

Power Ethernet MIB

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Abstract

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. The document proposes an extension to the Ethernet-like Interfaces MIB with a set of objects for managing a Power Source Equipment (PSE).

Distribution of this memo is unlimited.

Table of Contents

Status of this Memo	1
Abstract	1
1 Introduction	2
2 The Internet-Standard Management Framework	2

INTERNET DRAFT

Power Ethernet MIB

May 2003

3 Overview	2
4 MIB Structure	3
5 Definitions	3
6 Acknowledgements	17
7 Normative References	17
8 Informative References	18
9 Intellectual Property	18
10 Security Considerations	18
11 Authors Addresses	20
A Full Copyright Statement	20
B Evolution of the Document, Limitations and Future Work	21
C Changes log	21

## 1. Introduction

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it defines a set of MIB objects to manage a Power Ethernet [[IEEE-802.3af](#)] Source Equipment (PSE).

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

## 2. The Internet-Standard Management Framework

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to [section 7 of RFC 3410](#) [[RFC3410](#)].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIV2, which is described in STD 58, [RFC 2578](#) [[RFC2578](#)], STD 58, [RFC 2579](#) [[RFC2579](#)] and STD 58, [RFC 2580](#) [[RFC2580](#)].

## 3. Overview

The emergence of IP telephony as an application that allows for voice

applications to be run over the same infrastructure as data applications led to the emergence of Ethernet IP phones, with similar functions and characteristics as the traditional phones. Powering a phone is one of these functions that are being taken as granted. The IEEE 802.3 Working Group initiated a standard work on this subject,

currently known as the IEEE 802.3af work [[IEEE-802.3af](#)].

The IEEE 802.3af WG will not define a full management interface, but only the hardware registers that will allow for a management interfaces to be built for a powered Ethernet device. The MIB module defined in this document extends the Ethernet-like Interfaces MIB [[RFC2665](#)] with the management objects required for the management of the powered Ethernet devices and ports.

The following abbreviations are defined in [[IEEE-802.3af](#)] and will be used with the same significance in this document:

PSE - Power Sourcing Equipment;

PD - Powered Device

#### [4.](#) MIB Structure

This MIB objects are included in three MIB groups.

The pethPsePortTable defines the objects used for the configuration and describing the status of ports on a PSE device. Examples of PSE devices are Ethernet switches that support power Ethernet and mid-span boxes.

The pethMainPseObjects MIB group defines the management objects for a managed main power source in a PSE device. Ethernet switches are one example of boxes that would support these objects.

The pethNotificationsControlTable includes objects that control the Transmission of notifications by the agent to a management application.

## 5. Definitions

POWER-ETHERNET-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY, mib-2, OBJECT-TYPE, Integer32,  
Gauge32, Counter32, NOTIFICATION-TYPE  
FROM SNMPv2-SMI  
TruthValue

Ethernet MIB WG

Expires November 2003

[Page 3]

---

INTERNET DRAFT

Power Ethernet MIB

May 2003

FROM SNMPv2-TC  
MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP  
FROM SNMPv2-CONF;

powerEthernetMIB MODULE-IDENTITY

LAST-UPDATED "200304250000Z" -- April 25, 2003  
ORGANIZATION "IETF Ethernet Interfaces and Hub MIB  
Working Group"

CONTACT-INFO

"

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<http://www.ietf.org/html.charters/hubmib-charter.html>

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#### DESCRIPTION

"The MIB module for managing Power Source Equipment (PSE) working according to the IEEE 802.af Powered Ethernet (DTE Power via MDI) standard.

The following terms are used throughout this MIB module. For complete formal definitions, the IEEE 802.3 standards should be consulted wherever possible:

Group - A recommended, but optional, entity defined by the IEEE 802.3 management standard, in order to support a modular numbering scheme. The classical example allows an implementor to represent field-replaceable units as groups of ports, with the port numbering matching the

Ethernet MIB WG

Expires November 2003

[Page 4]

---

INTERNET DRAFT

Power Ethernet MIB

May 2003

modular hardware implementation.

Port - This entity identifies the port within the group for which this entry contains information. The numbering scheme for ports is implementation specific.

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-- RFC Ed.: replace yyyy with the actual RFC number & remove this notice.  
"

REVISION "200305210000Z" -- May 21, 2003

DESCRIPTION "Initial version, published as RFC yyyy."

-- RFC Ed.: replace yyyy with actual RFC number & remove this notice

::= { mib-2 XXX }

-- RFC Ed.: replace XXX with IANA-assigned number & remove this notice

pethNotifications OBJECT IDENTIFIER ::= { powerEthernetMIB 0 }

pethObjects OBJECT IDENTIFIER ::= { powerEthernetMIB 1 }

pethConformance OBJECT IDENTIFIER ::= { powerEthernetMIB 2 }

-- PSE Objects

pethPsePortTable OBJECT-TYPE

SYNTAX SEQUENCE OF PethPsePortEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of objects that display and control the power characteristics power Ethernet ports on a Power Source Entity (PSE) device. This group will be implemented in managed power Ethernet switches and mid-span devices. Values of all read-write objects in this table are persistent at restart/reboot."

