

Ethernet Interface Commands

Note All commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 540 Series Router that is introduced from Cisco IOS XR Release 6.3.2. References to earlier releases in Command History tables apply to only the Cisco NCS 5500 Series Router.

Note

- Starting with Cisco IOS XR Release 6.6.25, all commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 560 Series Routers.
- Starting with Cisco IOS XR Release 6.3.2, all commands applicable for the Cisco NCS 5500 Series Router are also supported on the Cisco NCS 540 Series Router.
- References to releases before Cisco IOS XR Release 6.3.2 apply to only the Cisco NCS 5500 Series Router.
- Cisco IOS XR Software Release 7.0.1 specific updates are not applicable for the following variants of Cisco NCS 540 Series Routers:
  - N540-28Z4C-SYS-A
  - N540-28Z4C-SYS-D
  - N540X-16Z4G8Q2C-A
  - N540X-16Z4G8Q2C-D
  - N540X-16Z8Q2C-D
  - N540-12Z20G-SYS-A
  - N540-12Z20G-SYS-D
  - N540X-12Z16G-SYS-A
  - N540X-12Z16G-SYS-D

This module provides command line interface (CLI) commands for configuring Ethernet interfaces on the Cisco NCS 5500 Series RouterCisco NCS 540 Series Router.

For detailed information about Ethernet interfaces concepts, configuration tasks, and examples, refer to the *Interface and Hardware Component Configuration Guide for Cisco NCS 5500 Series RoutersInterface and Hardware Component Configuration Guide for Cisco NCS 540 Series RoutersInterface and Hardware Component Configuration Guide for Cisco NCS 560 Series Routers*

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aggregate

To configure the size and number of bins into which to aggregate the results of statistics collection, use the **aggregate** command in SLA profile statistics configuration mode. To return to the default, use the **no** form of this command.

aggregate { **none** | **bins** *count* **width** **[usec]** *width* [**minimum-delay** **[usec]** *width*] }

Syntax Description

bins *count*	Number of bins. The range is 2 to 100.
width *width*	For delay and jitter measurements, the size of each bin in milliseconds (range is 1 to 10000). When the **usec** keyword is specified, the size of bins can be configured in microseconds (range is 1 to 10000000). For loss measurements, the size of each bin in percentage points (range is 1 to 100). In addition, the width must be specified if the number of bins is at least 2, regardless of the type of measurement.
usec	(Optional) When specified, the size of each bin can be configured in microseconds.
none	No aggregation is performed. All samples are stored individually.
minimum-delay [usec]width *width*	(Optional) Specifies the width of the first bin in milliseconds or microseconds. You can set this value only if the bin count is at least two. When the **usec** keyword is specified, the size of bins can be configured in microseconds (range is 1 to 10000000). **Note** The minimum-delay option can be configured only for delay measurements and not for jitter measurements.

Command Default

For delay measurements, all collected statistics are aggregated into one bin.

For loss measurements, the default is aggregation disabled.

Command Modes

SLA profile statistics configuration (config-sla-prof-stat-cfg)

Command History

Release 3.9.0	This command was introduced.
Release 4.3.0	The measurement statistics for Y.1731 Synthetic Loss Measurement (SLM) was included.
Release 7.7.1	The **usec** option was introduced.
Release 25.1.1	The keyword **minimum-delay** was introduced.

Usage Guidelines

Changing the aggregation for a given metric clears all stored data for that metric.

When aggregation is enabled, a number of bins are created, each of which represents a range of values. Instead of storing each individual result, all that is stored is a counter of the number of results that fall within the range for each bin. This uses much less memory than storing each individual result.

For delay and jitter measurements, the first bin starts at 0, each bin covers a range of values defined by the specified width, except for the last bin which ends at infinity. For example, an aggregate bin count of 4 and a width of 20 for delay measurements yields 4 bins of statistics for these sample ranges:

- Bin 1—Samples with delay ranges 0 to < 20 ms.
- Bin 2—Samples with delay ranges greater than or equal to 20 and < 40 ms.
- Bin 3—Samples with delay ranges greater than or equal to 40 and < 60 ms.
- Bin 4—Samples with delay ranges 60 ms or greater (unbounded).

For synthetic loss measurements, the first bin starts at 0, each bin covers a range of values defined by the specified width, except for the last bin which ends at infinity. For example, an aggregate bin count of 4 and a width of 25 for loss measurements yields 4 bins of statistics for these sample ranges:

- Bin 1—Samples with loss ranges 0 to < 25 percentage points.
- Bin 2—Samples with loss ranges greater than or equal to 25 and < 50 percentage points.
- Bin 3—Samples with loss ranges greater than or equal to 50 and < 75 percentage points.
- Bin 4—Samples with loss ranges greater than or equal to 75 and <100 percentage points.

Note For delay and jitter measurements (round-trip or one-way), the lower bound of the first bin is zero, and the last bin is effectively of infinite width. If aggregation is disabled, each individual delay value is stored. For loss measurements, the lower bound of the first bin is zero, and the upper bound of the last bin is 100. The last bin may be wider than the other bins. If aggregation is disabled, each calculated FLR value is stored.

Note The lower bound of each bin is inclusive, while the upper bound is exclusive. Changing the aggregation for a given metric clears all stored data for that metric.

