



Configuring Ethernet OAM, Link OAM, and CFM

Ethernet Operations, Administration, and Maintenance (OAM) is a protocol for installing, monitoring, and troubleshooting Ethernet networks to increase management capability within the context of the overall Ethernet infrastructure. The Cisco ME 1200 Series Carrier Ethernet Access Device supports IEEE 802.1ag Connectivity Fault Management (CFM), and IEEE 802.3ah Ethernet OAM discovery, link monitoring, remote fault detection, and remote loopback.

This document provides information about configuring Ethernet OAM, Link OAM, and CFM.

For more information on Ethernet OAM and CFM, see the *Cisco IOS Carrier Ethernet Configuration Guide*.

- [Understanding the Ethernet OAM Protocol](#), page 1
- [Understanding Link OAM](#), page 11
- [Understanding Connectivity Fault Management](#), page 14
- [Configuration Example: Loopback](#), page 21
- [Configuration Example: Loss Measurement—Single Ended](#), page 23
- [Configuration Example: Loss Measurement—Dual Ended](#), page 27
- [Setting Performance Monitoring Parameters](#), page 32
- [Viewing Performance Monitoring Parameters](#), page 34

Understanding the Ethernet OAM Protocol

The Ethernet OAM protocol for installing, monitoring, and troubleshooting Metro Ethernet networks and Ethernet WANs relies on an optional sublayer in the data link layer of the OSI model. Normal link operation does not require Ethernet OAM. You can implement Ethernet OAM on any full-duplex point-to-point or emulated point-to-point Ethernet link for a network or part of a network (specified interfaces).

OAM frames, called OAM protocol data units (OAM PDUs) use the slow protocol destination MAC address 0180.c200.0002. They are intercepted by the MAC sublayer and cannot propagate beyond a single hop within an Ethernet network. Ethernet OAM is a relatively slow protocol, with a maximum transmission rate of 10 frames per second, resulting in minor impact to normal operations. However, when you enable link monitoring, because the CPU must poll error counters frequently, the number of required CPU cycles is proportional to the number of interfaces that must be polled.

OAM Features

These OAM features are defined by IEEE 802.3ah:

- Discovery identifies devices in the network and their OAM capabilities. It uses periodic OAM PDUs to advertise OAM mode, configuration, and capabilities; PDU configuration; and platform identity. An optional phase allows the local station to accept or reject the configuration of the peer OAM entity.
- Link monitoring detects and indicates link faults under a variety of conditions and uses the event notification OAM PDU to notify the remote OAM device when it detects problems on the link. Error events include when the number of symbol errors, the number of frame errors, the number of frame errors within a specified number of frames, or the number of error seconds within a specified period exceed a configured threshold.
- Remote failure indication conveys a slowly deteriorating quality of an OAM entity to its peers by communicating these conditions: Link Fault means a loss of signal, Dying Gasp means an unrecoverable condition, and Critical Event means an unspecified vendor-specific critical event. The switch can receive and process but not generate Link Fault or Critical Event OAM PDUs. It can generate Dying Gasp OAM PDUs to show when Ethernet OAM is disabled, the interface is shut down, the interface enters the error-disabled state, or the switch is reloading. It also supports Dying Gasp PDUs based on loss of power.
- Remote loopback mode to ensure link quality with a remote peer during installation or troubleshooting. In this mode, when the switch receives a frame that is not an OAM PDU or a pause frame, it sends it back on the same port. The link appears to the user to be in the up state. You can use the returned loopback acknowledgment to test delay, jitter, and throughput.

The following sections describe how to configure ethernet OAM on the Cisco ME 1200 NID.

Setting the Alarm Indication Signal (AIS)

DETAILED STEPS

	Command or Action	Purpose
Step 1	OperationsMepPortType Example: Switch# OperationsMepPortType	Enters the OperationsMepPortType mode and enables provisioning of the MEP.
Step 2	setAis aisConfig {aisAction {disable enable {framerate protect}} mepInstance mep-instance-number} Example: Switch(OperationsMepPortType)# setAis aisConfig aisAction enable frameRate fr1s Switch(OperationsMepPortType)# setAis aisConfig aisAction enable protect disable Switch(OperationsMepPortType)# setAis aisConfig aisAction disable Switch(OperationsMepPortType)# setAis aisConfig mepInstance 1	Enables or disables the alarm indication signal request on a Maintenance End Point (MEP) instance. <ul style="list-style-type: none"> • aisAction—Enables or disables the AIS. • framerate—Defines the frame rate, whether frames per minutes, or frames per second. • protect—Defines whether or not AIS can be used for protection. • mepInstance—Sets the MEP instance number. The valid values are from 1 to 128.

	Command or Action	Purpose
Step 3	setAis review Example: Switch(OperationsMepPortType)# setAis review	Displays the setAis configuration.
Step 4	setAis commit Example: Switch(OperationsMepPortType)# setAis commit	Sends the setAis configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(OperationsMepPortType)# exit Switch#	Exits the OperationsMepPortType mode.

Setting Delay Measurement

DETAILED STEPS

	Command or Action	Purpose
Step 1	ProvisionMepPortType Example: Switch# OperationsMepPortType	Enters the OperationsMepPortType mode and enables provisioning of the MEP.
Step 2	setDm dmConfig {dmAction {disable enable {calculation cast interval lastN mode priority}} mepInstance mep-instance-number} Example: Switch(OperationsMepPortType)# setDM dmConfig dmAction enable calculation rdtrp Switch(OperationsMepPortType)# setDM dmConfig dmAction enable cast uni mepId 0 Switch(OperationsMepPortType)# setDM dmConfig dmAction enable interval 10 Switch(OperationsMepPortType)# setDM dmConfig dmAction enable lastN 10 Switch(OperationsMepPortType)# setDM dmConfig dmAction enable mode twoWay Switch(OperationsMepPortType)# setDM dmConfig dmAction enable priority 0 Switch(OperationsMepPortType)# setDM dmConfig dmAction disable Switch(OperationsMepPortType)# setDM dmConfig mepInstance 1	Enables or disables the delay measurement request. <ul style="list-style-type: none"> • dmAction—Enables or disables the delay measurement. • calculation—Is the delay calculation. • cast—Is either unicast or multicast. • interval—Is the interval between PDU transmission. The valid values are from 10 to 65535. • lastN—Are the last N delays used for average last N calculation. • mode—Is either one-way mode or two-way mode. • priority—Is the priority in case of tagged OAM. In the EVC domain this is the COS-ID. • mepInstance—Is the MEP instance number. The valid values are from 1 to 128.

	Command or Action	Purpose
Step 3	setDm review Example: Switch(OperationsMepPortType)# setDm review	Displays the setDm configuration.
Step 4	setDm commit Example: Switch(OperationsMepPortType)# setDm commit	Sends the setDm configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(OperationsMepPortType)# exit Switch#	Exits the OperationsMepPortType mode.

Updating Delay Measurement

DETAILED STEPS

	Command or Action	Purpose
Step 1	ProvisionMepPortType Example: Switch# OperationsMepPortType	Enters the OperationsMepPortType mode and enables fault management and performance monitoring on the MEP.
Step 2	updateDM updateDMConfig {mepInstance mep_instance_id update {overflowReset {keep reset} synchronized {disable enable} txmode {proprietary standardize} unit {ns us} bin {fd ifdv threshold}} Example: Switch(OperationsMepPortType)# updateDM updateDmConfig update overflowReset keep Switch(OperationsMepPortType)# updateDM updateDmConfig update synchronized disable Switch(OperationsMepPortType)# updateDM updateDmConfig update txMode standardize Switch(OperationsMepPortType)# updateDM updateDmConfig update unit us	Updates the delay measurement request. <ul style="list-style-type: none"> • mepInstance—Configures the MEP instance number. The valid values are from 1 to 128. • update—Updates the delay measurement parameters. • overflowRest—Configures all Delay Measurement results on total delay counter overflow. • synchronized—Synchronizes the near- and far-end in real time. • txmode—Configures the transmission mode. • unit—Configures the delay in nano seconds or microseconds. • bin—Configures the delay measurement binning. <ul style="list-style-type: none"> ◦ fd —Configures number of FD measurement bins . The values are from 2 to 10.

	Command or Action	Purpose
		<ul style="list-style-type: none"> ◦ ifdv —Configures number of IFDV measurement Bins . The values are from 2 to 10. ◦ threshold —Configures threshold for each delay measurement binning . The values are from 1 to 50000.
Step 3	updateDM review Example: Switch(OperationsMepPortType)# updateDM review	Displays the updateDM configuration.
Step 4	updateDM commit Example: Switch(OperationsMepPortType)# updateDM commit	Sends the updateDM configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(OperationsMepPortType)# exit Switch#	Exits the OperationsMepPortType mode.

