Configuring Ethernet OAM

This module describes the configuration of Ethernet Operations, Administration, and Maintenance (OAM) on the Cisco NCS 6000 Series Router.

Feature History for Configuring Ethernet OAM

Release	Modification
Release 5.0.0	This feature was introduced.

Prerequisites for Configuring Ethernet OAM

You must be in a user group associated with a task group that includes the proper task IDs. The command reference guides include the task IDs required for each command. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Before configuring Ethernet OAM, confirm that at least one of the Gigabit Ethernet line cards supported on the router is installed.

Information About Configuring Ethernet OAM

To configure Ethernet OAM, you should understand these concepts:

Ethernet Link OAM

Ethernet as a Metro Area Network (MAN) or a Wide Area Network (WAN) technology benefits greatly from the implementation of Operations, Administration and Maintenance (OAM) features. Ethernet link OAM features allow Service Providers to monitor the quality of the connections on a MAN or WAN. Service

providers can monitor specific events, take actions on events, and if necessary, put specific interfaces into loopback mode for troubleshooting. Ethernet link OAM operates on a single, physical link and it can be configured to monitor either side or both sides of that link.

Ethernet link OAM can be configured in the following ways:

- A Link OAM profile can be configured, and this profile can be used to set the parameters for multiple interfaces.
- Link OAM can be configured directly on an interface.

When an interface is also using a link OAM profile, specific parameters that are set in the profile can be overridden by configuring a different value directly on the interface.

An EOAM profile simplifies the process of configuring EOAM features on multiple interfaces. An Ethernet OAM profile, and all of its features, can be referenced by other interfaces, allowing other interfaces to inherit the features of that Ethernet OAM profile.

Individual Ethernet link OAM features can be configured on individual interfaces without being part of a profile. In these cases, the individually configured features always override the features in the profile.

The preferred method of configuring custom EOAM settings is to create an EOAM profile in Ethernet configuration mode and then attach it to an individual interface or to multiple interfaces.

The following standard Ethernet Link OAM features are supported on the router:

Neighbor Discovery

Neighbor discovery enables each end of a link to learn the OAM capabilities of the other end and establish an OAM peer relationship. Each end also can require that the peer have certain capabilities before it will establish a session. You can configure certain actions to be taken if there is a capabilities conflict or if a discovery process times out, using the **action capabilities-conflict** or **action discovery-timeout** commands.

Link Monitoring

Link monitoring enables an OAM peer to monitor faults that cause the quality of a link to deteriorate over time. When link monitoring is enabled, an OAM peer can be configured to take action when the configured thresholds are exceeded.

MIB Retrieval

MIB retrieval enables an OAM peer on one side of an interface to get the MIB variables from the remote side of the link. The MIB variables that are retrieved from the remote OAM peer are READ ONLY.

Miswiring Detection (Cisco-Proprietary)

Miswiring Detection is a Cisco-proprietary feature that uses the 32-bit vendor field in every Information OAMPDU to identify potential miswiring cases.

SNMP Traps

SNMP traps can be enabled or disabled on an Ethernet OAM interface.

How to Configure Ethernet OAM

This section provides the following configuration procedures:

Configuring Ethernet Link OAM

Custom EOAM settings can be configured and shared on multiple interfaces by creating an EOAM profile in Ethernet configuration mode and then attaching the profile to individual interfaces. The profile configuration does not take effect until the profile is attached to an interface. After an EOAM profile is attached to an interface, individual EOAM features can be configured separately on the interface to override the profile settings when desired.

This section describes how to configure an EOAM profile and attach it to an interface in the following procedures:

Configuring an Ethernet OAM Profile

Perform these steps to configure an Ethernet OAM profile.

SUMMARY STEPS

1. **configure**
2. **ethernet oam profile** *profile-name*
3. **link-monitor**
4. **symbol-period window** *window*
5. **symbol-period threshold low** *threshold* **high** *threshold*
6. **frame window** *window*
7. **frame threshold low** *threshold* **high** *threshold*
8. **frame-period window** *window*
9. **frame-period threshold low***threshold* **high** *threshold*
10. **frame-seconds window** *window*
11. **frame-seconds threshold low** *threshold* **high** *threshold*
12. **exit**
13. **mib-retrieval**
14. **connection timeout** *<timeout>*
15. **hello-interval** {**100ms**|**1s**}
16. **mode** {**active**|**passive**}
17. **require-remote mode** {**active**|**passive**}
18. **require-remote mib-retrieval**
19. **action capabilities-conflict** {**disable** | **efd** | **error-disable-interface**}
20. **action critical-event** {**disable** | **error-disable-interface**}
21. **action discovery-timeout** {**disable** | **efd** | **error-disable-interface**}
22. **action dying-gasp** {**disable** | **error-disable-interface**}
23. **action high-threshold** {**error-disable-interface** | **log**}
24. **action session-down** {**disable** | **efd** | **error-disable-interface**}
25. **action session-up disable**

