



## Configuring Ethernet OAM

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## Finding Feature Information

Your software release might not support all the features documented in this module. For the latest caveats and feature information, see the Bug Search Tool at <https://tools.cisco.com/bugsearch/> and the release notes for your software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the "New and Changed Information" chapter or the Feature History table in this chapter.

## Feature History for Ethernet OAM

*Table 1: Feature History for Ethernet OAM*

Feature Name	Release	Feature Information
Ethernet OAM	8.2(3)	Ethernet OAM is enhanced for the following: <ul style="list-style-type: none"><li>• Frame error threshold values can be configured on the Ethernet link. This helps to measure the quality of the link.</li><li>• The <b>link-oam-dying-gasp</b> and the <b>link-oam-discovery-timeout</b> options are supported under the <b>errdisable recovery cause</b> command to recover the Ethernet link OAM.</li></ul>

Feature Name	Release	Feature Information
Ethernet OAM	7.3(0)D1(1)	This feature was introduced.

## Information About Ethernet 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 Cisco Nexus 7000 Series switch:

- Neighbor Discovery
- Link Monitoring
- Miswiring Detection (Cisco-Proprietary)

### 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 **capabilities-conflict** or **discovery-timeout** commands in the action configuration submode.

### 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.

### 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.

## Prerequisites for Ethernet OAM

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

## Guidelines and Limitations for Ethernet OAM

Cisco NX-OS Release 8.2(3) has the following Ethernet OAM enhancements:

- Frame error threshold values can be configured on the Ethernet link to measure the quality of the link.
- Error-disabled ports need to be manually shut/no shut to bring the port up.

The error-disabled ports need to be manually shut/no-shut to bring the ports to the up state. This is applicable to all the Ethernet OAM links except for **link-oam-dying-gasp** and for **link-oam-discovery-timeout** if the **errdisable recovery cause** is configured with the **link-oam-dying-gasp** and **link-oam-discovery-timeout** options.

This recovery mechanism for **link-oam-dying-gasp** and **link-oam-discovery-timeout** links is introduced in Cisco NX-OS Release 8.2(3).

The following modules are supported from Cisco Nexus Release 7.3(0)D1(1):

- M2-Series 10-Gigabit Ethernet Series Module for Cisco Nexus 7000 Series Switches.
- F3-Series 10-Gigabit Ethernet Series Module for Cisco Nexus 7000 Series Switches and Cisco Nexus 7700 Switches.

Ethernet OAM is not supported on the F2 series modules.

The following functional areas of Ethernet OAM are not supported on the Cisco Nexus 7000 Series switches:

- Remote loopback
- Ethernet Fault Detection (EFD)

# Configuring Ethernet OAM

## Configuring an Ethernet OAM Profile

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b>  <b>Example:</b> switch# configure terminal switch(config)#	Enters global configuration mode.
<b>Step 2</b>	<b>feature ethernet-link-oam</b>  <b>Example:</b> switch(config)# feature ethernet-link-oam	Enables the Ethernet Link OAM feature.
<b>Step 3</b>	<b>ethernet oam profile <i>profile-name</i></b>  <b>Example:</b> switch(config)# ethernet oam profile Profile_1 switch(config-eoam)#	Creates a new Ethernet Operations, Administration and Maintenance (OAM) profile and enters Ethernet OAM configuration mode.
<b>Step 4</b>	<b>hello-interval <i>interval-time</i></b>  <b>Example:</b> switch(config-eoam)# hello-interval 100ms switch(config-eoam-lm)#	Configures hello interval limit for the Ethernet OAM profile. The valid value for hello interval is 100 millisecond. The default value is 1 second.
<b>Step 5</b>	<b>link-monitor</b>  <b>Example:</b> switch(config-eoam)# link-monitor switch(config-eoam-lm)#	Enters the Ethernet OAM link monitor configuration mode.
<b>Step 6</b>	(Optional) <b>symbol-period window <i>window</i></b>  <b>Example:</b> switch(config-eoam-lm)# symbol-period window 60000	Configures the window size (in milliseconds) for an Ethernet OAM symbol-period error event.  The range is 1000 to 60000. The default value is 1000.
<b>Step 7</b>	(Optional) <b>symbol-period threshold low <i>threshold</i> [<b>high threshold</b>]</b>  <b>Example:</b> switch(config-eoam-lm)# symbol-period threshold low 10000000 high 60000000	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.