::= { pethObjects 1 }

pethPsePortEntry OBJECT-TYPE

SYNTAX PethPsePortEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A set of objects that display and control the power characteristics of a power Ethernet PSE port."

INDEX { pethPsePortGroupIndex , pethPsePortIndex }

::= { pethPsePortTable 1 }

```
PethPsePortEntry ::= SEQUENCE {
    pethPsePortGroupIndex
        Integer32,
    pethPsePortIndex
        Integer32,
    pethPsePortAdminEnable
        TruthValue,
    pethPsePortPowerPairsControlAbility
        TruthValue,
    pethPsePortPowerPairs
        INTEGER,
    pethPsePortDetectionStatus
        INTEGER,
    pethPsePortPowerPriority
        INTEGER,
```

```

    pethPsePortMPSAbsentCounter
        Counter32,
    pethPsePortInvalidSignatureCounter
        Counter32,
    pethPsePortPowerDeniedCounter
        Counter32,
    pethPsePortOverLoadCounter
        Counter32,
    pethPsePortShortCounter
        Counter32,
    pethPsePortType
        INTEGER,
    pethPsePortPowerClassifications
        INTEGER
}

```

```

pethPsePortGroupIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This variable uniquely identifies the group
        containing the port to which a power Ethernet PSE is
        connected. Group means box in the stack, module in a
        rack and the value 1 MUST be used for non-modular devices.
        Furthermore, the same value MUST be used in this variable,
        pethMainPseGroupIndex, and pethNotificationControlGroupIndex
        to refer to a given box in a stack or module in the rack."
    ::= { pethPsePortEntry 1 }

```

```

pethPsePortIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  not-accessible

```

```

STATUS      current
DESCRIPTION
    "This variable uniquely identifies the power Ethernet PSE
    port within group pethPsePortGroupIndex to which the
    power Ethernet PSE entry is connected."
    ::= { pethPsePortEntry 2 }

```

pethPsePortAdminEnable OBJECT-TYPE  
 SYNTAX TruthValue  
 MAX-ACCESS read-write  
 STATUS current  
 DESCRIPTION  
     "true (1) An interface which can provide the PSE functions.  
     false(2) The interface will act as it would if it had no PSE  
     function."  
 REFERENCE  
     "IEEE Draft P802.3af/D4.3 [Section 30.9.1.1.2](#) aPSEAdminState"  
 ::= { pethPsePortEntry 3 }

pethPsePortPowerPairsControlAbility OBJECT-TYPE  
 SYNTAX TruthValue  
 MAX-ACCESS read-only  
 STATUS current  
 DESCRIPTION  
     "Describes the capability of controlling the power pairs  
     functionality to switch pins for sourcing power.  
     The value true indicate that the device has the capability  
     to control the power pairs. When false the PSE Pinout  
     Alternative used cannot be controlled through the  
     PethPsePortAdminEnabe attribute."  
 REFERENCE  
     "IEEE Draft P802.3af/D4.3 [Section 30.9.1.1.3](#)  
     aPSEPowerPairsControlAbility"  
 ::= { pethPsePortEntry 4 }

pethPsePortPowerPairs OBJECT-TYPE  
 SYNTAX INTEGER {  
     signal(1),  
     spare(2)  
 }  
 MAX-ACCESS read-write  
 STATUS current  
 DESCRIPTION  
     "Describes or controls the pairs in use. If the value of  
     pethPsePortPowerPairsControl is true, this object is  
     writable.  
     A value of signal(1) menas that the signal pairs



A value of spare(2) means that the spare pairs only are in use."

REFERENCE

"IEEE Draft P802.3af/D4.3 [Section 30.9.1.1.4](#) aPSEPowerPairs"  
 ::= { pethPsePortEntry 5 }

pethPsePortDetectionStatus OBJECT-TYPE  
SYNTAX INTEGER {  
 disabled(1),  
 searching(2),  
 deliveringPower(3),  
 fault(4),  
 test(5),  
 otherFault(6)  
}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Describes the operational status of the port PD detection.  
A value of disabled(1)- indicates that the PSE State diagram is in the state DISABLED.  
A value of deliveringPower(3) - indicates that the PSE State diagram is in the state POWER\_ON for a duration greater than tlim max (see IEEE Drafts P802.3af/D4.3 Table 33-5 tlim).  
A value of fault(4) - indicates that the PSE State diagram is in the state TEST\_ERROR.  
A value of test(5) - indicates that the PSE State diagram is in the state TEST\_MODE.  
A value of otherFault(6) - indicates that the PSE State diagram is in the state IDLE due to the variable error\_conditions.  
A value of searching(2)- indicates the PSE State diagram is in a state other than those listed above."

