



# Ethernet Interface Commands

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This module provides command line interface (CLI) commands for configuring Ethernet interfaces on the Cisco 8000 Series Routers.

To use commands of this module, 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 any command, contact your AAA administrator for assistance.

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# carrier-delay

To delay the processing of hardware link down notifications, use the **carrier-delay** command in interface configuration mode.

**carrier-delay** {**down** *milliseconds* [**up** *milliseconds*] | **up** *milliseconds* [**down** *milliseconds*]}

## Syntax Description

**down** *milliseconds* Length of time, in milliseconds, to delay the processing of hardware link down notifications. Range is from 0 through 2147483647.

**up** *milliseconds* Length of time, in milliseconds, to delay the processing of hardware link up notifications. Range is from 0 through 2147483647.

## Command Default

No carrier-delay is used, and the upper layer protocols are notified as quickly as possible when a physical link goes down.

## Command Modes

Interface configuration

## Command History

| Release        | Modification                 |
|----------------|------------------------------|
| Release 7.0.12 | This command was introduced. |

## Usage Guidelines

When you delay the processing of hardware link down notifications, the higher layer routing protocols are unaware of a link until that link is stable.

If the **carrier-delay down** *milliseconds* command is configured on a physical link that fails and cannot be recovered, link down detection is increased, and it may take longer for the routing protocols to re-route traffic around the failed link.

In the case of very small interface state flaps, running the **carrier-delay down** *milliseconds* command prevents the routing protocols from experiencing a route flap.

Although the router accepts a value between 0 to 2147483647 milliseconds, the minimum value that is configured to the interface is 10 milliseconds, so as to avoid overloading the linecard control stack. We recommend that if your router has a value below 10 milliseconds, reconfigure the value to a minimum of 10 milliseconds, and if required assign a higher value.



**Note** Enter the **show interface** command to see the current state of the carrier-delay operation for an interface. No carrier-delay information is displayed if carrier-delay has not been configured on an interface.

## Task ID

### Task ID Operations

interface read,  
write

---

**Examples**

This example shows how to delay the processing of hardware link down notifications:

```
RP/0/RP0/CPU0:router(config-if)# carrier-delay down 10
```

The following example shows how to delay the processing of hardware link up and down notifications:

```
RP/0/RP0/CPU0:router(config-if)# carrier-delay up 100 down 100
```

# clear lldp

To reset Link Layer Discovery Protocol (LLDP) traffic counters or LLDP neighbor information, use the **clear lldp** command in XR EXEC mode.

```
clear lldp {counters | table}
```

## Syntax Description

|                 |   |
|-----------------|---|
| <b>counters</b> | Specifies that LLDP traffic counters are cleared.                 |
| <b>table</b>    | Specifies that LLDP information in the neighbor table is cleared. |

## Command Default

LLDP traffic counters are not reset, and LLDP neighbor information is not cleared.

## Command Modes

XR EXEC mode

## Command History

| Release        | Modification                 |
|----------------|------------------------------|
| Release 7.0.12 | This command was introduced. |

## Usage Guidelines

To reset counters from the **show lldp traffic** command, use the **clear lldp counters** command. To clear neighbor information displayed by the **show lldp neighbors** command, use the **clear lldp table** command.

## Task ID

| Task ID           | Operation      |
|-------------------|----------------|
| ethernet-services | read,<br>write |

The following example shows how to clear the LLDP counters and display LLDP traffic. The output from the **show lldp traffic** command shows that all the traffic counters have been reset to zero.

```
RP/0/RP0/CPU0:router# clear lldp counters
RP/0/RP0/CPU0:router# show lldp traffic
LLDP traffic statistics:
  Total frames out: 0
  Total entries aged: 0
  Total frames in: 0
  Total frames received in error: 0
  Total frames discarded: 0
  Total TLVs discarded: 0
  Total TLVs unrecognized: 0
```

The following example shows how to clear the LLDP table. The output of the **show lldp neighbors** command shows that all information has been deleted from the table.

```
RP/0/RP0/CPU0:router# clear lldp table
RP/0/RP0/CPU0:router# show lldp neighbors
Capability codes:
  (R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device
  (W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other

Device ID                Local Intf      Hold-time  Capability  Port ID
```

In the config mode:

```
RP/0/RP0/CPU0:ios(config)#int hun 0/1/0/0
RP/0/RP0/CPU0:ios(config-if)#clear lldp ?
destination  Configure LLDP Destination MAC on the interface
enable       Enable LLDP TX and RX on an interface
receive      Disable LLDP RX on an interface
transmit     Disable LLDP TX on an interface
```

# interface (Ethernet)

To specify or create an Ethernet interface and enter interface configuration mode, use the **interface (Ethernet)** command in XR Config mode.

```
interface {TenGigE | TwentyFiveGigE | FortyGigE | HundredGigE | FourHundredGigE} interface-path-id
no interface {TenGigE | TwentyFiveGigE | FortyGigE | HundredGigE | FourHundredGigE}
interface-path-id
```

| Syntax Description       |  |  |
|--------------------------|--|--|
| <b>TenGigE</b>           | Specifies or creates a Ten Gigabit Ethernet (10 Gbps) interface.           |  |
| <b>TwentyFiveGigE</b>    | Specifies or creates a Twentyfive Gigabit Ethernet (25 Gbps) interface     |  |
| <b>FortyGigE</b>         | Specifies or creates a Forty Gigabit Ethernet (40 Gbps) interface          |  |
| <b>HundredGigE</b>       | Specifies or creates a Hundred Gigabit Ethernet (100 Gbps) interface.      |  |
| <b>FourHundredGigE</b>   | Specifies or creates a Four hundred Gigabit Ethernet (400 Gbps) interface. |  |
| <i>interface-path-id</i> | Physical interface.  |  |
|                          | <b>Note</b>  | Use the <b>show interfaces</b> 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.      |

| Command Default | None |
|-----------------|------|
|-----------------|------|

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.0.12 | This command was introduced. |

**Usage Guidelines** To specify a physical interface, the notation for the *interface-path-id* is *rack/slot/module/port*. The slash between values is required as part of the notation. An explanation of each component of the naming notation is as follows:

- *rack*: Chassis number of the rack.
- *slot*: Physical slot number of the line card.
- *module*: Module number. Always 0.
- *port*: Physical port number of the interface.

The *interface-path-id* is *rack/slot/module/port*. The slash between values is required as part of the notation. The supported *interface-path-id* ranges are:

- **TenGigE** — 0/0/0/0 - 0/0/0/31
- **TwentyFiveGigE** — 0/0/0/24 - 0/0/0/31

- **FortyGigE** — 0/0/1/0 - 0/0/1/1
- **HundredGigE** — 0/0/1/0 - 0/0/1/1

This example shows how to enter interface configuration mode for a HundredGigE Ethernet interface:

```
RP/0/RP0/CPU0:router(config)# interface HundredGigE 0/4/0/0  
RP/0/RP0/CPU0:router(config-if)#
```

## I2transport (Ethernet)

To enable Layer 2 transport port mode on an Ethernet interface and enter Layer 2 transport configuration mode, use the **I2transport** command in interface or subinterface configuration mode for an Ethernet interface.

### I2transport

This command has no keywords or arguments.

|                        |      |
|------------------------|------|
| <b>Command Default</b> | None |
|------------------------|------|

|                      |  |
|----------------------|--|
| <b>Command Modes</b> | Interface configuration<br>Sub-interface configuration |
|----------------------|--|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 7.2.12 | This command was introduced. |

|                         |   |
|-------------------------|---|
| <b>Usage Guidelines</b> | The I2transport command and these configuration items are mutually exclusive: |
|-------------------------|---|

- IPv4 address and L3 feature configuration
- IPv4 enable and L3 feature configuration
- Bundle-enabling configuration
- L3 sub-interfaces



|             |   |
|-------------|---|
| <b>Note</b> | <ul style="list-style-type: none"> <li>• After an interface or connection is set to Layer 2 switched, commands such as <b>ipv4 address</b> are not usable. If you configure routing commands on the interface, <b>I2transport</b> is rejected.</li> <li>• The <b>I2transport</b> command is mutually exclusive with any Layer 3 interface configuration.</li> </ul> |
|-------------|---|



|             |  |
|-------------|--|
| <b>Note</b> | Not all options in the command are supported. For instance, translate command can translate VLAN value, not Ethertype. |
|-------------|--|

| <b>Task ID</b> | <b>Task ID</b> | <b>Operations</b> |
|----------------|----------------|-------------------|
|                | l2vpn          | read,<br>write    |



## Examples

The following example shows how to enable Layer 2 transport port mode on an Ethernet interface and enter Layer 2 transport configuration mode:

```
Router# configure
Router(config)# interface hundredGigE 0/0/0/24
Router(config-if)# l2transport
Router(config-if-l2)#
```



**Note** Ensure that the **l2transport** command is applied on the same line as the **interface** command for the Ethernet sub-interface.

The following example shows how to use the l2transport command on an Ethernet sub-interface:

```
Router# configure
Router(config)# interface hundredGigE 0/0/0/24.10 l2transport
Router(config-subif)# encapsulation dot1q 10
```

To disable Layer 2 transport port mode on an Ethernet interface, use the **no** form of this command in the global configuration mode.

```
Router# configure
Router(config)# interface hundredGigE 0/0/0/24
Router(config-if)# l2transport
Router(config-if-l2)# exit
Router(config)# no interface hundredGigE 0/0/0/24
```

## Examples

The following example shows how to configure an interface or connection as Layer 2 switched under several different modes:

Ethernet Port Mode:

```
Router# configure
Router(config)# interface hundredGigE 0/0/0/10
Router(config-if)# l2transport
```

Ethernet VLAN Mode:

```
Router# configure
Router(config)# interface hundredGigE 0/0/0/0.1 l2transport
Router(config-if)# encapsulation dot1q 10
```

Ethernet VLAN Mode (QinQ):

```
Router# configure
Router(config)# interface hundredGigE 0/0/0/0.1 l2transport
Router(config-if)# encapsulation dot1q 10 second-dot1q 11
```



---

**Note** Ensure that the **I2transport** command is applied on the same line as the **interface** command for the Ethernet subinterface.

