



Ethernet Interface Commands

This module provides command line interface (CLI) commands for configuring Ethernet interfaces on the Cisco NCS 5000 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 5000 Series Routers*

- [carrier-delay](#), on page 2
- [clear error-disable](#), on page 4
- [error-disable recovery cause](#) , on page 5
- [flow-control](#), on page 7
- [interface \(Ethernet\)](#), on page 8
- [loopback \(Ethernet\)](#), on page 9
- [mac-address \(Ethernet\)](#), on page 10
- [packet-gap non-standard](#), on page 11
- [show controllers \(Ethernet\)](#), on page 12
- [show efd database](#), on page 23
- [show error-disable](#), on page 24
- [show ethernet oam summary](#), on page 25
- [small-frame-padding](#), on page 27

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 6.0	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.



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 error-disable

To clear error-disable reason of an interface, use the **clear error-disable** command in the EXEC mode.

clear error-disable { **interface**<interface> | { **all** | <location > } }

Syntax Description

interface The interface for which you want to clear the error-disable reason.

location Clear error-disable for all interfaces on a specific card, or on all cards.

Command Default

An interface, location o

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 3.7.3	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
interface	exec

Example

The following example shows how to clear error-disable reason for an interface:

```
RP/0/0/CPU0:ios#sh error-disable
Interface          Error-Disable reason          Retry (s)  Time disabled
-----
Gi0/0/0/0          ethernet-oam-link-fault          ---      01:00 01 Jan

RP/0/0/CPU0:ios#
RP/0/0/CPU0:ios#clear error-disable interface G 0/0/0/0
```

error-disable recovery cause

To configure error-disable to automatically attempt recovery, use the **error-disable recovery cause** command.

error-disable recovery cause { **ethernet-oam-critical-event** | **ethernet-oam-link-fault** | . . . } [**interval**<30 – 1,000,000 >]

Syntax Description	link-oam-critical-event	Used when a critical event is detected by Ethernet Link OAM.
	<i>cause</i>	One of the defined error-disable causes, for example: ethernet-oam-link-fault.
	<i>interval</i>	Specifies the interval, in seconds, at which retries are attempted. The range is 30 to 1,000,000.
	link-oam-link-fault	Used when a unidirectional link is detected by Ethernet Link OAM.

Command Default Default interval period is 300 seconds.

Command Modes XR Config mode

Command History	Release	Modification
	Release 3.7.3	This command was introduced.

Usage Guidelines When error disable recovery is enabled, the interface automatically recovers from the error-disabled state, and the device retries bringing the interface up.

Task ID	Task ID	Operation
	interface	write

Example

The following example shows the full list of error-disable recovery causes:

```
RP/0/0/CPU0:ios(config)#error-disable recovery cause ?
cluster-udld           Used when UDLD is enabled on a Cluster port and UDLD is in
  aggressive mode and UDLD goes uni directional
link-oam-capabilities-conflict  Used when Ethernet Link OAM configuration conflicts with
the peer
link-oam-critical-event  Used when a critical event is detected by Ethernet Link OAM
link-oam-discovery-timeout  Used when an Ethernet Link OAM session fails to come up in
  time
link-oam-dying-gasp      Used when a dying gasp is detected by Ethernet Link OAM
link-oam-link-fault      Used when a unidirectional link is detected by Ethernet
Link OAM
link-oam-miswired        Used when a mis-wiring is detected with Ethernet Link OAM
link-oam-session-down    Used when an Ethernet Link OAM session goes down
link-oam-threshold-breached  Used when a configured error threshold has been breached
pvrst-pvid-mismatch     Used when a PVRST BPDU packet is tagged with a VLAN ID which
  is different from the VLAN ID on which it was sent.
stp-bpdu-guard          Used when an STP BPDU is received on a port on which BPDU
```

