I Commands

This chapter describes the Cisco NX-OS Enhanced Interior Gateway Routing Protocol (EIGRP) commands that begin with I.

ip authentication key-chain eigrp

To enable authentication for the Enhanced Interior Gateway Routing Protocol (EIGRP) packets and to specify the set of keys that can be used on an interface, use the **ip authentication key-chain eigrp** command. To prevent authentication, use the **no** form of this command.

ip authentication key-chain eigrp *instance-tag name-of-chain*

no ip authentication key-chain eigrp *instance-tag name-of-chain*

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.
name-of-chain	Group of keys that are valid.

Command Default

No authentication is provided for EIGRP packets.

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

You must set the authentication mode using the **ip authentication mode eigrp** command in interface configuration mode. You must separately configure a key chain using the **key-chain** command to complete the authentication configuration for an interface.

This command requires the LAN Base Services license.

Examples

This example shows how to configure the interface to accept and send any key that belongs to the key-chain trees:

```
switch(config)# router eigrp 209
switch(config-router)# interface ethernet 1/2
switch(config-if)# no switchport
switch(config-if)# ip authentication key-chain eigrp 209 trees
switch(config-if)#
```

Related Commands

Command	Description
ip authentication mode eigrp	Sets the authentication mode for EIGRP on an interface.
key-chain	Creates a set of keys that can be used by an authentication method.
show ip eigrp interfaces	Displays information about EIGRP interfaces.

ip authentication mode eigrp

To specify the type of authentication used in the Enhanced Interior Gateway Routing Protocol (EIGRP) packets, use the **ip authentication mode eigrp** command. To remove authentication, use the **no** form of this command.

ip authentication mode eigrp *instance-tag* **md5**

no ip authentication mode eigrp *instance-tag* **md5**

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.
md5	Specifies Message Digest 5 (MD5) authentication.

Command Default

None

Command Modes

Release History

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to configure the interface to use MD5 authentication:

```
switch(config)# router eigrp 209
switch(config-router)# interface ethernet 1/2
switch(config-if)# no switchport
switch(config-if)# ip authentication mode eigrp 209 md5
switch(config-if)#
```

Related Commands

Command	Description
authentication mode (EIGRP)	Configures the authentication mode for EIGRP in a VRF.
copy running-config startup-config	Copies the configuration changes to the startup configuration file.
ip authentication key-chain eigrp	Enables authentication for EIGRP and specifies the set of keys that can be used on an interface.
key chain	Creates a set of keys that can be used by an authentication method.
show ip eigrp interfaces	Displays information about EIGRP interfaces.

ip bandwidth eigrp

To configure the bandwidth metric on an Enhanced Interior Gateway Routing Protocol (EIGRP) interface, use the **ip bandwidth eigrp** command. To restore the default, use the **no** form of this command.

ip bandwidth eigrp *instance-tag bandwidth*

no ip bandwidth eigrp

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.
bandwidth	Bandwidth value. The range is from 1 to 2,560,000,000 kilobits.

Command Default

None

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to configure EIGRP to use a bandwidth metric of 10000 in autonomous system 209:

```
switch(config)# router eigrp 209
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# ip bandwidth eigrp 209 10000
```

Related Commands

Command	Description
ip bandwidth-percent eigrp	Sets the percent of the interface bandwidth that EIGRP can use.
show ip eigrp	Displays EIGRP information.

ip bandwidth-percent eigrp

To configure the percentage of bandwidth that may be used by the Enhanced Interior Gateway Routing Protocol (EIGRP) on an interface, use the **ip bandwidth-percent eigrp** command. To restore the default, use the **no** form of this command.

ip bandwidth-percent eigrp *instance-tag percent*

no ip bandwidth-percent eigrp

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.
percent	Percentage of bandwidth that EIGRP may use.

Command Default

percent: 50

Command Modes

Release Modification

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

EIGRP uses up to 50 percent of the bandwidth of a link, as defined by the **ip bandwidth** interface configuration command. Use the **ip bandwidth-percent** command to change this default percent.

This command requires the LAN Base Services license.

Examples

This example shows how to configure EIGRP to use up to 75 percent of an interface in autonomous system 209:

```
switch(config)# router eigrp 209
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# ip bandwidth-percent eigrp 209 75
switch(config-if)#
```

Related Commands

Command	Description
ip bandwidth eigrp	Sets the EIGRP bandwidth value for an interface.
show ip eigrp	Displays EIGRP information.

ip delay eigrp

To configure the throughput delay for the Enhanced Interior Gateway Routing Protocol (EIGRP) on an interface, use the **ip delay eigrp** command. To restore the default, use the **no** form of this command.

ip delay eigrp *instance-tag seconds*

no ip delay eigrp instance-tag

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.
seconds	Throughput delay, in tens of microseconds. The range is from 1 to 16777215.

