S through V

set metric (EIGRP)

To set the metric value for Enhanced Interior Gateway Routing Protocol (EIGRP) in a route map, use the **set metric** route-map configuration command. To return to the default metric value, use the **no** form of this command.

set metric *bandwidth delay reliability loading mtu*

no set metric *bandwidth delay reliability loading mtu*

Syntax Description

bandwidth	Metric value or EIGRP bandwidth of the route in kbps. The range is from 0 to 4294967295.
delay	Route delay (in tens of microseconds). It can be in the range from 0 to 4294967295.
reliability	Likelihood of successful packet transmission expressed as a number from 0 to 255. The value 255 means 100 percent reliability; 0 means no reliability.
loading	Effective bandwidth of the route expressed as a number from 0 to 255 (255 is 100 percent loading).
mtu	Minimum maximum transmission unit (MTU) size of the route, in bytes. It can be in the range from 0 to 4294967295.

Command Default   No metric will be set in the route map.

Command Modes   Route-map configuration (config-route-map)

Command History

Release	Modification
10.0	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
Cisco IOS XE Release 2.1	This command was integrated into Cisco IOS XE Release 2.1.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.

Usage Guidelines   We recommend you consult your Cisco technical support representative before changing the default value.

Use the **route-map** global configuration command, and the **match** and **set** route-map configuration commands, to define the conditions for redistributing routes from one routing protocol into another. Each **route-map** command has a list of **match** and **set** commands associated with it. The **match** commands specify the *match criteria*--the conditions under which redistribution is allowed for the current **route-map**command. The **set** commands specify the *set actions*--the particular redistribution actions to perform if the criteria enforced by the **match** commands are met. The **no route-map** command deletes the route map.

The **set** route-map configuration commands specify the redistribution *set actions* to be performed when all of the match criteria for a router are met. When all match criteria are met, all set actions are performed.

Examples   The following example sets the bandwidth to 10,000, the delay to 10, the reliability to 255, the loading to 1, and the MTU to 1500:

```
Router(config-route-map)# set metric 10000 10 255 1 1500
```

set tag (IP)

To set a tag value for a route in a route map, use the **set tag** command in route-map configuration mode. To delete the entry, use the **no** form of this command.

set tag {*tag-value*| *tag-value-dotted-decimal*}

no set tag {*tag-value*| *tag-value-dotted-decimal*}

Syntax Description

tag-value	Route tag value in plain decimals. The range is from 0 to 4294967295.
tag-value-dotted-decimal	Route tag value in dotted decimals. The range is from 0.0.0.0 to 255.255.255.255.

Command Default   Routes are not tagged.

Command Modes   Route-map configuration (config-route-map)

Command History

Release	Modification
10.0	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
Cisco IOS XE Release 2.1	This command was implemented on Cisco ASR 1000 Series Aggregation Services Routers.
15.2(2)S	This command was modified. This command was integrated into Cisco IOS Release 15.2(2)S and the *tag-value-dotted-decimal* argument was added to support tag values in dotted-decimal format.
Cisco IOS XE Release 3.6S	This command was modified. The *tag-value-dotted-decimal* argument was added to support tag values in dotted-decimal format.

Usage Guidelines   Use the **set tag** command to set an administrative tag for a route within a route map. Route tags are 32-bit values attached to routes. You can set tag values as plain decimals or dotted decimals. Route tags are used by

route maps to filter routes. The tag value has no impact on routing decisions. It is used to mark or flag routes to prevent routing loops when routes are redistributed between routing protocols.

Examples

The following example shows how to set the tag value of the destination routing protocol to 5:

```
Device(config)# route-map tag
Device(config-route-map)# set tag 5
```
The following example shows how to set the tag value in the dotted-decimal format:

```
Device(config)# route-map tag
Device(config-route-map)# set tag 10.10.10.10
```

Related Commands

Command	Description
match tag	Filters routes that match specific route tags.
route-map (IP)	Defines conditions for redistributing routes from one routing protocol into another, or enables policy routing.
set automatic-tag	Automatically computes the tag value.

show eigrp address-family accounting

To display prefix accounting information for Enhanced Interior Gateway Routing Protocol (EIGRP) processes, use the **show eigrp address-family accounting** command in user EXEC or privileged EXEC mode.

show eigrp address-family {**ipv4**| **ipv6**} [**vrf** *vrf-name*] [*autonomous-system-number*] [**multicast**] **accounting**

Syntax Description

ipv4	Selects the IPv4 protocol address family.
ipv6	Selects the IPv6 protocol address family.
vrf *vrf-name*	(Optional) Displays information about the specified VRF. This keyword/argument pair is available only for IPv4 configurations.
autonomous-system- number	(Optional) Autonomous system number.
multicast	(Optional) Displays information about multicast instances.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command Default

Prefix accounting information for all EIGRP processes is displayed.

Command History

Release	Modification
15.0(1)M	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines

This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system (AS) configurations.

This command displays the same information as the **show ip eigrp accounting** command. Cisco recommends using the **show eigrp address-family accounting** command.

Examples   The following example shows how to display EIGRP prefix accounting information for autonomous-system 22:

```
Router# show eigrp address-family ipv4 22 accounting

EIGRP-IPv4 VR(saf) Accounting for AS(22)/ID(10.0.0.1)
Total Prefix Count: 3  States: A-Adjacency, P-Pending, D-Down
State Address/Source    Interface       Prefix    Restart   Restart/
                                        Count     Count     Reset(s)
A    10.0.0.2           Et0/0              2         0         0
P    10.0.2.4           Se2/0              0         2         114
D    10.0.1.3           Et0/0              0         3         0
```
The table below describes the significant fields shown in the display.

Table 1: show eigrp address-family accounting Field Descriptions

Field	Description
IP-EIGRP accounting for AS...	Identifies the EIGRP instance, AS number, router ID, and table ID.
Total Prefix Count	Number of distinct prefixes that are present in this autonomous system.
State	State of the given neighbor: Adjacency, Pending, or Down.
Address/Source	IP address of the neighbor.
Interface	Interface on which the neighbor is connected.
Prefix Count	Number of prefixes that are advertised by this neighbor.
Restart Count	Number of times this neighbor has been restarted due to exceeding prefix limits.
Restart/Reset(s)	Time remaining until the neighbor will be restarted (if in Pending state) or until the restart count will be cleared (if in Adjacency state.)

Related Commands

Command	Description
show eigrp address-family events	Displays information about EIGRP events.
show eigrp address-family interfaces	Displays information about interfaces configured for EIGRP.
show eigrp address-family neighbors	Displays the neighbors discovered by EIGRP.

Command	Description
show eigrp address-family sia-event	Displays information about EIGRP SIA events.
show eigrp address-family sia-statistics	Displays information about EIGRP SIA statistics.
show eigrp address-family timers	Displays information about EIGRP timers and expiration times.
show eigrp address-family topology	Displays entries in the EIGRP topology table.
show eigrp address-family traffic	Displays the number of EIGRP packets sent and received.

show eigrp address-family events

To display information about Enhanced Interior Gateway Routing Protocol (EIGRP) address-family events, use the **show eigrp address-family events**command in user EXEC or privileged EXEC mode.

show eigrp address-family {**ipv4**| **ipv6**} [**vrf** *vrf-name*] [*autonomous-system-number*] **[multicast] events** [*starting-event-number ending-event-number*] [**errmsg** [*starting-event-number ending-event-number*]] [**sia** [*starting-event-number ending-event-number*]] **[type]**

Syntax Description

ipv4	Selects the IPv4 protocol address family.
ipv6	Selects the IPv6 protocol address family.
vrf *vrf-name*	(Optional) Displays information about the specified VRF.
autonomous-system- number	(Optional) Autonomous system number.
multicast	(Optional) Displays information about multicast instances.
starting-event-number	(Optional) Number of first event to display.
ending-event-number	(Optional) Number of last event to display.
errmsg	(Optional) Displays error message events.
sia	(Optional) Displays Stuck in Active (SIA) events.
type	(Optional) Displays the types of events being logged.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command Default

All EIGRP address-family events are displayed.

Command History

Release	Modification
15.0(1)M	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.

Release	Modification
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines

The event log is used by Cisco technical support to display a history of EIGRP internal events that are specific to a particular address family.

To display information about EIGRP service-family events, use the **show eigrp service-family events** command.

This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system (AS) configurations.

This command displays the same information as the **show ip eigrp events** command. Cisco recommends using the **show eigrp address-family events** command.

Examples

The following example shows how to display EIGRP address-family events for autonomous-system 3:

```
Router# show eigrp address-family ipv4 3 events
Event information for AS 3:
1 15:37:47.015 Change queue emptied, entries: 1
2 15:37:47.015 Metric set: 10.0.0.0/24 307200
3 15:37:47.015 Update reason, delay: new if 4294967295
4 15:37:47.015 Update sent, RD: 10.0.0.0/24 4294967295
5 15:37:47.015 Update reason, delay: metric chg 4294967295
6 15:37:47.015 Update sent, RD: 10.0.0.0/24 4294967295
7 15:37:47.015 Route installed: 10.0.0.0/24 1.1.1.2
8 15:37:47.015 Route installing: 10.0.0.0/24 10.0.1.2
```

Related Commands

Command	Description
show eigrp address-family accounting	Displays prefix accounting information for EIGRP processes.
show eigrp address-family interfaces	Displays information about interfaces configured for EIGRP.
show eigrp address-family neighbors	Displays the neighbors discovered by EIGRP.
show eigrp address-family sia-event	Displays information about EIGRP SIA events.
show eigrp address-family sia-statistics	Displays information about EIGRP SIA statistics.
show eigrp address-family timers	Displays information about EIGRP timers and expiration times.
show eigrp address-family topology	Displays entries in the EIGRP topology table.
show eigrp address-family traffic	Displays the number of EIGRP packets sent and received.

Command	Description
show eigrp service-family events	Displays information about EIGRP service-family events.

show eigrp address-family interfaces

To display information about interfaces that are configured for Enhanced Interior Gateway Routing Protocol (EIGRP), use the **show eigrp address-family interfaces** command in user EXEC or privileged EXEC mode.

show eigrp address-family {**ipv4**| **ipv6**} [**vrf** *vrf-name*] [*autonomous-system-number*] [**multicast**] **interfaces** [**detail**] [*interface-type interface-number*]

Syntax Description

ipv4	Selects the IPv4 protocol address family.
ipv6	Selects the IPv6 protocol address family.
vrf *vrf-name*	(Optional) Displays information about the specified VPN routing and forwarding (VRF).
autonomous-system- number	(Optional) Autonomous system number.
multicast	(Optional) Displays information about multicast instances.
detail	(Optional) Displays detailed information about EIGRP interfaces.
interface-type interface-number	(Optional) Interface type and number to display. If not specified, all enabled interfaces are displayed.

Command Default

Information about all interfaces enabled with EIGRP is displayed.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
15.0(1)M	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS Release XE 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Release	Modification
15.2(2)S	This command was modified. The output of the command was enhanced to display information about the state of Bidirectional Forwarding Detection (BFD) on an interface.

Usage Guidelines

Use the **show eigrp address-family interfaces** command to determine the interfaces on which EIGRP is active and to learn EIGRP information about those interfaces.

If an autonomous system is specified, only the routing process for the specified autonomous system is displayed. Otherwise, all EIGRP processes are displayed.

This command can be used to display information about EIGRP named configurations and EIGRP autonomous system (AS) configurations.

This command displays the same information as the **show ip eigrp interfaces** command. Cisco recommends using the **show eigrp address-family interfaces** command.

Examples

The following sample output from the **show eigrp address-family ipv4 4453 interfaces** command displays information about EIGRP interfaces for autonomous system 4453:

```
Device# show eigrp address-family ipv4 4453 interfaces

EIGRP-IPv4 VR(Virtual-name) Address-family Neighbors for AS(4453)
            Xmit   Queue       Mean  Pacing Time   Multicast   Pending
Interface   Peers  Un/Reliable SRTT  Un/Reliable   Flow Timer  Services
Se0         1      0/0         28    0/15          127         0
Se1         1      0/0         44    0/15          211         0
```

The following sample output from the show eigrp address-family ipv4 2 interfaces detail Loopback1 command shows how to display detailed information about Loopback interface 1 in autonomous system 2:

```
Device# show eigrp address-family ipv4 2 interfaces detail Loopback1

EIGRP-IPv4 VR(saf2) Address-family Neighbors for AS(2)
            Xmit   Queue       Mean  Pacing Time   Multicast   Pending
Interface   Peers  Un/Reliable SRTT  Un/Reliable   Flow Timer  Services
Lo1         166    0/0         48    0/1           258         0
 Hello-interval is 5, Hold-time is 15
 Split-horizon is enabled
 Next xmit serial <none>
 Un/reliable mcasts: 0/0 Un/reliable ucasts: 10148/67233
 Mcast exceptions: 0 CR packets: 0 ACKs suppressed: 8719
 Retransmissions sent: 2696 Out-of-sequence rcvd: 594
 Interface has all stub peers
 Topology-ids on interface - 0
 Authentication mode is not set
```

The following sample output from the **show eigrp address-family ipv6 interfaces detail** command shows how to display information about the state of BFD on an interface:

```
Device# show eigrp address-family ipv6 interfaces detail

            Xmit   Queue       Mean  Pacing Time   Multicast   Pending
Interface   Peers  Un/Reliable SRTT  Un/Reliable   Flow Timer  Routes
Lo1         0      0/0         0/10  0             0           0
 Hello-interval is 5 sec
 Next xmit serial <none>
 BFD is enabled
```

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

Table 2: show eigrp address-family interfaces Field Descriptions

Field	Description
Interface	Interface over which EIGRP is configured.
Peers	Number of EIGRP neighbors connected on this interface.
Xmit Queue Un/Reliable	Number of packets remaining in the unreliable and reliable transmit queues.
Mean SRTT	Mean smooth round-trip time interval (SRTT), in milliseconds.
Pacing Time Un/Reliable	Pacing time used to determine when reliable and unreliable EIGRP packets should be sent out of the interface.
Multicast Flow Timer	Maximum time (in seconds) for which the device sends multicast EIGRP packets.
Pending Services	Number of services in the packets in the transmit queue waiting to be sent.
Pending Routes	Number of available routes in the packets in the transmit queue waiting to be sent.
CR packets	Packets marked for conditional receive.

Related Commands

Command	Description
show eigrp address-family accounting	Displays prefix accounting information for EIGRP processes.
show eigrp address-family events	Displays information about EIGRP events.
show eigrp address-family neighbors	Displays the neighbors discovered by EIGRP.
show eigrp address-family sia-event	Displays information about EIGRP SIA events.
show eigrp address-family sia-statistics	Displays information about EIGRP SIA statistics.
show eigrp address-family timers	Displays information about EIGRP timers and expiration times.
show eigrp address-family topology	Displays entries in the EIGRP topology table.

Command	Description
show eigrp address-family traffic	Displays the number of EIGRP packets sent and received.

show eigrp address-family neighbors

To display neighbors that are discovered by the Enhanced Interior Gateway Routing Protocol (EIGRP), use the **show eigrp address-family neighbors** command in user EXEC or privileged EXEC mode.

show eigrp address-family {**ipv4**| **ipv6**} [**vrf** *vrf-name*] [*autonomous-system-number*] [**multicast**] **neighbors** [**static**] [**detail**] [*interface-type interface-number*]

Syntax Description

ipv4	Selects the IPv4 protocol address family.
ipv6	Selects the IPv6 protocol address family.
vrf *vrf-name*	(Optional) Displays information about the specified VPN routing and forwarding (VRF).
autonomous-system- number	(Optional) Autonomous system number.
multicast	(Optional) Displays information about multicast instances.
static	(Optional) Displays static neighbors.
detail	(Optional) Displays detailed EIGRP neighbor information.
interface-type interface-number	(Optional) Interface type and number. If an interface is not specified, all enabled interfaces are displayed.

Command Default

Information about all neighbors discovered by EIGRP is displayed.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
15.0(1)M	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Release	Modification
15.2(2)S	This command was modified. The output of the command was enhanced to display information for the Bidirectional Forwarding Detection (BFD) sessions.
15.1(1)SY	This command was integrated into Cisco IOS Release 15.1(1)SY.

