



RIB Commands

This module describes the commands used to display and clear information in the Routing Information Base (RIB).

For detailed information about RIB concepts, configuration tasks, and examples, see the *Implementing RIB on Softwaremodule* in *Routing Configuration Guide for Cisco NCS 6000 Series Routers*.

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address-family next-hop dampening disable

To disable Routing Information Base (RIB) next-hop dampening, use the **address-family next-hop dampening disable** command in router configuration mode. To enable RIB next-hop dampening, use the **no** form of this command.

```
address-family {ipv4 | ipv6} next-hop dampening disable
no address-family {ipv4 | ipv6} next-hop dampening disable
```

Syntax Description	<p>ipv4 Specifies IP Version 4 (IPv4) address prefixes.</p> <p>ipv6 Specifies IP Version 6 (IPv6) address prefixes.</p>	
Command Default	RIB next-hop dampening is enabled.	
Command Modes	Router configuration	
Command History	Release	Modification
	Release 5.0.0	This command was introduced.
Usage Guidelines	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.	
Task ID	Task ID	Operations
	rib	read, write

Examples

The following example shows how to disable RIB next-hop dampening for IPv6 address families:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# router rib
RP/0/RP0/CPU0:router(config-rib)# address-family ipv6 next-hop dampening disable
```

clear route

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

```
clear route {ipv4 | ipv6} {unicast | safi-all} [topology topo-name] [ip-address mask]
```

Syntax Description

ipv4	Specifies IP Version 4 address prefixes.
ipv6	Specifies IP Version 6 address prefixes.
	Specifies IP Version 4 and IP Version 6 address prefixes.
unicast	Specifies unicast address prefixes.
safi-all	Specifies unicast address prefixes.
topology <i>topo-name</i>	(Optional) Specifies topology table information and name of the topology table.
<i>ip-address node-id</i>	(Optional) Clears hardware resource counters from the designated node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
<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: 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.

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

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

Task ID

Task ID	Operations
rib	read, write

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
show route, on page 45	Displays the current state of the routing table.

lcc

To enable Label Consistency Checker (lcc) background scan for IPv6 or IPv4 labels, use the **lcc enable** command in XR Config mode. To disable lcc background scan, use the **no** for of this command.

```
lcc {ipv4 | ipv6} unicast {enable | period milliseconds}
no lcc {ipv4 | ipv6} unicast {enable | period milliseconds}
```

Syntax Description

ipv4	Specifies IP Version 4 address prefixes.
ipv6	Specifies IP Version 6 address prefixes.
unicast	Specifies unicast address prefixes.
period <i>milliseconds</i>	Specifies the period between scans in milliseconds. Range is 100 to 600000 milliseconds.

Command Default

Label consistency checker is disabled.

Command Modes

XR Config

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operation
ipv4	read, write
ipv6	read, write

This example shows how to enable lcc for IPv6 labels:

```
RP/0/RP0/CPU0:router#configure
RP/0/RP0/CPU0:router(config)#lcc ipv6 unicast enable
```

rcc

To enable Route Consistency Checker (rcc) background scan for IPv6 or IPv4 routes, use the **rcc enable** command in XR Config mode. To disable rcc background scan, use the **no** form of this command.

```
rcc {ipv4 | ipv6} unicast {enable | period milliseconds}
no rcc {ipv4 | ipv6} unicast {enable | period milliseconds}
```

Syntax Description	Parameter	Description
	ipv4	Specifies IP Version 4 address prefixes.
	ipv6	Specifies IP Version 6 address prefixes.
	unicast	Specifies unicast address prefixes.
	period <i>milliseconds</i>	Specifies the period between scans in milliseconds. Range is 100 to 600000 milliseconds.

Command Default Route consistency checker is disabled.

Command Modes XR Config

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **period** option to control how often the scan be triggered. Each time the scan is triggered, the background scan process resumes verification from where it was left out and sends one buffer's worth of routes to the forwarding information base (FIB).

Task ID	Task ID	Operation
	ipv4	read, write
	ipv6	read, write

This example shows how to configure rcc for IPv6 unicast:

```
RP/0/RP0/CPU0:router#configure
RP/0/RP0/CPU0:router(config)#rcc ipv6 unicast enable
```

This example shows how to enable rcc with a scan period of 500 milliseconds for IPv6 unicast:

```
RP/0/RP0/CPU0:router#configure  
RP/0/RP0/CPU0:router(config)#rcc ipv6 unicast period 500
```

recursion-depth-max

To set the maximum depth for route recursion checks, use the **recursion-depth-max** command in router configuration mode. To set the recursion checks to the default value, use the **no** form of this command.

recursion-depth-max *maximum*
no recursion-depth-max *maximum*

Syntax Description

maximum Maximum depth for recursion checks. Range is 5 to 16.

Command Default

The default recursion depth is 128.

Command Modes

Router configuration

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **recursion-depth-max** command to configure a specific maximum number of recursion checks in the range of 5 to 16.

Task ID

Task ID	Operations
rib	read, write

Examples

The following example shows how to set the maximum depth for route recursion checks to 12:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# router rib
RP/0/RP0/CPU0:router(config-rib)# recursion-depth-max 12
```

router rib

To enter Routing Information Base (RIB) configuration mode, use the **router rib** command in XR Config mode. To remove all RIB configurations and terminate the RIB routing process, use the **no** form of this command.

router rib
no router rib

Syntax Description This command has no arguments or keywords.

Command Default Router configuration mode is not enabled.

Command Modes XR Config

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operations
	bgp	read, write
	ospf	read, write
	hsrp	read, write
	isis	read, write

Examples

The following example shows how to enter RIB configuration mode:

```
RP/0/RP0/CPU0:router(config)# router rib
```

rump always-replicate

To enable replication from uRIB to muRIB as usual even after features such as MTR are configured, use the **rump always-replicate** command in router configuration mode. To diable replication from uRIB to muRIB, use the **no** form of this command.

```
rump always-replicate [access-list]  
no rump always-replicate [access-list]
```

Syntax Description	<i>access-list-name</i> (Optional) Name of the access list.
---------------------------	---

Command Default	Replication from uRIB to muRIB is enabled.
------------------------	--

Command Modes	Router address family configuration
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Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
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Configuring the **rump always-replicate** command allows routers in a network to be upgraded to multitopology routing gradually without a flag day where all routers need to be configured at the same time without major service disruption. When **rump always-replicate** is configured, replicated routes are added into the muRIB with the lowest admin distance. So if protocols are populating the muRIB, they continue to do so. For the same route, protocol routes win over replicated routes because of higher admin distance.

If an unwanted more specific route comes from the uRIB, optionally provide an access list through which the replicated routes are run. If the route passes the access list, the route is replicated by RUMP.