26. **action uni-directional link-fault** {**disable** | **efd** | **error-disable-interface**}
27. **action wiring-conflict** {**disable** | **efd** | **log**}
28. **uni-directional link-fault detection**
29. **commit**
30. **end**

DETAILED STEPS

	Command or Action	**Purpose**
Step 1	**configure** **Example:** RP/0/RP0/CPU0:router# configure terminal	Enters global configuration mode.
Step 2	**ethernet oam profile** *profile-name* **Example:** RP/0/RP0/CPU0:router(config)# ethernet oam profile Profile_1	Creates a new Ethernet Operations, Administration and Maintenance (OAM) profile and enters Ethernet OAM configuration mode.
Step 3	**link-monitor** **Example:** RP/0/RP0/CPU0:router(config-eoam)# link-monitor	Enters the Ethernet OAM link monitor configuration mode.
Step 4	**symbol-period window** *window* **Example:** RP/0/RP0/CPU0:router(config-eoam-lm)# symbol-period window 60000	(Optional) Configures the window size (in milliseconds) for an Ethernet OAM symbol-period error event. The IEEE 802.3 standard defines the window size as a number of symbols rather than a time duration. These two formats can be converted either way by using a knowledge of the interface speed and encoding. The range is 1000 to 60000. The default value is 1000.
Step 5	**symbol-period threshold low** *threshold* **high** *threshold* **Example:** RP/0/RP0/CPU0:router(config-eoam-lm)# symbol-period threshold ppm low 10000000 high 60000000	(Optional) Configures the thresholds (in symbols) that trigger an Ethernet OAM symbol-period error event. The high threshold is optional and is configurable only in conjunction with the low threshold. The range is 0 to 60000000. The default low threshold is 1.
Step 6	**frame window** *window* **Example:** RP/0/RP0/CPU0:router(config-eoam-lm)# frame window 6000	(Optional) Configures the frame window size (in milliseconds) of an OAM frame error event. The range is from 1000 to 60000. The default value is 1000.

	Command or Action	Purpose
Step 7	**frame threshold low** *threshold* **high** *threshold* **Example:** `RP/0/RP0/CPU0:router(config-eoam-lm)# frame threshold low 10000000 high 60000000`	(Optional) Configures the thresholds (in symbols) that triggers an Ethernet OAM frame error event. The high threshold is optional and is configurable only in conjunction with the low threshold. The range is from 0 to 60000000. The default low threshold is 1.

Step 8	**frame-period window** *window*
	
	Example:
	
	`RP/0/RP0/CPU0:router(config-eoam-lm)# frame-period window 60000`
	
	`RP/0/RP0/CPU0:router(config-eoam-lm)# frame-period window milliseconds 60000`
		(Optional) Configures the window size (in milliseconds) for an Ethernet OAM frame-period error event. The IEEE 802.3 standard defines the window size as number of frames rather than a time duration. These two formats can be converted either way by using a knowledge of the interface speed. Note that the conversion assumes that all frames are of the minimum size.
		
		The range is from 1000 to 60000.
		
		The default value is 1000.
		
		Note The only accepted values are multiples of the line card-specific polling interval, that is, 1000 milliseconds for most line cards.

Step 9	**frame-period threshold low***threshold* **high** *threshold* **Example:** `RP/0/RP0/CPU0:router(config-eoam-lm)#     frame-period threshold ppm low 100 high 1000000`	(Optional) Configures the thresholds (in errors per million frames) that trigger an Ethernet OAM frame-period error event. The frame period window is defined in the IEEE specification as a number of received frames, in our implementation it is x milliseconds. The high threshold is optional and is configurable only in conjunction with the low threshold. The range is from 1 to 1000000. The default low threshold is 1. To obtain the number of frames, the configured time interval is converted to a window size in frames using the interface speed. For example, for a 1Gbps interface, the IEEE defines minimum frame size as 512 bits. So, we get a maximum of approximately 1.5 million frames per second. If the window size is configured to be 8 seconds (8000ms) then this would give us a Window of 12 million frames in the specification's definition of Errored Frame Window. The thresholds for frame-period are measured in errors per million frames. Hence, if you configure a window of 8000ms (that is a window of 12 million frames) and a high threshold of 100, then the threshold would be crossed if there are 1200 errored frames in that period (that is, 100 per million for 12 million).

