing and forwarding (VRF) instance tables or a specific VRF table for IPv4 or IPv6 address.
vrf-name	(Optional) Names a specific VRF table for an IPv4 or IPv6 address.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(33)SRB	This command was introduced.
12.2(33)SB	This command was integrated into Cisco IOS Release 12.2(33)SB.
12.2(33)SXI	This command was integrated into Cisco IOS Release 12.2(33)SXI.
15.2(2)SNI	This command was implemented on the Cisco ASR 901 Series Aggregation Services Routers.

Usage Guidelines

BGP is used for distributing VPN IPv6 routing information in the VPN backbone. The local routes placed in the BGP routing table on an egress provider edge (PE) router are distributed to other PE routers.

Examples

The following examples shows BGP entries from all of the customer-specific IPv6 routing tables:

```
Router# show bgp vpnv6 unicast all

Network                  Next Hop              Metric LocPrf    Weight Path
Route Distinguisher: 100:1
*  2001:100:1:1000::/56   2001:100:1:1000::72a    0               0     200 ?
*                         ::                       0                32768 ?
*  i2001:100:1:2000::/56  ::FFFF:200.10.10.1
Route Distinguisher: 200:1
*  2001:100:2:1000::/56   ::                  0                      32768 ?
*  2001:100:2:2000::/56   ::FFFF:200.10.10.1      0                   32768 ?
```

The table below describes the significant fields shown in the displays.

Table 11: show bgp vpnv6 unicast Field Descriptions

Field	Description
Network	IPv6 address of the network the entry describes.
Next Hop	IPv6 address of the next system that is used when forwarding a packet to the destination network. An entry of two colons (::) indicates that the router has some non-BGP routes to this network.
Metric	If shown, this is the value of the interautonomous system metric. This field is frequently not used.
Loc Prf	Local preference value as configured with the **set local-preference** command.
Weight	Weight of the route as set through autonomous system filters.
Path	Autonomous system paths to the destination network. There can be one entry in this field for each autonomous system in the path. At the end of the path is the origin code for the path. It can be one of the following values: • i—The entry was originated with the IGP and advertised with a network router configuration command. • e—The route originated with EGP. • ?—The origin of the path is not clear. Usually this is a path that is redistributed into BGP from an IGP.
Route Distinguisher	Specifies the VRF instance.

Related Commands

Command	Description
show bgp vpnv6 multicast	Displays VPNv6 multicast entries in a BGP table.

show erm statistics

To display the Embedded Resource Manager (ERM) Forwarding Information Base (FIB) ternary content addressable memory (TCAM) exception status for IPv4, IPv6, and Multiprotocol Label Switching (MPLS) protocols, use the **show erm statistics** command in privileged EXEC mode.

show erm statistics

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(17b)SXA	This command was introduced on the Supervisor Engine 720.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

This command is not supported on Cisco 7600 series routers that are configured with a Supervisor Engine 2.

The IPv4, IPv6, and MPLS exception state displays FALSE when the protocol is not under the exception or displays TRUE when the protocol is under the exception.

Examples

This example shows how to display FIB TCAM exception status for IPv4, IPv6, and MPLS protocols:

```
Router#
show erm statistics
#IPv4 excep notified     = 0
#IPv6 excep notified     = 0
#MPLS excep notified     = 0
#IPv4 reloads done       = 0
#IPv6 reloads done       = 0
#MPLS reloads done       = 0
Current IPv4 excep state = FALSE
Current IPv6 excep state = FALSE
Current MPLS excep state = FALSE
#Timer expired           = 0
#of erm msgs             = 1
```

The table below describes the significant fields shown in the display.

Table 12: show erm statistics Field Descriptions

Field	Description
... excep notified	The number of exceptions for each protocol.
... reloads done	The number of reloads for each protocol.
...Current *protocol* exception state	The current exception status of each protocol.
#of erm msgs	The number of ERM messages sent.

Related Commands

Command	Description
mls erm priority	Assigns the priorities to define an order in which protocols attempt to recover from the exception status.

show fm ipv6 pbr all

To display IPv6 policy-based routing (PBR) value mask results (VMRs), use the **show fm ipv6 pbr all** command in privileged EXEC mode.

show fm ipv6 pbr all

Syntax Description

This command has no arguments or keywords.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXI4	This command was introduced.
15.1(1)SY	This command was integrated into Cisco IOS Release 15.1(1)SY.

Usage Guidelines

The **show fm ipv6 pbr all** command shows the IPv6 PBR VMRs for all interfaces on which IPv6 PBR is configured.

show fm ipv6 pbr interface

To displays the IPv6 policy-based routing (PBR) value mask results (VMRs) on a specified interface, use the **show fm ipv6 pbr interface** command in privileged EXEC mode.

show fm ipv6 pbr interface interface *type number*

Syntax Description

interface *type number*	Specified interface for which PBR VMR information will be displayed.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SXI4	This command was introduced.
15.1(1)SY	This command was integrated into Cisco IOS Release 15.1(1)SY.

Usage Guidelines

The **show fm ipv6 pbr interface** command shows the IPv6 PBR VMRs for a specified interface.

show fm ipv6 traffic-filter

To display the IPv6 information, use the **show fm ipv6 traffic-filter** command in privileged EXEC mode .

show fm ipv6 traffic-filter {**all** | **interface** *type number*}

Syntax Description

all	Displays IPv6 traffic filter information for all interfaces.
interface *type*	Displays IPv6 traffic filter information for the specified interface; possible valid values are **ethernet**, **fastethernet**, **gigabitethernet**, **tengigabitethernet**, **pos**, **atm**, **ge-wan**and **vlan**
number	Module and port number; see the "Usage Guidelines" section for valid values.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(14)SX	This command was introduced on the Supervisor Engine 720.
12.2(17d)SXB	Support for this command on the Supervisor Engine 2 was extended to Release 12.2(17d)SXB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Usage Guidelines

The **pos**, **atm**, and **ge-wan** keywords are supported on Cisco 7600 series routers that are configured with a Supervisor Engine 2.

The *interface-number* argument designates the module and port number. Valid values for *interface-number* depend on the specified interface type and the chassis and module that are used. For example, if you specify a Gigabit Ethernet interface and have a 48-port 10/100BASE-T Ethernet module that is installed in a 13-slot chassis, valid values for the module number are from 1 to 13 and valid values for the port number are from 1 to 48.