REFERENCE

"IEEE Draft P802.3af/D4.3 [Section 30.9.1.1.5](#)  
 aPSEPowerDetectionStatus"  
 ::= { pethPsePortEntry 7 }

pethPsePortPowerPriority OBJECT-TYPE  
SYNTAX INTEGER {  
 critical(1),  
 high(2),  
 low(3)  
}

MAX-ACCESS read-write

STATUS current

DESCRIPTION

---

"This object controls the priority of the port from the point of view of a power management algorithm. The priority that is set by this variable could be used by a control mechanism that prevents over current situations by disconnecting first ports with lower power priority. Ports that connect devices critical to the operation of the network - like the E911 telephones ports - should be set to higher priority."

```
::= { pethPsePortEntry 8 }
```

```
pethPsePortMPSAbsentCounter OBJECT-TYPE
```

```
SYNTAX Counter32
```

```
MAX-ACCESS read-only
```

```
STATUS current
```

```
DESCRIPTION
```

```
    "This counter is incremented when the PSE state diagram
       transitions directly from the state POWER_ON to the state
       IDLE due to tmpdo_timer_done being asserted."
```

```
REFERENCE
```

```
    "IEEE Draft P802.3af/D4.3 Section 30.9.1.1.11
       aPSEMPSAbsentCounter"
```

```
::= { pethPsePortEntry 11 }
```

```
pethPsePortType OBJECT-TYPE
```

```
SYNTAX INTEGER {
    other(1),
    telephone(2),
    webcam(3),
    wireless(4)
}
```

```
MAX-ACCESS read-write
```

```
STATUS current
```

```
DESCRIPTION
```

```
    "A manager will set the value of this variable to indicate
       the type of powered device that is connected to the port."
```

```
::= { pethPsePortEntry 13 }
```

```
pethPsePortPowerClassifications OBJECT-TYPE
```

```
SYNTAX INTEGER {
    class0(1),
    class1(2),
    class2(3),
    class3(4),
    class4(5)
}
```

```
MAX-ACCESS read-only
```

STATUS current  
DESCRIPTION

Ethernet MIB WG

Expires November 2003

[Page 9]

INTERNET DRAFT

Power Ethernet MIB

May 2003

"Classification is a way to tag different terminals on the Power over LAN network according to their power consumption. Devices such as IP telephones, WLAN access points and others, will be classified according to their power requirements.

The meaning of the classification labels is defined in the IEEE specification.

This variable is valid only while a PD is being powered, that is, while the attribute pethPsePortDetectionStatus is reporting the enumeration deliveringPower."

REFERENCE

"IEEE Draft P802.3af/D4.3 [Section 30.9.1.1.6](#)  
aPSEPowerClassification"  
 ::= { pethPsePortEntry 14 }

pethPsePortInvalidSignatureCounter OBJECT-TYPE  
SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION

"This counter is incremented when the PSE state diagram enters the state SIGNATURE\_INVALID."

REFERENCE

"IEEE Draft P802.3af/D4.3 [Section 30.9.1.1.7](#)  
aPSEInvalidSignatureCounter"  
 ::= { pethPsePortEntry 15 }

pethPsePortPowerDeniedCounter OBJECT-TYPE  
SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION

"This counter is incremented when the PSE state diagram enters the state POWER\_DENIED."

REFERENCE

"IEEE Draft P802.3af/D4.3 [Section 30.9.1.1.8](#)  
aPSEPowerDeniedCounter"  
 ::= { pethPsePortEntry 16 }

pethPsePortOverLoadCounter OBJECT-TYPE  
SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "This counter is incremented when the PSE state diagram  
        enters the state ERROR\_DELAY\_OVER."  
REFERENCE

Ethernet MIB WG

Expires November 2003

[Page 10]

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INTERNET DRAFT

Power Ethernet MIB

May 2003

"IEEE Draft P802.3af/D4.3 [Section 30.9.1.1.9](#)  
aPSEOverLoadCounter"  
::= { pethPsePortEntry 17 }

pethPsePortShortCounter OBJECT-TYPE  
SYNTAX Counter32  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "This counter is incremented when the PSE state diagram  
        enters the state ERROR\_DELAY\_SHORT."  
REFERENCE  
    "IEEE Draft P802.3af/D4.3 [Section 30.9.1.1.10](#)  
aPSEShortCounter"  
::= { pethPsePortEntry 18 }

-- Main PSE Objects

pethMainPseObjects OBJECT IDENTIFIER ::= { pethObjects 3 }

pethMainPseTable OBJECT-TYPE  
SYNTAX SEQUENCE OF PethMainPseEntry  
MAX-ACCESS not-accessible  
STATUS current  
DESCRIPTION  
    "A table of objects that display and control attributes  
        of the main power source in a PSE device. Ethernet  
        switches are one example of boxes that would support  
        these objects.