Usage Guidelines   Use the **show eigrp address-family neighbors** command to determine when neighbors become active and inactive. The command is also useful for debugging certain types of transport problems.

This command can be used to display information about EIGRP named configurations and EIGRP autonomous system configurations.

This command displays the same information as the **show ip eigrp neighbors** command. We recommend that you use the **show eigrp address-family neighbors** command.

Examples   The following sample output from the **show eigrp address-family ipv4 4453 neighbors** command shows how to display neighbors that are discovered by EIGRP:

```
Device# show eigrp address-family ipv4 4453 neighbors

EIGRP-IPv4 VR(Virtual-name) Address-family Neighbors for AS(4453)
Address Interface Hold Uptime SRTT RTO Q Seq
                                (sec)       (ms)  (ms)   Cnt   Num
172.16.81.28            Ethernet1    13   0:00:41  0     11   4    20
172.16.80.28            Ethernet0    14   0:02:01  0     10   12   24
172.16.80.31            Ethernet0    12   0:02:02  0      4   5    20
```

The following sample output from the **show eigrp address-family ipv4 neighbors detail** command shows how to display detailed information about neighbors that are discovered by EIGRP, including whether a neighbor has been restarted:

```
Device# show eigrp address-family ipv4 neighbors detail

EIGRP-IPv4 VR(test) Address-family Neighbors for AS(3)
H Address Interface Hold Uptime SRTT RTO Q Seq
                                (sec)       (ms)  (ms)   Cnt   Num
172.16.81.28            Ethernet1    13   0:00:41  0     11   4    20
172.16.80.28            Ethernet0    14   0:02:01  0     10   12   24
172.16.80.31            Ethernet0    12   0:02:02  0      4   5    20


EIGRP-IPv4 VR(test) Address-Family Neighbors for AS(3)
H Address Interface Hold Uptime SRTT RTO Q Seq
                    (sec)       (ms) Cnt   Num
172.16.81.28 Et1/1 11 01:11:08 10 200 0 8
Time since Restart 00:00:05
Version 5.0/3.0, Retrans: 2, Retries: 0, Prefixes: 2
Topology-ids from peer - 0
```

The following sample output from the **show eigrp address-family ipv6 neighbors detail** command shows how to display detailed information about the neighbors that are discovered by EIGRP with BFD enabled on an interface:

```
Device# show eigrp address-family ipv6 neighbors detail

EIGRP-IPv6 Neighbors for AS(1)
```

```
H Address              Interface Hold Uptime SRTT RTO Q Seq
                               (sec)        (ms) Cnt   Num
0 Link-Local address: Et1/0 13 00:00:24 1592 5000 0  3
FE80::A8BB:CCFF:FE00:C901
Version 6.0/3.0, Retrans: 1, Retries: 0, Prefixes: 32
Topology-ids from peer - 0

BFD Sessions
NeighAddr Interface
FE80: :A8BB:CCFF:FE00:C901 Ethernet1/0
```
The table below describes the significant fields shown in the sample displays:

Table 3: show eigrp address-family neighbors Field Descriptions

Field	Description
AS(4453)	Autonomous system number specified in the configuration command, for example 4453.
Address	IP address of the peer.
Interface	Interface on which the device is receiving hello packets from the peer.
Hold	Duration (seconds) for which the device will wait to hear from the peer before declaring it down. If the default hold time is specified, the hold time value will be less than 15. If a nondefault hold time is specified, the hold time value is displayed.
Uptime	Elapsed time (in seconds) since the local device first heard from this neighbor.
SRTT	Smooth round-trip time (SRTT). Duration (milliseconds) for which an EIGRP packet requires to be sent to its neighbor and for the local device to receive an acknowledgment of that packet.
RTO	Retransmission timeout (RTO). Duration (milliseconds) for which EIGRP waits before retransmitting a packet from the retransmission queue to a neighbor.
Q Cnt	Number of packets (update, query, and reply) that the software is waiting to send.
Seq Num	Sequence number of the last update, query, or reply packet that was received from this neighbor.
Time since Restart	Time elapsed since a neighbor has been restarted.

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show eigrp address-family neighbors

Related Commands

Command	Description
show eigrp address-family accounting	Displays prefix accounting information for EIGRP processes.
show eigrp address-family events	Displays information about EIGRP events.
show eigrp address-family interfaces	Displays information about interfaces configured for EIGRP.
show eigrp address-family sia-event	Displays information about EIGRP SIA events.
show eigrp address-family sia-statistics	Displays information about EIGRP SIA statistics.
show eigrp address-family timers	Displays information about EIGRP timers and expiration times.
show eigrp address-family topology	Displays entries in the EIGRP topology table.
show eigrp address-family traffic	Displays the number of EIGRP packets sent and received.

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show eigrp address-family timers

To display information about Enhanced Interior Gateway Routing Protocol (EIGRP) timers and expiration times, use the **show eigrp address-family timers** command in user EXEC or privileged EXEC mode.

show eigrp address-family {**ipv4**| **ipv6**} [**vrf** *vrf-name*] [*autonomous-system-number*] **[multicast] timers**

Syntax Description

ipv4	Selects the IPv4 protocol address family.
ipv6	Selects the IPv6 protocol address family.
vrf *vrf-name*	(Optional) Displays information about the specified VRF.
autonomous-system- number	(Optional) Autonomous system number.
multicast	(Optional) Displays information about multicast instances.

Command Default

Information about all EIGRP timers is displayed.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
15.0(1)M	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines

This command is useful for debugging and troubleshooting by Cisco technical support, but it is not intended for normal EIGRP administration tasks. This command should not be used without guidance from Cisco technical support.

This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system (AS) configurations.

This command displays the same information as the **show ip eigrp timers**command. Cisco recommends using the **show eigrp address-family timers**command.

Examples

The following example shows how to display information about EIGRP timers:

```
Router# show eigrp address-family ipv4 4453 timers
EIGRP-IPv4 VR(Virtual-name) Address-family Timers for AS(4453)
Hello Process
Expiration Type
| 1.022 (parent)
| 1.022 Hello (Et0/0)
Update Process
Expiration Type
| 14.984 (parent)
| 14.984 (parent)
| 14.984 Peer holding
SIA Process
Expiration Type for Topo(base)
| 0.000 (parent)
```

Related Commands

Command	Description
show eigrp address-family accounting	Displays prefix accounting information for EIGRP processes.
show eigrp address-family events	Displays information about EIGRP events.
show eigrp address-family interfaces	Displays information about interfaces configured for EIGRP.
show eigrp address-family neighbors	Displays the neighbors discovered by EIGRP.
show eigrp address-family sia-event	Displays information about EIGRP SIA events.
show eigrp address-family sia-statistics	Displays information about EIGRP SIA statistics.
show eigrp address-family topology	Displays entries in the EIGRP topology table.
show eigrp address-family traffic	Displays the number of EIGRP packets sent and received.

show eigrp address-family topology

To display Enhanced Interior Gateway Routing Protocol (EIGRP) address-family topology table entries, use the **show eigrp address-family topology** command in user EXEC or privileged EXEC mode.

show eigrp address-family {**ipv4** [**multicast**| **vrf** *vrf-name*]| **ipv6** [**vrf** *vrf-name*]} [*autonomous-system-number*] **topology** [*topology-name* [**accounting**| **events** [[**errmsg**| **sia**] [**reverse**] [*starting-event-number ending-event-number*]| **type**]]| *ip-address* [*mask*]| *ip-prefix*| **active**| **all-links**| **detail-links**| **pending**| **route-type** {**connected**| **external**| **internal**| **local**| **redistributed**| **summary**| **vpn**}| **summary**| **zero-successors**]

Syntax Description

ipv4	Displays information about IPv4 address-family topologies.
multicast	(Optional) Displays information about IPv4 multicast instances.
vrf *vrf-name*	(Optional) Displays information about the specified virtual routing and forwarding (VRF) instance.
ipv6	Displays information about IPv6 address-family topologies.
autonomous-system-number	(Optional) Autonomous system number. The valid range is from 1 to 65535.
topology	(Optional) Displays information about EIGRP topology tables.
topology-name	(Optional) Name of the EIGRP topology table.
accounting	(Optional) Displays information about prefix accounting.
events	(Optional) Displays events log.
errmsg	(Optional) Displays error message events.
sia	(Optional) Displays stuck-in-active (SIA) events.
reverse	(Optional) Changes the order in which the event log is displayed.
starting-event-number	(Optional) Number of the first event that is displayed.
ending-event-number	(Optional) Number of the last event that is displayed.
type	(Optional) Displays the types of events that are being logged.

ip-address	(Optional) IP address. When the IP address is specified with a mask, a detailed description of the entry is provided.
mask	(Optional) Network mask.
ip-prefix	(Optional) IP prefix in the format <network>/<length>; for example, 192.168.0.0/16.
active	(Optional) Displays only active entries in the EIGRP topology table.
all-links	(Optional) Displays all entries in the EIGRP topology table (including nonfeasible-successor sources).
detail-links	(Optional) Displays detailed information about all entries in the topology table.
pending	(Optional) Displays all entries in the EIGRP topology table that are either waiting for an update from a neighbor or waiting to reply to a neighbor.
route-type	(Optional) Displays information about services of the specified route type.
connected	(Optional) Displays information about all connected routes.
external	(Optional) Displays information about all external routes.
internal	(Optional) Displays information about all internal routes.
local	(Optional) Displays information about all locally originated routes.
redistributed	(Optional) Displays information about all redistributed routes.
summary	(Optional) Displays information about all summary routes.
vpn	(Optional) Displays information about all VPN-sourced IPv4 routes.
summary	(Optional) Displays summary information about the EIGRP topology table.

zero-successors	(Optional) Displays available routes that have zero successors.

Command Default

If this command is used without any arguments or keywords, only routes that are feasible successors are displayed. This command displays the same information as the **show ip eigrp topology** command. We recommend using the **show eigrp address-family topology** command.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SRE	This command was introduced.
15.0(1)M	This command was integrated into Cisco IOS Release 15.0(1)M.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
15.1(3)S	This command was modified. This command was integrated into Cisco IOS Release 15.1(3)S, and the output of the command was enhanced to display the Routing Information Base (RIB) value.
Cisco IOS XE Release 3.4S	This command was modified. The output of the command was enhanced to display the RIB value.
15.2(2)S	This command was modified. The output of the command was enhanced to display route tag values in dotted-decimal format.
Cisco IOS XE Release 3.6S	This command was modified. The output of the command was enhanced to display route tag values in dotted-decimal format.
15.1(1)SY	This command was integrated into Cisco IOS Release 15.1(1)SY.

Usage Guidelines

This command can be used to display information about EIGRP named and EIGRP autonomous system configurations.

Examples

The following sample output from the **show eigrp address-family ipv4** *autonomous-system-number* **topology** command displays entries of an IPv4 topology table:

```
Device# show eigrp address-family ipv4 4453 topology

EIGRP-IPv4 Topology Table for AS(4453)/ID(192.168.10.1)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - Reply status
```

```
P 172.16.90.0 255.255.255.0, 2 successors, FD is 720896 RIB is 5632
        via 172.16.80.28 (46251776/46226176), Ethernet0
        via 172.16.81.28 (46251776/46226176), Ethernet1
        via 172.16.80.31 (46277376/46251776), Serial0
```

The following sample output from the **show eigrp address-family ipv4** *autonomous-system-number* **topology** *ip-address* command displays EIGRP metrics for specified internal and external services:

```
Device# show eigrp address-family ipv4 4453 topology 10.10.10.0/24

EIGRP-IPv4 VR(virtual-name) Topology Entry for AS(4453)/ID(10.0.0.1) for 10.10.10.0/24
  State is Passive, Query origin flag is 1, 1 Successor(s), FD is 128256, RIB is 6543
  Descriptor Blocks:
  0.0.0.0 (Null0), from Connected, Send flag is 0x0
      Composite metric is (128256/0), service is Internal
      Vector metric:
        Minimum bandwidth is 10000000 Kbit
        Total delay is 5000 picoseconds
        Reliability is 255/255
        Load is ½55
        Minimum MTU is 1514
        Hop count is 0
        Originating router is 10.0.0.1
```

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

Table 4: show eigrp address-family topology Field Descriptions

Field	Description
Codes	State of this topology table entry. Passive and Active refer to the EIGRP state with respect to the destination; Update, Query, and Reply refer to the type of packet that is being sent.
P - Passive	Indicates that no EIGRP computations are being performed for this destination.
A - Active	Indicates that EIGRP computations are being performed for this destination.
U - Update	Indicates that an update packet was sent to this destination.
Q - Query	Indicates that a query packet was sent to this destination.
R - Reply	Indicates that a reply packet was sent to this destination.
r - Reply status	The flag that is set after the software has sent a query and is waiting for a reply.
successors	Number of successors. This number corresponds to the number of next hops in the IP routing table. If "successors" is capitalized, the route or the next hop is in a transition state.

Field	Description
FD	Feasible distance. The feasible distance is the best metric to reach the destination or the best metric that was known when the route became active. This metric value is used in the feasibility condition check. If the reported distance of the device is less than the feasible distance, the feasibility condition is met and the route is considered a feasible successor. After the software determines that it has a feasible successor, the software need not send a query for that destination.
RIB	RIB metric.
replies	(Not shown in the output.) Number of replies that are still outstanding (have not been received) with respect to this destination. This information appears only when the destination is in active state.
state	(Not shown in the output) The exact EIGRP state of this destination. It can be the number 0, 1, 2, or 3. This information appears only when the destination is in active state.
via	IP address of the peer that advertised this destination. The first of these entries is the current successor. Subsequent entries in the list are feasible successors.
(46251776/46226176)	The first number is the EIGRP metric that represents the cost to the destination. The second number is the EIGRP metric that this peer advertised.
Ethernet0	The interface from which this information was learned.

Related Commands

Command	Description
show eigrp address-family accounting	Displays prefix accounting information for EIGRP address-family processes.
show eigrp address-family events	Displays information about EIGRP address-family events.
show eigrp address-family interfaces	Displays information about EIGRP address-family interfaces.
show eigrp address-family neighbors	Displays information on EIGRP address-family neighbors.

Command	Description
show eigrp address-family timers	Displays information about EIGRP address-family timers and expiration times.
show eigrp address-family traffic	Displays information about EIGRP packets that are sent and received.

show eigrp address-family traffic

To display the number of Enhanced Interior Gateway Routing Protocol (EIGRP) packets that are sent and received, use the **show eigrp address-family traffic**command in user EXEC or privileged EXEC mode.

show eigrp address-family {**ipv4**| **ipv6**} [**vrf** *vrf-name*] [*autonomous-system-number*] **[multicast] traffic**

Syntax Description

ipv4	Selects the IPv4 protocol address family.
ipv6	Selects the IPv6 protocol address family.
vrf *vrf-name*	(Optional) Displays information about the specified VRF.
autonomous-system- number	(Optional) Autonomous system number.
multicast	(Optional) Displays information about multicast instances.

Command Default

The number of all EIGRP packets sent and received is displayed.

Command Modes

User EXEC (>) Privileged EXEC (#)

Command History

Release	Modification
15.0(1)M	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines

This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system (AS) configurations.

This command displays the same information as the **show ip eigrp traffic** command. Cisco recommends using the **show eigrp address-family traffic** command.