Task ID	Task ID	Operations
	rib	read, write

Examples

The following example shows how to enale replication from uRIB to muRIB:

```
RP/0/RP0/CPU0:router(config)# router rib  
RP/0/RP0/CPU0:router(config-rib)# address-family ipv4  
RP/0/RP0/CPU0:router(config-rib-afi)# rump always-replicate
```

show lcc statistics

To view results of a label consistency checker (lcc) background scan, use the **show lcc statistics** command in XR EXEC mode.

```
show lcc {ipv4 | ipv6} unicast statistics {scan-id | summary}
```

Syntax Description		
	ipv4	IPv4 address prefix.
	ipv6	IPv6 address prefix.
	unicast	Specifies unicast address prefix.
	scan-id <i>scan-id-value</i>	Specifies the scan ID value. The range is between <0-100000>.
	summary	Displays a summary of the BG route consistency check statistics.

Command Default None

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operation
	ipv4	read
	ipv6	read

This example shows background scan statistics for AFI-SAFI mpls6-unicast:

```
RP/0/RP0/CPU0:router#show lcc ipv6 unicast statistics

Background Scan Statistics for AFI-SAFI mpls6-unicast:
=====

Scan enabled:                False
Current scan-id:             0
Configured period:           60
Scan triggered:              False
Current period:              0

Paused by range scan: False
Paused by route churn: False
Paused by error scan: False
```

```
Last data sent: 0 entries           Damping percent:      70
Default route churn: 10             Current route churn:  0
Route churn last calculated at      Dec 31 16:00:00.000
```

Logs stored for background scan ids:

Log for AFI-SAFI mpls6-unicast:

=====

End Of Logs

This example shows background scan statistics for AFI-SAFI mpls4-unicast:

```
RP/0/RP0/CPU0:router#show lcc ipv4 unicast statistics
```

```
Background Scan Statistics for AFI-SAFI mpls4-unicast:
```

=====

```
Scan enabled:           False
Current scan-id:        0           Scan triggered:       False
Configured period:     60           Current period:       0
```

```
Paused by range scan: False
Paused by route churn: False
Paused by error scan: False
```

```
Last data sent: 0 entries           Damping percent:      70
Default route churn: 10             Current route churn:  0
Route churn last calculated at      Dec 31 16:00:00.000
```

Logs stored for background scan ids:

Log for AFI-SAFI mpls4-unicast:

=====

End Of Logs

show rcc

To display route consistency checker (RCC) information, use the **show rcc** command in XR EXEC mode.

```
show rcc {ipv4 | ipv6} unicast [{prefix netmask }]
```

Syntax Description

ipv4	Specifies IP Version 4 address prefixes.
ipv6	Specifies IP Version 6 address prefixes.
unicast	Specifies unicast address prefixes.
prefix	(Optional) Starting prefix.
netmask	(Optional) Network mask.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
ipv4	read

Examples

The following is sample output from the **show rcc** command:

```
RP/0/RP0/CPU0:router# show rcc ipv4 unicast statistics
Thu Mar 26 13:47:28.391 IST

Background Scan Summary
=====

Scan enabled:           False           Last scan-id: 0
Configured period:     15000           Current period: 0

Paused By:
  route churn:False  on-demand scan:False  error scan:False

Last data sent: 0 entries           Damping percent: 69
Default route churn: 100           Current route churn: 0
Route churn last calculated at     Never
Logs last cleared at              Never
```

```
Scan paused by ISSU                False

Logs stored for background scan ids:

Scan Logs
=====
Legend:
    ? - Currently Inactive Node, ! - Non-standard SVD Role
    * - Node did not reply

End of Logs
```

show rcc statistics

To view results of a route consistency checker (rcc) background scan, use the **show rcc statistics** command in XR EXEC mode.

```
show rcc {ipv4 | ipv6} unicast statistics {scan-id | summary}
```

Syntax Description		
ipv4		IPv4 address prefix.
ipv6		IPv6 address prefix.
unicast		Specifies unicast address prefixes.
scan-id	<i>scan-id-value</i>	Specifies the scan ID value. The range is between <0-100000>.
summary		Displays a summary of the BG route consistency check statistics.

Command Default None

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operation
	ipv4	read
	ipv6	read

This example shows background scan statistics for AFI-SAFI IPv6 unicast:

```
RP/0/RP0/CPU0:router#show rcc ipv6 unicast statistics

Background Scan Statistics for AFI-SAFI ipv6-unicast:
=====

Scan enabled:                False
Current scan-id:             0
Configured period:           60
Scan triggered:              False
Current period:              0

Paused by range scan: False
Paused by route churn: False
Paused by error scan: False
```

```
Last data sent: 0 entries           Damping percent:      70
Default route churn: 10           Current route churn:  0
Route churn last calculated at     Dec 31 16:00:00.000
```

Logs stored for background scan ids:

```
Log for AFI-SAFI ipv6-unicast:
=====
```

End Of Logs

This example shows background scan statistics for AFI-SAFI Ipv4 unicast:

```
RP/0/RP0/CPU0:router#show rcc ipv4 unicast statistics
```

```
Background Scan Statistics for AFI-SAFI ipv4-unicast:
=====
```

```
Scan enabled:           False
Current scan-id:        0           Scan triggered:       False
Configured period:      60         Current period:       0
```

```
Paused by range scan: False
Paused by route churn: False
Paused by error scan: False
```

```
Last data sent: 0 entries           Damping percent:      70
Default route churn: 10           Current route churn:  0
Route churn last calculated at     Dec 31 16:00:00.000
```

Logs stored for background scan ids:

```
Log for AFI-SAFI ipv4-unicast:
=====
```

End Of Logs

show rib

To display Routing Information Base (RIB) data, use the **show rib** command in XR EXEC mode.

```
show rib {ipv4 | ipv6} {unicast} [{firsthop | [type interface-path-id]} | next-hop | [type interface-path-id]} | opaques | {attribute | ip-nexthop | ipfrr | summary} | protocols | [{standby}] | statistics | [name] | [{standby}] | topology | {topo-name | all}}
```

Syntax Description

ipv4	(Optional) Specifies IP Version 4 address prefixes.
ipv6	(Optional) Specifies IP Version 6 address prefixes.
unicast	(Optional) Specifies unicast address prefixes. This is the default.
firsthop	(Optional) Specifies registered first-hop notification addresses
type	Interface type. For more information, use the question mark (?) online help function.
interface-path-id	Identifies a physical interface or a virtual interface. Note Use the show interfaces command to see a list of all possible interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
next-hop	(Optional) Specifies registered next-hop notification addresses.
opaques	(Optional) Specifies opaque data installed in the RIB.
attribute	(Optional) Specifies opaque attributes installed in the RIB.
ip-nexthop	(Optional) Specifies P next-hop data installed in the RIB.
ipfrr	(Optional) Specifies IP fast reroute (IPFRR) opaque data installed in the RIB.
summary	(Optional) Specifies a summary of opaque data installed in the RIB.
protocols	(Optional) Specifies registered protocols.
statistics <i>name</i>	(Optional) Specifies RIB statistics of a given name.
standby	(Optional) Specifies standby information.
topology <i>topo-name</i>	(Optional) Specifies topology table information and name of the topology table.
all	(Optional) Specifies that all topology table information should be displayed.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operations
	ipv4	read