Values of all read-write objects in this table are persistent at restart/reboot."  
 ::= { pethMainPseObjects 1 }

pethMainPseEntry OBJECT-TYPE  
SYNTAX PethMainPseEntry  
MAX-ACCESS not-accessible  
STATUS current  
DESCRIPTION  
 "A set of objects that display and control the Main power of a PSE. "  
INDEX { pethMainPseGroupIndex }  
 ::= { pethMainPseTable 1 }

PethMainPseEntry ::= SEQUENCE {  
 pethMainPseGroupIndex

Ethernet MIB WG

Expires November 2003

[Page 11]

---

INTERNET DRAFT

Power Ethernet MIB

May 2003

Integer32,  
pethMainPsePower  
Gauge32 ,  
pethMainPseOperStatus  
INTEGER,  
pethMainPseConsumptionPower  
Gauge32,  
pethMainPseUsageThreshold  
Integer32  
}  
pethMainPseGroupIndex OBJECT-TYPE  
SYNTAX Integer32 (1..2147483647)  
MAX-ACCESS not-accessible  
STATUS current  
DESCRIPTION  
 "This variable uniquely identifies the group to which power Ethernet PSE is connected. Group means (box in the stack, module in a rack) and the value 1 MUST be used for non-modular devices. Furthermore, the same value MUST be used in this variable, pethPsePortGroupIndex, and pethNotificationControlGroupIndex to refer to a given box in a stack or module in a rack."  
 ::= { pethMainPseEntry 1 }  
  
pethMainPsePower OBJECT-TYPE

SYNTAX Gauge32 (1..65535)  
UNITS "Watts"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"The nominal power of the PSE expressed in Watts."  
 ::= { pethMainPseEntry 2 }

pethMainPseOperStatus OBJECT-TYPE  
SYNTAX INTEGER {  
on(1),  
off(2),  
faulty(3)  
}  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"The operational status of the main PSE."  
 ::= { pethMainPseEntry 3 }

pethMainPseConsumptionPower OBJECT-TYPE  
SYNTAX Gauge32

UNITS "Watts"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"Measured usage power expressed in Watts."  
 ::= { pethMainPseEntry 4 }

pethMainPseUsageThreshold OBJECT-TYPE  
SYNTAX Integer32 (1..99)  
UNITS "%"  
MAX-ACCESS read-write  
STATUS current  
DESCRIPTION  
"The usage threshold expressed in percents for  
comparing the measured power and initiating

```
        an alarm if the threshold is exceeded."
 ::= { pethMainPseEntry 7 }
```

```
-- Notification Control Objects
```

```
pethNotificationControl OBJECT IDENTIFIER ::= { pethObjects 4 }
```

```
pethNotificationControlTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF PethNotificationControlEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

```
"A table of objects that display and control the
Notification on a PSE device.
```

```
Values of all read-write objects in this table are
persistent at restart/reboot."
```