Task ID

Task ID	Operations
ethernet-services	read, write

Examples

This example shows how to configure round-trip-delay statistics measurement in 4 bins each with a width of 10000000 microseconds:

```
Router# configure
Router(config)# ethernet sla
Router(config-sla)# profile Prof1 type cfm-delay-measurement
Router(config-sla-prof)# statistics measure round-trip-delay
```

```
Router(config-sla-prof-stat-cfg)# aggregate bins 4 width usec 10000000
```

Examples

This example shows how to configure mimimum delay of width 5 milliseconds.

```
Router# configure
Router(config)# ethernet sla
Router(config-sla)# profile Prof1 type cfm-delay-measurement
Router(config-sla-prof)# statistics measure round-trip-delay
Router(config-sla-prof-stat-cfg)# aggregate bins 10 width 2 minimum-delay 5
```

carrier-delay

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



Note

- In the production environments, do not set the carrier-delay up value to 0 ms.
- Test the carrier-delay timer settings to confirm that they align with the specific requirements of the network environment and provide an effective balance between link stability and timely failure restoration. Further tuning may be necessary during production to adapt to evolving network conditions.
- For links with physical-layer instability, such as microwave links or long-haul optical paths with symbol errors or link fault history events, use a carrier-delay up value greater than the default to prevent control plane churn during link recovery cycles.

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

- The carrier-delay up timer has a default value of 200 ms. There is a delay of 200 ms before the upper layer protocols are notified when a physical link goes up.
- The carrier-delay down timer does not have a default value. 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 6.0	This command was introduced.
Release 24.2.1	A default value of 200 ms was introduced for the carrier-delay up timer for NCS 5500 fixed port routers; NCS 5500 modular routers (NCS 5500 line cards; NCS 5700 line cards [Mode: Compatibility; Native].
Release 24.2.11	A default value of 200 ms was introduced for the carrier-delay up timer for NCS 5700 fixed port routers.

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 Cisco NCS 5500 and Cisco 540 Series 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 Cisco NCS 5500 and Cisco 540 Series 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 controller pfc statistics

To clear priority flow control statistics on an interface on a per-port or a per-traffic-class, per-port basis, use `clear controllers <interface> priority-flow-control statistics [traffic-class <0-7>]` command in XR EXEC mode.

clear controllers *interface* **priority-flow-control statistics traffic-class** *<0-7>*

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
6.6.4	This command was introduced.

Usage Guidelines

None

Example

This example shows sample output of `clear controllers <interface> priority-flow-control statistics [traffic-class <0-7>]` command:

```
RP/0/RP1/CPU0:router#clear controller hundredGigE 0/0/0/0 priority-flow-control statistics
 traffic-class 3
Mon Oct 12 12:22:48.778 UTC
RP/0/RP1/CPU0:router#show controllers hundredGigE 0/0/0/0  priority-flow-control statistics

Mon Oct 12 12:22:51.097 UTC

Priority flow control information for interface HundredGigE0/0/0/0:

Priority Flow Control:
    Total Rx PFC Frames: 0
    Total Tx PFC Frames: 882241
    Rx Data Frames Dropped: 0
    CoS  Status  Rx Frames   Tx Frames
    ---  ------  ----------  ----------
      0  off              0           0
      1  off              0           0
      2  off              0           0
      3  on               0           0
      4  on               0      882241
      5  off              0           0
      6  off              0           0
      7  off              0           0
RP/0/RP1/CPU0:router#
```

clear controllers priority-flow-control watchdog statistics

To clear priority flow control watchdog statistics on an interface on a per-port or a per-traffic-class, per-port basis, use `clear controllers <interface> priority-flow-control watchdog statistics [traffic-class <0-7>]` command in XR EXEC mode.

clear controllers *interface* **priority-flow-control watchdog statistics traffic-class** *<0-7>*

Command Modes

XR EXEC mode

Command History

Release	Modification
6.6.4	This command was introduced.

Usage Guidelines

None

Example

This example shows sample output of `clear controllers <interface> priority-flow-control watchdog statistics [traffic-class <0-7>]` command:

```
RP/0/RP1/CPU0:router#clear controller hundredGigE 0/0/0/0 priority-flow-control watchdog-stats
 ?
  traffic-class  Traffic class to be cleared

RP/0/RP1/CPU0:router#clear controller hundredGigE 0/0/0/0 priority-flow-control watchdog-stats
 traffic-class ?
  <0-7>  Traffic class
RP/0/RP1/CPU0:router#clear controller hundredGigE 0/0/0/0 priority-flow-control watchdog-stats
 traffic-class 3
Mon Oct 12 14:36:18.881 UTC
RP/0/RP1/CPU0:router#
```

interface (Ethernet)

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

Cisco NCS 5500 Series Routers
interface {**TenGigE** | **HundredGigE**} *interface-path-id*
no interface {**TenGigE** | **HundredGigE**} *interface-path-id*

Cisco NCS 540 Series Routers, Cisco NCS 560 Series Routers
interface {**GigE** | **TenGigE** | **TwentyfiveGigE** | **FortyGigE** | **HundredGigE**} *interface-path-id*
no interface {**GigE** | **TenGigE** | **TwentyfiveGigE** | **FortyGigE** | **HundredGigE**} *interface-path-id*

Syntax Description

GigE	(Cico NCS 540, Cisco NCS 560) Specifies or creates a One Gigabit Ethernet (1 Gbps) interface.
TenGigE	Specifies or creates a Ten Gigabit Ethernet (10 Gbps) interface.
TwentyfiveGigE	(Cisco NCS 540, Cisco NCS 560)) Specifies or creates a Twenty five Gigabit Ethernet (25 Gbps) interface.
FortyGigE	(Cisco NCS 540, Cisco NCS 560)) Specifies or creates a Forty Gigabit Ethernet (40 Gbps) interface.
HundredGigE	Specifies or creates a Hundred Gigabit Ethernet (100 Gbps) interface.
interface-path-id	Physical 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.