Examples

This example shows how to display the IPv6 information for a specific interface:

```
Router# show fm ipv6 traffic-filter interface vlan 50

------------------------------------------------------------------------------
FM_FEATURE_IPV6_ACG_INGRESS Name:testipv6 i/f: Vlan50
==============================================================================
DPort - Destination Port SPort - Source Port Pro - Protocol
X - XTAG TOS - TOS Value Res - VMR Result
RFM - R-Recirc. Flag MRTNP - M-Multicast Flag R - Reflexive flag
- F-Fragment flag - T-Tcp Control N - Non-cachable
- M-More Fragments - P-Mask Priority(H-High, L-Low)
Adj. - Adj. Index T - M(Mask)/V(Value) FM - Flow Mask
NULL - Null FM SAO - Source Only FM DAO - Dest. Only FM
SADA - Sour.& Dest. Only VSADA - Vlan SADA Only FF - Full Flow
VFF - Vlan Full Flow F-VFF - Either FF or VFF A-VSD - Atleast VSADA
A-FF - Atleast FF A-VFF - Atleast VFF A-SON - Atleast SAO
A-DON - Atleast DAO A-SD - Atleast SADA SHORT - Shortest
```

```
A-SFF - Any short than FF A-EFF - Any except FF A-EVFF- Any except VFF
A-LVFF- Any less than VFF ERR - Flowmask Error
+---+-+-------------------------------------+-------------------------------------+---+---+-+-----+---+-----+
|Indx|T| Dest IPv6 Addr | Source IPv6
Addr |Pro|RFM|X|MRTNP|Adj.| FM |
+---+-+-------------------------------------+-------------------------------------+---+---+-+-----+---+-----+
1 V 0:200E::
200D::1 0 -F- - ----L ---- Shorte
M 0:FFFF:FFFF:FFFF:FFFF::
FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF 0 1
TM_SOFT_BRIDGE_RESULT
2 V 0:200E::
200D::1 17 --- - ----L ---- Shorte
M 0:FFFF:FFFF:FFFF:FFFF::
FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF 255 0
TM_PERMIT_RESULT
3 V 200E::
200D::1 0 -F- - ----L ---- Shorte
M FFFF:FFFF:FFFF:FFFF::
FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF 0 1
TM_SOFT_BRIDGE_RESULT
4 V 200E::
200D::1 17 --- - ----L ---- Shorte
M FFFF:FFFF:FFFF:FFFF::
FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF 255 0
TM_PERMIT_RESULT
5 V
:: :: 0 -F- - ----L ---- Shorte
M
:: :: 0 1
TM_SOFT_BRIDGE_RESULT
6 V
:: :: 0 -F- - ----L ---- Shorte
M
:: :: 0 1
TM_SOFT_BRIDGE_RESULT
7 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
TM_PERMIT_RESULT
8 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
TM_PERMIT_RESULT
9 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
TM_PERMIT_RESULT
10 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
TM_PERMIT_RESULT
11 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
TM_PERMIT_RESULT
12 V
:: :: 58 --- - ----L ---- Shorte
M
```

```
:: :: 255 0
TM_PERMIT_RESULT
13 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
TM_PERMIT_RESULT
14 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
TM_PERMIT_RESULT
15 V
:: :: 0 --- - ----L ---- Shorte
M
:: :: 0 0
TM_L3_DENY_RESULT
Router#
```

This example shows how to display the IPv6 information for all interfaces:

```
Router# show fm ipv6 traffic-filter
 all

-------------------------------------------------------------------------------
FM_FEATURE_IPV6_ACG_INGRESS Name:testipv6 i/f: Vlan50
===============================================================================
DPort - Destination Port SPort - Source Port Pro - Protocol
X - XTAG TOS - TOS Value Res - VMR Result
RFM - R-Recirc. Flag MRTNP - M-Multicast Flag R - Reflexive flag
- F-Fragment flag - T-Tcp Control N - Non-cachable
- M-More Fragments - P-Mask Priority(H-High, L-Low)
Adj. - Adj. Index T - M(Mask)/V(Value) FM - Flow Mask
NULL - Null FM SAO - Source Only FM DAO - Dest. Only FM
SADA - Sour.& Dest. Only VSADA - Vlan SADA Only FF - Full Flow
VFF - Vlan Full Flow F-VFF - Either FF or VFF A-VSD - Atleast VSADA
A-FF - Atleast FF A-VFF - Atleast VFF A-SON - Atleast SAO
A-DON - Atleast DAO A-SD - Atleast SADA SHORT - Shortest
A-SFF - Any short than FF A-EFF - Any except FF A-EVFF- Any except VFF
A-LVFF- Any less than VFF ERR - Flowmask Error
+---+-+-----------------------------------+-----------------------------------+---+---+-+-----+---+-----+
|Indx|T| Dest IPv6 Addr | Source IPv6
Addr |Pro|RFM|X|MRTNP|Adj.| FM |
+---+-+-----------------------------------+-----------------------------------+---+---+-+-----+---+-----+
1 V 0:200E::
200D::1 0 -F- - ----L ---- Shorte
M 0:FFFF:FFFF:FFFF:FFFF::
FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF 0 1
TM_SOFT_BRIDGE_RESULT
2 V 0:200E::
200D::1 17 --- - ----L ---- Shorte
M 0:FFFF:FFFF:FFFF:FFFF::
FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF 255 0
TM_PERMIT_RESULT
3 V 200E::
200D::1 0 -F- - ----L ---- Shorte
M FFFF:FFFF:FFFF:FFFF::
FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF 0 1
TM_SOFT_BRIDGE_RESULT
4 V 200E::
200D::1 17 --- - ----L ---- Shorte
M FFFF:FFFF:FFFF:FFFF::
FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF:FFFF 255 0
TM_PERMIT_RESULT
```

```
5 V
:: :: 0 -F- - ----L ---- Shorte
M
:: :: 0 1
TM_SOFT_BRIDGE_RESULT
6 V
:: :: 0 -F- - ----L ---- Shorte
M
:: :: 0 1
TM_SOFT_BRIDGE_RESULT
7 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
TM_PERMIT_RESULT
8 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
TM_PERMIT_RESULT
9 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
TM_PERMIT_RESULT
10 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
13 V
:: :: 58 --- - ----L ---- Shorte
M
:: :: 255 0
.
. Output is truncated
.
Interface(s) using this IPv6 Ingress Traffic Filter:
Vl50,
```

show fm raguard

To display the interfaces configured with router advertisement (RA) guard, use the **show fm raguard**command in privileged EXEC mode.

show fm raguard

Syntax Description

This command has no arguments or keywords.

Command Default

RA guard interface information is not displayed.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(33)SXI4	This command was introduced.
12.2(54)SG	This command was modified. Support for Cisco IOS Release 12.2(54)SG was added.

Usage Guidelines

Use the **show fm raguard** command to verify information about interfaces that are configured with RA guard.