---

# lldp

To enable the Link Layer Discovery Protocol (LLDP) globally for both transmit and receive operation on the system, use the **lldp** command in XR Config mode. To disable LLDP, use the **no** form of this command.

## lldp

**Syntax Description** This command has no keywords or arguments.

**Command Default** LLDP is disabled.

**Command Modes** XR Config mode

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.0.12 | This command was introduced. |

**Usage Guidelines** When you enable LLDP globally using the **lldp** command, LLDP is not enabled on subinterfaces or bundle subinterfaces by default. This is to prevent the LLDP process from consuming high CPU cycles. In order to enable LLDP on subinterfaces and bundle subinterfaces as well, the **lldp subinterfaces enable** command is introduced.



**Note** When you use this command, you must remember that as the scale of interfaces (with subinterfaces and bundle subinterfaces) becomes higher, it might cause the LLDP process to hog the CPU.

| Task ID | Task ID           | Operation      |
|---------|-------------------|----------------|
|         | ethernet-services | read,<br>write |

This example shows how to enable LLDP globally on the router:

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

This example shows how to enable LLDP on subinterfaces:

# lldp (interface)

To enter LLDP configuration mode, use the **lldp (interface)** command.

## lldp

**Syntax Description** This command has no keywords or arguments.

**Command Default** None

**Command Modes** Interface configuration (config-if)

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.0.12 | This command was introduced. |

**Usage Guidelines** No specific guidelines impact the use of this command.

| Task ID | Task ID           | Operation      |
|---------|-------------------|----------------|
|         | ethernet-services | read,<br>write |
|         | interface         | read,<br>write |

This example shows how to enter LLDP configuration mode from Ethernet interface configuration mode:

```
RP/0/RP0/CPU0:router(config)# interface HundredGigabitEthernet 0/1/0/0
RP/0/RP0/CPU0:router(config-if)# lldp
RP/0/RP0/CPU0:router(config-lldp)#
```

| Related Commands | Command   | Description  |
|------------------|---|--|
|                  | <a href="#">show lldp interface, on page 50</a> | Displays LLDP configuration and status information on an interface.          |
|                  | <a href="#">lldp, on page 11</a>                | Enables LLDP globally for both transmit and receive operation on the system. |

# lldp holdtime

To specify the length of time that information from a Link Layer Discovery Protocol (LLDP) packet should be held by the receiving device before aging and removing it, use the **lldp holdtime** command in XR Config mode. To return to the default, use the **no** form of this command.

**lldp holdtime** *seconds*

## Syntax Description

*seconds* Number from 0 to 65535 that specifies the amount of time (in seconds) to hold the packet information. The default is 120.

## Command Default

The packet hold time is 120 seconds (2 minutes).

## Command Modes

XR Config mode

## Command History

| Release           | Modification                 |
|-------------------|------------------------------|
| Release<br>7.0.12 | This command was introduced. |

## Usage Guidelines

### Task ID

| Task ID           | Operation      |
|-------------------|----------------|
| ethernet-services | read,<br>write |

This example shows how to change the default hold time to 1 minute:

```
RP/0/RP0/CPU0:router(config)# lldp holdtime 60
```

# lldp reinit

To specify the length of time to delay initialization of the Link Layer Discovery Protocol (LLDP) on an interface, use the **lldp reinit** command in XR Config mode. To return to the default, use the **no** form of this command.

**lldp reinit** *seconds*

| Syntax Description |  |
|--------------------|--|
| <i>seconds</i>     | Number from 2 to 5 that specifies the length of time (in seconds) that LLDP should delay initialization. The default is 2. |

| Command Default |  |
|-----------------|--|
|                 | Initialization of LLDP is delayed for 2 seconds on an interface. |

| Command Modes |                |
|---------------|----------------|
|               | XR Config mode |

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.0.12 | This command was introduced. |

## Usage Guidelines

| Task ID | Task ID           | Operation      |
|---------|-------------------|----------------|
|         | ethernet-services | read,<br>write |

The following example shows how to change the default initialization delay from 2 to 4 seconds:

```
RP/0/RP0/CPU0:router(config)# lldp reinit 4
```

| Related Commands | Command                          | Description  |
|------------------|----------------------------------|--|
|                  | <a href="#">lldp, on page 11</a> | Enables LLDP globally for both transmit and receive operation on the system. |

# lldp timer

To specify the Link Layer Discovery Protocol (LLDP) packet rate, use the **lldp timer** command in XR Config mode. To return to the default, use the **no** form of this command.

**lldp timer** *seconds*

|                           |  |
|---------------------------|--|
| <b>Syntax Description</b> | <i>seconds</i> Number from 5 to 65534 that specifies the rate (in seconds) at which to send LLDP packets. The default is 30. |
|---------------------------|--|

|                        |   |
|------------------------|---|
| <b>Command Default</b> | LLDP packets are sent every 30 seconds. |
|------------------------|---|

|                      |                |
|----------------------|----------------|
| <b>Command Modes</b> | XR Config mode |
|----------------------|----------------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 7.0.12 | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | No specific guidelines impact the use of this command. |
|-------------------------|--|

| <b>Task ID</b> | <b>Task ID</b>    | <b>Operation</b> |
|----------------|-------------------|------------------|
|                | ethernet-services | read,<br>write   |

The following example shows how to change the default LLDP packet rate from 30 seconds to 1 minute:

```
RP/0/RP0/CPU0:router(config)# lldp timer 60
```

| <b>Related Commands</b> | <b>Command</b>                   | <b>Description</b>   |
|-------------------------|----------------------------------|--|
|                         | <a href="#">lldp, on page 11</a> | Enables LLDP globally for both transmit and receive operation on the system. |

## lldp tlv-select disable

To disable transmission of the selected Type Length Value (TLV) in Link Layer Discovery Protocol (LLDP) packets, use the **lld tlv-select disable** command in XR Config mode. To return to the default, use the **no** form of this command.

**lldp tlv-select** *tlv-name* **disable**

|                           |  |
|---------------------------|--|
| <b>Syntax Description</b> | <p><i>tlv-name</i> Name of the TLV to be suppressed from LLDP packets. The <i>tlv-name</i> can be one of the following LLDP TLV types:</p> <ul style="list-style-type: none"> <li>• <b>management-address</b></li> <li>• <b>port-description</b></li> <li>• <b>system-capabilities</b></li> <li>• <b>system-description</b></li> <li>• <b>system-name</b></li> </ul> |
|---------------------------|--|

|                        |                                    |
|------------------------|------------------------------------|
| <b>Command Default</b> | All TLVs are sent in LLDP packets. |
|------------------------|------------------------------------|

|                      |                |
|----------------------|----------------|
| <b>Command Modes</b> | XR Config mode |
|----------------------|----------------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 7.0.12 | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | Certain TLVs are classified as mandatory in LLDP packets, such as the Chassis ID, Port ID, and Time to Live (TTL) TLVs. These TLVs must be present in every LLDP packet. You can use the <b>lldp tlv-select disable</b> command to suppress transmission of certain other optional TLVs in LLDP packets. |
|-------------------------|--|

| <b>Task ID</b> | <b>Task ID</b>    | <b>Operation</b> |
|----------------|-------------------|------------------|
|                | ethernet-services | read,<br>write   |

The following example shows how to disable transmission of the System Capabilities TLV from LLDP packets:

```
RP/0/RP0/CPU0:router(config)# lldp tlv-select system-capabilities disable
```



# loopback (Ethernet)

To configure an Ethernet controller for loopback mode, use the **loopback** command in interface configuration mode. To disable loopback, use the **no** form of this command.

**loopback** {**external** | **internal** | **line**}

| Syntax Description |  |
|--------------------|--|
| <b>external</b>    | All IPv4 self-ping packets are sent out of the interface and looped back externally before being received on the ingress path. |
| <b>internal</b>    | All packets are looped back internally within the router before reaching an external cable.                                    |
| <b>line</b>        | Incoming network packets are looped back through the external cable.   |

**Command Default** Loopback mode is disabled.

**Command Modes** Interface configuration

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.0.12 | This command was introduced. |

**Usage Guidelines** Line loopback mode is supported only on Cisco 8000 series line cards and fixed-port routers based on Q100 and Q200 silicon.

The **loopback** command is available for all Ethernet interface types.

Two loopback operation modes are supported for diagnostic purposes: internal and line. In the terminal (internal) loopback, the sent signal is looped back to the receiver. In the facility (line) loopback, the signal received from the far end is looped back and sent on the line. The two loopback modes cannot be active at the same time. In normal operation mode, neither of the two loopback modes is enabled.



**Tip** Use the **loopback external** command when an external loopback connector is attached to the interface.

| Task ID | Task ID   | Operations     |
|---------|-----------|----------------|
|         | interface | read,<br>write |

## Examples

In the following example, all packets are looped back to the TenGigE controller:

```
RP/0/RP0/CPU0:router(config)# interface TenGigE 0/3/0/0
RP/0/RP0/CPU0:router(config-if)# loopback internal
```

# packet-gap non-standard

To change the packet interval for traffic on an interface for improved interoperability with Cisco 8000 Series Routers, use the **packet-gap non-standard** command in interface configuration mode. To use the standard packet interval as defined by the IEEE 802.3 specification, use the **no** form of this command.

## packet-gap non-standard

### Syntax Description

This command has no keywords or arguments.

### Command Default

The interface uses the standard packet interval as defined by the IEEE 802.3 specification.

### Command Modes

Interface configuration

### Command History

| Release        | Modification                 |
|----------------|------------------------------|
| Release 7.0.12 | This command was introduced. |

### Task ID

| Task ID | Operations               |
|---------|--------------------------|
|         | interface read,<br>write |

### Examples

This example shows how to change the packet interval for traffic on an interface from standard to nonstandard:

```
RP/0/RP0/CPU0:router(config)# interface TenGigE 0/3/0/0
RP/0/RP0/CPU0:router(config-if)# packet-gap non-standard
```

# port-mode

To configure the Ethernet, Fibre Channel (FC), Optical Transport Network (OTN), Synchronous Digital Hierarchy (SDH), or Synchronous optical networking (SONET) port mode, use the **port-mode** command in optics controller configuration mode.

**port-mode** *controller-type* **framing** **cem-packetize** **rate** *rate-options*

## Syntax Description

*controller-type* Specifies the port mode type.