Examples

Related Commands	Command	Description
	show rib afi-all, on page 20	Displays both IPv4 and IPv6 RIB information.

show rib afi-all

To display Routing Information Base (RIB) data for both IPv4 and IPv6 address families, use the **show rib afi-all** command in XR EXEC mode.

```
show rib afi-all [attributes] [client-id] [clients] [extcomms] [firsthop] [history] [next-hop]
[opaques] [protocols] [recursion-depth-max] [safi-all] [statistics] [tables] [trace] [unicast]
```

Syntax Description

attributes	(Optional) Displays all BGP attributes installed in RIB.
client-id	(Optional) Displays RIB client ID for longer history of redistributed routes sent to the client.
clients	(Optional) Displays RIB clients.
extcomms	(Optional) Displays all extended communities installed in RIB.
firsthop	(Optional) Displays registered firsthop notification addresses.
history	(Optional) Displays redistributed routes sent to RIB clients.
next-hop	(Optional) Displays registered next-hop notification addresses.
opaques	(Optional) Displays opaque data installed in RIB.
protocols	(Optional) Displays registered protocols.
recursion-depth-max	(Optional) Displays maximum recursion depth in RIB.
safi-all	(Optional) Displays unicast commands.
statistics	(Optional) Displays RIB statistics.
tables	(Optional) Displays a list of tables known to RIB.
trace	(Optional) Displays RIB trace entries.
unicast	(Optional) Displays unicast commands.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operations
	ipv4	read

Examples

The following example illustrates the **show rib afi-all attributes** command:

```
RP/0/RP0/CPU0:router# show rib afi-all attributes
BGP attribute data in IPv4 RIB:
0 Attributes, for a total of 0 bytes.
BGP attribute data in IPv6 RIB:
0 Attributes, for a total of 0 bytes.
```

Related Commands

Command	Description
show rib, on page 18	Displays RIB information.

show rib attributes

To display Border Gateway Protocol (BGP) attributes installed in the Routing Information Base (RIB), use the **show rib attributes** command in XR EXEC mode.

show rib attributes [**summary**] [**standby**]

Syntax Description	
	summary (Optional) Displays a summary of BGP attribute data installed in the RIB.
	standby (Optional) Displays standby information.

Command Default	No default behavior or values
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Command Modes	XR EXEC
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Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines	To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.
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Task ID	Task ID	Operations
	rib	read

Examples

The following is sample output from the **show rib attributes** command:

```
RP/0/RP0/CPU0:router# show rib attributes

BGP attribute data in IPv4 RIB:

Attribute ID (0x2):size (68)
Attribute ID (0x3):size (52)
Attribute ID (0x4):size (68)
Attribute ID (0x5):size (52)

4 Attributes, for a total of 240 bytes.

Attribute ID : ID assigned for the attribute by BGP
size : size of the attribute data.
```

show rib client-id

To display Routing Information Base (RIB) redistribution histories, use the **show rib client-id** command in XR EXEC mode.

show rib client-id *id* **redistribution history** [**standby**]

Syntax Description	
<i>id</i>	ID of the client. Range is 0 to 4294967295.
redistribution history	Displays longer history of redistributed routes sent to RIB clients.
standby	(Optional) Displays standby information.

Command Default No default behavior or values

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operations
	rib	read

Examples

The following is sample output from the **show rib client-id** command:

```
RP/0/RP0/CPU0:router# show rib client-id 13 redistribution history
```

```

PID      JID    Client                Location
151630   113   bcdl_agent           node0_5_CPU0
  Table ID: 0xe0000000
    S 80.80.80.0/24[1/0]      update, 5 path(s), 0x0   Jan 31 09:54:57.224
    S 80.80.80.0/24[1/0]      update, 6 path(s), 0x0   Jan 31 09:53:39.736
    S 140.140.140.0/24[1/0]    update, 1 path(s), 0x0   Jan 31 09:53:39.729
    S 80.80.80.0/24[1/0]      update, 5 path(s), 0x0   Jan 30 22:08:38.551
    S 140.140.140.0/24        deleted,                  Jan 30 22:08:38.543
    S 80.80.80.0/24[1/0]      update, 6 path(s), 0x0   Jan 30 22:03:05.889
    S 100.100.100.0/24[1/0]    update, 1 path(s), 0x0   Jan 30 22:03:05.880

```

This table describes the significant fields shown in the display.

Table 1: show rib client-id Field Descriptions

Field	Description
PID	Process ID of the client.
JID	Job ID of the client.
Client	Client name.
Location	Location node on which the client is present.

Related Commands

Command	Description
show rib clients, on page 25	Displays RIB clients.

show rib clients

To display Routing Information Base (RIB) clients, use the **show rib clients** command in XR EXEC mode.

```
show rib [{afi-all | ipv4 | ipv6}] clients [{protocols | redistribution [history]}] [standby]
```

Syntax Description	Parameter	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.
	protocols	(Optional) Specifies client protocols.
	redistribution	(Optional) Specifies protocols redistributed by clients
	history	(Optional) Specifies redistributed routes sent to RIB clients.
	standby	(Optional) Displays standby information.

Command Default No default behavior or values

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **show rib clients** command to display the list of clients who have registered with RIB, what protocol routes they are redistributing, and a history of the routes sent to the client.

The maximum number of redistribution entries is 5000 for Bulk Content Downloader (BCDL) and 500 for other protocols.

Task ID	Task ID	Operations
	rib	read

show rib extcomms

To display all extended communities installed in the Routing Information Base (RIB), use the **show rib extcomms** command in XR EXEC mode.

```
show rib [{afi-all | ipv4 | ipv6}] extcomms [summary] [standby]
```

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.
summary	(Optional) Specifies a summary of all extended communities in the RIB.
standby	(Optional) Displays standby information.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
rib	read

Examples

The following is sample output from the **show rib extcomms** command:

```
RP/0/RP0/CPU0:router# show rib extcomms

Extended community data in RIB:

Extended community                               Ref count
COST:128:128:41984                               1
EIGRP route-info:0x8000:0                         1
EIGRP AD:1:25600                                  1
EIGRP RHB:255:0:16384                             1
EIGRP LM:0x0:1:4470                               1
```

This table describes the significant fields shown in the display.