```
::= { pethNotificationControl 1 }
```

```
pethNotificationControlEntry OBJECT-TYPE
```

```
SYNTAX PethNotificationControlEntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

```
"A set of objects that control the Notification events."
```

```
INDEX { pethNotificationControlGroupIndex }
```

```
::= { pethNotificationControlTable 1 }
```

```
PethNotificationControlEntry ::= SEQUENCE {
    pethNotificationControlGroupIndex
```

```
        Integer32,
        pethNotificationControlEnable
        TruthValue
    }
```

```
pethNotificationControlGroupIndex OBJECT-TYPE
```

```
SYNTAX Integer32 (1..2147483647)
```

```
MAX-ACCESS not-accessible
```

```
STATUS current
```

```
DESCRIPTION
```

```
"This variable uniquely identifies the group. Group
means box in the stack, module in a rack and the value
```

```
1 MUST be used for non-modular devices. Furthermore,
the same value MUST be used in this variable,
pethPsePortGroupIndex, and
pethMainPseGroupIndex to refer to a given box in a
stack or module in a rack. "
 ::= { pethNotificationControlEntry 1 }
```

```
pethNotificationControlEnable OBJECT-TYPE
SYNTAX          TruthValue
MAX-ACCESS      read-write
STATUS          current
DESCRIPTION
    "This object controls, on a per-group basis, whether
    or not notifications from the agent are enabled. The
    value true(1) means that notifications are enabled; the
    value false(2) means that they are not."
 ::= { pethNotificationControlEntry 2 }
```

```
--
-- Notifications Section
--
--
```

```
pethPsePortOnOffNotification NOTIFICATION-TYPE
OBJECTS          { pethPsePortDetectionStatus }
STATUS          current
DESCRIPTION
    " This Notification indicates if Pse Port is delivering or
    not power to the PD. This Notification SHOULD be sent on
    every status change except in the searching mode.
    At least 500 msec must elapse between notifications
    being emitted by the same object instance."
 ::= { pethNotifications 1 }
```

```
pethMainPowerUsageOnNotification NOTIFICATION-TYPE
OBJECTS          { pethMainPseConsumptionPower }
STATUS          current
DESCRIPTION
```



```

    " This Notification indicate PSE Threshold usage
      indication is on, the usage power is above the
      threshold. At least 500 msec must elapse between
      notifications being emitted by the same object
      instance."
 ::= { pethNotifications 4 }

pethMainPowerUsageOffNotification NOTIFICATION-TYPE
OBJECTS      { pethMainPseConsumptionPower }
STATUS      current
DESCRIPTION
    " This Notification indicates PSE Threshold usage indication
      off, the usage power is below the threshold.
      At least 500 msec must elapse between notifications being
      emitted by the same object instance."
 ::= { pethNotifications 5 }

--
-- Conformance Section
--
pethCompliances OBJECT IDENTIFIER ::= { pethConformance 1 }
pethGroups      OBJECT IDENTIFIER ::= { pethConformance 2 }

pethCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION
    "Describes the requirements for conformance to the
    Power Ethernet MIB."
MODULE -- this module
MANDATORY-GROUPS { pethPsePortGroup,
                   pethPsePortNotificationGroup,
                   pethNotificationControlGroup
                   }
GROUP pethMainPseGroup
DESCRIPTION
    "The pethMainPseGroup is mandatory for PSE systems
    that implement a main power supply."
GROUP pethMainPowerNotificationGroup
DESCRIPTION
    "The pethMainPowerNotificationGroup is mandatory for

```

```
        PSE systems that implement a main power supply."  
 ::= { pethCompliances 1 }
```

```
pethPseCompliance MODULE-COMPLIANCE
```

```
  STATUS current
```

```
  DESCRIPTION
```

```
    "Describes the requirements for conformance to the  
    PSE and MID-Span."
```

```
  MODULE -- this module
```

```
  MANDATORY-GROUPS {pethPsePortGroup, pethMainPseGroup,pethNotificationCon  
                    pethPsePortNotificationGroup,pethMainPowerNotification
```

```
 ::= { pethCompliances 2 }
```

```
pethPsePortGroup OBJECT-GROUP
```

```
  OBJECTS {
```

```
    pethPsePortAdminEnable,  
    pethPsePortPowerPairsControlAbility,  
    pethPsePortPowerPairs,  
    pethPsePortDetectionStatus,  
    pethPsePortPowerPriority,  
    pethPsePortMPSAbsentCounter,  
    pethPsePortInvalidSignatureCounter,  
    pethPsePortPowerDeniedCounter,  
    pethPsePortOverLoadCounter,  
    pethPsePortShortCounter,  
    pethPsePortType,  
    pethPsePortPowerClassifications
```

```
  }
```

```
  STATUS current
```

```
  DESCRIPTION
```

```
    "PSE Port objects."
```

```
 ::= { pethGroups 1 }
```

```
pethMainPseGroup OBJECT-GROUP
```

```
  OBJECTS {
```

```
    pethMainPsePower,  
    pethMainPseOperStatus,  
    pethMainPseConsumptionPower,  
    pethMainPseUsageThreshold
```

```
  }
```

```
  STATUS current
```

```
  DESCRIPTION
```

```
    "Main PSE Objects. "
```

```
::= { pethGroups 3 }
```

```
pethNotificationControlGroup OBJECT-GROUP
  OBJECTS {
    pethNotificationControlEnable
  }
  STATUS current
  DESCRIPTION
    "Notification Control Objects. "
  ::= { pethGroups 4 }

pethPsePortNotificationGroup NOTIFICATION-GROUP
  NOTIFICATIONS { pethPsePortOnOffNotification}
  STATUS current
  DESCRIPTION "Pse Port Notifications."
  ::= { pethCompliances 4 }

pethMainPowerNotificationGroup NOTIFICATION-GROUP
  NOTIFICATIONS { pethMainPowerUsageOnNotification,
                  pethMainPowerUsageOffNotification}
  STATUS current
  DESCRIPTION "Main PSE Notifications."
  ::= { pethCompliances 5 }

END
```

## 6. Acknowledgements

This document is the product of the Ethernet Interfaces and Hub MIB WG. The authors would like to recognize the special contributions of C.M. Heard and David Law.