The supported port mode options are:

- Ethernet
- FC
- otn
- SDH
- Sonet

**framing** Specifies the port mode framing type.

**cem-packetize** Configures the circuit emulation option.

**rate** Specifies port mode rate options. The following *rate-options* are available for each of the selected port mode type:

| Port mode type | Rate options                       |
|----------------|------------------------------------|
| Ethernet       | 1GE and 10GE                       |
| FC             | FC1, FC2, FC4, FC8, FC16, and FC32 |
| otn            | otu2 and otu2e                     |
| SDH            | STM16 and STM64                    |
| Sonet          | OC48 and OC192                     |

**Command Default** None

**Command Modes** Optics controller

| Command History | Release        | Modification   |
|-----------------|----------------|--|
|                 | Release 7.11.1 | This command was introduced on Cisco 8011-2X2XP4L PLE Service Endpoint Router. |

**Usage Guidelines** To change the port-mode type, you must remove the existing port mode configuration by executing the **no port-mode** command. You can then configure the required port mode.

**Examples**

This example shows how to configure the Ethernet port mode and enable 10GbE rate.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# controller optics 0/0/0/0
RP/0/RP0/CPU0:router(config-Optics)# port-mode Ethernet framing cem-packetize rate 10GE
RP/0/RP0/CPU0:router(config-Optics)# exit
```

**Examples**

This example shows how to change the Ethernet port mode to Fibre Channel port mode and enable FC-16 rate.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# controller optics 0/0/0/1
RP/0/RP0/CPU0:router(config-Optics)# no port-mode Ethernet framing cem-packetize rate 10GE
RP/0/RP0/CPU0:router(config-Optics)# port-mode FC framing cem-packetize rate FC16
RP/0/RP0/CPU0:router(config-Optics)# exit
```



**Note** You can apply the port mode configuration only on ports 0 and 1. For FC-32 (under fiber channel), the configuration is supported only on the port 0/0/0/0. If you have configured under the port 0/0/0/1, then you can't use the port to configure with the other port mode.

After executing the **port-mode** command, it creates two controllers on the router: controller-type as given in the command and cem controller.

```
RP/0/RP0/CPU0:router#show controller tengigectrlr 0/0/0/0
Fri Oct 13 03:27:46.333 UTC
Operational data for interface TenGigECtrlr0/0/0/0:
```

```
State:
  Administrative state: enabled
  Operational state: Up
  LED state: Red Flashing
  PRBS:
    Status: Not Running
    Mode: None
    Pattern: None
    Direction: Not configured
    Error-inject: None
    Framing: Not Configured
    User-pattern: 0x0
```

```
Phy:
  Media type: Not known
  Alarms:
    Current:
      Local Fault
    Previous:
      Local Fault
```

Autonegotiation disabled.

```
Operational values:
  Speed: 10Gbps
  Duplex: Full Duplex
```

```
Flowcontrol: None
Loopback: Internal
Inter-packet gap: standard (12)
BER monitoring:
    Not supported
```

```
RP/0/RP0/CPU0:router#show controller sixteenGigFibreChanCtrlr 0/0/0/1
Fri Oct 13 03:41:02.690 UTC
```

```
Operational data for Fibre Channel controller SixteenGigFibreChanCtrlr0/0/0/1
```

```
State:
Admin State           : Up
Operational state    : Down
LED state             : Red Flashing
Secondary admin state : Normal
Laser Squelch        : Disabled
TTS                   : Disabled
```

```
Performance Monitoring is enabled
```

```
Operational values:
Speed                 : 16 Gbps
Loopback              : None
BER monitoring:
    Signal Degrade    : 1e-0
    Signal Fail       : 1e-0
Hold-off Time        : 0 ms
Forward Error Correction : Disabled
```

```
Alarms :
Current :
    Remote Fault
    NOS
Previous :
    Remote Fault
    PCS Error
    NOS
```

## show controllers (Ethernet)

To display status and configuration information about the Ethernet interfaces on a specific node, use the **show controllers** command in XR EXEC mode.

```
show controllers {TenGigE | TwentyFiveGigE | FortyGigE | HundredGigE | FourHundredGigE}
interface-path-id [{all | bert | control | internal | mac | phy | regs | stats | xgxs}]
```

### Syntax Description

|  |   |
|--|---|
| <b>{TenGigE <br/>TwentyFiveGigE FortyGigE HundredGigE FourHundredGigE}</b> | Specifies the type of Ethernet interface whose status and configuration information you want to display. Enter TenGigE or HundredGigE.  |
| <i>interface-path-id</i>   | Physical interface or virtual interface.<br><br><b>Note</b> Use the <b>show interfaces</b> command to see a list of all interfaces currently configured on the router.<br><br>For more information about the syntax for the router, use the question mark (?) online help function. |
| <b>all</b>   | Displays detailed information for the specified interface.  |
| <b>bert</b>  | Displays BERT status information for the interface.   |
| <b>control</b>   | Displays configuration and control information for the interface.   |
| <b>internal</b>  | Displays internal information for the interface.  |
| <b>mac</b>   | Displays mac information for the interface.   |
| <b>phy</b>   | Displays physical information for the interface.  |
| <b>regs</b>  | Displays registers information for the interface.   |
| <b>stats</b>   | Displays statistical information for the interface.   |
| <b>xgxs</b>  | Displays information about the 10 Gigabit Ethernet Extended Sublayer (XGXS).  |

**Command Default** No default behavior or values

**Command Modes** XR EXEC mode

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.0.12 | This command was introduced. |

**Usage Guidelines** For the *interface-path-id* argument, use the following guidelines:

- If specifying a physical interface, the naming notation is *rack/slot/module/port*. The slash between values is required as part of the notation. An explanation of each component of the naming notation is as follows:
  - *rack*: Chassis number of the rack.
  - *slot*: Physical slot number of the line card.
  - *module*: Module number. Always 0.
  - *port*: Physical port number of the interface.
- If specifying a virtual interface, the number range varies, depending on interface type.

When there is a mismatch in port speeds between peer routers, no state difference is visible in the show controller optics command. However, during such a mismatch, the traffic route is not functional.

The *interface-path-id* is *rack/slot/module/port*. The slash between values is required as part of the notation. The supported *interface-path-id* ranges are:

- **TenGigE** — 0/0/0/0 - 0/0/0/31
- **TwentyFiveGigE** — 0/0/0/24 - 0/0/0/31
- **FortyGigE** — 0/0/1/0 - 0/0/1/1
- **HundredGigE** — 0/0/1/0 - 0/0/1/1

| Task ID | Task ID       | Operations   |
|---------|---------------|--|
|         | cisco-support | read   |
|         |               | <b>Note</b> Required in addition to the interface (read) task ID to use the <b>control</b> keyword only. |
|         | dwdm          | read   |
|         | interface     | read   |
|         | sonet-sdh     | read   |

### Examples

The following example shows sample output from the base form of the **show controllers TenGigE all** command:

## show controllers (Ethernet)

```

RP/0/RP0/CPU0:router#
Operational data for interface TenGigE0/0/0/4:

State:
  Administrative state: disabled
  Operational state: Down (Reason: The optics for the port are not present)
  LED state: Yellow On

Media:
  Media type: Initializing, true state or type not yet known
  No optics present

MAC address information:
  Operational address: 001d.353b.975e
  Burnt-in address: 001d.353b.975e
  No unicast addresses in filter
  No multicast addresses in filter

Autonegotiation disabled.

Operational values:
  Speed: 10Gbps
  Duplex: Full Duplex
  Flowcontrol: None
  Loopback: None (or external)
  MTU: 1526
  MRU: 1526
  Inter-packet gap: standard (12)

BERT status for TenGigE0/0/0/4:
BERT State           :      DISABLED
Test Pattern         :      None test pattern
Time Remaining       :      0
Time Interval        :      0
Statistics for interface TenGigE0/0/0/4 (cached values):

Ingress:
  Input total bytes           = 0
  Input good bytes           = 0

  Input total packets        = 0
  Input 802.1Q frames        = 0
  Input pause frames        = 0
  Input pkts 64 bytes        = 0
  Input pkts 65-127 bytes    = 0
  Input pkts 128-255 bytes   = 0
  Input pkts 256-511 bytes   = 0
  Input pkts 512-1023 bytes  = 0
  Input pkts 1024-1518 bytes = 0
  Input pkts 1519-Max bytes  = 0

  Input good pkts           = 0
  Input unicast pkts        = 0
  Input multicast pkts      = 0
  Input broadcast pkts      = 0

  Input drop overrun        = 0
  Input drop abort          = 0
  Input drop unknown 802.1Q = 0
  Input drop other          = 0

  Input error giant         = 0
  Input error runt          = 0
  Input error jabbers       = 0

```



```
Input error fragments      = 0
Input error CRC            = 0
Input error collisions     = 0
Input error symbol        = 0
Input error other         = 0

Input MIB giant           = 0
Input MIB jabber          = 0
Input MIB CRC             = 0
```

## Egress:

```
Output total bytes        = 0
Output good bytes         = 0

Output total packets      = 0
Output 802.1Q frames      = 0
Output pause frames       = 0
Output pkts 64 bytes      = 0
Output pkts 65-127 bytes  = 0
Output pkts 128-255 bytes = 0
Output pkts 256-511 bytes = 0
Output pkts 512-1023 bytes = 0
Output pkts 1024-1518 bytes = 0
Output pkts 1519-Max bytes = 0

Output good pkts          = 0
Output unicast pkts       = 0
Output multicast pkts     = 0
Output broadcast pkts     = 0

Output drop underrun      = 0
Output drop abort         = 0
Output drop other         = 0

Output error other        = 0
```

## Management information for interface TenGigE0/0/0/4:

```
Port number: 2
Bay number: 0
Interface handle: 0x100000c0
```

## Config:

```
Auto-negotiation: Configuration not supported (Off)
Carrier delay (up): Not configured
Carrier delay (down): Not configured
Speed: Configuration not supported (10Gbps)
Duplex: Configuration not supported (Full Duplex)
Flow Control: Not configured (None)
IPG: Not configured (standard (12))
Loopback: Not configured (None)
MTU: Not configured
Soft Bandwidth: Not configured
```