Command Default

None

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

To specify a physical interface, use the *interface-path-id* format: *rack/slot/module/port/sub-port* (slashes are required). These are the definitions of each component:

- *rack*: Chassis number of the rack.
- *slot*: Physical slot number of the line card.
- *module*: Module number. For non-modular line cards, this is always 0. For modular line cards, use the appropriate module number as per your hardware documentation.

- *port*: Physical port number of the interface.
- *sub-port* (Optional): Breakout lane number of the logical interface when the physical port is operating in breakout mode.

The supported *interface-path-id* ranges are:

- **GigE** — 0/0/0/0 - 0/0/0/31
- **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)#
```

interface range

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

interface *{type, specified-range}*

Syntax Description

type	Defines an interface type that is supported in IOS XR.
specified-range	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

Interface Configuration

Global Interface Configuration

Command History

Release	Modification
Release 6.2.1	XML support was introduced.
Release 6.1.2	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, write

This example shows how to configure GigabitEthernet interface type for a specifiied range:

```
RP/0/RP0/CPU0:router(config)# int GigabitEthernet 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 GigabitEthernet0/0/0/0

description Test Interface range

!

interface GigabitEthernet0/0/0/2

description Test Interface range

```
!
interface GigabitEthernet0/0/0/3
description Test Interface range
!
interface GigabitEthernet0/0/0/4
description Test Interface range
!
```

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.

Note This command is not supported on Cisco NCS 560-4 (RSP4).

loopback { **external** | **internal** | **line** }
no loopback

Syntax Description

external	All self-ping packets are sent out of the interface and looped back externally before being received on the ingress path.
internal	All packets are looped back internally within the router before reaching an external cable.
line	Incoming network packets are looped back through the same interface .

Command Default

Loopback mode is disabled.

Command Modes

Interface configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

The **loopback** command is available for all Ethernet interface types (Gigabit Ethernet, 10-Gigabit Ethernet).

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.

Examples

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

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

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 { **subinterface** | **subinterfaces-tagged** }
enable

no lldp

Syntax Description

subinterface	Enables LLDP on all subinterfaces.
subinterfaces-tagged	Enables VLAN tagging for LLDP packets on all subinterfaces.

Command Default

LLDP is disabled.

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.9.1	The keyword **subinterfaces-tagged** was introduced.
Release 6.3.2	This command was introduced.

Usage Guidelines

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, 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 all subinterfaces:

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

This example shows how to enable VLAN tagging for LLDP packets on all subinterfaces:

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

lldp enable (subinterface)

To enable LLDP packet transmission and reception on each subinterface, use **lldp enable** command in subinterface configuration mode. To disable LLDP for the subinterface, use the **no** form of this command.

```
lldp  enable
```

Syntax Description

This command has no keywords or arguments.

Command Default

LLDP is disabled.

Command Modes

Subinterface Configuration mode

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

None

Task ID

Task ID	Operation
ethernet-services	read, write

Example

This example shows how to enable LLDP packet transmission and reception on subinterface GigabitEthernet 0/0/0/0.6.

```
Router(config)# interface GigabitEthernet 0/0/0/0.6
Router(config-subif)# lldp enable
Router(config-subif)# commit
```

lldp tagged (subinterface)

To enable VLAN-tagged LLDP packet transmission and reception on each subinterface, use **lldp tagged** command in subinterface configuration mode. To disable VLAN tagging for LLDP packets in the subinterface, use the **no** form of this command.

```
lldp  tagged
```

Syntax Description

This command has no keywords or arguments.

Command Default

VLAN tagging of LLDP packets is disabled.

Command Modes

Subinterface Configuration mode

Command History

Release	Modification
Release 7.9.1	This command was introduced.

Usage Guidelines

LLDP must be enabled for the subinterface before enabling VLAN tagging. See lldp enable for more details.

Task ID

Task ID	Operation
ethernet-services	read, write

Example

This example shows how to enable VLAN tagging for LLDP packets on subinterface GigabitEthernet 0/0/0/0.6.

```
Router(config)# interface GigabitEthernet 0/0/0/0.6
Router(config-subif)# lldp tagged
Router(config-subif)# commit
```

negotiation auto

To enable link autonegotiation on Gigabit Ethernet interfaces, use the **negotiation auto** command in interface configuration mode. To disable link autonegotiation, use the **no** form of this command.

negotiation auto
no negotiation auto

Syntax Description

This command has no keywords or arguments.

Command Default

Link autonegotiation is disabled.

Command Modes

Interface configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

The **negotiation auto** command is available on Gigabit Ethernet interfaces only.