Examples   The following example shows how to display the number of EIGRP packets sent and received for autonomous system number 4453:

```
Router# show eigrp address-family ipv4 4453 traffic
EIGRP-IPv4 VR(virtual-name) Address-family Traffic Statistics for AS(4453)
  Hellos sent/received: 122/122
  Updates sent/received: 3/1
  Queries sent/received: 0/0
  Replies sent/received: 0/0
  Acks sent/received: 0/3
  SIA-Queries sent/received: 0/0
  SIA-Replies sent/received: 0/0
  Hello Process ID: 128
  PDM Process ID: 191
  Socket Queue: 0/2000/1/0 (current/max/highest/drops)
  Input Queue: 0/2000/1/0 (current/max/highest/drops
```

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

Table 5: show eigrp address-family traffic Field Descriptions

Field	Description
Hellos sent/received	Number of hello packets sent and received.
Updates sent/received	Number of update packets sent and received.
Queries sent/received	Number of query packets sent and received.
Replies sent/received	Number of reply packets sent and received.
Acks sent/received	Number of acknowledgement packets sent and received.
SIA-Queries sent/received	Number of stuck in active query packets sent and received.
SIA-Replies sent/received	Number of stuck in active reply packets sent and received.
Hello Process ID	Cisco IOS hello process identifier.
PDM Process ID	Protocol-dependent module IOS process identifier.
Socket Queue	IP to EIGRP Hello Process socket queue counters.
Input Queue	EIGRP Hello Process to EIGRP PDM socket queue counters.

Related Commands

Command	Description
show eigrp address-family accounting	Displays prefix accounting information for EIGRP processes.
show eigrp address-family events	Displays information about EIGRP events.
show eigrp address-family interfaces	Displays information about interfaces configured for EIGRP.
show eigrp address-family neighbors	Displays the neighbors discovered by EIGRP.
show eigrp address-family sia-event	Displays information about EIGRP SIA events.
show eigrp address-family sia-statistics	Displays information about EIGRP SIA statistics.
show eigrp address-family timers	Displays information about EIGRP timers and expiration times.
show eigrp address-family topology	Displays entries in the EIGRP topology table.

show eigrp plugins

To display general information including the versions of the Enhanced Interior Gateway Routing Protocol (EIGRP) protocol features that are currently running, use the **show eigrp plugins** command in user EXEC or privileged EXEC mode.

show eigrp [**vrf** *vrf-name*] [*as-number*]**plugins** [*plugin-name*][**detailed**]

Syntax Description

vrf *vrf-name*	(Obsolete) (Optional) Specifies a particular VPN routing and forwarding (VRF) instance name.
as-number	(Obsolete) (Optional) Autonomous system number.
plugin-name	(Optional) Name of an EIGRP plugin to display.
detailed	(Optional) Displays detailed information about EIGRP features.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
12.4(15)T	This command was introduced.
12.2(33)SXI	This command was integrated into Cisco IOS Release 12.2(33)SXI.
15.0(1)M	This command was modified. The **vrf** keyword and the *vrf-name* and the *as-number* arguments were removed.
12.2(33)SRE	This command was modified. The **vrf** keyword and the *vrf-name* and *as-number* arguments were removed.
Cisco IOS XE Release 2.5	This command was modified. The **vrf** keyword and the *vrf-name* and *as-number* arguments were removed.
15.1(3)S	This command was modified. The output of the command was modified to display information about wide metric.
Cisco IOS XE Release 3.4S	This command was modified. The output of the command was modified to display information about wide metric.

Usage Guidelines Use the **show eigrp plugins** command in user EXEC or privileged EXEC mode to determine if a particular EIGRP feature is available in your Cisco IOS image. This command displays a summary of information about EIGRP service families and address families.

This command is useful when contacting Cisco technical support.

Examples The following example shows how to display EIGRP plugin information:

```
Router# show eigrp plugins
EIGRP feature plugins:::
    eigrp-release       :    8.00.00 : Portable EIGRP Release
                        :    6.01.03 : Source Component Release(snakenavel)
                                         + HMAC-SHA-256 Authentication
    parser              :    2.02.00 : EIGRP Parser Support
    igrp2               :    2.00.00 : Reliable Transport/Dual Database
                                         + Wide Metrics
    bfd                 :    1.01.00 : BFD Platform Support
    client-simulator    :    1.00.01 : Service Distribution Simulator
    mtr                 :    1.00.01 : Multi-Topology Routing(MTR)
    eigrp-pfr           :    1.00.01 : Performance Routing Support
                                         + IPv4 PFR
    vNets               :    1.00.00 : vNets Platform Support
                                         + IPv4 vNets
    ipv4-af             :    2.01.01 : Routing Protocol Support
    ipv4-sf             :    1.02.00 : Service Distribution Support
                                         + Dynamic Remote Neighbors
    external-client     :    1.02.00 : Service Distribution Client Support
    vNets-parse         :    1.00.00 : EIGRP vNets Parse Support
    ipx-af              :    2.00.01 : Routing Protocol Support
    ipv6-af             :    2.01.01 : Routing Protocol Support
                                         + IPv6 VRF
    ipv6-sf             :    2.01.00 : Service Distribution Support
                                         + Dynamic Remote Neighbors
                                         + IPv6 VRF
    snmp-agent          :    1.01.01 : SNMP/SNMPv2 Agent Support
```
The table below describes the significant fields shown in the display.

Table 6: show eigrp plugins Field Descriptions

Field	Description
eigrp release	Portable EIGRP release version.
igrp2	Reliable transport and dual database version.
bfd	EIGRP-BFD feature version.
mtr	EIGRP multitopology routing (MTR) version.
eigrp-pfr	EIGRP performance routing feature version.
ipv4-af	EIGRP IPv4 routing protocol feature version.
ipv4-sf	EIGRP IPv4 service distribution feature version.
external-client	EIGRP service distribution client support feature version.

Field	Description
ipv6-af	EIGRP IPv6 routing protocol feature version.
ipv6-sf	EIGRP IPv6 service distribution feature version.
snmp-agent	EIGRP SNMP and SNMPv2 agent support version.

Related Commands

Command	Description
clear eigrp service-family	Clears entries from the EIGRP neighbor table.
show eigrp service-family external-client	Displays information about the EIGRP service-family external clients.
show eigrp service-family ipv4 topology	Displays information from the EIGRP IPv4 service-family topology table.
show eigrp service-family ipv6 topology	Displays information from the EIGRP IPv6 service-family topology table.
show eigrp tech-support	Generates a report of all EIGRP-related information.

show eigrp protocols

To display general information about Enhanced Interior Gateway Routing Protocol (EIGRP) protocols that are currently running, use the **show eigrp protocols** command in user EXEC or privileged EXEC mode.

show eigrp protocols [**vrf** *vrf-name*]

Syntax Description

vrf *vrf-name*	(Optional) Displays information about the specified VPN Routing and Forwarding (VRF) instance.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
15.0(1)M	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
12.2(33)SXI4	This command was integrated into Cisco IOS Release 12.2(33)SXI4.
15.1(3)S	This command was modified. The command output was modified to display the relevant wide metric information.
Cisco IOS XE Release 3.4S	This command was modified. The command output was modified to display the relevant wide metric information.
15.1(1)SY	This command was modified to display the relevant wide metric information.

Usage Guidelines

Use the **show eigrp protocols** command in user EXEC or privileged EXEC mode to see a summary information on EIGRP IPv4 service families or address families.

Examples

The following example shows how to display general EIGRP information:

```
Device# show eigrp protocols

EIGRP-IPv4 VR(foo) Address-Family Protocol for AS(1)
  Metric weight K1=1, K2=0, K3=1, K4=0, K5=0 K6=0
  Metric rib-scale 128
  Metric version 64bit
```

```
  NSF-aware route hold timer is 240
  Router-ID: 1.1.1.2
  Topology : 0 (base)
    Active Timer: 3 min
    Distance: internal 90 external 170
    Maximum path: 4
    Maximum hopcount 100
    Maximum metric variance 1
    Total Prefix Count: 2
    Total Redist Count: 0
```

The following example shows how to display general EIGRP information for VRF1:

```
Device# show eigrp protocols vrf vrf1

EIGRP-IPv4 Protocol for AS(5) VRF(vrf1)
Metric weight K1=1, K2=0, K3=1, K4=0, K5=0 K=6
Metric rib-scale 128
Metric version 64bit
NSF-aware route hold timer is 240
Router-ID: 1.1.1.1
Topology : 0 (base)
Active Timer: 3 min
Distance: internal 90 external 170
Maximum path: 4
Maximum hopcount 100
Maximum metric variance 1
Total Prefix Count: 0
Total Redist Count: 0
```

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

Table 7: show eigrp protocols Field Descriptions

Field	Description
EIGRP-IPv4 Protocol for AS(1)	EIGRP instance and autonomous system number.
Metric weight	EIGRP metric calculations.
NSF-aware route hold timer	Route-hold timer value for an NSF-aware router.
Router-ID	Router ID.
Topology	Number of entries in the EIGRP topology table.
Active Timer	EIGRP routing active time limit.
Distance	Internal and external administrative distance.
Maximum path	Maximum number of parallel routes that EIGRP can support.
Maximum hopcount	Maximum hop count (in decimal).
Maximum metric variance	Metric variance used to find feasible paths for a route.
Total Prefix Count	Aggregate sum of the prefixes in an EIGRP instance topology table. It includes prefixes learned from all neighbors or from redistribution.

Field	Description
Total Redist Count	Number of prefixes redistributed into an EIGRP process.

Related Commands

Command	Description
clear eigrp service-family	Clears entries from the EIGRP neighbor table.
show eigrp service-family external-client	Displays information about the EIGRP service-family external clients.
show eigrp service-family ipv4 topology	Displays information from the EIGRP IPv4 service-family topology table.
show eigrp service-family ipv6 topology	Displays information from the EIGRP IPv6 service-family topology table.
show tech-support	Generates a report of all EIGRP-related information.

show eigrp tech-support

To generate a report of the Enhanced Interior Gateway Routing Protocol (EIGRP) internal state information, use the **show eigrp tech-support** command in privileged EXEC mode.

show eigrp tech-support [detailed]

Syntax Description

detailed	(Optional) Displays detailed output.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.2(33)SRE	This command was introduced.
15.0(1)M	This command was integrated into Cisco IOS Release 15.0(1)M.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
12.2(33)SXI4	This command was integrated into Cisco IOS Release 12.2(33)SXI4.
15.1(3)S	This command was modified. The command output was modified to display relevant wide metric information.
Cisco IOS XE Release 3.4S	This command was modified. The command output was modified to display relevant wide metric information.
15.1(1)SY	This command was modified. The command output was modified to display relevant wide metric information.

Usage Guidelines

Use the **show eigrp tech-support** command in privileged EXEC mode to display various internal EIGRP states.

Note   This command is useful for debugging and troubleshooting by Cisco technical support, but it is not intended for normal EIGRP administration tasks. This command should not be used without guidance from Cisco technical support.

Examples   The following is sample output from the **show eigrp tech-support detailed** command:

```
Device# show eigrp tech-support detailed

EIGRP feature plugins:::
    eigrp-release    :    8.00.00 : Portable EIGRP Release
                     :    3.00.21 : Source Component Release(dev8)
                                    + HMAC-SHA-256 Authentication
    parser           :    2.02.00 : EIGRP Parser Support
    igrp2            :    2.00.00 : Reliable Transport/Dual Database
                                    + Wide Metrics
    eigrp-nsf        :    2.00.00 : Platform Support
    bfd              :    1.01.00 : BFD Platform Support
    mtr              :    1.00.01 : Multi-Topology Routing(MTR)
    eigrp-pfr        :    1.00.01 : Performance Routing Support
                                    + IPv4 PFR
    EVN/vNets        :    1.00.00 : Easy Virtual Network (EVN/vNets)
                                    + IPv4 EVN/vNets
    ipv4-af          :    2.01.01 : Routing Protocol Support
    ipv4-sf          :    1.02.00 : Service Distribution Support
                                    + Dynamic Remote Neighbors
    ipv6-af          :    2.01.01 : Routing Protocol Support
                                    + IPv6 VRF
    ipv6-sf          :    2.01.00 : Service Distribution Support
                                    + Dynamic Remote Neighbors
                                    + IPv6 VRF
    vNets-parse      :    1.00.00 : EIGRP vNets Parse Support
    snmp-agent       :    1.01.01 : SNMP/SNMPv2 Agent Support
EIGRP Internal Process States

 procinfoQ:
   1: 0x1FC6EB4C vrid:0 afi:1 as:46    tableid:0 vrfid:0 tid:0 name:virtual-name
       topo_ddbQ(1) 0x1FCC478C tableid:0 name:base
       topo_ddbQ.count: 1
   procinfoQ.count: 1

     deadQ:

     ddbQ:
      1: 0x1FCC478C name:base
     ddbQ.count: 1
 ---------------------------------------------------------

EIGRP Memory Usage:

  EIGRP Memory             In-use Asked-For/Allocated Count  Size  Cfg/Max
  ------------------------------------------------------------------------------
  EIGRP IP pdb          :    8216       8216/8268        1  8216   --/--
  EIGRP-Core: DDB       :    2440       2440/2492        1  2440   --/--
  EIGRP-Core: Dual Events :  30000      30000/30052      1 30000   --/--
  EIGRP-Core: IIDB      :     928        928/980         1   928   --/--
  EIGRP-Core: IIDB Scratc :    24         24/76          1    24   --/--
  EIGRP-Core: Peer Handle :    76         76/180         2    38   --/--
  EIGRP-Core: Peer Sub-To :    32         32/84          1    32   --/--
  EIGRP-Core: Topology II :   104        104/156         1   104   --/--
  EIGRP-IPv4: Proto Priva :    24         24/76          1    24   --/--
  EIGRP-IPv4: Protocol In :  3464       3464/3516        1  3464   --/--
  EIGRP-IPv4: VR-Router   :    32         32/84          1    32   --/--
  EIGRP-Parser: dBase Hdr :  1740       1740/2052        6   290   --/--
  EIGRP-v4: Work Entry   :    --        4260/4728       --    60   50/71
  EIGRP: Anchor entries   :    --        7404/10052      --    12  500/617
  EIGRP: Dummy thread ent :    --        8892/10052      --    36  200/247
  EIGRP: ExtData         :    --        1320/1708       --    24   50/55
  EIGRP: Input packet hea :    --        2304/3052       --    16  100/144
  EIGRP: Large packet buf :    --       57512/65588      --  8216  100/7
  EIGRP: List Large      :    --        1332/1552       --   148   5/9
  EIGRP: List Medium     :    --        1296/1604       --    72   10/18
  EIGRP: Max packet buffe :    --       49224/65588      -- 16408   5/3
  EIGRP: Medium packet bu :    --       64856/65588      --   536  100/121
```

```
        EIGRP: Packet descripto :        --      4260/4728       --    60    50/71
        EIGRP: Queue elements   :        --     11788/13640      --    28   200/421
        EIGRP: Small Pool       :        32       624/956         2    16    32/39
        EIGRP: Small packet buf :        --      4444/5052       --    44   100/101
        EIGRP: cmd handles      :        56        56/160         2    28    --/--
        EIGRP: mgd_timer        :      1600      1600/2640       20    80    --/--
        Total                   :     48768    268252/304704     42    --    --/--

        Total allocated: 0.290 Mb, 297 Kb, 304704 bytes
        ----------------------------------------------------------

EIGRP-IPv4 VR(virtual-name) Address-Family Protocol for AS(46)
 {vrid:0 afi:1 as:46 mode:3 tableid:0 vrfid:0 tid:0 name:virtual-name }

           PIDs: Hello: (no process)  PDM: (no process)
      Router-ID: 10.4.9.87
        Threads: procinfo: 0x1FC72E58   ddb: 0x1FC73050
          workQ:
          iidbQ:
  passive_iidbQ:
          peerQ:
  unicast_peerQ:
       suspendQ:
       networkQ:
   RedistStructs: src:(0)default  distflag:0x4  ipdb->pdb->mask:0x4
                  count: 1
       summaryQ:
   Socket Queue: %EIGRP(ERROR): invalid socket
    Input Queue: 0/2000/0/0 (current/max/highest/drops)
        GRS/NSF: enabled    hold-timer: 240
   Active Timer: 3 min
       Distance: internal 90 external 170
       Max Path: 4
   Max Hopcount: 100
       Variance: 1
      Rib-scale: 1
     Metric Ver: 32bit
    -------------------------------------------------------------------
```

Related Commands

Command	Description
show eigrp plugins	Displays general information including the versions of the EIGRP protocol features currently running.

show ip eigrp accounting

To display prefix accounting information for Enhanced Interior Gateway Routing Protocol (EIGRP) processes, use the **show ip eigrp accounting**command in privileged EXEC mode.

show ip eigrp [**vrf** {*vrf-name*| *****}] [*autonomous-system-number*] **accounting**

Syntax Description

vrf *vrf-name*	(Optional) Displays information about the specified VRF.
vrf *	(Optional) Displays information about all VRFs.
autonomous-system-number	(Optional) Autonomous system number.