## Driver constraints:

```
Min MTU: 64 bytes
Max MTU: 9216 bytes
Max speed: 10Gbps
Interface type: TenGigE
Management interface: No
Promiscuous mode: Yes
Allowed config mask: 0x27b
```

## Cached driver state:

## show controllers (Ethernet)

```

    MTU: 1522 bytes
    Burnt-in MAC address: 001d.353b.975e

Bundle settings:
  Aggregated: No
  Bundle MTU: 1514 bytes
  Bundle MAC address: 001d.353b.975e

Port FSM state:
  Port is disabled, due to an admin down condition.
Complete FSM state:
  Admin down
  Bundle admin up
  Client admin up
  Client admin tx not disabled
  Port disabled
  Port tx disabled
  Hardware link down
IDB interface state information:
  IDB bundle admin up
  IDB client admin up
  IDB client tx admin up
  IDB error disable not set

0 Unicast MAC Addresses:

0 Multicast MAC Addresses:

0 Unicast Bundle MAC Addresses:

0 Multicast Bundle MAC Addresses:

Current Data
NP(01) Version      : 0003
Structure Version   : 2582
XAUI Interface      : B
MAC addr            : 00.1d.35.3b.97.5e
RX enabled          : False
TX enabled          : True
Obey Pause Frames  : False
TX Pause Frames    : False
Pause Re-TX Period : 3000000
Min Frame Len      : 60
Max Frame Len      : 1526
Ignore Errors      : False
Add CRC            : True
Strip CRC          : True
Ignore CRC Errors  : False
DMA Add CRC        : False
DMA Strip CRC      : False
Ignore Length Error: True
Pad Short Frames   : True
Min TX IFG         : 12
Min RX IFG         : 4
IFG Rate Control   : False
Hi Gig Mode        : False
Discard Ctrl Frames: True
Enable Stats Update: True
RX Stats Int Mask  : 0x00000000
TX Stats Int Mask  : 0x00000000

Port Number        : 2
Port Type          : 10GE

```

```
Transport mode      : LAN
BIA MAC addr       : 001d.353b.975e
Oper. MAC addr     : 001d.353b.975e
Port Available     : true
Status polling is  : enabled
Status events are  : enabled
I/F Handle        : 0x100000c0
Cfg Link Enabled   : disabled
H/W Tx Enable     : yes
MTU               : 1526
H/W Speed         : 10 Gbps
H/W Duplex        : Full
H/W Loopback Type : None
H/W FlowCtrl type : None
H/W AutoNeg Enable: Off
H/W Link Defects  : interface is admin down
Link Up           : no
Link Led Status   : Shutdown
Symbol errors     : 0
Serdes version    : 14.42
Input good underflow      : 0
Input ucast underflow    : 0
Output ucast underflow   : 0
Input unknown opcode underflow: 0
Pluggable Present       : no
Pluggable Type          : Unknown pluggable optics
Pluggable Compl.       : Not Checked
Pluggable Type Supp.: Not Checked
Pluggable PID Supp.   : Not Checked
Pluggable Scan Flg: false
```

XFP #2 is not present

```
Serdes Registers and info port: 2
EDC Status      : 000000050 - EDC Aquiring
Rx detected     : No
Block lock      : No
Tx aligned      : Yes
```

```
Operational data for interface HundredGigE0/2/0/0:
State:
  Administrative state: disabled
  Operational state: Down (Reason: State undefined)
```

```
Phy:
  Media type: IEEE 802.3/802.3ae clause 30.2.5
  No optics present
```

```
MAC address information:
  Burnt-in address: 0000.0000.0000
```

Autonegotiation disabled.

```
Operational values:
  Speed: Unknown
  Duplex: Unknown
  Flowcontrol: None
  Loopback: None (or external)
```

## show controllers (Ethernet)

MTU: 0  
MRU: 0

Statistics for interface HundredGigE0/2/0/0 (cached values):

## Ingress:

|                            |     |
|----------------------------|-----|
| Input total bytes          | = 0 |
| Input good bytes           | = 0 |
|                            |     |
| Input total packets        | = 0 |
| Input 802.1Q frames        | = 0 |
| Input pause frames         | = 0 |
| Input pkts 64 bytes        | = 0 |
| Input pkts 65-127 bytes    | = 0 |
| Input pkts 128-255 bytes   | = 0 |
| Input pkts 256-511 bytes   | = 0 |
| Input pkts 512-1023 bytes  | = 0 |
| Input pkts 1024-1518 bytes | = 0 |
| Input pkts 1519-Max bytes  | = 0 |
|                            |     |
| Input good pkts            | = 0 |
| Input unicast pkts         | = 0 |
| Input multicast pkts       | = 0 |
| Input broadcast pkts       | = 0 |
|                            |     |
| Input drop overrun         | = 0 |
| Input drop abort           | = 0 |
| Input drop invalid VLAN    | = 0 |
| Input drop invalid DMAC    | = 0 |
| Input drop invalid encap   | = 0 |
| Input drop other           | = 0 |
|                            |     |
| Input error giant          | = 0 |
| Input error runt           | = 0 |
| Input error jabbers        | = 0 |
| Input error fragments      | = 0 |
| Input error CRC            | = 0 |
| Input error collisions     | = 0 |
| Input error symbol         | = 0 |
| Input error other          | = 0 |
|                            |     |
| Input MIB giant            | = 0 |
| Input MIB jabber           | = 0 |
| Input MIB CRC              | = 0 |

## Egress:

|                             |     |
|-----------------------------|-----|
| Output total bytes          | = 0 |
| Output good bytes           | = 0 |
|                             |     |
| Output total packets        | = 0 |
| Output 802.1Q frames        | = 0 |
| Output pause frames         | = 0 |
| Output pkts 64 bytes        | = 0 |
| Output pkts 65-127 bytes    | = 0 |
| Output pkts 128-255 bytes   | = 0 |
| Output pkts 256-511 bytes   | = 0 |
| Output pkts 512-1023 bytes  | = 0 |
| Output pkts 1024-1518 bytes | = 0 |
| Output pkts 1519-Max bytes  | = 0 |
|                             |     |
| Output good pkts            | = 0 |
| Output unicast pkts         | = 0 |
| Output multicast pkts       | = 0 |
| Output broadcast pkts       | = 0 |

```
Output drop underrun      = 0
Output drop abort         = 0
Output drop other         = 0

Output error other        = 0
```

Management information for interface HundredGigE0/2/0/0:

```
Bay number: 96
Port number: 0
Interface handle: 0x1000130
```

Config:

```
Auto-negotiation: Configuration not supported (Off)
Carrier delay (up): Not configured
Carrier delay (down): Not configured
Speed: Configuration not supported (100Gbps)
Duplex: Configuration not supported (Full Duplex)
Flow Control: Configuration not supported (None)
Forward Error Correction: Not configured
IPG: Configuration not supported (standard (12))
Loopback: Not configured (None)
MTU: Not configured
Bandwidth: Not configured
BER-SD Threshold: Configuration not supported
BER-SD Report: Configuration not supported
BER-SF Threshold: Configuration not supported
BER-SF Report: Configuration not supported
BER-SF Signal Remote Failure: Configuration not supported
```

Driver constraints:

```
Min MTU: 64 bytes
Max MTU: 9216 bytes
Max speed: 100Gbps
Interface type: HundredGigE
Management interface: No
Promiscuous mode: Yes
Default carrier delay up (auto-neg on): 0 ms
Default carrier delay down (auto-neg on): 0 ms
Default carrier delay up (auto-neg off): 0 ms
Default carrier delay down (auto-neg off): 0 ms
Default carrier delay down (tx enable): 0 ms
Allowed config mask: 0x1243
```

Cached driver state:

```
MTU: 1514 bytes
Burnt-in MAC address: 089f.40ec.b120
```

Operational carrier delay:

```
Carrier delay (up): 0 ms
Carrier delay (down): 0 ms
```

Not a member of a bundle interface.

Port FSM state:

```
Port is enabled, link is up
```

Complete FSM state:

```
Admin down
Client admin down
Client admin tx not disabled
Port enabled
Port tx enabled
```

```

Hardware link up
IDB interface state information:
  IDB client admin down
  IDB client tx admin up
  IDB error disable not set

```

```
0 Unicast MAC Addresses:
```

```
0 Multicast MAC Addresses:
```

The following example shows sample output from the **show controllers hundredGigE control** command:

```

RP/0/RP0/CPU0:router#
Management information for interface TenGigE0/0/0/2:

Port number: 2
Bay number: 0
Interface handle: 0x100000c0

Config:
  Auto-negotiation: Configuration not supported (Off)
  Carrier delay (up): Not configured
  Carrier delay (down): Not configured
  Speed: Configuration not supported (10Gbps)
  Duplex: Configuration not supported (Full Duplex)
  Flow Control: Not configured (None)
  IPG: Not configured (standard (12))
  Loopback: Not configured (None)
  MTU: Not configured
  Soft Bandwidth: Not configured

Driver constraints:
  Min MTU: 64 bytes
  Max MTU: 9216 bytes
  Max speed: 10Gbps
  Interface type: TenGigE
  Management interface: No
  Promiscuous mode: Yes
  Allowed config mask: 0x27b

Cached driver state:
  MTU: 1522 bytes
  Burnt-in MAC address: 001d.353b.975e

Bundle settings:
  Aggregated: No
  Bundle MTU: 1514 bytes
  Bundle MAC address: 001d.353b.975e

Port FSM state:
  Port is disabled, due to an admin down condition.
Complete FSM state:
  Admin down
  Bundle admin up
  Client admin up
  Client admin tx not disabled
  Port disabled
  Port tx disabled
  Hardware link down
IDB interface state information:
  IDB bundle admin up
  IDB client admin up

