

# clear eigrp service-family

To clear information for a Cisco SAF service family, use the **clear eigrp service-family** command in privileged EXEC mode.

```
clear eigrp service-family
  {external-client name |
  {ipv4 | ipv6} [vrf vrf-name] autonomous-system-number
  neighbors [neighbor-address | interface-type interface-number] [soft]}
```

## Syntax Description

<b>external-client</b>	Deletes a specified external client.
<i>name</i>	Specifies the name of the external client.
<b>ipv4</b>	Deletes neighbors formed using the IPv4 protocol family.
<b>ipv6</b>	Deletes neighbors formed using the IPv6 protocol family.
<b>vrf</b>	(Optional) Specifies all virtual routing forwarding (VRF) instance tables or a specific VRF table for an IP address.
<i>vrf-name</i>	(Optional) Names a specific VRF table for the specified IP address.
<i>autonomous-system-number</i>	Specifies the autonomous system number.
<b>neighbors</b>	Deletes neighbors formed using the IP protocol family.
<i>neighbor-address</i>	(Optional) IP address of neighbor.
<i>interface-type</i>	(Optional) Deletes from the neighbor table the interface type and number that all entries learned through this interface.
<i>interface-number</i>	(Optional) Specifies the interface number for the <i>interface-type</i> argument.
<b>soft</b>	(Optional) Resyncs with peer without an adjacency reset.

## Command Modes

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.
12.2(33)SX14	This command was integrated into Cisco IOS Release 12.2(33)SX14.

## Usage Guidelines

Use the **clear eigrp service-family** command in privileged EXEC mode to remove information related to Cisco SAF service-family neighbors and external clients.



### Note

Using the **clear eigrp service-family ipv6** commands requires an IPv6-enabled SAF client, which currently does not exist.

**Examples**

The following example clears an EIGRP service-family External Client named “example\_2” from Cisco SAF:

```
Router> enable
Router# show eigrp service-family external-client

External SAF Connected Clients
Client Label      Client No.      Client API Handle  File Descriptor
example_1         1                1                  1
example_2         2                2                  2

Router# clear eigrp service-family external-client example_2

Router# show eigrp service-family external-client

External SAF Connected Clients
Client Label      Client No.      Client API Handle  File Descriptor
example_1         1                1                  1
```

**Related Commands**

Command	Description
<b>show eigrp service-family</b>	Displays information about the EIGRP IPv4 or IPv6 service families.
<b>show eigrp service-family external-client</b>	Displays information about the EIGRP service-family External Clients.

# dampening-change

To set a threshold percentage to minimize or dampen the effect of frequent routing changes through an interface in an Enhanced Interior Gateway Routing Protocol (EIGRP) address family or service family, use the **dampening-change** command in address-family interface configuration mode or service-family interface configuration mode. To restore the default value, use the **no** form of this command.

**dampening-change** [*change-percentage*]

**no dampening-change**

## Syntax Description

<i>change-percentage</i>	(Optional) The percentage a metric must change before the value is stored for future decisions on advertisements.  Value range is 1 to 100. If a <i>change-percentage</i> value is not specified, the default is 50 percent of the computed metric.
--------------------------	---

## Command Default

No threshold percentage is configured.

## 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)SX14	This command was integrated into Cisco IOS Release 12.2(33)SX14.

## Usage Guidelines

The **dampening-change** command is supported only for Mobile Ad Hoc Networking (MANET) router-to-radio links.

When a peer metric changes on an interface that is configured with the **dampening-change** command, EIGRP multiplies the dampening-change percentage with the old peer metric and compares the result (the threshold) to the difference between the old and new metrics. If the metric difference is greater than the calculated threshold, then the new metric is applied and routes learned from that peer are updated and advertised to other peers. If the metric difference is less than the threshold, the new metric is discarded.

There are exceptions that will result in an immediate update regardless of the dampening-change setting:

- An interface is down.
- A route is down.
- A change in metric which results in the router selecting a new next hop.

Peer metric changes that do not exceed a configured change percentage and that do not result in a routing change do not result in an update being sent to other adjacencies. Peer metric changes are based on the stored last-update of the peer. Peer metric changes that exceed the threshold value are stored and used for future comparisons.