Enabling the **negotiation auto** configuration is mandatory for the GLC-TE-specific ports to work properly on the NC57-48Q2D-S or NC57-48Q2D-SE-S line cards.

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to enable link autonegotiation on an interface:

```
RP/0/RP0/CPU0:router(config)# interface HundredGigE 0/2/0/0
RP/0/RP0/CPU0:router(config-if)# negotiation auto
```

This example shows how to disable link autonegotiation on an interface:

```
RP/0/RP0/CPU0:router(config)# interface HundredGigE 0/2/0/0
RP/0/RP0/CPU0:router(config-if)# no negotiation auto
```

oam 48byte-cfm-maid-enable

To enable the 48-byte string-based MAID support for Offloaded Endpoints in native mode, use the **hw-module profile oam 48byte-cfm-maid-enable** command in the System Admin Config mode.

hw-module profile oam 48byte-cfm-maid-enable

Command Default

None

Command Modes

System Admin Config

Command History

Release	Modification
Release 7.5.1	This command was introduced.

Usage Guidelines

Make sure that you reload the router for this OAM profile to take effect.

Task ID

Task ID	Operations
ethernet-services	read

Examples

The following example shows how to enable the 48-byte string-based MAID support for Offloaded Endpoints in native mode.

```
Router(config)#hw-module profile oam 48byte-cfm-maid-enable
In order to make the oam profile take effect, the router must be manually reloaded.
Router(config)#commit
```

priority flow control

To enable priority-flow-control feature on the selected Ethernet interface, use the `priority-flow-control on` command. To disable, use the `no` form of the command.

priority flow control mode on
no priority flow control mode on

Command Default

PFC is disabled.

Command Modes

Interface configuration

Command History

Release	Modification
6.6.3	This command was introduced.

Usage Guidelines

None

Task ID

Task ID	Operation
interface	read, write

In this example, priority flow control is enabled on a HundredGigE interface 0/0/0/0:

```
RP/0/RP0/CPU0:router(config)#configure
RP/0/RP0/CPU0:router(config)#interface HundredGigE0/0/0/0
RP/0/RP0/CPU0:router(config)#priority-flow-control mode on
```

priority-flow-control watchdog

To configure PFC watchdog, use `priority-flow-control watchdog` command in XR Config mode. To unconfigure, use the `no` form of this command.

priority-flow-control watchdog { **auto-restore-multiplier** | **interval** | **mode** | **shutdown-multiplier** }

Command Default

Watchdog is enabled by default, with system default values of:

- Auto-restore-multiplier = 10
- Interval = 100ms
- Shutdown-multiplier = 1

Command Modes

XR Config mode

Command History

Release	Modification
6.6.4	This command was introduced.

Usage Guidelines

The PFC watchdog command acts in 2 modes:

- Global configuration mode

```
priority-flow-control watchdog mode-on
priority-flow-control watchdog interval 100
priority-flow-control watchdog auto-restore-multiplier 10
priority-flow-control watchdog shutdown-multiplier 2
```

- Interface configuration mode

```
interface HundredGigE0/0/0/0
  priority-flow-control watchdog mode-on
  priority-flow-control watchdog mode off
  priority-flow-control watchdog interval 987
  priority-flow-control watchdog shutdown-multiplier 5
```

Note While configuring PFC watchdog parameters at the global or interface levels, note that:

- When global watchdog mode is disabled or off, watchdog is disabled on all interfaces.This condition is regardless of the interface level watchdog mode settings.
- When global watchdog mode is enabled or on, the interface level watchdog mode configuration settings override the global watchdog mode values.
- When you configure interface level watchdog attributes such as interval, shutdown-multiplier, and auto-restore-multiplier, they override the global watchdog attributes.

Example

```
RP/0/RP0/CPU0:router(config)#priority-flow-control watchdog ?
auto-restore-multiplier      Watchdog Auto Restore Timer
interval                     PFC WD Polling Interval
mode                         Set Priority flow control watchdog mode
shutdown-multiplier          Pause Storm Detection Timer Threshold

RP/0/RP0/CPU0:router(config)#no priority-flow-control watchdog ?
auto-restore-multiplier      Watchdog Auto Restore Timer
interval                     PFC WD Polling Interval
mode                         Set Priority flow control watchdog mode
shutdown-multiplier          Pause Storm Detection Timer Threshold

RP/0/RP0/CPU0:router# show controllers hundredGigE 0/0/0/0 priority-flow-control
watchdog-config
Mon Oct 12 14:32:47.056 UTC

Priority flow control information for interface HundredGigE0/0/0/0:

Priority flow control watchdog configuration:
(D) : Default value
U : Unconfigured
-------------------------------------------------------------------------------
       Configuration Item           Global  Interface Effective
-------------------------------------------------------------------------------
    PFC watchdog state           :        U        U  Enabled(D)
    Poll interval                :        U        U      100(D)
    Shutdown multiplier          :        U        U        1(D)
    Auto-restore multiplier      :        U        U       10(D)
```

report sd-ber

To enable Signal Degrade (SD) Bit Error Rate (BER) reporting, use the **report sd-ber** command in interface configuration mode. To disable Signal Degrade (SD) Bit Error Rate (BER) reporting, use the **no** form of this command.

report sd-ber

Syntax Description

This command has no keywords or arguments.

Command Default

Signal Degrade (SD) Bit Error Rate (BER) reporting is disabled by default.