```

```
IDB client tx admin up
IDB error disable not set

0 Unicast MAC Addresses:

0 Multicast MAC Addresses:

0 Unicast Bundle MAC Addresses:

0 Multicast Bundle MAC Addresses:
Management information for interface HundredGigE0/2/0/0:

Bay number: 96
Port number: 0
Interface handle: 0x1000130

Config:
  Auto-negotiation: Configuration not supported (Off)
  Carrier delay (up): Not configured
  Carrier delay (down): Not configured
  Speed: Configuration not supported (100Gbps)
  Duplex: Configuration not supported (Full Duplex)
  Flow Control: Configuration not supported (None)
  Forward Error Correction: Not configured
  IPG: Configuration not supported (standard (12))
  Loopback: Not configured (None)
  MTU: Not configured
  Bandwidth: Not configured
  BER-SD Threshold: Configuration not supported
  BER-SD Report: Configuration not supported
  BER-SF Threshold: Configuration not supported
  BER-SF Report: Configuration not supported
  BER-SF Signal Remote Failure: Configuration not supported

Driver constraints:
  Min MTU: 64 bytes
  Max MTU: 9216 bytes
  Max speed: 100Gbps
  Interface type: HundredGigE
  Management interface: No
  Promiscuous mode: Yes
  Default carrier delay up (auto-neg on): 0 ms
  Default carrier delay down (auto-neg on): 0 ms
  Default carrier delay up (auto-neg off): 0 ms
  Default carrier delay down (auto-neg off): 0 ms
  Default carrier delay down (tx enable): 0 ms
  Allowed config mask: 0x1243

Cached driver state:
  MTU: 1514 bytes
  Burnt-in MAC address: 089f.40ec.b120

Operational carrier delay:
  Carrier delay (up): 0 ms
  Carrier delay (down): 0 ms

Not a member of a bundle interface.

Port FSM state:
  Port is enabled, link is up

Complete FSM state:
  Admin down
  Client admin down
```

```

Client admin tx not disabled
Port enabled
Port tx enabled
Hardware link up
IDB interface state information:
IDB client admin down
IDB client tx admin up
IDB error disable not set

```

```
0 Unicast MAC Addresses:
```

```
0 Multicast MAC Addresses:
```

The following example shows sample output from the **show controllers TenGigE regs** command:

```
RP/0/RP0/CPU0:router# show controllers tenGigE 0/0/0/1 regs
```

```
MAC Registers for port: 1
GE MAC CFG      (#0954): 704c5e5a
GPCS Config    (#0147): 00000f08
GPCS Status    (#0236): 000000ca
GSRDES Status  (#0237): 0007fe09

```

```
RP/0/RP0/CPU0:router# show controllers tenGigE 0/0/0/4 regs
```

```
MAC Registers for port: 0
CONFIG1        (#1034): 03100a1a
CONFIG2        (#1035): 040c2398
CONTROL        (#1036): 00000000
ADDRESS_LOW    (#1037): 53ffa780
ADDRESS_HIGH   (#1038): 0000001b
MII_MGMT_CONFIG (#1039): 00000007
MII_MGMT_CMD   (#1040): 00000000
MII_MGMT_ADDRESS (#1041): 00000000
MII_MGMT_DATA  (#1042): 40000000
STAT_CONFIG   (#1043): 00000007
MASK_R        (#1044): 00000000
MASK_T        (#1045): 00000000
COMP          (#1046): 00100d24
MAC_CONFIG    (#1047): ffffffff
INTERRUPT_C   (#1048): 00000000

```

The following example shows sample output from the **show controllers hundredGigE stats** command:

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

```
Statistics for interface TenGigE0/0/0/0 (cached values):
```

```
Ingress:
  Input total bytes      = 9614339316
  Input good bytes      = 9614339316

  Input total packets   = 106713557
  Input 802.1Q frames   = 0
  Input pause frames    = 0
  Input pkts 64 bytes   = 103907216
  Input pkts 65-127 bytes = 2494185
  Input pkts 128-255 bytes = 3410
  Input pkts 256-511 bytes = 3406
  Input pkts 512-1023 bytes = 2
  Input pkts 1024-1518 bytes = 0
  Input pkts 1519-Max bytes = 305338

  Input good pkts      = 106713557

```



```

Input unicast pkts          = 105627141
Input multicast pkts        = 1086414
Input broadcast pkts        = 2

Input drop overrun          = 0
Input drop abort            = 0
Input drop unknown 802.1Q  = 0
Input drop other            = 0

Input error giant           = 0
Input error runt            = 0
Input error jabbers         = 0
Input error fragments       = 0
Input error CRC             = 0
Input error collisions      = 0
Input error symbol         = 0
Input error other           = 0

Input MIB giant             = 305338
Input MIB jabber            = 0
Input MIB CRC               = 0

```

## Egress:

```

Output total bytes          = 15202682421
Output good bytes           = 15202682421

Output total packets        = 107534855
Output 802.1Q frames        = 0
Output pause frames         = 0
Output pkts 64 bytes        = 103862713
Output pkts 65-127 bytes    = 2448054
Output pkts 128-255 bytes   = 308716
Output pkts 256-511 bytes   = 6
Output pkts 512-1023 bytes  = 13
Output pkts 1024-1518 bytes = 0
Output pkts 1519-Max bytes  = 915353

Output good pkts            = 107534855
Output unicast pkts         = 105321133
Output multicast pkts       = 1298368
Output broadcast pkts       = 1

Output drop underrun        = 0
Output drop abort           = 0
Output drop other           = 0

Output error other          = 0

```

Statistics for interface HundredGigE0/2/0/0 (cached values):

## Ingress:

```

Input total bytes          = 0
Input good bytes           = 0

Input total packets        = 0
Input 802.1Q frames        = 0
Input pause frames         = 0
Input pkts 64 bytes        = 0
Input pkts 65-127 bytes    = 0
Input pkts 128-255 bytes   = 0
Input pkts 256-511 bytes   = 0
Input pkts 512-1023 bytes  = 0
Input pkts 1024-1518 bytes = 0
Input pkts 1519-Max bytes  = 0

```

## show controllers (Ethernet)

```

Input good pkts           = 0
Input unicast pkts       = 0
Input multicast pkts     = 0
Input broadcast pkts     = 0

Input drop overrun       = 0
Input drop abort         = 0
Input drop invalid VLAN  = 0
Input drop invalid DMAC  = 0
Input drop invalid encap = 0
Input drop other         = 0

Input error giant        = 0
Input error runt         = 0
Input error jabbers      = 0
Input error fragments    = 0
Input error CRC          = 0
Input error collisions   = 0
Input error symbol       = 0
Input error other        = 0

Input MIB giant          = 0
Input MIB jabber         = 0
Input MIB CRC            = 0

Egress:
Output total bytes       = 0
Output good bytes        = 0

Output total packets     = 0
Output 802.1Q frames    = 0
Output pause frames     = 0
Output pkts 64 bytes    = 0
Output pkts 65-127 bytes = 0
Output pkts 128-255 bytes = 0
Output pkts 256-511 bytes = 0
Output pkts 512-1023 bytes = 0
Output pkts 1024-1518 bytes = 0
Output pkts 1519-Max bytes = 0

Output good pkts        = 0
Output unicast pkts     = 0
Output multicast pkts   = 0
Output broadcast pkts   = 0

Output drop underrun    = 0
Output drop abort       = 0
Output drop other       = 0

Output error other      = 0

```

## show controllers np descriptions location

To view a complete list of NP traps descriptions, use the **show controllers np descriptions** command in EXEC mode.

```
show controllers np descriptions [ location node-id ]
```

### Syntax Description

**location** (Optional) Specifies a fully-qualified line card location.

*node-id* The *node-id* argument is entered in the *rack/slot/module* notation.

### Command Default

None

### Command Modes

EXEC mode

### Command History

| Release       | Modification                 |
|---------------|------------------------------|
| Release 7.3.4 | This command was introduced. |

### Usage Guidelines

Use the **show controllers np descriptions location node-id** command to view a complete list of NP traps descriptions.

Following example shows you the NP traps descriptions and their locations.

```
RP/0/RP0/CPU0:ios#show controllers np ?
  descriptions descriptions of all the traps(cisco-support)
RP/0/RP0/CPU0:ios#show controllers np descriptions ?
  location Location of the traps(cisco-support)
RP/0/RP0/CPU0:ios#show controllers np descriptions location ?
  0/1/CPU0 Fully qualified location specification
  0/2/CPU0 Fully qualified location specification
  0/3/CPU0 Fully qualified location specification
  0/RP0/CPU0 Fully qualified location specification
  0/RP1/CPU0 Fully qualified location specification
  WORD Fully qualified location specification
  all Display all nodes(cisco-support)
RP/0/RP0/CPU0:ios#show controllers np descriptions location
```

## show controllers npu resource

To display the current status and configured thresholds in a hardware module configuration, use `show controllers npu resource` command in XR EXEC mode.

```
show controllers npu resource { all | centralem | egressacltcam | egressipv4unifiedacltcam |
egressipv6unifiedacltcam | egressl3dlp | egresslargeencap | egresssmallencap | ingressacltcam |
ingressipv4qosacltcam | ingressipv4unifieddefaultacltcam | ingressipv4unifiednondefaultacltcam |
ingressipv6qosacltcam | ingressipv6unifieddefaultacltcam | ingressipv6unifiednondefaultacltcam |
ipv6compressedsips | l2serviceport | l3acport | lpmtcam | lptsmeters | mcentdb | myipv4tbl |
nativefecentry | oglpts | protectiongroup | sipidxtbl | stage1lbgroup | stage1lbmember | stage2lbgroup
| stage2lbmember | stage2protectionmonitor | tunneltermination | v4lpts | v6lpts }
```