## Examples

The following example configures an EIGRP address family to accept a peer metric change if the change is greater than 75 percent of the last updated value:

```
Router(config)# router eigrp virtual-name
Router(config-router)# address-family ipv4 autonomous-system 5400
Router(config-router-af)# af-interface ethernet0/0
Router(config-router-af-interface)# dampening-change 75
```

The following example configures an EIGRP service family to accept a peer metric change if the change is greater than 75 percent of the last updated value:

```
Router(config)# router eigrp virtual-name
Router(config-router)# service-family ipv4 autonomous-system 4533
Router(config-router-sf)# sf-interface serial 0
Router(config-router-sf-interface)# dampening-change 75
```

## Related Commands

Command	Description
<b>address-family (EIGRP)</b>	Enters address-family configuration mode to configure an EIGRP routing instance.
<b>af-interface</b>	Enters address-family interface configuration mode to configure interface-specific EIGRP commands.
<b>dampening-interval</b>	Sets a threshold time interval to minimize or dampen the effect of frequent routing changes through an interface in an EIGRP address family or service family.
<b>router eigrp</b>	Configures the EIGRP address-family process.
<b>service-family</b>	Specifies service-family configuration mode.
<b>sf-interface</b>	Configures interface-specific commands under a service family.

# dampening-interval

To set a threshold time interval to minimize or dampen the effect of frequent routing changes through an interface in an Enhanced Interior Gateway Routing Protocol (EIGRP) address family or service family, use the **dampening-interval** command in address-family interface configuration mode or service-family interface configuration mode. To restore to the default value, use the **no** form of this command.

**dampening-interval** [*interval*]

**no dampening-interval** [*interval*]

## Syntax Description

<i>interval</i>	(Optional) Time interval, in seconds, that must elapse before a route change will cause an update to occur. Value range is 1 to 65535. If an <i>interval</i> value is not specified, the default is 30 seconds.
-----------------	---

## Command Default

A dampening interval is not enabled.

## 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)SX14	This command was integrated into Cisco IOS Release 12.2(33)SX14.

## Usage Guidelines

The **dampening-interval** command is supported only in Mobile Ad Hoc Networking (MANET) Router-to-Radio links.

When a peer metric changes on an interface that is configured with a dampening interval, EIGRP will apply the metric change only if the time difference since the last metric changed exceeds the specified interval. If the time difference is less than the specified interval, the update is discarded.

There are exceptions that result in an immediate update regardless of the dampening interval settings:

- An interface is down.
- A route is down.
- A change in metric that results in the router selecting a new next hop.

**Examples**

The following example configures EIGRP address-family Ethernet interface 0/0 to limit the metric change frequency to no more than one change in a 45-second interval:

```
Router(config)# router eigrp virtual-name
Router(config-router)# address-family ipv4 autonomous-system 5400
Router(config-router-af)# af-interface ethernet0/0
Router(config-router-af-interface)# dampening-interval 45
```

The following example configures EIGRP service-family Serial interface 0 to limit the metric change frequency to no more than one change in a 30 second interval:

```
Router(config)# router eigrp virtual-name
Router(config-router)# service-family ipv4 autonomous-system 4533
Router(config-router-sf)# sf-interface serial0
Router(config-router-sf-interface)# dampening-interval 30
```

**Related Commands**

Command	Description
<b>address-family (EIGRP)</b>	Enters address-family configuration mode to configure an EIGRP routing instance.
<b>af-interface</b>	Enters address-family interface configuration mode to configure interface-specific EIGRP commands.
<b>dampening-change</b>	Sets a threshold percentage to minimize or dampen the effect of frequent routing changes through an interface in an EIGRP address family or service family.
<b>router eigrp</b>	Configures the EIGRP address-family process.
<b>service-family</b>	Specifies service-family configuration mode.
<b>sf-interface</b>	Configures interface-specific commands under a service family.
<b>shutdown</b>	Disables service family on the interface.

# debug eigrp service-family

To troubleshoot an Enhanced Interior Gateway Routing Protocol (EIGRP) service-family external client, client, neighbor, notification, topology, or a VRF instance, use the **debug eigrp service-family** command in privileged EXEC mode.