Examples

The following example enables the display of interfaces configured with IPv6 RA guard:

```
Router# show fm raguard
------------------------------------------------------------------------------
 IPV6 RA GUARD in Ingress direction is configured on following interfaces
==============================================================================
Interface: Port-channel23
Interface: GigabitEthernet4/6
```

The table below describes the significant fields shown in the display.

Table 13: show fm raguard Field Descriptions

Field	Description
IPV6 RA GUARD in Ingress direction is configured on following interfaces	Displays the interfaces configured with IPv6 RA guard.

show ipv6 access-list

To display the contents of all current IPv6 access lists, use the **show ipv6 access-list**command in user EXEC or privileged EXEC mode.

show ipv6 access-list [*access-list-name*]

Syntax Description

access-list-name	(Optional) Name of access list.

Command Default

All IPv6 access lists are displayed.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(2)T	This command was introduced.
12.0(21)ST	This command was integrated into Cisco IOS Release 12.0(21)ST.
12.0(22)S	This command was integrated into Cisco IOS Release 12.0(22)S.
12.0(23)S	The priority field was changed to sequence and Layer 4 protocol information (extended IPv6 access list functionality) was added to the display output.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(25)SG	This command was integrated into Cisco IOS Release 12.2(25)SG.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.2(50)SY	This command was modified. Information about IPv4 and IPv6 hardware statistics is displayed.
Cisco IOS XE Release 3.2SE	This command was integrated into Cisco IOS XE Release 3.2SE.

Usage Guidelines

The **show ipv6 access-list** command provides output similar to the **show ip access-list** command, except that it is IPv6-specific.

Examples

The following output from the **show ipv6 access-list**command shows IPv6 access lists named inbound, tcptraffic, and outbound:

```
Router# show ipv6 access-list
IPv6 access list inbound
    permit tcp any any eq bgp reflect tcptraffic (8 matches) sequence 10
    permit tcp any any eq telnet reflect tcptraffic (15 matches) sequence 20
    permit udp any any reflect udptraffic sequence 30
IPv6 access list tcptraffic (reflexive) (per-user)
    permit tcp host 2001:0DB8:1::1 eq bgp host 2001:0DB8:1::2 eq 11000 timeout 300 (time
       left 243) sequence 1
    permit tcp host 2001:0DB8:1::1 eq telnet host 2001:0DB8:1::2 eq 11001 timeout 300
    (time left 296) sequence 2
IPv6 access list outbound
    evaluate udptraffic
    evaluate tcptraffic
```

The following sample output shows IPv6 access list information for use with IPSec:

```
Router#  show ipv6 access-list
IPv6 access list Tunnel0-head-0-ACL (crypto)
     permit ipv6 any any (34 matches) sequence 1
IPv6 access list Ethernet2/0-ipsecv6-ACL (crypto)
     permit 89 FE80::/10 any (85 matches) sequence 1
```

The table below describes the significant fields shown in the display.

Table 14: show ipv6 access-list Field Descriptions

Field	Description
ipv6 access list inbound	Name of the IPv6 access list, for example, inbound.
permit	Permits any packet that matches the specified protocol type.
tcp	Transmission Control Protocol. The higher-level (Layer 4) protocol type that the packet must match.
any	Equal to ::/0.
eq	An equal operand that compares the source or destination ports of TCP or UDP packets.
bgp	Border Gateway Protocol. The lower-level (Layer 3) protocol type that the packet must be equal to.
reflect	Indicates a reflexive IPv6 access list.
tcptraffic (8 matches)	The name of the reflexive IPv6 access list and the number of matches for the access list. The **clear ipv6 access-list** privileged EXEC command resets the IPv6 access list match counters.
sequence 10	Sequence in which an incoming packet is compared to lines in an access list. Lines in an access list are ordered from first priority (lowest number, for example, 10) to last priority (highest number, for example, 80).
host 2001:0DB8:1::1	The source IPv6 host address that the source address of the packet must match.
host 2001:0DB8:1::2	The destination IPv6 host address that the destination address of the packet must match.

Field	Description
11000	The ephemeral source port number for the outgoing connection.
timeout 300	The total interval of idle time (in seconds) after which the temporary IPv6 reflexive access list named tcptraffic will time out for the indicated session.
(time left 243)	The amount of idle time (in seconds) remaining before the temporary IPv6 reflexive access list named tcptraffic is deleted for the indicated session. Additional received traffic that matches the indicated session resets this value to 300 seconds.
evaluate udptraffic	Indicates the IPv6 reflexive access list named udptraffic is nested in the IPv6 access list named outbound.

Related Commands

Command	Description
clear ipv6 access-list	Resets the IPv6 access list match counters.
hardware statistics	Enables the collection of hardware statistics.
show ip access-list	Displays the contents of all current IP access lists.
show ip prefix-list	Displays information about a prefix list or prefix list entries.
show ipv6 prefix-list	Displays information about an IPv6 prefix list or IPv6 prefix list entries.

show ipv6 cef

To display entries in the IPv6 Forwarding Information Base (FIB), use the **show ipv6 cef** command in user EXEC or privileged EXEC mode.

Privileged EXEC Mode

User EXEC Mode

Syntax Description

ipv6-prefix	(Optional) IPv6 network assigned to the interface. • This argument must be in the form documented in RFC 2373 where the address is specified in hexadecimal using 16-bit values between colons.
/ *prefix-length*	(Optional) The IPv6 network assigned to the interface and the length of the IPv6 prefix. • The *ipv6-prefix* must be in the form documented in RFC 2373 where the address is specified in hexadecimal using 16-bit values between colons. The *prefix-length* is a decimal value that indicates how many of the high-order contiguous bits of the address comprise the prefix (the network portion of the address). A slash mark must precede the decimal value.
longer-prefixes	(Optional) Displays FIB information for more specific destinations.
interface-type	(Optional) Interface type. For more information, use the question mark (?) online help function.
interface-number	(Optional) Interface or subinterface number. For more information about the numbering syntax for your networking device, use the question mark (?) online help function.
platform	(Optional) Displays platform-specific Cisco Express Forwarding data.
detail	(Optional) Displays detailed FIB entry information.
internal	(Optional) Displays internal FIB entry information.
checksum	(Optional) Displays FIB entry checksums.
dependents	(Optional) Displays dependents of the selected prefix.
similar-prefixes	(Optional) Displays FIB information for prefixes that are similar to one another.
epoch	(Optional) Displays the basic FIB entries filtered by epoch number.
summary	(Optional) Displays the summary of events log.
new	(Optional) Displays new events since the last show operation was performed.
within *minutes*	(Optional) Displays events within the specified time, in minutes. The range is from 1 to 4294967295.
prefix-statistics	(Optional) Displays nonzero prefix statistics.

