How to use SNMP to configure Ethernet OAM on DES-3200

MIB: Public -> Ie8023ah.mib

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:: CLI command ::

   config ethernet_oam ports 1 state enable

:: SNMP command ::

   snmpset -v2c -c private 192.168.0.1 1.3.6.1.2.1.158.1.1.1.1.1 i 1

:: MIB OID Description ::

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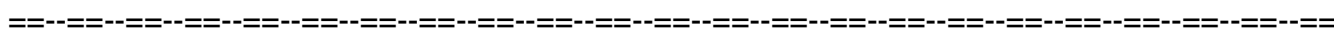
:: CLI command ::

config ethernet_oam ports 1 mode active

:: SNMP command ::

snmpset -v2c -c private 192.168.0.1 1.3.6.1.2.1.158.1.1.1.3.1 i 2

:: MIB OID Description ::

Object name	dot3OamMode
Object ID	1.3.6.1.2.1.158.1.1.1.3
Module	DOT3-OAM-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Write
Status	Current
Value list	1 : passive(1)
	2 : active(2)
Parent node	dot3OamEntry
First child	None
Description	This object configures the mode of OAM operation for this Ethernet-like interface. OAM on Ethernet interfaces may be in 'active' mode or 'passive' mode. These two modes differ in that active mode provides additional capabilities to initiate monitoring activities with the remote OAM peer entity, while passive mode generally waits for the peer to initiate OA actions with it. As an example, an active OAM entity can put the remote OAM entity in a loopback state, where a passive OA entity cannot.
	The default value of dot3OamMode is dependent on the type of system on which this Ethernet-like interface resides. The default value should be 'active(2)' unless it is known that this system should take on a subservient role to the other device connected over this interface.
	Changing this value results in incrementing the configuration revision field of locally generated OAMPDUs (30.3.6.1.12) and potentially re-doing the OAM discovery process if the dot3OamOperStatus was already operational(9).

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:: CLI command ::

config ethernet_oam ports 1 critical_link_event critical_event notify_state enable

:: SNMP command ::

snmpset -v2c -c private 192.168.0.1 1.3.6.1.2.1.158.1.5.1.16.1 i 1

:: MIB OID Description ::

Object name	dot3OamCriticalEventEnable
Object ID	1.3.6.1.2.1.158.1.5.1.16
Module	DOT3-OAM-MIB
Base syntax	Integer
Composed syntax	TruthValue
Access	Read-Write
Status	Current
Value list	1 : true(1)
	2 : false(2)
Parent node	dot3OamEventConfigEntry
First child	None
Description	If true, the local OAM entity should attempt to indicate a critical event via the OAMPDU flags to its peer OAM entity when a critical event occurs. The exact definition of a critical event is implementation dependent. If the system does not support critical event capability, setting this object has no effect, and reading the object should always result in 'false'.
	By default, this object should have the value true for Ethernet-like interfaces that support OAM. If the OAM layer does not support Event Notifications (as indicated via the dot3OamFunctionsSupported attribute), this value is ignored.

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:: CLI command ::

config ethernet_oam ports 1 critical_link_event dying_gasp notify_state enable

:: SNMP command ::

snmpset -v2c -c private 192.168.0.1 1.3.6.1.2.1.158.1.5.1.15.1 i 1

:: MIB OID Description ::

Object name	dot3OamDyingGaspEnable
Object ID	1.3.6.1.2.1.158.1.5.1.15
Module	DOT3-OAM-MIB
Base syntax	Integer
Composed syntax	TruthValue
Access	Read-Write
Status	Current
Value list	1 : true(1)
	2 : false(2)
Parent node	dot3OamEventConfigEntry
First child	None
Description	If true, the local OAM entity should attempt to indicate a dying gasp via the OAMPDU flags field to its peer OAM entity when a dying gasp event occurs. The exact definition of a dying gasp event is implementation dependent. If the system does not support dying gasp capability, setting this object has no effect, and reading the object should always result in 'false'. By default, this object should have the value true for Ethernet-like interfaces that support OAM. If the OAM layer does not support Event Notifications (as indicated via the dot3OamFunctionsSupported attribute), this value is ignored.