Command Modes   Privileged EXEC (#)

Command History

Release	Modification
12.0(29)S	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.
15.0(1)M	This command was modified. The **vrf**, *vrf-name*, and ***** keywords and arguments were added. This command replaces the **show ip eigrp vrf accounting** command.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines   This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system (AS) configurations.

This command displays the same information as the **show eigrp address-family accounting** command. Cisco recommends using the **show eigrp address-family accounting** command.

Examples   The following is sample output from the **show ip eigrp accounting**command:

```
Router# show ip eigrp vrf RED accounting

EIGRP-IPv4 Accounting for AS(100)/ID(10.0.2.1) VRF(RED)
```

```
Total Prefix Count: 4  States: A-Adjacency, P-Pending, D-Down
State Address/Source   Interface      Prefix   Restart  Restart/
                                      Count     Count   Reset(s)
P    Redistributed     ----              0         3        211
A    10.0.1.2          Et0/0             2         0         84
P    10.0.2.4          Se2/0             0         2        114
D    10.0.1.3          Et0/0             0         3          0
```

Note Connected and summary routes are not listed individually in the output of this command but are counted in the total aggregate count per process.

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

Table 8: show ip eigrp accounting Field Descriptions

Field	Description
EIGRP IPv4 Accounting for AS...	Identifies the EIGRP instance along with the AS number, router ID, and table ID.
Total Prefix Count	Shows the aggregate sum of the prefixes in an EIGRP instance topology table. It includes prefixes learned from all neighbors and redistribution sources.
States: A-Adjacency, P-Pending, D-Down	A-Adjacency: Indicates a stable adjacency with the neighbor or a normal redistribution state. P-Pending: Neighbor adjacency or redistribution is suspended or in a penalized state because the maximum prefix limit has been exceeded. D-Down: Neighbor adjacency or redistribution is suspended permanently until a manually reset is performed with the **clear ip eigrp neighbor** command.
Address/Source	Shows either the neighbor IP address or the redistribution source.
Interface	Shows the interface on which neighbor information is received.
Prefix Count	Displays the total number of learned prefixes by source. **Note** Routes can be learned for the same prefix from multiple sources, and the sum of all prefix counts in this column may be greater than the figure displayed in the "Prefix Count" field.
Restart Count	Number of times a route source has exceeded the maximum-prefix limit.

Field	Description
Restart Reset(s)	Displays the time, in seconds, that a route source is in a P (penalized) state. If the route source is in an A (stable or normal) state, the displayed time, in seconds, is the time period until penalization history is reset.

Related Commands

Command	Description
show eigrp address-family accounting	Displays prefix accounting information for EIGRP processes.

show ip eigrp events

To display the Enhanced Interior Gateway Routing Protocol (EIGRP) event log, use the **show ip eigrp events** command in user EXEC or privileged EXEC mode.

show ip eigrp [**vrf** *vrf-name*] **events** [[**errmsg**| **sia**] [**reverse**] [*starting-event-number ending-event-number*]| **type**]

Syntax Description

vrf *vrf-name*	(Optional) Displays information about the specified VPN routing and forwarding (VRF).
errmsg	(Optional) Displays error message events.
sia	(Optional) Displays stuck in active (SIA) events.
reverse	(Optional)Displays the oldest event first and the most recent event last.
starting-event-number	(Optional) Number of the first event to display.
ending-event-number	(Optional) Number of the last event to display.
type	(Optional) Displays the types of events being logged.

Command Default

All events in the EIGRP event log are displayed.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
10.0	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
15.1(2)S	This command was modified. The **reverse** keyword was added.

Usage Guidelines

The EIGRP event log is used by Cisco technical support to display a history of EIGRP internal events.

This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system configurations.

This command displays the same information as the **show eigrp address-family events** command. Cisco recommends using the **show eigrp address-family events** command.

The output of the **show ip eigrp events** command displays the most recent event first and the oldest event last. To display the output in the reverse order (the oldest event first and the recent event last), use the **reverse** keyword.

Examples

The following is sample output from the **show ip eigrp events** command. The output fields are self-explanatory.

```
Router# show ip eigrp events

1    02:37:58.171 NSF stale rt scan, peer: 10.0.0.0
2    02:37:58.167 Metric set: 10.0.0.1/24 284700416
3    02:37:58.167 FC sat rdbmet/succmet: 284700416 0
4    02:37:58.167 FC sat nh/ndbmet: 10.0.0.2 284700416
5    02:37:58.167 Find FS: 10.0.0.0/24 284700416
6    02:37:58.167 Rcv update met/succmet: 284956416 284700416
7    02:37:58.167 Rcv update dest/nh: 10.0.0.0/24 10.0.0.1
8    02:37:58.167 Peer nsf restarted: 10.0.0.1 Tunnel0
9    02:36:38.383 Metric set: 10.0.0.0/24 284700416
10   02:36:38.383 RDB delete: 10.0.0.0/24 10.0.0.1
11   02:36:38.383 FC sat rdbmet/succmet: 284700416 0
12   02:36:38.383 FC sat nh/ndbmet: 0.0.0.0 284700416
```

Related Commands

Command	Description
eigrp event-log size	Specifies the size of the EIGRP event log.
show eigrp address-family events	Displays the EIGRP event log.

show ip eigrp interfaces

To display information about interfaces that are configured for the Enhanced Interior Gateway Routing Protocol (EIGRP), use the **show ip eigrp interfaces** command in user EXEC or privileged EXEC mode.

show ip eigrp [**vrf** *vrf-name*] [*autonomous-system-number*] **interfaces** [*type number*] [**detail**]

Syntax Description

vrf *vrf-name*	(Optional) Displays information about the specified virtual routing and forwarding (VRF) instance.
autonomous-system-number	(Optional) Autonomous system number whose output needs to be filtered.
type	(Optional) Interface type. For more information, use the question mark (?) online help function.
number	(Optional) Interface or subinterface number. For more information about the numbering syntax for your networking device, use the question mark (?) online help function.
detail	(Optional) Displays detailed information about EIGRP interfaces for a specific EIGRP process.

Command Modes

User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
11.2	This command was introduced.
12.2(18)SXE	This command was integrated into Cisco IOS Release 12.2(18)SXE. Support for the Bidirectional Forwarding Detection (BFD) feature was added. The **detail** keyword was added.
12.0(31)S	This command was integrated into Cisco IOS Release 12.0(31)S. Support for the BFD feature was added. Support for the Cisco 12000 series Internet router was added.
12.4(4)T	This command was modified. Support for the BFD feature was added. The **detail** keyword was added.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.

Release	Modification
12.2(33)SRE	This command was modified. The **vrf** *vrf-name* keyword-argument pair was added. This command replaces the **show ip eigrp vrf interfaces** command.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
15.0(1)M	This command was modified. The **vrf** *vrf-name* keyword-argument pair was added. This command replaces the **show ip eigrp vrf interfaces** command.
15.1(1)S	This command was modified. The PeerQ Un/Reliable, Packetized sent/expedited, and Hello's sent/expedited fields were included in the command output.
Cisco IOS XE Release 3.5S	This command was modified. Information about the Equal Cost Multipath (ECMP) mode was included in the command output.
15.2(1)S	This command was modified. Information about the ECMP mode was included in the command output.
15.2(3)T	This command was modified. Information about the ECMP mode was included in the command output.

Usage Guidelines   Use the **show ip eigrp interfaces** command to display active EIGRP interfaces and EIGRP-specific interface settings and statistics. The optional *type number* argument and the **detail** keyword can be entered in any order.

If an interface is specified, only information about that interface is displayed. Otherwise, information about all interfaces on which EIGRP is running is displayed.

If an autonomous system is specified, only the routing process for the specified autonomous system is displayed. Otherwise, all EIGRP processes are displayed.

This command can be used to display information about EIGRP named and EIGRP autonomous system configurations.

This command displays the same information as the **show eigrp address-family interfaces** command. Cisco recommends using the **show eigrp address-family interfaces** command.

Examples   The following is sample output from the **show ip eigrp interfaces** command:

```
Device# show ip eigrp interfaces

EIGRP-IPv4 Interfaces for AS(60)
                  Xmit Queue    Mean    Pacing Time   Multicast   Pending
Interface   Peers  Un/Reliable  SRTT    Un/Reliable   Flow Timer  Routes
Di0          0      0/0          0       11/434        0           0
Et0          1      0/0          337     0/10          0           0
SE0:1.16     1      0/0          10      1/63          103         0
Tu0          1      0/0          330     0/16          0           0
```

The following sample output from the **show ip eigrp interfaces detail** command displays detailed information about all active EIGRP interfaces:

```
Device# show ip eigrp interfaces detail

EIGRP-IPv4 Interfaces for AS(1)
```

```
                            Xmit Queue   PeerQ       Mean  Pacing Time  Multicast   Pending
Interface        Peers  Un/Reliable  Un/Reliable  SRTT  Un/Reliable  Flow Timer   Routes
Et0/0              1        0/0         0/0        525      0/2         3264         0
Hello-interval is 5, Hold-time is 15
  Split-horizon is enabled
  Next xmit serial <none>
  Packetized sent/expedited: 3/0
  Hello's sent/expedited: 6/2
  Un/reliable mcasts: 0/6  Un/reliable ucasts: 7/4
  Mcast exceptions: 1  CR packets: 1  ACKs suppressed: 0
  Retransmissions sent: 1  Out-of-sequence rcvd: 0
  Topology-ids on interface - 0
  Authentication mode is not set
```

The following sample output from the **show ip eigrp interfaces detail** command displays detailed information about a specific interface on which the **no ip next-hop self** command is configured along with the **no-ecmp-mode** option:

```
Device# show ip eigrp interfaces detail tunnel 0

EIGRP-IPv4 Interfaces for AS(1)
                            Xmit Queue   PeerQ       Mean  Pacing Time  Multicast   Pending
Interface        Peers  Un/Reliable  Un/Reliable  SRTT  Un/Reliable  Flow Timer   Routes
Tu0/0              2        0/0         0/0          2      0/0          50          0
Hello-interval is 5, Hold-time is 15
  Split-horizon is disabled
  Next xmit serial <none>
  Packetized sent/expedited: 24/3
  Hello's sent/expedited: 28083/9
  Un/reliable mcasts: 0/19  Un/reliable ucasts: 18/64
  Mcast exceptions: 5  CR packets: 5  ACKs suppressed: 0
  Retransmissions sent: 52  Out-of-sequence rcvd: 2
  Next-hop-self disabled, next-hop info forwarded, ECMP mode Enabled
  Topology-ids on interface - 0
  Authentication mode is not set
```

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

Table 9: show ip eigrp interfaces Field Descriptions

Field	Description
Interface	Interface on which EIGRP is configured.
Peers	Number of directly connected EIGRP neighbors.
PeerQ Un/Reliable	Number of unreliable and reliable packets queued for transmission to specific peers on the interface.
Xmit Queue Un/Reliable	Number of packets remaining in the Unreliable and Reliable transmit queues.
Mean SRTT	Mean smooth round-trip time (SRTT) interval (in seconds).
Pacing Time Un/Reliable	Pacing time (in seconds) used to determine when EIGRP packets (unreliable and reliable) should be sent out of the interface .

Field	Description
Multicast Flow Timer	Maximum number of seconds for which the device will send multicast EIGRP packets.
Pending Routes	Number of routes in the transmit queue waiting to be sent.
Packetized sent/expedited	Number of EIGRP routes that have been prepared for sending packets to neighbors on an interface, and the number of times multiple routes were stored in a single packet.
Hello's sent/expedited	Number of EIGRP hello packets that have been sent on an interface and packets that were expedited.

Related Commands

Command	Description
show eigrp address-family interfaces	Displays information about address family interfaces configured for EIGRP.
show ip eigrp neighbors	Displays neighbors discovered by EIGRP.

show ip eigrp neighbors

To display neighbors discovered by the Enhanced Interior Gateway Routing Protocol (EIGRP), use the **show ip eigrp neighbors** command in privileged EXEC mode.

show ip eigrp [**vrf** *vrf-name*] [*autonomous-system-number*] **neighbors** [**static**| **detail**] [*interface-type interface-number*]

Syntax Description

vrf *vrf-name*	(Optional) Displays information about the specified VPN Routing and Forwarding (VRF) instance.
autonomous-system-number	(Optional) Filters that output by an autonomous system number.
static	(Optional) Displays static neighbors.
detail	(Optional) Displays detailed neighbor information.
interface-type interface-number	(Optional) Filters the output by an interface.

Command Modes   Privileged EXEC (#)

Command History

Release	Modification
10.3	This command was introduced.
12.0(7)T	This command was modified. The **static** keyword was added.
12.2(15)T	This command was modified. Support for NSF restart operations was integrated into the output.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SRE	This command was modified. The **vrf** *vrf-name* keyword-argument pair was added. This command replaces the **show ip eigrp vrf neighbors** command.
15.0(1)M	This command was modified. The **vrf** *vrf-name* keyword-argument pair was added. This command replaces the **show ip eigrp vrf neighbors** command.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
15.1(3)S	This command was integrated into Cisco IOS Release 15.1(3)S. The command output was modified to display relevant wide metric information.

Release	Modification
Cisco IOS XE Release 3.4S	This command was modified. The command output was modified to display relevant wide metric information.
15.1(1)SY	This command was modified. The command output was modified to display relevant wide metric information.

Usage Guidelines

Use the **show ip eigrp neighbors** command to display dynamic and static neighbor states. It is also useful for debugging certain types of transport problems.

This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system configurations.

This command displays the same information as the **show eigrp address-family neighbors** command. Cisco recommends using the **show eigrp address-family neighbors** command.

Examples

The following is sample output from the **show ip eigrp neighbors** command:

```
Router# show ip eigrp neighbors

H   Address                 Interface       Hold Uptime    SRTT   RTO  Q   Seq
                                            (sec)          (ms)        Cnt Num
0   10.1.1.2                Et0/0           13 00:00:03 1996 5000  0   5
2   10.1.1.9                Et0/0           14 00:02:24 206  5000  0   5
1   10.1.2.3                Et0/1           11 00:20:39 2202 5000  0   5
```
The table below describes the significant fields shown in the display.

Table 10: show ip eigrp neighbors Field Descriptions

Field	Description
Address	IP address of the EIGRP peer.
Interface	Interface on which the router is receiving hello packets from the peer.
Hold	Time in seconds, EIGRP will wait to hear from the peer before declaring it down.
Uptime	Elapsed time (in hours:minutes: seconds) since the local router first heard from this neighbor.
SRTT	Smooth round-trip time. This is the number of milliseconds required for an EIGRP packet to be sent to this neighbor and for the local router to receive an acknowledgment of that packet.
RTO	Retransmission timeout (in milliseconds). This is the amount of time the software waits before resending a packet from the retransmission queue to a neighbor.

Field	Description
Q Cnt	Number of EIGRP packets (update, query, and reply) that the software is waiting to send.
Seq Num	Sequence number of the last update, query, or reply packet that was received from this neighbor.

The following is sample output from the **show ip eigrp neighbors** command when issued with the **detail** keyword:

```
Router# show ip eigrp neighbors detail

EIGRP-IPv4 VR(foo) Address-Family Neighbors for AS(1)
H   Address                 Interface       Hold Uptime   SRTT   RTO  Q  Seq
                                            (sec)         (ms)        Cnt Num
0   192.168.10.1            Gi2/0             12 00:00:21 1600  5000  0  3
   Version 8.0/2.0, Retrans: 0, Retries: 0, Prefixes: 1
   Topology-ids from peer - 0
```

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

Table 11: show ip eigrp neighbors detail Field Descriptions

Field	Description
H	This column lists the order in which a peering session was established with the specified neighbor. The order is specified with sequential numbering starting with 0.
Address	IP address of the EIGRP peer.
Interface	Interface on which the router is receiving hello packets from the peer.
Hold	Time in seconds, EIGRP will wait to hear from the peer before declaring it down.
Uptime	Elapsed time (in hours:minutes: seconds) since the local router first heard from this neighbor.
SRTT	Smooth round-trip time. This is the number of milliseconds required for an EIGRP packet to be sent to this neighbor and for the local router to receive an acknowledgment of that packet.
RTO	Retransmission timeout (in milliseconds). This is the amount of time the software waits before resending a packet from the retransmission queue to a neighbor.
Q Cnt	Number of EIGRP packets (update, query, and reply) that the software is waiting to send.