	Command or Action	Purpose
		The range is 1 to 60000000. The default low threshold is 1.
<b>Step 8</b>	(Optional) <b>frame window</b> <i>window</i> <b>Example:</b> <code>switch(config-eoam-lm)# frame window 60</code>	Configures the frame window size (in milliseconds) of an OAM frame error event. The range is 1000 to 60000. The default value is 1000.
<b>Step 9</b>	(Optional) <b>frame threshold low</b> <i>threshold</i> <b>high threshold</b> <b>Example:</b> <code>switch(config-eoam-lm)# frame threshold low 10000000 high 60000000</code>	Configures the thresholds (in frames) 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 1 to 12000000. The default low threshold is 1.
<b>Step 10</b>	(Optional) <b>frame-period window</b> <i>window</i> <b>Example:</b> <code>switch(config-eoam-lm)# frame-period window 60000</code>	Configures the window size (in milliseconds) for an Ethernet OAM frame-period error event. The range is 1000 to 60000. The default value is 1000.
<b>Step 11</b>	(Optional) <b>frame-period threshold low</b> <i>threshold</i> [ <b>high threshold</b> ] <b>Example:</b> <code>switch(config-eoam-lm)# frame-period threshold low 100 high 1000000</code>	Configures the thresholds (in frames) that trigger an Ethernet OAM frame-period error event. The high threshold is optional and is configurable only in conjunction with the low threshold. The range is 1 to 1000000. The default low threshold is 60000. The IEEE 802.3 standard defines threshold crossing events as number of error frames in a window. To comply with the standards, the low and high threshold for frame-period events is measured in errors per million frames. Hence, the calculation to determine the remote low and high threshold is (configured threshold * frame window in received Bridge Protocol Data Unit (BPDU))/1000000. For example, if the received frame window=300, then high threshold is $20000 * 300 / 1000000 = 6$ .
<b>Step 12</b>	(Optional) <b>frame-seconds window</b> <i>window</i> <b>Example:</b> <code>switch(config-eoam-lm)# frame-seconds window 900000</code>	Configures the window size (in milliseconds) for the OAM frame-seconds error event. The range is 10000 to 900000. The default value is 60000.
<b>Step 13</b>	(Optional) <b>frame-seconds threshold low</b> <i>threshold</i> [ <b>high threshold</b> ]	Configures the thresholds (in seconds) that trigger a frame-seconds error event. The high

	Command or Action	Purpose
	<b>Example:</b> <pre>switch(config-eoam-lm)# frame-seconds threshold 3 threshold 900</pre>	threshold value can be configured only in conjunction with the low threshold value. The range is 1 to 900. The default value is 1.
<b>Step 14</b>	Required: <b>exit</b>  <b>Example:</b> <pre>switch(config-eoam-lm)# exit switch(config-eoam)#</pre>	Exits to Ethernet OAM mode.
<b>Step 15</b>	Required: <b>connection timeout</b> <i>seconds</i>  <b>Example:</b> <pre>switch(config-eoam)# connection timeout 30</pre>	Configures the timeout value (in seconds) for an Ethernet OAM session. The range is 2 to 30. The default value is 5.
<b>Step 16</b>	Required: <b>mode</b> { <b>active</b>   <b>passive</b> }  <b>Example:</b> <pre>switch(config-eoam)# mode passive</pre>	Configures the Ethernet OAM mode. The default is active.
<b>Step 17</b>	Required: <b>require-remote</b>  <b>Example:</b> <pre>switch(config-eoam)# require-remote switch(config-eoam-require)#</pre>	Enters the require-remote configuration submode to specify the features that you have to enable before an Ethernet OAM session can become active.
<b>Step 18</b>	Required: <b>mode</b> { <b>active</b>   <b>passive</b> }  <b>Example:</b> <pre>switch(config-eoam-require)# mode active</pre>	Requires that active mode or passive mode is configured on the remote end before the Ethernet OAM session becomes active.
<b>Step 19</b>	Required: <b>link-monitoring</b>  <b>Example:</b> <pre>switch(config-eoam-require)# link-monitoring</pre>	Requires that link-monitoring is configured on the remote end before the Ethernet OAM session becomes active.
<b>Step 20</b>	Required: <b>exit</b>  <b>Example:</b> <pre>switch(config-eoam-require)# exit switch(config-eoam)#</pre>	Exits the require-remote configuration submode.
<b>Step 21</b>	Required: <b>action</b>  <b>Example:</b> <pre>switch(config-eoam)# action switch(config-eoam-action)#</pre>	Enters the action configuration submode to configure event actions.
<b>Step 22</b>	Required: <b>capabilities-conflict</b> { <b>disable</b>   <b>efd</b>   <b>error-disable-interface</b> }  <b>Example:</b>	Specifies the action that is taken on an interface when a capabilities-conflict event occurs. The default action is to create a syslog entry.

