Syslog Support for Ethernet Connectivity Fault Management

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The Cisco IOS software system message facility helps to define and report errors and changes in system status. System messages aid customers and Cisco engineers in identifying the types and severities of events and in maintaining and operating Cisco IOS devices. For Ethernet connectivity fault management (CFM), system messages also allow network administrators to develop scripts for effectively configuring and managing the CFM function.

This document describes syslog support for Ethernet CFM and how to enable and disable CFM system messages.

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and 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 Feature Information Table at the end of this document.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

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Prerequisites for Syslog Support for Ethernet Connectivity Fault Management

- Knowledge of the Cisco IOS implementation of Ethernet CFM 802.1ag and of ITU-T Y.1731 fault management functions.

Restrictions for Syslog Support for Ethernet Connectivity Fault Management

- CFM does not support user-configurable actions in response to some events.
- CFM does not support the automatic use of CFM operations such as loopback and linktrace when failures are detected.
- Embedded Event Manager (EEM) does not support Simple Network Management Protocol (SNMP) traps.

Information About Syslog Support for Ethernet Connectivity Fault Management

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Syslog Protocol and Messages

Syslog is a delivery method for system messages, typically across an IP network. The term “syslog” is used to describe both the protocol that transfers messages and the messages themselves. Syslog is commonly used for managing computer systems and auditing system security. Syslog is supported by a variety of devices across many platforms. Because of this support, syslog can be used to integrate log data from different types of systems into a central repository.

Syslog messages are text messages less than 1 KB. They can be sent using User Datagram Protocol (UDP), TCP, or both. Messages are not encrypted, but a Secure Sockets Layer (SSL) wrapper can be used to provide a layer of encryption through the SSL or Transport Layer Security (TLS) protocols.

Syslog receivers are called “syslogd,” “syslog daemon,” or “syslog server.”

The syslog protocol and message format are defined in RFC 3164, *The BSD syslog Protocol* .

CFM System Messages

This section describes the types of CFM syslog messages that can be generated and the CFM events that trigger those messages. There are three types of syslog messages:

- AIS syslogs, page 3

- Cisco MIB Alarm syslogs, page 3
- IEEE MIB Alarm syslogs, page 3

AIS syslogs

Alarm Indication Signal (AIS) syslog messages can be enabled using the **ethernet cfm logging** command with the **ais** keyword. Following are the AIS syslog messages and corresponding CFM events:

- ENTER_AIS_INT--The interface has entered an AIS defect condition.
- EXIT_AIS_INT--The interface has exited an AIS defect condition.
- ENTER_AIS--An Ethernet CFM maintenance endpoint (MEP) has entered an AIS defect condition.
- EXIT_AIS--An Ethernet CFM MEP has exited an AIS defect condition.

Cisco MIB Alarm syslogs

The same Cisco MIB alarm message definitions apply to both VLAN and Ethernet virtual circuit (EVC) services. Cisco MIB alarm syslog messages can be enabled using the **ethernet cfm logging** command with the **alarm** and **cisco** keywords. Following are the Cisco MIB alarm syslog messages and corresponding CFM events:

- REMOTE_MEP_UP--A continuity check (CC) message is received from an active remove MEP.
- REMOTE_MEP_DOWN--The entry in the CC database corresponding to the MEP times out or the device receives a CC message with a zero hold time.
- CROSS_CONNECTED_SERVICE--The CC message contains a customer service instance (CSI) ID or maintenance association (MA) ID is different from what is configured locally on the device.
- FORWARDING_LOOP--A device is receiving CC messages with its maintenance point ID (MPID) and source MAC address.
- CONFIG_ERROR--A device is receiving a CC message with its MPID but a different source MAC address.
- CROSSCHECK_MEP_MISSING--A configured remote MEP does not come up during the cross-check start timeout interval.
- CROSSCHECK_MEP_UNKNOWN--The remote MEP that is received is not in the configured static list.
- CROSSCHECK_SERVICE_UP--The configured service, either CSI or MA, is up as it receives CC messages from all remote, statically configured MEPs.

IEEE MIB Alarm syslogs

The IEEE MIB alarm syslog message can be enabled using the **ethernet cfm logging** command with the **alarm** and **ieee** keywords. Following is the Cisco MIB alarm syslog message and corresponding CFM event:

- FAULT_ALARM--A fault in the network has occurred.

Syslog Support for Ethernet Connectivity Fault Management

The Syslog Support for Ethernet Connectivity Fault Management (Syslog Support for CFM) feature provides syslog support for CFM notifications that can be used to determine the status of services and of network connectivity. This feature is disabled by default. The command-line interface (CLI) **ethernet cfm**

logging command provides the option to either enable or disable all CFM syslogs or to separately enable or disable syslogs for the AIS feature, Cisco MIB alarms, and IEEE MIB alarms.

The Syslog Support for CFM feature must be implemented either on CFM over VLANs or when you use the IEEE 802.1ag on Bridge Domains feature and want to automate diagnostics or implement actions in response to CFM events.

