Avi Berger
PowerDsine Inc.
Dan Romascanu
Avaya
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Power Ethernet MIB

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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. 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, 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 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 pethNotificationControlTable 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
```

```
            SnmpAdminString
                    FROM SNMP-FRAMEWORK-MIB;

      powerEthernetMIB MODULE-IDENTITY


           LAST-UPDATED    "200306120000Z"  -- June 12, 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 yyyy; See the RFC itself
               for full legal notices.
   -- RFC Ed.: replace yyyy with the actual RFC number & remove this notice.
   "


          REVISION    "200306120000Z"  -- June 12, 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
                  SnmpAdminString,
          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 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
           PethPsePortAdminEnabe 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) menas 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 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 }


   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. 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.

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

[IEEE-802.3af] IEEE 802.3 Working Group, "Data Terminal Equipment (DTE)Power via Media Dependent Interface (MDI)", publication date TBD

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

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.

11. Authors Addresses

Avi Berger
PowerDsine Inc.
1, Hanagar St., P.O. Box 7220
Hod Hasharon 45421,
Israel
Tel: +972-9-7755100 Ext 307
Fax: +972-9-7755120
E-mail: avib@PowerDsine.com

Dan Romascanu
Avaya
Atidim Technology Park, Bldg. #3
Tel Aviv, 61131
Israel
Tel: +972-3-645-8414
Email: dromasca@avaya.com

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