## 7. Normative References

- [RFC2026] Bradner, S., "The Internet Standards Process - Revision 3", [BCP 9](#), [RFC 2026](#), October 1996.
- [RFC2578] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Structure of Management Information Version 2 (SMIV2)", STD 58, [RFC 2578](#), April 1999.

[RFC2579] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Textual Conventions for SMIV2", STD 58, [RFC 2579](#), April 1999.

[RFC2580] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Conformance Statements for SMIV2", STD 58, [RFC 2580](#), April 1999.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.

[RFC2665] Flick, J., and J. Johnson, "Definitions of Managed Objects for the Ethernet-like Interface Types", [RFC 2665](#), August 1999.

NOTE - This RFC is under revision by the WG, and may be obsolete by the time of the publication. The RFC editor should replace it with the revised version, if available.

[IEEE-802.3af] IEEE 802.3af Working Group, "Data Terminal Equipment (DTE) Power via Media Dependent Interface (MDI)", Draft D4.3, April 2003.

NOTE - This normative reference will be replaced with the IEEE 802.3af Standard as soon as the IEEE will ratify it (expected date - July 2003)

## 8. Informative References

[RFC3410] Case, J., Mundy, R., Partain, D. and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Management Framework", [RFC 3410](#), December 2002

## 9. Intellectual Property

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## [10](#). Security Considerations

Ethernet MIB WG

Expires November 2003

[Page 18]

---

INTERNET DRAFT

Power Ethernet MIB

May 2003

There are a number of management objects defined in this MIB module with a MAX-ACCESS clause of read-write. Such objects may be considered sensitive or vulnerable in some network environments. The support for SET operations in a non-secure environment without proper protection can have a negative effect on network operations.

Setting the following object to incorrect values can result in improper operation of the PSE, including the possibility that the PD does not receive power from the PSE port:

```
pethPsePortAdminEnable
pethPsePortPowerPairs
pethPsePortPowerPriority
pethPsePortType
```

Setting the following objects to incorrect values can result in an excessive number of traps being sent to network management stations:

```
pethMainPseUsageThreshold
pethNotificationControlEnable
```

Some of the readable objects in this MIB module (i.e., objects with a MAX-ACCESS other than not-accessible) may be considered sensitive or vulnerable in some network environments. These are:

```
pethPsePortPowerPairsControlAbility
```

pethPsePortPowerPriority  
pethPsePortPowerClassifications

It is thus important to control even GET and/or NOTIFY access to these objects and possibly to even encrypt their values when sending them over the network via SNMP.

SNMP versions prior to SNMPv3 did not include adequate security. Even if the network itself is secure (for example by using IPSec), even then, there is no control as to who on the secure network is allowed to access and GET/SET (read/change/create/delete) the objects in this MIB module.

It is RECOMMENDED that implementers consider the security features as provided by the SNMPv3 framework (see [\[RFC3410\], section 8](#)), including full support for the SNMPv3 cryptographic mechanisms (for authentication and privacy).

Further, deployment of SNMP versions prior to SNMPv3 is NOT RECOMMENDED. Instead, it is RECOMMENDED to deploy SNMPv3 and to enable cryptographic security. It is then a customer/operator responsibility to ensure that the SNMP entity giving access to an

instance of this MIB module is properly configured to give access to the objects only to those principals (users) that have legitimate rights to indeed GET or SET (change/create/delete) them.

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#### B. Evolution of the Document, Limitations and Future Work

NOTE: This section will be removed at RFC publication.

The IEEE 802.3af is at this stage work in progress. The scope of this document is to do the standards work in the IETF in parallel with the

IEEE standardization activity, in order to allow for the publication of a standard track document containing an SNMP MIB simultaneously or close to the date of the publication of the IEEE revised standard. It is possible that changes may be brought to the IEEE proposal, and the Ethernet MIB Working Group will work in order to ensure consistency between the two standards proposals.

### C. Changes Log

This section will be removed at RFC publication.

The following changes were introduced relative to the first proposal for a Power Ethernet MIB [PWR-MIB]

- a. pethPsePortTable has to index pethPsePortGroupIndex & pethPsePortIndex
- b. pethPsePortIndex INTEGER instead of InterfaceIndex
- c. Name change pethPsePortStatus insted of pethPsePortFaultError
- d. Name change pethPsePortStatusClear instead of pethPsePortFaultErrorClear
- e. DESCRIPTION update for pethPsePortPowerDetectionStatus test(3)
- f. DESCRIPTION update pethPsePortDetectionOperStatus off(2)
- g. Adding to pethPsePortStatus one more item both(4)
- h. Adding pethMainPseTable with a pethMainPseGroupIndex
- i. Deletting to objects pethMainPseMaxVoltage & pethMainPseMinVoltage
- j. Change SYNTAX of pethMainPseUsagePower form INTEGER to Gauge32
- k. Change SYNTAX of pethMainPseUsageCurrent form INTEGER to Gauge32

