



# Configuring Remote Port Shutdown

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The Remote Port Shutdown feature uses Ethernet Local Management Interface (LMI) in an Ethernet over Multiprotocol Label Switching (EoMPLS) network to propagate remote link status to a customer edge (CE) device.

- [Finding Feature Information, page 1](#)
- [Prerequisites for Configuring Remote Port Shutdown, page 1](#)
- [Restrictions for Configuring Remote Port Shutdown, page 1](#)
- [Information About Configuring Remote Port Shutdown, page 2](#)
- [How to Configure Remote Port Shutdown, page 3](#)
- [Configuration Examples for Remote Port Shutdown, page 4](#)
- [Additional References, page 5](#)
- [Feature Information for Configuring Remote Port Shutdown, page 6](#)

## 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](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

## Prerequisites for Configuring Remote Port Shutdown

- Ethernet LMI must be enabled for the Remote Port Shutdown feature to function.

## Restrictions for Configuring Remote Port Shutdown



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- Connectivity Fault Management and Lightweight Directory Protocol (LDP) cannot be configured at the same time.

## Information About Configuring Remote Port Shutdown

- [Ethernet Virtual Circuit, page 2](#)
- [Ethernet LMI, page 2](#)
- [OAM Manager, page 2](#)
- [Benefits of Remote Port Shutdown, page 2](#)

### Ethernet Virtual Circuit

An Ethernet virtual circuit (EVC) as defined by the Metro Ethernet Forum is a port level point-to-point or multipoint-to-multipoint Layer 2 circuit. EVC status can be used by a CE device to find an alternative path into the service provider network or in some cases, fall back to a backup path over Ethernet or over another alternative service such as Frame Relay or ATM.

### Ethernet LMI

Ethernet LMI is an Ethernet Operations, Administration, and Maintenance (OAM) protocol between a CE device and a Provider Edge (PE) device. Ethernet LMI provides information that enables autoconfiguration of CE devices and provides the status of EVCs for large Ethernet metropolitan area networks (MANs) and WANs. Specifically, Ethernet LMI runs only on the PE-CE user network interface (UNI) link and notifies a CE device of both the operating state of an EVC and the time when an EVC is added or deleted. Ethernet LMI also communicates the attributes of an EVC.

Ethernet LMI interoperates with Ethernet Connectivity Fault Management (CFM) and LDP. In this case Ethernet LMI relies on the OAM manager to interwork with LDP to report remote link status to the local CE.

### OAM Manager

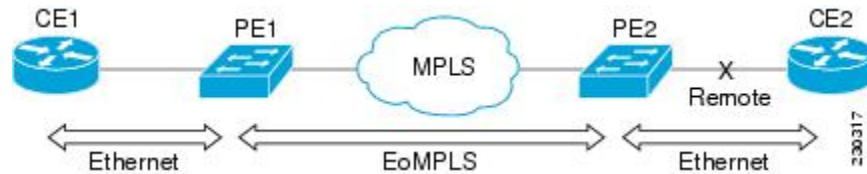
The OAM manager is an infrastructure element that streamlines interaction between OAM protocols. The OAM manager requires two interworking OAM protocols, in this case Ethernet LMI and MPLS LDP.

No interactions are required between Ethernet LMI and the OAM manager on the CE side. On the user-facing provider edge (UPE) side, the OAM manager defines an abstraction layer that relays data collected from Ethernet CFM to the Ethernet LMI device.

Ethernet LMI and OAM manager interaction is unidirectional, from the OAM manager to Ethernet LMI on the UPE side of the device. An information exchange results from an Ethernet LMI request or is triggered by the OAM manager when the OAM manager receives notification from the OAM protocol that the EVC status has changed. In this case, the change is called a remote link status change.

### Benefits of Remote Port Shutdown

The Remote Port Shutdown feature provides direct interaction of Ethernet LMI with MPLS, LDP, and OAM. When CFM/802.1ag is not running in a network, Remote Port Shutdown enables communication of link status to a CE, and traffic from the CE can be stopped if MPLS or the pseudowire is down. The figure below shows an EoMPLS network with the remote link down.



# How to Configure Remote Port Shutdown

- [Specifying LDP as an OAM Protocol, page 3](#)

## Specifying LDP as an OAM Protocol

Perform this task to specify LDP as an OAM protocol.