| Syntax Description   |  |   |
|--|--|---|
| <b>all</b>   |  | Displays all the hardware resources.  |
| <b>centralem</b>   |  | Displays the central exact match table used for exact match routes, MPLS route label, multicast.  |
| <b>egressacltcam</b>   |  | Displays the TCAM utilization for the ACL features for the outgoing traffic.  |
| <b>egressipv4unifiedacltcam</b><br>(egressacltcam)             |  | Display the egress ipv4 unified acl tcam table, that is used for TCAM-based ACL matching on egress, QoS, security zones, NAT-T, and virtualization. |
| <b>egressipv6unifiedacltcam</b><br>(egressacltcam)             |  | Displays the TCAM table used for exact match routes and unified ACLs for IPv6 egress traffic on the network device.                                 |
| <b>egressl3dlp</b>   |  | Displays Information about egress L3 Data-Link Layer Processing (DLP) resource on a particular NPU.   |
| <b>egresslargeencap</b>  |  | Displays the egress large encapsulation table.  |
| <b>egresssmallencap</b>  |  | Displays the egress small encapsulation table.  |
| <b>ingressacltcam</b>  |  | Displays the TCAM utilization for the ACL features for the incoming traffic.  |
| <b>ingressipv4qosacltcam</b><br>(ingressacltcam)               |  | Display the ingress IPv4 QoS ACL TCAM table.  |
| <b>ingressipv4unifieddefaultacltcam</b><br>(ingressacltcam)    |  | Displays the ingressacltcam for the show table.   |
| <b>ingressipv4unifiednondefaultacltcam</b><br>(ingressacltcam) |  | Displays the utilization of the ingress IPv4 unified non-default ACL TCAM resources for the specified NPU or for all NPUs.                          |
| <b>ingressipv6qosacltcam</b><br>(ingressacltcam)               |  | Displays the ingress ACL TCAM table used for IPv6 QoS ACLs.   |
| <b>ingressipv6unifieddefaultacltcam</b><br>(ingressacltcam)    |  | Display the contents of the TCAM table used for IPv6 unified default ACL on ingress interfaces on the router.                                       |

|   |  |
|---|--|
| <b>ingressipv6unifiednondefaultactcam (ingressactcam)</b> | Displays the TCAM configuration for non-default IPv6 ACLs and provides details on the number of TCAM entries, rows, and active ACEs. |
| <b>ipv6compressedsips</b>                                 | Displays the multicast IPv6 source addresses.  |
| <b>l2serviceport</b>                                      | Displays the L2 forwarding interface.  |
| <b>l3acport</b>   | Displays the L3 forwarding interface.  |
| <b>lpmtcam</b>  | Displays the longest prefix match.   |
| <b>lptsmeters</b>   | Displays the QoS metering table for control path.  |
| <b>mcemdb</b>   | Displays multicast replication and route statistics.   |
| <b>myipv4tbl</b>  | Displays the ARP route and loopback.   |
| <b>nativefecentry</b>                                     | Displays the Default Route created in VRF.   |
| <b>oglppts</b>  | Displays the OGLPTS entries for BGP sessions.  |
| <b>protectiongroup</b>                                    | Displays the protection group for FRR, TILFA, TE-FRR.  |
| <b>sipidxtbl</b>  | Displays the IP Index table.   |
| <b>stage1lbgroup</b>                                      | Displays the recursive ecmp group to next hop resolution.  |
| <b>stage1lbmember</b>                                     | Displays the recursive ecmp member to next hop resolution.   |
| <b>stage2protectionmonitor</b>                            | Displays the stage2 protection monitor table used for fast reroute protection.   |
| <b>tunneltermination</b>                                  | Displays the tunnel termination database 0 for SIP, DIP lookup.  |
| <b>v4lpts</b>   | Displays the IPv4 control Path.  |
| <b>v6lpts</b>   | Displays the IPv6 control Path   |

**Command Default** No default behavior or values

**Command Modes** XR EXEC mode

**Command History**

| Release | Modification  |
|---------|---|
| 7.0.12  | This command was introduced.  |
| 7.3.2   | The <b>ingressactcam</b> and <b>egressactcam</b> options were introduced. |

**Usage Guidelines** None

**Example**

This example shows sample output of `show controllers npu resources all location 0/RP0/CPU0` command:

```
RP/0/RP0/CPU0:ios#show controllers npu resources all location 0/RP0/CPU0
Wed Oct 13 16:27:26.218 UTC
HW Resource Information
  Name                : counter_bank
  Asic Type           : Q100

NPU-0
OOR Summary
  Estimated Max Entries : 108
  Red Threshold         : 95 %
  Yellow Threshold     : 80 %
  OOR State            : Green

Current Hardware Usage
  Name: counter_bank
  Estimated Max Entries : 108
  Total In-Use         : 60
  OOR State            : Green

HW Resource Information
  Name                : l3_ac_port
  Asic Type           : Q100

NPU-0
OOR Summary
  Red Threshold         : 95 %
  Yellow Threshold     : 80 %

OFA Table Information
(May not match HW usage)
  l3if                : 37

Current Hardware Usage
  Name: l3_ac_port

      Name: slice_pair_0
      Estimated Max Entries : 4294967295
      Total In-Use         : 13      (0 %)
      OOR State            : Green

      Name: slice_pair_1
      Estimated Max Entries : 4294967295
      Total In-Use         : 10      (0 %)
      OOR State            : Green

      Name: slice_pair_2
      Estimated Max Entries : 4294967295
      Total In-Use         : 12      (0 %)
      OOR State            : Green

HW Resource Information
  Name                : native_fec_entry
  Asic Type           : Q100

NPU-0
OOR Summary
  Estimated Max Entries : 4294967295
```

```

        Red Threshold           : 95 %
        Yellow Threshold        : 80 %
        OOR State               : Green

OFA Table Information
(May not match HW usage)
    exceptionnh                : 12

Current Hardware Usage
    Name: native_fec_entry
    Estimated Max Entries      : 4294967295
    Total In-Use               : 13      (0 %)
    OOR State                  : Green

HW Resource Information
    Name                       : stage1_lb_group
    Asic Type                   : Q100

NPU-0
OOR Summary
    Estimated Max Entries      : 8192
    Red Threshold              : 95 %
    Yellow Threshold           : 80 %
    OOR State                  : Green

OFA Table Information
(May not match HW usage)
    nhgroup                    : 0

Current Hardware Usage
    Name: stage1_lb_group
    Estimated Max Entries      : 8192
    Total In-Use               : 0      (0 %)
    OOR State                  : Green

HW Resource Information
    Name                       : stage1_lb_member
    Asic Type                   : Q100

NPU-0
OOR Summary
    Estimated Max Entries      : 4294967295
    Red Threshold              : 95 %
    Yellow Threshold           : 80 %
    OOR State                  : Green

OFA Table Information
(May not match HW usage)
    nhgroup                    : 0

Current Hardware Usage
    Name: stage1_lb_member
    Estimated Max Entries      : 4294967295
    Total In-Use               : 0      (0 %)
    OOR State                  : Green

HW Resource Information
    Name                       : stage2_lb_group
    Asic Type                   : Q100

NPU-0

```

```

OOR Summary
  Estimated Max Entries      : 8192
  Red Threshold              : 95 %
  Yellow Threshold          : 80 %
  OOR State                  : Green

OFA Table Information
(May not match HW usage)
  nhgroup                    : 18

Current Hardware Usage
  Name: stage2_lb_group
  Estimated Max Entries      : 8192
  Total In-Use               : 3          (0 %)
  OOR State                  : Green

HW Resource Information
  Name                        : stage2_lb_member
  Asic Type                   : Q100

NPU-0
OOR Summary
  Estimated Max Entries      : 4294967295
  Red Threshold              : 95 %
  Yellow Threshold          : 80 %
  OOR State                  : Green

OFA Table Information
(May not match HW usage)
  nhgroup                    : 18

Current Hardware Usage
  Name: stage2_lb_member
  Estimated Max Entries      : 4294967295
  Total In-Use               : 3          (0 %)
  OOR State                  : Green

```

<Output truncated>

### Example for the egressacltcam option

This example shows sample output of `ssh show controllers npu resources egressacltcam location 0/RP0/CPU0` command:

```

RP/0/RP1/CPU0:router#show controllers npu resources egressacltcam location 0/RP0/CPU0
Thu Aug 12 18:34:46.471 UTC
HW Resource Information
  Name                        : egress_acl_tcam
  Asic Type                   : Q100

NPU-0
OOR Summary
  Red Threshold              : 95 %
  Yellow Threshold          : 80 %

Current Hardware Usage
  Name: egress_acl_tcam

```



```

Name: narrow

  Name: slice_0
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

  Name: slice_1
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

  Name: slice_2
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

  Name: slice_3
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

  Name: slice_4
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

  Name: slice_5
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

Name: wide

  Name: slice_0
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

  Name: slice_1
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

  Name: slice_2
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

  Name: slice_3
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

  Name: slice_4
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

  Name: slice_5
    Estimated Max Entries      : 32768
    Total In-Use                : 0          (0 %)

```

### Example for the protection group

This example shows sample output of `show controllers npu resources protection group location 0/RP0/CPU0` command:

```

RP/0/RP0/CPU0:router#show controllers npu resources protection group location 0/3/CPU0
Tue Mar 14 19:55:56.739 UTC
HW Resource Information
  Name                : protection_group
  Asic Type            : Q200

```

```

NPU-0
  OOR Summary
    Estimated Max Entries      : 4096
    Red Threshold              : 95 %
    Yellow Threshold          : 80 %
    OOR State                  : Red

Current Hardware Usage
  Name: : protection_group
    Estimated Max Entries      : 4096
    Total In-Use              : 4062 (99 %)
    OOR State                  : Red

NPU-1
  OOR Summary
    Estimated Max Entries      : 4096
    Red Threshold              : 95 %
    Yellow Threshold          : 80 %
    OOR State                  : Red

Current Hardware Usage
  Name: : protection_group
    Estimated Max Entries      : 4096
    Total In-Use              : 4062 (99 %)
    OOR State                  : Red

```

### Example for the protection group



**Note** Use the "debugshell" command for the protection group resource to obtain the accurate information.

This example shows sample output of `show controllers npu debugshell 0 "script resource_usage PROTECTION_GROUP" location 0/3/cpu0` command:

```

RP/0/RP0/CPU0:router#show controllers npu debugshell 0 "script resource_usage
PROTECTION_GROUP" location 0/3/cpu0
Tue Mar 14 19:55:37.309 UTC

```

```

Node ID: 0/3/CPU0
Executing User File: /pkg/bin/resource_usage.py
Get resource usage for npu_id: 12, Dev id: 12, Resource: PROTECTION_GROUP
+-----+-----+-----+-----+-----+-----+
| Resource          | Granularity | Location | Max Entries | Used Entries | State | Thresholds
| % High/Low |
+-----+-----+-----+-----+-----+-----+
| PROTECTION_GROUP | Device      | -       | 4096        | 4082         | Red  | 80.0/79.0,
| 95.0/94.0, |
+-----+-----+-----+-----+-----+-----+