- l. Adding pethMainPseBackupActivated & pethMainPseBackupPresent
- m. Adding Traps Control Objects
- n. Adding Notifications Section (5 notifications )



- o. Adding pethTrapsControlGroup to Conformance Section
- p. Adding pethPsePortPowerClassifications to pethPsePortTable Class 1-5
- q. Adding pethPsePortPowerClassifications to pethPsePortGroup
- r. Change in pethPsePortStatus none(1) to ok(1)
- s. Change in DESCRIPTION of pethMainPseUsagePower from mW to Watt
- t. Change pethMainPseUsagePower to pethMainPseConsumptionPower
- u. Delete of pethMainPseUsageCurrent

The following changes were introduced between [draft-ietf-hubmib-power-ethern](#)

1. change pethMainPowerUsageTrap to pethMainPowerUsageOnTrap
2. add pethMainPowerUsageOffTrap
3. change pethMainPowerTrapGroup
4. change pethPsePorPowerEnable to pethPsePortAdminEnable
5. pethPsePortPowerIdPairsControl to pethPsePortPowerPairsControlAbility
6. pethPsePortPowerIdPairs to pethPsePortPowerPairs
7. delete both from pethPsePortPowerPairs object
8. change pethPsePortPowerDetectionStatus to pethPsePortPowerDetecti
9. delete from pethPsePortPowerDetectionControl off , and change test to 2
10. change pethPsePortDetectionOperStatus to pethPsePortDetectionStatus
11. change pethPsePortDetectionStatus to:
  - disabled(1),
  - searching(2),
  - detected(3),
  - deliveringPower(4),

```
    fault(5),
    invalidPD(6),
    test(7),
    denyLowPriority(8)
```

12. change description for pethPsePortPowerClassifications
13. change pethPsePortStatus to pethPsePortCurrentStatus
14. Update description for pethPsePortCurrentStatus
15. change pethPsePortStatusClear to pethPsePortCurrentStatusClear
16. change pethPdPortDetectionOperStatus to pethPdPortDetectionStatus
17. change in description of pethPdPortPowerPairs
18. change in pethPdPortDetectionStatus description
19. delete pethPdPortPowerClassifications object
20. change in pethPsePortGroup
21. change in pethPdPortGroup
22. change pethPsePortOnOffTrap with pethPsePortDetectionStatus object
23. change pethPsePortStatusTrap to pethPsePortCurrentStatusTrap
24. change pethPsePortTrapGroup

The following changes were introduced between [draft-ietf-hubmib-power-ethern](#)

1. change pethMainPsePower SYNTAX Integer32 (0..65535) to (1..65535)
2. change pethTrapsControlGroupIndex SYNTAX Integer32 (0..65535) to (1..65535)
3. change int pethMainPseBackUpActivatedTrap pethPsePortGroupIndex to pethMainPseGroupIndex
4. change int pethMainPowerUsageOnTrap pethPsePortGroupIndex to pethMainPseGroupIndex
5. change int pethMainPowerUsageOffTrap pethPsePortGroupIndex to pethMainPseGroupIndex
6. change pethMainPseGroupIndex MAX-ACCESS to read-only

updates from IEEE Draft P802.3af/D3.1, June 5, 2002

INTERNET DRAFT

Power Ethernet MIB

May 2003

7. remove from pethPsePortPowerClassifications class5
8. remove from pethPsePortCurrentStatus both(4) and description
9. add pethPsePortUnderCurrentCounter object
10. add pethPsePortOverCurrentCounter object
11. remove pethPsePortCurrentStatusClear object
12. change pethPsePortType OID to end with 13
13. change pethPsePortPowerClassifications OID to end with 14
14. update pethPsePortGroup OBJECT-GROUP
15. change reference to new IEEE Draft
16. change pethPdCompliance description.

The following changes were introduced between [draft-ietf-hubmib-power-ethern](#)

1. remove pethPsePortGroupIndex and pethPsePortIndex from pethPsePortOnOffTr
2. change pethPsePortGroupIndex and pethPsePortIndex MAX-ACCESS to not-acce
3. remove pethMainPseGroupIndex from pethMainPseBackUpActivatedTrap
4. replace pethMainPseGroupIndex with pethMainPseConsumptionPower in pethMai
5. change pethMainPseGroupIndex MAX-ACCESS to not-accessible
6. move pethPsePortTrapGroup NOTIFICATION-GROUP and pethMainPowerTrapGroup N
- [7.](#) update the discription of pethPsePortOnOffTrap
8. add pethPsePortPowerDetectionControl to pethPsePortGroup
9. change reference to IEEE Draft P802.3af/D3.3 October 2002
10. delete enumeration pethPsePortDetectionStatus detected(3) and invalidPD(

11. change pethPsePortCurrentStatus to pethPsePortPowerMaintenanceStatus
- 12 . change pethPsePortUnderCurrentCounter to pethPsePortMPSAbsentCounter
13. add pethPdPortAdminEnable object.