Guard is configured	
stp-legacy-bpdu	Used when a legacy BPDU is received on a port. Only MSTP
and RSTP BPDUs are supported	
udld-loopback	Used when UDLD detects that the port is in loopback mode(i.e.
its Tx is directly connected to its Rx)	
udld-neighbor-mismatch	Used when mismatched neighbors are detected by UDLD
udld-timeout	Used when all UDLD neighbors on the link have timed out
udld-unidirectional	Used when a link is detected to be unidirectional

flow-control

To enable the sending of flow-control pause frames, use the **flow-control** command in interface configuration mode. To disable flow control, use the **no** form of this command.

```
flow-control {bidirectional | egress | ingress}
no flow-control ingress {bidirectional | egress | ingress}
```

Syntax Description

bidirectional	Enables flow-control for egress and ingress direction.
egress	Pauses egress traffic if IEEE 802.3x PAUSE frames are received.
ingress	Sends IEEE 802.3x PAUSE frames in case of congestion with ingress traffic.

Command Default

If autonegotiate is enabled on the interface, then the default is negotiated.

If autonegotiate is disabled on the interface, then the sending of flow-control pause frames is disabled for both egress and ingress traffic.

Command Modes

Interface configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

When you explicitly enable the sending of flow-control pause frames, the value you configured with the **flow-control** command overrides any autonegotiated value. This prevents a link from coming up if the value you set with the **flow-control** command conflicts with the allowable settings on the other end of the connection.

The **flow-control** command is supported on Gigabit Ethernet, TenGigE interfaces only; the **flow-control** command is not supported on Management Ethernet Interfaces.

The **flow-control** command syntax options may vary, depending on the type of PLIM or SPA that is installed in your router.

Task ID

Task ID	Operations
interface	read, write

Examples

This example shows how to enable the sending of flow-control pause frames for ingress traffic on the TenGigE interface 0/3/0/0:

```
RP/0/RP0/CPU0:router(config)# interface TenGigE 0/0/0/3
RP/0/RP0/CPU0:router(config-if)# flow-control ingress
```

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 | HundredGigE} interface-path-id
no interface {TenGigE | HundredGigE} interface-path-id
```

Syntax Description

TenGigE Specifies or creates a Ten Gigabit Ethernet (10 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, 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.

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

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


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 }
no loopback
```

Syntax Description

external All IPv4 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 external cable.

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 TenGigE controller:

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

mac-address (Ethernet)

To set the MAC layer address of an Ethernet interface, use the **mac-address** command in interface configuration mode. To return the device to its default MAC address, use the **no** form of this command.

```
mac-address value1.value2.value3
no mac-address
```

Syntax Description

value1. High 2 bytes of the MAC address in hexadecimal format. Range is from 0 to ffff.

value2. Middle 2 bytes of the MAC address in hexadecimal. Range is from 0 to ffff.

value3. Low 2 bytes of the MAC address in hexadecimal. Range is from 0 to ffff.

Command Default

The default MAC address is read from the hardware burned-in address (BIA).

Command Modes

Interface configuration

Command History

Release	Modification
Release 6.0	This command was introduced.

Usage Guidelines

The MAC address must be in the form of three 4-digit values (12 digits in dotted decimal notation).

The **mac-address** command is available for all types of line card Ethernet interfaces (HundredGigabit Ethernet, 10-Gigabit Ethernet) and for the Management Ethernet interface.

Task ID

Task ID	Operations
	interface read, write

Examples

This example shows how to set the MAC address of a Ethernet interface located at 0/1/0/0:

```
RP/0/RP0/CPU0:router(config)# interface HundredGigE 0/1/0/0
RP/0/RP0/CPU0:router(config-if)# mac-address 0001.2468.ABCD
```

packet-gap non-standard

To change the packet interval for traffic on an interface for improved interoperability with Cisco Catalyst 6000 series switches, 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
no 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 6.0	This command was introduced.

Usage Guidelines An interface that is connected to a Cisco Catalyst 6000 series switch may experience packet loss problems that can be resolved by changing the packet interval of traffic from standard (as defined by the IEEE 802.3 specification) to nonstandard using the **packet-gap non-standard** command.