Command Modes

interface configuration

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to enable Signal Degrade (SD) Bit Error Rate (BER) reporting.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# int hundredGigE 0/1/0/17
RP/0/RP0/CPU0:router(config-if)# report sd-ber
RP/0/RP0/CPU0:router(config-if)#
```

report sf-ber disable

To disable Signal Failure (SF) Bit Error Rate (BER) reporting, use the **report sf-ber disable** command in interface configuration mode. To enable Signal Failure (SF) Bit Error Rate (BER) reporting, use the no form of this command.

report sf-ber disable

Syntax Description

This command has no keywords or arguments.

Command Default

Signal Failure (SF) Bit Error Rate (BER) reporting is enabled by default.

Command Modes

Interface configuration

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to disable Signal Failure (SF) Bit Error Rate (BER) reporting.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# int hundredGigE 0/1/0/17
RP/0/RP0/CPU0:router(config-if)# report sf-ber disable
RP/0/RP0/CPU0:router(config-if)#
```

set controller priority-flow-control

To manually restore a queue that has been shutdown by the PFC watchdog action, use `set controller <interface> priority-flow-control recover traffic-class [0-7]` command in XR EXEC mode. Once this command is executed, all internal watchdog state machines are reset and the queue is put back into monitoring state.

set controller *interface* **priority-flow-control recover traffic-class** *<0-7>*

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
6.6.4	This command was introduced.

Usage Guidelines

None

Example

This example shows sample output of `set controller hundredGigE 0/1/0/19 priority-flow-control recover traffic-class 3` command:

```
RP/0/RP1/CPU0:router#show controllers hundredGigE 0/1/0/19 priority-flow-control
watchdog-state

Priority flow control information for interface HundredGigE0/1/0/19:


Priority flow control watchdog state machine state:
D - Disabled
M - Monitoring
S - Waiting For Shutdown
R - Waiting to Restore
----------------------------------------------------------------
PFC Watchdog : Enabled
Watchdog SM state : Traffic Class
7 6 5 4 3 2 1 0
- - - M R - - -
RP/0/RP1/CPU0:router#

RP/0/RP1/CPU0:router#set controller hundredGigE 0/1/0/19 priority-flow-control recover
traffic-class 3

RP/0/RP1/CPU0:router#show controllers hundredGigE 0/1/0/19 priority-flow-control
watchdog-state

Priority flow control information for interface HundredGigE0/1/0/19:


Priority flow control watchdog state machine state:
D - Disabled
M - Monitoring
S - Waiting For Shutdown
```

```
R - Waiting to Restore
------------------------------------------------------------------
PFC Watchdog : Enabled
Watchdog SM state : Traffic Class
7 6 5 4 3 2 1 0
- - - M M - - -
RP/0/RP1/CPU0:router#
```

speed (Network Interface)

To configure the speed for a network (NPU) interface, enter the **speed** command in interface configuration mode. To return the system to autonegotiate speed, use the **no** form of the **speed** command.

speed {**10** | **100** | **1000**}
no speed

Syntax Description

10	(Cisco NCS 540) Configures the interface to transmit at 10 Mbps.
100	Configures the interface to transmit at 100 Mbps.
1000	Configures the interface to transmit at 1000 Mbps (1 Gbps).

Command Default

Interface is autonegotiated and speed is set to 1000Mbps.

Command Modes

Interface configuration

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

This command is supported only on 1G interfaces with a 1000Base-T module (GLC-TE) inserted.

The command supports only full duplex mode.

This table describes the performance of the system for different combinations of the negotiation and speed modes. The specified **negotiation** command configured with the specified **speed** command produces the resulting system action.

Table 1: Relationship Between negotiation and speed Commands

Negotiation Command	speed Command	Resulting System Action
no negotiation	no speed	Autonegotiates for full duplex mode and speed is 1000 Mbps.
auto negotiation	speed 10	Autonegotiates for full duplex mode and speed is forced to 10 Mbps.
auto negotiation	speed 100	Autonegotiates for full duplex mode and speed is forced to 100 Mbps.
auto negotiation	speed 1000	Autonegotiates for full duplex mode and speed is forced to 1000 Mbps.
auto negotiation	no speed	Autonegotiates.

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to configure the network interface to transmit at 1G:

```
RP/0/RP0/CPU0:router(config)# interface GigabitEthernet 0/0/0/31
RP/0/RP0/CPU0:router(config-if)# speed 1000
```

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** | **description** | **periodic** | **pm** | **bert** | **control** | **internal** | **mac** | **phy** | **regs** | **stats** | **xgxs**]

Syntax Description

{ **GigE** |**TenGigETwentyFiveGigE** | **FortyGigE** |**HundredGigE** |**FourHundredGigE**}	Specifies the type of Ethernet interface whose status and configuration information you want to display.
interface-path-id	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.
all	Displays detailed information for the specified interface.
bert	Displays BERT status information for the interface.
control	Displays configuration and control information for the interface.
internal	Displays internal information for the interface.
mac	Displays mac information for the interface.
phy	Displays physical information for the interface.
regs	Displays registers information for the interface.
stats	Displays statistical information for the interface.
xgxs	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 6.0	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.

Note When the NC57-MPA-1FH1D-S modular port adapter is plugged into the NC57-MOD-S line card, the Forward Error Correction (FEC) is disabled for 100GE for optics.