Setting Loss Measurement

DETAILED STEPS

	Command or Action	Purpose
Step 1	ProvisionMepPortType Example: Switch# OperationsMepPortType	Enters the OperationsMepPortType mode and enables fault management and performance monitoring on the MEP.
Step 2	setLM lmConfig {lmAction {disable enable {cast flr framerate mode priority}} mepInstance mep-instance-number} Example: Switch(OperationsMepPortType)# setLM lmConfig lmAction enable cast uni Switch(OperationsMepPortType)# setLM lmConfig lmAction enable flr 5 Switch(OperationsMepPortType)# setLM lmConfig lmAction enable frameRate fr1s Switch(OperationsMepPortType)# setLM lmConfig lmAction enable mode single Switch(OperationsMepPortType)# setLM lmConfig	<p>Enables or disables the loss measurement request.</p> <ul style="list-style-type: none"> • lmAction—Enables or disables the loss measurement. • cast—Defines whether OAM PDU is transmitted with either unicast MAC or multicast MAC. • flr—Is the frame loss ratio. The valid values for frame loss interval ratio is from 0 to 99. • framerate—Defines the frame rate, whether 1 or 10 frames per second, 1 or 6 frames per minutes, or 6 frames per hour.

	Command or Action	Purpose
	<pre>lmAction enable priority 0 Switch(OperationsMepPortType)# setLM lmConfig lmAction disable Switch(OperationsMepPortType)# setLM lmConfig mepInstance 1</pre>	<ul style="list-style-type: none"> • mode—Is either single mode or dual mode. • priority—Is the priority in case of tagged OAM. In the EVC domain this is the COS-ID. The valid values are from 0 to 7. • mepInstance—Is the MEP instance number. The valid values are from 1 to 128.
Step 3	<p>setLM review</p> <p>Example: Switch(OperationsMepPortType)# setLM review</p>	Displays the setLM configuration.
Step 4	<p>setLM commit</p> <p>Example: Switch(OperationsMepPortType)# setLM commit</p>	Sends the setLM configuration to the Cisco ME 1200 NID.
Step 5	<p>exit</p> <p>Example: Switch(OperationsMepPortType)# exit Switch#</p>	Exits the OperationsMepPortType mode.

Setting Lock Signal

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p>ProvisionMepPortType</p> <p>Example: Switch# OperationsMepPortType</p>	Enters the OperationsMepPortType mode and enables fault management and performance monitoring on the MEP.
Step 2	<p>setlck lckConfig {lckAction {disable enable framerate mepInstance mep-instance-number}</p> <p>Example: Switch(OperationsMepPortType)# setLck lckConfig lckAction enable framerate frls Switch(OperationsMepPortType)# setLck lckConfig lckAction disable Switch(OperationsMepPortType)# setLck lckConfig mepInstance 1</p>	<p>Enables or disables the lock signal request.</p> <ul style="list-style-type: none"> • lckAction—Enables or disables the lock signal request. • framerate—Defines the frame rate, whether frames per minutes, or frames per second. • mepInstance—Is the MEP instance number. The valid values are from 1 to 128.

	Command or Action	Purpose
Step 3	setlck review Example: Switch(OperationsMepPortType)# setlck review	Displays the setlck configuration.
Step 4	setlck commit Example: Switch(OperationsMepPortType)# setlck commit	Sends the setlck configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(OperationsMepPortType)# exit Switch#	Exits the OperationsMepPortType mode.

Setting Link Trace

DETAILED STEPS

	Command or Action	Purpose
Step 1	OperationsMepPortType Example: Switch# OperationsMepPortType	Enters the OperationsMepPortType mode and enables fault management and performance monitoring on the MEP.
Step 2	setlinkTrace linkTrace {ltAction {disable enable} {destination priority ttl} mepInstance mep-instance-number} Example: Switch(OperationsMepPortType)# setLinkTrace linkTrace ltAction enable destination mepId 0 Switch(OperationsMepPortType)# setLinkTrace linkTrace ltAction enable priority 0 Switch(OperationsMepPortType)# setLinkTrace linkTrace ltAction enable ttl 1 Switch(OperationsMepPortType)# setLinkTrace linkTrace ltAction disable Switch(OperationsMepPortType)# setLinkTrace linkTrace mepInstance 1	Enables or disables the link trace request. <ul style="list-style-type: none"> • ltAction—Enables or disables the link trace. • enable destination—Enables the target peer MEP. • priority—Is the priority in case of tagged OAM. In the EVC domain, this value is the COS-ID. The valid values are from 0 to 7. • ttl—Is the time-to-live value. The valid values are from 1 to 999. • mepInstance—Is the MEP instance number. The valid values are from 1 to 128.
Step 3	setLinkTrace review Example: Switch(OperationsMepPortType)# setLinkTrace review	Displays the setLinkTrace configuration.

	Command or Action	Purpose
Step 4	setLinkTrace commit Example: Switch(OperationsMepPortType)# setLinkTrace commit	Sends the setLinkTrace configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(OperationsMepPortType)# exit Switch#	Exits the OperationsMepPortType mode.

Setting Loopback

DETAILED STEPS

	Command or Action	Purpose
Step 1	OperationsMepPortType Example: Switch# OperationsMepPortType	Enters the OperationsMepPortType mode and enables fault management and performance monitoring on the MEP.
Step 2	setloopBack loopBackConfig {lbAction {disable enable} {cast count dei interval priority size}} mepInstance mep-instance-number} Example: Switch(OperationsMepPortType)# setLoopBack loopBackConfig lbAction enable cast uni mepId 0 Switch(OperationsMepPortType)# setLoopBack loopBackConfig lbAction enable count 5 Switch(OperationsMepPortType)# setLoopBack loopBackConfig lbAction enable dei disable Switch(OperationsMepPortType)# setLoopBack loopBackConfig lbAction enable interval 10 Switch(OperationsMepPortType)# setLoopBack loopBackConfig lbAction enable priority 0 Switch(OperationsMepPortType)# setLoopBack loopBackConfig lbAction enable size 100 Switch(OperationsMepPortType)# setLoopBack loopBackConfig lbAction disable Switch(OperationsMepPortType)# setLoopBack loopBackConfig mepInstance 1	Enables or disables the loopback request. <ul style="list-style-type: none"> • lbAction—Enables or disables loopback. • cast—Is either unicast or multicast. • count—Is the number of loopback message (LBM) PDUs to send in one loop test. • dei—Is the Drop Eligible Indicator in case of tagged OAM. • interval—Is the interval between transmitting LBM protocol data unit (PDU). The valid values are from 1 to 100. • priority—Is the priority in case of tagged OAM. In the EVC domain this is the COS-ID. • size—Is the number of bytes in the LBM PDU Data Pattern TLV. The valid values are from 1 to 1400. • mepInstance—Is the MEP instance number. The valid values are from 1 to 128.

	Command or Action	Purpose
Step 3	setloopBack review Example: Switch(OperationsMepPortType)# setloopBack review	Displays the setloopBack configuration.
Step 4	setloopBack commit Example: Switch(OperationsMepPortType)# setloopBack commit	Sends the setloopBack configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(OperationsMepPortType)# exit Switch#	Exits the OperationsMepPortType mode.

Setting Test Signal

DETAILED STEPS

	Command or Action	Purpose
Step 1	OperationsMepPortType Example: Switch# OperationsMepPortType	Enters the OperationsMepPortType mode and enables fault management and performance monitoring on the MEP.
Step 2	setTst tstConfig tstConfig {dei {disable enable} mepId mepInstance <i>mep-instance-id</i> pattern priority rate sequence size} Example: Switch(OperationsMepPortType)# setTst tstConfig dei disable Switch(OperationsMepPortType)# setTst tstConfig mepId 0 Switch(OperationsMepPortType)# setTst tstConfig mepInstance 1 Switch(OperationsMepPortType)# setTst tstConfig pattern allZero Switch(OperationsMepPortType)# setTst tstConfig priority 0 Switch(OperationsMepPortType)# setTst tstConfig rate 1 Switch(OperationsMepPortType)# setTst tstConfig sequence disable Switch(OperationsMepPortType)# setTst tstConfig size 64	Enables or disables the test signal request. <ul style="list-style-type: none"> • tstConfig—Enables or disables the test signal request. • dei—Defines the Drop Eligible Indicator in case of tagged OAM. • mepId—Defines peer MEP ID. The valid values are from 0 to 8191. • mepInstance—Is the MEP instance number. The valid values are from 1 to 128. • pattern—Enables the sequence number in test PDU. • priority—Is the priority in case of tagged OAM. In the EVC domain this is the COS-ID. • rate—Is the test frame transmission bit rate – in Mega bits per second. The valid values are from 1 to 400. • sequence— Enables and disables sequence number in test PDUs

	Command or Action	Purpose
		<ul style="list-style-type: none"> • size—Is the test frame size. The valid values are from 1 to 1581.
Step 3	setTst review Example: Switch(OperationsMepPortType)# setTst review	Displays the setTst configuration.
Step 4	setTst commit Example: Switch(OperationsMepPortType)# setTst commit	Sends the setTst configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(OperationsMepPortType)# exit Switch#	Exits the OperationsMepPortType mode.