	Command or Action	Purpose

Step 10	**frame-seconds window** *window*
	
	Example:
	
	`RP/0/RP0/CPU0:router(config-eoam-lm)#`
	`frame-seconds window 900000`
		(Optional) Configures the window size (in milliseconds) for the OAM frame-seconds error event.
		
		The range is 10000 to 900000.
		
		The default value is 6000.
		
		Note The only accepted values are multiples of the line card-specific polling interval, that is, 1000 milliseconds for most line cards.

Step 11	**frame-seconds threshold low** *threshold* **high** *threshold*
	
	Example:
	
	`RP/0/RP0/CPU0:router(config-eoam-lm)#`
	`frame-seconds threshold low 3 high 900`
		(Optional) Configures the thresholds (in seconds) that trigger a frame-seconds error event. The high threshold value can be configured only in conjunction with the low threshold value.
		
		The range is 1 to 900
		
		The default value is 1.

Step 12	**exit** **Example:** `RP/0/RP0/CPU0:router(config-eoam-lm)# exit`	Exits back to Ethernet OAM mode.
Step 13	**mib-retrieval** **Example:** `RP/0/RP0/CPU0:router(config-eoam)# mib-retrieval`	Enables MIB retrieval in an Ethernet OAM profile or on an Ethernet OAM interface.

Step 14	**connection timeout** *<timeout>*
	
	Example:
	
	`RP/0/RP0/CPU0:router(config-eoam)# connection`
	`timeout 30`
		Configures the connection timeout period for an Ethernet OAM session. as a multiple of the hello interval.
		
		The range is 2 to 30.
		
		The default value is 5.

Step 15	**hello-interval** {**100ms**|**1s**}
	
	Example:
	
	`RP/0/RP0/CPU0:router(config-eoam)# hello-interval`
	` 100ms`
		Configures the time interval between hello packets for an Ethernet OAM session. The default is 1 second (**1s**).

Step 16	**mode** {**active**|**passive**} **Example:** `RP/0/RP0/CPU0:router(config-eoam)# mode passive`	Configures the Ethernet OAM mode. The default is active.
Step 17	**require-remote mode** {**active**|**passive**} **Example:**	Requires that active mode or passive mode is configured on the remote end before the OAM session becomes active.

	Command or Action	Purpose
	`RP/0/RP0/CPU0:router(config-eoam)# require-remote mode active`	
Step 18	**require-remote mib-retrieval** **Example:** `RP/0/RP0/CPU0:router(config-eoam)# require-remote mib-retrieval`	Requires that MIB-retrieval is configured on the remote end before the OAM session becomes active.
Step 19	**action capabilities-conflict** {**disable** | **efd** | **error-disable-interface**} **Example:** `RP/0/RP0/CPU0:router(config-eoam)# action capabilities-conflict efd`	Specifies the action that is taken on an interface when a capabilities-conflict event occurs. The default action is to create a syslog entry. **Note** • If you change the default, the **log** keyword option is available in Interface Ethernet OAM configuration mode to override the profile setting and log the event for the interface when it occurs.
Step 20	**action critical-event** {**disable** | **error-disable-interface**} **Example:** `RP/0/RP0/CPU0:router(config-eoam)# action critical-event error-disable-interface`	Specifies the action that is taken on an interface when a critical-event notification is received from the remote Ethernet OAM peer. The default action is to create a syslog entry. **Note** • If you change the default, the **log** keyword option is available in Interface Ethernet OAM configuration mode to override the profile setting and log the event for the interface when it occurs.
Step 21	**action discovery-timeout** {**disable** | **efd** | **error-disable-interface**} **Example:** `RP/0/RP0/CPU0:router(config-eoam)# action discovery-timeout efd`	Specifies the action that is taken on an interface when a connection timeout occurs. The default action is to create a syslog entry. **Note** • If you change the default, the **log** keyword option is available in Interface Ethernet OAM configuration mode to override the profile setting and log the event for the interface when it occurs.
Step 22	**action dying-gasp** {**disable** | **error-disable-interface**} **Example:** `RP/0/RP0/CPU0:router(config-eoam)# action dying-gasp error-disable-interface`	Specifies the action that is taken on an interface when a dying-gasp notification is received from the remote Ethernet OAM peer. The default action is to create a syslog entry.