Table 2: show rib extcomms Field Descriptions

Field	Description
Extended Community	Type of extended communities. Different protocols can add different extended communities.
Ref Count	Number of routes referring to the Extended community.

show rib firsthop

To display registered first-hop notification addresses, use the **show rib firsthop** command in XR EXEC mode.

```
show rib [{afi-all | ipv4 | ipv6}] [{unicast | safi-all}] firsthop [client-name] [{type interface-path-id | ip-address /prefix-length | ip-address mask | resolved | unresolved | damped}] [summary] [standby]
```

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.
safi-all	(Optional) Specifies unicast address prefixes.
<i>client-name</i>	(Optional) Name of the RIB client.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface.
	<p>Note Use the show interfaces command to see a list of all interfaces currently configured on the router.</p> <p>For more information about the syntax for the router, use the question mark (?) online help function.</p>
<i>ip-address</i>	(Optional) Network that BGP advertises.
<i>/ prefix-length</i>	(Optional) Length of the IP address prefix. A decimal value that indicates how many of the high-order contiguous bits of the address compose the prefix (the network portion of the address). A slash (/) must precede the decimal value.
<i>ip-address mask</i>	(Optional) Network mask applied to the <i>ip-address</i> argument.
resolved	(Optional) Specifies resolved next-hops.
unresolved	(Optional) Specifies unresolved next-hops.
damped	(Optional) Specifies next-hops that are damped.
summary	(Optional) Specifies a summary of the next-hop information.
standby	(Optional) Displays standby information.

Command Modes

XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **show rib firsthop** command to display the list of first hops registered by various clients with RIB and the address and interface through which they are resolved.

Task ID	Task ID	Operations
	rib	read

Examples

The following is sample output from the **show rib firsthop** command:

```
RP/0/RP0/CPU0:router# show rib firsthop

Registered firsthop notifications:
0.0.0.0/0 via 1.1.0.1 - MgmtEth0/5/CPU0/0, ospf/node0_5_CPU0
1.1.0.1/32 via 1.1.0.1 - MgmtEth0/5/CPU0/0, ipv4_static/node0_5_CPU0
1.1.1.1/32 via 1.1.1.1 - MgmtEth0/5/CPU0/0, ipv4_static/node0_5_CPU0
10.10.10.1/32 via 10.10.10.1 - Loopback0, ipv4_static/node0_5_CPU0
10.10.10.3/32 via 10.10.10.3 - Loopback0, ipv4_static/node0_5_CPU0
15.15.15.1/32 via 10.10.10.1 - Loopback0, ipv4_static/node0_5_CPU0
20.20.20.1/32 via 1.1.1.1 - MgmtEth0/5/CPU0/0, ipv4_static/node0_5_CPU0
30.30.30.1/32 via 1.1.1.2 - MgmtEth0/5/CPU0/0, ipv4_static/node0_5_CPU0
```

show rib history

To display history information for Routing Information Base (RIB) clients, use the **show rib history** command in XR EXEC mode.

```
show rib [{afi-all | ipv4 | ipv6}] history [client-id client-id] [standby]
```

Syntax Description	Parameter	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.
	client-id <i>client-id</i>	(Optional) Specifies the ID of the client. Range for <i>client-id</i> argument is 0 to 4294967295.
	standby	(Optional) Displays standby information.

Command Default No default behavior or values

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **show rib history** command to display the list of routes that RIB has sent to various clients.

Task ID	Task ID	Operations
	rib	read

Examples

The following is sample output from the **show rib history** command:

```
RP/0/RP0/CPU0:router# show rib history

JID  Client          Location
229  isis             node0_5_CPU0
    Table ID: 0xe0000000
    S 80.80.80.0/24[1/0]      update, 6 path(s), 04:32:09
    S 100.100.100.0/24[1/0]   update, 1 path(s), 04:32:09
    S 40.40.40.0/24[1/0]     update, 1 path(s), 04:32:09
    S 15.15.15.0/24[1/0]     update, 1 path(s), 04:32:09
JID  Client          Location
260  ospf             node0_5_CPU0
```

```
Table ID: 0xe0000000
S 80.80.80.0/24[1/0]      update, 6 path(s),      04:32:09
S 100.100.100.0/24[1/0]  update, 1 path(s),      04:32:09
S 40.40.40.0/24[1/0]    update, 1 path(s),      04:32:09
S 15.15.15.0/24[1/0]    update, 1 path(s),      04:32:09
```

This table describes the significant fields shown in the display.

Table 3: show rib history Field Descriptions

Field	Description
JID	Job ID of the client process.
Client	Name of the client process.
Location	Information about where the client process is running.

show rib next-hop

To display registered next-hop notification addresses, use the **show rib next-hop** command in XR EXEC mode.

```
show rib [{afi-all | ipv4 | ipv6}] [{unicast | safi-all}] next-hop [client-name] [{type interface-path-id | ip-address /prefix-length | ip-address mask | resolved | unresolved | damped}] [summary] [standby]
```

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.
safi-all	(Optional) Specifies unicast address prefixes.
<i>client-name</i>	(Optional) Name of the RIB client.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface.
	<p>Note Use the show interfaces command to see a list of all interfaces currently configured on the router.</p> <p>For more information about the syntax for the router, use the question mark (?) online help function.</p>
<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.
<i>/ prefix-length</i>	(Optional) Length of the IP address prefix. A decimal value that indicates how many of the high-order contiguous bits of the address compose the prefix (the network portion of the address). A slash (/) must precede the decimal value.
resolved	(Optional) Specifies resolved next-hops.
unresolved	(Optional) Specifies unresolved next-hops.
damped	(Optional) Specifies next-hops that are damped.
summary	(Optional) Specifies a summary of the next-hop information.

standby (Optional) Displays standby information.

Command Default No default behavior or values

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **show rib next-hop** command to display the list of next-hops registered by various clients with the RIB and the address and interface through which they are resolved.

Task ID	Task ID	Operations
	rib	read

Examples

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

```
RP/0/RP0/CPU0:router# show rib next-hop
Registered nexthop notifications:
0.0.0.0/0 via 172.29.52.1 - MgmtEth0/RP1/CPU0/0, ospf/node0_RP0_CPU0
172.29.52.1/32 via 172.29.52.1 - MgmtEth0/RP1/CPU0/0, ipv4_static/node0_RP0_CPU0
```

show rib opaques

To display opaque data installed in the Routing Information Base (RIB), use the **show rib opaques** command in XR EXEC mode.

```
show rib [{afi-all | ipv4 | ipv6}] [{unicast | safi-all}] opaques {attribute | ip-nexthop | ipfrr |
summary} [rib-client-name] [standby]
```

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.
safi-all	(Optional) Specifies unicast address prefixes.
attribute	Displays opaque attributes installed in the RIB.
ip-nexthop	Displays IP next-hop data installed in the RIB.
ipfrr	Displays IP fast reroute (IPFRR) opaque data installed in the RIB.
summary	Displays a summary of opaque data installed in the RIB.
<i>rib-client-name</i>	(Optional) Name of the RIB client.
standby	(Optional) Displays standby information.

Command Default

No default behavior or values

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

If information is not used by the RIB server process, it is viewed as opaque data. Use the **show rib opaques** command to display opaque data installed in the RIB.

