This chapter provides information about configuring the Gigabit Ethernet interface modules on the Cisco ASR 900 Series Router. It includes the following sections:

- Configuring Ethernet Interfaces, page 7-1
- Verifying the Interface Configuration, page 7-9
- Verifying Interface Module Status, page 7-10
- Configuring LAN/WAN-PHY Controllers, page 7-11

For more information about the commands used in this chapter, see the Cisco IOS XE 3S Command References.

## Limitations and Restrictions

Ten Gigabit Ethernet interface modules are not supported in slots 4 and 5.
### Configuring an Interface

This section lists the required configuration steps to configure Gigabit and Ten Gigabit Ethernet interface modules. Follow these steps to configure your interface module:

#### SUMMARY STEPS

1. `configure terminal`
2. `interface gigabitethernet slot/subslot/port`
   
   or
3. `interface tengigabitethernet slot/subslot/port`
4. `ip address [ip-address mask {secondary} | dhcp {client-id interface-name} {hostname host-name}]`
5. `mtu bytes`
6. `standby [group-number] ip [ip-address {secondary}]`
7. `no shutdown`

#### DETAILED STEPS

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td><strong>configure terminal</strong></td>
</tr>
<tr>
<td></td>
<td>Enters global configuration mode.</td>
</tr>
</tbody>
</table>
| **Step 2** | `interface gigabitethernet slot/subslot/port`
  or
| | `interface tengigabitethernet slot/subslot/port` |
| | Specifies the Gigabit Ethernet or Ten Gigabit Ethernet interface to configure and enters interface configuration mode, where: |
| | - `slot/subslot/port`—The location of the interface. See the “Specifying the Interface Address on an Interface Module” section on page 7-3. |
| | **Note** The slot number is always 0. |
| **Step 3** | `ip address [ip-address mask {secondary} | dhcp {client-id interface-name} {hostname host-name}]` |
| | Sets a primary or secondary IP address for an interface that is using IPv4, where: |
| | - `ip-address`—The IP address for the interface. |
| | - `mask`—The mask for the associated IP subnet. |
| | - `secondary`—(Optional) Specifies that the configured address is a secondary IP address. If this keyword is omitted, the configured address is the primary IP address. |
| | - `dhcp`—Specifies that IP addresses will be assigned dynamically using DHCP. |
| | - `client-id interface-name`—Specifies the client identifier. The `interface-name` sets the client identifier to the hexadecimal MAC address of the named interface. |
| | - `hostname host-name`—Specifies the hostname for the DHCP purposes. The `host-name` is the name of the host to be placed in the DHCP option 12 field. |
## Configuring Ethernet Interfaces

### Specifying the Interface Address on an Interface Module

To configure or monitor Ethernet interfaces, you need to specify the physical location of the interface module and interface in the CLI. The interface address format is `slot/subslot/port`, where:

- **slot**—The chassis slot number in the Cisco ASR 900 Series Router where the interface module is installed.
- **subslot**—The subslot where the interface module is installed. Interface module subslots are numbered from 0 to 5, from bottom to top.
- **port**—The number of the individual interface port on an interface module.

The following example shows how to specify the first interface (0) on an interface module installed in the first interface module slot:

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| ```
Router(config-if)# mtu bytes
``` | (As Required) Specifies the maximum packet size for an interface, where:
- **bytes**—The maximum number of bytes for a packet.
  The default is 1500 bytes; the range is from 1500 to 9216. |
| ```
Router(config-if)# standby [group-number] ip [ip-address [secondary]]
``` | Creates or enables the Hot Standby Router Protocol (HSRP) group using its number and virtual IP address, where:
- (Optional) **group-number**—The group number on the interface for which HSRP is being enabled. The range is from 0 to 255; the default is 0. If there is only one HSRP group, you do not need to enter a group number.
- (Optional on all but one interface if configuring HSRP) **ip-address**—The virtual IP address of the hot standby router interface. You must enter the virtual IP address for at least one of the interfaces; it can be learned on the other interfaces.
- (Optional) **secondary**—Specifies that the IP address is a secondary hot standby router interface. If neither router is designated as a secondary or standby router and no priorities are set, the primary IP addresses are compared and the higher IP address is the active router, with the next highest as the standby router.