Command Default

100 (10-microsecond units)

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

You configure the throughput delay on an interface in 10-microsecond units. For example, if you set the **ip delay eigrp** command to 100, the throughput delay is 1000 microseconds.

This command requires the LAN Base Services license.

Examples

This example shows how to set the delay to 400 microseconds for the interface:

```
switch(config)# router eigrp 1
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# ip delay eigrp 1 40
```

Related Commands

Command	Description
ip hello-interval eigrp	Configures the hello interval on an interface for the EIGRP routing process that is designated by an autonomous system number.
show ip eigrp	Displays EIGRP information.

ip distribute-list eigrp

To configure a distribution list for the Enhanced Interior Gateway Routing Protocol (EIGRP) on an interface, use the **ip distribute-list eigrp** command. To restore the default, use the **no** form of this command.

ip distribute-list eigrp *instance-tag* {**prefix-list** *list-name* | **route-map** *map-name*} {**in** | **out**}

no ip distribute-list eigrp *instance-tag* {**prefix-list** *list-name* | **route-map** *map-name*} {**in** | **out**}

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.
prefix-list *list-name*	Specifies the name of an IP prefix list to filter EIGRP routes.
route-map *map-name*	Specifies the name of a route map to filter EIGRP routes.
in	Applies the route policy to incoming routes.
out	Applies the route policy to outgoing routes.

Command Default

None

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

Use the **ip distribute-list eigrp** command to configure a route filter policy on an interface. You must configure the named route map or prefix list to complete this configuration.

This command requires the LAN Base Services license.

Examples

This example shows how to configure a route map for all EIGRP routes coming into the interface:

```
switch(config)# router eigrp 209
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# ip distribute-list eigrp 209 route-map InputFilter in
switch(config-if)#
```

Related Commands

Command	Description
prefix-list	Configures a prefix list.
route-map	Configures a route map.
show ip eigrp	Displays EIGRP information

ip eigrp shutdown

To shut down the Enhanced Interior Gateway Routing Protocol (EIGRP) on an interface, use the **ip eigrp shutdown** command. To restore the default, use the **no** form of this command.

ip eigrp *instance-tag* **shutdown**

no ip eigrp *instance-tag* **shutdown**

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.

Command Default

None

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

Use the **ip eigrp shutdown** command to shut down the interface for EIGRP and prevent EIGRP adjacency for the interface for maintenance purposes. The network address for the interface does not show up in the EIGRP topology table.

Use the **ip passive-interface eigrp** command to prevent EIGRP adjacency but keep the network address in the topology table.

This command requires the LAN Base Services license.

Examples

This example shows how to disable EIGRP on an interface:

```
switch(config)# router eigrp 201
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# ip eigrp 201 shutdown
```

Related Commands

Command	Description
ip passive-interface eigrp	Configures an instance of EIGRP.
router eigrp	Configures an instance of EIGRP.

ip hello-interval eigrp

To configure the Enhanced Interior Gateway Routing Protocol (EIGRP) hello interval for an interface, use the **ip hello-interval eigrp** command. To restore the default, use the **no** form of this command.

ip hello-interval eigrp *instance-tag seconds*

no ip hello-interval eigrp *instance-tag*

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.
seconds	Hello interval (in seconds). The range is from 1 to 65535.

Command Default

5 seconds

Command Modes

Release Modification

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

This command requires the LAN Base Services license.

Examples

This example shows how to set the hello interval to 10 seconds for the interface:

```
switch(config)# router eigrp 1
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# ip hello-interval eigrp 1 10
switch(config-if)#
```

Related Commands

Command	Description
copy running-config startup-config	Saves the configuration changes to the startup configuration file.
show ip eigrp	Displays EIGRP information.

ip hold-time eigrp

To configure the hold time for an Enhanced Interior Gateway Routing Protocol (EIGRP) interface, use the **ip hold-time eigrp** command. To restore the default, use the **no** form of this command.

ip hold-time eigrp *instance-tag seconds*

no ip hold-time eigrp *instance-tag*

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.
seconds	Hold time (in seconds). The range is from 1 to 65535.

Command Default

15 seconds

Command Modes

Release Modification

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

Use the **ip hold-time eigrp** command to increase the default hold time on very congested and large networks.

We recommend that you configure the hold time to be at least three times the hello interval. If a router does not receive a hello packet within the specified hold time, routes through this router are considered unavailable.

Increasing the hold time delays route convergence across the network.

This command requires the LAN Base Services license.

