



RIB Commands on Cisco IOS XR Software

This chapter describes the commands used to configure Routing Information Base (RIB) for static routes.

For detailed information about RIB concepts, configuration tasks, and examples, see the *Implementing RIB on Cisco IOS XR Software* configuration guide.

clear route

To clear routes from the IP routing table, use the **clear route** command in EXEC mode.

```
clear route {ipv4 | ipv6 | afi-all} {unicast | multicast | safi-all} [ip-address mask]
```

Syntax Description		
ipv4		Specifies IP Version 4 address prefixes.
ipv6		Specifies IP Version 6 address prefixes.
afi-all		Specifies IP Version 4 and IP Version 6 address prefixes.
unicast		Specifies unicast address prefixes.
multicast		Specifies multicast address prefixes.
safi-all		Specifies unicast and multicast address prefixes.
<i>ip-address</i>		Network IP address about which routing information should be displayed.
<i>mask</i>		Network mask specified in either of two ways: <ul style="list-style-type: none"> • Network mask can be a four-part, dotted-decimal address. For example, 255.0.0.0 indicates that each bit equal to 1 means the corresponding address bit is a network address. • Network mask can be indicated as a slash (/) and number. For example, /8 indicates that the first 8 bits of the mask are 1s, and the corresponding bits of the address are the network address.

Defaults No default behavior or value

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router. The afi-all and safi-all keywords were added.

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

Use the **clear route** command to clear routes from an IP routing table to a specific network, a matching subnet address, or all routes.

Examples

The following example shows how to remove all routes matching the subnet address 192.168.2.0 and mask 255.255.255.0 from the IPv4 unicast routing table:

```
RP/0/RP0/CPU0:router# clear route ipv4 unicast 192.168.2.0 255.255.255.0
```

The following example shows how to remove all routes from the IPv4 unicast routing table:

```
RP/0/RP0/CPU0:router# clear route ipv4 unicast
```

Related Commands

Command	Description
route	Establishes a static route.
show route	Displays the current state of the routing table.

show route

To display the current routes in the Routing Information Base (RIB), use the **show route** command in EXEC mode.

```
show route [afi-all | ipv4 | ipv6] [unicast | multicast | safi-all] [protocol [instance] | ip-address
mask] [multicast-intact]
```

Syntax	Description
afi-all	(Optional) Specifies all address families.
ipv4	(Optional) Specifies IP Version 4 address prefixes. This is the default.
ipv6	(Optional) Specifies IP Version 6 address prefixes.
unicast	(Optional) Specifies unicast address prefixes. This is the default.
multicast	(Optional) Specifies multicast address prefixes.
safi-all	(Optional) Specifies unicast and multicast address prefixes.
<i>protocol</i>	(Optional) Name of a routing protocol. If you specify a routing protocol, use one of the following keywords: bgp , isis , or ospf .
<i>instance</i>	(Optional) Number or name used to identify an instance of the specified protocol.
<i>ip-address</i>	(Optional) Network IP address about which routing information should be displayed.
<i>mask</i>	(Optional) Network mask specified in either of two ways: <ul style="list-style-type: none"> • Network mask can be a four-part, dotted-decimal address. For example, 255.0.0.0 indicates that each bit equal to 1 means the corresponding address bit is a network address. • Network mask can be indicated as a slash (/) and number. For example, /8 indicates that the first 8 bits of the mask are 1s, and the corresponding bits of the address are the network address.
multicast-intact	(Optional) Show routes that have been enabled with multicast-intact.

Defaults Default prefixes are IPv4, unicast.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router. The afi-all and safi-all keywords were added.
	Release 3.2.2	Support for the multicast-intact keyword was added.

Usage Guidelines

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

When the **afi-all** keyword is used, the *ip-address* and *mask* arguments and **best-local**, **longer-prefixes**, and **next-hop** keywords are not available.