Field	Description
Seq Num	Sequence number of the last update, query, or reply packet that was received from this neighbor.
Version	The software version that the specified peer is running.
Retrans	Number of times that a packet has been retransmitted.
Retries	Number of times an attempt was made to retransmit a packet.

Related Commands

Command	Description
show eigrp address-family neighbors	Displays the neighbors discovered by EIGRP.

show ip eigrp topology

To display Enhanced Interior Gateway Routing Protocol (EIGRP) topology table entries, use the **show ip eigrp topology** command in user EXEC or privileged EXEC mode.

show ip eigrp topology[**vrf** *vrf-name*| *autonomous-system-number*| *network* [*mask*]| *prefix*| **active**| **all-links**| **detail-links**| **frr**| **name**| **pending**| **summary**| **zero-successors**]

Syntax Description

vrf *vrf-name*	(Optional) Displays information about the specified virtual routing and forwarding (VRF) instance.
autonomous-system-number	(Optional) Autonomous system number.
network	(Optional) Network address.
mask	(Optional) Network mask.
prefix	(Optional) Network prefix in the format <network>/<length>; for example, 192.168.0.0/16.
active	(Optional) Displays all topology entries that are in the active state.
all-links	(Optional) Displays all entries in the EIGRP topology table (including nonfeasible-successor sources).
detail-links	(Optional) Displays all topology entries with additional details.
frr	(Optional) Displays information about Fast Reroute (FRR) loop-free alternates (LFAs).
name	(Optional) Displays the IPv4 topology table name. This name is the topology identifier and shows topology-related information for Multitopology Routing (MTR).
pending	(Optional) Displays all entries in the EIGRP topology table that are either waiting for an update from a neighbor or waiting to reply to a neighbor.
summary	(Optional) Displays a summary of the EIGRP topology table.
zero-successors	(Optional) Displays available routes that have zero successors.

Command Default   If this command is used without any of the optional keywords, only topology entries with feasible successors are displayed and only feasible paths are shown.

Command Modes   User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
10.0	This command was introduced.
12.3(8)T	This command was modified. The output of this command was enhanced to display internal and external EIGRP routes.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2(33)SRB	This command was modified. The **name** keyword was added to support MTR.
12.2(33)SXH	This command was integrated into Cisco IOS Release 12.2(33)SXH.
15.0(1)M	This command was modified. The **vrf** *vrf-name* keyword-argument pair was added.
12.2(33)SRE	This command was modified. The **vrf** *vrf-name* keyword-argument pair was added. The **name** keyword was removed.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
15.1(3)S	This command was integrated into Cisco IOS Release 15.1(3)S. The output of the command was enhanced to display information about wide metrics.
Cisco IOS XE Release 3.4S	This command was modified. The output of the command was enhanced to display information about wide metrics.
Cisco IOS XE Release 3.5S	This command was modified. Information about the Equal Cost Multipath (ECMP) mode was included in the command output.
15.2(1)S	This command was modified. Information about the ECMP mode was included in the command output.

Release	Modification
15.2(2)S	This command was modified. The output of the command was enhanced to display route tag values in dotted-decimal format.
Cisco IOS XE Release 3.6S	This command was modified. The output of the command was enhanced to display route tag values in dotted-decimal format.
15.2(3)T	This command was modified. Information about the ECMP mode was included in the command output.
15.2(4)S	This command was modified. The **frr** keyword was added.
Cisco IOS XE Release 3.7S	This command was modified. The **frr** keyword was added.
15.1(1)SY	This command was integrated into Cisco IOS Release 15.1(1)SY. The output of the command was enhanced to display information about wide metrics.

Usage Guidelines

Use the **show ip eigrp topology** command to display topology entries, feasible and nonfeasible paths, metrics, and states. This command can be used without any arguments or keywords to display only topology entries with feasible successors and feasible paths. The **all-links** keyword displays all paths, whether feasible or not, and the **detail-links** keyword displays additional details about these paths.

Use this command to display information about EIGRP named and EIGRP autonomous system configurations. This command displays the same information as the **show eigrp address-family topology** command. We recommend using the **show eigrp address-family topology** command.

Examples

The following is sample output from the **show ip eigrp topology** command:

```
Device# show ip eigrp topology

EIGRP-IPv4 Topology Table for AS(1)/ID(10.0.0.1)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - Reply status, s - sia status
P 10.0.0.0/8, 1 successors, FD is 409600
        via 192.0.2.1 (409600/128256), Ethernet0/0
P 172.16.1.0/24, 1 successors, FD is 409600
        via 192.0.2.1 (409600/128256), Ethernet0/0
P 10.0.0.0/8, 1 successors, FD is 281600
        via Summary (281600/0), Null0
P 10.0.1.0/24, 1 successors, FD is 281600
        via Connected, Ethernet0/0
```

The following sample output from the **show ip eigrp topology** *prefix* command displays detailed information about a single prefix. The prefix shown is an EIGRP internal route.

```
Device# show ip eigrp topology 10.0.0.0/8

EIGRP-IPv4 VR(vr1) Topology Entry for AS(1)/ID(10.1.1.2) for 10.0.0.0/8
  State is Passive, Query origin flag is 1, 1 Successor(s), FD is 82329600, RIB is 643200
```

```
   Descriptor Blocks:
 10.1.1.1 (Ethernet2/0), from 10.1.1.1, Send flag is 0x0
     Composite metric is (82329600/163840), route is Internal
     Vector metric:
       Minimum bandwidth is 16000 Kbit
       Total delay is 631250000 picoseconds
       Reliability is 255/255
       Load is ½55
       Minimum MTU is 1500
       Hop count is 1
       Originating router is 10.1.1.1
```

The following sample output from the **show ip eigrp topology** *prefix* command displays detailed information about a single prefix. The prefix shown is an EIGRP external route.

```
Device# show ip eigrp topology 172.16.1.0/24

EIGRP-IPv4 Topology Entry for AS(1)/ID(10.0.0.1) for 172.16.1.0/24
State is Passive, Query origin flag is 1, 1 Successor(s), FD is 409600, RIB is 643200
  Descriptor Blocks:
  172.16.1.0/24 (Ethernet0/0), from 10.0.1.2, Send flag is 0x0
     Composite metric is (409600/128256), route is External
     Vector metric:
       Minimum bandwidth is 10000 Kbit
       Total delay is 6000 picoseconds
       Reliability is 255/255
       Load is ½55
       Minimum MTU is 1500
       Hop count is 1
       Originating router is 172.16.1.0/24
       External data:
       AS number of route is 0
       External protocol is Connected, external metric is 0
       Administrator tag is 0 (0x00000000)
```

The following sample output from the **show ip eigrp topology** *prefix* command displays ECMP mode information when the **no ip next-hop-self** command is configured without the **no-ecmp-mode** keyword in an EIGRP topology. The ECMP mode provides information about the path that is being advertised. If there is more than one successor, the top most path will be advertised as the default path over all interfaces, and "ECMP Mode: Advertise by default" will be displayed in the output. If any path other than the default path is advertised, "ECMP Mode: Advertise out <Interface name>" will be displayed.

```
Device# show ip eigrp topology 192.168.10.0/24

EIGRP-IPv4 Topology Entry for AS(1)/ID(10.10.100.100) for 192.168.10.0/24
State is Passive, Query origin flag is 1, 2 Successor(s), FD is 284160
  Descriptor Blocks:
  10.100.1.0 (Tunnel0), from 10.100.0.1, Send flag is 0x0
     Composite metric is (284160/281600), route is Internal
     Vector metric:
       Minimum bandwidth is 10000 Kbit
       Total delay is 1100 microseconds
       Reliability is 255/255
       Load is ½55
       Minimum MTU is 1400
       Hop count is 1
       Originating router is 10.10.1.1
       ECMP Mode: Advertise by default
       10.100.0.2 (Tunnel1), from 10.100.0.2, Send flag is 0X0
       Composite metric is (284160/281600), route is Internal
       Vector metric:
       Minimum bandwidth is 10000 Kbit
       Total delay is 1100 microseconds
       Reliability is 255/255
       Load is ½55
       Minimum MTU is 1400
       Hop count is 1
       Originating router is 10.10.2.2
       ECMP Mode: Advertise out Tunnel1
```

The following sample output from the **show ip eigrp topology all-links** command displays all paths, even those that are not feasible:

```
Device# show ip eigrp topology all-links

EIGRP-IPv4 Topology Table for AS(1)/ID(10.0.0.1)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status
P 172.16.1.0/24, 1 successors, FD is 409600, serno 14
        via 10.10.1.2 (409600/128256), Ethernet0/0
        via 10.1.4.3 (2586111744/2585599744), Serial3/0, serno 18
```

The following sample output from the **show ip eigrp topology detail-links** command displays additional details about routes:

```
Device# show ip eigrp topology detail-links

EIGRP-IPv4 Topology Table for AS(1)/ID(10.0.0.1)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status
P 10.0.0.0/8, 1 successors, FD is 409600, serno 6
        via 10.10.1.2 (409600/128256), Ethernet0/0
P 172.16.1.0/24, 1 successors, FD is 409600, serno 14
        via 10.10.1.2 (409600/128256), Ethernet0/0
P 10.0.0.0/8, 1 successors, FD is 281600, serno 3
        via Summary (281600/0), Null0
P 10.1.1.0/24, 1 successors, FD is 281600, serno 1
        via Connected, Ethernet0/0
```

The following sample output from the **show ip eigrp topology frr** command displays details about the LFAs in the EIGRP topology:

```
Device# show ip eigrp topology frr

EIGRP-IPv4 VR(test) Topology Table for AS(1)/ID(10.1.1.1)
Codes: P - Passive, A - Active, U - Update, Q - Query, R - Reply,
       r - reply Status, s - sia Status

P 192.168.2.0/24, 1 successors, FD is 131153920
        via 10.1.1.2 (131153920/163840), Ethernet0/0
        via 10.3.3.3 (137625600/6635520), Ethernet0/1, [LFA]
P 192.168.1.0/24, 1 successors, FD is 131153920
        via 10.1.1.2 (131153920/163840), Ethernet0/0
        via 10.4.4.4 (137625600/6635520), Ethernet0/2, [LFA]
        via 10.3.3.3 (137625600/6635520), Ethernet0/1
P 192.168.4.0/32, 1 successors, FD is 131727360
        via 10.4.4.4 (131727360/7208960), Ethernet0/2
P 192.168.3.0/24, 1 successors, FD is 131072000
        via Connected, Ethernet0/1
P 192.168.5.0/24, 1 successors, FD is 131072000
        via Connected, Ethernet0/0
P 10.10.10.0/24, 1 successors, FD is 262144000
        via 10.1.1.2 (262144000/196608000), Ethernet0/0
        via 10.4.4.4 (131727360/7208960), Ethernet0/2, [LFA]
```

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

Table 12: show ip eigrp topology Field Descriptions

Field	Description
Codes	State of this topology table entry. Passive and Active refer to the EIGRP state with respect to the destination. Update, Query, and Reply refer to the type of packet that is being sent. • P - Passive—Indicates that no EIGRP computations are being performed for this route. • A - Active—Indicates that EIGRP computations are being performed for this route. • U - Update—Indicates that a pending update packet is waiting to be sent for this route. • Q - Query—Indicates that a pending query packet is waiting to be sent for this route. • R - Reply—Indicates that a pending reply packet is waiting to be sent for this route. • r - Reply status—Indicates that EIGRP has sent a query for the route and is waiting for a reply from the specified path. • s - sia status—Indicates that the EIGRP query packet is in stuck-in-active (SIA) status.
successors	Number of successors. This number corresponds to the number of next hops in the IP routing table. If "successors" is capitalized, then the route or the next hop is in a transition state.
serno	Serial number.
FD	Feasible distance. The feasible distance is the best metric to reach the destination or the best metric that was known when the route became active. This value is used in the feasibility condition check. If the reported distance of the device is less than the feasible distance, the feasibility condition is met and that route becomes a feasible successor. After the software determines that it has a feasible successor, the software need not send a query for that destination.
via	Next-hop address that advertises the passive route.

Related Commands

Command	Description
show eigrp address-family topology	Displays entries in the EIGRP address-family topology table.

show ip eigrp traffic

To display the number of Enhanced Interior Gateway Routing Protocol (EIGRP) packets sent and received, use the **show ip eigrp traffic** command in privileged EXEC mode.

show ip eigrp [**vrf** {*vrf-name*| *****}] [*autonomous-system-number*] **traffic**

Syntax Description

vrf *vrf-name*	(Optional) Displays information about the specified VRF.
vrf *	(Optional) Displays information about all VRFs.
autonomous-system-number	(Optional) Autonomous system number.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
10.0	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
15.0(1)M	This command was modified. The **vrf**, *vrf-name*, and ***** keywords and arguments were added. This command replaces the **show ip eigrp vrf traffic** command.
12.2(33)SRE	This command was modified. The **vrf**, *vrf-name*, and ***** keywords and arguments were added. This command replaces the **show ip eigrp vrf traffic** command.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines

This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system (AS) configurations.

This command displays the same information as the **show eigrp address-family traffic** command. Cisco recommends using the **show eigrp address-family traffic** command.

Examples   The following is sample output from the **show ip eigrp traffic** command:

```
Router# show ip eigrp traffic
EIGRP-IPv4 Traffic Statistics for AS(60)
Hellos sent/received: 21429/2809
Updates sent/received: 22/17
Queries sent/received: 0/0
Replies sent/received: 0/0
Acks sent/received: 16/13
SIA-Queries sent/received: 0/0
SIA-Replies sent/received: 0/0
Hello Process ID: 204
PDM Process ID: 203
Socket Queue: 0/2000/2/0 (current/max/highest/drops)
Input Queue: 0/2000/2/0 (current/max/highest/drops)
```
The table below describes the significant fields shown in the display.

Table 13: show ip eigrp traffic Field Descriptions

Field	Description
Hellos sent/received	Number of hello packets sent and received.
Updates sent/received	Number of update packets sent and received.
Queries sent/received	Number of query packets sent and received.
Replies sent/received	Number of reply packets sent and received.
Acks sent/received	Number of acknowledgement packets sent and received.
SIA-Queries sent/received	Number of stuck in active query packets sent and received.
SIA-Replies sent/received	Number of stuck in active reply packets sent and received.
Hello Process ID	Hello process identifier.
PDM Process ID	Protocol-dependent module IOS process identifier.
Socket Queue	The IP to EIGRP Hello Process socket queue counters.
Input queue	The EIGRP Hello Process to EIGRP PDM socket queue counters.

Related Commands

Command	Description
show eigrp address-family traffic	Displays the number of EIGRP packets sent and received.

show ip eigrp vrf accounting

Note   Effective with Cisco IOS Release 15.0(1)M, this command was replaced by the **show ip eigrp accounting** command. See the **show ip eigrp accounting** command for more information.

To display prefix accounting information for an Enhanced Interior Gateway Routing Protocol (EIGRP) VPN routing and forwarding instance (VRF), use the **show ip eigrp vrf accounting** command in privileged EXEC mode.

show ip eigrp vrf {*vrf-name*| *****} **accounting** [*autonomous-system-number*]

Syntax Description

vrf-name	Specifies the VRF name.
*	Displays all VRFs.
autonomous-system-number	(Optional) Specifies the autonomous system number.

Command Modes

Privileged EXEC (#)

Command History

Release	Modification
12.0(29)S	This command was introduced.
12.3(14)T	This command was integrated into Cisco IOS Release 12.3(14)T.
15.0(1)M	This command was replaced by the **show ip eigrp accounting** command.

Usage Guidelines

This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system (AS) configurations.