Note The **packet-gap non-standard** command is available on 10-Gigabit Ethernet interfaces only.

Task ID	Task ID	Operations
	interface	read, 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 0/0/0/3
RP/0/RP0/CPU0:router(config-if)# packet-gap non-standard
```

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 | internal | mac | phy | stats | xgxs }]
```

Syntax Description

{TenGigE HundredGigE}	Specifies the type of Ethernet interface whose status and configuration information you want to display.
<i>interface-path-id</i>	Physical interface or virtual interface. Note Use the show interfaces command to see a list of all interfaces currently configured on the router. For more information about the syntax for the router, use the question mark (?) online help function.
all	Displays detailed information for the specified interface.
bert	Displays BERT status 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.
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.

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 **show controllers TenGigE** command:

```
RP/0/RP0/CPU0:router# show controllers TenGigE 0/0/0/3
PHY:
XENPAK device registers:
=====

Vendor Name: CISCO-SUMITOMO
Vendor PN: SXP3101NV-C1
Vendor Rev: A1
Vendor SN: ECL120701L2

Package OUI: 0041f426
Vendor OUI: 00137b11
Vendor Date Code: 2004071200
nvr_control_status = 0x0007
nvr_version = 0x1e
nvr_size0 = 0x01
nvr_size1 = 0x00
mem_used0 = 0x01
mem_used1 = 0x00
basic_addr = 0x0b
cust_addr = 0x77
vend_addr = 0xa7
ext_vend_addr0= 0x00
ext_vend_addr1= 0xff
reserved0 = 0x00
tcvr_type = 0x01
connector = 0x01
```

show controllers (Ethernet)

```

encoding = 0x01
bitrate0 = 0x27
bitrate1 = 0x10
protocol = 0x01
x_gbe_code_byte_0 = 0x02
x_gbe_code_byte_1 = 0x00
sonet_sdh_code_byte_0 = 0x00
sonet_sdh_code_byte_1 = 0x00
sonet_sdh_code_byte_2 = 0x00
sonet_sdh_code_byte_3 = 0x00
x_gfc_code_byte_0 = 0x00
x_gfc_code_byte_1 = 0x00
x_gfc_code_byte_2 = 0x00
x_gfc_code_byte_3 = 0x00
range0 = 0x03
range1 = 0xe8
fibre_type_byte_0 = 0x20
fibre_type_byte_1 = 0x00

Center Wavelength:
chan0 = 1310.00 nm

chan1 = 0.00 nm
chan2 = 0.00 nm
chan3 = 0.00 nm

basic_checksum = 0x00

Link Alarm Status Registers:
rx_alarm_control = 0x0019
tx_alarm_control = 0x0059
lasi_control = 0x0000
rx_alarm_status = 0x0018
tx_alarm_status = 0x0058
lasi_status = 0x0005

Digital Optical Monitoring:
Transceiver Temp: 34.246 C
Laser Bias Current: 4.8640 mA
Laser Output Power: 0.5059 mW, -3.0 dBm
Receive Optical Power: 0.0000 mW, -inf dBm

Quake: devid 0x0043a400
10GE PMA/PMD Registers:
Control = 0x2040 Status = 0x0082 Dev ID 0 = 0x0043 Dev ID 1 = 0xa400 Speed Ability =
0x0001 Devices 1 = 0x001a Devices 2 = 0x0000 Control 2 = 0x0006 Status 2 = 0xb541 Tx
Disable = 0x0000 Rx Signal Detect = 0x0000 OUI 0 = 0x0041 OUI 1 = 0xf426
Quake (1.c001) = 0x0003

10GE PCS Registers:
Control = 0x2040 Status = 0x0082 Dev ID 0 = 0x0043 Dev ID 1 = 0xa400 Speed Ability =
0x0001 Devices 1 = 0x001a Devices 2 = 0x0000 Control 2 = 0x0000 Status 2 = 0x8401 PKG ID 0
= 0x0000 PKG ID 1 = 0x0000 Base X Status = 0x0000 Base X Control = 0x0000 Base R Status 1
= 0x0004 Base R Status 2 = 0x0000 Base R jitter seed a0 = 0x0000 Base R jitter seed a1 =
0x0000 Base R jitter seed a2 = 0x0000 Base R jitter seed a3 = 0x0000 Base R jitter seed b0
= 0x0000 Base R jitter seed b1 = 0x0000 Base R jitter seed b2 = 0x0000 Base R jitter seed
b3 = 0x0000 Base R jitter test control = 0x0000 Base R jitter test counter = 0x0000

10GE XS/XS Registers:
Control = 0x2040 Status = 0x0002
Dev ID 0 = 0x0043 Dev ID 1 = 0xa400
Speed Ability = 0x0001 Devices 1 = 0x001a Devices 2 = 0x0000 Status 2 = 0x8000 PKG ID 0 =