Examples

The following is sample output from the **show route** command when entered without an address:

```
RP/0/RP0/CPU0:router# show route

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       O - OSPF, IA - OSPF inter area, N1 - OSPF NSSA external type 1
       N2 - OSPF NSSA external type 2, E1 - OSPF external type 1
       E2 - OSPF external type 2, E - EGP, i - ISIS, L1 - IS-IS level-1
       L2 - IS-IS level-2, ia - IS-IS inter area
       su - IS-IS summary null, * - candidate default
       U - per-user static route, o - ODR, L - local

Gateway of last resort is 172.23.54.1 to network 0.0.0.0

C    10.2.210.0/24 is directly connected, 1d21h, Ethernet0/1/0/0
L    10.2.210.221/32 is directly connected, 1d21h, Ethernet0/1/1/0
C    172.20.16.0/24 is directly connected, 1d21h, ATM4/0.1
L    172.20.16.1/32 is directly connected, 1d21h, ATM4/0.1
C    10.6.100.0/24 is directly connected, 1d21h, Loopback1
L    10.6.200.21/32 is directly connected, 1d21h, Loopback0
S    192.168.40.0/24 [1/0] via 172.20.16.6, 1d21h
```

[Table 119](#) describes the significant fields shown in the display.

Table 119 *show route* Field Descriptions

Field	Description
C	Code indicating how the route was derived. See the code legend in the output.
10.2.210.0/24	Address and prefix length of the remote network.
Ethernet0/1/0/0	Specifies the interface through which the specified network can be reached.
S	Code indicates the route came from a static route. See code legend in the output.
192.168.40.0/24	Address and prefix length of the remote network connected to the static route.
[1/0]	First number in the brackets is the administrative distance of the information source; the second number is the metric for the route.
via 172.20.16.6	Specifies the address of the next router to the remote network.
1d21h	Specifies the last time the route was updated in days (1d) and hours (21h).

When you request information about a specific network, more detailed statistics are displayed. The following is sample output from the **show route** command when you include a specific IP address:

```
RP/0/RP0/CPU0:router# show route 192.168.11.0

Routing entry for 192.168.11.0/8
  Known via "connected", distance 0, metric 0 (connected)
  Routing Descriptor Blocks:
    192.168.43.5 directly connected, via Ethernet6/0
    Route metric is 0
```

When an IS-IS router advertises its link-state information, it includes one of its own IP addresses to be used as the originator IP address. When other networking devices calculate IP routes, they can store the originator IP address with each route in the routing table.

The following example shows the output from the **show route** command for a specific IP address on a router configured with IS-IS. Each path that is shown under the Routing Descriptor Blocks report displays two IP addresses. The first address (10.0.0.9) is the next hop address; the second is the originator IP address from the advertising IS-IS router. This address helps you determine where a particular IP route has originated in your network.

```
RP/0/RP0/CPU0:router# show route 10.0.0.1

Routing entry for 10.0.0.0/8
Known via "isis", distance 115, metric 10, type level-2
  Installed Jan 22 09:26:56.210
  Routing Descriptor Blocks:
    * 10.0.0.9, from 10.0.0.9, via Ethernet2/1
      Route metric is 10
  No advertising protos.
```

[Table 120](#) describes the significant fields shown when the **show route** command is used with an IP address (previous displays).

Table 120 *show route with IP Address Field Descriptions*

Field	Description
Routing entry for 10.0.0.0/8	Network address and mask.
Known via	Indicates how the route was derived.
distance	Administrative distance of the information source.
metric	Route value assigned by the routing protocol.
type	IS-IS type level.
Routing Descriptor Blocks:	Displays the next-hop IP address and the information source.
from ... via ...	First address is the next-hop IP address. The other is the information source. The current interface follows this report.
Route metric	Best metric for this Routing Descriptor Block.
No advertising protos.	Indicates that no other protocols are advertising the route to their redistribution consumers. If the route is being advertised, protocols are listed in the following manner: Redist Advertisers: isis p ospf 43

The following example shows the output from the **show route** command with **multicast-intact**.

```
RP/0/5/CPU0:rib1#show route mcast-intact

Codes:C - connected, S - static, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - ISIS, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, su - IS-IS summary null, * - candidate default
U - per-user static route, o - ODR, L - local
```