Updating Test Signal

DETAILED STEPS

	Command or Action	Purpose
Step 1	OperationsMepPortType Example: Switch# OperationsMepPortType	Enters the OperationsMepPortType mode and enables fault management and performance monitoring on the MEP.
Step 2	updateTst updateTstConfig {mepInstance <i>mep-instance-id</i> update {Rx {disable enable} Tx {disable enable}}} Example: Switch(OperationsMepPortType)# updateTst updateTstConfig update Rx enable Switch(OperationsMepPortType)# updateTst updateTstConfig update Tx enable Switch(OperationsMepPortType)# updateTst updateTstConfig mepInstance 1	Updates the test signal request. <ul style="list-style-type: none"> • updateTstConfig—Updates the test signal parameters. • mepInstance—Is the MEP instance number. The valid values are from 1 to 128. • update—Enables or disables the receive and transmit test signals.
Step 3	updateTst review Example: Switch(OperationsMepPortType)# updateTst review	Displays the updateTst configuration.

	Command or Action	Purpose
Step 4	updateTst commit Example: Switch(OperationsMepPortType)# updateTst commit	Sends the updateTst configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(OperationsMepPortType)# exit Switch#	Exits the OperationsMepPortType mode.

Understanding Link OAM

The following sections describe how to configure Link OAM on the Cisco ME 1200 NID.

Setting OAM Port Operations

DETAILED STEPS

	Command or Action	Purpose
Step 1	LinkOamPortType Example: Switch# LinkOamPortType	Enters the LinkOamPortType mode.
Step 2	setLinkOamPortConfig portConfig {linkOam enable linkmonitorSupport enable loopbackOperation enable loopbackSupport enable mibretrivalSupport enable oamMode {active passive} portNumber <i>port-number</i> variableRetrieve {localInfo remoteInfo} Example: Switch(LinkOamPortType)# setLinkOamPortConfig portConfig portNumber 5 Switch(LinkOamPortType)# setLinkOamPortConfig portConfig linkOam enable Switch(LinkOamPortType)# setLinkOamPortConfig portConfig linkmonitorSupport enable Switch(LinkOamPortType)# setLinkOamPortConfig portConfig loopbackOperation enable Switch(LinkOamPortType)# setLinkOamPortConfig portConfig loopbackSupport enable Switch(LinkOamPortType)# setLinkOamPortConfig portConfig mibretrivalSupport enable Switch(LinkOamPortType)# setLinkOamPortConfig portConfig oamMode active Switch(LinkOamPortType)# setLinkOamPortConfig portConfig variableRetrieve localInfo	Sets the Link OAM port configuration. <ul style="list-style-type: none"> • linkOam—Sets the supported Link OAM. • linkmonitorSupport—Enables or disables the Link monitor support. • loopbackOperation—Sets the loopback operation. • loopbackSupport—Sets the Link OAM remote loopback support. • mibretrivalSupport—Set MIB retrieval support. • oamMode—Sets the Link OAM mode to Active or Passive. • portNumber—Sets the interface number. The valid values are from 1 to 6.

	Command or Action	Purpose
		<ul style="list-style-type: none"> • variableRetrieve—Sets the MIB variable retrieve value to local information or remote information.
Step 3	setLinkOamPortConfig review Example: Switch(LinkOamPortType)# setLinkOamPortConfig review	Displays the LinkOamPortType configuration.
Step 4	setLinkOamPortConfig commit Example: Switch(LinkOamPortType)# setLinkOamPortConfig commit	Sends the LinkOamPortType configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(LinkOamPortType)# exit Switch#	Exits the LinkOamPortType mode.

What to Do Next

After the configuration is sent to the Cisco ME 1200 NID, use the following **get** command to view the LinkOamPortType configuration.

```
Switch(LinkOamPortType)# getLinkOamPortConfig linkOamRequest portNumber 5
Switch(LinkOamPortType)# getLinkOamPortConfig review
Switch(LinkOamPortType)# getLinkOamPortConfig commit
```

Setting Link OAM Event Configuration

DETAILED STEPS

	Command or Action	Purpose
Step 1	LinkOamPortType Example: Switch# LinkOamPortType	Enters the LinkOamPortType mode.
Step 2	setlinkeventConfig linkEventConfig {errorFrame {threshold window} frameSeconds {threshold window} portNumber interface-number symbolPeriod {threshold window}} Example: Switch(LinkOamPortType)# setLinkEventConfig linkEventConfig portNumber 5 Switch(LinkOamPortType)# setLinkEventConfig	Sets the Link Event configuration request. <ul style="list-style-type: none"> • errorFrame—Configures the frame error event thresholds and window for error frames that trigger an error-frame link event. The valid threshold values are from 0 to 4294967295 number of frames. The valid window values to count the number of error frames is from 1 to 60 seconds.

	Command or Action	Purpose
	<pre>linkEventConfig errorFrame threshold 0 Switch(LinkOamPortType)# setLinkEventConfig linkEventConfig errorFrame window 1 Switch(LinkOamPortType)# setLinkEventConfig linkEventConfig frameSeconds threshold 0 Switch(LinkOamPortType)# setLinkEventConfig linkEventConfig frameSeconds window 10 Switch(LinkOamPortType)# setLinkEventConfig linkEventConfig symbolPeriod threshold 0 Switch(LinkOamPortType)# setLinkEventConfig linkEventConfig symbolPeriod window 1</pre>	<ul style="list-style-type: none"> • frameSeconds—Configures the frame seconds summary. The valid threshold values are from 0 to 65535 number of permissible error frames. The valid window vales for monitoring the frames is from 10 to 900 seconds. • portNumber—Is the port number for the Link Event configuration request. The valid values are from 1 to 6. • symbolPeriod—Configures the window and thresholds for an error-symbol period that triggers an error-symbol period link event. The valid threshold values are from 0 to 4294967295 number of permissible error symbols. The valid window vales for monitoring the frames is from 1 to 60 seconds.
Step 3	<p>setLinkEventConfig review</p> <p>Example: Switch(LinkOamPortType)# setLinkEventConfig review</p>	Displays the setLinkEventConfig configuration.
Step 4	<p>setLinkEventConfig commit</p> <p>Example: Switch(LinkOamPortType)# setLinkEventConfig commit</p>	Sends the setLinkEventConfig configuration to the Cisco ME 1200 NID.
Step 5	<p>exit</p> <p>Example: Switch(LinkOamPortType)# exit Switch#</p>	Exits the LinkOamPortType mode.

What to Do Next

After the configuration is sent to the Cisco ME 1200 NID, use the following **get** command to view the setLinkEventConfig configuration.

```
Switch(LinkOamPortType)# getLinkEventConfig linkOamRequest portNumber 5
Switch(LinkOamPortType)# getLinkEventConfig review
Switch(LinkOamPortType)# getLinkEventConfig commit
```

Setting Remote Loopback Start And Stop

DETAILED STEPS

	Command or Action	Purpose
Step 1	LinkOamPortType Example: Switch# LinkOamPortType	Enters the LinkOamPortType mode.
Step 2	setRemoteLoopBack remoteLoopBak {start portList stop portList} Example: Switch(LinkOamPortType)# setRemoteLoopBack remoteLoopBack start portList 1	Sets the remote loopback request. <ul style="list-style-type: none"> • start—Starts the remote loopback on the defined port list. • stop—Stops the remote loopback on the defined port list.
Step 3	setRemoteLoopBack review Example: Switch(LinkOamPortType)# setRemoteLoopBack review Commands in queue: setRemoteLoopBack remoteLoopBack start portList 1 setRemoteLoopBack remoteLoopBack stop portList 1	Displays the setRemoteLoopBack configuration.
Step 4	setRemoteLoopBack commit Example: Switch(LinkOamPortType)# setRemoteLoopBack commit	Sends the setRemoteLoopBack configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(LinkOamPortType)# exit Switch#	Exits the LinkOamPortType mode.

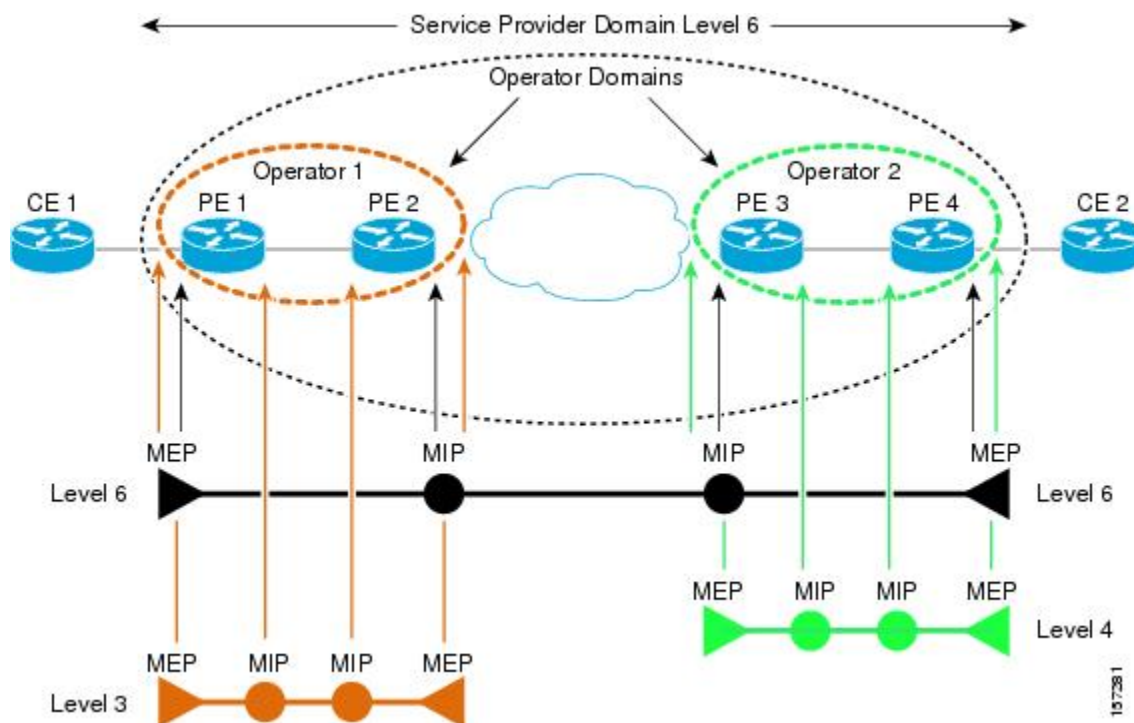
Understanding Connectivity Fault Management

