

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.

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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,

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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
```


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
"
WG Charter:
<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

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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
```

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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

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only are in use.
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

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"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

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"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

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```
"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
```



```
        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
```

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```
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, pethNotificationControlGroup,  
 pethPsePortNotificationGroup, pethMainPowerNotificationGroup}  
 ::= { 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 }`

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```
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

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

1. 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-ethernet-mib-00.txt](#) and [draft-ietf-hubmib-power-ethernet-mib-01.txt](#):

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
pethPsePortPowerDetectionControl
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),

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```
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-ether-](#)
[ethernet-mib-01.txt](#) and [draft-ietf-hubmib-power-ether-](#)
[ethernet-mib-02.txt](#):

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

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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. chage reference to new IEEE Draft
16. change pethPdCompliance description.

The following changes were introduced between [draft-ietf-hubmib-power-ethernet-mib-02.txt](#) and [draft-ietf-hubmib-power-ethernet-mib-03.txt](#):

1. remove pethPsePortGroupIndex and pethPsePortIndex from pethPsePortOnOffTrap and pethPsePortCurrentStatusTrap
2. change pethPsePortGroupIndex and pethPsePortIndex MAX-ACCESS to not-accessible
3. remove pethMainPseGroupIndex from pethMainPseBackUpActivatedTrap
4. replace pethMainPseGroupIndex with pethMainPseConsumptionPower in pethMainPowerUsageOnTrap and pethMainPowerUsageOffTrap
5. change pethMainPseGroupIndex MAX-ACCESS to not-accessible
6. move pethPsePortTrapGroup NOTIFICATION-GROUP and pethMainPowerTrapGroup NOTIFICATION-GROUP to the Conformance [Section](#)
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 enumaration pethPsePortDetectionStatus detected(3) and invalidPD(6)
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-ethernet-mib-03.txt](#) and [draft-ietf-hubmib-power-ethernet-mib-04.txt](#):

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 Draft P802.3af/D4.0, November, 2002
6. DESCRIPTION "Initial version, published as RFC yyyy."
7. change the syntax of pethPsePortGroupIndex from INTEGER (1..2147483647) to Integer32 (1..2147483647).
8. change the syntax of pethPsePortIndex from INTEGER (1..2147483647) to Integer32 (1..2147483647).
9. change the syntax of pethPdPortIndex from INTEGER (0..65535) to InterfaceIndex.
10. import InterfaceIndex from IF-MIB.
11. change the syntax of pethMainPseGroupIndex from INTEGER (0..65535) to Integer32 (1..2147483647)
12. change the syntax of pethMainPseUsageThreshold from INTEGER (1..99) to Integer32 (1..99).
13. change the syntax of pethNotificationControlGroupIndex from INTEGER (1..65535) to Integer32 (1..2147483647)

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
notice

The following changes were introduced between [draft-ietf-hubmib-power-ether-](#)
[ether-mib-04.txt](#) and [draft-ietf-hubmib-power-ether-mib-05.txt](#):

1. Add reference and chhange 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

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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 removed at RFC publication
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](#)

