Using RFC3621 PoE MIB with PowerDsine Midspans

Introduction

In today's world of networking, where management capability is a crucial factor, it has become vitally important to allow access to each network device via standard Management Information Bases (MIBs).
RFC3621 standard defines the standard MIB for Power over Ethernet (PoE) devices.
This document explains how to manage PowerDsine's™ Midspans using the standard PoE MIB via SNMP management stations such as HP OpenView, SNMPc, etc.

It applies to users wishing to manage their Midspans via SNMP, and not via the Web. It describes the capabilities of the MIB as follow:

- Port power status monitoring
- Configuring the Enable / Disable ports option
- Providing statistics related to faulty ports
- Providing statistics related to power consumption
- Configuring indication for power consumption exceeding pre-determined percentage

Preliminary Requirements

The user should ensure that the following requirements are met prior to using this document instructions:

1. Obtain the RFC3621 MIB via the Ethernet or via PowerDsine's web site:
http://www.powerdsine.com/Support/Downloads/
2. Compile and Install the downloaded RFC3621 MIB into his SNMP management application
3. By browsing into the Midspan using a WEB browser, verify that Midspan's SNMPv2 or SNMPv3 option is enabled (refer to PowerDsine's User Guide (PowerView) Cat. No. 06-6911-056.

PoE MIB Tree Structure

PoE MIB object ID is located under 1.3.6.1.2.1.105. It comprises three sections (see Figure 1): The first section deals with Port Parameters.

The second deals with unit Main Power Supply parameters and the third with enabling/disabling PoE traps (Trap/Notification).

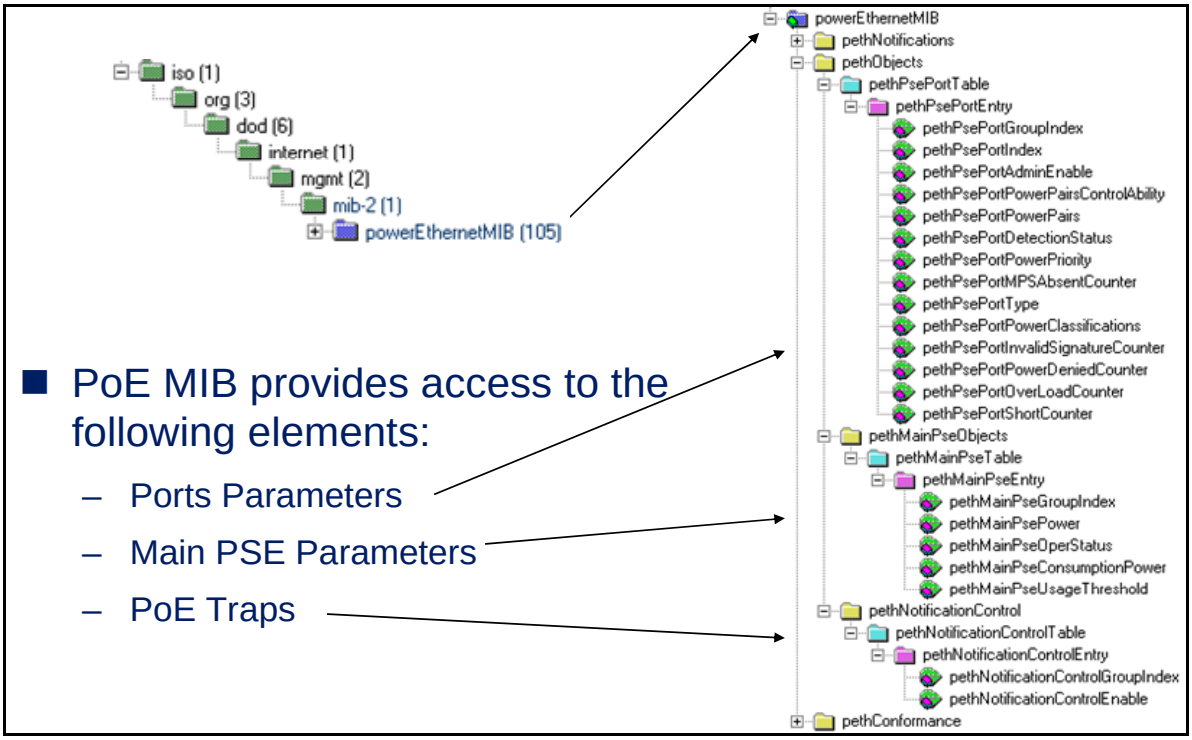
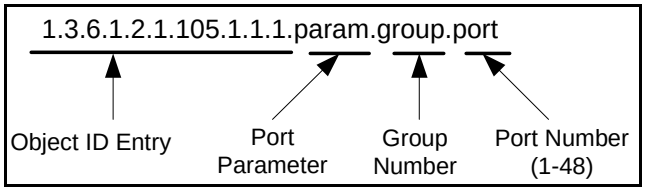


Figure 1: PoE MIB Tree Structure

Port Parameters

Port parameters are accessed as a two dimensional array table, where:



The first index Group Number is always '1', since the Midspan is a stand alone product and not a blade based product.