**Note** This command is required only for configurations that use HSRP.

**Note** This command enables HSRP but does not configure it further. For additional information on configuring HSRP, see the First Hop Redundancy Protocols Configuration Guide, Cisco IOS XE Release 3S. |
| ```
Router(config-if)# no shutdown
``` | Enables the interface. |
Configuring Ethernet Interfaces

Router(config)# interface GigabitEthernet 0/0/0
  no ip address
  shutdown
  negotiation auto
  no cdp enable

Configuring Hot Standby Router Protocol

Hot Standby Router Protocol (HSRP) provides high network availability because it routes IP traffic from hosts without relying on the availability of any single router. You can deploy HSRP in a group of routers to select an active router and a standby router. (An active router is the router of choice for routing packets; a standby router is a router that takes over the routing duties when an active router fails, or when preset conditions are met).

HSRP is enabled on an interface by entering the standby [group-number] ip [ip-address [secondary]] command. The standby command is also used to configure various HSRP elements. This document does not discuss more complex HSRP configurations. For additional information on configuring HSRP, see to the HSRP section of the Cisco IP Configuration Guide publication that corresponds to your Cisco IOS XE software release. In the following HSRP configuration, standby group 2 on Gigabit Ethernet port 0/1/0 is configured at a priority of 110 and is also configured to have a preemptive delay should a switchover to this port occur:

Router(config)# interface GigabitEthernet 0/1/0
Router(config-if)# standby 2 ip 120.12.1.200
Router(config-if)# standby 2 priority 110
Router(config-if)# standby 2 preempt

Verifying HSRP

To verify the HSRP information, use the show standby command in EXEC mode:

Router# show standby
  Ethernet0 - Group 0
  Local state is Active, priority 100, may preempt
  Hellotime 3 holdtime 10
  Next hello sent in 0:00:00
  Hot standby IP address is 198.92.72.29 configured
  Active router is local
  Standby router is 198.92.72.21 expires in 0:00:07
  Standby virtual mac address is 0000.0c07.ac00
  Tracking interface states for 2 interfaces, 2 up:
    UpSerial0
    UpSerial1
Modifying the Interface MTU Size

**Note** The maximum number of unique MTU values that can be configured on the physical interfaces on the Cisco ASR 900 Series router is 8. Use the `show platform hardware pp active interface mtu` command to check the number of values currently configured on the router.

The Cisco IOS software supports three different types of configurable maximum transmission unit (MTU) options at different levels of the protocol stack:

- **Interface MTU**—The interface module checks the MTU value of incoming traffic. Different interface types support different interface MTU sizes and defaults. The interface MTU defines the maximum packet size allowable (in bytes) for an interface before drops occur. If the frame is smaller than the interface MTU size, but is not smaller than the minimum frame size for the interface type (such as 64 bytes for Ethernet), then the frame continues to process.

- **IP MTU**—Can be specified on an interface. If an IP packet exceeds the IP MTU size, then the packet is fragmented.

- **Tag or Multiprotocol Label Switching (MPLS) MTU**—Can be specified on an interface and allows up to six different tag headers to be attached to a packet. The maximum number of tag headers (also referred to as labels) depends on your Cisco IOS software release.

Encapsulation methods and MPLS MTU labels add additional overhead to a packet. For example, Subnetwork Access Protocol (SNAP) encapsulation adds an 8-byte header, dot1q encapsulation adds a 2-byte header, and each MPLS label adds a 4-byte header (n labels x 4 bytes).

For the Gigabit Ethernet interface module on the Cisco ASR 900 Series Router, the default MTU size is 1500 bytes. The maximum configurable MTU is 9216 bytes. The interface module automatically adds an additional 22 bytes to the configured MTU size to accommodate some of the additional overhead.

**Interface MTU Configuration Guidelines**

When configuring the interface MTU size, consider the following guidelines:

- The default interface MTU size accommodates a 1500-byte packet, plus 22 additional bytes to cover the following additional overhead:
  - Layer 2 header—14 bytes
  - Dot1q header—4 bytes
  - CRC—4 bytes

- If you are using MPLS, be sure that the `mpls mtu` command is configured for a value less than or equal to the interface MTU.

- If you are using MPLS labels, then you should increase the default interface MTU size to accommodate the number of MPLS labels. Each MPLS label adds 4 bytes of overhead to a packet.

**Interface MTU Configuration Task**

To modify the MTU size on an interface, use the following command in interface configuration mode:
To return to the default MTU size, use the `no` form of the command.

### Verifying the MTU Size

To verify the MTU size for an interface, use the `show interfaces gigabitethernet` privileged EXEC command and observe the value shown in the “MTU” field.

The following example shows an MTU size of 1500 bytes for interface port 1 (the second port) on the Gigabit Ethernet interface module installed in slot 1 of the Cisco ASR 900 Series Router:

```
Router# show interfaces gigabitethernet 0/1/0
GigabitEthernet0/1/0 is up, line protocol is up
Hardware is A900-IMA8T, address is d0c2.8216.0590 (bia d0c2.8216.0590)
MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
reliability 255/255, txload 1/255, rxload 22/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
```

### Configuring the Encapsulation Type

The only encapsulation supported by the interface modules is IEEE 802.1Q encapsulation for virtual LANs (VLANs).

**Note**

VLANs are only supported on Ethernet Virtual Connection (EVC) service instances and Trunk Ethernet Flow Point (EFP) interfaces. For more information about how to configure these features, see the [Configuring Ethernet Virtual Connections on the Cisco ASR 900 Series Router](#) document.

### Configuring Autonegotiation on an Interface

Gigabit Ethernet interfaces use a connection-setup algorithm called autonegotiation. Autonegotiation allows the local and remote devices to configure compatible settings for communication over the link. Using autonegotiation, each device advertises its transmission capabilities and then agrees upon the settings to be used for the link.

For the Gigabit Ethernet interfaces on the Cisco ASR 900 Series Router, flow control is autonegotiated when autonegotiation is enabled. Autonegotiation is enabled by default.

When enabling autonegotiation, consider these guidelines:
If autonegotiation is disabled on one end of a link, it must be disabled on the other end of the link. If one end of a link has autonegotiation disabled while the other end of the link does not, the link will not come up properly on both ends.

- Flow control is enabled by default.
- Flow control will be on if autonegotiation is disabled on both ends of the link.

### Enabling Autonegotiation

To enable autonegotiation on a Gigabit Ethernet interface, use the following command in interface configuration mode:

```
Router(config-if)# negotiation auto
```

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| `Router(config-if)# negotiation auto` | Enables autonegotiation on a Gigabit Ethernet interface.  
Advertisement of flow control occurs. |

### Disabling Autonegotiation

Autonegotiation is automatically enabled and can be disabled on Gigabit Ethernet interfaces. During autonegotiation, advertisement for flow control, speed, and duplex occurs, depending on the media (fiber or copper) in use.

Speed and duplex configurations can be advertised using autonegotiation. However, the only values that are negotiated are:

- For Gigabit Ethernet interfaces using RJ-45 copper interfaces—1000 Mbps for speed and full-duplex mode. Link speed is not negotiated when using fiber interfaces.

To disable autonegotiation, use the following command in interface configuration mode:

```
Router(config-if)# no negotiation auto
```

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| `Router(config-if)# no negotiation auto` | Disables autonegotiation on Gigabit Ethernet interfaces.  
No advertisement of flow control occurs. |

### Configuring Carrier Ethernet Features

For information about configuring an Ethernet interface as a layer 2 Ethernet virtual circuit (EVC) or Ethernet flow point (EFP), see the **Configuring Ethernet Virtual Connections on the Cisco ASR 900 Series Router** document and the **Carrier Ethernet Configuration Guide, Cisco IOS XE Release 3S**.

### Saving the Configuration

To save your running configuration to NVRAM, use the following command in privileged EXEC configuration mode:

```
Router# copy running-config startup-config
```

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>Router# copy running-config startup-config</code></td>
<td>Writes the new configuration to NVRAM.</td>
</tr>
</tbody>
</table>
For information about managing your system image and configuration files, refer to the Cisco IOS Configuration Fundamentals Configuration Guide and Cisco IOS Configuration Fundamentals Command Reference publications that correspond to your Cisco IOS software release.

## Shutting Down and Restarting an Interface

You can shut down and restart any of the interface ports on an interface module independently of each other. Shutting down an interface stops traffic and enters the interface into an “administratively down” state.

There are no restrictions for online insertion and removal (OIR) of Gigabit Ethernet interface modules; you can remove them at any time.

If you are preparing for an OIR of an interface module, it is not necessary to independently shut down each of the interfaces prior to deactivation of the module.

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>Router(config-if)# shutdown</code></td>
<td>Restarts, stops, or starts an interface.</td>
</tr>
</tbody>
</table>

You can use the following commands to automatically stop traffic on the affected interfaces and deactivate them along with the interface module in preparation for OIR:

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>`Router# hw-module slot number (logging reload [force]</td>
<td>start</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>`Router# hw-module subslot slot/subslot (reload [force]</td>
<td>start</td>
</tr>
</tbody>
</table>

In similar fashion, you do not need to independently restart any interfaces on an interface module after OIR.

To shut down an interface on an interface module, use the following command in interface configuration mode:

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>Router(config-if)# shutdown</code></td>
<td>Disables an interface.</td>
</tr>
</tbody>
</table>

To enable traffic on an interface, use the following command in interface configuration mode:
Verifying the Interface Configuration

Besides using the `show running-configuration` command to display your Cisco ASR 900 Series Router configuration settings, you can use the `show interfaces gigabitethernet` command to get detailed information on a per-port basis for your Gigabit Ethernet interface module.

Verifying Per-Port Interface Status

To find detailed interface information on a per-port basis for the Gigabit Ethernet interface module, use the `show interfaces gigabitethernet` command.

The following example provides sample output for interface port 0 on the interface module located in slot 1 of the Cisco ASR 900 Series Router:

```
Router# show interfaces GigabitEthernet0/1/0
GigabitEthernet0/1/0 is up, line protocol is up
   Hardware is A900-IMA8T, address is d0c2.8216.0590 (bia d0c2.8216.0590)
   MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
   reliability 255/255, txload 1/255, rxload 1/255
   Encapsulation ARPA, loopback not set
   Keepalive set (10 sec)
   Full Duplex, 1000Mbps, link type is auto, media type is RJ45
   output flow-control is off, input flow-control is off
   ARP type: ARPA, ARP Timeout 04:00:00
   Last input never, output 08:59:45, output hang never
   Last clearing of 'show interface' counters 09:00:18
   Input queue: 0/375/0/0 (size/max/drops/flushes); Total output drops: 0
   Queueing strategy: fifo
   Output queue: 0/40 (size/max)
   5 minute input rate 0 bits/sec, 0 packets/sec
   5 minute output rate 0 bits/sec, 0 packets/sec
   11 packets input, 704 bytes, 0 no buffer
   Received 11 broadcasts (0 IP multicasts)
   0 runts, 0 giants, 0 throttles
   0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
   0 watchdog, 0 multicast, 0 pause input
   0 packets output, 0 bytes, 0 underruns
   0 output errors, 0 collisions, 0 interface resets
   0 unknown protocol drops
   0 babbles, 0 late collision, 0 deferred
   0 lost carrier, 0 no carrier, 0 pause output
   0 output buffer failures, 0 output buffers swapped out
```

### Command Purpose

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>no shutdown</code></td>
<td>Restarts a disabled interface.</td>
</tr>
</tbody>
</table>
Verifying Interface Module Status

You can use various show commands to view information specific to SFP, XFP, CWDM, and DWDM optical transceiver modules.

To check or verify the status of an SFP Module or XFP Module, use the following show commands:

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Router# show hw-module slot/subslot transceiver port idprom</td>
<td>Displays information for the transceiver identification programmable read only memory (idprom).</td>
</tr>
<tr>
<td>Router# show hw-module slot/subslot transceiver port idprom status</td>
<td>Displays information for the transceiver initialization status.</td>
</tr>
<tr>
<td>Router# show hw-module slot/subslot transceiver port idprom dump</td>
<td>Displays a dump of all EEPROM content stored in the transceiver.</td>
</tr>
</tbody>
</table>

The following show hw-module subslot command sample output is for CWDM 1490:

Router# show hw-module subslot 2/0 transceiver 2 idprom
IDPROM for transceiver GigabitEthernet2/0/2:
Description = SFP optics (type 3)
Transceiver Type: = GE CWDM 1490 (28)
Product Identifier (PID) = FWDM-16217D49CSC
Vendor Revision = C
Serial Number (SN) = FNS10500HA9
Vendor Name = CISCO-FINISAR
Vendor OUI (IEEE company ID) = 00.90.65 (36965)
CLEI code = CNTRVX0FAA
Cisco part number = 10-1884-01
Device State = Enabled.
Date code (yy/mm/dd) = 06/12/12
Connector type = LC.
Encoding = 8B10B NRZ
Nominal bitrate = (2700 Mbits/s)
Minimum bit rate as % of nominal bit rate = not specified
Maximum bit rate as % of nominal bit rate = not specified

The following show hw-module subslot command sample output is for an XFP module:

Router# show hw-module subslot 2/2 transceiver 0 idprom brief
IDPROM for transceiver TenGigabitEthernet2/2/0:
Description = XFP optics (type 6)
Transceiver Type: = OC192 + 10GBASE-L (97)
Product Identifier (PID) = TRF5011AN-LF004
Vendor Revision = 05
Serial Number (SN) = ONT11061053
Vendor Name = CISCO-OPNEXT
Vendor OUI (IEEE company ID) = 00.0B.40 (2880)
CLEI code = WMOTBEVAAB
Cisco part number = 10-1989-02
Device State = Enabled.
Date code (yy/mm/dd) = 07/02/06
Connector type = LC.
Encoding = 64B/66B
SONET Scrambled
NRZ
Minimum bit rate = 9900 Mbits/s
Maximum bit rate = 10500 Mbits/s

The following show hw-module subslot command sample output is for an XFP module:

Router# show hw-module subslot 0/3 transceiver 0 status
The Transceiver in slot 0 subslot 3 port 0 is enabled.
Module temperature = 38.183 C
Transceiver Tx bias current = 37968 uAmps
Transceiver Tx power = -2.3 dBm
Transceiver Rx optical power = -0.7 dBm

Configuring LAN/WAN-PHY Controllers

The LAN/WAN-PHY controllers are configured in the physical layer control element of the Cisco IOS XE software. Use the hw-module subslot slot/subslot enable lan command to configure the LAN-PHY mode.

Configuration of the LAN/WAN-PHY controllers is described in the following tasks.

- Configuring LAN-PHY Mode, page 7-12
- Configuring WAN-PHY Signal Failure and Signal Degrade Bit Error Rates, page 7-13
Chapter 7 Configuring Ethernet Interfaces

Configuring LAN-PHY Mode

This section describes how to configure LAN-PHY mode on the Gigabit Ethernet interface modules.

SUMMARY STEPS

1. `show controllers wanphy interface-path-id`
2. `configure terminal`
3. `hw-module subslot subslot/port enable LAN`
4. `exit`
5. `show controllers wanphy slot/subslot/port`

DETAILED STEPS

<table>
<thead>
<tr>
<th>Command</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td><code>show controllers wanphy 0/1/0</code> Displays the configuration mode of the LAN/WAN-PHY controller. By default, prior to configuration of the LAN-PHY mode, the controller operates in the WAN-PHY mode.</td>
</tr>
</tbody>
</table>

**Example:**