Command Default

If no keyword or argument is specified, information about all FIB entries is displayed.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
12.0(21)ST	This command was introduced.
12.0(22)S	This command was modified. The *interface-type* and *interface-number* arguments and the **longer-prefixes** and **detail** keywords were added.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.2(25)S	This command was modified. The **dependents**, **events**, **internal, new, platform**, **similar-prefixes** and **within** keywords were added.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
Cisco IOS XE Release 2.1	This command was introduced on Cisco ASR 1000 Series Routers.

Usage Guidelines

The **show ipv6 cef**command is similar to the **show ip cef**command, except that it is IPv6-specific.

Examples

The following is sample output from the **show ipv6 cef**command when no keywords or arguments are entered:

```
Router# show ipv6 cef
Global IPv6 CEF Table
12 prefixes
2FFE::3/128
  Receive
2FFE::/64
  attached to POS3/1
3FFE::/64
  nexthop FE80::yyyy:4AFF:FE6D:B980 POS3/1
  nexthop FE80::xxxx:7DFF:FE8D:A840 FastEthernet1/0
3FFE:zz::3/128
  Receive
3FFE:zz::/64
  attached to FastEthernet1/0
3FFE:rr::3/128
  Receive
3FFE:rr::/64
  attached to FastEthernet1/1
3FFE:pp::3/128
  Receive
3FFE:pp::/64
  attached to FastEthernet1/2
3FFE:nnnn:2222::/64
```

```
  nexthop::POS3/1
3FFE:ssss::/64
  recursive via 2FFE::2 POS3/1
FE80::/64
  Receive
```

The following is sample output from the **show ipv6 cef**command showing 6PE multipath information:

```
Router# show ipv6 cef
Global IPv6 CEF Table
12 prefixes
.
.
.
nexthop 10.1.1.3 Ethernet0/0 label 25 16
4004::/64
  nexthop 10.1.1.3 Ethernet0/0 label 27 16
  nexthop 10.1.1.3 Ethernet0/0 label 26 18
```

The table below describes the significant fields shown in the displays.

Table 15: show ipv6 cef Field Descriptions

Field	Description
12 prefixes	Indicates the total number of IPv6 prefixes in the Cisco Express Forwarding table.
2FFE::3/128	Indicates the IPv6 prefix of the remote network.
Receive	Indicates that this IPv6 prefix is local to the router.
3FFE::/64 nexthop FE80::yyyy:4AFF:FE6D:B980 POS3/1 nexthop FE80::xxxx:7DFF:FE8D:A840 FastEthernet1/0	Indicates that IPv6 prefix 3FFE::/64 is reachable through these next hop addresses and interfaces. • Multiple next-hop entries are shown for IPv6 prefixes that have load sharing.
attached to FastEthernet1/0	Indicates that this IPv6 prefix is a connected network on Fast Ethernet interface 1/0.
recursive via 2FFE::2 POS3/1	Indicates that this IPv6 prefix uses the same forwarding information as 2FFE::2 POS3/1.

The following is sample output from the **show ipv6 cef detail** command for Fast Ethernet interface 1/0:

```
Router# show ipv6 cef fastethernet 1/0 detail
IPv6 CEF is enabled and running
IPv6 CEF default table
2 prefixes
3FFE:zz::/64
  attached to FastEthernet1/0
3FFE:rr::/64
  attached to FastEthernet1/1
```

The fields in the are self-explanatory.

The following is sample output from the **show ipv6 cef longer-prefixes**command for the IPv6 prefix 3FFE:xxxx:20:1::12/128. The fields in the display are self-explanatory.

```
Router# show ipv6 cef 3FFE:xxxx:20:1::12/128 longer-prefixes
IPv6 CEF is enabled and running
IPv6 CEF default table
2 prefixes
3FFE:xxxx:20:1::12/128 Receive
  Receive
3FFE:xxxx:20:1::/64 Attached, Connected
     attached to Tunnel81
```

The following is sample output from the **show ipv6 cef detail**command showing 6PE multipath information. The prefix 4004::/64 is received by the Border Gateway Protocol (BGP) from two different peers and therefore two different paths.

```
Router# show ipv6 cef detail
IPv6 CEF is enabled and running
VRF Default:
 20 prefixes (20/0 fwd/non-fwd)
 Table id 0, version 20, 0 resets
 Database epoch:0 (20 entries at this epoch)
.
.
.
4004::/64, epoch 0, per-destination sharing
  recursive via 172.11.11.1 label 27
    nexthop 10.1.1.3 Ethernet0/0 label 16
  recursive via 172.30.30.1 label 26
    nexthop 10.1.1.3 Ethernet0/0 label 18
```

The fields in the display are self-explanatory.

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

```
Router# show ipv6 cef internal
IPv6 CEF is enabled and running
Slow processing intvl = 1 seconds backoff level current/max 0/0
0 unresolved prefixes, 0 requiring adjacency update
IPv6 CEF default table
14 prefixes tableid 0
table version 17
root 6283F5D0
.
.
.
BEEF:20::/64 RIBfib  <======================entry with two mpls path
 Using loadinfo 0x62A75194
  loadinfo ptr 62A75194 flags 0000 next hash  = 0
  refcount 3 path list ptr 0x00000000
  hashes :-
      62335678  drop adjacency
     .
     .
     .
  path list pointer 62370FA0
    2 paths -
     Nexthop  path_pointer 6236E420 traffic share 1 path_list pointer 62370FA0
     nexthop ::FFFF:172.12.12.1
     next_hop_len 0 adjacency pointer 62335678
     Nexthop  path_pointer 6236E480 traffic share 1 path_list pointer 62370FA0
     nexthop ::FFFF:172.14.14.1
```

```
      next_hop_len 0 adjacency pointer 62335678
     refcount 2
     1 loadinfos -
      loadinfo ptr 62A75194 flags 0000 next hash  = 0
      refcount 3 path list ptr 0x00000000
      hashes :-
        62335678  drop adjacency
       .
       .
       .
  tag information
    local tag: exp-null
    rewrites :-
       Fa0/1, 10.2.1.1, tags imposed: {32}
       Fa1/0, 10.1.1.3, tags imposed: {25}
       Fa0/1, 10.2.1.1, tags imposed: {32}
       Fa1/0, 10.1.1.3, tags imposed: {25}
       Fa0/1, 10.2.1.1, tags imposed: {32}
       Fa1/0, 10.1.1.3, tags imposed: {25}
       Fa0/1, 10.2.1.1, tags imposed: {32}
       Fa1/0, 10.1.1.3, tags imposed: {25}
       Fa0/1, 10.2.1.1, tags imposed: {32}
       Fa1/0, 10.1.1.3, tags imposed: {25}
       Fa0/1, 10.2.1.1, tags imposed: {32}
       Fa1/0, 10.1.1.3, tags imposed: {25}
       Fa0/1, 10.2.1.1, tags imposed: {32}
       Fa1/0, 10.1.1.3, tags imposed: {25}
FE80::/10 Receive, RIBfib
  Receive
FF00::/8 Receive, RIBfib
  Receive
```

The table above and the table below describe the significant fields shown in displays.