Task ID

Task ID	Operations
rib	read

Related Commands

Command	Description
show route, on page 45	Displays current routes information in the Routing Information Base (RIB).
show ospf routes	Displays Open Shortest Path First (OSPF) topology table.

show rib protocols

To display protocols registered for route addition, use the **show rib protocols** command in XR EXEC mode.

```
show rib [{afi-all | ipv4 | ipv6}] [{unicast | safi-all}] protocols [standby]
```

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.
safi-all	(Optional) Specifies unicast address prefixes.
standby	(Optional) Displays standby information.

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID

Task ID	Operations
rib	read

Examples

The following is sample output from the **show rib protocols** command:

```
RP/0/RP0/CPU0:router# show rib protocols

Protocol  Handle  Instance
-----
isis      0       rib
connected 1
static    2
local     3
bgp       4       102
ospf      5       1
```

This table describes the significant fields shown in the display.

Table 4: show rib protocols Field Descriptions

Field	Description
Protocol	Name of the protocol.
Handle	Handle assigned to the protocol instance.
Instance	Protocol instance.

show rib recursion-depth-max

To display the maximum recursion depth in the Routing Information Base (RIB), use the **show rib recursion-depth-max** command in XR EXEC mode.

```
show rib [{afi-all | ipv4 | ipv6}] recursion-depth-max [standby]
```

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.
standby	(Optional) Displays standby information.

Command Default No default behavior or values

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **show rib recursion-depth-max** command to display the maximum recursion depth for RIB. Recursion depth is the number of next-hops that can be specified.

Task ID	Task ID	Operations
	rib	read

Examples The following is sample output from the **show rib recursion-depth-max** command:

```
RP/0/RP0/CPU0:router# show rib recursion-depth-max

IPv4:
-----
Maximum recursion depth in RIB:

    Configured: 12
    In Use: 128

IPv6:
-----
Maximum recursion depth in RIB:
```

```
Configured: 12
In Use: 128
```

This table describes the significant fields shown in the display.

Table 5: show rib recursion-depth-max Field Descriptions

Field	Description
Configured	Value of maximum recursion depth currently configured.
In Use	Value of maximum recursion depth RIB is using. This value can be different from the configured value because RIB has to be restarted after the configuration is changed for the new configuration to be effective.

show rib statistics

To display Routing Information Base (RIB) statistics, use the **show rib statistics** command in XR EXEC mode.

```
show rib [{afi-all | ipv4 | ipv6}] [{unicast | safi-all}] statistics [client-name] [standby]
```

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.
safi-all	(Optional) Specifies unicast address prefixes.
<i>client-name</i>	(Optional) Name of the RIB client.
standby	(Optional) Displays standby information.

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **show rib statistics** command to display RIB statistics. The statistics include requests sent from the clients to the RIB and the information redistributed to the client.

RIB maintains counters for all requests sent from a client including:

- Route operations
- Table registrations
- Next-hop registrations
- Redistribution registrations
- Attribute registrations
- Synchronization completion

RIB also maintains the results of the requests.

Task ID	Task ID	Operations
	rib	read

Examples

The following is sample output from the **show rib statistics** command:

```
RP/0/RP0/CPU0:router# show rib statistics

RIB Statistics:
Received 142 batch messages
    137 route operations, 0 attribute operations
    0 opaque operations
    11 complete operations, 0 convergent operations
Results of the batch message received:
 142 successes
 0 forward references, 0 invalid client id, 0 unknown errors
 0 memory allocation errors, 0 client lookup errors, table lookup errors 0
 0 proto lookup errors, 0 client proto lookup errors
 ipv4_connected/node0_RP0_CPU0 last performed route operation
   with status BATCH_SUCCESS at Jun 26 21:43:33.601

Received 217422 light weight messages
 4 route add requests, 2 route delete requests
10 protocol registered, 1 protocol unregistered
 0 protocol modify, 0 protocol purged
14 protocol redistributions, 0 unregistered protocol redistributions
 0 reset protocol redistributions
 3 first hop registered, 1 first hop unregistered
 3 advertisements, 0 unregistered advertisement
57 bind data, 97 update completes, 217230 other requests
 udp/node0_RP0_CPU0 last performed firsthop lookup operation
   with status success at Jun 27 10:09:59.990

Received 0 nexthop batch messages
 0 successes
 0 inits
 0 registers, 0 unregisters
 0 register complete, 0 sync unregistered, 0 batch finished
```

This table describes the significant fields shown in the display.

Table 6: show rib statistics Field Descriptions

Field	Description
Received	Statistics received including batch messages and route, attribute, complete, and convergent operations.
Results of the batch message received	Batch message results.
Received <i>n</i> light weight messages	Number of lightweight API messages sent from RIB clients.
Received <i>n</i> nexthop batch messages	Number of batch API messages sent from RIB clients received by the RIB.

show rib tables

To display all tables known to the Routing Information Base (RIB), use the **show rib tables** command in XR EXEC mode.

```
show rib [{afi-all | ipv4 | ipv6}] tables [summary] [standby]
```

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.
summary	(Optional) Displays summary table information.
standby	(Optional) Displays standby information.

Command Default No default behavior or values

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **show rib tables** command to display all tables known to the RIB, including table attributes.

Task ID	Task ID	Operations
	rib	read

show rib trace

To display all Routing Information Base (RIB) library call tracer (ltrace) entries, use the **show rib trace** command in XR EXEC mode.

```
show rib [{afi-all | ipv4 | ipv6}] trace [{clear | counts | event-manager | startup | sync | timing}]
[unique | wrapping] [last entries] [hexdump] [reverse] [tailif] [stats] [verbose] [{file name
original location node-id | location {all node-id}}]
```

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.
counts clear	(Optional) Displays route clear trace entries.
counts	(Optional) Displays counts trace entries.
event-manager	(Optional) Displays RIB event manager trace entries.
startup	(Optional) Displays RIB startup trace entries.
sync	(Optional) Displays client synchronization trace entries.
timing	(Optional) Displays timing trace entries.
unique	(Optional) Displays unique entries with counts.
wrapping	(Optional) Displays wrapping entries.
last entries	(Optional) Displays a specified number of the last entries. Range is 1 to 4294967295.
hexdump	(Optional) Displays traces in hexadecimal format.
reverse	(Optional) Displays the latest traces first.
tailif	(Optional) Displays new traces as they are added.
stats	(Optional) Displays statistics.
verbose	(Optional) Displays internal debugging information.
file name original location node-id	(Optional) Displays trace entries for a specific file for the designated node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation.
location { all node-id }	(Optional) Displays ltrace entries for the designated node. The <i>node-id</i> argument is entered in the <i>rack/slot/module</i> notation. The all keyword displays ltrace entries for all nodes.
Command Default	No default behavior or values

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Task ID	Task ID	Operations
	rib	read