Ethernet CFM is an end-to-end per VLAN Ethernet layer OAM protocol that includes proactive connectivity monitoring, fault verification, and fault isolation. End-to-end can be provider-edge-to-provider-edge (PE-to-PE) device or customer-edge-to-customer-edge (CE-to-CE) device. Ethernet CFM, as specified by IEEE 802.1ag, is the standard for Layer 2 ping, Layer 2 traceroute, and end-to-end connectivity check of the Ethernet network.

CFM Domain

A CFM maintenance domain is a management space on a network that is owned and operated by a single entity and defined by a set of ports internal to it, but at its boundary. You assign a unique maintenance level (from 0 to 7) to define the hierarchical relationship between domains. The larger the domain, the higher the level. For example, as shown in the figure below, a service-provider domain would be larger than an operator domain and might have a maintenance level of 6, while the operator domain maintenance level is 3 or 4.

Figure 1: CFM Maintenance Domains



Maintenance Associations and Maintenance Points

A maintenance association (MA) identifies a service that can be uniquely identified within the maintenance domain. The CFM protocol runs within a maintenance association. A maintenance point is a demarcation point on an interface that participates in CFM within a maintenance domain. Maintenance points drop all lower-level frames and forward all higher-level frames. There are two types of maintenance points:

- Maintenance end points (MEPs) are points at the edge of the domain that define the boundaries and confine CFM messages within these boundaries. Outward facing or Down MEPs communicate through the wire side (connected to the port). Inward facing or Up MEPs communicate through the relay function side, not the wire side.
- Maintenance intermediate points (MIPs) are internal to a domain, not at the boundary, and respond to CFM only when triggered by traceroute and loopback messages. They forward CFM frames received from MEPs and other MIPs, drop all CFM frames at a lower level (unless MIP filtering is enabled), and forward all CFM frames at a higher level and at a lower level and regardless of whether they are received

from the relay or wire side. When MIP filtering is enabled, the MIP drops CFM frames at a lower level. MIPs also catalog and forward continuity check messages (CCMs), but do not respond to them.

The following sections describe how to configure CFM on the Cisco ME 1200 NID.

Adding Continuity Check and Automatic Protection Switching

DETAILED STEPS

	Command or Action	Purpose
Step 1	ProvisionMepPortType Example: Switch# ProvisionMepPortType	Enters the ProvisionMepPortType mode and enables provisioning of the MEP.
Step 2	addccAps mepFunctionalConfig {aps {disable enable} {mode {multi uni} priority switchingProtocol {laps raps}} cc {disable enable} {framerate priority}} Example: <pre>Switch(ProvisionMepPortType)# addCcAps mepFunctionalConfig aps enable mode multi Switch(ProvisionMepPortType)# addCcAps mepFunctionalConfig aps enable switchingProtocol laps Switch(ProvisionMepPortType)# addCcAps mepFunctionalConfig cc enable frameRate fr1s Switch(ProvisionMepPortType)# addCcAps mepFunctionalConfig cc enable priority 1</pre>	Adds the CC or APS configuration request. <ul style="list-style-type: none"> • mepFunctionalConfig—Adds the Continuity Check (CC) or automatic protection switching (APS) configuration request. • aps—Enables or disables the APS parameters. • mode—Defines whether multicast or unicast. • priority—Defines the priority in case of tagged OAM. In the EVC domain, this parameter is the COS-ID. The valid values are from 0 to 7. • switchingProtocol—Sets the appropriate APS switching protocol—Linear Automatic Protection Switching protocol (LAPS) or Ring Automatic Protection Switching protocol (RAPS). • cc—Enables or disables the CC parameters. • framerate—Sets the CC frame rate.
Step 3	addCcAps review Example: Switch(ProvisionMepPortType)# addCcAps review	Displays the addCcAps configuration.
Step 4	addCcAps commit Example: Switch(ProvisionMepPortType)# addCcAps commit	Sends the addCcAps configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(ProvisionMepPortType)# exit Switch#	Exits the ProvisionMepPortType mode.

Adding Peer MEP IDs

DETAILED STEPS

	Command or Action	Purpose
Step 1	ProvisionMepPortType Example: Switch# ProvisionMepPortType	Enters the ProvisionMepPortType mode and enables provisioning of the MEP.
Step 2	addPeerMepId mepClientConfig {macAddress mac_address mepInstance mep-instance peerMepId peer-mep-id} Example: Switch(ProvisionMepPortType)# addPeerMepId mepClientConfig aisPriority aisHighest Switch(ProvisionMepPortType)# addPeerMepId mepClientConfig domain VLAN Switch(ProvisionMepPortType)# addPeerMepId mepClientConfig flowId 21 Switch(ProvisionMepPortType)# addPeerMepId mepClientConfig mepInstance 1	Adds the client configuration request. <ul style="list-style-type: none"> • mepClientConfig—Adds the client configuration request. • macAddress—The peer MAC address. This MAC address will be overwritten by any learned MAC address through CCM reception. • mepInstance—Sets the MEP instance number. The valid values are from 1 to 128. • peerMepId—Sets the peer MEP ID. The valid values are from 1 to 8191.
Step 3	addPeerMepId review Example: Switch(ProvisionMepPortType)# addPeerMepId review	Displays the addPeerMepId configuration.
Step 4	addPeerMepId commit Example: Switch(ProvisionMepPortType)# addPeerMepId commit	Sends the addPeerMepId configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(ProvisionMepPortType)# exit Switch#	Exits the ProvisionMepPortType mode.

Adding Client Configuration

DETAILED STEPS

	Command or Action	Purpose
Step 1	ProvisionMepPortType Example: Switch# ProvisionMepPortType	Enters the ProvisionMepPortType mode and enables provisioning of the MEP.
Step 2	addClient mepClientConfig {aisPriority {aisHighest priority} domain {evc vlan} flowID flow-id lckPriority {lckHighest priority} level meg-level mepInstance mep-instance} Example: Switch(ProvisionMepPortType)# addClient mepClientConfig aisPriority aisHighest Switch(ProvisionMepPortType)# addClient mepClientConfig domain VLAN Switch(ProvisionMepPortType)# addClient mepClientConfig flowId 21 Switch(ProvisionMepPortType)# addClient mepClientConfig mepInstance 1	Adds the client configuration request. <ul style="list-style-type: none"> • mepClientConfig—Adds the client configuration request. • aisPriority—Sets the alarm indication signal priority. The AIS priority can be set to either the highest priority or any other priority between 0 and 7. • domain—Sets the domain—whether EVC or VLAN. • flowID—Sets the ID of the flow. MEP is related to this flow. • lckPriority—Sets the lock priority. The lock priority can be set to either the highest priority or any other priority between 0 and 7. • level—Sets the MEG level of the MEP. The valid values are from 0 to 7. • mepInstance—Sets the MEP instance number. The valid values are from 1 to 128.
Step 3	addClient review Example: Switch(ProvisionMepPortType)# addClient review	Displays the addClient configuration.
Step 4	addClient commit Example: Switch(ProvisionMepPortType)# addClient commit	Sends the addClient configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(ProvisionMepPortType)# exit Switch#	Exits the ProvisionMepPortType mode.