	Command or Action	Purpose
	<pre>switch(config-eoam-action) # capabilities-conflict disable</pre>	<p><b>Note</b> If you change the default, the <b>log</b> 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.</p>
<b>Step 23</b>	<p>Required: <b>critical-event</b> {<b>disable</b>   <b>error-disable-interface</b>}</p> <p><b>Example:</b></p> <pre>switch(config-eoam-action) # critical-event error-disable-interface</pre>	<p>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.</p> <p><b>Note</b> If you change the default, the <b>log</b> 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.</p>
<b>Step 24</b>	<p>Required: <b>discovery-timeout</b> {<b>disable</b>   <b>efd</b>   <b>error-disable-interface</b>}</p> <p><b>Example:</b></p> <pre>switch(config-eoam-action) # discovery-timeout disable</pre>	<p>Specifies the action that is taken on an interface when a connection timeout occurs. The default action is to create a syslog entry.</p> <p><b>Note</b> If you change the default, the <b>log</b> 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.</p>
<b>Step 25</b>	<p>Required: <b>dying-gasp</b> {<b>disable</b>   <b>error-disable-interface</b>}</p> <p><b>Example:</b></p> <pre>switch(config-eoam-action) # dying-gasp error-disable-interface</pre>	<p>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.</p> <p><b>Note</b> If you change the default, the <b>log</b> 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.</p>
<b>Step 26</b>	<p>Required: <b>high-threshold</b> {<b>error-disable-interface</b>   <b>log</b>}</p> <p><b>Example:</b></p> <pre>switch(config-eoam-action) # high-threshold error-disable-interface</pre>	<p>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.</p>

	Command or Action	Purpose
		<p><b>Note</b> If you change the default, the <b>disable</b> 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.</p>
<b>Step 27</b>	<p>Required: <b>remote-loopback disable</b></p> <p><b>Example:</b></p> <pre>switch(config-eoam-action)# remote-loopback disable</pre>	<p>Specifies that no action is taken on an interface when a remote-loopback event occurs. The default action is to create a syslog entry.</p> <p><b>Note</b> If you change the default, the <b>log</b> 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.</p>
<b>Step 28</b>	<p>Required: <b>session-down {disable   efd   error-disable-interface}</b></p> <p><b>Example:</b></p> <pre>switch(config-eoam-action)# session-down error-disable-interface</pre>	<p>Specifies the action that is taken on an interface when an Ethernet OAM session goes down.</p> <p><b>Note</b> If you change the default, the <b>log</b> 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.</p>
<b>Step 29</b>	<p>Required: <b>session-up disable</b></p> <p><b>Example:</b></p> <pre>switch(config-eoam-action)# session-up disable</pre>	<p>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.</p> <p><b>Note</b> If you change the default, the <b>log</b> 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.</p>
<b>Step 30</b>	<p>Required: <b>uni-directional link-fault {disable   efd   error-disable-interface}</b></p> <p><b>Example:</b></p> <pre>switch(config-eoam-action)# uni-directional link-fault disable</pre>	<p>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.</p> <p><b>Note</b> If you change the default, the <b>log</b> 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.</p>



	Command or Action	Purpose
<b>Step 31</b>	Required: <b>wiring-conflict</b> { <b>disable</b>   <b>efd</b>   <b>log</b> } <b>Example:</b> <pre>switch(config-eoam-action)# wiring-conflict disable</pre>	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.  <b>Note</b> If you change the default, the <b>error-disable-interface</b> 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.
<b>Step 32</b>	Required: <b>end</b> <b>Example:</b> <pre>switch(config-eoam-action)# end</pre>	Ends the configuration session and exits to the EXEC mode.