Examples

The following is sample output from the **show rib trace** command

```
RP/0/RP0/CPU0:router# show rib trace

1784 wrapping entries (13312 possible, 0 filtered, 1784 total)
Mar 16 14:59:27.947 rib/ipv4_rib/rib-startup 0//CPU0 t1 Create: Management thread
Mar 16 14:59:27.959 rib/ipv4_rib/rib-startup 0//CPU0 t2 Create: Management event manager

Mar 16 14:59:28.346 rib/ipv4_rib/rib-io 0//CPU0 t1 Initialise: RIB server
Mar 16 14:59:28.346 rib/ipv4_rib/rib-io 0//CPU0 t1 Initialise: Client collection
Mar 16 14:59:28.676 rib/ipv4_rib/rib-io 0//CPU0 t1 Initialise: DB collection
Mar 16 14:59:28.693 rib/ipv4_rib/rib-io 0//CPU0 t1 Initialise: Timer tree
Mar 16 14:59:28.694 rib/ipv4_rib/rib-io 0//CPU0 t1 RUMP: Bind to sysdb /ipc/gl/ipv4-rib/
for protocol notification
Mar 16 14:59:29.102 rib/ipv4_rib/rib-startup 0//CPU0 t2 Initialise: Debugging routine
Mar 16 14:59:29.128 rib/ipv4_rib/rib-io 0//CPU0 t1 Register: read, select cb functions
Mar 16 14:59:29.137 rib/ipv4_rib/rib-startup 0//CPU0 t1 Register: cerrno DLL name
lib_rib_error.dll
.
.
.
```

show route

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

```
show route [{afi-all | ipv4 | ipv6}] [{unicast | safi-all}] [{protocol [instance] | ip-address [mask] | ip-address/prefix-length}] [standby] [detail]
```

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.
safi-all	(Optional) Specifies unicast address prefixes.
<i>protocol</i>	(Optional) Name of a routing protocol. If you specify a routing protocol, use one of the following keywords: <ul style="list-style-type: none"> • bgp • eigrp • isis • ospf • rip • static • local • connected
instance	(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.
<i>/prefix-length</i>	(Optional) Length of the IP address prefix. A decimal value that indicates how many of the high-order contiguous bits of the address compose the prefix (the network portion of the address). A slash (/) must precede the decimal value.
standby	(Optional) Displays standby information.
detail	(Optional) Displays detailed information for the specified prefix.

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

When the **afi-all** keyword is used, the *ip-address* and *mask* arguments are not available.

Task ID	Task ID	Operations
	rib	read

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, R - RIP, 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, G - DAGR
       A - access/subscriber, (!) - FRR Backup path

Gateway of last resort is 1.0.0.1 to network 0.0.0.0

S*  0.0.0.0/0 [1/0] via 1.0.0.1, 13:14:59
C   1.0.0.0/16 is directly connected, 13:14:59, MgmtEth0/5/CPU0/0
L   1.0.14.15/32 is directly connected, 13:14:59, MgmtEth0/5/CPU0/0
C   3.2.3.0/24 is directly connected, 00:04:39, GigabitEthernet0/3/0/0
L   3.2.3.2/32 is directly connected, 00:04:39, GigabitEthernet0/3/0/0
O E2 5.2.5.0/24 [110/20] via 3.3.3.1, 00:04:20, GigabitEthernet0/3/0/0
O E2 6.2.6.0/24 [110/20] via 3.3.3.1, 00:04:20, GigabitEthernet0/3/0/0
C   7.2.7.0/24 is directly connected, 00:04:20, GigabitEthernet0/3/0/7
L   7.2.7.2/32 is directly connected, 00:04:20, GigabitEthernet0/3/0/7
O E2 8.2.8.0/24 [110/20] via 3.3.3.1, 00:04:20, GigabitEthernet0/3/0/0

C   10.3.0.0/16 is directly connected, 13:14:59, GigabitEthernet0/0/0/0
L   10.3.0.2/32 is directly connected, 13:14:59, GigabitEthernet0/0/0/0
```

This table describes the significant fields shown in the display.

Table 7: show route Field Descriptions

Field	Description
S*	Code indicating how the route was derived. See the code legend preceding the output. In this case, the route was derived from a static (candidate default).

Field	Description
[1/0]	First number in the brackets is the administrative distance of the information source; the second number is the metric for the route.
1.0.0.0/16	Address and prefix length of the remote network.
MgmtEthernet 0/5/CPU0/0	Specifies the interface through which the specified network can be reached.
C	Code indicating how the route was derived. See the code legend preceding the output. In this case, the route was connected.
L	Code indicating how the route was derived. See the code legend preceding the output. In this case, the route was local.
O	Code indicating how the route was derived. See the code legend preceding the output. In this case, the route was on-demand routing (ODR).
E2	Code indicating how the route was derived. See the code legend preceding the output. In this case, the route was OSPF external type 2.
8.2.8.0/24	Address and prefix length of the remote network connected to the static route.
via 3.3.3.1	Specifies the address of the next router to the remote network.
13:14:59	Specifies the last time the route was updated.

When you specify that you want information about a particular network, more detailed statistics are displayed. The following is sample output from the **show route** command when entered with an IP address:

```
RP/0/RP0/CPU0:router# show route 10.0.0.0

Routing entry for 10.0.0.0/16
  Known via "connected", distance 0, metric 0 (connected)
  Installed Mar 22 22:10:20.906
  Routing Descriptor Blocks
    directly connected, via GigabitEthernet0/0/0/0
      Route metric is 0
  No advertising protos.
```

Intermediate System-to-Intermediate System (IS-IS) includes an IP address typed length value (TLV) in its link-state packet (LSP) that helps identify the node injecting the route into the network. The IS-IS node uses one of its own interface addresses in this TLV. A loopback address is preferred among interfaces configured under IS-IS. When other networking devices calculate IP routes, they can store the IP address as the originator 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.

```
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 GigabitEthernet2/1
      Route metric is 10
  No advertising protos.

```

This table describes the significant fields shown in the display.

Table 8: show route with IP Address Field Descriptions

Field	Description
Routing entry for	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 followed by the information source.
from ... via ...	First address is the next-hop IP address, and the other is the information source. This report is followed by the interface for this route.
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

This example is a sample **show route detail** command output that displays path ID and backup-path ID information:

```

RP/0/RP0/CPU0:router#show route 10.1.1.3 detail
Routing entry for 10.1.1.16/32
  Known via "ospf 2", distance 110, metric 21, type intra area
  Installed Oct 28 16:07:05.752 for 00:01:56
  Routing Descriptor Blocks
    40.1.10.1, from 10.1.1.16, via Bundle-Ether10, Protected
      Route metric is 21
      Label: None
      Tunnel ID: None
      Extended communities count: 0
      Path id:2          Path ref count:0
      Backup path id:33
    200.40.1.101, from 10.1.1.16, via Bundle-Ether1.1, Protected
      Route metric is 21
      Label: None

```