Creating MEP Configuration

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p>ProvisionMepPortType</p> <p>Example: Switch# ProvisionMepPortType</p>	Enters the ProvisionMepPortType mode and enables provisioning of the MEP.
Step 2	<p>createMep createMepConfig {direction {DOWN UP} domain {EVC PORT VLAN} flowId flow-id level meg-level megDomain {maName megIdFormat {ieee ituCcMeg ituMeg}} mepId mep-id mepInstance mep-instance mode {mep mip} residencePort port vid vid-number voe {disable enable}}</p> <p>Example: Switch(ProvisionMepPortType)# createMep createMepConfig direction UP Switch(ProvisionMepPortType)# createMep createMepConfig domain VLAN Switch(ProvisionMepPortType)# createMep createMepConfig flowId 21 Switch(ProvisionMepPortType)# createMep createMepConfig level 0 Switch(ProvisionMepPortType)# createMep createMepConfig mode MEP Switch(ProvisionMepPortType)# createMep createMepConfig residencePort 1 Switch(ProvisionMepPortType)# createMep createMepConfig voe disable</p>	<p>Creates the Maintenance End Point configuration.</p> <ul style="list-style-type: none"> • createMepConfig—Creates the MEP configuration. • direction—Sets the direction of the MEP—whether down (Down MEP) or up (Up MEP). • domain—Sets the domain—whether EVC, Port, or VLAN. • flowID—Sets the ID of the flow. MEP is related to this flow. • level—Sets the MEG level of the MEP. The valid values are from 0 to 7. • megDomain—Sets the maintenance domain configuration to either maName (ITU/IEEE MEG-ID) or megIdFormat. • mepId—Sets the MEP ID. The valid values are from 0 to 8191. • mepInstance—Sets the MEP instance number. The valid values are from 1 to 128. • mode—Sets the mode of the MEP instance—whether Maintenance Entity End Point (MEP) or Maintenance Entity Intermediate Point (MIP). • residencePort—Defines the port that MEP is monitoring. The valid values are from 1 to 6. • vid—The valid values are from 0 to 4094. Note If the MEP is a port Up-MEP or an EVC customer MIP, the VID must be provided. • voe—Enables or disables the MEP VOE.
Step 3	<p>createMep review</p> <p>Example: Switch(ProvisionMepPortType)# createMep review</p>	Displays the createMep configuration.

	Command or Action	Purpose
Step 4	createMep commit Example: Switch(ProvisionMepPortType) # createMep commit	Sends the createMep configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(ProvisionMepPortType) # exit Switch#	Exits the ProvisionMepPortType mode.

Updating MEP Configuration

DETAILED STEPS

	Command or Action	Purpose
Step 1	ProvisionMepPortType Example: Switch# ProvisionMepPortType	Enters the ProvisionMepPortType mode and enables provisioning of the MEP.
Step 2	updateMep mepUpdateConfig {mepInstance <i>mep_instance</i> update {level <i>meg-level</i> megDomain {maName megIdFormat {ieee ituCcMeg ituMeg}} mepId <i>mep-id</i> performanceMonitoring {disable enable} vid <i>vid-number</i> voe {disable enable}}} Example: Switch(ProvisionMepPortType) # createMep createMepConfig direction UP Switch(ProvisionMepPortType) # createMep createMepConfig domain VLAN Switch(ProvisionMepPortType) # createMep createMepConfig flowId 21 Switch(ProvisionMepPortType) # createMep createMepConfig level 0 Switch(ProvisionMepPortType) # createMep createMepConfig mode MEP Switch(ProvisionMepPortType) # createMep createMepConfig residencePort 1 Switch(ProvisionMepPortType) # createMep createMepConfig voe disable	Updates the Maintenance End Point configuration. <ul style="list-style-type: none"> • mepInstance—Sets the MEP instance number. The valid values are from 1 to 128. • update—Updates the MEP configuration. • level—Sets the MEG level of the MEP. The valid values are from 0 to 7. • megDomain—Sets the maintenance domain configuration to either maName (ITU/IEEE MEG-ID) or megIdFormat. • mepId—Sets the MEP ID. The valid values are from 0 to 8191. • performanceMonitoring—Enables or disables performance monitoring • vid—The valid values are from 0 to 4094. Note If the MEP is a port Up-MEP or an EVC customer MIP, the VID must be provided. • voe—Enables or disables the MEP VOE.

	Command or Action	Purpose
Step 3	updateMep review Example: Switch(ProvisionMepPortType)# updateMep review	Displays the updateMep configuration.
Step 4	updateMep commit Example: Switch(ProvisionMepPortType)# updateMep commit	Sends the updateMep configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(ProvisionMepPortType)# exit Switch#	Exits the ProvisionMepPortType mode.

Configuration Example: Loopback

Consider the following topology:

(Gi1/5)NID-3(Gi1/3)====(Gi1/3)NID-4(Gi1/6)

Configuration on Cisco ME 1200 NID-3

```

ProvisionPortVlanPortType
  createVlanCommand createVlanReq vlan_list 2000
createVlanCommand commit
  modifySwPort modifySWPortConfig interaface 3
  modifySwPort modifySWPortConfig mode trunk native vlan 1
  modifySwPort modifySWPortConfig mode trunk allowed vlan add vlan_list 2000
modifySwPort commit
  modifySwPort modifySWPortConfig interaface 4
  modifySwPort modifySWPortConfig mode trunk native vlan 1
  modifySwPort modifySWPortConfig mode trunk allowed vlan add vlan_list 2000
modifySwPort commit
exit
ProvisionMepPortType
  createMep createMepConfig mepInstance 100
  createMep createMepConfig direction DOWN
  createMep createMepConfig domain vlan
  createMep createMepConfig level 0
  createMep createMepConfig megDomain maName ERPS-128
  createMep createMepConfig megDomain megIdFormat ituMeg
  createMep createMepConfig mepId 100
  createMep createMepConfig mode MEP
  createMep createMepConfig residencePort 3
  createMep createMepConfig flow 2000
  createMep commit
  addPeerMepId peerMepConfig mepInstance 100
  addPeerMepId peerMepConfig peerMepId 101
addPeerMepId commit
  addCcAps mepFunctionalConfig mepInstance 100
  addCcAps mepFunctionalConfig cc enable priority 7
  addCcAps mepFunctionalConfig cc enable frameRate fr1s
  addCcAps mepFunctionalConfig aps enable mode multi
  addCcAps mepFunctionalConfig aps enable priority 7

```

Configuration Example: Loopback

```

        addCcAps mepFunctionalConfig aps enable switchingProtocol raps octet 1
addCcAps commit
exit

setLoopBack loopBackConfig mepInstance 100
setLoopBack loopBackConfig lbAction enable cast multi
setLoopBack loopBackConfig lbAction enable count 10
setLoopBack loopBackConfig lbAction enable dei disable
setLoopBack loopBackConfig lbAction enable interval 1
setLoopBack loopBackConfig lbAction enable priority 7
setLoopBack loopBackConfig lbAction enable size 70
setLoopBack commit

```

Configuration on the Cisco ME 1200 NID-4

```

ProvisionPortVlanPortType
    createVlanCommand createVlanReq vlan_list 2000
createVlanCommand commit
    modifySwPort modifySWPortConfig interaface 3
    modifySwPort modifySWPortConfig mode trunk native vlan 1
    modifySwPort modifySWPortConfig mode trunk allowed vlan add vlan_list 2000
modifySwPort commit
    modifySwPort modifySWPortConfig interaface 5
    modifySwPort modifySWPortConfig mode trunk native vlan 1
    modifySwPort modifySWPortConfig mode trunk allowed vlan add vlan_list 2000
modifySwPort commit
exit
ProvisionMepPortType
    createMep createMepConfig mepInstance 100
    createMep createMepConfig direction DOWN
    createMep createMepConfig domain vlan
    createMep createMepConfig level 0
    createMep createMepConfig megDomain maName ERPS-128
    createMep createMepConfig megDomain megIdFormat ituMeg
    createMep createMepConfig mepId 101
    createMep createMepConfig mode MEP
    createMep createMepConfig residencePort 3
    createMep createMepConfig flow 2000
createMep commit
    addPeerMepId peerMepConfig mepInstance 100
    addPeerMepId peerMepConfig peerMepId 100
addPeerMepId commit
    addCcAps mepFunctionalConfig mepInstance 100
    addCcAps mepFunctionalConfig cc enable priority 7
    addCcAps mepFunctionalConfig cc enable frameRate fr1s
    addCcAps mepFunctionalConfig aps enable mode multi
    addCcAps mepFunctionalConfig aps enable priority 7
    addCcAps mepFunctionalConfig aps enable switchingProtocol raps octet 1
addCcAps commit
exit

```

Loopback in Cisco ME 1200 NID-3

```

showloopBack mepRequest mepInstance 100
showloopBack commit
ShowLoopBack_Output.loopbackInfo.mepInst[0].config.mepInstance = 100
ShowLoopBack_Output.loopbackInfo.mepInst[0].config.dei.t = 2
ShowLoopBack_Output.loopbackInfo.mepInst[0].config.dei.u.disable = 'DEI Disable'
ShowLoopBack_Output.loopbackInfo.mepInst[0].config.priority = 7
ShowLoopBack_Output.loopbackInfo.mepInst[0].config.cast.t = 2
ShowLoopBack_Output.loopbackInfo.mepInst[0].config.cast.u.multi = 'MULTI'
ShowLoopBack_Output.loopbackInfo.mepInst[0].config.count = 10
ShowLoopBack_Output.loopbackInfo.mepInst[0].config.size = 70
ShowLoopBack_Output.loopbackInfo.mepInst[0].config.interval = 1
ShowLoopBack_Output.loopbackInfo.mepInst[0].state.mepInstance = 32
ShowLoopBack_Output.loopbackInfo.mepInst[0].state.transactionId = 11
ShowLoopBack_Output.loopbackInfo.mepInst[0].state.txLBM.upper = 0
ShowLoopBack_Output.loopbackInfo.mepInst[0].state.txLBM.lower = 10
ShowLoopBack_Output.loopbackInfo.mepInst[0].state.reply[0].rcvMac = '00-3A-99-FD-47-2F'
ShowLoopBack_Output.loopbackInfo.mepInst[0].state.reply[0].received.upper = 0
ShowLoopBack_Output.loopbackInfo.mepInst[0].state.reply[0].received.lower = 10
ShowLoopBack_Output.loopbackInfo.mepInst[0].state.reply[0].outOfOrder.upper = 0