- Benefits of Syslog Support for Ethernet Connectivity Fault Management, page 4

Benefits of Syslog Support for Ethernet Connectivity Fault Management

- Creates a record of events that assists in troubleshooting.
- Establishes a mechanism for leveraging EEM scripts for CFM event notifications.
- Allows control of syslog messages with the CLI **ethernet cfm logging** command.

How to Enable System Message Logging for Ethernet Connectivity Fault Management

- Enabling CFM Syslog Messages, page 4
- Disabling CFM Syslog Messages, page 5

Enabling CFM Syslog Messages

CFM syslogs are disabled by default. Perform this task to enable CFM syslog messages.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ethernet cfm logging** [**ais** | **alarm** {**cisco** | **ieee**}]
4. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.

	Command or Action	Purpose
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**ethernet cfm logging** [**ais** | **alarm** {**cisco** | **ieee**}] **Example:** `Router(config)# ethernet cfm logging`	Enables all CFM syslog messages.
Step 4	**end** **Example:** `Router(config)# end`	Returns the CLI to privileged EXEC mode.

Disabling CFM Syslog Messages

Perform this task to disable CFM syslog messages.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **no ethernet cfm logging** [**ais** | **alarm** {**cisco** | **ieee**}]
4. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.

	Command or Action	Purpose
Step 3	**no ethernet cfm logging** [**ais** | **alarm** {**cisco** | **ieee**}] **Example:** `Router(config)# no ethernet cfm logging`	Disables all CFM syslog messages.
Step 4	**end** **Example:** `Router(config)# end`	Returns the CLI to privileged EXEC mode.

Configuration Examples for System Logging for Ethernet Connectivity Fault Management

- Example Enabling All CFM Syslog Messages, page 6
- Example Enabling Cisco MIB Syslog Messages, page 6
- Example Enabling IEEE MIB Syslog Messages, page 6
- Example Enabling CFM AIS Syslog Messages, page 7
- Example Disabling All CFM Syslog Messages, page 7

Example Enabling All CFM Syslog Messages

The following example shows how to enable all CFM syslog messages:

```
Router> enable
Router# configure terminal
Router(config)# ethernet cfm logging
Router(config)#
```

Example Enabling Cisco MIB Syslog Messages

The following example shows how to enable all Cisco MIB syslog messages:

```
Router> enable
Router# configure terminal
Router(config)# ethernet cfm logging alarm cisco
Router(config)#
```

Example Enabling IEEE MIB Syslog Messages

The following example shows how to enable IEEE MIB syslog messages for VLAN services:

```
Router> enable
Router# configure terminal
```

```
Router(config)# ethernet cfm logging alarm ieee
Router(config)#
```

Example Enabling CFM AIS Syslog Messages

The following example shows how to enable syslog messages specific to the CFM AIS feature:

```
Router> enable
Router# configure terminal
Router(config)# ethernet cfm logging ais
Router(config)#
```

Example Disabling All CFM Syslog Messages

The following example shows how to disable all syslog messages:

```
Router> enable
Router# configure terminal
Router(config)#
no ethernet cfm logging
Router(config)#
```

Additional References

Related Documents

Related Topic	Document Title
Ethernet CFM	Configuring Ethernet Connectivity Fault Management in a Service Provider Network
IEEE 802.3ah	*IEEE 802.3ah Ethernet in the First Mile*
ITU-T Y.1731 fault management functions	Configuring ITU-T Y.1731 Fault Management Functions
Delivering and filtering syslog messages	Reliable Delivery and Filtering for Syslog
Cisco IOS commands: master list of commands with complete command syntax, command mode, command history, defaults, usage guidelines, and examples	Cisco IOS Master Commands List, All Releases
Cisco IOS Carrier Ethernet commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS Carrier Ethernet Command Reference*

Standards

Standard	Title
IEEE P802.1ag/D1.0	*Standard for Local and Metropolitan Area Networks - Virtual Bridged Local Area Networks - Amendment 5: Connectivity Fault Management*
IETF VPLS OAM	*L2VPN OAM Requirements and Framework*
ITU-T	ITU-T Y.1731 OAM Mechanisms for Ethernet-Based Networks

MIBs

MIB	MIBs Link
• CISCO-ETHER-CFM-MIB • CISCO-IEEE-CFM-MIB	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFC	Title
RFC 3164	*The BSD syslog Protocol*

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for Syslog Support for Ethernet Connectivity Fault Management

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software

release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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Table 1 Feature Information for Syslog Support for Ethernet Connectivity Fault Management

Feature Name	Releases	Feature Information
Syslog Support for Ethernet Connectivity Fault Management	12.2(33)SRD1	The Syslog Support for Ethernet CFM feature provides syslog support for CFM notifications that can be used to determine the status of services and of network connectivity. This feature must be implemented either when you use the IEEE 802.1ag on Bridge Domains feature or CFM over VLANs or if you are using the IEEE 802.1ag on Bridge Domains feature and want to automate diagnostics or implement actions in response to CFM events. The following commands were introduced or modified: **ethernet cfm logging**.