Note The Forward Error Correction (FEC) is disabled for 25GE, and 100GE optics in the NCS57-MOS-S line card.

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:

- **GigE** — 0/0/0/0 - 0/0/0/31
- **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 **Note** Required in addition to the interface (read) task ID to use the **control** keyword only.
dwdm	read
interface	read
sonet-sdh	read

Examples

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

```
RP/0/RP0/CPU0:router# show controllers hundredGigE 0/2/0/0 all


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)
    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# show controllers hundredGigE 0/2/0/0 control

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
 GSERDES 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#  show controllers hundredGigE 0/2/0/0 stats


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
```

show controllers npu priority-flow-control loc

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

show controllers npu priority-flow-control loc

Command Default No default behavior or values

Command Modes XR EXEC mode

Command History

Release	Modification
6.6.4	This command was introduced.

Usage Guidelines None

Example

This example shows sample output of `show controllers npu priority-flow-control loc 0/0/CPU0` command:

```
RP/0/RP1/CPU0:router#show controllers npu priority-flow-control loc 0/0/CPU0
Mon Oct 12 14:35:17.531 UTC

Location:    0/0/CPU0
PFC:          Enabled
TC    Pause-threshold    Resume-Threshold     Headroom
-------------------------------------------------------
3       403200 bytes        40320 bytes        441600 bytes
4       403200 bytes        40320 bytes        441600 bytes
RP/0/RP1/CPU0:router#
```

show controllers priority-flow-control

To display status and configuration information about the priority flow control on an interface, use the `show controllers <interface> priority-flow-control` command in XR EXEC mode.

show controllers *interface* **priority-flow-control**

Command Default No default behavior or values

Command Modes XR EXEC mode

Command History

Release	Modification
6.6.4	This command was introduced.

Usage Guidelines None

Example

This example shows sample output of `show controllers hundredGigE 0/0/0/0 priority-flow-control` command:

```
RP/0/RP1/CPU0:router#show controllers hundredGigE 0/0/0/0 priority-flow-control
Mon Oct 12 12:20:53.520 UTC

Priority flow control information for interface HundredGigE0/0/0/0:

Priority Flow Control:
    Total Rx PFC Frames: 0
    Total Tx PFC Frames: 1764273
    Rx Data Frames Dropped: 0
    CoS  Status  Rx Frames   Tx Frames
    ---  ------  ----------  ----------
      0  off              0           0
      1  off              0           0
      2  off              0           0
      3  on               0      882032
      4  on               0      882241
      5  off              0           0
      6  off              0           0
      7  off              0           0


Priority flow control watchdog configuration:
(D) : Default value
U : Unconfigured
------------------------------------------------------------------------------
       Configuration Item           Global  Interface Effective
------------------------------------------------------------------------------
    PFC watchdog state           :        U        U  Enabled(D)
    Poll interval                :        U        U      100(D)
    Shutdown multiplier          :        U        U        1(D)
    Auto-restore multiplier      :        U        U       10(D)
```

```
Priority flow control watchdog statistics:
SAR: Auto restore and shutdown
-------------------------------------------------------------------------------------------------
Traffic Class            :       0        1        2        3        4        5        6
      7
-------------------------------------------------------------------------------------------------
Watchdog Events          :       0        0        0        0        0        0        0
      0
Shutdown Events          :       0        0        0        0        0        0        0
      0
Auto Restore Events      :       0        0        0        0        0        0        0
      0
SAR Events               :       0        0        0        0        0        0        0
      0
SAR Instantaneous Events :       0        0        0        0        0        0        0
      0
Total Dropped Packets    :       0        0        0        0        0        0        0
      0
Dropped Packets          :       0        0        0        0        0        0        0
      0


Priority flow control watchdog state machine state:
D - Disabled
M - Monitoring
S - Waiting For Shutdown
R - Waiting to Restore
---------------------------------------------------------------
PFC Watchdog      : Enabled
Watchdog SM state :  Traffic Class
                     7 6 5 4 3 2 1 0
                     - - - D D - - -
RP/0/RP1/CPU0:router#
```

show controllers priority-flow-control statistics

To display statistics about the priority flow control on an interface, use the `show controllers <interface> priority-flow-control statistics` command in XR EXEC mode.

show controllers *interface* **priority-flow-control statistics**

Command Default No default behavior or values

Command Modes XR EXEC mode

Command History

Release	Modification
6.6.4	This command was introduced.

Usage Guidelines None

Example

This example shows sample output of `show controllers hundredGigE 0/0/0/0 priority-flow-control statistics` command:

```
RP/0/RP1/CPU0:router#show controllers hundredGigE 0/0/0/0 priority-flow-control statistics

Mon Oct 12 12:22:39.362 UTC

Priority flow control information for interface HundredGigE0/0/0/0:

Priority Flow Control:
    Total Rx PFC Frames: 0
    Total Tx PFC Frames: 1764273
    Rx Data Frames Dropped: 0
    CoS  Status  Rx Frames   Tx Frames
    ---  ------  ----------  ----------
      0  off              0           0
      1  off              0           0
      2  off              0           0
      3  on               0      882032
      4  on               0      882241
      5  off              0           0
      6  off              0           0
      7  off              0           0
```

show controllers npu priority-flow-control vsq-usage

To display statistics about the occupancy and threshold buffer values and PFC configuration parameters on an interface, use the **show controllers npu priority-flow-control vsq-usage** command in XR EXEC mode.

show controllers npu priority-flow-control vsq-usage interface *interface* **location** *lc*

Syntax Description

interface *interface*—Physical interface
location *lc*—line card location

Command Default

No default behavior or values

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 7.5.4	This command was introduced.