```

```
ShowLoopBack_Output.loopbackInfo.mepInst[0].state.reply[0].outOfOrder.lower = 0
showLoopBack Commit Success!!!
```

Configuration Example: Loss Measurement—Single Ended

Consider the following topology:

TG1====(Gi1/5)NID-3(Gi1/4)====(Gi0/1)ME 1200 NID(Gi0/20)====(Gi1/5)NID-4(Gi1/6)====TG2

Cast: Multi

Ended: Single

Configuration on Cisco ME 1200 NID-3

```
ProvisionEVC
    addEVC evcConfiguration instance 1024
    addEVC evcConfiguration internal_vid 1024
    addEVC evcConfiguration learning enable
    addEVC evcConfiguration nni_ports GigabitEthernet_4_NNI enable
    addEVC evcConfiguration nni_vid 1024
addEVC commit
exit
ProvisionEVC
    addECE ece_configuration ece_id 1024
    addECE ece_configuration control ingress_match uni_ports GigabitEthernet_5_UNI
enable
    addECE ece_configuration control ingress_match outer_tag_match match_type tagged
    addECE ece_configuration control ingress_match outer_tag_match match_fields
vlan_id_filter specific 1024
    addECE ece_configuration control egress_outer_tag mode enabled
    addECE ece_configuration control egress_outer_tag pcp_mode fixed
    addECE ece_configuration control egress_outer_tag pcp_value 7
    addECE ece_configuration control actions class specific 7
    addECE ece_configuration control actions evc_id specific 1024
addECE commit
exit
ProvisionMepPortType
    createMep createMepConfig mepInstance 98
    createMep createMepConfig direction DOWN
    createMep createMepConfig domain EVC
    createMep createMepConfig flowId 1024
    createMep createMepConfig level 0
    createMep createMepConfig megDomain maName LM-Check
    createMep createMepConfig megDomain megIdFormat ituMep
    createMep createMepConfig mepId 105
    createMep createMepConfig mode MEP
    createMep createMepConfig residencePort 4
createMep createMepConfig voe enable
createMep commit
    addPeerMepId peerMepConfig mepInstance 98
    addPeerMepId peerMepConfig peerMepId 106
addPeerMepId commit
    addCcAps mepFunctionalConfig mepInstance 98
    addCcAps mepFunctionalConfig cc enable priority 7
    addCcAps mepFunctionalConfig cc enable frameRate fr1s
addCcAps commit
exit
operationsMepPortType
    setLM lmConfig mepInstance 98
    setLM lmConfig lmAction enable cast multi
    setLM lmConfig lmAction enable frameRate fr1s
    setLM lmConfig lmAction enable mode single
    setLM lmConfig lmAction enable priority 7
setLM commit
exit
```

Configuration on Cisco ME 1200 NID-4

```

ProvisionEVC
    addEVC evcConfiguration instance 1024
    addEVC evcConfiguration internal_vid 1024
    addEVC evcConfiguration learning enable
    addEVC evcConfiguration nni_ports GigabitEthernet_5_NNI enable
    addEVC evcConfiguration nni_vid 1024
addEVC commit
exit
ProvisionEVC
    addECE ece_configuration ece_id 1024
    addECE ece_configuration control ingress_match uni_ports GigabitEthernet_6_UNI
enable
    addECE ece_configuration control ingress_match outer_tag_match match_type tagged
    addECE ece_configuration control ingress_match outer_tag_match match_fields
vlan_id_filter specific 1024
    addECE ece_configuration control egress_outer_tag mode enabled
    addECE ece_configuration control egress_outer_tag pcp_mode fixed
    addECE ece_configuration control egress_outer_tag pcp_value 7
    addECE ece_configuration control actions class specific 7
    addECE ece_configuration control actions evc_id specific 1024
addECE commit
exit
ProvisionMepPortType
    createMep createMepConfig mepInstance 98
    createMep createMepConfig direction DOWN
    createMep createMepConfig domain EVC
    createMep createMepConfig flowId 1024
    createMep createMepConfig level 0
    createMep createMepConfig megDomain maName LM-Check
    createMep createMepConfig megDomain megIdFormat ituMeg
    createMep createMepConfig mepId 106
    createMep createMepConfig mode MEP
    createMep createMepConfig residencePort 5
createMep createMepConfig voe enable
createMep commit
    addPeerMepId peerMepConfig mepInstance 98
    addPeerMepId peerMepConfig peerMepId 105
addPeerMepId commit
    addCcAps mepFunctionalConfig mepInstance 98
    addCcAps mepFunctionalConfig cc enable priority 7
    addCcAps mepFunctionalConfig cc enable frameRate frls
addCcAps commit
exit
operationsMepPortType
    setLM lmConfig mepInstance 98
    setLM lmConfig lmAction enable cast multi
    setLM lmConfig lmAction enable frameRate frls
    setLM lmConfig lmAction enable mode single
    setLM lmConfig lmAction enable priority 7
setLM commit
exit

```

Configuration on the ME 3600

```

Switch# show policy-map lm-v1024
Policy Map lm-v1024
Class lm-v1024
    police cir 1000000 bc 31250
    conform-action transmit
    exceed-action drop

Switch# show class-map lm-v1024
Class Map match-all lm-v1024 (id 2)
Match dscp af12 (12)

Switch#

!
interface GigabitEthernet0/1

```



```

switchport trunk allowed vlan none
switchport mode trunk
!
service instance 1024 ethernet
  encapsulation dot1q 1024
  bridge-domain 1024
!
!
interface GigabitEthernet0/20
switchport trunk allowed vlan none
switchport mode trunk
service-policy input lm-v1024
!
service instance 1024 ethernet
  encapsulation dot1q 1024
  bridge-domain 1024
!

```

Send 20Mbps traffic from TG2 on VLAN 1024 with DSCP set to af12

```

Switch(OpearationsMepPortType)# showLM mepRequest mepInstance 98
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mepInstance = 98
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.priority = 7
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.u.multi = 'multi'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.u.single = 'single'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.t = 3
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.u.frls = 'frls'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.flr = 5
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.mepInstance = 98
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.tx = 85
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.rx = 85
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearCount = 180123
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farCount = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearRatio = 94
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farRatio = 0

```

To view loss measurement:

```

Switch# OpearationsMepPortType
Switch(OpearationsMepPortType)# showlm mepRequest mepInstance 98
Switch(OpearationsMepPortType)# showlm review
Commands in queue:
  showLM mepRequest mepInstance 98
Switch(OpearationsMepPortType)# showlm commit
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mepInstance = 98
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.priority = 7
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.u.multi = 'multi'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.u.single = 'single'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.t = 3
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.u.frls = 'frls'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.flr = 5
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.mepInstance = 98
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.tx = 137
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.rx = 137
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearCount = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farCount = 1105217
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearRatio = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farRatio = 94

  showLM Commit Success!!!
Switch(OpearationsMepPortType)#

```

To stop traffic, do the following:

```
Switch# show policy-map int gi 0/20
GigabitEthernet0/20

Service-policy input: lm-v1024

Class-map: lm-v1024 (match-all)
 2175126 packets, 287116632 bytes
 5 minute offered rate 5839000 bps, drop rate 5512000 bps
Match: dscp af12 (12)
police:
  cir 1000000 bps, bc 31250 bytes
  conform-action transmit
  exceed-action drop
conform: 122168 (packets) 16126176 (bytes)
exceed: 2052958 (packets) 270990456 (bytes)
conform: 331000 bps, exceed: 5512000 bps
Input Policer:
  Policer Packets Drop: 2052958
  Policer Bytes Drop: 270990456

Class-map: class-default (match-any)
 3606 packets, 293801 bytes
 5 minute offered rate 10000 bps, drop rate 0000 bps
Match: any
```

To view loss measurement:

```
(OpearationsMepPortType)# showlm review
Commands in queue:
  showLM mepRequest mepInstance 98
Switch(OpearationsMepPortType)# showlm commit
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mepInstance = 98
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.priority = 7
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.u.multi = 'multi'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.u.single = 'single'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.t = 3
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.u.frls = 'frls'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.flr = 5
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.mepInstance = 98
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.tx = 349
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.rx = 349
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearCount = 2052958
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farCount = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearRatio = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farRatio = 0

showLM Commit Success!!!

Switch#OpearationsMepPortType
Switch(OpearationsMepPortType)# showlm review
Commands in queue:
  showLM mepRequest mepInstance 98
Switch(OpearationsMepPortType)# showlm commit
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mepInstance = 98
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.priority = 7
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.u.multi = 'multi'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.u.single = 'single'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.t = 3
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.u.frls = 'frls'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.flr = 5
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.mepInstance = 98
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.tx = 358
```

```

ShowLM_Output.lossMeasurentInfo.mepInst[0].state.rx = 358
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearCount = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farCount = 2052958
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearRatio = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farRatio = 0

showLM Commit Success!!!
(OpearationsMepPortType)#