This command displays the same information as the **show eigrp address-family accounting** command. Cisco recommends using the **show eigrp address-family accounting** command.

Examples

The following is sample output from the **show ip eigrp vrf accounting** command:

```
Router# show ip eigrp vrf RED accounting
IP-EIGRP accounting for AS(100)/ID(10.0.2.1) Routing Table: RED
Total Prefix Count: 4  States: A-Adjacency, P-Pending, D-Down
State Address/Source    Interface        Prefix    Restart  Restart/
                                          Count     Count    Reset(s)
   P    Redistributed    ----               0         3        211
   A    10.0.1.2         Et0/0              2         0         84
```

```
P    10.0.2.4        Se2/0              0          2          114
D    10.0.1.3        Et0/0              0          3            0
```

Note Connected and summary routes are not listed individually in the output of this command but are counted in the total aggregate count per process.

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

Table 14: show ip eigrp vrf accounting Field Descriptions

Field	Description
IP-EIGRP accounting for AS...	Identifies the EIGRP instance along with the AS number, Router ID and Table ID.
Total Prefix Count	Shows to the aggregate sum of the prefixes in an EIGRP instance topology table. It includes prefixes learnt from all neighbors or from redistribution.
States: A-Adjacency, P-Pending, D-Down	A-Adjacency: Indicates a stable adjacency with the neighbor or a normal redistribution state. P-Pending: Neighbor adjacency or redistribution in suspended or in a penalized state because the maximum prefix limit has been exceeded. D-Down: Neighbor adjacency or redistribution is suspended permanently until a manually reset is performed with the **clear ip route** command.
Address/Source	Shows the peer IP address of the redistribution source.
Prefix Count	Displays the total number of learned prefixes by source. **Note** Routes can be learned for the same prefix from multiple sources, and the sum of all prefix counts in this column may be greater than the figure displayed in the "Prefix Count" field.
Restart Count	Number of times a route source has exceeded the maximum-prefix limit.
Restart/Reset(s)	Displays the time, in seconds, that a route source is in a P (penalized) state. If the route source is in an A (stable or normal) state, the displayed time, in seconds, is the time period until penalization history is reset.

Related Commands

Command	Description
show eigrp address-family accounting	Displays prefix accounting information for EIGRP processes.

show ip eigrp vrf interfaces

Note   Effective with Cisco IOS Release 15.0(1)M, this command was replaced by the **show ip eigrp interfaces**command. See the **show ip eigrp interfaces** command for more information.

To display information about interfaces that carry VPN routing and forwarding (VRF) information and that are configured for Enhanced Interior Gateway Routing Protocol (EIGRP), use the **show ip eigrp vrf interfaces** command in privileged EXEC mode.

show ip eigrp vrf {*vrf-name*| *****} **interfaces** [*autonomous-system-number*] [*interface-type*] [**detail** *interface-type*] [**static** *interface-type*]

Syntax Description

vrf-name	Specifies the VRF name.
*	Displays all VRFs.
autonomous-system-number	(Optional) Specifies the autonomous system number.
interface-type	(Optional) Specifies the VRF interface for which to display EIGRP information.
detail *interface-type*	(Optional) Displays detailed VRF peer information. The interface can be specified after this keyword is entered.
static *interface-type*	(Optional) Displays VRF information for static neighbors. The interface can be specified after this keyword is entered. The interface-type argument allows you to display information about static neighbors for VRFs that are configured on specific interfaces.

Command Modes   Privileged EXEC (#)

Command History

Release	Modification
12.0(22)S	This command was introduced.
12.2(15)T	This command was integrated into 12.2(15)T.
12.2(18)S	This command was integrated into Cisco IOS Release 12.2(18)S.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.

Release	Modification
15.0(1)M	This command was replaced by the **show ip eigrp interfaces** command.

Usage Guidelines

Use the **show ip eigrp vrf interfaces** command to display EIGRP interfaces that are defined under the specified VRF. If an interface is specified with the *interface-type* argument, only the specified interface is displayed. Otherwise, all interfaces on which EIGRP is running as part of the specified VRF are displayed.

This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system (AS) configurations.

This command displays the same information as the **show eigrp address-family interfaces** command. Cisco recommends using the **show eigrp address-family interfaces** command.

Examples

The following is sample output from the **show ip eigrp vrf interfaces** command:

```
Router# show ip eigrp vrf VRF-PINK interfaces
IP-EIGRP interfaces for process 1
                        Xmit Queue   Mean   Pacing Time   Multicast     Pending
Interface      Peers   Un/Reliable   SRTT   Un/Reliable   Flow Timer    Routes
Et3/0            1        0/0         131      0/10          528           0
```
The table below describes the significant fields shown in the display.

Table 15: show ip eigrp vrf interfaces Field Descriptions

Field	Description
IP-EIGRP interfaces for process...	Displays the autonomous system number for the specified VRF.
Interface	Interface over which EIGRP is configured.
Peers	Number of directly connected EIGRP neighbors.
Xmit Queue Un/Reliable	Number of packets remaining in the Unreliable and Reliable transmit queues.
Mean SRTT	Mean smooth round-trip time (SRTT) interval (in milliseconds).
Pacing Time Un/Reliable	Pacing time used to determine when EIGRP packets should be sent out the interface (unreliable and reliable packets).
Multicast Flow Timer	Maximum number of seconds in which the router will send multicast EIGRP packets.
Pending Routes	Number of routes in the packets in the transmit queue waiting to be sent.

Related Commands

Command	Description
show eigrp address-family interfaces	Displays information about interfaces configured for EIGRP.
clear ip eigrp vrf neighbors	Clears neighbor entries of the specified VRF from the RIB.
show ip eigrp vrf neighbors	Displays neighbors discovered by EIGRP that carry VRF information.
show ip eigrp vrf topology	Displays VRF entries in the EIGRP topology table.
show ip eigrp vrf traffic	Displays EIGRP VRF traffic statistics.

show ip eigrp vrf neighbors

✎

Note   Effective with Cisco IOS Release 15.0(1)M, this command was replaced by the **show ip eigrp neighbors**command. See the **show ip eigrp neighbors** command for more information.

To display Enhanced Interior Gateway Routing Protocol (EIGRP) neighbors that are on interfaces that are part of the specified Virtual Private Network (VPN) routing and forwarding instance (VRF), use the **show ip eigrp vrf neighbors** command privileged EXEC mode.

show ip eigrp vrf {*vrf-name*| *****} **neighbors** [*autonomous-system-number*] [*interface-type*] [**detail** *interface-type*] [**static** *interface-type*]

Syntax Description

vrf-name	Specifies the VRF name.
*	Displays all VRFs.
autonomous-system-number	(Optional) Autonomous system number.
interface-type	(Optional) Interface to display neighbor information under the specified VRF.
detail *interface-type*	(Optional) Displays detailed VRF peer information. The interface can be specified after this keyword is entered.
static *interface-type*	(Optional) Displays VRF information for static neighbors. The interface can be specified after this keyword is entered. The *interface-type* argument allows you to display information about static neighbors for VRFs that are configured on specific interfaces.

Command Modes   Privileged EXEC (#)

Command History

Release	Modification
12.0(22)S	This command was introduced.
12.2(15)T	This command was integrated into 12.2(15)T.
12.2(18)S	This command was integrated into Cisco IOS Release 12.2(18)S.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.

Release	Modification
15.0(1)M	This command was replaced by the **show ip eigrp neighbors** command.

Usage Guidelines

Use the **show ip eigrp vrf neighbors** command to determine when VRF neighbors become active and inactive. This command is also useful for debugging certain types of transport problems.

This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system (AS) configurations.

This command displays the same information as the **show eigrp address-family neighbors** command. Cisco recommends using the **show eigrp address-family neighbors** command.

Examples

The following is sample output from the **show ip eigrp vrf neighbors** command:

```
Router# show ip eigrp vrf VRF-GREEN neighbors
IP-EIGRP neighbors for process 1
H   Address                 Interface       Hold Uptime    SRTT   RTO  Q
Seq Type
                                            (sec)          (ms)        Cnt
Num
0   10.10.10.2              Et3/0              10 1d16h     131    786  0  3
```

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

Table 16: show ip eigrp vrf neighbors Field Descriptions

Field	Description
IP-EIGRP neighbors for process...	Displays the autonomous-system number for the specified EIGRP VRF.
Address	IP address of the EIGRP peer.
Interface	Interface on which the router is receiving hello packets from the peer.
Hold Uptime	Length of time (in seconds) that the Cisco IOS software will wait to hear from the peer before declaring it down, and the length in time (in seconds) since the local router first heard from this neighbor.
SRTT	Smooth round-trip time. This is the number of milliseconds required for an EIGRP packet to be sent to this neighbor and for the local router to receive an acknowledgment of that packet.
RTO	Retransmission timeout (in milliseconds). This is the amount of time the software waits before resending a packet from the retransmission queue to a neighbor.

Field	Description
Q	Number of EIGRP packets (update, query, and reply) that the software is waiting to send.

Related Commands

Command	Description
show eigrp address-family neighbors	Displays neighbors discovered by EIGRP.

show ip eigrp vrf topology

To display VPN routing and forwarding (VRF) entries in the Enhanced Interior Gateway Routing Protocol (EIGRP) topology table, use the **show ip eigrp vrf topology** command in user EXEC or privileged EXEC mode.

show ip eigrp vrf {*vrf-name*| *****} **topology** [*as-number*] [*ip-address* [*mask*]] [**active**| **all-links**| **pending**| **summary**| **zero-successors**]

Syntax Description

vrf-name	Name of the VRF.
*	Displays all VRFs.
as-number	(Optional) Autonomous system number.
ip-address	(Optional) IP address. When the IP address is specified with a mask, a detailed description of the entry is provided.
mask	(Optional) Subnet mask.
active	(Optional) Displays only active entries in the EIGRP topology table.
all-links	(Optional) Displays all entries in the EIGRP topology table (including nonfeasible-successor sources).
pending	(Optional) Displays all entries in the EIGRP topology table that are either waiting for an update from a neighbor or waiting to reply to a neighbor.
summary	(Optional) Displays a summary of the EIGRP topology table.
zero-successors	(Optional) Displays available routes that have zero successors.

Command Modes   User EXEC (>)

Privileged EXEC (#)

Command History

Release	Modification
12.0(22)S	This command was introduced.

Release	Modification
12.2(15)T	This command was integrated into Cisco IOS Release 12.2(15)T.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
15.2(2)S	This command was modified. The output of the command was enhanced to display route tag values in dotted-decimal format.
Cisco IOS XE Release 3.6S	This command was modified. This command was integrated into Cisco IOS XE Release 3.6S. The output of the command was enhanced to display route tag values in dotted-decimal format.

Usage Guidelines

The **show ip eigrp vrf topology** command can be used to determine Diffusing Update Algorithm (DUAL) states and to debug possible DUAL problems.

This command can be used to display information about EIGRP named and EIGRP autonomous system configurations.

This **show ip eigrp vrf topology** command displays the same information as the **show eigrp address-family topology** command. We recommend using the **show eigrp address-family topology** command.

Examples

The following is sample output from the **show ip eigrp vrf** *vrf-name* **topology** command:

```
Device# show ip eigrp vrf VRF1 topology

IP-EIGRP Topology Table for AS(1)/ID(192.168.10.1) Routing Table:VRF1
Codes:P - Passive, A - Active, U - Update, Q - Query, R - Reply,
      r - reply Status, s - sia Status
P 10.17.17.0/24, 1 successors, FD is 409600
        via 10.10.10.2 (409600/128256), Ethernet3/0
P 172.16.19.0/24, 1 successors, FD is 409600
        via 10.10.10.2 (409600/128256), Ethernet3/0
P 192.168.10.0/24, 1 successors, FD is 281600
        via Connected, Ethernet3/0
P 10.10.10.0/24, 1 successors, FD is 281600
        via Redistributed (281600/0)
```

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

Table 17: show ip eigrp vrf vrf-name topology Field Descriptions

Field	Description
Codes	State of this topology table entry. Passive and Active refer to the EIGRP state with respect to the destination; Update, Query, and Reply refer to the type of packet that is being sent.
P—Passive	No EIGRP computations are being performed for this destination.
A—Active	EIGRP computations are being performed for this destination.

Field	Description
U—Update	An update packet was sent to this destination.
Q—Query	A query packet was sent to this destination.
R—Reply	A reply packet was sent to this destination.
r—reply Status	The flag that is set after the software has sent a query and is waiting for a reply.
s—sia Status	The flag that is set if a route is in stuck-in-active state.
successors	Number of successors. This number corresponds to the number of next hops in the IP routing table. If "successors" is capitalized, then the route or the next hop is in a transition state.
FD	Feasible distance. The feasible distance is the best metric to reach the destination or the best metric that was known when the route became active. This value is used in the feasibility condition check. If the reported distance of the device is less than the feasible distance, the feasibility condition is met and that route becomes a feasible successor. After the software determines that it has a feasible successor, the software need not send a query for that destination.
replies	(Not shown in the output) Number of replies that are still outstanding (have not been received) with respect to this destination. This information appears only when the destination is in active state.
state	(Not shown in the output) The exact EIGRP state of this destination. It can be the number 0, 1, 2, or 3. This information appears only when the destination is in active state.
via	IP address of the peer that advertised this destination. The first of these entries is the current successor. Subsequent entries on the list are feasible successors.
(409600/128256)	The first number is the EIGRP metric that represents the cost to the destination. The second number is the EIGRP metric that this peer advertised.
Ethernet3/0	The interface from which this information was learned.

Related Commands

Command	Description
show eigrp address-family topology	Displays entries in the EIGRP address-family topology table.

show ip eigrp vrf traffic

Note   Effective with Cisco IOS Release 15.0(1)M, the **show ip eigrp vrf traffic** command is replaced by the **show ip eigrp traffic** command. See the **show ip eigrp traffic** command for more information.

To display sent and received statistics for Enhanced Interior Gateway Routing Protocol (EIGRP) Virtual Private Networking (VPN) routing and forwarding instance (VRF) packets, use the **show ip eigrp vrf traffic** command in privileged EXEC mode.

show ip eigrp vrf {*vrf-name* | *****} **traffic** [*as-number*]

Syntax Description

vrf-name	VRF name.
*	Displays all VRFs.
as-number	(Optional) Autonomous system number.

Command Modes   Privileged EXEC (#)

Command History

Release	Modification
12.0(22)S	This command was introduced.
12.2(15)T	This command was integrated into 12.2(15)T.
12.2(18)S	This command was integrated into Cisco IOS Release 12.2(18)S.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
15.0(1)M	This command was replaced by the **show ip eigrp traffic** command.

Usage Guidelines   This command can be used to display information about EIGRP named configurations and EIGRP autonomous-system (AS) configurations.

This command displays the same information as the **show eigrp address-family traffic** command. Cisco recommends using the **show eigrp address-family traffic** command.

Examples   The following is sample output from the **show ip eigrp vrf traffic** command:

```
Router# show ip eigrp vrf VRF-RED traffic
```

```
IP-EIGRP Traffic Statistics for AS 101
  Hellos sent/received: 600/585
  Updates sent/received: 23/22
  Queries sent/received: 7/0
  Replies sent/received: 0/6
  Acks sent/received: 55/42
  Input queue high water mark 0, 0 drops
```
The table below describes the significant fields shown in the display.

Table 18: show ip eigrp vrf traffic Field Descriptions

Field	Description
IP-EIGRP Traffic Statistics for AS...	Displays the autonomous system number for the specified EIGRP VRF .
Hellos sent/received	Number of hello packets sent and received.
Updates sent/received	Number of update packets sent and received.
Queries sent/received	Number of query packets sent and received.
Replies sent/received	Number of reply packets sent and received.
Acks sent/received	Number of acknowledgment packets sent and received.
Input queue high water mark..., ... drops	Number of received packets that are approaching the maximum receive threshold and number of dropped packets.