```

Tunnel ID: None
Extended communities count: 0
Path id:1      Path ref count:0
Backup path id:33
100.100.2.1, from 10.1.1.16, via TenGigE0/2/0/3.1, Backup
Route metric is 0
Label: None
Tunnel ID: None
Extended communities count: 0
Path id:33      Path ref count:2
Route version is 0xe (14)
No local label
IP Precedence: Not Set
QoS Group ID: Not Set
Route Priority: RIB_PRIORITY_NON_RECURSIVE_LOW (6) SVD Type RIB_SVD_TYPE_LOCAL
No advertising protos.

```

Related Commands

Command	Description
show interfaces	Lists interface information.
show route summary, on page 69	Displays the current contents of the routing table in summary format.
show rib opaques, on page 34	Displays opaque data installed in the Routing Information Base (RIB).
show ospf routes	Displays Open Shortest Path First (OSPF) topology table.

show route backup

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

```
show route [{afi-all | ipv4 | ipv6}] [{unicast | {topology topo-name} | safi-all}] backup [{ip-address
[mask] ip-address /prefix-length }][standby]
```

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.
safi-all safi-all	(Optional) Specifies unicast 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.
<i>/prefix-length</i>	(Optional) Length of the IP address prefix. A decimal value that indicates how many of the high-order contiguous bits of the address compose the prefix (the network portion of the address). A slash (/) must precede the decimal value.
standby	(Optional) Displays standby information.

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

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 are not available.

Task ID	Task ID	Operations
	rib	read

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, 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
S    172.73.51.0/24 is directly connected, 2d20h, GigabitEthernet 4/0/0/1
      Backup O E2 [110/1] via 10.12.12.2, GigabitEthernet 3/0/0/1
```

This table describes the significant fields shown in the display.

Table 9: 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.
GigabitEthernet4/0/0/1	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.

Field	Description
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.
10.12.12.2	IP address of next-hop on the route.
GigabitEthernet3/0/0/1	Outbound interface for the OSPF version of the route.

Related Commands

Command	Description
show route, on page 45	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 XR EXEC mode.

```
show route [{ipv4 | ipv6}] [{unicast | {topology topo-name} | safi-all}] best-local ip-address [standby]
```

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

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

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

Task ID	Task ID	Operations
	rib	read

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 GigabitEthernet3/0/0/1
    Route metric is 0
```

This table describes the significant fields shown in the display.

Table 10: show route best-local Field Descriptions

Field	Description
Routing entry for	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, on page 57	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 XR EXEC mode.

```
show route [{afi-all | ipv4 | ipv6}] [{unicast | {topology topo-name} | safi-all}] connected [standby]
```

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.
safi-all	(Optional) Specifies unicast address prefixes.
standby	(Optional) Displays standby information.

Command Modes	
	XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

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

Task ID	Task ID	Operations
	rib	read

Examples

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

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

C    1.68.0.0/16 is directly connected, 13:43:40, MgmtEth0/5/CPU0/0
C    3.3.3.0/24 is directly connected, 00:23:23, GigabitEthernet0/3/0/0
C    7.7.7.0/24 is directly connected, 00:33:00, GigabitEthernet0/3/0/7
C    10.0.0.0/16 is directly connected, 13:43:40, GigabitEthernet0/0/0/0
C    10.10.10.0/30 is directly connected, 13:43:40, Loopback0
C    11.11.11.0/24 is directly connected, 13:43:40, Loopback11
```

This table describes the significant fields shown in the display.

Table 11: show route connected Field Descriptions

Field	Description
C	Code to indicate the route is connected.
1.68.0.0/16	IP address and length of the route.
13:43:40	Time (in hh:mm:ss) since the route was installed in the RIB.
MgmtEth0/5/CPU0/0	Outbound interface for the route.

Related Commands

Command	Description
show route summary, on page 69	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 XR EXEC mode.

```
show route [{afi-all | ipv4 | ipv6}] [{unicast | {topology topo-name} | safi-all}] local [{type interface
-path-id}] [ standby]
```

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.
safi-all	(Optional) Specifies unicast address prefixes.
<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>	Physical interface or virtual interface.
Note	Use the show interfaces command to see a list of all interfaces currently configured on the router.
	For more information about the syntax for the router, use the question mark (?) online help function.
standby	(Optional) Displays standby information.

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

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

Task ID	Task ID	Operations
	rib	read

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, GigabitEthernet6/0/0/1
L   172.22.12.1/32 is directly connected, 00:13:35, GigabitEthernet3/0/0/1
L   192.168.20.2/32 is directly connected, 00:13:27, GigabitEthernet4/0/0/1
L   10.254.254.1/32 is directly connected, 00:13:26, GigabitEthernet5/0/0/1
```

This table describes the significant fields shown in the display.

Table 12: 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, on page 55	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 XR EXEC mode.

```
show route [{ipv4 | ipv6}] [{unicast | {topology topo-name} | safi-all}] longer-prefixes {ip-address
mask ip-address/prefix-length} [ standby]
```

Syntax Description

ipv4	(Optional) Specifies IP Version 4 address prefixes.
ipv6	(Optional) Specifies IP Version 6 address prefixes.
unicast	(Optional) Specifies unicast address prefixes.
safi-all	(Optional) Specifies unicast 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.
<i>/prefix-length</i>	Length of the IP address prefix. A decimal value that indicates how many of the high-order contiguous bits of the address compose the prefix (the network portion of the address). A slash (/) must precede the decimal value.
standby	(Optional) Displays standby information.

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

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

Task ID

Task ID	Operations
rib	read

Examples

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

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

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

L   172.29.52.70/32 is directly connected, 4d15h, MgmtEth0//CPU0/0
L   172.29.52.71/32 is directly connected, 4d15h, MgmtEth0/RP1/CPU0/0
L   172.29.52.72/32 [0/0] via 172.29.52.72, 4d15h, MgmtEth0//CPU0/0
```

This table describes the significant fields shown in the display.

Table 13: show route longer-prefixes Field Descriptions

Field	Description
172.29.52.70/32	IP address and length of the route.
4d15h	Time (in hh:mm:ss or <i>ndnh</i>) since the route was installed in the RIB.
MgmtEth0//CPU0/0	Outbound interface for the route.

Related Commands

Command	Description
router static	Establishes a static route.
show interfaces	Lists interface information.
show route summary, on page 69	Displays the current contents of the routing table in summary format.

show route next-hop

To filter routes by the next-hop address or interface, use the **show route next-hop** command in XR EXEC mode.

```
show route [{ipv4 | ipv6}] [{unicast | {topology topo-name} | safi-all}] next-hop
[ip-address][{standby}]
```

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

Command Modes	
	XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **show route next-hop** command to find all routes going through a next-hop address or interface.