## Attaching an Ethernet OAM Profile to an Interface

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b> <b>Example:</b> <pre>switch# configure terminal switch(config)#</pre>	Enters global configuration mode.
<b>Step 2</b>	<b>interface</b> <i>type slot/port</i> <b>Example:</b> <pre>switch(config)# interface ethernet 3/1 switch(config-if)#</pre>	Specifies an interface to configure, and enters interface configuration mode.
<b>Step 3</b>	<b>ethernet oam</b> <b>Example:</b> <pre>switch(config-if)# ethernet oam switch(config-if-eoam)#</pre>	Enables Ethernet OAM and enters Interface Ethernet OAM configuration mode.
<b>Step 4</b>	<b>profile</b> <i>profile-name</i> <b>Example:</b> <pre>switch(config-if-eoam)# profile Profile_1</pre>	Attaches the specified Ethernet OAM profile and all of its configuration to the interface.
<b>Step 5</b>	Required: <b>end</b> <b>Example:</b> <pre>switch(config-if-eoam)# end</pre>	Ends the configuration session and exits to the 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** configuration submode 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 configure Ethernet OAM settings at an interface and override the profile configuration, perform the following steps:

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>configure terminal</b>  <b>Example:</b> switch# configure terminal switch(config)#	Enters global configuration mode.
<b>Step 2</b>	<b>interface type slot/port</b>  <b>Example:</b> switch(config)# interface ethernet 3/1 switch(config-if)#	Specifies an interface to configure, and enters interface configuration mode.
<b>Step 3</b>	<b>ethernet oam</b>  <b>Example:</b> switch(config-if)# ethernet oam switch(config-if-eoam)#	Enables Ethernet OAM and enters interface Ethernet OAM configuration mode.
<b>Step 4</b>	<b>hello-interval interval-time</b>  <b>Example:</b> switch(config-if-eoam)# hello-interval 1s	Configures Ethernet OAM hello interval limit for an interface. The possible values for hello interval is 100 millisecond or 1 second. The default value is 1 second.
<b>Step 5</b>	<b>interface-Ethernet-OAM-command</b>  <b>Example:</b> switch(config-if-eoam)# mode passive	Configures a setting for an Ethernet OAM configuration command and overrides the setting for the profile configuration, where <i>interface-Ethernet-OAM-command</i> is one of the supported commands on the platform in Interface Ethernet OAM configuration mode.

	Command or Action	Purpose
<b>Step 6</b>	Required: <b>end</b>  <b>Example:</b> <pre>switch(config-if-eoam)# end</pre>	Ends the configuration session and exits to the EXEC mode.

## Clearing Ethernet OAM Statistics on an Interface

Use the **clear ethernet oam statistics** command to clear the packet counters on all Ethernet OAM interfaces. Use the **clear ethernet oam statistics interface** command to clear the packet counters on a specific Ethernet OAM interface.

```
switch# clear ethernet oam statistics interface ethernet 1/3
```

## Verifying the Ethernet OAM Configuration

Use the **show ethernet oam configuration** command to display the values for the Ethernet OAM configuration for a specific interface, or for all interfaces.



**Note** Some of these settings are not supported on certain platforms, but the defaults are still reported. On the Cisco Nexus 7000 Series switches, the following areas are unsupported:

- Remote loopback
- EFD

```
switch# show ethernet oam configuration interface ethernet 1/3
Ethernet3/1:
  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:                          1000
  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