Table 16: show ipv6 cef internal Field Descriptions

Field	Description
Slow processing intvl	Displays the slow processing interval, in seconds.
backoff level current/max	Displays the backoff level in the ratio current to the maximum backoff value.
unresolved prefixes	Displays the total number of unresolved prefixes.
requiring adjacency update	Indicates the number of prefixes that have been resolved but the associated forwarding information has not yet been updated to reflect the route resolution.
prefixes	Total number of prefixes in the IPv6 Cisco Express Forwarding default table.
tableid	ID of the IPv6 Cisco Express Forwarding default table.
table version	Version of the IPv6 Cisco Express Forwarding default table.
root	Root number of the IPv6 Cisco Express Forwarding default table.
Using loadinfo	Current load information
loadinfo ptr	Load information pointer.
flags	Total number of flags.

Field	Description
next hash	Next hash value.
refcount 3 path list ptr	Location of the refcount 3 path list pointer.
hashes	Total number of hashes.
Nexthop path_pointer	Location of the next hop path pointer.
path_list pointer	Location of the path list pointer.
refcount	Location of the reference counter.
loadinfo ptr	Location of the load information pointer.

The following is sample output from the **show ipv6 cef internal** command showing 6PE multipath information. The fields in the display are self-explanatory.

```
Router# show ipv6 cef internal
4004::/64, version 15, epoch 0, RIB, refcount 3, per-destination sharing
  sources:RIB
  feature space:
   IPRM:0x00028000
  path 01A53DA0, path list 01A4F2E0, share 0, flags recursive, resolved
  ifnums:(none)
   path_list contains no resolved destination(s). HW IPv4 notified.
  recursive via 172.11.11.1 label 27, fib 01A6CCA0, 1 terminal fib
    path 01A540B0, path list 01A4F5F0, share 1, flags nexthop
    ifnums:(none)
     path_list contains no resolved destination(s). HW IPv4 notified.
    nexthop 10.1.1.3 Ethernet0/0 label 16, mask /0, adjacency IP adj out of
Ethernet0/0, addr 10.1.1.3 01DE9FB0
  path 01A53D30, path list 01A4F2E0, share 0, flags recursive, resolved
  ifnums:(none)
   path_list contains no resolved destination(s). HW IPv4 notified.
  recursive via 172.30.30.1 label 26, fib 01A6CBD0, 1 terminal fib
    path 01A540B0, path list 01A4F5F0, share 1, flags nexthop
    ifnums:(none)
     path_list contains no resolved destination(s). HW IPv4 notified.
    nexthop 10.1.1.3 Ethernet0/0 label 18, mask /0, adjacency IP adj out of
Ethernet0/0, addr 10.1.1.4 01DE9FB0
  output chain:
    loadinfo 01A47520, per-session, flags 0011, 2 locks
    flags:Per-session, for-mpls-not-at-eos
    16 hash buckets
      <0  > label 27 label 16 TAG adj out of Ethernet0/0, addr 10.1.1.3
01DE9E30
      <1  > label 26 label 18 TAG adj out of Ethernet0/0, addr 10.1.1.3
01DE9E30
      <2  > label 27 label 16 TAG adj out of Ethernet0/0, addr 10.1.1.3
01DE9E30
      <3  > label 26 label 18 TAG adj out of Ethernet0/0, addr 10.1.1.3
01DE9E30
      <4  > label 27 label 16 TAG adj out of Ethernet0/0, addr 10.1.1.3
.
.
.
      <15 > label 26 label 18 TAG adj out of Ethernet0/0, addr 10.1.1.3
01DE9E30
```

The following is sample output from the **show ipv6 cef**command, showing information about the Multiprotocol Label Switching (MPLS) labels associated with the FIB table entries for an IPv6 prefix that is configured to be a Cisco 6PE router using MPLS to transport IPv6 traffic over an IPv4 network.

To display label information from the Cisco Express Forwarding table, enter the **show ipv6 cef**command with an IPv6 prefix. The fields in the display are self-explanatory.

```
Router# show ipv6 cef 2001:0DB8::/32
2001:0DB8::/32
      nexthop ::FFFF:192.168.99.70
      fast tag rewrite with Se0/0, point2point, tags imposed {19 20}
fast tag rewrite with Se0/0, point2point, tags imposed {19 20}
```

Sample Output for Cisco IOS Releases 12.2(25)S, 12.2(28)SB, 12.2(33)SRA,12.2(33)SXH, 12.4(20)T, and Later Releases

The sample output in the following commands was reformatted with the implementation of Cisco Express Forwarding enhancements. The information in the output is the same as it was before the enhancements.

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

```
Router# show ipv6 cef internal
IPv6 CEF is enabled and running
VRF Default:
 20 prefixes (20/0 fwd/non-fwd)
 Table id 0, 0 resets
 Database epoch: 0 (20 entries at this epoch)
2001:1:12::/64, epoch 0, RIB, refcount 3
  sources: RIB
  feature space:
   MFI: path extension list empty
   IPRM: 0x00038000
   IPV6 adj out of POS1/0 635BAFE0
  path 633A9A18, path list 633A732C, share 1, type attached nexthop
  ifnums: (none)
   path_list contains at least one resolved destination(s). HW IPv6 notified.
  nexthop FE80::205:DCFF:FE26:4800 POS1/0, adjacency IPV6 adj out of POS1/0 635BAFE0
  output chain: IPV6 adj out of POS1/0 635BAFE0
```

The fields in the display are self-explanatory.

