Network Working Group
Request for Comments: 3621
Category: Standards Track

A. Berger
PowerDsine Inc.
D. Romascanu
Avaya

December 2003

Power Ethernet MIB

Status of this Memo

Copyright Notice

Abstract

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

Table of Contents

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 Power Ethernet [IEEE-802.3af] Power Sourcing 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 voice applications to be run over the same infrastructure as data applications has led to the emergence of Ethernet IP phones, which have similar functions and characteristics as traditional phones. Powering the phone with the same cable used for signal transfer is one of the functions that are being taken as granted. The IEEE 802.3 Working Group has initiated standardization on this subject, currently known as the IEEE 802.3af work [IEEE-802.3af].

The IEEE 802.3af WG did not define a full management interface, but only the hardware registers that will allow for management interfaces to be built for a powered Ethernet device. The MIB module defined in this document extends the Ethernet-like Interfaces MIB [RFC3635] 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

These MIB objects are categorized into three MIB groups.

The pethPsePortTable defines the objects used for configuring 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 pethNotificationControlTable includes objects that control the transmission of notifications from 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

            SnmpAdminString
                    FROM SNMP-FRAMEWORK-MIB;

    powerEthernetMIB MODULE-IDENTITY

         LAST-UPDATED    "200311240000Z"  -- November 24, 2003
         ORGANIZATION "IETF Ethernet Interfaces and Hub MIB
                       Working Group"
```

```
        CONTACT-INFO
        "
         WG Charter:
         http://www.ietf.org/html.charters/hubmib-charter.html

        Mailing lists:
         General Discussion: hubmib@ietf.org
         To Subscribe: hubmib-requests@ietf.org
         In Body: subscribe your_email_address

        Chair: Dan Romascanu
         Avaya
         Tel:  +972-3-645-8414
         Email: dromasca@avaya.com

        Editor: Avi Berger
         PowerDsine Inc.
         Tel:    972-9-7755100 Ext 307
         Fax:    972-9-7755120
         E-mail: avib@PowerDsine.com
        "

       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
               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.

            Copyright (c) The Internet Society (2003).  This version
            of this MIB module is part of RFC 3621; See the RFC
            itself for full legal notices."
```

```
       REVISION    "200311240000Z"  -- November 24, 2003
       DESCRIPTION "Initial version, published as RFC 3621."
       ::= { mib-2 105 }

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 of 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,
      pethPsePortType
         SnmpAdminString,
      pethPsePortPowerClassifications
         INTEGER,
      pethPsePortInvalidSignatureCounter
         Counter32,
      pethPsePortPowerDeniedCounter
         Counter32,
      pethPsePortOverLoadCounter
         Counter32,
      pethPsePortShortCounter
         Counter32
  }

    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 Std 802.3af 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
         PethPsePortAdminEnable attribute."
    REFERENCE
      "IEEE Std 802.3af 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) means that the signal pairs
         only are in use.
         A value of spare(2) means that the spare pairs
         only are in use."
    REFERENCE
      "IEEE Std 802.3af 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 Std 802.3af 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 Std 802.3af Section 30.9.1.1.5
       aPSEPowerDetectionStatus"
    ::= { pethPsePortEntry 6 }

     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 7 }

   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 Std 802.3af Section 30.9.1.1.11
       aPSEMPSAbsentCounter"
    ::= { pethPsePortEntry 8 }

   pethPsePortType OBJECT-TYPE
    SYNTAX SnmpAdminString
    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.
         The default value supplied by the agent if no value has
         ever been set should be a zero-length octet string."
    ::= { pethPsePortEntry 9 }

    pethPsePortPowerClassifications OBJECT-TYPE
     SYNTAX INTEGER   {
               class0(1),
               class1(2),
               class2(3),
               class3(4),
               class4(5)
     }
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "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 Std 802.3af Section 30.9.1.1.6
       aPSEPowerClassification"
   ::= { pethPsePortEntry 10 }

   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 Std 802.3af Section 30.9.1.1.7
           aPSEInvalidSignatureCounter"
    ::= { pethPsePortEntry 11 }

   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 Std 802.3af Section 30.9.1.1.8
       aPSEPowerDeniedCounter"
    ::= { pethPsePortEntry 12 }

   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
      "IEEE Std 802.3af Section 30.9.1.1.9
       aPSEOverLoadCounter"
    ::= { pethPsePortEntry 13 }

   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 Std 802.3af Section 30.9.1.1.10
       aPSEShortCounter"
    ::= { pethPsePortEntry 14 }

-- 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
       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 5 }

-- 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 2 }

      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 3 }

--
-- 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 }

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 2 }

pethNotificationControlGroup OBJECT-GROUP
```

```
    OBJECTS {
       pethNotificationControlEnable
    }
    STATUS  current
    DESCRIPTION
            "Notification Control  Objects. "
    ::= { pethGroups 3 }

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

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

7.1. Normative References

[RFC2026] Bradner, S., "The Internet Standards Process - Revision 3", BCP 9, RFC 2026, October 1996.

[RFC2578] McCloghrie, K., Perkins, D. and J. Schoenwaelder, "Structure of Management Information Version 2 (SMIv2)", STD 58, RFC 2578, April 1999.

[RFC2579] McCloghrie, K., Perkins, D. and J. Schoenwaelder, "Textual Conventions for SMIv2", STD 58, RFC 2579, April 1999.

[RFC2580] McCloghrie, K., Perkins, D. and J. Schoenwaelder, "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.

[RFC3635] Flick, J., "Definitions of Managed Objects for the Ethernet-like Interface Types", RFC 3635, September 2003.

[RFC3411] Harrington, D., Presuhn, R. and B. Wijnen, "An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks", STD 62, RFC 3411, December 2002.

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

7.2. 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.

8. Intellectual Property Statement

9. 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.

10. Authors' Addresses

Avi Berger
PowerDsine Inc.
1, Hanagar St., P.O. Box 7220
Hod Hasharon 45421,
Israel

Phone: +972-9-7755100 Ext 307
Fax: +972-9-7755120
EMail: avib@PowerDsine.com

Dan Romascanu
Avaya
Atidim Technology Park, Bldg. #3
Tel Aviv, 61131
Israel

Phone: +972-3-645-8414
EMail: dromasca@avaya.com

11. Full Copyright Statement

Acknowledgement

Funding for the RFC Editor function is currently provided by the Internet Society.