The second index is the PoE port number (1-48).

The Object IDs (Oid) types (Read-only / Read-Write) are indicated in brackets next to each command parameter.

Port On/Off (pethPsePortAdminEnable)

1.3.6.1.2.1.105.1.1.1.3 (Read-Write)

The Port On/Off function is controlled by the pethPsePortAdminEnable parameter, represented by the 1.3.6.1.2.1.105.1.1.1.3 object ID, so Port#8 for example is represented as 1.3.6.1.2.1.105.1.1.1.3.1.8.

'1' ('TRUE') = enables PoE port to provide power whenever a valid PD device is detected. '2' ('FALSE') = disables PoE port from providing power.

Port Pairs Capability

(pethPsePortPowerPairsControlAbility)

1.3.6.1.2.1.105.1.1.1.4 (Read-Only)

This parameter indicates whether a device is capable of switching power from Ethernet data pairs, to spare pairs.
It is accessed via 1.3.6.1.2.1.105.1.1.1.4.1. <Port>

'1' = Capable of switching power from Ethernet data pairs, to spare pairs.

'2' = Not capable of switching power from Ethernet data pairs, to spare pairs.

Port Pairs (pethPsePortPowerPairs)

1.3.6.1.2.1.105.1.1.1.5 (Read-Write)

Midspan only provides Power on spare pins, so write command isn't applicable to Midspan device. This parameter reports the specific Ethernet pairs on which power is provided.

'1'= Signal (RJ-45 pins 1, 2, 3, 6)

'2'= Spare (RJ-45 pins 4, 5, 7, 8).

A Midspan reports '2' (spare). It is accessed via 1.3.6.1.2.1.105.1.1.1.5.1.<Port>

Port Detection Status

(pethPsePortDetectionStatus)

1.3.6.1.2.1.105.1.1.1.6 (Read-Only)

This parameter reports the PSE port status which may acquire one of the values below.

It is accessed via: 1.3.6.1.2.1.105.1.1.1.6.1.<Port>.

'1' = disabled
'2' = searching
'3' = deliveringPower
'4' = fault
'5' = test
'6' = otherFault

Port Priority (pethPsePortPowerPriority)

1.3.6.1.2.1.105.1.1.1.7 (Read-Write)

This parameter defines port priority (Critical, High, Low) and is accessed via 1.3.6.1.2.1.105.1.1.1.7.1. <Port>.

'1' = Critical
'2' = High
'3' = Low

Port Type (pethPsePortType)

1.3.6.1.2.1.105.1.1.1.9 (Read-Write)

This parameter is a text field which can be used to describe the port's user (e.g. 'John's Office').

It is accessed via 1.3.6.1.2.1.105.1.1.1.9.1.<Port>

Error Counters

The RFC3621 MIB defines five (5) error counters:

pethPsePortMPSAbsentCounter
1.3.6.1.2.1.105.1.1.1.8 (Read-Only)

This counter increments each time that a powered PoE port stops delivering power to a PD device (PD device was unplugged).

It is accessed via: 1.3.6.1.2.1.105.1.1.1.8.1.<port>

pethPsePortInvalidSignatureCounter
1.3.6.1.2.1.105.1.1.1.11 (Read-Only)

This counter is incremented each time that a PD detection signature exceeds upper or lower resistance limit.

It is accessed via 1.3.6.1.2.1.105.1.1.1.11.1.<port>

pethPsePortPowerDeniedCounter
1.3.6.1.2.1.105.1.1.1.12 (Read-Only)

This counter is incremented each time that a valid PD device was detected, but due to system power limits, a PSE port wasn't powered.

It is accessed via 1.3.6.1.2.1.105.1.1.1.12.1.<port>

pethPsePortOverLoadCounter
1.3.6.1.2.1.105.1.1.1.13 (Read-Only)

This counter is incremented each time that a PD device tries to consume more than the allowed power and the port had to be shut down.

It is accessed via 1.3.6.1.2.1.105.1.1.1.13.1.<port>

pethPsePortShortCounter
1.3.6.1.2.1.105.1.1.1.14 (Read-Only)

This counter is incremented each time that a powered PD device (already receiving 48VDC) is shorted.

It is accessed via 1.3.6.1.2.1.105.1.1.1.14.1.<port>

Product Parameters

Group parameters deal with parameters that are product related, such as Maximum Power Supply.

Maximum Power Supply (pethMainPsePower)

1.3.6.1.2.1.105.1.3.1.1.2 (Read-Only)

This parameter reports maximum Power Supply available power and is accessed via 1.3.6.1.2.1.105.1.3.1.1.2.1.
Note that the last '1' represents Group#1. A typical value such as '200' represents 200 Watts.

Operation Status (pethMainPseOperStatus)

1.3.6.1.2.1.105.1.3.1.1.3 (Read-Only)

This field provides an indication that the unit is working properly.