```

```

0x0000 PKG ID 1 = 0x0000 Lane Status = 0x1c0f Test Control = 0x0000

DTE XGXS (BCM8011):
Control = 0x0000 Status = 0x801f
Dev ID 0 = 0x0040 Dev ID 1 = 0x6092
Control 2 = 0x202f
Status 2 = 0x8b01

Speed Ability = 0x0001 Devices 1 = 0x001a Devices 2 = 0x0000 Status 2 = 0x8000 PKG ID 0 =
0x0000 PKG ID 1 = 0x0000 Lane Status = 0x1c0f Test Control = 0x0000

DTE XGXS (BCM8011):
Control = 0x0000 Status = 0x801f
Dev ID 0 = 0x0040 Dev ID 1 = 0x6092
Control 2 = 0x202f
Status 2 = 0x8b01

MAC (PLA):
Unicast MAC Address entries = 0

MAC (PLA) device is enabled
MAC (PLA) device is in promiscuous mode
MAC (PLA) device loopback is disabled

MAC (PLA) device MTU = 8226

8x10GE PLIM Registers:
local_regs_id = 0xa6602000 local_regs_inter_stat = 0x00000000 local_regs_inter_stat_alias
= 0x00000000 local_regs_inter_enbl_woset = 0x0000ff00 local_regs_inter_enbl_woclr =
0x0000ff00 local_regs_chip_reset = 0x00000000 local_regs_reset = 0xff000000
local_regs_misc_io = 0x00010000 sn_link_framed = 0x00000001 sn_link_crc_errors =
0x00000000 sn_link_force_reframe = 0x00000000 sn_link_error_reframe = 0x00000001
sn_link_force_error = 0x00000000 sn_link_error_cause = 0x00000000
sn_link_error_interrupt_mask = 0x00000003 channel0_control = 0x000000a6 channel1_control =
0x000000a6 channel2_control = 0x0000008e channel3_control = 0x0000008e channel4_control =
0x0000008e channel5_control = 0x000000a6 channel6_control = 0x000000a6 channel7_control =
0x0000008e

```

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

```

RP/0/RP0/CPU0:router# show controllers TenGigE 0/0/0/4 all
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

```

show controllers (Ethernet)

```

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:

```
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
```

show controllers (Ethernet)

```

        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 Acquiring
  Rx detected     : No
  Block lock      : No
  Tx aligned      : Yes

```

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

```
RP/0/RP0/CPU0:router# show controllers TenGigE 0/0/0/2 bert
```

BERT status for TenGigE0/0/0/2:

```

BERT State           :      DISABLED
Test Pattern         :      None test pattern
Time Remaining       :      0
Time Interval        :      0

```

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

```
RP/0/RP0/CPU0:router# show controllers TenGigE 0/0/0/2 control
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

```

show controllers (Ethernet)

```

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:

```

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