Usage Guidelines

None

Example

This example shows sample output of the **show controllers npu priority-flow-control vsq-usage** command:

```
Router#show controllers npu priority-flow-control vsq-usage interface hundredGigE 0/0/1/0
location 0/0/CPU0


Location             : 0/0/CPU0
Intf Handle(Hex)     : a8
Core                 : 0
Npu_id               : 0
pp_port              : 21

VSQ Threshold Information:
==========================

TC   Pause-threshold     Resume-threshold    Headroom    pg_vsq_id
     Bytes               Bytes               Bytes
-------------------------------------------------------------------
3    405504              40192               442368      12
4    405504              40192               442368      13

VSQ Occupancy Information:
==========================

TC      pg_vsq_id      Headroom       Shared         Headroom       Shared
                       BDs            Pool BDs       Bytes          Pool Bytes
-------------------------------------------------------------------------------
3       12             0              0              0              0
4       13             0              0              0              0
```

```
Available Buffers:
==================
OCB     : On chip buffer
MNMC    : Mini multicast buffer
FMC     : Full multicast buffer

core    OCB            OCB            MNMC           MNMC           FMC            FMC

        Buffers        Percent        Buffers        Percent        Buffers        Percent
-------------------------------------------------------------------------------------------
0       32768          100            786432         100            98304          100

1       32768          100            1310720        100            98304          100


Ingress Reject Reason:
======================
Packet Reject Bitmap (Core 0):
Reg_val0 :   0
Reg_val1 :   0

Packet Reject Bitmap (Core 1):
Reg_val0 :   0
Reg_val1 :   0

core    Bit_Pos   Reason
-----------------------------------
        None
        None

Location             : 0/0/CPU0
Intf Handle(Hex)     : 48
Core                 : 0
Npu_id               : 0
pp_port              : 9

VSQ Threshold Information:
==========================

TC   Pause-threshold     Resume-threshold    Headroom    pg_vsq_id
     Bytes               Bytes               Bytes
-------------------------------------------------------------------
3    405504              40192               442368      20
4    405504              40192               442368      21

VSQ Occupancy Information:
==========================

TC      pg_vsq_id      Headroom       Shared         Headroom       Shared
                       BDs            Pool BDs       Bytes          Pool Bytes
-------------------------------------------------------------------------------
3       20             0              0              0              0
4       21             0              0              0              0

Available Buffers:
==================
OCB     : On chip buffer
MNMC    : Mini multicast buffer
FMC     : Full multicast buffer

core    OCB            OCB            MNMC           MNMC           FMC            FMC

        Buffers        Percent        Buffers        Percent        Buffers        Percent
```

```
-------------------------------------------------------------------------------------------
0       32768          100            786432         100            98304          100

1       32768          100            1310720        100            98304          100


Ingress Reject Reason:
======================
Packet Reject Bitmap (Core 0):
Reg_val0 :   0
Reg_val1 :   0

Packet Reject Bitmap (Core 1):
Reg_val0 :   0
Reg_val1 :   0

core    Bit_Pos   Reason
-----------------------------------
        None
        None
```

show controllers priority-flow-control watchdog statistics

To display statistics about watchdog for priority flow control on an interface, use `show controllers priority-flow-control watchdog statistics` command in XR EXEC mode.

show controllers *interface* **priority-flow-control watchdog statistics**

Command Default No default behavior or values

Command Modes XR EXEC mode

Command History

Release	Modification
6.6.4	This command was introduced.

Usage Guidelines None

Example

This example shows sample output of `show controllers hundredGigE 0/0/0/0 priority-flow-control watchdog-stats` command:

```
RP/0/RP1/CPU0:router# show controllers hundredGigE 0/0/0/0 priority-flow-control
watchdog-stats
Mon Oct 12 14:33:09.321 UTC

Priority flow control information for interface HundredGigE0/0/0/0:

Priority flow control watchdog statistics:
SAR: Auto restore and shutdown
-----------------------------------------------------------------------------------------------
Traffic Class            :       0        1        2        3        4        5        6
      7
-----------------------------------------------------------------------------------------------
Watchdog Events          :       0        0        0        0        0        0        0
      0
Shutdown Events          :       0        0        0        0        0        0        0
      0
Auto Restore Events      :       0        0        0        0        0        0        0
      0
SAR Events               :       0        0        0        0        0        0        0
      0
SAR Instantaneous Events :       0        0        0        0        0        0        0
      0
Total Dropped Packets    :       0        0        0        0        0        0        0
      0
Dropped Packets          :       0        0        0        0        0        0        0
      0
RP/0/RP1/CPU0:router#
```

show ethernet oam summary

To display the summary of all the active OAM sessions across all the interfaces, use the **show ethernet oam summary** command in XR EXEC mode.

The summary output hides the fields for which the field count is zero (0).

show ethernet oam summary

Command Default

This command displays the summary of all the active OAM sessions for all the interfaces.