Examples

This example shows how to set the hold time to 40 seconds for the interface:

```
switch(config)# router eigrp 209
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# ip hold-time eigrp 209 40
```

Related Commands

Command	Description
copy running-config startup-config	Saves the configuration changes to the startup configuration file.
ip hello-interval eigrp	Configures the hello interval on an interface for the EIGRP routing process designated by an autonomous system number.
show ip eigrp	Displays EIGRP information.

ip next-hop-self eigrp

To instruct the Enhanced Interior Gateway Routing Protocol (EIGRP) process to use the local IP address as the next-hop address when advertising these routes, use the **ip next-hop-self eigrp** command. To use the received next-hop value, use the **no** form of this command.

ip next-hop-self eigrp *instance-tag*

no ip next-hop-self eigrp *instance-tag*

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.

Command Default

EIGRP always sets the IP next-hop value to be itself.

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

EIGRP, by default, sets the IP next-hop value to be itself for routes that it is advertising, even when advertising those routes on the same interface from which the router learned them. To change this default, you must use the **no ip next-hop-self eigrp** command to instruct EIGRP to use the received next-hop value when advertising these routes.

Examples

This example shows how to change the default IP next-hop value and instruct EIGRP to use the received next-hop value:

```
switch(config)# router eigrp 209
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# no ip next-hop-self eigrp 209
```

Related Commands

Command	Description
copy running-config startup-config	Saves the configuration changes to the startup configuration file.
show ip eigrp	Displays EIGRP information.

ip offset-list eigrp

To configure an offset list for the Enhanced Interior Gateway Routing Protocol (EIGRP) on an interface, use the **ip offset-list eigrp** command. To restore the default, use the **no** form of this command.

ip offset-list eigrp *instance-tag* {**prefix-list** *list-name* | **route-map** *map-name*} {**in** | **out**} *offset*

no ip offset-list eigrp *instance-tag* {**prefix-list** *list-name* | **route-map** *map-name*} {**in** | **out**} *offset*

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.
prefix-list *list-name*	Specifies the name of an IP prefix list to filter EIGRP routes.
route-map *map-name*	Specifies the name of a route map to filter EIGRP routes.
in	Applies the route policy to incoming routes.
out	Applies the route policy to outgoing routes.
offset	Value to add to the EIGRP metric. The range is from 0 to 2147483647.

Command Default

None

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

Cisco NX-OS adds the configured offset value to any routes that match the configure prefix list or route map. You must configure the named route map or prefix list to complete this configuration.

This command requires the LAN Base Services license.

Examples

This example shows how to configure an offset list filter to add 20 to the metric for EIGRP routes coming into the interface that match the route map OffsetFilter:

```
switch(config)# router eigrp 209
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# ip offset-list eigrp 209 route-map OffsetFilter in 20
switch(config-if)#
```

Related Commands

Command	Description
prefix-list	Configures a prefix list.
route-map	Configures a route map.
show ip eigrp	Displays EIGRP information.

ip passive-interface eigrp

To suppress all routing updates on an Enhanced Interior Gateway Routing Protocol (EIGRP) interface, use the **ip passive-interface eigrp** command. To reenable the sending of routing updates, use the **no** form of this command.

ip passive-interface eigrp *instance-tag*

no ip passive-interface eigrp *instance-tag*

Syntax Description

instance-tag	Name of the EIGRP instance. The name can be any case-sensitive, alphanumeric string up to 20 characters.

Command Default

Routing updates are sent on the interface.

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

Use the **ip passive-interface eigrp** command to stop all routing updates on an interface and suppress the formation of EIGRP adjacencies. The network address for the interface remains in the EIGRP topology table.

This command requires the LAN Base Services license.

Examples

This example shows how to stop EIGRP routing updates on ethernet 2/1:

```
switch(config)# router eigrp 201
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# ip passive-interface eigrp 201
switch(config-if)#
```

Related Commands

Command	Description
copy running-config startup-config	Saves the configuration in the startup configuration file.
no switchport	Configures an interface as a Layer 3 routed interface.
show ip eigrp interfaces	Displays information about EIGRP interfaces.

ip route

To configure a static route, use the **ip route** command. To remove the static route, use the **no** form of this command.

ip route *ip-prefix/mask* {[*interface*] *next-hop*} [*preference*] [**tag** *id*]

no ip route *ip-prefix/mask* {[*interface*] *next-hop*} [*preference*] [**tag** *id*]

Syntax Description

ip-prefix/mask	IP prefix and prefix mask. The format is x.x.x.x/length. The length is 1 to 32.
interface	(Optional) Interface on which all packets are sent to reach this route. Use **?** to display a list of supported interfaces.
next-hop	IP address of the next hop that can be used to reach that network. You can specify an IP address and an interface type and interface number. The format is x.x.x.x/length. The length is 1 to 32.
preference	(Optional) Route preference that is used as the administrative distance to this route. The range is from 1 to 255. The default is 1.
tag *id*	(Optional) Assigns a route tag that can be used to match against in a route map. The range is from 0 to 4294967295. The default is 0.