```

# show interface

To display the L2 interface MTU on the main interface, use `show interface` command in Global Configuration mode.

```
show interface { interface } { location }
```

| <b>Syntax Description</b> | <b>interface</b> Displays the interface on which you have configured L2 interface MTU.  |         |              |       |                              |
|---------------------------|---|---------|--------------|-------|------------------------------|
|                           | <b>location node id</b> Displays information about all interfaces on the specified node. The node-id argument is entered in the rack/slot/module notation.                      |         |              |       |                              |
| <b>Command Default</b>    | No default behavior or values   |         |              |       |                              |
| <b>Command Modes</b>      | Global Configuration mode   |         |              |       |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>7.5.2</td> <td>This command was introduced.</td> </tr> </tbody> </table> | Release | Modification | 7.5.2 | This command was introduced. |
| Release                   | Modification  |         |              |       |                              |
| 7.5.2                     | This command was introduced.  |         |              |       |                              |
| <b>Usage Guidelines</b>   | None  |         |              |       |                              |

## Example

This example shows sample output of `show interface` command:

```
RP/0/RP0/CPU0:sf_f2#show int HundredGigE 0/0/0/20
Fri Mar  4 19:06:31.210 UTC
HundredGigE0/0/0/20 is administratively down, line protocol is administratively down
  Interface state transitions: 0
  Hardware is HundredGigE, address is 9077.ee50.eaa0 (bia 9077.ee50.eaa0)
  Internet address is Unknown
  MTU 1514 bytes, BW 100000000 Kbit (Max: 100000000 Kbit)
    reliability 255/255, txload 0/255, rxload 0/255
```

# show interfaces counters rates physical

To display the traffic rates and bandwidth for all the physical interfaces, use `show interfaces counters rates physical` command.

## show interfaces counters rates physical

### Syntax Description

|                   |   |
|-------------------|---|
| <b>interfaces</b> | Displays all the physical interfaces.     |
| <b>counters</b>   | Counter information for interfaces.       |
| <b>rates</b>      | Rate information for interfaces.          |
| <b>physical</b>   | Rate information for physical interfaces. |

### Command History

#### Release Modification

|       |                              |
|-------|------------------------------|
| 7.5.4 | This command was introduced. |
|-------|------------------------------|

### Example

This example shows sample output of `show interfaces counters rates physical` command:

```
Router#show interfaces counters rates physical
```

| InterfaceName          | Intvl | InMbps | InBW% | InKpps | OutMbps | OutBW% | OutKpps |
|------------------------|-------|--------|-------|--------|---------|--------|---------|
| GigabitEthernet0/2/0/0 | 0:05  | 0.0    | 0.0%  | 0.0    | 0.0     | 0.0%   | 0.0     |
| GigabitEthernet0/2/0/1 | 0:05  | 0.0    | 0.0%  | 0.0    | 0.0     | 0.0%   | 0.0     |
| GigabitEthernet0/2/0/2 | 0:05  | 0.0    | 0.0%  | 0.0    | 0.0     | 0.0%   | 0.0     |
| GigabitEthernet0/2/0/3 | 0:05  | 235.0  | 22.0% | 23.5   | 87.0    | 9.5%   | 7.2     |
| GigabitEthernet0/3/0/0 | 0:05  | 88.0   | 9.3%  | 7.0    | 100.0   | 10.0%  | 10.5    |
| GigabitEthernet0/3/0/1 | 0:05  | 0.0    | 0.0%  | 0.0    | 0.0     | 0.0%   | 0.0     |

The statistics for each physical interface is calculated for the time interval of 5 sec. Hence, the input and output rate (in Mbps and Kpps) is the real-time statistics.



**Note** The traffic rate displayed is the real-time link utilization of the time interval. The time interval is determined by the system and may vary based on the system processing load. The time interval increases during events where the system is handling, for example, performing routing updates.

# show lldp

To display the global Link Layer Discovery Protocol (LLDP) operational characteristics on the system, use the **show lldp** command in XR EXEC mode.

## show lldp

|                           |  |
|---------------------------|--|
| <b>Syntax Description</b> | This command has no keywords or arguments. |
|---------------------------|--|

|                        |      |
|------------------------|------|
| <b>Command Default</b> | None |
|------------------------|------|

|                      |              |
|----------------------|--------------|
| <b>Command Modes</b> | XR EXEC mode |
|----------------------|--------------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 7.0.12 | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | The <b>show lldp</b> command displays the LLDP operational characteristics when LLDP is enabled globally on the system using the <b>lldp</b> command. The settings for the following commands are displayed: |
|-------------------------|--|

- **lldp timer**
- **lldp holdtime**
- **lldp reinit**

| <b>Task ID</b> | <b>Task ID</b>    | <b>Operation</b> |
|----------------|-------------------|------------------|
|                | ethernet-services | read             |

### Example 1

The following example shows the default LLDP operational characteristics when LLDP is enabled globally on the system:

```
RP/0/RP0/CPU0:router# show lldp
Wed Apr 13 06:16:45.510 DST
Global LLDP information:
  Status: ACTIVE
  LLDP advertisements are sent every 30 seconds
  LLDP hold time advertised is 120 seconds
  LLDP interface reinitialisation delay is 2 seconds
```

### Example 2

The following example shows the output when LLDP is not enabled globally on the system:

```
RP/0/RP0/CPU0:router# show lldp
Wed Apr 13 06:42:48.221 DST
% LLDP is not enabled
```

| Related Commands | Command                                   | Description  |
|------------------|---|--|
|                  | <a href="#">lldp timer, on page 15</a>    | Specifies the LLDP packet rate.  |
|                  | <a href="#">lldp holdtime, on page 13</a> | Specifies the length of time that information from an LLDP packet should be held by the receiving device before aging and removing it. |
|                  | <a href="#">lldp reinit, on page 14</a>   | Specifies the length of time to delay initialization of LLDP on an interface.  |

# show lldp entry

To display detailed information about LLDP neighbors, use the **show lldp entry** command in XR EXEC mode.

```
show lldp entry {* name}
```

|                           |  |
|---------------------------|--|
| <b>Syntax Description</b> | <b>*</b> Displays detailed information about all LLDP neighbors.                                 |
|                           | <b><i>name</i></b> Name of a specific LLDP neighbor for which detailed information is displayed. |

**Syntax Description** This command has no keywords or arguments.

**Command Modes** XR EXEC mode

|                        |                |                              |
|------------------------|----------------|------------------------------|
| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|                        | Release 7.0.12 | This command was introduced. |

**Usage Guidelines** No specific guidelines impact the use of this command.

|                |                   |                  |
|----------------|-------------------|------------------|
| <b>Task ID</b> | <b>Task ID</b>    | <b>Operation</b> |
|                | ethernet-services | read             |

The following example shows sample output for all LLDP neighbor table entries on the system:

```
RP/0/RP0/CPU0:router# show lldp entry *
Wed Apr 13 10:29:40.342 UTC
Capability codes:
  (R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device
  (W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other

-----
Local Interface: HundredGigabitEthernet0/0/0/8
Chassis id: 0026.9815.c3e6
Port id: Gi0/0/0/8
Port Description: HundredGigabitEthernet0/0/0/8
System Name: asr9k-5

System Description:
Cisco IOS XR Software, Version 4.1.0.32I[Default]
Copyright (c) 2011 by Cisco Systems, Inc.

Time remaining: 102 seconds
Hold Time: 120 seconds
System Capabilities: R
Enabled Capabilities: R
Management Addresses:
  IPv4 address: 10.5.173.110
```

```
-----  
Local Interface: HundredGigabitEthernet0/0/0/8  
Chassis id: 0026.9815.c3e6  
Port id: Gi0/0/0/8.1  
Port Description: HundredGigabitEthernet0/0/0/8.1  
System Name: asr9k-5
```

```
System Description:  
Cisco IOS XR Software, Version 4.1.0.32I[Default]  
Copyright (c) 2011 by Cisco Systems, Inc.
```

```
Time remaining: 96 seconds  
Hold Time: 120 seconds  
System Capabilities: R  
Enabled Capabilities: R  
Management Addresses:  
  IPv4 address: 10.5.173.110
```

```
Total entries displayed: 2
```



# show lldp errors

To display Link Layer Discovery Protocol (LLDP) error and overflow statistics, use the **show lldp errors** command in XR EXEC mode.

**show lldp errors** [**location** *location*]

|                           |   |
|---------------------------|---|
| <b>Syntax Description</b> | <b>location</b> <i>location</i> (Optional) Displays information about LLDP neighbors for the specified location. The <i>location</i> argument is entered in the <i>rack/slot/module</i> notation. |
|---------------------------|---|

|                        |  |
|------------------------|--|
| <b>Command Default</b> | Totals of LLDP error and overflow statistics for the system are displayed. |
|------------------------|--|

|                      |              |
|----------------------|--------------|
| <b>Command Modes</b> | XR EXEC mode |
|----------------------|--------------|

|                        |                |                              |
|------------------------|----------------|------------------------------|
| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|                        | Release 7.0.12 | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | No specific guidelines impact the use of this command. |
|-------------------------|--|

|                |                   |                  |
|----------------|-------------------|------------------|
| <b>Task ID</b> | <b>Task ID</b>    | <b>Operation</b> |
|                | ethernet-services | read             |

The following example shows sample output for the **show lldp errors** command:

```
RP/0/RP0/CPU0:router# show lldp errors
Wed Apr 13 06:17:08.321 DST

LLDP errors/overflows:
  Total memory allocation failures: 0
  Total encapsulation failures: 0
  Total input queue overflows: 0
  Total table overflows: 0
```

|                         |                                  |  |
|-------------------------|----------------------------------|--|
| <b>Related Commands</b> | <b>Command</b>                   | <b>Description</b>   |
|                         | <a href="#">lldp, on page 11</a> | Enables LLDP globally for both transmit and receive operation on the system. |

## show lldp interface

To display Link Layer Discovery Protocol (LLDP) configuration and status information on an interface, use the **show lldp interface** command in XR EXEC mode.