The following is sample output from the **show ipv6 cef** *ipv6-prefix* / *prefix-length* **internal** command:

```
Router# show ipv6 cef 2001:2:25::/64 internal
2001:2:25::/64 RIBfib
 Using cached adjacency 0x629E1CE0
  path list pointer 62A2C310
    1 path -
     Nexthop  path_pointer 62A297B0 traffic share 1 path_list pointer 62A2C310
     nexthop FE80::2D0:1FF:FEE4:6800 FastEthernet0/1
     next_hop_len 0 adjacency pointer 629E1CE0
    refcount 10
    no loadinfo
```

The following is sample output from the **show ipv6 cef detail** command. The fields in the display are self-explanatory.

```
Router# show ipv6 cef detail
IPv6 CEF is enabled and running
VRF Default:
 20 prefixes (20/0 fwd/non-fwd)
 Table id 0, 0 resets
 Database epoch: 0 (20 entries at this epoch)
2001:1:12::/64, epoch 0
  nexthop FE80::205:DCFF:FE26:4800 POS1/0
2001:2:13::/64, epoch 0, flags attached, connected
  attached to POS1/0
2001:2:13::2/128, epoch 0, flags receive
```

The following is sample output from the **show ipv6 cef epoch** command. The fields in the display are self-explanatory.

```
Router# show ipv6 cef epoch
Table: Default
 Database epoch: 1 (2 entries at this epoch)
```

Related Commands

Command	Description
show cef interface	Displays Cisco Express Forwarding-related interface information.
show ipv6 cef adjacency	Displays Cisco Express Forwarding for IPv6 recursive and direct prefixes resolved through an adjacency.
show ipv6 route	Displays IPv6 router advertisement information received from onlink routers.

show ipv6 cef adjacency

To display Cisco Express Forwarding for IPv6 and distributed Cisco Express Forwarding v6 recursive and direct prefixes resolved through an adjacency, use the **show ipv6 cef adjacency** command in user EXEC or privileged EXEC mode.

show ipv6 cef adjacency *interface-type interface-number ipv6-address* [{**detail** | **internal** | **samecable**}] [**platform** [{**detail** | **internal** | **samecable**}]] [**source** [{**internal** | **epoch** *epoch-number* [{**internal** | **samecable** | **platform** [{**detail** | **internal** | **samecable**}]}]}]] [**epoch** *epoch-number* [{**internal** | **samecable** | **platform** [{**detail** | **internal** | **samecable**}]}]]

Syntax Description

interface-type	Interface type for which to display Cisco Express Forwarding adjacency information.
interface-number	Interface number for which to display adjacency information.
ipv6-address	Next-hop IPv6 address. This argument must be in the form documented in RFC 2373 where the address is specified in hexadecimal using 16-bit values between colons.
detail	(Optional) Displays detailed information for each CEFv6 adjacency type entry.
internal	(Optional) Displays data for adjacency type entries.
samecable	(Optional) Displays the connected (up) interface for adjacency type entries.
platform	(Optional) Displays platform-specific adjacency information.
source	(Optional) Displays source-specific adjacency information.
epoch *epoch-number*	(Optional) Displays adjacency type entries filtered by epoch number. The epoch number range is from 0 to 255.
discard	Displays discard adjacency information. Sets up for loopback interfaces. Loopback IPv6 addresses are receive entries in the FIB table.
drop	Displays drop adjacency information. Packets forwarded to this adjacency are dropped.
glean	Displays glean adjacency information. Represents destinations on a connected interface for which no Address Resolution Protocol (ARP) cache entry exists.
null	Displays null adjacency information. Formed for the null 0 interface. Packets forwarded to this adjacency are dropped.
punt	Displays punt adjacency information. Represents destinations that cannot be switched in the normal path and that are punted to the next fastest switching vector.
adj-null	Displays null adjacency information.
checksum	(Optional) Displays FIB entry checksums.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
12.0(22)S	This command was introduced.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.2(25)S	This command was modified. The **internal**, **samecable**, **platform**, and **source** keywords were added.
12.2(28)SB	This command was modified. The **null** keyword was added.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.

Usage Guidelines

The **show ipv6 cef adjacency** command is similar to the **show ip cef adjacency** command, except that it is IPv6 specific.

This command shows all prefixes resolved through a regular next-hop adjacency or through a special adjacency type such as discard, drop, glean, null, and punt. An adjacency is a node that can be reached by one Layer 2 hop.

Examples

The following is sample output from the **show ipv6 cef adjacency** command when the **glean** type is specified:

```
Router# show ipv6 cef adjacency glean
Prefix              Next Hop             Interface
3FFE:xxxx::/24       attached             Ethernet1
2002::/16           3FFE:xxxx::1          Ethernet1
```

The following is sample output from the **show ipv6 cef adjacency drop** command with **detail** specified:

```
Router# show ipv6 cef adjacency
 fastethernet
 0/1 drop detail
IPv6 CEF is enabled and running
IPv6 CEF default table
12 prefixes
```

The following sample output shows the direct IPv6 prefix when next-hop Ethernet interface 1 is specified:

```
Router# show ipv6 cef adjacency ethernet 1 3FFE:xxxx::250:8BFF:FEE8:F800
Prefix                                    Next Hop             Interface
3FFE:xxxx::250:8BFF:FEE8:F800/128         2002::/16          Ethernet1
```

The table below describes the fields shown in the display.

Table 17: show ipv6 cef adjacency Field Descriptions

Field	Description
Prefix	Destination IPv6 prefix.
Next Hop	Next-hop IPv6 address.
Interface	Next-hop interface.

Related Commands

Command	Description
show ipv6 cef summary	Displays a summary of the entries in the IPv6 FIB.

show ipv6 cef events

To display IPv6 Cisco Express Forwarding (CEF) Forwarding Information Base (FIB) and adjacency events, use the **show ipv6 cef events** command in privileged EXEC mode.

show ipv6 cef events [{[*ipv6-prefix*] [{**new** | **within** *minutes*}] [**detail**] | **summary**}]

Syntax Description

ipv6-prefix	(Optional) IPv6 network assigned to the interface. • This argument must be in the form documented in RFC 2373 where the address is specified in hexadecimal using 16-bit values between colons.
new	(Optional) Displays new events since the last show operation was performed.
within *minutes*	(Optional) Displays events within the specified time, in minutes. The range is from 1 to 4294967295.
minutes	(Optional) Time in minutes. The range is from 1 to 4294967295.
detail	(Optional) Displays detailed FIB entry information.
summary	(Optional) Displays the summary of event log.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
15.0(1)M	This command was introduced in a release earlier than Cisco IOS Release 15.0(1)M.
12.2(33)SRC	This command was integrated into a release earlier than Cisco IOS Release 12.2(33)SRC.
12.2(33)SXI	This command was integrated into a release earlier than Cisco IOS Release 12.2(33)SXI.
Cisco IOS XE Release 2.1	This command was implemented on the Cisco ASR 1000 Series Aggregation Services Routers.

Usage Guidelines

The **show ipv6 cef events** command is similar to the **show ip cef events** command, except that it is IPv6-specific.