Gateway of last resort is not set

```

C    1.1.0.0/16 is directly connected, 22:49:08, MgmtEth0/5/CPU0/0
L    1.1.11.1/32 is directly connected, 22:49:08, MgmtEth0/5/CPU0/0
C    21.0.0.0/24 is directly connected, 01:54:03, GigabitEthernet0/1/0/1
L    21.0.0.1/32 is directly connected, 01:54:03, GigabitEthernet0/1/0/1
L    100.100.100.100/32 is directly connected, 22:49:08, Loopback0
O    101.101.101.101/32 [110/2] via 21.0.0.2, 01:53:09, GigabitEthernet0/1/0/1
                                     via 21.0.0.2, 01:53:09, GigabitEthernet0/1/0/1
(mcast-intact)
S    223.255.0.0/16 [1/0] via 1.1.0.1, 22:49:08

```

Related Commands

Command	Description
route	Establishes a static route.
show interfaces	Lists interface information.
show route summary	Displays the current contents of the routing table in summary format.

show route backup

To display backup routes from the Routing Information Base (RIB), use the **show route backup** command in EXEC mode.

```
show route [afi-all | ipv4 | ipv6] [unicast | multicast | safi-all] backup [ip-address [mask]]
```

Syntax Description		
afi-all	(Optional)	Specifies all address families.
ipv4	(Optional)	Specifies IP Version 4 address prefixes.
ipv6	(Optional)	Specifies IP Version 6 address prefixes.
unicast	(Optional)	Specifies unicast address prefixes.
multicast	(Optional)	Specifies multicast address prefixes.
safi-all	(Optional)	Specifies unicast and multicast address prefixes.
<i>ip-address</i>	(Optional)	Network IP address about which backup routing information should be displayed.
<i>mask</i>	(Optional)	Network mask specified in either of two ways: <ul style="list-style-type: none"> • Network mask can be a four-part, dotted decimal address. For example, 255.0.0.0 indicates that each bit equal to 1 means the corresponding address bit is a network address. • Network mask can be indicated as a slash (/) and number. For example, /8 indicates that the first 8 bits of the mask are ones, and the corresponding bits of the address are the network address.

Defaults Default prefixes are IPv4, unicast.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router. The afi-all and safi-all keywords were added.

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

Use the **show route backup** command to display information about routes that have been installed into the RIB as backup routes. This command also displays information about the currently selected active route for which there is a backup.

When the **afi-all** keyword is used, the *ip-address* and *mask* arguments and **best-local**, **longer-prefixes**, and **next-hop** keywords are not available.

Examples

The following is sample output from the **show route backup** command:

```
RP/0/RP0/CPU0:router# show route backup
```

```
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       O - OSPF, IA - OSPF inter area, N1 - OSPF NSSA external type 1
       N2 - OSPF NSSA external type 2, E1 - OSPF external type 1
       E2 - OSPF external type 2, E - EGP, i - ISIS, L1 - IS-IS level-1
       L2 - IS-IS level-2, ia - IS-IS inter area
       su - IS-IS summary null, * - candidate default
       U - per-user static route, o - ODR, L - local
S    172.73.51.0/24 is directly connected, 2d20h, POS4/0/0/1
      Backup O E2 [110/1] via 10.12.12.2, POS3/0/0/1
```

Table 121 describes the significant fields shown in the display.

Table 121 *show route backup* Field Descriptions

Field	Description
S	Code indicating how the route was derived. See the legend of the codes preceding the output.
172.73.51.0/24	IP address and length of the route.
2d20h	Time (in hh:mm:ss) since the route was installed in the RIB.
POS4/0/0/1	Outbound interface for the route.
Backup	Identifies the entry as a backup version of the route, typically installed by a different routing protocol.
O	Code indicating how the route was derived. See the code legend preceding the output.
E2	Code for the type of route. This code is relevant only for OSPF and IS-IS routes. The codes for an OSPF route can be: none—intra-area route IA —interarea route E1—external type 1 E2—external type 2 N1—NSSA external type 1 N2—NSSA external type 2 The codes for an IS-IS route can be: L1—level 1 L2 —level 2 ia —interarea su — summary route
[110/1]	Distance and metric for the route.

