



# IEEE-Compliant CFM MIB

---

**First Published: April 19, 2010**  
**Last Updated: February 6, 2011**

The IEEE-compliant CFM MIB (IEEE CFM MIB) provides MIB support for IEEE 802.1ag-compliant connectivity fault management (IEEE CFM) services. The IEEE CFM MIB can be used as a tool to trace paths, verify and manage connectivity, and detect faults in a network.

This document describes the IEEE CFM MIB and the IEEE CFM services that it supports.

## 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 for the IEEE-Compliant CFM MIB”](#) section on page 6.

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

## Contents

- [Prerequisites for the IEEE-Compliant CFM MIB, page 2](#)
- [Restrictions for the IEEE-Compliant CFM MIB, page 2](#)
- [Information About the IEEE-Compliant CFM MIB, page 2](#)
- [Additional References, page 5](#)
- [Feature Information for the IEEE-Compliant CFM MIB, page 6](#)



---

**Americas Headquarters:**  
**Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA**

## Prerequisites for the IEEE-Compliant CFM MIB

- The CFM 8.1ag module must be present in the software image.

## Restrictions for the IEEE-Compliant CFM MIB

- The IEEE CFM MIB does not support SET operations.
- The IEEE CFM MIB does not support the capability to create rows.
- The Cisco ME 3400, ME 3400E, and Catalyst 3750 Metro switches do not support the CFM MIB on bridge domains and IETF.

## Information About the IEEE-Compliant CFM MIB

- [IEEE CFM MIB Implementation, page 2](#)
- [IEEE CFM Services Supported by the IEEE CFM MIB, page 2](#)
- [Tables in the IEEE CFM MIB, page 3](#)

## IEEE CFM MIB Implementation

The IEEE CFM MIB is compliant with the IEEE 802.1ag standard, which defines the IEEE CFM MIB as two modules: IEEE8021-CFM-MIB and IEEE8021-CFM-V2-MIB. The IEEE CFM MIB feature implements both modules.

The IEEE 802.1ag standard provides capabilities for detecting and isolating connectivity failures in a network. Network operators need network management tools to trace paths, verify and manage connectivity, and detect faults in a network. The IEEE CFM MIB has tables and objects that can be created, written, and read by network administrators. Additionally, an administrator may provide limited access to another provider, who can become the administrator of that table or object. Some tables and objects (for example, the CFM stack managed object or the default maintenance domain level object) can be used only by the owner of the network or bridge.

## IEEE CFM Services Supported by the IEEE CFM MIB

[Table 1](#) shows the IEEE CFM services that the IEEE CFM MIB supports and the MIB modules associated with the service.

**Table 1** *IEEE CFM Services Supported by the IEEE-compliant CFM MIB*

CFM Service	Required IF-MIB Support	Associated Service MIB Modules
CFMoVLANs	IF-MIB support for interfaces	—

**Table 1** *IEEE CFM Services Supported by the IEEE-compliant CFM MIB (continued)*

CFM Service	Required IF-MIB Support	Associated Service MIB Modules
CFMoEVC with BD	IF-MIB support for Ethernet flow points (EFPs) forwarding defined as bridge domain	<ul style="list-style-type: none"> <li>CISCO-EVC-MIB</li> <li>CISCO-BRIDGE-DOMAIN-MIB</li> </ul>
CFMoEVC with XC	IF-MIB support for EFPs forwarding defined as cross connect	<ul style="list-style-type: none"> <li>CISCO-EVC-MIB</li> <li>CISCO-IETF-PW-MIB</li> </ul>

## Tables in the IEEE CFM MIB

Eleven tables and one set of alarms are in the IEEE CFM MIB and are listed by module in the following sections:

- [IEEE8021-CFM-MIB, page 3](#)
- [IEEE8021-CFM-V2-MIB, page 4](#)

### IEEE8021-CFM-MIB

Six tables and the set of alarms are in the IEEE8021-CFM-MIB module. The tables are:

- Linktrace Reply Table (`dot1agCfmLtrTable`)—Extends the maintenance endpoint (MEP) table and contains a list of linktrace replies received by a specific MEP in response to a linktrace message.
- Maintenance Association (MA) Network Table (`dot1agCfmMaNetTable`)—Lists maintenance associations; each row in the table represents a maintenance association. This part of the MA table is constant across all bridges in a maintenance domain or across all components of a single bridge.
- Maintenance Domain Table (`dot1agCfmMdTable`)—Lists maintenance domains; each row in the table represents a different maintenance domain.
- MAMEP Table (`dot1agCfmMaMepListTable`)—Lists a table entry for known MEPs for an MA.
- MEP Database Table (`dot1agCfmMepDbTable`)—Extends the MEP table and is a database of information received about other MEPs in the maintenance domain.
- MEP Table (`dot1agCfmMepTable`)—Lists MEPs; each row in the table represents a different MEP.