Examples

The following is sample output from the **show ipv6 cef events** command when used without any arguments or keywords:

```
Router# show ipv6 cef events
*Apr 23 07:49:40.861: [v6:Default] *::*/*               Allocated FIB table       [OK]
*Apr 23 07:49:40.861: [v6:Default] *::*/*'00            Add source Default table  [OK]
```

```
*Apr 23 07:49:40.861: [v6:Default] ::/0'00              FIB add src DRH (ins)      [OK]
*Apr 23 07:49:40.861: [v6:Default] *::*/*'00            New FIB table              [OK]\
```

The table below describes the significant fields shown in the display.

Table 18: show ipv6 cef events Field Descriptions

Field	Description
[v6:Default]	Type of VRF table for this event entry.
::/*'00	IPv6 prefix.
[OK]	Cisco Express Forwarding processed event.

Related Commands

Command	Description
show ip cef events	Displays all recorded Cisco Express Forwarding FIB and adjacency events.
show ipv6 cef	Displays entries in the IPv6 FIB.

show ipv6 cef exact-route

To display the exact route for a source-destination IPv6 address pair, use the **show ipv6 cef exact-route** command in user EXEC or privileged EXEC mode.

show ipv6 cef exact-route *session-source-address* [**src-port** *port-number*] *session-destination-address* [**dest-port** *port-number*] [**gtp-teid** *teid*]

Syntax Description

session-source-address	The network source IPv6 address.
src-port	(Optional) Specifies a source port.
port-number	(Optional) The Layer 4 port number of the source IPv6 address, if configured. The range is from 0 to 65535.
session-destination-address	The network destination IPv6 address.
dest-port	(Optional) Specifies a destination port.
port-number	(Optional) The Layer 4 port number of the destination IPv6 address, if configured. The range is from 0 to 65535. To display the exact route for a specific GPRS Tunneling Protocol Tunnel Endpoint Identifier (GTP TEID), the *port number* for the destination port must be 2152.
gtp-teid	(Optional) Displays the exact route of a source-destination IPv6 address pair with a specific GTP TEID value.
teid	GTP TEID value. The value range is from 1 to 4294967295.

Command Modes

User EXEC (>)
Privileged EXEC (#)

Command History

Release	Modification
12.0(21)ST	This command was introduced.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.4(11)T	This command was modified. The **src-port** *port-number* and **dest-port** *port-number* keywords and arguments were added.

Release	Modification
3.10S	This command is supported in Cisco IOS XE Release 3.10S. The **gtp-teid** `keyword and the` *teid* argument were added to the command.

Usage Guidelines

The **show ipv6 cef exact-route** command is similar to the **show ip cef exact-route** command, except that it is IPv6 specific.

The **show ipv6 cef exact-route** command displays the exact route for a source-destination IPv6 address pair.

Examples

The following is sample output from the **show ipv6 cef exact-route** command. (The fields in the display are self-explanatory)

```
Router# show ipv6 cef exact-route 77::77 10:10:10:10::11
 77::77 -> 10:10:10:10::11 : Ethernet0/0 (next hop 10:10:10:10::11)
```

Examples

The following is a sample output of the **show ipv6 cef exact-route** *session-source-address session-destination-address* [**dest-port** *port-number*] [**gtp-teid** *teid*] command. (The fields in the display are self-explanatory)

```
Router# show ipv6 cef exact-route 2011:1::1:2 2022:2::1:2 dest-port 2152 gtp-teid 100
2011:1::1:2 -> 2022:2::1:2 => IPV6 adj out of GigabitEthernet2/1/0.2, addr
FE80::21F:CAFF:FE16:3210
```

Related Commands

Command	Description
show cef interface	Displays Cisco Express Forwarding-related interface information.
show ip cef exact-route	Displays the exact route for a source-destination IP address pair.
show ipv6 cef adjacency	Displays Cisco Express Forwarding for IPv6 recursive and direct prefixes resolved through an adjacency.
show ipv6 route	Displays IPv6 router advertisement information received from onlink routers.

show ipv6 cef neighbor discovery throttling

To display the Cisco Express Forwarding for IPv6 neighbor discovery (ND) throttling list, use the **show ipv6 cef neighbor discovery throttling**command in privileged EXEC mode.

show ipv6 cef neighbor discovery throttling [**internal**]

Syntax Description

internal	(Optional) Displays internal data structures.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.3(2)T	This command was introduced.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Examples

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

```
Router# show ipv6 cef neighbor discovery throttling
Address                                  Holdtime
2001:1111::1                             00:00:02.296
```

The table below describes the fields shown in the display.

Table 19: show ipv6 cef neighbor discovery throttling Field Descriptions

Field	Description
Address	The IPv6 address for which the information on ND throttling list is displayed.
Holdtime	Length of time (in hours, minutes, and seconds) that the Cisco IOS software will wait to hear from the peer before declaring it down.

Related Commands

Command	Description
show ipv6 neighbors	Displays IPv6 ND cache information.

show ipv6 cef non-recursive

To display nonrecursive route entries in the IPv6 Forwarding Information Base (FIB), use the **show ipv6 cef non-recursive**command in user EXEC or privileged EXEC mode.

show ipv6 cef non-recursive [{**detail** | **internal** | **samecable**}] [**platform** [{**detail** | **internal** | **samecable**}]] [**source** [{**internal** | **epoch** *epoch-number* [{**internal** | **samecable** | **platform** [{**detail** | **internal** | **samecable**}]}]}]] [**epoch** *epoch-number* [{**internal** | **samecable** | **platform** [{**detail** | **internal** | **samecable**}]}]]

Syntax Description

detail	(Optional) Displays detailed nonrecursive route entry information.
internal	(Optional) Displays data for nonrecursive route entries.
samecable	(Optional) Displays the connected (up) interface for nonrecursive route entries.
platform	(Optional) Displays platform-specific nonrecursive route entries.
source	(Optional) Displays source-specific nonrecursive route entry information.
epoch *epoch-number*	(Optional) Displays adjacency type entries filtered by epoch number. The epoch number range is from 0 to 255.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.0(22)S	This command was introduced.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.2(25)S	The **internal**, **samecable**, **platform**, **source**, and **epoch** keywords were added, and the *epoch-number* argument was added. Next hop information was removed from the command output.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.4(20)T	This command was integrated into Cisco IOS Release 12.4(20)T.

Usage Guidelines

The **show ipv6 cef non-recursive**command is similar to the **show ip cef non-recursive**command, except that it is IPv6-specific.

The **show ipv6 cef non-recursive detail** command shows detailed FIB entry information for all nonrecursive routes.