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:: CLI command ::

config ethernet_oam ports 1 link_monitor error_symbol window 1000 threshold 100 notify_state enable

:: SNMP command ::

snmpset -v2c -c private 192.168.0.1 1.3.6.1.2.1.158.1.5.1.2.1 u 1000 1.3.6.1.2.1.158.1.5.1.4.1 u 100 1.3.6.1.2.1.158.1.5.1.5.1 i 1

:: MIB OID Description ::

Object name	dot3OamErrSymPeriodWindowLo
Object ID	1.3.6.1.2.1.158.1.5.1.2
Module	DOT3-OAM-MIB
Base syntax	Gauge
Composed syntax	Unsigned32
Access	Read-Write
Status	Current
Parent node	dot3OamEventConfigEntry
First child	None
Description	The two objects dot3OamErrSymPeriodWindowHi and dot3OamErrSymPeriodWindowLo together form an unsigned 64-bit integer representing the number of symbols over which this threshold event is defined. This is defined as
	dot3OamErrSymPeriodWindow = ((2^32)*dot3OamErrSymPeriodWindowHi) + dot3OamErrSymPeriodWindowLo
	If dot3OamErrSymPeriodThreshold symbol errors occur within a window of dot3OamErrSymPeriodWindow symbols, an Event Notification OAMPDU should be generated with an Errored Symbol Period Event TLV indicating that the threshold has been crossed in this window.
	The default value for dot3OamErrSymPeriodWindow is the number of symbols in one second for the underlying physical layer.

Object name	dot3OamErrSymPeriodThresholdLo
Object ID	1.3.6.1.2.1.158.1.5.1.4
Module	DOT3-OAM-MIB
Base syntax	Gauge
Composed syntax	Unsigned32
Access	Read-Write
Status	Current
Parent node	dot3OamEventConfigEntry
First child	None
Description	The two objects dot3OamErrSymPeriodThresholdHi and dot3OamErrSymPeriodThresholdLo together form an unsigned 64-bit integer representing the number of symbol errors that must occur within a given window to cause this event.

This is defined as

$$dot3OamErrSymPeriodThreshold = ((2^{32}) * dot3OamErrSymPeriodThresholdHi) + dot3OamErrSymPeriodThresholdLo$$

If dot3OamErrSymPeriodThreshold symbol errors occur within a window of dot3OamErrSymPeriodWindow symbols, an Event Notification OAMPDU should be generated with an Errored Symbol Period Event TLV indicating that the threshold has been crossed in this window.

The default value for dot3OamErrSymPeriodThreshold is one symbol error. If the threshold value is zero, then an Event Notification OAMPDU is sent periodically (at the end of every window). This can be used as an asynchronous notification to the peer OAM entity of the statistics related to this threshold crossing alarm.

Object name	dot3OamErrSymPeriodEvNotifEnable
Object ID	1.3.6.1.2.1.158.1.5.1.5
Module	DOT3-OAM-MIB
Base syntax	Integer
Composed syntax	TruthValue
Access	Read-Write
Status	Current
Value list	1 : true(1)
	2 : false(2)
Parent node	dot3OamEventConfigEntry
First child	None
Description	If true, the OAM entity should send an Event Notification OAMPDU when an Errored Symbol Period Event occurs.

By default, this object should have the value true for Ethernet-like interfaces that support OAM. If the OAM layer does not support Event Notifications (as indicated via the dot3OamFunctionsSupported attribute), this value is ignored.

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:: CLI command ::

config ethernet_oam ports 1 link_monitor error_frame threshold 1000 window 10000 notify_state enable

:: SNMP command ::

snmpset -v2c -c private 192.168.0.1 1.3.6.1.2.1.158.1.5.1.9.1 u 1000 1.3.6.1.2.1.158.1.5.1.10.1 u 10000 1.3.6.1.2.1.158.1.5.1.11.1 i 1

:: MIB OID Description ::

Object name	dot3OamErrFrameWindow
Object ID	1.3.6.1.2.1.158.1.5.1.9
Module	DOT3-OAM-MIB
Base syntax	Gauge
Composed syntax	Unsigned32
Access	Read-Write
Status	Current
Parent node	dot3OamEventConfigEntry
First child	None
Description	The amount of time (in 100ms increments) over which the threshold is defined. The default value is 10 (1 second).
	If dot3OamErrFrameThreshold frame errors occur within a window of dot3OamErrFrameWindow seconds (measured in tenths of seconds), an Event Notification OAMPDU should be generated with an Errored Frame Event TLV indicating that the threshold has been crossed in this window.