## debug eigrp service-family

```
[external-client {client client-label | messages [client-label] | protocol [client-label]}]
| {ipv4 | ipv6} [[vrf vrf-name | autonomous-system-number | service-instance-number] |
| client client-label
| neighbor neighbor-ip-address
| notifications
| topology service-instance-number]
```

### Syntax Description

<b>external-client</b>	(Optional) Displays information for a Cisco SAF External Client.
<b>client</b>	Displays information for managing clients and TCP connections.
<b>messages</b>	(Optional) Reliability metric. The range is 0 to 255, entered in increments of 2.5 where 255 is 100-percent reliable.
<b>protocol</b>	(Optional) Displays information on an external-client protocol.
<i>client-label</i>	(Optional) Displays a <b>client</b> , <b>message</b> , or <b>protocol</b> debug for the specified Cisco SAF External Client.
<b>ipv4</b>	Specifies the IP Version 4 address family for this debug.
<b>ipv6</b>	Specifies the IP Version 6 address family for this debug.
<b>vrf</b>	(Optional) Specifies all virtual routing forwarding (VRF) instance tables or a specific VRF table for an IP address.
<i>vrf-name</i>	(Optional) Specifies a VRF table for an IP address.
<i>autonomous-system-number</i>	The Autonomous system number.
<i>service-instance-number</i>	(Optional) Service-instance number between 1 and 65535. Service instance numbers display as: service:subservice:instance.instance.instance.instance.
<b>client</b>	(Optional) Displays EIGRP client information.
<i>client-label</i>	(Optional) A specific client.
<b>neighbors</b>	(Optional) Displays EIGRP neighbor debugging information.
<i>neighbor-ip-address</i>	(Optional) The IP address of the neighbor.
<b>notifications</b>	(Optional) Displays EIGRP notification debugging information.
<b>topology</b>	(Optional) Specifies a service topology.
<i>service-instance-number</i>	(Optional) Service-instance number between 1 and 65535. Topology service instance numbers display as: service:subservice:instance.instance.instance.instance.

### Command Modes

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.
12.2(33)SX14	This command was integrated into Cisco IOS Release 12.2(33)SX14.

**Usage Guidelines**

Use the **debug eigrp service-family external-client client** command to display information to help manage clients and TCP connections. Use the **debug eigrp service-family external-client messages** command to display message content and decoded messages. Use the **debug eigrp service-family external-client protocol** command to display encode and decode information to help manage the interaction with the Cisco SAF internal API.

**Note**

Using the **debug eigrp service-family ipv6** commands requires an IPv6-enabled SAF client, which currently does not exist.

**Examples**

The following is sample output of a Cisco SAF External-Client debugging message:

```
Router# debug eigrp service-family external-client messages

*Jun 11 14:25:10.051: 2 found c1 c1
*Jun 11 14:25:10.051: SAF-EC: 100 byte message from c1
*Jun 11 14:25:10.051: 0001 0050 7F5A 9BC7 D285 A1D8 3C54 552F 37AE 655B 0014 0005 2253
4146 2200
*Jun 11 14:25:10.051: 0000 0006 0005 756E 616D 6500 0000 1005 0002 6331 0000 1003 0004
0001 0000
*Jun 11 14:25:10.051: 1001 0002 6331 0000 1004 0004 0000 0005 0008 0014 45F4 57A9 42CF
0556 4077
*Jun 11 14:25:10.051: 7AA3 B94A 703F 1BA3 ACA7
*Jun 11 14:25:10.051:
*Jun 11 14:25:10.051:
Class: Success Response Method: Register
*Jun 11 14:25:10.051: Packet Length: 52 Not including 20 byte Saf Header
*Jun 11 14:25:10.051: Magic Cookie: 7F5A9BC7 Transaction ID: D285A1D83C54552F37AE65
Router#5B
*Jun 11 14:25:10.051: Realm: 014: Length: 5: "SAF"
*Jun 11 14:25:10.051: Keep Alive: 1006: Length: 4: 360000
*Jun 11 14:25:10.051: Client Handle: 1002: Length: 4: 2
*Jun 11 14:25:10.051: Message Integrity: 008: Length: 20:
86839D4C64E36476D743AAF26112D28C32E3DF99
*Jun 11 14:25:10.051: 0101 0034 7F5A 9BC7 D285 A1D8 3C54 552F 37AE 655B 0014 0005 2253
4146 2200
*Jun 11 14:25:10.051: 0000 1006 0004 0005 7E40 1002 0004 0000 0002 0008 0014 8683 9D4C
64E3 6476
*Jun 11 14:25:10.051: D743 AAF2 6112 D28C 32E3 DF99
*Jun 11 14:25:10.055:
*Jun 11 14:25:10.055: SAF-EC: kicked timer 360000
```