Examples

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

```
Router# show ipv6 cef non-recursive detail
IPv6 CEF is enabled and running
IPv6 CEF default table
8 prefixes
2001:xx::/35
     nexthop FE80::ssss:CFF:FE3D:DCC9 Tunnel55
2001:zzz:500::/40
     nexthop FE80::nnnn:801A Tunnel32
2001:zzz::/35
     nexthop 3FFE:mmm:8023:21::2 Tunnel26
3FFE:yyy:8023:37::1/128 Receive
  Receive
3FFE:yyy:8023:37::/64 Attached, Connected
     attached to Tunnel37
3FFE:yyy:8023:38::1/128 Receive
  Receive
3FFE:yyy:8023:38::/64 Attached, Connected
     attached to Tunnel40
3FFE:yyy:8023:39::1/128 Receive
  Receive
```

The table below describes the significant fields shown in the display.

Table 20: show ipv6 cef non-recursive Field Descriptions

Field	Description
8 prefixes	Indicates the total number of IPv6 prefixes in the Cisco Express Forwarding table.
2001:xx::/35	Indicates the IPv6 prefix of the remote network.
2001:zzz:500::/40 nexthop FE80::nnnn:801A Tunnel32	Indicates that IPv6 prefix 2001:zzz:500::/40 is reachable through this next-hop address and interface.
attached to Tunnel37	Indicates that this IPv6 prefix is a connected network on Tunnel interface 37.
Receive	Indicates that this IPv6 prefix is local to the router.

This is an example of the **show ipv6 cef non-recursive**command output in Cisco IOS Releases 12.2(25)S, 12.2(28)SB, 12.2(33)SRA, 12.2(33)SXH, 12.4(20)T, and later releases:

```
Router# show ipv6 cef non-recursive
2003:1::/64
  attached to POS6/1/0
2003:1::1/128
  receive
2003:2::/64
  attached to Loopback0
2003:2::1/128
```

Related Commands

Command	Description
show ipv6 cef	Displays entries in the IPv6 FIB.
show ipv6 cef summary	Displays a summary of the entries in the IPv6 forwarding FIB.
show ipv6 cef unresolved	Displays unresolved entries in the IPv6 FIB.

show ipv6 cef platform

To display platform-specific Cisco Express Forwarding data, use the **show ipv6 cef platform**command in user EXEC or privileged EXEC mode.

show ipv6 cef platform [{**detail** | **internal** | **samecable**}]

Syntax Description

detail	(Optional) Displays detailed platform-specific Cisco Express Forwarding data.
internal	(Optional) Displays internal platform-specific Cisco Express Forwarding data.
samecable	(Optional) Displays platform-specific data for the connected (up) interface.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.2(22)S	This command was introduced.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.2(33)SCE	This command was integrated into Cisco IOS Release 12.2(33)SCE.

Usage Guidelines

If none of the optional keywords is used, data for all platforms is displayed.

Examples

The following example will display all platform-specific Cisco Express Forwarding data:

```
Router# show ipv6 cef platform
```

show ipv6 cef summary

To display a summary of the entries in the IPv6 Forwarding Information Base (FIB), use the **show ipv6 cef summary**command in user EXEC or privileged EXEC mode.

show ipv6 cef summary

Syntax Description

This command has no arguments or keywords.

Command Modes

User EXEC
Privileged EXEC

Command History

Release	Modification
12.0(22)S	This command was introduced.
12.2(13)T	This command was integrated into Cisco IOS Release 12.2(13)T.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.4(20)T	This command was integrated into Cisco IOS Release 12.4(20)T.

Usage Guidelines

The **show ipv6 cef summary**command is similar to the **show ip cef summary**command, except that it is IPv6-specific.

Examples

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

```
Router# show ipv6 cef summary
IPv6 CEF is enabled and running
Slow processing intvl = 1 seconds backoff level current/max 0/0
0 unresolved prefixes, 0 requiring adjacency update
IPv6 CEF default table
9 prefixes
```

The table below describes the significant fields shown in the display.

Table 21: show ipv6 cef summary Field Descriptions

Field	Description
Slow processing intvl	Indicates the waiting time (in seconds) before the software attempts to resolve any unresolved routes.
unresolved prefixes	Indicates the number of unresolved routes.

Field	Description
requiring adjacency update	Indicates the number of prefixes that have been resolved but the associated forwarding information has not yet been updated to reflect the route resolution.

This is an example of the **show ipv6 cef summary** command output in Cisco IOS Releases 12.2(25)S, 12.2(28)SB, 12.2(33)SRA, 12.2(33)SXH, 12.4(20)T, and later releases:

```
Router# show ipv6 cef summary
IPv6 CEF is enabled and running
VRF Default:
 20 prefixes (20/0 fwd/non-fwd)
 Table id 0, 0 resets
 Database epoch: 0 (20 entries at this epoch)
```

Related Commands

Command	Description
show ipv6 cef	Displays entries in the IPv6 FIB.
show cef interface	Displays Cisco Express Forwarding-related interface information.

show ipv6 cef switching statistics

To display switching statistics in the IPv6 Forwarding Information Base (FIB), use the **show ipv6 cef switching statistics**command in privileged EXEC mode.

show ipv6 cef switching statistics [**feature**]

Syntax Description

feature	(Optional) The output is ordered by feature.

Command Modes

Privileged EXEC

Command History

Release	Modification
12.2(25)S	This command was introduced.
12.2(28)SB	This command was integrated into Cisco IOS Release 12.2(28)SB.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
12.4(20)T	This command was integrated into Cisco IOS Release 12.4(20)T.

Usage Guidelines

If the optional feature keyword is not used, all switching statistics are displayed.

Examples

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

```
Router# show ipv6 cef switching statistics
Reason                                 Drop       Punt  Punt2Host
RP LES Packet destined for us             0     132248          0
RP LES Multicast                          0          2          0
RP LES Link-local                         0         33          0
RP LES Total                              0     132283          0
Slot 4 Packet destined for us             0     129546          0
Slot 4 Link-local                         0         31          0
Slot 4 Total                              0     129577          0
All    Total                              0     261860          0
```

The table below describes the significant fields shown in the display.

Table 22: show ipv6 cef switching statistics Field Descriptions

Field	Description
Reason	Packet description.
Drop	Number of packets dropped.
Punt	Number of packets that could be switched in the normal path and were punted to the next fastest switching vector.

Field	Description
Punt2Host	Number of packets that cannot be switched in the normal path and were punted to the host.

Related Commands

Command	Description
show cef interface	Displays Cisco Express Forwarding-related interface information.
show ipv6 cef	Displays entries in the IPv6 FIB.
show ipv6 route	Displays IPv6 router advertisement information received from onlink routers.