'1'= On
'2'= Off
'3'= Fault

Typical reading should be '1' and it is accessed via 1.3.6.1.2.1.105.1.3.1.1.3.1.

Total Power Consumption (pethMainPseConsumptionPower)

1.3.6.1.2.1.105.1.3.1.1.4 (Read-Only)

This parameter reports total Power consumption, in Watts (e.g. '120' value represents 120 Watts). It is accessed via 1.3.6.1.2.1.105.1.3.1.1.4.1.

Power Over-Usage in % (pethMainPseUsageThreshold)

1.3.6.1.2.1.105.1.3.1.1.5 (Read-Write)

Defines the percentage at which Trap/Notification will be sent in cases where total power consumption exceeds pre-determined percentage (can be set from 1-99%). For example value of '80', with power supply of 200 Watts, will cause Trap to be sent whenever total Power consumption exceeds 200*08=160 Watts. It is accessed via 1.3.6.1.2.1.105.1.3.1.1.5.1.

Trap/Notification Parameters (Group)

This section describes the Trap/Notification parameters and actually contains only a single parameter, which enables/disables Midspan in sending RFC3621 MIB Traps/Notifications to the SNMP management station, whenever PoE port status has changed, or total power consumption has exceeded pre-defined limits.

Note that the Midspan may send the same trap to up to ten different SNMP management stations.

Trap Enable/Disable

(pethNotificationControlEnable)

1.3.6.1.2.1.105.1.4.1.1.2 (Read-Write)

This parameter either enables or disables the Midspan from sending Traps to a remote SNMP manager.
This parameter is accessed by 1.3.6.1.2.1.105.1.4.1.1.2.1. Note that since this parameter is represented by a single dimensional table, the last '1' represents Group#1.

Traps

The RFC3621 standard defines three types of Traps/Notification as follow:

a. Trap sent whenever a Port status change occurs (except for cases where Port returns to 'searching' state).

b. Trap sent in cases where Total Power exceeds xy% of the Power usage (in respect to Power Supply capability).

c. Trap sent if Total Power consumption decreased below xy% (only if previous Total Power exceeded xy% and a Trap was sent).

Figure 2 describes an example of a Notification Trap sent by a Midspan to an SNMP management station, using SNMPv3 protocol.

This Trap reports that Power was provided to a PD device connected to port#7.

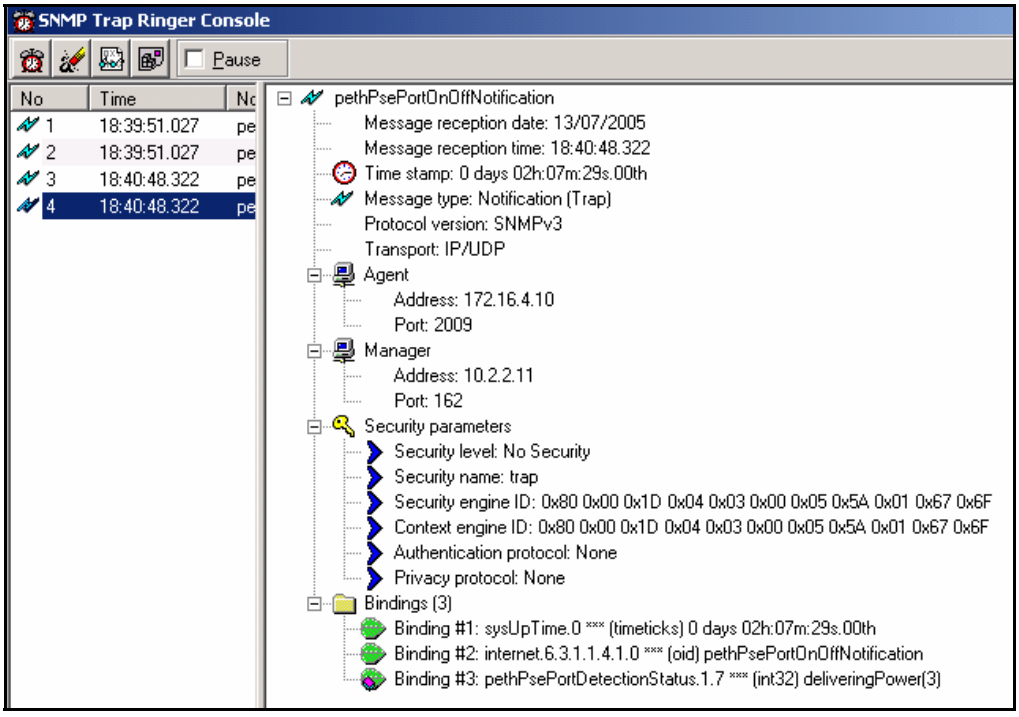


Figure 2: Example of SNMPv3 Notification Trap Sent by a Midspan

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Revision History

Revision Level / Date	Para. Affected	Description
1.0 / 15 March. 06	-	First Release

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