Table 121 show route backup Field Descriptions (continued)

Field	Description
10.12.12.2	IP address of next hop on the route.
POS3/0/0/1	Outbound interface for the OSPF version of the route.

Related Commands

Command	Description
show route	Displays the current routes in the RIB.

show route best-local

To display the best local address to use for return packets from the given destination, use the **show route best-local** command in EXEC mode.

```
show route [afi-all | ipv4 | ipv6] [unicast | multicast | safi-all] best-local ip-address
```

Syntax Description	Parameter	Description
	afi-all	(Optional) Specifies all address families.
	ipv4	(Optional) Specifies IP Version 4 address prefixes.
	ipv6	(Optional) Specifies IP Version 6 address prefixes.
	unicast	(Optional) Specifies unicast address prefixes.
	multicast	(Optional) Specifies multicast address prefixes.
	safi-all	(Optional) Specifies unicast and multicast address prefixes.
	<i>ip-address</i>	IP address about which best local information should be displayed.

Defaults Default prefixes are IPv4, unicast.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router. The afi-all and safi-all keywords were added.

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

Use the **show route best-local** command to display information about the best local routes in the routing table.

When the **afi-all** keyword is used, the *ip-address* and *mask* arguments and **best-local**, **longer-prefixes**, and **next-hop** keywords are not available.

Examples The following is sample output from the **show route best-local** command:

```
RP/0/RP0/CPU0:router# show route best-local 10.12.12.1/32

Routing entry for 10.12.12.1/32
  Known via "local", distance 0, metric 0 (connected)
  Routing Descriptor Blocks
    10.12.12.1 directly connected, via POS3/0/0/1
    Route metric is 0
```

Table 122 describes the significant fields shown in the display.

Table 122 *show route best-local Field Descriptions*

Field	Description
Routing entry for 10.12.12.1/32	Identifies the requested IP address.
Known via	Indicates how the route was derived.
distance	Administrative distance of the information source.
metric	Route value assigned by the routing protocol.
Routing Descriptor Blocks:	Displays the next-hop IP address followed by the information source.
10.12.12.1 Directly connected ... via ...	First address is the next-hop IP address, followed by a report that it is directly connected. This report is followed by the interface for this route.

Related Commands

Command	Description
show route local	Displays local addresses installed in the RIB as a receive entry.

show route connected

To display the current connected routes of the routing table, use the **show route connected** command in EXEC mode.

show route [afi-all | ipv4 | ipv6] [unicast | multicast | safi-all] connected

Syntax Description	Parameter	Description
	afi-all	(Optional) Specifies all address families.
	ipv4	(Optional) Specifies IP Version 4 address prefixes.
	ipv6	(Optional) Specifies IP Version 6 address prefixes.
	unicast	(Optional) Specifies unicast address prefixes.
	multicast	(Optional) Specifies multicast address prefixes.
	safi-all	(Optional) Specifies unicast and multicast address prefixes.

Defaults Default prefixes are IPv4, unicast.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router. The afi-all and safi-all keywords were added.

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

Use the **show route connected** command to display information about connected routes in the routing table.

Examples The following is sample output from the **show route connected** command:

```
RP/0/RP0/CPU0:router# show route connected
C    10.2.210.0/24 is directly connected, 1d21h, Ethernet0
C    172.20.16.0/24 is directly connected, 1d21h, ATM4/0.1
C    10.6.100.0/24 is directly connected, 1d21h, Loopback1
```

Table 123 describes the significant fields shown in the display.

Table 123 *show route connected Field Descriptions*

Field	Description
C	Code to indicate the route is connected.
10.2.210.0/24	IP address and length of the route.
1d21h	Time (in hh:mm:ss) since the route was installed in the RIB.
Ethernet0	Outbound interface for the route.