### SUMMARY STEPS

1. enable
2. configure terminal
3. ethernet evc *evc-id*
4. oam protocol { cfm svlan *svlan-id* domain *domain-name* | ldp }
5. end

### DETAILED STEPS

Command or Action	Purpose
<p><b>Step 1</b> enable</p> <p><b>Example:</b></p> <pre>Router&gt; enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<p><b>Step 2</b> configure terminal</p> <p><b>Example:</b></p> <pre>Router# configure terminal</pre>	<p>Enters global configuration mode.</p>
<p><b>Step 3</b> ethernet evc <i>evc-id</i></p> <p><b>Example:</b></p> <pre>Router(config)# ethernet evc evc10</pre>	<p>Defines an EVC and enters EVC configuration mode.</p>

Command or Action	Purpose
<p><b>Step 4</b> <code>oam protocol {cfm svlan svlan-id domain domain-name  ldp}</code></p> <p><b>Example:</b></p> <pre>Router(config-enc)# oam protocol ldp</pre>	<p>Configures either CFM or LDP as an OAM protocol.</p> <ul style="list-style-type: none"> <li>In this example, LDP is the protocol being configured.</li> </ul>
<p><b>Step 5</b> <code>end</code></p> <p><b>Example:</b></p> <pre>Router(config-enc)# end</pre>	<p>Returns the CLI to privileged EXEC mode.</p>

## Configuration Examples for Remote Port Shutdown

- [Example Specifying LDP As the OAM Protocol and Associating a Service Instance to an EVC, page 4](#)
- [Example Configuring Xconnect Directly on an Interface, page 4](#)

### Example Specifying LDP As the OAM Protocol and Associating a Service Instance to an EVC

In this example, the OAM protocol for EVC pw\_enc is specified as LDP, and service instance 1 is associated with the EVC.

```
Router(config)# ethernet enc pw_enc
Router(config-enc)# oam protocol ldp

Router(config-enc)# uni count 2
Router(config-enc)# exit
Router(config)# pseudowire-class vlan-xconnect
Router(config-pw-class)# encapsulation mpls
Router(config-pw-class)# interworking
Router(config-pw-class)# exit
Router(config)# interface ethernet 0/0
Router(config-if)# ethernet lmi interface
Router(config-if)# ethernet uni id cel
Router(config-if)# service instance 1 ethernet pw_enc
Router(config-if-srv)# encapsulation dot1q 2
Router(config-if-srv)# xconnect10.2.2.2 123 pw-class vlan-xconnect
Router(config-if-srv)# exit
```

### Example Configuring Xconnect Directly on an Interface

In this example, Xconnect is configured directly on an interface.

```
Router(config)# interface ethernet 0/0
Router(config-if)# xconnect 2.2.2.2 123 pw-class vlan-xconnect
Router(config-if)# ethernet lmi interface
Router(config-if)# ethernet uni id cel
Router(config-if)# service instance 1 ethernet pw_enc
```

```
Router(config-if-srv)# encapsulation dot1q 2
Router(config_if-srv)# exit
```

## Additional References

### Related Documents

Related Topic	Document Title
Ethernet CFM	Configuring Ethernet Connectivity Fault Management in a Service Provider Network in the <i>Cisco IOS Carrier Ethernet Configuration Guide</i>
Ethernet LMI	“Configuring Ethernet Local Management Interface” in the <i>Cisco IOS Carrier Ethernet Configuration Guide</i>
Configuring Ethernet LMI on a PE device	“Configuring Ethernet Local Management Interface at a Provider Edge” in the <i>Cisco IOS Carrier Ethernet Configuration Guide</i>
Ethernet over MPLS	Ethernet over MPLS for the Cisco 7600 Series Internet Routers
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	<i>Cisco IOS Carrier Ethernet Command Reference</i>

### Standards

Standard	Title
IEEE P802.1ag/D5.2	Draft Standard for Local and Metropolitan Area Networks
IETF VPLS OAM	<i>L2VPN OAM Requirements and Framework</i>
ITU-T	ITU-T Y.1731 OAM Mechanisms for Ethernet-Based Networks
ITU-T Q.3/13	Liaison statement on Ethernet OAM (Y.17ethoam)
Metro Ethernet Forum 16 Technical Specification	Technical Specification MEF 16-Ethernet Local Management Interface

**MIBs**

MIB	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	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>

**RFCs**

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

**Technical Assistance**

Description	Link
The Cisco 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 Configuring Remote Port Shutdown

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 Configuring Remote Port Shutdown**

Feature Name	Releases	Feature Information
Remote Port Shutdown	12.2(33)SRB	<p>The Remote Port Shutdown feature uses Ethernet LMI in an EoMPLS network to propagate remote link status to a CE device.</p> <p>In Release 12.2(33)SRB, this feature was implemented on the Cisco 7600 router.</p> <p>The following commands were introduced or modified: <b>oam protocol</b>.</p>

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