Task ID	Task ID	Operations
	rib	read

Examples

The following is sample output from the **show route next-hop** command filtering routes on the next-hop address:

```
RP/0/RP0/CPU0:router# show route next-hop 1.68.0.1

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 1.68.0.1 to network 0.0.0.0
```

```
S* 0.0.0.0/0 [1/0] via 1.68.0.1, 15:01:49
S 223.255.254.254/32 [1/0] via 1.68.0.1, 15:01:49
```

The following is sample output from the **show route next-hop** command filtering routes on the next-hop interface:

```
RP/0/RP0/CPU0:router# show route next-hop GigabitEthernet 0/1/0/2

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 1.68.0.1 to network 0.0.0.0

C 11.1.1.0/24 is directly connected, 15:01:46, GigabitEthernet0/1/0/2
L 11.1.1.2/32 is directly connected, 15:01:46, GigabitEthernet0/1/0/2
```

This table describes the significant fields shown in the display.

Table 14: show route next-hop Field Descriptions

Field	Description
11.1.1.0/24	IP address and length of the route.
15:01:46	Time (in hh:mm:ss or <i>ndzh</i>) since the route was installed in the RIB.
GigabitEthernet0/1/0/2	Outbound interface for the route.

Related Commands

Command	Description
show route , on page 45	Displays the current contents of the routing table.

show route quarantined

To display mutually recursive (looping) routes, use the **show route quarantined** command in XR EXEC mode.

```
show route [{ipv4 | ipv6}] [{unicast | {} | safi-all}] quarantined [{ip-address/prefix-length}ip-address mask}] [standby]
```

Syntax Description	
ipv4	(Optional) Specifies IP Version 4 address prefixes.
ipv6	(Optional) Specifies IP Version 6 address prefixes.
unicast	(Optional) Specifies unicast address prefixes.
safi-all	(Optional) Specifies unicast address prefixes.
<i>ip-address</i>	(Optional) IP address about which looping routes information is to be displayed.
<i>/ prefix-length</i>	(Optional) Length of the IP address prefix. A decimal value that indicates how many of the high-order contiguous bits of the address compose the prefix (the network portion of the address). A slash (/) must precede the decimal value.
<i>ip-address mask</i>	(Optional) Network mask applied to the <i>ip-address</i> argument.
standby	(Optional) Displays standby information.

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

RIB quarantining detects mutually recursive routes and quarantines the last route that actually completes the mutual recursion. The quarantined route is periodically evaluated to see if the mutual recursion has gone away. If the recursion still exists, the route remains quarantined. If the recursion has gone away, the route is released from quarantine.

Use the **show route quarantined** command to display mutually recursive (looping) routes.

Task ID	Task ID	Operations
	rib	read

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

```
RP/0/RP0/CPU0:routerr# show route quarantined
```

```
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
```

```
S 10.10.109.1/32 [1/0] via 10.10.34.1, 00:00:01 (quarantined)
                        [1/0] via 10.10.37.1, 00:00:01 (quarantined)
                        [1/0] via 10.10.60.1, 00:00:01 (quarantined)
                        [1/0] via 10.10.68.1, 00:00:01 (quarantined)
                        [1/0] via 10.10.91.1, 00:00:01 (quarantined)
                        [1/0] via 10.10.93.1, 00:00:01 (quarantined)
                        [1/0] via 10.10.97.1, 00:00:01 (quarantined)
S 10.0.0.0/8 [1/0] via 11.11.11.11, 00:01:29 (quarantined)
S 10.10.0.0/16 [1/0] via 11.11.11.11, 00:01:29 (quarantined)
S 10.10.10.0/24 [1/0] via 11.11.11.11, 00:01:29 (quarantined)
S 10.10.10.10/32 [1/0] via 11.11.11.11, 00:00:09 (quarantined)
```

This table describes the significant fields shown in the display.

Table 15: show route quarantined Field Descriptions

Field	Description
10.10.109.1/32	IP address and length of the route.
[1/0]	Distance and metric for the route.
via 10.10.34.1	IP address of next-hop on the route.
00:00:01	Time (in hh:mm:ss or <i>ndnh</i>) since the route was installed in the RIB.
(quarantined)	Shows that the route is quarantined.

Related Commands

Command	Description
show route, on page 45	Displays the current contents of the routing table.

show route resolving-next-hop

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

```
show route [{ipv4|ipv6}] [{unicast|{topology topo-name}|safi-all}] resolving-next-hop ip-address
[ standby]
```

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

Command Modes XR EXEC

Command History	Release	Modification
	Release 5.0.0	This command was introduced.

Usage Guidelines To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the **show route resolving-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.

Task ID	Task ID	Operations
	rib	read

Examples

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

```
RP/0/RP0/CPU0:router# show route resolving-next-hop 10.1.1.1

Nexthop matches 10.1.1.1/32
  Known via "local", distance 0, metric 0 (connected)
  Installed Aug 22 01:57:08.514
  Directly connected nexthops
    10.1.1.1 directly connected, via Loopback0
      Route metric is 0
```

This table describes the significant fields shown in the display.

Table 16: show route resolving-next-hop Field Descriptions

Field	Description
Known via	Name of the routing protocol that installed the matching route.
Route metric is	Metric of the route.

Related Commands

Command	Description
show route, on page 45	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 XR EXEC mode.

```
show route [{afi-all | ipv4 | ipv6}] [{unicast | {topology topo-name} | safi-all}] static [ standby]
```

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.
safi-all	(Optional) Specifies unicast address prefixes.
standby	(Optional) Displays standby information.

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

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

Task ID

Task ID	Operations
rib	read

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, GigabitEthernet3/0/0/1
S   192.168.99.99/32 [1/0] via 10.12.12.2, 00:54:04
```

This table describes the significant fields shown in the display.

Table 17: 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.
GigabitEthernet3/0/0/1	Outbound interface for the route.
[1/0]	Distance and metric for the route.

Related Commands

Command	Description
show route, on page 45	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 XR EXEC mode.

```
show route [{afi-all | ipv4 | ipv6}] [{unicast | {topology topo-name} | safi-all}] summary [detail]
[standby]
```

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.
safi-all	(Optional) Specifies unicast 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.
standby	(Optional) Displays standby information.

Command Modes

XR EXEC

Command History

Release	Modification
Release 5.0.0	This command was introduced.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

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 situation—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.

Task ID

Task ID	Operations
rib	read

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

```

This table explains fields in the output of the **show route summary** command.

Table 18: 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.

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

```

This table explains fields in the output of the **show route summary detail** command.

Table 19: show route summary detail Field Descriptions

Field	Description
Route Source	Source of the route. Routing protocol name and type.
Active Route	Number of active routes present in the routing table for each route source.

Field	Description
Active Path	Number of active paths present in the routing table for each route source.
Backup Route	Number of routes that are backup to a selected route for each route source.
Backup Path	Number of paths that are backup to a selected path for each route source.

Related Commands

Command	Description
show route, on page 45	Displays the current contents of the routing table.

■ show route summary