	Command or Action	Purpose
		Note • If you change the default, the **log** keyword option is available in Interface Ethernet OAM configuration mode to override the profile setting and log the event for the interface when it occurs.
Step 23	**action high-threshold** {**error-disable-interface** | **log**} **Example:** RP/0/RP0/CPU0:router(config-eoam)# action high-threshold error-disable-interface	Specifies the action that is taken on an interface when a high threshold is exceeded. The default is to take no action when a high threshold is exceeded. **Note** • If you change the default, the **disable** keyword option is available in Interface Ethernet OAM configuration mode to override the profile setting and take no action at the interface when the event occurs.
Step 24	**action session-down** {**disable** | **efd** | **error-disable-interface**} **Example:** RP/0/RP0/CPU0:router(config-eoam)# action session-down efd	Specifies the action that is taken on an interface when an Ethernet OAM session goes down. **Note** • If you change the default, the **log** keyword option is available in Interface Ethernet OAM configuration mode to override the profile setting and log the event for the interface when it occurs.
Step 25	**action session-up disable** **Example:** RP/0/RP0/CPU0:router(config-eoam)# action session-up disable	Specifies that no action is taken on an interface when an Ethernet OAM session is established. The default action is to create a syslog entry. **Note** • If you change the default, the **log** keyword option is available in Interface Ethernet OAM configuration mode to override the profile setting and log the event for the interface when it occurs.
Step 26	**action uni-directional link-fault** {**disable** | **efd** | **error-disable-interface**}	Specifies the action that is taken on an interface when a link-fault notification is received from the remote Ethernet OAM peer. The default action is to create a syslog entry. **Note** • If you change the default, the **log** keyword option is available in Interface Ethernet OAM configuration mode to override the profile setting and log the event for the interface when it occurs.

	Command or Action	**Purpose**
Step 27	**action wiring-conflict** {**disable** | **efd** | **log**} **Example:** `RP/0/RP0/CPU0:router(config-eoam)# action session-down efd`	Specifies the action that is taken on an interface when a wiring-conflict event occurs. The default is to put the interface into error-disable state. **Note** • If you change the default, the **error-disable-interface** keyword option is available in Interface Ethernet OAM configuration mode to override the profile setting and put the interface into error-disable state when the event occurs.
Step 28	**uni-directional link-fault detection** **Example:** `RP/0/RP0/CPU0:router(config-eoam)# uni-directional link-fault detection`	Enables detection of a local, unidirectional link fault and sends notification of that fault to an Ethernet OAM peer.
Step 29	**commit** **Example:** `RP/0/RP0/CPU0:router(config-if)# commit`	Saves the configuration changes to the running configuration file and remains within the configuration session.
Step 30	**end** **Example:** `RP/0/RP0/CPU0:router(config-if)# end`	Ends the configuration session and exits to the EXEC mode.

Attaching an Ethernet OAM Profile to an Interface

Perform the following steps to attach an Ethernet OAM profile to an interface:

SUMMARY STEPS

1. **configure**
2. **interface** [**GigabitEthernet** \| **TenGigE**] *interface-path-id*
3. **ethernet oam**
4. **profile** *profile-name*
5. **commit**
6. **end**

DETAILED STEPS

	Command or Action	**Purpose**
Step 1	**configure** **Example:** `RP/0/RP0/CPU0:router# configure terminal`	Enters XR configuration mode.

	Command or Action	Purpose
Step 2	**interface** [**GigabitEthernet** | **TenGigE**] *interface-path-id* **Example:** RP/0/RP0/CPU0:router(config)# interfaceTenGigE 0/1/0/0	Enters interface configuration mode and specifies the Ethernet interface name and notation *rack/slot/module/port*. **Note** The example indicates an 8-port 10-Gigabit Ethernet interface in modular services card slot 1.
Step 3	**ethernet oam** **Example:** RP/0/RP0/CPU0:router(config-if)# ethernet oam	Enables Ethernet OAM and enters interface Ethernet OAM configuration mode.
Step 4	**profile** *profile-name* **Example:** RP/0/RP0/CPU0:router(config-if-eoam)# profile Profile_1	Attaches the specified Ethernet OAM profile (*profile-name*), and all of its configuration, to the interface.
Step 5	**commit** **Example:** RP/0/RP0/CPU0:router(config-if)# commit	Saves the configuration changes to the running configuration file and remains within the configuration session.
Step 6	**end** **Example:** RP/0/RP0/CPU0:router(config-if)# end	Ends the configuration session and exits to the XR EXEC mode.