Related Commands

Command	Description
show eigrp address-family traffic	Displays the number of EIGRP packets sent and received.

shutdown (address-family)

To disable the Enhanced Interior Gateway Routing Protocol (EIGRP) address-family protocol for a specific routing instance without removing any existing address-family configuration parameters, use the **shutdown** command in the appropriate configuration mode. To reenable the EIGRP address-family protocol, use the **no** form of this command.

shutdown

no shutdown

Syntax Description   This command has no arguments or keywords.

Command Default   The EIGRP address-family protocol for routing instances is not disabled.

Command Modes   Router configuration (config-router) Address-family configuration (config-router-af) Address-family interface configuration (config-router-af-interface)

Command History

Release	Modification
15.0(1)M	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines   When you configure the **shutdown** (address-family) command, the EIGRP address-family protocol continues to run on the router and you can continue to use the current address-family configuration. The address-family will not form any adjacencies on any interface and the address-family topology database is cleared.

Configure the **shutdown** command in address-family configuration mode to shut down all topologies under that address family. Configure this command in router configuration mode to shut down all address and service families and their topologies.

Examples   The following example shows how to disable the address-family protocol in router configuration mode:

```
Router(config)# router eigrp virtual-name
Router(config-router)# shutdown
```
The following example shows how to disable the address-family protocol in address-family configuration mode:

```
Router(config)# router eigrp virtual-name
```

```
Router(config-router)# address-family ipv4 autonomous-system 4453
Router(config-router-af)# shutdown
```
The following example shows how to disable the address-family protocol in address-family interface configuration mode:

```
Router(config)# router eigrp virtual-name
Router(config-router)# address-family ipv4 autonomous-system 4453
Router(config-router-af)# af-interface default
Router(config-router-af-interface)# shutdown
```

Related Commands

Command	Description
address-family (EIGRP)	Enters address-family configuration mode to configure an EIGRP routing instance.
af-interface	Enters address-family interface configuration mode to configure interface-specific EIGRP commands.
router eigrp	Configures the EIGRP address-family process.

split-horizon (EIGRP)

To enable Enhanced Interior Gateway Routing Protocol (EIGRP) split-horizon, use the **split-horizon** command in address-family interface configuration mode or service-family interface configuration mode. To disable EIGRP split-horizon, use the **no** form of this command.

split-horizon

no split-horizon

Syntax Description   This command has no arguments or keywords.

Command Default   EIGRP split-horizon is enabled by default. However, for ATM interfaces and subinterfaces **split-horizon** is disabled by default.

Command Modes   Address-family interface configuration (config-router-af-interface) Service-family interface configuration (config-router-sf-interface)

Command History

Release	Modification
15.0(1)M	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
12.2(33)SXI4	This command was integrated into Cisco IOS Release 12.2(33)SXI4.

Usage Guidelines   The split-horizon rule prohibits a router from advertising a route through an interface that the router itself uses to reach the destination. The following are general rules for EIGRP split-horizon:

- Split-horizon behavior is turned on by default.
- When you change the EIGRP split-horizon setting on an interface, all adjacencies with EIGRP neighbors reachable over that interface are reset.
- Split-horizon should typically be disabled only on non-broadcast multi-access interfaces.
- The EIGRP split-horizon behavior is not controlled or influenced by the **ip split-horizon** command.

To configure split-horizon for an EIGRP address family, use the **split-horizon**command in address-family interface configuration mode.

To configure split-horizon for an EIGRP service family, use the **split-horizon**command in service-family interface configuration mode.

Examples   The following example disables EIGRP split-horizon for serial interface 3/0 in address-family 5400:

```
Router(config)# router eigrp virtual-name
Router(config-router)# address-family ipv4 autonomous-system 5400
Router(config-router-af)# af-interface serial3/0
Router(config-router-af-interface)# no split-horizon
```
The following example disables EIGRP split-horizon for serial interface 3/0 in service-family 5400:

```
Router(config)# router eigrp virtual-name
Router(config-router)# service-family ipv4 autonomous-system 5400
Router(config-router-sf)# sf-interface serial3/0
Router(config-router-sf-interface)# no split-horizon
```

Related Commands

Command	Description
address-family (EIGRP)	Enters address-family configuration mode to configure an EIGRP routing instance.
af-interface	Enters address-family interface configuration mode to configure interface-specific EIGRP commands.
router eigrp	Configures the EIGRP address-family process.
service-family ipv4	Configures commands under service-family configuration mode.
sf-interface	Configures interface-specific commands under service-family configuration mode.

summary-address (EIGRP)

To configure a summary address for Enhanced Interior Gateway Routing Protocol (EIGRP), use the **summary-address**(EIGRP) command in address-family interface configuration mode. To remove an EIGRP summary address, use the **no** form of this command.

summary-address *ip-address mask* [*administrative-distance* [**leak-map** *leak-map-name*]]

no summary-address *ip-address mask* [*administrative-distance* [**leak-map** *leak-map-name*]]

Syntax Description

ip-address	Summary address designated for a range of addresses.
mask	IP subnet mask used for the summary route.
administrative-distance	(Optional) Administrative distance. Valid range is 1 to 255. Default is 5.
leak-map	(Optional) Allows dynamic addresses based on a leak map.
leak-map-name	(Optional) The name of a leak-map.

Command Default   All routes are advertised individually.

Command Modes   Address-family interface configuration (config-router-af-interface)

Command History

Release	Modification
15.0(1)M	This command was introduced.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines   The **summary-address** (EIGRP) command is used to configure interface-level address summarization. EIGRP summary routes are given an administrative distance value of 5. The administrative distance metric is used to advertise a summary address without installing it in the routing table.

By default, EIGRP summarizes subnet routes to the network level. The **no auto-summary** command can be entered to configure subnet-level summarization.

EIGRP Support for Leaking Routes

Configuring the **leak-map** keyword allows you to advertise a component route that would otherwise be suppressed by the manual summary. Any component subset of the summary routes or addresses can be leaked. A route map and access list must be defined to source the leaked route.

The following is default behavior if an incomplete configuration is entered:

- If the **leak-map** keyword is configured to reference a nonexistent route map, the configuration of this keyword has no effect. The summary address is advertised, but all component routes are suppressed.

- If the **leak-map** keyword is configured but the access list does not exist or the route map does not reference the access list, the summary address and all component routes are sent.

Examples

The following example shows how to configure an EIGRP summary address:

```
Router(config)# router eigrp virtual-name
Router(config-router)# address-family ipv4 autonomous-system 4453
Router(config-router-af)# af-interface ethernet0/0
Router(config-router-af-interface)# summary-address 192.168.0.0 255.255.0.0 95
```

Related Commands

Command	Description
address-family (EIGRP)	Enters address-family configuration mode to configure an EIGRP routing instance.
af-interface	Enters address-family interface configuration mode to configure interface-specific EIGRP commands.
auto-summary (EIGRP)	Allow automatic summarization of subnet routes into network-level routes.
router eigrp	Configures the EIGRP address-family process.

summary-metric

To configure a fixed metric for an Enhanced Interior Gateway Routing Protocol (EIGRP) summary aggregate address, use the **summary-metric** command in address family topology configuration mode. To remove a configured metric, use the **no** form of this command.

summary-metric *network-address subnet-mask* {*bandwidth delay reliability load mtu* [**distance** *administrative-distance*]| **distance** *administrative-distance*}

no summary-metric *network-address subnet-mask*

Syntax Description

network-address	IP summary aggregate address to apply to an interface.
subnet-mask	Subnet mask.
bandwidth	Minimum bandwidth of the router, in kilobits per second. Valid values are 0 or any positive integer.
delay	Route delay, in tens of microseconds. Valid values are 0 or any positive number that is a multiplier of 39.1 nanoseconds.
reliability	Likelihood of a successful packet transmission that is expressed as a number between 0 and 255, where 255 is 100 percent reliability and 0 is no reliability.
load	Effective load of the route that is expressed as a number from 0 to 255, where 255 is 100 percent load.
mtu	Maximum transmission unit (MTU) size of the route, in bytes. Valid values are 0 or any positive integer.
distance *administrative-distance*	(Optional) Specifies the administrative distance. Valid range is 1 to 255.

Command Default

EIGRP summary aggregate addresses do not have a fixed metric.

Command Modes

Address family topology configuration (config-router-af-topology)

Command History

Release	Modification
12.2(33)SRE	This command was introduced.

Release	Modification
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
15.0(1)M	This command was integrated into Cisco IOS Release 15.0(1)M.
Cisco IOS XE Release 3.2S	This command was modified. The **distance** keyword and *administrative-distance* argument were added.
12.2(33)SXJ	This command was modified. The summary address is not advertised to the peer if the administrative distance is configured as 255.
15.1(1)SG	This command was integrated into Cisco IOS Release 15.1(1)SG.
Cisco IOS XE Release 3.2S	This command was integrated into Cisco IOS XE Release 3.3SG.

Usage Guidelines

When EIGRP creates a summary route, it includes a metric with the route in order to advertise it. EIGRP searches for components of the summary to be suppressed and represented by the summary. EIGRP finds the component with the best metric and copies the metric from the component into the summary. Components of the summary may change often, which means that every time the best component metric changes, the summary needs to be readvertised to all its peers. Even if the best component metric is not the one that changed, EIGRP still has to search every topology entry to make sure the summary is not affected. This can add a significant processing overhead.

Use the **summary-metric**command to mitigate this metric churn and processing overhead. Rather than searching for the best component metric, EIGRP uses the values configured using the **summary-metric** command.

The summary address is not advertised to the peer if the administrative distance is configured as 255.

One of the sets of optional values is required after the subnet mask. That is, you can configure bandwidth, delay, reliability, load, and MTU, along with administrative distance, without administrative distance, or you can configure only administrative distance.

Examples

The following example shows how to configure an EIGRP summary address and sets the bandwidth to 10000, the delay to 10, the reliability to 255, the load to 1, and the MTU to 1500 for the summary address 192.168.0.0/16:

```
Router(config)# router eigrp virtual-name
Router(config-router)# address-family ipv4 autonomous-system 4453
Router(config-router-af)# af-interface ethernet0/0
Router(config-router-af-interface)# summary-address 192.168.0.0 255.255.0.0
Router(config-router-af-interface)# exit
Router(config-router-af)# topology base
Router(config-router-af-topology)# summary-metric 192.168.0.0/16 10000 10 255 1 1500
```
In the following example, only the administrative distance is specified for summary address 192.168.0.1/24:

```
router eigrp 1
 summary-metric 192.168.0.1/24 distance 20 ! <-- Specify admin distance only for
192.168.0.0/24
```

In the following example, for summary address 192.168.1.0/24 a metric is specified, but not the administrative distance:

```
 summary-metric 192.168.1.0/24 10000 10 255 1 1500 ! <-- Specify metric only for
192.168.1.0/24
```

In the following example, for summary address 192.168.2.0/24 both the metrics and distance are specified:

```
 summary-metric 192.168.2.0/24 1 1 1 1 1  distance 20 ! <-- metric and distance for
192.168.2.0/24
```

In the following example, for summary address 192.168.0.1/24 in VRF vrf1 a different distance is specified:

```
 address-family ipv4 vrf vrf1 autonomous-system 2
 summary-metric 192.168.0.1/24 distance 55 ! <-- different distance for 192.168.0.1/24 in
vrf vrf1
```

Related Commands

Command	Description
address-family (EIGRP)	Enters address family configuration mode to configure an EIGRP routing instance.
af-interface	Enters address family interface configuration mode to configure interface-specific EIGRP commands.
ip summary-address	Configures a summary aggregate address for a specified interface.
router eigrp	Configures the EIGRP address-family process.
summary-address (EIGRP)	Configures a summary address for EIGRP.
topology (EIGRP)	Configures an EIGRP process to route IP traffic under the specified topology instance and enters address-family topology configuration mode.

timers active-time

To adjust Enhanced Interior Gateway Routing Protocol (EIGRP) routing wait time, use the **timers active-time** command in router configuration mode or address-family topology configuration mode. To disable this function, use the **no** form of the command.

timers active-time [*time-limit*| **disabled**]

no timers active-time

Syntax Description

time-limit	(Optional) EIGRP active-time limit (in minutes). Valid range is 1 to 65535.
disabled	(Optional) Disables the timers and permits the routing wait time to remain active indefinitely.

Command Default

This command is disabled by default.

Command Modes

Router configuration (config-router) Address-family topology configuration (config-router-af-topology)

Command History

Release	Modification
10.0	This command was introduced.
12.4(6)T	Support for IPv6 was added.
12.2(33)SRB	This command was integrated into Cisco IOS Release 12.2(33)SRB.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
15.0(1)M	This command was modified. Address-family topology configuration mode was added. You must enter this command in address-family topology configuration mode for EIGRP named configurations.
12.2(33)SRE	This command was modified. Address-family topology configuration mode was added. You must enter this command in address-family topology configuration mode for EIGRP named configurations.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines   In EIGRP, there are timers that control the time that the router waits (after sending a query) before declaring the route to be in the stuck in active (SIA) state.

Examples   In the following example, the routing wait time is 200 minutes on the specified route:

```
Router(config)# router eigrp 5
Router(config-router)# timers active-time 200
```
In the following example, the routing wait time is 200 minutes on the specified address-family route:

```
Router(config)# router eigrp virtual-name
Router(config-router)# address-family ipv4 autonomous-system 4453
Router(config-router-af)# network 10.0.0.0
Router(config-router-af)# topology base
Router(config-router-af-topology)# timers active-time 200
```
In the following example, the routing wait time is indefinite if a route becomes active:

```
Router(config)# router eigrp 5
Router(config-router)# timers active-time disabled
```
In the following example, the routing wait time is indefinite on the specified address-family route:

```
Router(config)# router eigrp virtual-name
Router(config-router)# address-family ipv4 autonomous-system 4453
Router(config-router-af)# network 10.0.0.0
Router(config-router-af)# topology base
Router(config-router-af-topology)# timers active-time disabled
```
In the following example, the routing wait time is 100 minutes on the specified route:

```
Router(config)# ipv6 router eigrp 1
Router(config-router)# timers active-time 100
```
In the following example, the routing wait time is 100 minutes on the specified address-family route:

```
Router(config)# router eigrp virtual-name
Router(config-router)# address-family ipv6 autonomous-system 4453
Router(config-router-af)# topology base
Router(config-router-af-topology)# timers active-time disabled
```

Related Commands

Command	Description
address-family (EIGRP)	Enters address-family configuration mode to configure an EIGRP routing instance.
ipv6 router eigrp	Configures the EIGRP IPv6 routing process.
network (EIGRP)	Specifies the network for an EIGRP routing process.
router eigrp	Configures the EIGRP address-family process.
show ip eigrp topology	Displays the EIGRP topology table.
show ipv6 eigrp topology	Displays the IPv6 EIGRP topology table.

Command	Description
topology (EIGRP)	Configures an EIGRP process to route IP traffic under the specified topology instance and enters address-family topology configuration mode.

timers graceful-restart purge-time

To set the graceful-restart purge-time timer to determine how long a nonstop forwarding (NSF)-aware router that is running the Enhanced Interior Gateway Routing Protocol (EIGRP) must hold routes for an inactive peer, use the **timers graceful-restart purge-time** command in router configuration, address family configuration, or service-family configuration mode. To return the graceful-restart purge-time timer to the default value, use the **no** form of this command.

timers graceful-restart purge-time *seconds*

no timers graceful-restart purge-time

Syntax Description

seconds	Time, in seconds, for which EIGRP must hold routes for an inactive peer. The range is from 20 to 300. The default is 240.

Command Default

The default graceful-restart purge-time timer is 240 seconds.

Command Modes

Router configuration (config-router)

Address family configuration (config-router-af)

Service-family configuration (config-router-sf)

Command History

Release	Modification
15.0(1)M	This command was introduced. This command replaces the **timers nsf route-hold** command.
12.2(33)SRE	This command was integrated into Cisco IOS Release 12.2(33)SRE.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
12.2(33)SXI4	This command was integrated into Cisco IOS Release 12.2(33)SXI4.
Cisco IOS XE Release 3.6S	This command was modified. Support for IPv6 and IPv6 VPN Routing and Forwarding (VRF) was added.
15.2(2)S	This command was modified. Support for IPv6 and IPv6 VRF was added.