**show lldp interface** [*type interface-path-id* | **location** *location*]

| Syntax Description              |   |  |
|---------------------------------|---|--|
| <i>type</i>                     | (Optional) Interface type. For more information, use the question mark (?) online help function.  |  |
| <i>interface-path-id</i>        | Physical interface or virtual interface.  |  |
|                                 | <b>Note</b>   | Use the <b>show interfaces</b> 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. |
| <b>location</b> <i>location</i> | (Optional) Displays information about LLDP neighbors for the specified location. The <i>location</i> argument is entered in the <i>rack/slot/module</i> notation. |  |

**Command Default** LLDP configuration and status information for all interfaces is displayed.

**Command Modes** XR EXEC mode

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.0.12 | This command was introduced. |

**Usage Guidelines** When LLDP is enabled globally on the system, all supported interfaces are automatically enabled for both LLDP receive and transmit operations. You can individually disable interfaces for either LLDP receive or transmit operations using the **receive disable** command or **transmit disable** command in LLDP configuration mode under the interface.

| Task ID | Task ID           | Operation |
|---------|-------------------|-----------|
|         | ethernet-services | read      |

The following example shows sample output for the **show lldp interface** command for the Gigabit Ethernet interface at 0/1/0/7:

```
RP/0/RP0/CPU0:router# show lldp interface hundredgigabitethernet 0/1/0/7
Wed Apr 13 13:22:30.501 DST
```

```
HundredGigabitEthernet0/1/0/7:
  Tx: enabled
  Rx: enabled
  Tx state: IDLE
  Rx state: WAIT FOR FRAME
```

**Table 1: show lldp interface Field Descriptions**

| Field     | Description  |
|-----------|--|
| Tx:       | Configuration status of the interface to transmit LLDP advertisements. |
| Rx:       | Configuration status of the interface to receive LLDP advertisements.  |
| Tx state: | Status of the LLDP transmit process on the interface.                  |
| Rx state: | Status of the LLDP receive process on the interface.                   |

**Related Commands**

| Command                                      | Description  |
|--|--|
| <a href="#">lldp, on page 11</a>             | Enables LLDP globally for both transmit and receive operation on the system. |
| <a href="#">lldp (interface), on page 12</a> | Enters LLDP configuration mode.  |

# show lldp neighbors

To display information about Link Layer Discovery Protocol (LLDP) neighbors, use the **show lldp neighbors** command in XR EXEC mode.

**show lldp neighbors** [*type interface-path-id* | **location** *location*] [**detail**]

| Syntax Description       |                          |  |
|--------------------------|--------------------------|--|
| <b>type</b>              | <i>type</i>              | (Optional) Interface type. For more information, use the question mark (?) online help function.   |
| <b>interface-path-id</b> | <i>interface-path-id</i> | Physical interface or virtual interface.   |
| <b>Note</b>              |                          | Use the <b>show interfaces</b> 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. |
| <b>location</b>          | <i>location</i>          | (Optional) Displays information about LLDP neighbors for the specified location. The <i>location</i> argument is entered in the <i>rack/slot/module</i> notation.  |
| <b>detail</b>            |                          | (Optional) Displays all available information about LLDP neighbors.  |

**Command Default** Basic device information for LLDP neighbors is displayed.

**Command Modes** XR EXEC mode

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.0.11 | This command was introduced. |

**Usage Guidelines** To clear the neighbor information displayed by the **show lldp neighbors** command, use the **clear lldp table** command.

| Task ID | Task ID           | Operation |
|---------|-------------------|-----------|
|         | ethernet-services | read      |

The following example show sample output for the **show lldp neighbors** command:

```
RP/0/RP0/CPU0:router# show lldp neighbors
Capability codes:
  (R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device
  (W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other

Device ID           Local Intf      Hold-time  Capability  Port ID
R1                   Et1/0          150       R           Et1/0

Total entries displayed: 1
```

Table 2: show lldp neighbors Field Descriptions

| Field      | Description   |
|------------|---|
| Device ID  | Name of the neighbor device.<br><br><b>Note</b> If the device ID has more than 20 characters, the ID will be truncated to 20 characters in command output because of display constraints. |
| Local Intf | Local interface through which this neighbor is connected.   |
| Hold-time  | Amount of time (in seconds) that the local device will hold the LLDP advertisement from a sending device before discarding it.  |
| Capability | The device type of the neighbor, whose values correspond to the characters and definition displayed in the "Capability codes" section.  |
| Port ID    | Interface and port number of the neighboring device.  |

The following example shows sample output for the **show lldp neighbors detail** command:

```
RP/0/RP0/CPU0:router# show lldp neighbors detail
Wed Apr 13 10:29:40.342 UTC
Capability codes:
    (R) Router, (B) Bridge, (T) Telephone, (C) DOCSIS Cable Device
    (W) WLAN Access Point, (P) Repeater, (S) Station, (O) Other

-----
Local Interface: HundredGigabitEthernet0/0/0/8
Chassis id: 0026.9815.c3e6
Port id: Gi0/0/0/8
Port Description: HundredGigabitEthernet0/0/0/8
System Name: asr9k-5

System Description:
Cisco IOS XR Software, Version 4.1.0.32I[Default]
Copyright (c) 2011 by Cisco Systems, Inc.

Time remaining: 102 seconds
Hold Time: 120 seconds
System Capabilities: R
Enabled Capabilities: R
Management Addresses:
    IPv4 address: 10.5.173.110

-----
Local Interface: HundredGigabitEthernet0/0/0/8
Chassis id: 0026.9815.c3e6
Port id: Gi0/0/0/8.1
Port Description: HundredGigabitEthernet0/0/0/8.1
System Name: asr9k-5

System Description:
Cisco IOS XR Software, Version 4.1.0.32I[Default]
```

Copyright (c) 2011 by Cisco Systems, Inc.

Time remaining: 96 seconds  
Hold Time: 120 seconds  
System Capabilities: R  
Enabled Capabilities: R  
Management Addresses:  
  IPv4 address: 10.5.173.110

Total entries displayed: 2

# show lldp traffic

To display statistics for Link Layer Discovery Protocol (LLDP) traffic, use the **show lldp traffic** command in XR EXEC mode.

**show lldp traffic** [**location** *location*]

| <b>Syntax Description</b> | <b>location</b> <i>location</i> (Optional) Displays LLDP statistics for traffic at the specified location. The <i>location</i> argument is entered in the <i>rack/slot/module</i> notation. |         |              |                   |                              |
|---------------------------|---|---------|--------------|-------------------|------------------------------|
| <b>Command Default</b>    | Totals of LLDP statistics for the system are displayed.   |         |              |                   |                              |
| <b>Command Modes</b>      | XR EXEC mode  |         |              |                   |                              |
| <b>Command History</b>    | <table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 7.0.12</td> <td>This command was introduced.</td> </tr> </tbody> </table>    | Release | Modification | Release 7.0.12    | This command was introduced. |
| Release                   | Modification  |         |              |                   |                              |
| Release 7.0.12            | This command was introduced.  |         |              |                   |                              |
| <b>Usage Guidelines</b>   | To reset the counters displayed by the <b>show lldp traffic</b> command, use the <b>clear lldp counters</b> command.  |         |              |                   |                              |
| <b>Task ID</b>            | <table border="1"> <thead> <tr> <th>Task ID</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>ethernet-services</td> <td>read</td> </tr> </tbody> </table>                            | Task ID | Operation    | ethernet-services | read                         |
| Task ID                   | Operation   |         |              |                   |                              |
| ethernet-services         | read  |         |              |                   |                              |

The following example shows sample output for statistics for all LLDP traffic on the system:

```
RP/0/RP0/CPU0:router# show lldp traffic
LLDP traffic statistics:
  Total frames out: 277
  Total entries aged: 0
  Total frames in: 328
  Total frames received in error: 0
  Total frames discarded: 0
  Total TLVs discarded: 0
  Total TLVs unrecognized: 0
```

**Table 3: show lldp traffic Field Descriptions**

| Field                           | Description   |
|---------------------------------|---|
| Total frames out:               | Number of LLDP advertisements sent from the device.                         |
| Total entries aged:             | Number of LLDP neighbor entries removed due to expiration of the hold time. |
| Total frames in:                | Number of LLDP advertisements received by the device.                       |
| Total frames received in error: | Number of times the LLDP advertisements contained errors of any type.       |

| Field                    | Description   |
|--------------------------|---|
| Total frames discarded:  | Number of times the LLDP process discarded an incoming advertisement.   |
| Total TLVs discarded:    | Number of times the LLDP process discarded a Type Length Value (TLV) from an LLDP frame.  |
| Total TLVs unrecognized: | Number of TLVs that could not be processed because the content of the TLV was not recognized by the device or the contents of the TLV were incorrectly specified. |



# interface range

To configure multiple interfaces of the same type in the specified range with a single interface configuration element, use the **interface** *type, specified-range* command in interface configuration mode.

**interface** *{type, specified-range}*

## Syntax Description

|                        |   |
|------------------------|---|
| <i>type</i>            | Defines an interface type that is supported in IOS XR.  |
| <i>specified-range</i> | Defines a range for the interface that will be configured. You can either use ',' or '-' to specify the range within system limits. For example, 2-4. |

## Command Default

None

## Command Modes

Global Interface Configuration

## Command History

| Release        | Modification                 |
|----------------|------------------------------|
| Release 7.0.12 | This command was introduced. |

## Usage Guidelines

This command needs memory allocation for the specified interface range. Refer to system limits specifications prior to specifying the range in the command.

## Task ID

| Task ID   | Operation      |
|-----------|----------------|
| interface | read,<br>write |

This example shows how to configure HundredGigabitEthernet interface type for a specified range:

```
RP/0/RP0/CPU0:router(config)# int HundredGigabitEthernet 0/0/0/0,2-4
RP/0/RP0/CPU0:router(config-if-range)# description Test interface range
RP/0/RP0/CPU0:router(config-if-range)# show configuration
```

Thu Jan 11 06:46:43.502 PST

Building configuration...

```
interface HundredGigabitEthernet0/0/0/0
```

```
description Test Interface range
```

```
!
```

```
interface HundredGigabitEthernet0/0/0/2
```

```
description Test Interface range
```

```
!
```

```
interface HundredGigabitEthernet0/0/0/3
```

```
description Test Interface range
```

```
!  
interface HundredGigabitEthernet0/0/0/4  
description Test Interface range  
!
```

This example shows how to configure TenGigabitEthernet interface type for a specified range:

```
RP/0/RP0/CPU0:router(config)# interface tengig 0/0/0/16/0-3
```