Object name	dot3OamErrFrameThreshold
Object ID	1.3.6.1.2.1.158.1.5.1.10
Module	DOT3-OAM-MIB
Base syntax	Gauge
Composed syntax	Unsigned32
Access	Read-Write
Status	Current
Parent node	dot3OamEventConfigEntry
First child	None
Description	The number of frame errors that must occur for this event to be triggered. The default value is one frame error. If the threshold value is zero, then an Event Notification OAMPDU is sent periodically (at the end of every window). This can be used as an asynchronous notification to the peer OAM entity of the statistics related to this threshold crossing alarm.
	If dot3OamErrFrameThreshold frame errors occur within a window of dot3OamErrFrameWindow (in tenths of seconds), an Event Notification OAMPDU should be generated with an Errored Frame Event TLV indicating the threshold has been crossed in this window.

```
Object name          dot3OamErrFrameEvNotifEnable
Object ID            1.3.6.1.2.1.158.1.5.1.11
Module               DOT3-OAM-MIB

Base syntax          Integer
Composed syntax      TruthValue
Access               Read-Write
Status               Current
Value list           1 : true(1)
                     2 : false(2)

Parent node          dot3OamEventConfigEntry
First child          None
Description          If true, the OAM entity should send an Event Notification
                     OAMPDU when an Errored Frame Event occurs.

                     By default, this object should have the value true for
                     Ethernet-like interfaces that support OAM.  If the OAM layer
                     does not support Event Notifications (as indicated via the
                     dot3OamFunctionsSupported attribute), this value is ignored.
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:: CLI command ::

   config ethernet_oam ports 1 link_monitor error_frame_seconds threshold 1 window 60000 notify_state enable
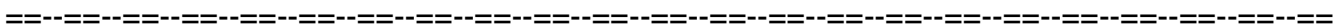
:: SNMP command ::

   snmpset -v2c -c private 192.168.0.1 1.3.6.1.2.1.158.1.5.1.12.1 i 60000 1.3.6.1.2.1.158.1.5.1.13.1 i 1 1.3.6.1.2.1.158.1.5.1.14.1 i 1

:: MIB OID Description ::

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Object name          dot3OamErrFrameSecsSummaryWindow
Object ID            1.3.6.1.2.1.158.1.5.1.12
Module               DOT3-OAM-MIB

Base syntax          Integer
Composed syntax      Integer32
Access               Read-Write
Status               Current
Value list           1 : 100..9000

Parent node          dot3OamEventConfigEntry
First child          None
Description          The amount of time (in 100 ms intervals) over which the
                     threshold is defined.  The default value is 100 (10 seconds).

                     If dot3OamErrFrameSecsSummaryThreshold frame errors occur
                     within a window of dot3OamErrFrameSecsSummaryWindow (in tenths
                     of seconds), an Event Notification OAMPDU should be generated
                     with an Errored Frame Seconds Summary Event TLV indicating
                     that the threshold has been crossed in this window.
```

Object name	dot3OamErrFrameSecsSummaryThreshold
Object ID	1.3.6.1.2.1.158.1.5.1.13
Module	DOT3-OAM-MIB
Base syntax	Integer
Composed syntax	Integer32
Access	Read-Write
Status	Current
Value list	1 : 1..900
Parent node	dot3OamEventConfigEntry
First child	None
Description	The number of errored frame seconds that must occur for this event to be triggered. The default value is one errored frame second. If the threshold value is zero, then an Event Notification OAMPDU is sent periodically (at the end of every window). This can be used as an asynchronous notification to the peer OAM entity of the statistics related to this threshold crossing alarm.
	If dot3OamErrFrameSecsSummaryThreshold frame errors occur within a window of dot3OamErrFrameSecsSummaryWindow (in tenths of seconds), an Event Notification OAMPDU should be generated with an Errored Frame Seconds Summary Event TLV indicating that the threshold has been crossed in this window.