```
Router# show controllers wanphy 0/1/0
TenGigabitEthernet0/1/0
Mode of Operation: WAN Mode
SECTION
   LOF = 0             LOS    = 0
   BIP(B1) = 0
   LINE
      AIS = 0         RDI = 0             FEBE
         = 0         BIP(B2) = 0
   PATH
      AIS = 0         RDI = 0             FEBE
         = 0         BIP(B3) = 0
      LOP = 0         NEWPTR = 0          PSE
         = 0         NSE = 0
   WIS ALARMS
      SER = 0         FELCDP = 0
      FEAIISP = 0
      WLOS = 0        PLCD = 0
      LFEBIP = 0      PBEC = 0

Active Alarms[All defects]: SWLOF LAIS PAIS SER
Active Alarms[Higher Alarms]: SWLOF
Alarm reporting enabled for: SF SWLOF B1-TCA
B2-TCA PLOP WLOS

   Rx(K1/K2): 00/00  Tx(K1/K2): 00/00
   S1S0 = 00, C2 = 0x1A
   PATH TRACE BUFFER: UNSTABLE
   Remote J1 Byte : |
   BER thresholds:  SD = 10e-6  SF = 10e-3
   TCA thresholds:  B1 = 10e-6  B2 = 10e-6  B3 = 10e-6 |
```

| **Step 2** | `configure terminal` Enters the global configuration mode. |

**Example:**

```
Router# configure terminal
```
Configuring WAN-PHY Signal Failure and Signal Degrade Bit Error Rates

This section describes how to configure WAN-PHY Signal Failure (SF) and Signal Degrade (SD) Bit Error Rate (BER) reporting and thresholds.

An SF alarm is declared if the line bit error (B2) rate exceeds a user-provisioned threshold range (over the range of 10e-3 to 10e-9).

An SD alarm is declared if the line bit error (B2) rate exceeds a user-provisioned threshold range (over the range of 10e-3 to 10e-9). If the B2 errors cross the SD threshold, a warning of link quality degradation is triggered. The WAN-PHY alarms are required for some users who are upgrading their Layer 2 core network from a SONET ring to a 10-Gigabit Ethernet ring.

Prerequisites

This section describes the prerequisites for configuring the BER threshold values on an Ethernet interface module:

Note

The controller must be in the WAN-PHY mode prior to configuring the SF and SD BER reporting and thresholds.
Configuration Examples

This section includes the following configuration examples:

- **Example: Basic Interface Configuration,** page 7-14
- **Example: MTU Configuration,** page 7-14
- **Example: VLAN Encapsulation,** page 7-15

**Example: Basic Interface Configuration**

The following example shows how to enter the global configuration mode to configure an interface, configure an IP address for the interface, and save the configuration.

```
! Enter global configuration mode.
!
Router# configure terminal
!
! Enter configuration commands, one per line. End with CNTL/Z.
!
! Specify the interface address.
!
Router(config)# interface gigabitethernet 0/0/1
!
! Configure an IP address.
!
Router(config-if)# ip address 192.168.50.1 255.255.255.0
!
! Start the interface.
!
Router(config-if)# no shut
!
! Save the configuration to NVRAM.
!
Router(config-if)# exit
Router# copy running-config startup-config
```

**Example: MTU Configuration**

The maximum number of unique MTU values that can be configured on the physical interfaces on the Cisco ASR 900 Series router is 8. Use the `show platform hardware pp active interface mtu` command to check the number of values currently configured on the router.

The following example shows how to set the MTU interface to 9216 bytes.

```
Note
---
The interface module automatically adds an additional 38 bytes to the configured MTU interface size.
---
```

```
! Enter global configuration mode.
!
Router# configure terminal
```
Example: VLAN Encapsulation

The following example shows how to configure interface module port 2 (the third port) and configure the first interface on the VLAN with the ID number 268 using IEEE 802.1Q encapsulation:

! Enter global configuration mode.
!
Router# configure terminal
!
! Enter configuration commands, one per line. End with CNTL/Z.
!
! Specify the interface address
!
Router(config)# service instance 10 ethernet
!
! Configure dot1q encapsulation and specify the VLAN ID.
!
Router(config-subif)# encapsulation dot1q 268

VLANs are only supported on EVC service instances and Trunk EFP interfaces. For more information about how to configure these features, see the Carrier Ethernet Configuration Guide, Cisco IOS XE Release 3S.
Configuration Examples