A fault alarm (notification or trap) is sent to the management entity when a defect condition is detected. The object identifier (OID) of the MEP that detected the defect condition is sent as part of the alarm.

Fault alarms are assigned priorities, which perform the following functions:

- Define that a period of time should elapse with the defect condition present before a fault alarm is sent. The default is 2.5 seconds.
- Define that alarms are not sent after a time period has elapsed in which no alarms occurred. The default is 10 seconds.
- Define an alarm priority from 5 (highest) to 1 (lowest) that controls which failures trigger fault alarms.

### Defect Descriptions and Associated Fault Alarm Priorities

Table 2 shows the defects listed in order of their associated priorities.

**Table 2** Defect Descriptions and Associated Fault Alarm Priorities

Defect	Priority	Description
DefXconCCM	5 (highest)	One or more cross-connect continuity check messages (CCMs) has been received, and 3.5 times at least one of those CCMs' transmission interval has not yet expired: CrossConnect Error.
DefErrorCCM	4	One or more invalid CCMs has been received, and 3.5 times the CCMs' transmission interval has not yet expired: CrossCheck Error—Unknown MEP, Config Error, Loop Error.
DefRemoteCCM	3	At least one of the remote MEP state machines is not receiving valid CCMs from its remote MEP: CrossCheck Error—MEP Missing.
DefMACstatus	2	One or more of the remote MEPs is reporting a failure in its Port Status Type-Length-Value (TLV) or Interface Status TLV: MEP Down.
DefRDICCM	1 (lowest)	At least one of the Remote MEP state machines is receiving valid CCMs from its remote MEP that has the Remote Defect Indication (RDI) bit set.

## IEEE8021-CFM-V2-MIB

The following five tables are in the IEEE8021-CFM-V2-MIB module:

- CFM Configuration Error List Table (`ieee8021CfmConfigErrorListTable`)—Provides lists of interfaces and VIDs that are incorrectly configured.
- CFM Default MD Level Table (`ieee8021CfmDefaultMdTable`)—For each bridge component, controls MIP Half Function (MHF) creation for VIDs that are not attached to a specific maintenance association managed object and Sender ID TLV transmission by those MHFs.
- CFM Maintenance Association Component Table (`ieee8021CfmMaCompTable`)—Lists maintenance associations. Each row in the table represents a maintenance association. This part of the MA table is variable across bridges in a maintenance domain or across components of a single bridge.
- CFM Stack Table (`ieee8021CfmStackTable`)—Allows retrieval of information about maintenance points configured on any interface. There is one stack table per bridge.
- CFM VLAN Table (`ieee8021CfmVlanTable`)—Defines the association of primary VIDs with VLANs. Each VID that is not the primary VID and each VID that belongs to a VLAN associated with more than one VID has an entry in this table. VLANs associated with a single VID should not have an entry in this table.

# Additional References

## Related Documents

Related Topic	Document Title
Cisco IOS commands: master list of commands with complete command syntax, command mode, command history, defaults, usage guidelines, and examples	<a href="#">Cisco IOS Master Commands List, All Releases</a>
Cisco IOS Carrier Ethernet commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	<a href="#">Cisco IOS Carrier Ethernet Command Reference</a>
Configuring Carrier Ethernet	<a href="#">Cisco IOS Carrier Ethernet Configuration Guide</a>

## Standards

Standard	Title
IEEE 802.1ag-2007	<i>IEEE Standard for Local and metropolitan area networks—Virtual Bridged Local Area Networks</i>
IEEE 802.1ap	<i>802.1ap - Management Information Base (MIB) definitions for VLAN Bridges</i>

## MIBs

MIB	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>

## 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.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

# Feature Information for the IEEE-Compliant CFM MIB

Table 3 lists the release history for this feature.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to <http://www.cisco.com/go/cfn>. An account on Cisco.com is not required.



**Note**

Table 3 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.

**Table 3** Feature Information for the IEEE CFM MIB

Feature Name	Releases	Feature Information
IEEE-Compliant CFM MIB	12.2(54)SE 15.1(1)S	<p>The IEEE CFM MIB provides MIB support for IEEE CFM services. The IEEE CFM MIB can be used as a tool to trace paths, verify and manage connectivity, and detect faults in a network.</p> <p>In 12.2(54)SE, this feature was introduced on the Cisco ME 3400, ME 3400E, and Catalyst 3750 Metro switch platforms.</p> <p>In 15.1(1)S this feature was introduced on the Cisco 7600 series router.</p> <p>The following commands were modified: <b>ethernet cfm alarm</b>, <b>snmp-server enable traps ethernet cfm alarm</b>, <b>snmp-server host</b>.</p>

Cisco and the Cisco Logo are trademarks of Cisco Systems, Inc. and/or its affiliates in the U.S. and other countries. A listing of Cisco's trademarks can be found at [www.cisco.com/go/trademarks](http://www.cisco.com/go/trademarks). Third party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1005R)

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

© 2010–2011 Cisco Systems, Inc. All rights reserved.