Object name	dot3OamErrFrameSecsEvNotifEnable
Object ID	1.3.6.1.2.1.158.1.5.1.14
Module	DOT3-OAM-MIB
Base syntax	Integer
Composed syntax	TruthValue
Access	Read-Write
Status	Current
Value list	1 : true(1)
	2 : false(2)
Parent node	dot3OamEventConfigEntry
First child	None
Description	If true, the local OAM entity should send an Event Notification OAMPDU when an Errored Frame Seconds Event occurs.
	By default, this object should have the value true for Ethernet-like interfaces that support OAM. If the OAM layer does not support Event Notifications (as indicated via the dot3OamFunctionsSupported attribute), this value is ignored.

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:: CLI command ::

config ethernet_oam ports 1 link_monitor error_frame_period threshold 1000 window 20000 notify_state enable

:: SNMP command ::

snmpset -v2c -c private 192.168.0.1 1.3.6.1.2.1.158.1.5.1.6.1 u 200000 1.3.6.1.2.1.158.1.5.1.7.1 u 1000 1.3.6.1.2.1.158.1.5.1.8.1 i 1

:: MIB OID Description ::

Object name	dot3OamErrFramePeriodWindow
Object ID	1.3.6.1.2.1.158.1.5.1.6
Module	DOT3-OAM-MIB
Base syntax	Gauge
Composed syntax	Unsigned32
Access	Read-Write
Status	Current
Parent node	dot3OamEventConfigEntry
First child	None
Description	The number of frames over which the threshold is defined. The default value of the window is the number of minimum size Ethernet frames that can be received over the physical layer in one second.
	If dot3OamErrFramePeriodThreshold frame errors occur within a window of dot3OamErrFramePeriodWindow frames, an Event Notification OAMPDU should be generated with an Errored Frame Period Event TLV indicating that the threshold has been crossed in this window.
	Each value is a multiple of 10000 frames. For example, if the the value is 100, the realy frame number is 100 * 10000.

Object name	dot3OamErrFramePeriodThreshold
Object ID	1.3.6.1.2.1.158.1.5.1.7
Module	DOT3-OAM-MIB
Base syntax	Gauge
Composed syntax	Unsigned32
Access	Read-Write
Status	Current
Parent node	dot3OamEventConfigEntry
First child	None
Description	The number of frame errors that must occur for this event to be triggered. The default value is one frame error. If the threshold value is zero, then an Event Notification OAMPDU is sent periodically (at the end of every window). This can be used as an asynchronous notification to the peer OAM entity of the statistics related to this threshold crossing alarm.
	If dot3OamErrFramePeriodThreshold frame errors occur within a window of dot3OamErrFramePeriodWindow frames, an Event Notification OAMPDU should be generated with an Errored Frame Period Event TLV indicating that the threshold has been crossed in this window.

Object name	dot3OamErrFramePeriodEvNotifEnable
Object ID	1.3.6.1.2.1.158.1.5.1.8
Module	DOT3-OAM-MIB
Base syntax	Integer
Composed syntax	TruthValue
Access	Read-Write
Status	Current
Value list	1 : true(1)
	2 : false(2)
Parent node	dot3OamEventConfigEntry
First child	None
Description	If true, the OAM entity should send an Event Notification OAMPDU when an Errored Frame Period Event occurs.
	By default, this object should have the value true for Ethernet-like interfaces that support OAM. If the OAM layer does not support Event Notifications (as indicated via the dot3OamFunctionsSupported attribute), this value is ignored.

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:: CLI command ::

config ethernet_oam ports 1 received_remote_loopback process

:: SNMP command ::

snmpset -v2c -c private 192.168.0.1 1.3.6.1.2.1.158.1.3.1.2.1 i 2

:: MIB OID Description ::

Object name	dot3OamLoopbackIgnoreRx
Object ID	1.3.6.1.2.1.158.1.3.1.2
Module	DOT3-OAM-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Write
Status	Current
Value list	1 : ignore(1)
	2 : process(2)
Parent node	dot3OamLoopbackEntry
First child	None
Description	Since OAM loopback is a disruptive operation (user traffic does not pass), this attribute provides a mechanism to provide controls over whether received OAM loopback commands are processed or ignored. When the value is ignore(1), received loopback commands are ignored. When the value is process(2), OAM loopback commands are processed. The default value is to ignore loopback commands (ignore(1)).