Related Commands

Command	Description
show route summary	Displays the current contents of the RIB.

show route local

To display local routes receiving routing updates from the Routing Information Base (RIB), use the **show route local** command in EXEC mode.

```
show route [afi-all | ipv4 | ipv6] [unicast | multicast | safi-all] local [interface-type
interface-instance]
```

Syntax	Description
afi-all	(Optional) Specifies all address families.
ipv4	(Optional) Specifies IP Version 4 address prefixes.
ipv6	(Optional) Specifies IP Version 6 address prefixes.
unicast	(Optional) Specifies unicast address prefixes.
multicast	(Optional) Specifies multicast address prefixes.
safi-all	(Optional) Specifies unicast and multicast address prefixes.
<i>interface-type</i>	(Optional) Interface type. For more information, use the question mark (?) online help function.
<i>interface-instance</i>	(Optional) Either a physical interface instance or a virtual interface instance as follows: <ul style="list-style-type: none"> Physical interface instance. Naming notation is <i>rack/slot/module/port</i> and a slash between values is required as part of the notation. <ul style="list-style-type: none"> <i>rack</i>: Chassis number of the rack. <i>slot</i>: Physical slot number of the modular services card or line card. <i>module</i>: Module number. A physical layer interface module (PLIM) is always 0. <i>port</i>: Physical port number of the interface. <p>Note In references to a Management Ethernet interface located on a route processor card, the physical slot number is alphanumeric (RP0 or RP1) and the module is CPU0. Example: interface MgmtEth0/RP1/CPU0/0.</p> <ul style="list-style-type: none"> Virtual interface instance. Number range varies depending on interface type. <p>For more information about the syntax for the router, use the question mark (?) online help function.</p>

Defaults Default prefixes are IPv4, unicast.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router. The afi-all and safi-all keywords were added.

Usage Guidelines

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

Use the **show route local** command to display information about local routes in the routing table.

Examples

The following is sample output from the **show route local** command:

```
RP/0/RP0/CPU0:router# show route local

L   10.10.10.1/32 is directly connected, 00:14:36, Loopback0
L   10.91.36.98/32 is directly connected, 00:14:32, POS6/0/0/1
L   172.22.12.1/32 is directly connected, 00:13:35, POS3/0/0/1
L   192.168.20.2/32 is directly connected, 00:13:27, POS4/0/0/1
L   10.254.254.1/32 is directly connected, 00:13:26, POS5/0/0/1
```

[Table 124](#) describes the significant fields shown in the display.

Table 124 show route local Field Descriptions

Field	Description
L	Code to indicate the route is local.
10.10.10.1/32	IP address and length of the route.
00:14:36	Time (in hh:mm:ss) since the route was installed in the RIB.
Loopback0	Outbound interface for the route.

Related Commands

Command	Description
show route connected	Displays information about all clients that have registered with the RIB as protocols.

show route longer-prefixes

To display the current routes in the Routing Information Base (RIB) that share a given number of bits with a given network, use the **show route longer-prefixes** command in EXEC mode.

```
show route [afi-all | ipv4 | ipv6] [unicast | multicast | safi-all] longer-prefixes ip-address mask
```

Syntax Description	
afi-all	(Optional) Specifies all address families.
ipv4	(Optional) Specifies IP Version 4 address prefixes.
ipv6	(Optional) Specifies IP Version 6 address prefixes.
unicast	(Optional) Specifies unicast address prefixes.
multicast	(Optional) Specifies multicast address prefixes.
safi-all	(Optional) Specifies unicast and multicast address prefixes.
<i>ip-address</i>	Network IP address about which routing information should be displayed.
<i>mask</i>	Network mask specified in either of two ways: <ul style="list-style-type: none"> • Network mask can be a four-part, dotted-decimal address. For example, 255.0.0.0 indicates that each bit equal to 1 means the corresponding address bit is a network address. • Network mask can be indicated as a slash (/) and number. For example, /8 indicates that the first 8 bits of the mask are 1s, and the corresponding bits of the address are the network address.