```

Configuration Example: Loss Measurement–Dual Ended

Consider the following topology:

TG1====(Gi1/5)NID-3(Gi1/4)====(Gi0/1)ME 3600(Gi0/20)====(Gi1/5)NID-4(Gi1/6)====TG2

Cast: Multi

Ended: Dual

Configuration on Cisco ME 1200 NID-3

```

ProvisionEVC
    addEVC evcConfiguration instance 1022
    addEVC evcConfiguration internal-vid 1022
    addEVC evcConfiguration learning enable
    addEVC evcConfiguration nni-ports GigabitEthernet-4-NNI enable
    addEVC evcConfiguration nni-vid 1022
addEVC commit
exit
ProvisionEVC
    addECE ece-configuration ece-id 1022
    addECE ece-configuration control ingress-match uni-ports GigabitEthernet-5-UNI
enable
    addECE ece-configuration control ingress-match outer-tag-match match-type tagged
    addECE ece-configuration control ingress-match outer-tag-match match-fields
vlan-id-filter specific 1022
    addECE ece-configuration control egress-outer-tag mode enabled
    addECE ece-configuration control egress-outer-tag pcp-mode fixed
    addECE ece-configuration control egress-outer-tag pcp-value 7
    addECE ece-configuration control actions class specific 7
    addECE ece-configuration control actions evc-id specific 1022
addECE commit
exit
ProvisionMepPortType
    createMep createMepConfig mepInstance 94
    createMep createMepConfig direction DOWN
    createMep createMepConfig domain EVC
    createMep createMepConfig flowId 1022
    createMep createMepConfig level 0
    createMep createMepConfig megDomain maName LM-Dual
    createMep createMepConfig megDomain megIdFormat ituMep
    createMep createMepConfig mepId 102
    createMep createMepConfig mode MEP
    createMep createMepConfig residencePort 4
createMep createMepConfig voe enable
createMep commit
    addPeerMepId peerMepConfig mepInstance 94
    addPeerMepId peerMepConfig peerMepId 103
addPeerMepId commit
    addCcAps mepFunctionalConfig mepInstance 94
    addCcAps mepFunctionalConfig cc enable priority 7
    addCcAps mepFunctionalConfig cc enable frameRate fr1s
addCcAps commit
exit
opearationsMepPortType
    setLM lmConfig mepInstance 94
    setLM lmConfig lmAction enable cast multi

```

Configuration Example: Loss Measurement—Dual Ended

```

        setLM lmConfig lmAction enable frameRate frls
        setLM lmConfig lmAction enable mode dual
        setLM lmConfig lmAction enable priority 7
setLM commit
exit

ProvisionEVC
    addEVC evcConfiguration instance 1021
    addEVC evcConfiguration internal-vid 1021
    addEVC evcConfiguration learning enable
    addEVC evcConfiguration nni-ports GigabitEthernet-4-NNI enable
    addEVC evcConfiguration nni-vid 1021
addEVC commit
exit

```

Configuration on Cisco ME 1200 NID-4

```

ProvisionEVC
    addEVC evcConfiguration instance 1022
    addEVC evcConfiguration internal-vid 1022
    addEVC evcConfiguration learning enable
    addEVC evcConfiguration nni-ports GigabitEthernet-5-NNI enable
    addEVC evcConfiguration nni-vid 1022
addEVC commit
exit
ProvisionEVC
    addECE ece-configuration ece-id 1022
    addECE ece-configuration control ingress-match uni-ports GigabitEthernet-6-UNI
enable
    addECE ece-configuration control ingress-match outer-tag-match match-type tagged
    addECE ece-configuration control ingress-match outer-tag-match match-fields
vlan-id-filter specific 1022
    addECE ece-configuration control egress-outer-tag mode enabled
    addECE ece-configuration control egress-outer-tag pcp-mode fixed
    addECE ece-configuration control egress-outer-tag pcp-value 7
    addECE ece-configuration control actions class specific 7
    addECE ece-configuration control actions evc-id specific 1022
addECE commit
exit
ProvisionMepPortType
    createMep createMepConfig mepInstance 94
    createMep createMepConfig direction DOWN
    createMep createMepConfig domain EVC
    createMep createMepConfig flowId 1022
    createMep createMepConfig level 0
    createMep createMepConfig megDomain maName LM-Dual
    createMep createMepConfig megDomain megIdFormat ituMeg
    createMep createMepConfig mepId 103
    createMep createMepConfig mode MEP
    createMep createMepConfig residencePort 5
createMep createMepConfig voe enable
createMep commit
    addPeerMepId peerMepConfig mepInstance 94
    addPeerMepId peerMepConfig peerMepId 102
addPeerMepId commit
    addCcAps mepFunctionalConfig mepInstance 94
    addCcAps mepFunctionalConfig cc enable priority 7
    addCcAps mepFunctionalConfig cc enable frameRate frls
addCcAps commit
exit
operationsMepPortType
    setLM lmConfig mepInstance 94
    setLM lmConfig lmAction enable cast multi
    setLM lmConfig lmAction enable frameRate frls
    setLM lmConfig lmAction enable mode dual
    setLM lmConfig lmAction enable priority 7
setLM commit
exit

```

Configuration on the ME 3600

```
Switch# show policy-map lm-v1022
```

```

Policy Map lm-v1022
  Class lm-v1022
    police cir 1000000 bc 31250
      conform-action transmit
      exceed-action drop

Switch#
!
interface GigabitEthernet0/1
  switchport trunk allowed vlan none
  switchport mode trunk
!
  service instance 1022 ethernet
    encapsulation dot1q 1022
    bridge-domain 1022
!
!
interface GigabitEthernet0/20
  switchport trunk allowed vlan none
  switchport mode trunk
  service-policy output lm-v1022
!
  service instance 1022 ethernet
    encapsulation dot1q 1022
    bridge-domain 1022
!

```

Send 20Mbps traffic from TG2 on VLAN 1022 with DSCP set to af11

```

Switch#ProvisionMepPortType
Switch(ProvisionMepPortType)# showMepConfig flush
Switch(ProvisionMepPortType)# showMepalar mepRequest mepInstance 94
Switch(ProvisionMepPortType)# showMepalar commit
ShowMepAlarms_Output.mepState.mepInst[0].mepInstance = 94
ShowMepAlarms_Output.mepState.mepInst[0].cLevel = false
ShowMepAlarms_Output.mepState.mepInst[0].cMeg = false
ShowMepAlarms_Output.mepState.mepInst[0].cMep = false
ShowMepAlarms_Output.mepState.mepInst[0].cAis = false
ShowMepAlarms_Output.mepState.mepInst[0].cLck = false
ShowMepAlarms_Output.mepState.mepInst[0].cSsf = false
ShowMepAlarms_Output.mepState.mepInst[0].aBlk = false
ShowMepAlarms_Output.mepState.mepInst[0].atsf = false
ShowMepAlarms_Output.mepState.mepInst[0].peerMepState[0].peerMepId = 102
ShowMepAlarms_Output.mepState.mepInst[0].peerMepState[0].cLoc = false
ShowMepAlarms_Output.mepState.mepInst[0].peerMepState[0].cRdi = false
ShowMepAlarms_Output.mepState.mepInst[0].peerMepState[0].cPeriod = false
ShowMepAlarms_Output.mepState.mepInst[0].peerMepState[0].cPrio = false

  showMepAlarms Commit Success!!!

```

To view loss measurement:

```

Switch# OpearationsMepPortType
Switch(OpearationsMepPortType)# showlm mepRequest mepInstance 98
Switch(OpearationsMepPortType)# showlm review
Commands in queue:
  showLM mepRequest mepInstance 98
Switch(OpearationsMepPortType)# showlm commit
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mepInstance = 98
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.priority = 7
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.u.multi = 'multi'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.u.single = 'single'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.t = 3
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.u.frls = 'frls'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.flr = 5
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.mepInstance = 98
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.tx = 137