Usage Guidelines   The graceful-restart purge-time timer sets the maximum period of time for which the NSF-aware router must hold known routes for an NSF-capable neighbor during a switchover operation or a well-known failure condition. The graceful-restart purge-time timer is configurable so that you can tune network performance and avoid undesired effects, such as "black holing" routes if the switchover operation takes too much time. When this timer expires, the NSF-aware router scans the topology table and discards any stale routes, allowing EIGRP peers to find alternate routes instead of waiting during a long switchover operation.

Note   The **timers nsf signal** command is supported only on platforms that support High Availability.

Examples   The following example shows how to set the graceful-restart purge-time timer to 60 seconds for an NSF-aware IPv4 address family:

```
Device(config)# router eigrp virtual-name
Device(config-router)# address-family ipv4 autonomous-system 1
Device(config-router-af)# timers graceful-restart purge-time 60
```
The following example shows how to set the graceful-restart purge-time timer to 300 seconds for an NSF-aware-service family configuration:

```
Device(config)# router eigrp virtual-name
Device(config-router)# service-family ipv4 autonomous-system 4533
Device(config-router-sf)# timers graceful-restart purge-time 300
```
The following example shows how to set the graceful-restart purge-time timer to 200 seconds for an NSF-aware IPv6 address family configuration:

```
Device(config)# router eigrp e1
Device(config-router)# address-family ipv6 autonomous-system 4
Device(config-router-af)# timers graceful-restart purge-time 300
```

Related Commands

Command	Description
debug eigrp address-family ipv6 notifications	Displays information about EIGRP address family IPv6 event notifications.
debug eigrp nsf	Displays notifications and information about NSF events for an EIGRP routing process.
debug ip eigrp notifications	Displays EIGRP events and notifications in the console of the router.
nsf (EIGRP)	Enables EIGRP NSF or EIGRP IPv6 NSF on an NSF-capable router.
show eigrp neighbors	Displays the neighbors discovered by EIGRP.
show ip protocols	Displays the parameters and the current state of the active routing protocol process.

Command	Description
show ipv6 protocols	Displays the parameters and the current state of the active IPv6 routing protocol process.
timers nsf converge	Sets the maximum time that the restarting router must wait for the end-of-table notification from an NSF-capable or NSF-aware peer.
timers nsf signal	Sets the maximum time for the initial restart period.

timers nsf converge

To adjust the maximum time that a restarting router must wait for the end-of-table (EOT) notification from a nonstop forwarding (NSF)-capable or NSF-aware peer, use the **timers nsf converge** command in router configuration or address family configuration mode. To return the signal timer to the default value, use the **no** form of this command.

timers nsf converge *seconds*

no timers nsf converge

Syntax Description

seconds	Time, in seconds, for which a restarting router must wait for an EOT notification. The range is from 60 to 180. The default is 120.

Command Default
The default converge timer is 120 seconds.

Command Modes
Router configuration (config-router)

Address family configuration (config-router-af)

Command History

Release	Modification
12.2(18)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.
15.0(1)M	This command was modified. Support for Address family configuration mode was added.
12.2(33)SRE	This command was modified. Support for Address family configuration mode was added.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
Cisco IOS XE Release 3.6S	This command was modified. Support for IPv6 and IPv6 VPN Routing and Forwarding (VRF) was added.
15.2(2)S	This command was modified. Support for IPv6 and IPv6 VRF was added.

Usage Guidelines   The **timers nsf converge** command is entered only on an NSF-capable router to wait for the last EOT update if all startup updates have not been received within the signal timer period. If an EIGRP process discovers no neighbor, or if it has received all startup updates from its neighbor within the signal timer period, the converge timer will not be started.

Note   The **timers nsf converge** command is supported only on platforms that support High Availability.

Examples   The following example shows how to adjust the converge timer to 60 seconds on an NSF-capable router:

```
Device(config)# router eigrp virtual-name
Device(config-router)# address-family ipv4 autonomous-system 1
Device(config-router-af)# timers nsf converge 60
```
The following example shows how to adjust the converge timer for EIGRP IPv6 NSF:

```
Device(config)# router eigrp e1
Device(config-router)# address-family ipv6 autonomous-system 1
Device(config-router-af)# timers nsf converge 60
```

Related Commands

Command	Description
debug eigrp address-family ipv6 notifications	Displays information about EIGRP address family IPv6 event notifications.
debug eigrp nsf	Displays notifications and information about NSF events for an EIGRP routing process.
debug ip eigrp notifications	Displays information and notifications for an EIGRP routing process.
nsf (EIGRP)	Enables EIGRP NSF or EIGRP IPv6 NSF on an NSF-capable router.
show eigrp neighbors	Displays the neighbors discovered by EIGRP.
show ip protocols	Displays the parameters and the current state of the active routing protocol process.
show ipv6 protocols	Displays the parameters and the current state of the active IPv6 routing protocol process.
timers graceful-restart purge-time	Sets the graceful-restart purge-time timer to determine how long an NSF-aware router that is running EIGRP must hold routes for an inactive peer.
timers nsf signal	Sets the maximum time for the initial restart period.

timers nsf route-hold

Note   Effective with Cisco IOS Release 15.0(1)M and 12.2(33)SRE, the **timers nsf route-hold** command was replaced by the **timers graceful-restart purge-time**command. See the **timers graceful-restart purge-time**command for more information.

To set the route-hold timer to determine how long a nonstop forwarding (NSF)-aware router that is running Enhanced Interior Gateway Routing Protocol (EIGRP) will hold routes for an inactive peer, use the timers nsf route-hold command in router configuration mode. To return the route-hold timer to the default value, use the **no** form of this command.

timers nsf route-hold *seconds*

no timers nsf route-hold

Syntax Description

seconds	Time, in seconds, for which EIGRP will hold routes for an inactive peer. Valid range is 20 to 300 seconds. The default is 240 seconds.

Command Default   EIGRP NSF awareness is enabled by default. The default value for the route-hold timer is 240 seconds.

Command Modes   Router configuration (config-router)

Command History

Release	Modification
12.2(15)T	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.
15.0(1)M	This command was replaced by the **timers graceful-restart purge-time**command.
12.2(33)SRE	This command was replaced by the **timers graceful-restart purge-time**command.

Usage Guidelines   The route-hold timer sets the maximum period of time that the NSF-aware router will hold known routes for an NSF-capable neighbor during a switchover operation or a well-known failure condition. The route-hold timer is configurable so that you can tune network performance and avoid undesired effects, such as "black holing" routes if the switchover operation takes too much time. When this timer expires, the NSF-aware router scans the topology table and discards any stale routes, allowing EIGRP peers to find alternate routes instead of waiting during a long switchover operation.

Examples   The following configuration example sets the route-hold timer value for an NSF-aware router. In the example, the route-hold timer is set to 2 minutes:

```
Router(config-router)# timers nsf route-hold 120
```

Related Commands

Command	Description
debug eigrp nsf	Displays EIGRP NSF-specific events in the console of a router.
debug ip eigrp notifications	Displays EIGRP events and notifications in the console of the router.
show ip eigrp neighbors	Displays the neighbors discovered by IP EIGRP.
show ip protocols	Displays the parameters and current state of the active routing protocol process.

timers nsf signal

To adjust the maximum time for the initial signal timer restart period, use the **timers nsf signal** command in router configuration or address family configuration mode. To return the signal timer to the default value, use the **no** form of this command.

timers nsf signal *seconds*

no timers nsf signal

Syntax Description

seconds	Time, in seconds, for which the Enhanced Interior Gateway Routing Protocol (EIGRP) must hold routes for an inactive peer. The range is from 10 to 30. The default is 20.

Command Default

The default signal timer is 20 seconds.

Command Modes

Router configuration (config-router)

Address family configuration (config-router-af)

Command History

Release	Modification
12.2(15)T	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.
15.0(1)M	This command was modified. Support for Address family configuration mode was added.
12.2(33)SRE	This command was modified. Support for Address family configuration mode was added.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.
Cisco IOS XE Release 3.6S	This command was modified. Support for IPv6 and IPv6 VPN Routing and Forwarding (VRF) was added.
15.2(2)S	This command was modified. Support for IPv6 and IPv6 VRF was added.

Usage Guidelines   The **timers nsf signal** command is entered only on a nonstop forwarding (NSF)-capable router. The EIGRP process starts a signal timer when it is notified of a switchover event. Hello packets with the RS bit set are sent during this period.

The converge timer is used to wait for the last end-of-table (EOT) update if all startup updates have not been received within the signal timer period. If an EIGRP process discovers no neighbor, or if it has received all startup updates from its neighbor within the signal timer period, the converge timer will not be started.

Note   The **timers nsf signal** command is supported only on platforms that support High Availability.

Examples   The following example shows how to adjust the signal timer to 30 seconds on an NSF-capable router:

```
Device(config)# router eigrp virtual-name-1
Device(config-router)# address-family ipv4 autonomous-system 1
Device(config-router-af)# timers nsf signal 30
```
The following example shows how to adjust the signal timer to 30 seconds for EIGRP IPv6 NSF:

```
Device(config)# router eigrp e1
Device(config-router)# address-family ipv6 autonomous-system 1
Device(config-router-af)# timers nsf signal 30
```

Related Commands

Command	Description
debug eigrp address-family ipv6 notifications	Displays information about EIGRP address family IPv6 event notifications.
debug eigrp nsf	Displays notifications and information about NSF events for an EIGRP routing process.
debug ip eigrp notifications	Displays information and notifications for an EIGRP routing process.
nsf (EIGRP)	Enables EIGRP NSF or EIGRP IPv6 NSF on an NSF-capable router.
show eigrp neighbors	Displays the neighbors discovered by EIGRP.
show ip protocols	Displays the parameters and the current state of the active routing protocol process.
show ipv6 protocols	Displays the parameters and the current state of the active IPv6 routing protocol process.
timers graceful-restart purge-time	Sets the graceful-restart purge-time timer to determine how long an NSF-aware router that is running EIGRP must hold routes for an inactive peer.

Command	Description
timers nsf converge	Sets the maximum time that the restarting router must wait for the end-of-table notification from an NSF-capable or NSF-aware peer.

topology (EIGRP)

To configure an Enhanced Interior Gateway Routing Protocol (EIGRP) process to route IP traffic under the specified topology instance and to enter address-family topology configuration mode, use the **topology** command in address-family configuration mode. To disassociate the EIGRP routing process from the topology instance, use the **no** form of this command.

topology {**base**| *topology-name* **tid** *number*}

no topology *topology-name*

Syntax Description

base	Specifies the base topology.
topology-name	Topology name. The *topology-name* argument is case-sensitive.
tid *number*	Specifies the topology ID number. The range is 1 to 65535.

Command Default   EIGRP routing processes are not configured to route IP traffic under a topology instance.

Command Modes   Address-family configuration (config-router-af)

Command History

Release	Modification
12.2(33)SRB	This command was introduced.
15.0(1)M	This command was integrated into Cisco IOS Release 15.0(1)M.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines   The **topology** command is used in a Multitopology Routing (MTR) configuration to enable an EIGRP process under the specified topology. The **topology** command is entered under address-family configuration mode. Command configurations are applied only to the topology instance. The topology must be defined globally with the **global-address-family** command in global address-family configuration mode before the topology can be configured under the EIGRP process.

The **tid** keyword associates an ID with the topology instance. Each topology must be configured with a unique topology ID. The topology ID is used to identify and group Network Layer Reachability Information (NLRI) for each topology in EIGRP updates.

The topology ID must be consistent across devices so that EIGRP can correctly associate topologies.

Examples   The following example configures EIGRP process 1 to route traffic for the 192.168.0.0/16 network under the VOICE topology instance:

```
Device(config)# router eigrp 1
Device(config-router)# address-family ipv4 unicast autonomous-system 3
Device(config-router-af)# topology VOICE tid 100
Device(config-router-af-topology)# no auto-summary
Device(config-router-af-topology)# network 192.168.0.0 0.0.255.255
Device(config-router-af-topology)# end
```

Related Commands

Command	Description
clear ip eigrp	Resets EIGRP process and neighbor session information.
global-address-family ipv4	Enters global address family configuration mode to configure MTR.
topology (interface)	Configures an MTR topology instance on an interface.

traffic-share balanced

To c ontrol how traffic is distributed among routes when multiple routes for the same destination network have different costs, use the **traffic-share balanced**command in router configuration mode or address-family topology configuration mode. To disable this function, use the **no** form of the command.

traffic-share balanced

no traffic-share balanced

Syntax Description   This command has no arguments or keywords.

Command Default   Traffic is distributed proportionately to the ratios of the metrics.

Command Modes   Router configuration (config-router) Address-family topology configuration (config-router-af-topology)

Command History

Release	Modification
10.0	This command was introduced.
12.2(33)SRA	This command was integrated into Cisco IOS Release 12.2(33)SRA.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
15.0(1)M	This command was modified. Address-family topology configuration mode was added.
12.2(33)SRE	This command was modified. Address-family topology configuration mode was added.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines   This command applies only to Enhanced Interior Gateway Routing Protocol (EIGRP). With the default setting, routes that have higher metrics represent less-preferable routes and get less traffic.

Examples   In the following example, traffic is balanced across multiple routes:

```
Router(config)# router eigrp 5
Router(config-router)# traffic-share balanced
Router(config-router)# variance 1
```

In the following EIGRP named configuration example, traffic is balanced across multiple routes:

```
Router(config)# router eigrp virtual-name
Router(config-router)# address-family ipv4 autonomous-system 4453
Router(config-router-af)# network 10.0.0.0
Router(config-router-af)# topology base
Router(config-router-af-topology)# traffic-share balanced
Router(config-router-af-topology)# variance 1
```

Related Commands

Command	Description
variance (EIGRP)	Controls load balancing in an EIGRP network.

variance (EIGRP)

To control load balancing in an internetwork based on the Enhanced Interior Gateway Routing Protocol (EIGRP), use the **variance** command in router configuration mode or address-family topology configuration mode. To reset the variance to the default value, use the **no** form of this command.

variance *multiplier*

no variance

Syntax Description

multiplier	Metric value used for load balancing. It can be a value from 1 to 128. The default is 1, which means equal-cost load balancing.

Command Default

EIGRP uses equal-cost load balancing.

Command Modes

Router configuration (config-router) Address-family topology configuration (config-router-af-topology)

Command History

Release	Modification
10.0	This command was introduced.
12.4(6)T	Support for IPv6 was added.
12.2(33)SRB	This command was integrated into Cisco IOS Release 12.2(33)SRB.
12.2SX	This command is supported in the Cisco IOS Release 12.2SX train. Support in a specific 12.2SX release of this train depends on your feature set, platform, and platform hardware.
15.0(1)	This command was modified. Address-family topology configuration mode was added.
12.2(33)SRE	This command was modified. Address-family topology configuration mode was added.
12.2(33)XNE	This command was integrated into Cisco IOS Release 12.2(33)XNE.
Cisco IOS XE Release 2.5	This command was integrated into Cisco IOS XE Release 2.5.

Usage Guidelines

Setting a variance value enables EIGRP to install multiple loop-free routes with unequal cost in a local routing table. A route learned through EIGRP must meet two criteria to be installed in the local routing table:

- The route must be loop- free. This condition is satisfied when the reported distance is less than the total distance or when the route is a feasible successor.

- The metric of the route must be lower than the metric of the best route (the successor) multiplied by the variance configured on the router.

Thus, if the variance is set to 1, only routes with the same metric as the successor are installed in the local routing table. If the variance is set to 2, any EIGRP-learned route with a metric less than 2 times the successor metric will be installed in the local routing table.

Note   EIGRP does not load-share between multiple routes; it only installs the routes in the local routing table. Then, the local routing table enables switching hardware or software to load-share between the multiple paths.

Examples   The following example sets a variance value of 4:

```
Router(config)# router eigrp 109
Router(config-router)# variance 4
```
The following example sets a variance value of 4 in address-family topology configuration mode:

```
Router(config)# router eigrp virtual-name
Router(config-router)# address-family ipv4 autonomous-system 4453
Router(config-router-af)# network 10.0.0.0
Router(config-router-af)# topology base
Router(config-router-af-topology)# variance 4
```