Defaults Default prefixes are IPv4, unicast.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router. The afi-all and safi-all keywords were added.

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

Use the **show route longer-prefixes** command to troubleshoot forwarding problems whose cause may be a long prefix.

When the **afi-all** keyword is used, the *ip-address* and *mask* arguments and **best-local**, **longer-prefixes**, and **next-hop** keywords are not available.

Examples

The following is sample output from the **show route longer-prefixes** command:

```
RP/0/RP0/CPU0:router# show route ipv4 172.16.0.0/8 longer-prefixes
```

```
S 172.16.2.0/32 is directly connected, 00:00:24, Loopback0
S 172.16.3.0/32 is directly connected, 00:00:24, Loopback0
S 172.16.4.0/32 is directly connected, 00:00:24, Loopback0
S 172.16.5.0/32 is directly connected, 00:00:24, Loopback0
S 172.16.6.0/32 is directly connected, 00:00:24, Loopback0
S 172.16.7.0/32 is directly connected, 00:00:24, Loopback0
S 172.16.8.0/32 is directly connected, 00:00:24, Loopback0
S 172.16.9.0/32 is directly connected, 00:00:24, Loopback0
```

[Table 125](#) describes the significant fields shown in the display.

Table 125 *show route ipv4 172.16.0.0/8 longer-prefixes Field Descriptions*

Field	Description
S	Code indicating how the route was derived. See the code legend preceding the output.
172.16.2.0/32	IP address and length of the route.
00:00:24	Time (in hh:mm:ss) since the route was installed in the RIB.
Loopback0	Outbound interface for the route.

Related Commands

Command	Description
route	Establishes a static route.
show interfaces	Lists interface information.
show route summary	Displays the current contents of the routing table in summary format.

show route next-hop

To display the next hop gateway or host to a destination address, use the **show route next-hop** command in EXEC mode.

```
show route [afi-all | ipv4 | ipv6] [unicast | multicast | safi-all] next-hop ip-address
```

Syntax Description		
afi-all	(Optional)	Specifies all address families.
ipv4	(Optional)	Specifies IP Version 4 address prefixes.
ipv6	(Optional)	Specifies IP Version 6 address prefixes.
unicast	(Optional)	Specifies unicast address prefixes.
multicast	(Optional)	Specifies multicast address prefixes.
safi-all	(Optional)	Specifies unicast and multicast address prefixes.
<i>ip-address</i>		IP address about which next hop information is to be displayed.

Defaults Default prefixes are IPv4, unicast.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router. The afi-all and safi-all keywords were added.

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

Use the **show route next-hop** command to perform a recursive route lookup on the supplied destination address and return information on the next immediate router (next hop) to the destination.

When the **afi-all** keyword is used, the *ip-address* and *mask* arguments and **best-local**, **longer-prefixes**, and **next-hop** keywords are not available.

Examples The following is sample output from the **show route next-hop** command:

```
RP/0/RP0/CPU0:router# show route next-hop 10.0.0.1
```

```
Routing entry for 10.0.0.0/24
  Known via "connected", distance 0, metric 0 (connected)
  Routing Descriptor Blocks
    10.0.0.50 directly connected, via POS3/0/0/1
    Route metric is 0
```

Table 126 describes the significant fields shown in the display.

Table 126 *show route next-hop Field Descriptions*

Field	Description
Known via	Name of the routing protocol that installed the matching route.
10.0.0.50	IP address of the route.
POS3/0/0/1	Outbound interface for the route.
Route metric is	Metric of the route.

Related Commands

Command	Description
show route	Displays the current contents of the routing table.

show route static

To display the current static routes of the Routing Information Base (RIB), use the **show route static** command in EXEC mode.

```
show route [afi-all | ipv4 | ipv6] [unicast | multicast | safi-all] static
```

Syntax Description	Parameter	Description
	afi-all	(Optional) Specifies all address families.
	ipv4	(Optional) Specifies IP Version 4 address prefixes.
	ipv6	(Optional) Specifies IP Version 6 address prefixes.
	unicast	(Optional) Specifies unicast address prefixes.
	multicast	(Optional) Specifies multicast address prefixes.
	safi-all	(Optional) Specifies unicast and multicast address prefixes.