14. replace Trap with Notification.
15. update pethPsePortOnOffNotification description.
16. update pethPsePortDetectionStatus description.
17. remove pethPdPortPowerPairs object.
18. remove pethPdPortDetectionStatus object.
19. remove pethPdPortType object.
20. change pethPdPortAdminEnable OID.

The following changes were introduced between [draft-ietf-hubmib-power-ethern](#)

1. remove pethMainPseMaximumDcPower object
2. remove pethMainPseBackupPresent object
3. remove pethMainPseBackupActivated object.
4. remove pethMainPseBackUpActivatedNotification
5. change reference from IEEE Draft P802.3af/D3.3, October, 2002 to IEEE Dra
6. DESCRIPTION "Initial version, published as RFC yyyy."
7. change the syntax of pethPsePortGroupIndex from INTEGER (1..2147483647) t
8. change the syntax of pethPsePortIndex from INTEGER (1..2147483647) to Int
9. change the syntax of pethPdPortIndex from INTEGER (0..65535) to InterfaceI
10. import InterfaceIndex from IF-MIB.

11. change the syntax of pethMainPseGroupIndex from INTEGER (0..65535) to In
12. change the syntax of pethMainPseUsageThreshold from INTEGER (1..99) to I
13. change the syntax of pethNotificationControlGroupIndex from INTEGER (1..
14. replace OID:  
 ! pethNotifications OBJECT IDENTIFIER ::= { powerEthernetMIB 0 }  
 ! pethObjects OBJECT IDENTIFIER ::= { powerEthernetMIB 1 }  
 ! pethConformance OBJECT IDENTIFIER ::= { powerEthernetMIB 2 }
15. change the discription of the pethPsePortGroup and pethPdPortGroup

16. pethMainPsePower changed to Gauge32
17. add:  
 REVISION "200212020000Z" -- December 02, 2002  
 DESCRIPTION "Initial version, published as RFC yyyy."  
 18 change the MIB registered from { dot3 20 }  
 ::= { mib-2 XXX }  
 -- RFC Ed.: replace XXX with IANA-assigned number & remove this no

The following changes were introduced between [draft-ietf-hubmib-power-ethern](#)

1. Add reference and change discription pethPsePortAdminEnable object
2. Add reference to pethPsePortPowerPairsControlAbility object
3. Add reference to pethPsePortPowerPairs object
4. Remove pethPsePortPowerDetectionControl object
5. Change pethPsePortDetectionStatus object
6. Update pethPsePortPowerClassifications description
7. Update pethPsePortPowerMaintenanceStatus
8. Update pethPsePortMPSAbsentCounter description
9. Remove pethPsePortOverCurrentCounter object

10. Add pethPsePortInvalidSignatureCounter new object
11. Add pethPsePortPowerDeniedCounter new object
12. Add pethPsePortOverLoadCounter new Object
13. Add pethPsePortShortCounter new Object
14. Remove pethPdPortTable
15. change all references from P802.3af/D4.2 to P802.3af/D4.3
16. Update the description for the pethPsePortPowerPairsControlAbility
17. Change pethPsePortDetectionStatus deliveringPower description text
18. Remove pethPsePortPowerMaintenanceStatus
19. Remove pethPsePortPowerMaintenanceStatusNotification

20. Change pethPsePortOverLoadCounter description
21. Change pethPsePortShortCounter description
22. Change pethPsePortMPSAbsentCounter description
23. Spelling fix in pethPsePortDetectionStatus
24. Spelling fix in pethPsePortShortCounter
25. Change in MIB module DESCRIPTION to strike out Powered Devices (PD)
26. Update references sections according to MIB Doctor Review
27. Change document title to avoid use of acronyms
28. Similar for Introduction [section](#)
- [29](#). Moved Sections [5](#) and [6](#) at the end of the document and added note to be r
30. Change SYNTAX of pethPsePortAdminEnable to TruthValue

31. Same for pethNotificationControlEnable
32. Remove 'InterfaceIndex' imported from module 'IF-MIB'
33. Add 'pethPsePortNotificationGroup' and 'pethMainPowerNotificationGroup' to pethPseCompliance MODULE-COMPLIANCE
34. Add mailing list information
35. Change pethPsePortAdminEnable from Integer to TruthValue
36. Update Notification description
37. Change the enumeration values in pethPsePortDetectionStatus Object
38. Change in pethCompliance MODULE-COMPLIANCE
39. Change incorrect reference to [RFC 2863](#) to reference to [RFC 2119](#)
40. Added Informative Reference to [RFC 3410](#)