Configuring Ethernet OAM at an Interface and Overriding the Profile Configuration

Using an EOAM profile is an efficient way of configuring multiple interfaces with a common EOAM configuration. However, if you want to use a profile but also change the behavior of certain functions for a particular interface, then you can override the profile configuration. To override certain profile settings that are applied to an interface, you can configure that command in interface Ethernet OAM configuration mode to change the behavior for that interface.

In some cases, only certain keyword options are available in interface Ethernet OAM configuration due to the default settings for the command. For example, without any configuration of the **action** commands, several forms of the command have a default behavior of creating a syslog entry when a profile is created and applied to an interface. Therefore, the **log** keyword is not available in Ethernet OAM configuration for these commands in the profile because it is the default behavior. However, the **log** keyword is available in Interface Ethernet OAM configuration if the default is changed in the profile configuration so you can retain the action of creating a syslog entry for a particular interface.

To see all of the default Ethernet OAM configuration settings, see the *Verifying the Ethernet OAM Configuration* section.

To configure Ethernet OAM settings at an interface and override the profile configuration, perform these steps:

SUMMARY STEPS

1. **configure**
2. **interface** [GigabitEthernet | TenGigE] *interface-path-id*
3. **ethernet oam**
4. *interface-Ethernet-OAM-command* RP/0//CPU0:router(config-if-eoam)# action capabilities-conflict error-disable-interface
5. **commit**
6. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**configure** **Example:** RP/0//CPU0:router# configure terminal	Enters global configuration mode.
Step 2	**interface** [GigabitEthernet | TenGigE] *interface-path-id* **Example:** RP/0//CPU0:router(config)# interface TenGigE 0/1/0/0	Enters interface configuration mode and specifies the Ethernet interface name and notation *rack/slot/module/port*. **Note** • The example indicates an 8-port 10-Gigabit Ethernet interface in modular services card slot 1.
Step 3	**ethernet oam** **Example:** RP/0//CPU0:router(config-if)# ethernet oam	Enables Ethernet OAM and enters interface Ethernet OAM configuration mode.
Step 4	*interface-Ethernet-OAM-command* RP/0//CPU0:router(config-if-eoam)# action capabilities-conflict error-disable-interface	Configures a setting for an Ethernet OAM configuration command and overrides the setting for the profile configuration, where *interface-Ethernet-OAM-command* is one of the supported commands on the platform in interface Ethernet OAM configuration mode.
Step 5	**commit** **Example:** RP/0//CPU0:router(config-if)# commit	Saves the configuration changes to the running configuration file and remains within the configuration session.
Step 6	**end** **Example:** RP/0//CPU0:router(config-if)# end	Ends the configuration session and exits to the EXEC mode.

Verifying the Ethernet OAM Configuration

Use the **show ethernet oam configuration** command to display the values for the Ethernet OAM configuration for a particular interface, or for all interfaces. The following example shows the default values for Ethernet OAM settings:

```
RP/0/RP0/CPU0:router# show ethernet oam configuration
Thu Aug  5 22:07:06.870 DST
GigabitEthernet0/4/0/0:
  Hello interval:                                      1s
  Link monitoring enabled:                              Y
  Remote loopback enabled:                              N
  Mib retrieval enabled:                                N
  Uni-directional link-fault detection enabled:         N
  Configured mode:                                 Active
  Connection timeout:                                   5
  Symbol period window:                                 0
  Symbol period low threshold:                          1
  Symbol period high threshold:                      None
  Frame window:                                      1000
  Frame low threshold:                                  1
  Frame high threshold:                              None
  Frame period window:                               1000
  Frame period low threshold:                           1
  Frame period high threshold:                       None
  Frame seconds window:                             60000
  Frame seconds low threshold:                          1
  Frame seconds high threshold:                      None
  High threshold action:                             None
  Link fault action:                                  Log
  Dying gasp action:                                  Log
  Critical event action:                              Log
  Discovery timeout action:                           Log
  Capabilities conflict action:                       Log
  Wiring conflict action:                   Error-Disable
  Session up action:                                  Log
  Session down action:                                Log
  Remote loopback action:                             Log
  Require remote mode:                             Ignore
  Require remote MIB retrieval:                         N
  Require remote loopback support:                      N
  Require remote link monitoring:                       N
```

Configuration Examples for EOAM Interfaces

This section provides the following configuration examples:

Configuring an Ethernet OAM Profile Globally: Example

The following example shows how to configure an Ethernet OAM profile globally:

```
configure terminal
 ethernet oam profile Profile_1
  link-monitor
   symbol-period window 60000
   symbol-period threshold low 10000000 high 60000000
   frame window 60
```

```
   frame threshold low 10000000 high 60000000
   frame-period window 60000
   frame-period threshold low 100 high 12000000
   frame-seconds window 900000
   frame-seconds threshold 3 threshold 900
   exit
 mib-retrieval
 connection timeout 30
 require-remote mode active
 require-remote link-monitoring
 require-remote mib-retrieval
 action dying-gasp error-disable-interface
 action critical-event error-disable-interface
 action discovery-timeout error-disable-interface
 action session-down error-disable-interface
 action capabilities-conflict error-disable-interface
 action wiring-conflict error-disable-interface
 action remote-loopback error-disable-interface
 commit
```

Configuring Ethernet OAM Features on an Individual Interface: Example

The following example shows how to configure Ethernet OAM features on an individual interface:

```
configure terminal
 interface TenGigE 0/1/0/0
  ethernet oam
   link-monitor
    symbol-period window 60000
    symbol-period threshold low 10000000 high 60000000
    frame window 60
    frame threshold low 10000000 high 60000000
    frame-period window 60000
    frame-period threshold low 100 high 12000000
    frame-seconds window 900000
    frame-seconds threshold 3 threshold 900
    exit
   mib-retrieval
   connection timeout 30
   require-remote mode active
   require-remote link-monitoring
   require-remote mib-retrieval
   action link-fault  error-disable-interface
   action dying-gasp error-disable-interface
   action critical-event error-disable-interface
   action discovery-timeout error-disable-interface
   action session-down error-disable-interface
   action capabilities-conflict error-disable-interface
   action wiring-conflict error-disable-interface
   action remote-loopback error-disable-interface
   commit
```

Configuring Ethernet OAM Features to Override the Profile on an Individual Interface: Example

The following example shows the configuration of Ethernet OAM features in a profile followed by an override of that configuration on an interface:

```
configure terminal
 ethernet oam profile Profile_1
  mode passive
  action dying-gasp disable
  action critical-event disable
  action discovery-timeout disable
  action session-up disable
  action session-down disable
  action capabilities-conflict disable
  action wiring-conflict disable
  action remote-loopback disable
  action uni-directional link-fault error-disable-interface
  commit
configure terminal
 interface TenGigE 0/1/0/0
  ethernet oam
   profile Profile_1
    mode active
    action dying-gasp log
    action critical-event log
    action discovery-timeout log
    action session-up log
    action session-down log
    action capabilities-conflict log
    action wiring-conflict log
    action remote-loopback log
    action uni-directional link-fault log
    uni-directional link-fault detection
    commit
```

Clearing Ethernet OAM Statistics on an Interface: Example

The following example shows how to clear Ethernet OAM statistics on an interface:

```
RP/0/RP0/CPU0:router# clear ethernet oam statistics interface gigabitethernet 0/1/5/1
```

Enabling SNMP Server Traps on a Router: Example

The following example shows how to enable SNMP server traps on a router:

```
configure terminal
  ethernet oam profile Profile_1
  snmp-server traps ethernet oam events
```

Where to Go Next

When you have configured an Ethernet interface, you can configure individual VLAN subinterfaces on that Ethernet interface.

For information about IPv6 see the *Implementing Access Lists and Prefix Lists* module in the *IP Addresses and Services Configuration Guide* .

Additional References

The following sections provide references related to implementing Gigabit,10-Gigabit, and Fast Ethernet interfaces.

Related Documents

Related Topic	Document Title
Cisco IOS XR interface configuration commands	*Cisco IOS XR Interface and Hardware Component Command Reference*
Information about user groups and task IDs	*Cisco IOS XR Interface and Hardware Component Command Reference*

Standards

Standards	Title
IEEE 802.1ag	*Connectivity Fault Management*
ITU-T Y.1731	*OAM Functions and Mechansims for Ethernet Based Networks*
MEF 16	Metro Ethernet Forum, Technical Specification MEF 16, Ethernet Local Management Interface (E-LMI), January 2006

MIBs

MIBs	MIBs Link
IEEE8021-CFM-MIB	To locate and download MIBs for selected platforms using Cisco IOS XR Software, use the Cisco MIB Locator found at the following URL: http://cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

Technical Assistance

Description	Link
The Cisco Technical Support website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/techsupport