```

Use the **show ethernet oam discovery** command to display the status of the OAM sessions. If no interface is specified, details of all interfaces that have OAM configured will be displayed.

```

switch# show ethernet oam discovery ethernet 1/3
Ethernet3/1
Local client
  Administrative configuration:
    PDU revision:          2
    Mode:                  Active
    Unidirectional support: N
    Link monitor support:  N
    Remote loopback support: Y
    MIB retrieval support: Y
    Maximum PDU size:     1500
    Mis-wiring detection key: 20492C

  Operational status:
    Port status:          Operational
    Loopback status:     None
    Interface mis-wired:  N

Remote client
  MAC address:  0030.96fd.6bfa
  Vendor (OUI): 00.00.0C (Cisco)

  Administrative configuration:
    PDU revision:          5
    Mode:                  Passive
    Unidirectional support: N
    Link monitor support:  Y
    Remote loopback support: Y
    MIB retrieval support: N
    Maximum PDU size:     1500

```

Use the **show ethernet oam statistics** command to display statistics for local and remote OAM sessions. If no interface is specified, statistics of all interfaces that have OAM configured will be displayed.

```

switch# show ethernet oam statistics
Ethernet1/3
Counters
-----
Information OAMPDU Tx          45
Information OAMPDU Rx          42
Unique Event Notification OAMPDU Tx          0
Unique Event Notification OAMPDU Rx          0
Duplicate Event Notification OAMPDU Tx        0
Duplicate Event Notification OAMPDU Rx        0
Loopback Control OAMPDU Tx          0
Loopback Control OAMPDU Rx          3
Variable Request OAMPDU Tx          0
Variable Request OAMPDU Rx          0
Variable Response OAMPDU Tx         0

```

```

Variable Response OAMPDU Rx          0
Organization Specific OAMPDU Tx      0
Organization Specific OAMPDU Rx      0
Unsupported OAMPDU Tx                 93
Unsupported OAMPDU Rx                 0
Frames Lost due to OAM                12
    
```

Local event logs

```

-----
Errored Symbol Period records        0
Errored Frame records                0
Errored Frame Period records         0
Errored Frame Second records         0
    
```

Remote event logs

```

-----
Errored Symbol Period records        0
Errored Frame records                0
Errored Frame Period records         0
Errored Frame Second records         0
    
```

Use the **show ethernet oam event-log** command to display the most recent event logs for interfaces on which OAM is configured.

```

switch# show ethernet oam event-log
Wed Jan 23 06:16:46.684 PST
Local Action Taken:
  N/A    - No action needed          EFD    - Interface brought down using EFD
  None   - No action taken           Err.D  - Interface error-disabled
  Logged - System logged
    
```

Ethernet3/1

Time	Type	Loc'n	Action	Threshold	Breaching Value
Wed Jan 23 06:13:25 PST	Symbol period	Local	N/A	1	4
Wed Jan 23 06:13:33 PST	Frame	Local	N/A	1	6
Wed Jan 23 06:13:37 PST	Frame period	Local	None	9	12
Wed Jan 23 06:13:45 PST	Frame seconds	Local	N/A	1	10
Wed Jan 23 06:13:57 PST	Dying gasp	Remote	Logged	N/A	N/A

Ethernet3/1

Time	Type	Loc'n	Action	Threshold	Breaching Value
Wed Jan 23 06:26:14 PST	Dying gasp	Remote	Logged	N/A	N/A
Wed Jan 23 06:33:25 PST	Symbol period	Local	N/A	1	4
Wed Jan 23 06:43:33 PST	Frame period	Remote	N/A	9	12
Wed Jan 23 06:53:37 PST	Critical event	Remote	Logged	N/A	N/A
Wed Jan 23 07:13:45 PST	Link fault	Remote	EFD	N/A	N/A
Wed Jan 23 07:18:23 PST	Dying gasp	Local	Logged	N/A	N/A

