

OAM Discovery Feature

Discovery is the first phase of Ethernet OAM and it is used to detect the devices in the network and their OAM capabilities. The discovery process is triggered automatically when OAM is enabled on the interface. The discovery phase uses Information OAM PDUs. The discovery process permits Ethernet interfaces to discover and monitor the peer on the link if it also supports the IEEE 802.3ah standard. You can specify the discovery mode used for IEEE 802.3ah OAM support as active or passive.

- In active mode, the interface discovers and monitors the peer on the link if the peer also supports IEEE 802.3ah OAM functionality. In active mode, the peer initiates the discovery process. After the discovery process has been initiated, both sides participate in discovery.
- In passive mode, an OAM entity does not initiate the discovery process. Therefore, the OAM exchange cannot be performed if you configure both the endpoints, the local and the peer entities, for passive mode operation.

The discovery mode that you set up for an OAM entity also determines certain other attributes that can be initiated by an OAM entity. For example, a passive mode OAM entity cannot initiate a variable request or a loopback procedure. In a carrier environment, the customer edge (CE) devices are normally configured for passive mode operation, whereas the provider edge (PE) equipment is configured for active mode operation.

Information OAM PDU Components

An OAM entity in active mode initiates the discovery process by sending an Information OAM PDU to the slow protocols multicast address (destination MAC address of the remote entity) at a configured rate. The transmitted Information OAM PDU contains a local-information type-length-value (TLV). This TLV contains the following fields:

- State—Transmission or receiving state for forwarded packets. The mode can be either active or passive and can be used to determine device functionality.
- Capabilities of the OAM sublayer—Advertises the capabilities of the local OAM entity. With this information a peer can determine what functions are supported and accessible, such as loopback or unidirectional operation. This field also specifies the maximum OAM PDU size for receipt and delivery. This information, together with the rate limiting value of 10 frames per second, can be used to specify the bandwidth allocated to OAM traffic.
- Vendor OUI—Organization unique identifier (OUI), which is controlled by the IEEE and is typically the first three bytes of a MAC address.
- Vendor-specific information—A 32-bit identifier, which is used to distinguish the type of platform in conjunction with the vendor OUI field.

After a local entity sends an Information OAM PDU, the remote OAM entity waits to receive the local information of the peer. After receipt of the Information OAM PDU, the OAM entity applies a policy to determine whether an OAM relationship can be

established. For example, loopback mode might be required for the OAM association to be completed. If the remote entity does not support loopback, the local entity might disable the OAM association.

Transmission Settings for Information OAM PDUs

After an OAM association is established, Information OAM PDUs are sent at a configured rate. If no OAM PDUs other than Information OAM PDUs are available to be sent from the local peer to the remote peer, the local entity sends Information OAM PDUs that contain both the local and remote information TLVs. This constant bidirectional transfer of Information OAM PDUs serves as a keepalive mechanism for the OAM association. If no Information OAM PDUs are received within 5 seconds, the discovery process restarts and a link-fault event is generated that might cause a transition in the operational status of the Ethernet interface to the down state. If the OAM association with the peer is reestablished, OAM clears the link-fault event to cause a transition of the interface to the operational up state. The operational status of an interface does not depend only on the OAM status. Other factors, such as the administrative state of the interface, also impact the operational state.

You can configure the OAM discovery function in JUNOS Software per Ethernet major interface as either active or passive mode. The OAM state machine labels a port to be in the operational down state until the discovery process is completed successfully. You can configure the PDU timer, which is the rate at which Information OAM PDUs are sent to the remote peer to keep the OAM association active, in the range of milliseconds with a maximum value of 1000 (the default value) and a minimum value of 100. Also, you can configure the local OAM function with a packet loss threshold, which specifies the number of Information OAM PDUs that an interface can miss before the link between peers is considered down. When the PDU loss threshold is exceeded, a link fault event is triggered. The product of the PDU timer and the PDU loss threshold equals the lost-link timer value, which is used to reset the discovery state diagram that maintains the states of the OAM entities and determines the condition of the link based on various stored values.

When the PDU loss threshold is exceeded, the OAM function signals a problem with the link and the link is immediately transitioned to the down state. When the OAM association with the peer is rediscovered after a successful discovery operation, the link transitions to the up state.



NOTE: The operational status displayed in the output of the **show** commands related to interface settings will be down if the OAM session is down owing to loss of association.

- Related Topics**
- OAM Feature Overview
 - OAM Messages
 - Configuring 802.3ah OAM Link-Fault Management
 - Monitoring OAM Link-Fault Management Discovery Settings for an Interface
 - ethernet oam lfm

- ethernet oam lfm mode
- ethernet oam lfm pdu-lost-threshold
- ethernet oam lfm pdu-transmit-interval
- show ethernet oam lfm discovery

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