Defaults Default prefixes are IPv4, unicast.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router. The afi-all and safi-all keywords were added.

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

Use the **show route static** command to display information about static routes in the routing table.

Examples The following is sample output from the **show route static** command:

```
RP/0/RP0/CPU0:router# show route static

S    10.1.1.0/24 is directly connected, 00:54:05, POS3/0/0/1
S    192.168.99.99/32 [1/0] via 10.12.12.2, 00:54:04
```

Table 127 describes the significant fields shown in the display.

Table 127 *show route static Field Descriptions*

Field	Description
S	Code to indicate the route is static.
10.1.1.0/24	IP address and distance for the route.
00:54:05	Time (in hh:mm:ss) since the route was installed in the RIB.
POS3/0/0/1	Outbound interface for the route.
[1/0]	Distance and metric for the route.

Related Commands

Command	Description
show route	Displays the current contents of the routing table.

show route summary

To display the current contents of the Routing Information Base (RIB), use the **show route summary** command in EXEC mode.

```
show route [afi-all | ipv4 | ipv6] [unicast | multicast | safi-all] summary [detail]
```

Syntax Description		
	afi-all	(Optional) Specifies all address families.
	ipv4	(Optional) Specifies IP Version 4 address prefixes.
	ipv6	(Optional) Specifies IP Version 6 address prefixes.
	unicast	(Optional) Specifies unicast address prefixes.
	multicast	(Optional) Specifies multicast address prefixes.
	safi-all	(Optional) Specifies unicast and multicast address prefixes.
	detail	(Optional) Displays a detailed summary of the contents of the RIB, including the number of paths and some protocol-specific route attributes.

Defaults Default prefixes are IPv4, unicast.

Command Modes EXEC

Command History	Release	Modification
	Release 2.0	This command was introduced on the Cisco CRS-1.
	Release 3.0	No modification.
	Release 3.2	This command was supported on the Cisco XR 12000 Series Router. The afi-all and safi-all keywords were added.

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

Use the **show route summary** command to display information about routes in the routing information base.

When a route summary is needed frequently—for instance, in a polling manner—use the **show route summary** command without the **detail** keyword. The **detail** keyword is used less frequently for verification purposes because it is much more expensive (in bandwidth), requiring a scan of the entire routing database.

Examples

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

```
RP/0/RP0/CPU0:router# show route summary

Route Source    Routes    Backup    Deleted    Memory (bytes)
static          1         0         0          136
connected       2         1         0          408
local           3         0         0          408
ospf            1673     2         0          272
isis            2         0         0          272
Total           10        1         0          1496
```

The following is sample output from the **show route summary** command with the **detail** keyword:

```
RP/0/RP0/CPU0:router# show route summary detail

Route Source    Active Route    Active Path    Backup Route    Backup Path
static          1                1                0                0
connected       2                2                1                1
local           3                3                0                0
isis            1                1                1                1
Level 1:        0                0                1                1
Level 2:        1                1                0                0
ospf 1673       6                12               0                0
Intra-Area:     3                6                0                0
Inter-Area:     3                6                0                0
External-1:     0                0                0                0
External-2:     0                0                0                0
bgp 100         10               20               4                8
External:       5                10               4                8
Internal:       5                10               0                0
local:          0                0                0                0
Total           7                7                2                2
```

[Table 128](#) describes the significant fields shown in the display.

Table 128 *show route summary* Field Descriptions

Field	Description
Route Source	Routing protocol name.
Routes	Number of selected routes that are present in the routing table for each route source.
Backup	Number of routes that are not selected (are backup to a selected route).
Deleted	Number of routes that have been marked for deletion in the RIB, but have not yet been purged.
Memory	Number of bytes allocated to maintain all routes for the particular route source.

Related Commands

Command	Description
show route	Displays the current contents of the routing table.