Command History

Release	Modification
Release 5.2.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
ethernet-services	read

Examples

The following example shows how to display the summary for all the active OAM sessions across all the interfaces.

```
Router#show ethernet oam summary
Wed Apr 29 09:32:19.874 PDT
Link OAM System Summary
=======================
Profiles:                               1
Interfaces:                             4
  Interface states
    Port down:                          4
    Passive wait:                       0
    Active send:                        0
    Operational:                        0
     Loopback mode:                     0
  Miswired connections:                 1
Events:                                 0
  Local:                                0
    Symbol period:                      0
    Frame:                              0
    Frame period:                       0
    Frame seconds:                      0
  Remote:                               0
    Symbol period:                      0
    Frame:                              0
    Frame period:                       0
    Frame seconds:                      0

Event Logs
================================================================================
Local Action Taken:
    N/A    - No action needed         EFD    - Interface brought down using EFD
    None   - No action taken          Err.D  - Interface error-disabled
```

```
    Logged - System logged

Interface           Time                       Type           Loc'n  Action
------------------- -------------------------- -------------- ------ ------
Gi0/0/0/0           Wed Apr 29 08:56:54 PDT    Dying gasp     Local  Err.D
Gi0/0/0/0           Wed Apr 29 08:56:54 PDT    Link fault     Remote Err.D
Gi0/0/0/1           Wed Apr 29 08:56:51 PDT    Dying gasp     Local  Err.D
Gi0/0/0/1           Wed Apr 29 08:56:51 PDT    Link fault     Remote Err.D
Gi0/0/0/2           Wed Apr 29 08:56:50 PDT    Dying gasp     Local  Err.D
Gi0/0/0/2           Wed Apr 29 08:56:50 PDT    Dying gasp     Remote Err.D
Gi0/0/0/3           Wed Apr 29 08:56:46 PDT    Dying gasp     Local  Err.D
Gi0/0/0/3           Wed Apr 29 08:56:46 PDT    Link fault     Remote Err.D
```

show lldp entry

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

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

Syntax Description

*****	Displays detailed information about all LLDP neighbors.
name	Name of a specific LLDP neighbor for which detailed information is displayed.

Syntax Description

This command has no keywords or arguments.

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
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: GigabitEthernet0/0/0/8
Chassis id: 0026.9815.c3e6
Port id: Gi0/0/0/8
Port Description: GigabitEthernet0/0/0/8
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: GigabitEthernet0/0/0/8
```

```
Chassis id: 0026.9815.c3e6
Port id: Gi0/0/0/8.1
Port Description: GigabitEthernet0/0/0/8.1
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
```

signal sf-ber remote-fault

To enable remote fault signalling when Signal Failure (SF) Bit Error Rate (BER) is triggered, use the **signal sf-ber remote-fault** command in interface configuration mode. Once the SF BER is triggered, the transmission from the interface is shut down. To disable remote fault signalling when Signal Failure (SF) Bit Error Rate (BER) is triggered, use the no form of this command.

signal sf-ber remote fault

Syntax Description

This command has no keywords or arguments.

Command Default

Remote signalling for Signal Failure (SF) Bit Error Rate (BER) is disabled by default.

Command Modes

Interface configuration

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to enable remote fault signalling.

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# int hundredGigE 0/1/0/17
RP/0/RP0/CPU0:router(config-if)# signal sf-ber remote-fault
RP/0/RP0/CPU0:router(config-if)#
```

threshold sd-ber

To configure the threshold of the Signal Degrade (SD) Bit Error Rate (BER) that is used to trigger a signal degrade alarm, use the **threshold sd-ber** command in interface configuration mode. To return the Signal Degrade (SD) Bit Error Rate (BER) to the default value, use the **no** form of this command.

threshold sd-ber *exponent*

Syntax Description

exponent	Value of 10 raised to the *n* power, where *n* is the exponent of 10, as in10-n. Valid values are 8 to 12, meaning 10-8 to 10-12.

Command Default

The default is 10, meaning (10-10).

Command Modes

Interface configuration

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to configure sd-ber threshold:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# int hundredGigE 0/1/0/17
RP/0/RP0/CPU0:router(config-if)# threshold sd-ber 9
RP/0/RP0/CPU0:router(config-if)#
```

threshold sf-ber

To configure the threshold of the Signal Failure (SF) Bit Error Rate (BER) that is used to trigger a link state change, use the **threshold sf-ber** command in interface configuration mode. To return the Signal Failure (SF) Bit Error Rate (BER) to the default value, use the **no** form of this command.

threshold sf-ber *exponenet*

Syntax Description

exponent	Value of 10 raised to the *n* power, where *n* is the exponent of 10, as in10-n. Valid values are 8 to 12, meaning 10-8 to 10-12.

Command Default

The default is 8, meaning (10-8).

Command Modes

Interface configuration

Command History

Release	Modification
Release 6.3.2	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to configure the threshold of the Signal Failure (SF) Bit Error Rate (BER):

```
RP/0/RP0/CPU0:router # configure
RP/0/RP0/CPU0:router(config)# int hundredGigE 0/1/0/17
RP/0/RP0/CPU0:router(config-if)# threshold sf-ber 9
RP/0/RP0/CPU0:router(config-if)#
```