Use the **show ethernet oam event-log interface detail** command to display detailed event logs for specific interfaces on which OAM is configured.

```

switch# show ethernet oam event-log interface detail
Wed Jan 23 06:21:16.392 PST
(Scaled): For remote threshold events "Local High Threshold" is scaled for
          comparison with "Breaching Value".
          This is to account for different local and remote window sizes.
    
```

```

Ethernet3/1
=====
Event at Wed Jan 23 2013 06:26:14.62 PST:
  Type:                               Dying gasp
  Location:                             Remote
  Local Action Taken:                   System logged
  Local Event Running Total:            1
Event at Wed Jan 23 2013 06:33:25.62 PST:
  Type:                               Threshold Event - Symbol period
  Location:                             Local
  Local Action Taken:                   No action needed
  Local Event Running Total:            1
  Local Window Size:                    1000
  Local Threshold:                       1
  Local High Threshold:                  Not configured
  Breaching Value:                       4
  Local Error Running Total:             8
Event at Wed Jan 23 2013 06:43:37.73 PST:
  Type:                               Threshold Event - Frame period
  Location:                             Remote
  Local Action Taken:                   No action needed
  Remote Event Running Total:            1
  Remote Window Size:                    1000
  Remote Threshold:                       9
  Local High Threshold (Scaled):         Not configured
  Breaching Value:                       12
  Remote Error Running Total:            24
Event at Wed Jan 23 2013 06:53:57.12 PST:
  Type:                               Critical event
  Location:                             Remote
  Local Action Taken:                   System logged
  Local Event Running Total:            1
Event at Wed Jan 23 2013 07:13:57.12 PST:
  Type:                               Link fault
  Location:                             Remote
  Local Action Taken:                   Interface brought down using EFD
  Local Event Running Total:            1
Event at Wed Jan 23 2013 07:18:57.12 PST:
  Type:                               Dying gasp
  Location:                             Local
  Local Action Taken:                   System logged
  Local Event Running Total:            1

```

Use the **show ethernet oam summary** to display a summary of all the active OAM sessions.

```

switch# show ethernet oam summary
Link OAM System Summary
=====
Profiles                               6
Interfaces                               10
  Interface states:
    Port down                            1
    Passive wait                          1
    Active send                            1
    [Evaluating                           0]
    [Local accept                          0]
    [Local reject                          0]
    Remote reject                          1
    Operational                            6
    Loopback mode                          1

```

```

Miswired connections          1
Events                        13
  Local                        4
    Symbol error              0
    Frame                     2
    Frame period              1
    Frame seconds             1
  Remote                       9
    Symbol error              3
    Frame                     4
    Frame period              1
    Frame seconds             1

```

Use the **show ethernet oam summary detail** command to display a summary of all the active OAM sessions and details about the 10 most recent events across all interfaces.

```

switch# show ethernet oam summary detail
Link OAM System Summary
=====

Profiles                      6
Interfaces                    10
  Interface states:
    Port down                  1
    Passive wait               1
    Active send                1
    [Evaluating                0]
    [Local accept              0]
    [Local reject              0]
    Remote reject              1
    Operational                6
    Loopback mode              1
  Miswired connections         1
Events                        13
  Local                        4
    Symbol error              0
    Frame                     2
    Frame period              1
    Frame seconds             1
  Remote                       9
    Symbol error              3
    Frame                     4
    Frame period              1
    Frame seconds             1

```

## Configuration Examples for Ethernet OAM

### Configuration Example for Configuring an Ethernet OAM Profile Globally

```

switch# configure terminal
switch(config)# feature ethernet-link-oam
switch(config)# ethernet oam profile Profile_1
switch(config-eoam)# hello-interval 100ms
switch(config-eoam)# link-monitor
switch(config-eoam-lm)# symbol-period window 60000
switch(config-eoam-lm)# symbol-period threshold low 10000000 high 60000000
switch(config-eoam-lm)# frame window 60

```

```

switch(config-eoam-lm)# frame threshold low 10000000 high 60000000
switch(config-eoam-lm)# frame-period window 60000
switch(config-eoam-lm)# frame-period threshold low 100 high 1000000
switch(config-eoam-lm)# frame-seconds window 900000
switch(config-eoam-lm)# frame-seconds threshold 3 threshold 900
switch(config-eoam-lm)# exit
switch(config-eoam)# connection timeout 30
switch(config-eoam)# mode passive
switch(config-eoam)# require-remote
switch(config-eoam-require)# mode active
switch(config-eoam-require)# link-monitoring
switch(config-eoam-require)# exit
switch(config-eoam)# action
switch(config-eoam-action)# capabilities-conflict disable
switch(config-eoam-action)# critical-event error-disable-interface
switch(config-eoam-action)# discovery-timeout disable
switch(config-eoam-action)# dying-gasp error-disable-interface
switch(config-eoam-action)# high-threshold error-disable-interface
switch(config-eoam-action)# remote-loopback disable
switch(config-eoam-action)# session-down error-disable-interface
switch(config-eoam-action)# session-up disable
switch(config-eoam-action)# uni-directional link-fault disable
switch(config-eoam-action)# wiring-conflict disable