```

```

ShowLM_Output.lossMeasurentInfo.mepInst[0].state.rx = 137
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearCount = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farCount = 1105217
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearRatio = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farRatio = 94

showLM Commit Success!!!
Switch(OpearationsMepPortType)#

Switch#ProvisionMepPortType
Switch(ProvisionMepPortType)#showMepConfig flush
Switch(ProvisionMepPortType)#showMepalar mepRequest mepInstance 94
Switch(ProvisionMepPortType)#showMepalar commit
ShowMepAlarms_Output.mepState.mepInst[0].mepInstance = 94
ShowMepAlarms_Output.mepState.mepInst[0].cLevel = false
ShowMepAlarms_Output.mepState.mepInst[0].cMeg = false
ShowMepAlarms_Output.mepState.mepInst[0].cMep = false
ShowMepAlarms_Output.mepState.mepInst[0].cAis = false
ShowMepAlarms_Output.mepState.mepInst[0].cLck = false
ShowMepAlarms_Output.mepState.mepInst[0].cSsf = false
ShowMepAlarms_Output.mepState.mepInst[0].aBlk = false
ShowMepAlarms_Output.mepState.mepInst[0].atsf = false
ShowMepAlarms_Output.mepState.mepInst[0].peerMepState[0].peerMepId = 103
ShowMepAlarms_Output.mepState.mepInst[0].peerMepState[0].cLoc = false
ShowMepAlarms_Output.mepState.mepInst[0].peerMepState[0].cRdi = false
ShowMepAlarms_Output.mepState.mepInst[0].peerMepState[0].cPeriod = false
ShowMepAlarms_Output.mepState.mepInst[0].peerMepState[0].cPrio = false

showMepAlarms Commit Success!!!
Switch(ProvisionMepPortType)#

Switch#OpearationsMepPortType
Switch(OpearationsMepPortType)#showlm flush
Switch(OpearationsMepPortType)#showlm mepRequest mepInstance 94
Switch(OpearationsMepPortType)#showlm commit
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mepInstance = 94
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.priority = 7
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.u.multi = 'multi'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.t = 1
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.u.dual = 'dual'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.t = 3
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.u.frls = 'frls'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.flr = 5
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.mepInstance = 94
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.tx = 64
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.rx = 47
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearCount = 1
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farCount = 586684
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearRatio = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farRatio = 94

showLM Commit Success!!!

Switch#OpearationsMepPortType
Switch(OpearationsMepPortType)#showlm flush
Switch(OpearationsMepPortType)#showlm mepRequest mepInstance 94
Switch(OpearationsMepPortType)#showlm commit
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mepInstance = 94
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.priority = 7
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.u.multi = 'multi'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.t = 1
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.u.dual = 'dual'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.t = 3
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.u.frls = 'frls'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.flr = 5
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.mepInstance = 94
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.tx = 70
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.rx = 61
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearCount = 811684
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farCount = 1

```

```
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearRatio = 94
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farRatio = 0
```

```
showLM Commit Success!!!
Switch(OpearationsMepPortType)#
```

To stop traffic, do the following:

```
Service-policy output: lm-v1022
```

```
Class-map: lm-v1022 (match-all)
 3389497 packets, 447413604 bytes
 5 minute offered rate 8626000 bps, drop rate 8126000 bps
Match: dscp af11 (10)
police:
  cir 1000000 bps, bc 31250 bytes
  conform-action transmit
  exceed-action drop
conform: 196188 (packets) 25112064 (bytes)
exceed: 3193309 (packets) 408743552 (bytes)
conform: 492000 bps, exceed: 7880000 bps
  Queue-limit current-queue-depth 0 bytes
  Output Queue:
    Default Queue-limit 49152 bytes
    Tail Packets Drop: 3193309
    Tail Bytes Drop: 421516788

Class-map: class-default (match-any)
 2491 packets, 170276 bytes
 5 minute offered rate 6000 bps, drop rate 0000 bps
Match: any
```

To view loss measurement:

```
#
Switch# OpearationsMepPortType
Switch(OpearationsMepPortType)# showlm review
Commands in queue:
  showLM mepRequest mepInstance 94
Switch(OpearationsMepPortType)# showlm commit
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mepInstance = 94
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.priority = 7
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.u.multi = 'multi'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.t = 1
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.u.dual = 'dual'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.t = 3
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.u.frls = 'frls'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.flr = 5
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.mepInstance = 94
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.tx = 262
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.rx = 262
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearCount = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farCount = 3193309
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearRatio = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farRatio = 0

showLM Commit Success!!!
```

```
Switch# OpearationsMepPortType
Switch(OpearationsMepPortType)# showlm review
Commands in queue:
  showLM mepRequest mepInstance 94
Switch(OpearationsMepPortType)# showlm commit
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mepInstance = 94
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.priority = 7
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.t = 2
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.cast.u.multi = 'multi'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.t = 1
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.mode.u.dual = 'dual'
```

```

ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.t = 3
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.frameRate.u.fr1s = 'fr1s'
ShowLM_Output.lossMeasurentInfo.mepInst[0].config.flr = 5
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.mepInstance = 94
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.tx = 277
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.rx = 276
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearCount = 3193309
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farCount = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.nearRatio = 0
ShowLM_Output.lossMeasurentInfo.mepInst[0].state.farRatio = 0

showLM Commit Success!!!
Switch(OperationsMepPortType)#

```

Setting Performance Monitoring Parameters

SUMMARY STEPS

1. ProvisionMepPortType
2. setPerformanceMonitoring perform-mon { interval { dm { disable | dm_value } | evc { disable | evc_value } | lm { disable | lm_value } } | session { dm { disable | enable } | evc { disable | enable } | lm { disable | enable } } | storage { dm { disable | enable } | evc { disable | enable } | lm { disable | enable } | dm_binning { disable | enable } } | transfer { fixed_offset { disable | value } | hour { disable | value } | incomplete { disable | enable } | minute { disable | minute } | mode { all | disable | fixed | new } | random_offset { disable | random_offset } | status { disable | enable } | url { disable | enable } } }
3. setPerformanceMonitoring review
4. setPerformanceMonitoring commit
5. exit

DETAILED STEPS

	Command or Action	Purpose
Step 1	ProvisionMepPortType Example: Switch# OperationsMepPortType	Enters the OperationsMepPortType mode and enables provisioning of the MEP.
Step 2	setPerformanceMonitoring perform-mon { interval { dm { disable dm_value } evc { disable evc_value } lm { disable lm_value } } session { dm { disable enable } evc { disable enable } lm { disable enable } } storage { dm { disable enable } evc { disable enable } lm { disable enable } dm_binning { disable enable } } transfer { fixed_offset { disable value } hour { disable value } incomplete { disable enable } minute { disable minute } mode { all disable fixed new } random_offset {	Specify the performance monitoring parameters. <ul style="list-style-type: none"> • interval—Specifies measurement interval. <ul style="list-style-type: none"> ◦ dm —Specifies delay measurement interval in minute or disable it. The delay management ranges from 1-60 minute. ◦ evc —Specifies EVC in minute or disable it. The EVC ranges from 1-60 minute. ◦ lm—Specifies loss measurement in minute or disable it. The loss measurement ranges from 1-60 minute. • session—Specifies the session.

Command or Action	Purpose
<p><code>disable random_offset} status { disable enable} url { disable enable} } }</code></p> <p>Example:</p>	<ul style="list-style-type: none"> ◦ dm —Disable or enable intervals from previous incomplete transfers. ◦ evc —Disable or enable intervals from previous incomplete transfers. ◦ lm—Disable or enable intervals from previous incomplete transfers. • storage—Specifies storage. <ul style="list-style-type: none"> ◦ dm —Disable or enable intervals from previous incomplete transfers. ◦ evc —Disable or enable intervals from previous incomplete transfers. ◦ lm—Disable or enable intervals from previous incomplete transfers. ◦ dm_binning—Disable or enable intervals from previous incomplete transfers. • transfer—Enable transfer mode. <ul style="list-style-type: none"> ◦ fixed-offset —Specifies a scheduled offset value in minute or disable it. Allowed range is 1-15 minute. ◦ hour —Specifies scheduled hour to transfer or disable it. Allowed range is 0-23 type hour. ◦ incomplete—Disable or enable intervals from previous incomplete transfers. ◦ minute—Specifies scheduled minute to transfer or disable it. Allowed range is 0, 15, 30 or 45. ◦ mode—Specifies interval mode. <ul style="list-style-type: none"> ◦ all—Specifies all available interval . ◦ disable—Disable interval. ◦ fixed—Specifies fixed interval. Allowed range is 1-96. ◦ new—Specifies new interval since last transfer . ◦ random_offset—Disable or enable random offset value. Allowed range is 0-900 seconds. ◦ status—Disable or enable the status. ◦ url—Disable or enable server url.

	Command or Action	Purpose
Step 3	setPerformanceMonitoring review Example: Switch(OperationsMepPortType) # setPerformanceMonitoring review	Displays the performance monitoring configuration.
Step 4	setPerformanceMonitoring commit Example: Switch(OperationsMepPortType) # setPerformanceMonitoring commit	Sends the performance monitoring configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(OperationsMepPortType) # exit Switch#	Exits the OperationsMepPortType mode.

Viewing Performance Monitoring Parameters

SUMMARY STEPS

1. ProvisionMepPortType
2. getPerformanceMonitoring getPerfomanceMonitorParameters
3. getPerformanceMonitoring review
4. g?etPerformanceMonitoring commit
5. exit

DETAILED STEPS

	Command or Action	Purpose
Step 1	ProvisionMepPortType Example: Switch# OperationsMepPortType	Enters the OperationsMepPortType mode and enables provisioning of the MEP.
Step 2	getPerformanceMonitoring getPerfomanceMonitorParameters Example: Switch(config-controller-OperationsMepPortType) #getPerformanceMonitoring getPerfomanceMonitorParameters	Retrieve Performance Monitor parameters

	Command or Action	Purpose
Step 3	getPerformanceMonitoring review Example: Switch(OperationsMepPortType)# getPerformanceMonitoring review	Displays the performance monitoring configuration.
Step 4	getPerformanceMonitoring commit Example: Switch(OperationsMepPortType)# getPerformanceMonitoring commit	Sends the performance monitoring configuration to the Cisco ME 1200 NID.
Step 5	exit Example: Switch(OperationsMepPortType)# exit Switch#	Exits the OperationsMepPortType mode.

