Configuring Controllers

This chapter describes the Optics Controller for the 36-port QSFP56-DD 400 GbE and 48-port QSFP28 100 GbE Line Cards. This chapter also describes the procedures used to configure the controllers.

Note When two MACsec enabled Cisco 8000 Series Routers with Coherent Line Cards are connected, there is no compatibility between Coherent Line Cards of IOS XR Release.

- breakout - Configure breakout mode (‘breakout 4x10’ only.)
- clear - Clear the uncommitted configuration.
- commit - Commit the configuration changes to running.
- do - Run an exec command.
- end - Exit from configure mode.
- exit - Exit from this submode.
- ext-description - Set ext-description for this controller.
- no - Negate a command or set its defaults.
- pwd - Commands used to reach current submode.
- root - Exit to the global configuration mode.
- show - Show contents of configuration.

Following controller configuration options are supported on the router:

- How to Configure Controllers, on page 1

How to Configure Controllers

This section contains the following procedures:

Configuring Optics Controller

Configuring optics controller of breakout 4x10:

```
RP/0/RP0/CPU0:uut#configure
Fri Oct 11 16:22:31.222 UTC
RP/0/RP0/CPU0:uut(config)#controller optics 0/1/0/28
RP/0/RP0/CPU0:uut(config-Optics)#breakout 4x10
RP/0/RP0/CPU0:uut(config-Optics)#commit
Fri Oct 11 16:23:26.868 UTC
RP/0/RP0/CPU0:uut(config-Optics)#end
RP/0/RP0/CPU0:uut#
RP/0/RP0/CPU0:uut#show running-config controller optics 0/1/0/28
Fri Oct 11 16:23:41.273 UTC
controller Optics0/1/0/28
breakout 4x10
!
```

Disabling Optical Modules

This feature provides the ability to disable and re-enable an optical module through CLI, which simulates online insertion and removal (OIR) by disabling power to the transceiver port.

Typical troubleshooting procedures for optical modules can include performing OIR by removing and re-installing the module, which requires onsite personnel to physically reseat the optical module. The ability to remotely disable and enable an optical module can significantly reduce operational expenses.

Example

The following output shows a QSFP28 module powered on and in UP state:

```
Router# show controllers optics 0/0/0/0

Controller State: Up

Transport Admin State: In Service

Laser State: Off

LED State: Not Applicable

FEC State: FEC ENABLED

 Optics Status

         Optics Type:  QSFP28 100G FR
         Wavelength = 1311.00 nm

         Alarm Status:
         -------------
         Detected Alarms: None


         LOS/LOL/Fault Status:

         Laser Bias Current = 26.2 mA
         Actual TX Power = 0.73 dBm
         RX Power = -0.68 dBm

         Performance Monitoring: Disable
```

```
        THRESHOLD VALUES
        ----------------

        Parameter                 High Alarm  Low Alarm  High Warning  Low Warning
        ------------------------  ----------  ---------  ------------  -----------
        Rx Power Threshold(dBm)          7.4      -10.4           4.5         -6.3
        Tx Power Threshold(dBm)          7.0       -6.3           4.0         -2.4
        LBC Threshold(mA)             100.00       8.00         83.00        10.00
        Temp. Threshold(celsius)       75.00      -5.00         70.00         0.00
        Voltage Threshold(volt)         3.63       2.97          3.46         3.13

        Polarization parameters not supported by optics

        Temperature = 27.92 Celsius
        Voltage = 3.24 V

Transceiver Vendor Details

        Form Factor             : QSFP28
        Optics type             : QSFP28 100G FR
        Name                    : CISCO-CISCO
        OUI Number              : 00.00.0c
        Part Number             : 10-3248-01
        Rev Number              : 01
        Serial Number           : FBN2331A114
        PID                     : QSFP-100G-FR-S
        VID                     : ES0
        Date Code(yy/mm/dd)     : 19/09/19
```

To disable the module, use the **transceiver disable** command in controller optics configuration mode:

```
Router(config)# controller optics 0/0/0/0
Router(config-Optics)# transceiver disable
Router(config-Optics)# commit
Router(config-Optics)# end
```

The following example shows the QSFP28 module disabled and powered down:

```
Router# show controllers optics 0/0/0/0

Controller State: Down

Transport Admin State: In Service

Laser State: Off

 Optics Status

        Optics Type:  Unknown optics
        Wavelength = 0.00 nm

        Alarm Status:
        -------------
        Detected Alarms: None


        LOS/LOL/Fault Status:

        TX Power = N/A
        RX Power = N/A

        Performance Monitoring: Disable
```

```
        THRESHOLD VALUES
        ----------------

        Parameter                High Alarm  Low Alarm  High Warning  Low Warning
        -----------------------  ----------  ---------  ------------  -----------
        Rx Power Threshold(dBm)         7.4      -10.4           4.5         -6.3
        Tx Power Threshold(dBm)         7.0       -6.3           4.0         -2.4
        LBC Threshold(mA)            100.00       8.00         83.00        10.00
        Temp. Threshold(celsius)      75.00      -5.00         70.00         0.00
        Voltage Threshold(volt)        3.63       2.97          3.46         3.13

        Polarization parameters not supported by optics

        Temperature = 0.00 Celsius
        Voltage = 0.00 V

Transceiver Vendor Details
```

To re-enable the module, use the **no transceiver disable** command in controller optics configuration mode.