```

## Configuration Example for Attaching an Ethernet OAM Profile to a Specific Interface

```

switch# configure terminal
switch(config)# interface Ethernet 3/2
switch(config-if)# ethernet oam
switch(config-if-eoam)# profile Profile_1

```

## Configuration Example for Configuring Ethernet OAM Features on a Specific Interface

```

switch# configure terminal
switch(config)# interface ethernet 3/2
switch(config-if)# ethernet oam
switch(config-if-eoam)# link-monitor
switch(config-if-eoam)# hello-interval 1s
switch(config-if-eoam-lm)# symbol-period window 60000
switch(config-if-eoam-lm)# symbol-period threshold low 10000000 high 60000000
switch(config-if-eoam-lm)# frame window 60
switch(config-if-eoam-lm)# frame threshold low 10000000 high 60000000
switch(config-if-eoam-lm)# frame-period window 60000
switch(config-if-eoam-lm)# frame-period threshold low 100 high 1000000
switch(config-if-eoam-lm)# frame-seconds window 900000
switch(config-if-eoam-lm)# frame-seconds threshold 3 threshold 900
switch(config-if-eoam-lm)# exit
switch(config-if-eoam)# connection timeout 30
switch(config-if-eoam)# mode passive
switch(config-if-eoam)# require-remote
switch(config-if-eoam-require)# mode active
switch(config-if-eoam-require)# link-monitoring
switch(config-if-eoam-require)# exit
switch(config-if-eoam)# action
switch(config-if-eoam-action)# capabilities-conflict disable
switch(config-if-eoam-action)# critical-event error-disable-interface

```



```

switch(config-if-eoam-action)# discovery-timeout disable
switch(config-if-eoam-action)# dying-gasp error-disable-interface
switch(config-if-eoam-action)# high-threshold error-disable-interface
switch(config-if-eoam-action)# remote-loopback disable
switch(config-if-eoam-action)# session-down error-disable-interface
switch(config-if-eoam-action)# session-up disable
switch(config-if-eoam-action)# uni-directional link-fault disable
switch(config-if-eoam-action)# wiring-conflict disable

```

## Configuration Example for Configuration of Ethernet OAM Features in a Profile Followed by an Override of that Configuration on an Interface

```

switch# configure terminal
switch(config)# ethernet oam profile Profile_1
switch(config-eoam)# mode passive
switch(config-eoam)# action
switch(config-eoam-action)# capabilities-conflict disable
switch(config-eoam-action)# critical-event error-disable-interface
switch(config-eoam-action)# discovery-timeout disable
switch(config-eoam-action)# dying-gasp error-disable-interface
switch(config-eoam-action)# remote-loopback disable
switch(config-eoam-action)# session-down error-disable-interface
switch(config-eoam-action)# session-up disable
switch(config-eoam-action)# uni-directional link-fault disable
switch(config-eoam-action)# wiring-conflict disable

switch# configure terminal
switch(config)# interface Ethernet 3/2
switch(config-if)# ethernet oam
switch(config-if-eoam)# profile Profile_1
switch(config-if-eoam)# mode active
switch(config-if-eoam)# action
switch(config-if-eoam-action)# capabilities-conflict disable
switch(config-if-eoam-action)# critical-event error-disable-interface
switch(config-if-eoam-action)# discovery-timeout disable
switch(config-if-eoam-action)# dying-gasp error-disable-interface
switch(config-if-eoam-action)# remote-loopback disable
switch(config-if-eoam-action)# session-down error-disable-interface
switch(config-if-eoam-action)# session-up disable
switch(config-if-eoam-action)# uni-directional link-fault disable
switch(config-if-eoam-action)# wiring-conflict disable

```

## Related Documents

*Table 2: Related Documents*

Related Topic
<a href="#">Cisco NX-OS Licensing Guide</a>
<a href="#">Cisco Nexus 7000 Series NX-OS Release Notes</a>