Command Default

None

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

Static routes have a default administrative distance of 1. If you want a dynamic routing protocol to take precidence over a static route, you must configure the static route preference argument to be greater than the administrative distance of the dynamic routing protocol. For example, routes derived with the Enhanced Interior Gateway Routing Protocol (EIGRP) have a default administrative distance of 100. To have a static route that would be overridden by an EIGRP dynamic route, you should specify an administrative distance greater than 100.

Examples

This example shows how to create a static route for destinations with the IP address prefix 192.168.1.1/32, reachable through the next-hop address 10.0.0.2:

```
switch(config)# ip route 192.168.1.1/32 10.0.0.2
```

This example shows how to assign a tag to the previous example so that you can configure a route map that can match on this static route:

```
switch(config)# ip route 192.168.1.1/32 10.0.0.2 tag 5
```

This example shows how to choose a preference of 110. In this case, packets for prefix 10.0.0.0 are routed to a router at 172.31.3.4 if dynamic route information with an administrative distance less than 110 is not available.

```
switch# configure terminal
switch(config)# ip route 10.0.0.0/8 172.31.3.4 110
switch(config)#
```

Related Commands

Command	Description
show vrf	Displays the VRF configuration information.

ip router eigrp

To specify the Enhanced Interior Gateway Routing Protocol (EIGRP) instance for an interface, use the **ip router eigrp** command. To return to the default, use the **no** form of this command.

ip router eigrp *instance-tag*

no ip router eigrp *instance-tag*

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.

Command Default

None

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

Before you use this command, make sure that you enable EIGRP on the switch.

This command requires the LAN Base Services license.

Examples

This example shows how to set the EIGRP instance for an interface:

```
switch(config)# interface ethernet 1/2
switch(config-if)# no switchport
switch(config-if)# ip router eigrp Base
switch(config-if)#
```

Related Commands

Command	Description
copy running-config startup-config	Saves the configuration changes in the startup configuration file.
feature eigrp	Enables EIGRP on the switch.
show ip eigrp interfaces	Displays information about EIGRP interfaces.

ip split-horizon eigrp

To enable split horizon for an Enhanced Interior Gateway Routing Protocol (EIGRP) process, use the **ip split-horizon eigrp** command. To disable split horizon, use the **no** form of this command.

ip split-horizon eigrp *instance-tag*

no ip split-horizon eigrp *instance-tag*

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.

Command Default

Enabled

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

Use the **no ip split-horizon eigrp** command to disable split horizon on an interface.

This command requires the LAN Base Services license.

Examples

This example shows how to disable split horizon an an Ethernet link:

```
switch(config)# router eigrp 209
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# no ip split-horizon eigrp 209
switch(config-if)#
```

Related Commands

Command	Description
copy running-config startup-config	Saves the configuration changes to the startup configuration file.
show ip eigrp	Displays EIGRP information.

ip summary-address eigrp

To configure a summary aggregate address for the specified Enhanced Interior Gateway Routing Protocol (EIGRP) interface, use the **ip summary-address eigrp** command. To disable a configuration, use the **no** form of this command.

ip summary-address eigrp *instance-tag* {*ip-address*/*length* | *ip-address mask*} [*admin-distance* | **leak-map** *map-name*]

no ip summary-address eigrp *instance-tag* {*ip-address*/*length* | *ip-address mask*}

Syntax Description

instance-tag	Name of the EIGRP instance. The *instance-tag* can be any case-sensitive, alphanumeric string up to 20 characters.
ip-address/*length*	Summary IP prefix and prefix length to apply to an interface in four-part, dotted-decimal notation. For example, /8 indicates that the first eight bits in the IP prefix are network bits. If *length* is used, the slash is required.
ip-address	Summary IP address to apply to an interface in four-part, dotted-decimal notation.
mask	IP address mask.
admin-distance	(Optional) Administrative distance. The range is from 1 to 255.
leak-map *map-name*	(Optional) Specifies the leak map.

Command Default

An administrative distance of 5 is applied to EIGRP summary routes.
No summary addresses are predefined.

Command Modes

Release	Modification
5.0(3)N1(1)	This command was introduced.

Usage Guidelines

Use the **ip summary-address eigrp** command to configure interface-level address summarization. EIGRP summary routes are given an administrative distance of 5.

This command requires the LAN Base Services license.

Examples

This example shows how to configure an administrative distance of 95 on an EIGRP interface for the 192.168.0.0/16 summary address:

```
switch(config)# router eigrp 209
switch(config-router)# interface ethernet 2/1
switch(config-if)# no switchport
switch(config-if)# ip summary-address eigrp 209 192.168.0.0/16 95
switch(config-if)#
```

Related Commands

Command	Description
copy running-config startup-config	Saves the configuration changes to the startup configuration file.
show ip eigrp interfaces	Displays EIGRP interface-related information.