

Dying gasp through ethernet OAM

Dying Gasp is a final notification, or a signal sent by a device when it is about to lose power. The device sends a signal to alert a peer device, which identifies and responds to the power related issues. The occurrence of an unrecoverable condition like Power Failure triggers Dying Gasp.

Ethernet Operations, Administration, and Maintenance (OAM) is a set of protocols that monitors and manages Ethernet networks. For interfaces where Ethernet OAM is enabled, the device sends a Dying Gasp message using an Ethernet OAM protocol. It supports the generation of the Ethernet OAM Dying Gasp packets to notify the remote peer device that the local device is having a power failure.

This type of condition is vendor specific. An Ethernet Operations, Administration, and Maintenance (OAM) notification about the condition may be sent immediately.

Note Dying Gasp is only supported on power failure. It is not supported on:

- Reload
- Shutdown

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Prerequisites for dying gasp support

- The ethernet OAM is enabled by default on L3 interface.

  The Dying Gasp feature can be disabled using the command:

  ```
  Router(config-if)#ethernet oam mode passive
  ```

  It can be enabled again by using this command:

  ```
  Router (config-if)#ethernet oam mode active
  ```

- Ethernet OAM is sent out only when there is power loss.

Restrictions for dying gasp through ethernet OAM

- Cisco 8100 Series Secure Routers support dying gasp on WAN front GE interfaces.
- C8130-VAI-G2, C8130-VAP-G2, C8151-CVAI-G2, C8151-CVAP-G2, C8130H-G2, and C8151H-C-G2 support Ethernet OAM dying gasp only on their 10G Ethernet interfaces.
- Dying gasp feature is not supported during a power loss, while a signal is initiated using jumbo frames with 10M of WAN line.

Information about dying gasp through ethernet OAM

Dying Gasp

One of the OAM features as defined by IEEE 802.3ah is Remote Failure Indication, which helps in detecting faults in Ethernet connectivity that are caused by slowly deteriorating quality. Ethernet OAM provides a mechanism for an OAM entity to convey these failure conditions to its peer via specific flags in the OAM PDU. One of the failure condition method to communicate is Dying Gasp, which indicates that an unrecoverable condition has occurred. This type of condition is vendor specific. A notification about the condition may be sent immediately and continuously.

How to configure dying gasp ethernet OAM

Dying gasp notification on the peer router

```
001689: *May 30 14:16:47.746 IST: %ETHERNET_OAM-6-RFI: The client on interface Gi0/0/0 has
 received a remote failure indication from its remote peer(failure reason = remote client
power failure action = )
```

Configuring OAMPDU

With the new Dying Gasp feature in the Cisco 8100 Series Secure Routers, you can configure the **Code** field value in the OAMPDU frame. The allowed values to be configured are:

- **Information**: Indicates the OAM package is transferring local or remote information data. 0x00 stands for Information OAMPDU.
- **Organization specific**: Indicates that this is reserved for vendors. Each vendor can use this code to carry customized data. 0xFE stands for organization specific OAMPDU which is the default type set for OAMPDU.

Configuring information OAMPDU

```
Router# enable
 Router# configure terminal
Router(config)# interface GigabitEthernet0/0/0
Router(config-if)# ethernet oam dying-gasp type information
Router(config-if)# exit
Router(config)# exit
Router#show ethernet oam status interface GigabitEthernet0/0/0
GigabitEthernet0/0/0
General
-------
  Admin state:           enabled
  Mode:                  passive
  Type:                  information
  PDU max rate:          10 packets per second
  PDU min rate:          1 packet per 1000 ms
… …
```

Configuring organization specific OAMPDU

```
Router# enable
 Router# configure terminal
Router(config)# interface GigabitEthernet0/0/0
Router(config-if)# ethernet oam dying-gasp type organization
Router (config-if)# exit
Router(config)# exit
Router# show ethernet oam status interface GigabitEthernet0/0/0
GigabitEthernet0/0/0
General
-------
  Admin state:           enabled
  Mode:                  passive
  Type:                  organization
  PDU max rate:          10 packets per second
  PDU min rate:          1 packet per 1000 ms
```