The following is sample output of a Cisco SAF External-Client debugging protocol message:



```

Router# debug eigrp service-family external-client protocol

*Jun 11 14:27:11.467: SAF-EC: attribute found, type: 1005
*Jun 11 14:27:11.467: No error
*Jun 11 14:27:11.467:
Class: Request Method: Register
*Jun 11 14:27:11.467: Packet Length: 80 bytes Not including 20 byte Saf Header
*Jun 11 14:27:11.467: Magic Cookie: 7F5A9BC7 Transaction ID: 8F1F3F36EE43784D0DFABEA6
*Jun 11 14:27:11.467: Realm: 014: Length: 5: "SAF"
*Jun 11 14:27:11.467: Username: 006: Length: 5: uname
*Jun 11 14:27:11.467: Client Label: 1005: Length: 2: c1
*Jun 11 14:27:11.467: Protocol Version: 1003: Length: 4: 10000
*Jun 11 14:27:11.467: Client Name: 1001: Length: 2: c1
*Jun 11 14:27:11.467: Page Size: 1004: Length: 4: 5

Router#

*Jun 11 14:27:11.467: Message Integrity: 008: Length: 20:
AB3D7C39E4E0673B1539750D6E21A79ACFCE51F8
*Jun 11 14:27:11.467: SAF-EC: request start.
*Jun 11 14:27:11.467: SAF-EC: client successfully registered. client_handle 3

Router#

```

**Related Commands**

<b>Command</b>	<b>Description</b>
<b>exit-service-family</b>	Exits service-family configuration mode.
<b>router eigrp</b>	Configures the EIGRP process.
<b>service-family</b>	Specifies service-family configuration mode.

## default (SAF)

To reset an Enhanced Interior Gateway Routing Protocol (EIGRP) service-family external clients to their default values, use the **default** command in external-client ? configuration mode.

```
default { exit | keepalive | password password | username username }
```

### Syntax Description

<i>client-name</i>	Specifies a client name, entered up to 64 characters.
--------------------	---

### Command Default

The external-client options are set at their configured values.

### Command Modes

External-client configuration (config-external-client-mode)

### 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.

### Examples

The following example sets an external-client named example to its keepalive default value:

```
Router(config)# service-family external-client listen ipv4 4533
Router(config-external-client)# external-client example
Router(config-external-client-mode)# default keepalive
```

### Related Commands

Command	Description
<b>external-client</b>	Configures a Cisco SAF External-Client.
<b>service-family external-client listen</b>	Configure a Cisco SAF Forwarder listen TCP port for the Cisco SAF Forwarder to listen on,

# default external-client

To reset Enhanced Interior Gateway Routing Protocol (EIGRP) service-family External Clients to their default values, use the **default external-client** command in external-client configuration mode.

**default external-client** *client-name*

<b>Syntax Description</b>	<i>client-name</i> A Client name, up to 64 characters.
---------------------------	--

**Command Default**      The external-client options are set to their configured values.

**Command Modes**      External-client configuration (config-external-client)

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	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.

**Examples**      The following example sets an External Client to its default values:

```
Router(config)# service-family external-client listen ipv4 4533
Router(config-external-client)# default external-client example
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>external-client</b>	Configures a Cisco SAF External Client.
	<b>service-family external-client listen</b>	Configure a TCP port for a Cisco External Client which interfaces to a Cisco SAF Forwarder.