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:: CLI command ::

1) config ethernet_oam ports 1 remote_loop start
2) config ethernet_oam ports 1 remote_loop stop

(To configure it, you should set up the OAM environment, please see *KM [DK1000050] "How do I configure Ethernet OAM-802.3ah?"*, the page 4 & 5 of the attachment.

:: SNMP command ::

1) snmpset -v2c -c private 192.168.0.1 1.3.6.1.2.1.158.1.3.1.1.1 i 2
    (please notice: For the parameter integer 2 = "initiatingLoopback(2)", in the MIB Description, its just like the command create and go, to "initiate" the value "start", and turn the Loopback Status into "remoteLookback".

2) snmpset -v2c -c private 192.168.0.1 1.3.6.1.2.1.158.1.3.1.1.1 i 4
    (please notice: For the parameter integer 4 = "terminatingLoopback(4)", in the MIB Description, its just like the command create and go, to "terminate" the value "stop", and turn the Loopback Status into "noLookback".

:: MIB OID Description ::

Object name	dot3OamLoopbackStatus
Object ID	1.3.6.1.2.1.158.1.3.1.1
Module	DOT3-OAM-MIB
Base syntax	Integer
Composed syntax	INTEGER
Access	Read-Write
Status	Current
Value list	1 : noLoopback(1)
	2 : initiatingLoopback(2)
	3 : remoteLoopback(3)
	4 : terminatingLoopback(4)
	5 : localLoopback(5)
	6 : unknown(6)
Parent node	dot3OamLoopbackEntry
First child	None
Description	The loopback status of the OAM entity. This status is determined by a combination of the local parser and multiplexer states, the remote parser and multiplexer states, as well as by the actions of the local OAM client. When operating in normal mode with no loopback in progress, the status reads noLoopback(1).

The values initiatingLoopback(2) and terminatingLoopback(4) can be read or written. The other values can only be read - they can never be written. Writing initiatingLoopback causes the local OAM entity to start the loopback process with its peer. This value can only be written when the status is noLoopback(1). Writing the value initiatingLoopback(2) in any other state has no effect. When in remoteLoopback(3), writing terminatingLoopback(4) causes the local OAM entity to initiate the termination of the loopback state. Writing terminatingLoopack(4) in any other state has no effect.

If the OAM client initiates a loopback and has sent a Loopback OAMPDU and is waiting for a response, where the local parser and multiplexer states are DISCARD (see [802.3ah, 57.2.11.1]), the status is 'initiatingLoopback'. In this case, the local OAM entity has yet to receive any acknowledgment that the remote OAM entity has received its loopback command request.

If the local OAM client knows that the remote OAM entity is in loopback mode (via the remote state information as described in [802.3ah, 57.2.11.1, 30.3.6.1.15]), the status is remoteLoopback(3). If the local OAM client is in the process of terminating the remote loopback [802.3ah, 57.2.11.3, 30.3.6.1.14] with its local multiplexer and parser states in DISCARD, the status is terminatingLoopback(4). If the remote OAM client has put the local OAM entity in loopback mode as indicated by its local parser state, the status is localLoopback(5).

The unknown(6) status indicates that the parser and multiplexer combination is unexpected. This status may be returned if the OAM loopback is in a transition state but should not persist.

The values of this attribute correspond to the following values of the local and remote parser and multiplexer states.

value	LclPrsr	LclMux	RmtPrsr	RmtMux
noLoopback	FWD	FWD	FWD	FWD
initLoopback	DISCARD	DISCARD	FWD	FWD
rmtLoopback	DISCARD	FWD	LPBK	DISCARD
tmtngLoopback	DISCARD	DISCARD	LPBK	DISCARD
lclLoopback	LPBK	DISCARD	DISCARD	FWD
unknown	***	any other combination	***	