```

RP/0/RP0/CPU0:router#show controllers TenGigE 0/0/0/4 internal

Port Number      : 0
Port Type        : 10GE
Transport mode   : LAN
BIA MAC addr     : 001b.53ff.a780
Oper. MAC addr   : 001b.53ff.a780
Port Available   : true
Status polling is : enabled
Status events are : enabled
I/F Handle       : 0x0c000040
Cfg Link Enabled : tx/rx enabled
H/W Tx Enable    : yes
MTU              : 9112
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  : (0x0000) None
Link Up          : yes
Link Led Status  : Link up
Symbol errors     : 255
Serdes version   : 14.42
Input good underflow : 0
Input ucast underflow : 0
Output ucast underflow : 0

```

```

Input unknown opcode underflow: 0
Pluggable Present      : yes
Pluggable Type        : 10GBASE-LR
Pluggable Compl.      : Compliant
Pluggable Type Supp.  : Supported
Pluggable PID Supp.   : Supported
Pluggable Scan Flg:   false

```

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

```
RP/0/RP0/CPU0:router# show controllers TenGigE 0/0/0/4 stats
```

```
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
```

show efd database

To display complete information about all interfaces brought down due to **EFD**, use the `show efd database` command in EXEC mode.

```
show efd database [server | client] [interface ]
```

Syntax Description

client Displays all interfaces brought down by EFD filtered by a specific client protocol.

server Displays all interfaces brought down by EFD filtered by interface owner.

interface Displays a specific EFD state for the EFD state, if applicable.

Command Default

This command display all interfaces brought down by EFD.

Command Modes

EXEC mode

Command History

Release	Modification
Release 3.9.1	

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operation
ethernet-services	read

Example

The following example shows how to display the error disable information.

```
# show efd database
Client CFM
=====
Interface          Since                Success  Msg Req  Del
-----
GigE0/0/0/0.0     07/08/09 14:53     Yes      No      No

Server VLAN MA
=====
Interface          Clients
-----
GigE0/0/0/0.0     CFM
```

show error-disable

To display the error-disabled state of interfaces, use the **show error-disable** command in the EXEC mode.

```
show error-disable [recovery] [interface <interface> ]
```

Syntax Description	
recovery	Enables error disabled recovery on an interface.
interface	Displays error-disable state for a single interface.

Command Default This command includes all the error-disabled interfaces.

Command Modes EXEC mode

Command History	Release	Modification
	Release	
	3.7.3	

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

Task ID	Task ID	Operation
	interface	read

Example

The following example shows how to display the error disable information.

```
show error-disable
 [ recovery ]
 [ interface <interface> ]
```

Interface	Error-Disable reason	Retry (s)	Time disabled
Gi0/1/0/3	ethernet-oam-link-fault	1020000	17:12:23 04/31
Gi0/2/0/1	ethernet-oam-critical-event	---	20:04 04/31/06
Gi10/11/0/12.1234	ethernet-oam-high-threshold	245	20:02:42

```
show error-disable trace
 [ essential | non-essential ]
```


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:
    Symbol period:                         0
    Frame:                                  0
    Frame period:                          0
    Frame seconds:                          0
  Remote:
    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
```

show ethernet oam summary

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

small-frame-padding

To enable small frame padding on physical interfaces, use the **small-frame-padding** command in the interface configuration mode. To disable small frame padding, use the **no** form of this command.

small-frame-padding *interface-path-id*
nosmall-frame-padding

Syntax Description	<i>interface-path-id</i> Physical interface type.
---------------------------	---

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

Command Modes	Interface Configuration mode
----------------------	------------------------------

Command History	Release	Modification
	Release 6.0	This command was introduced.

Usage Guidelines	This command is applicable for all physical interfaces on all types of Cisco ASR 9000 Series Router line cards except Cisco ASR 9000 Ethernet line cards.
-------------------------	---

Task ID	Task ID	Operation
	interface	read, write

Example

This example shows how to use the small-frame-padding command:

```
RP/0/RP0/CPU0:router(config)# interface hundredGigE 0/0/0/4
RP/0/RP0/CPU0:router(config-if)# small-frame-padding
```

