Definitions for Textual Conventions and for Managing Pseudowires over PSN
draft-ietf-pwe3-pw-tc-mib-12

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Abstract

This memo defines a Management Information Base (MIB) module which contains Textual Conventions (TCs) to represent commonly-used Pseudowire (PW) management information. The intent is that these TCs will be imported and used in PW-related MIB modules that would
otherwise define their own representations.

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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 Textual Conventions used for Pseudowire (PW) technology and PWE3 MIB modules.

Comments should be made directly to the PWE3 mailing list at pwe3@ietf.org.

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 [RFC3410].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through 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, [RFC2578], STD 58, [RFC2579] and STD 58, [RFC2580].

3. Conventions

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 RFC-2119 [BCP14].

This document adopts the definitions, acronyms and mechanisms described in [RFC3985]. Unless otherwise stated, the mechanisms of [RFC3985] apply and will not be described again here.

4. Object Definitions

PW-TC-STD-MIB DEFINITIONS ::= BEGIN

IMPORTS
    MODULE-IDENTITY, Unsigned32, transmission
    FROM SNMPv2-SMI            -- [RFC2578]

    TEXTUAL-CONVENTION
    FROM SNMPv2-TC;            -- [RFC2579]

Nadeau, et al.    Expires March 27, 2008    [Page 3]
pwTcStdMIB MODULE-IDENTITY
LAST-UPDATED "200709181200Z"  -- 18 September 2007 12:00:00 GMT
ORGANIZATION "Pseudowire Edge-to-Edge Emulation (PWE3) Working
Group"

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The PWE3 Working Group (email distribution pwe3@ietf.org,
http://www.ietf.org/html.charters/pwe3-charter.html)
"

DESCRIPTION
"This MIB module defines TEXTUAL CONVENTIONS
for concepts used in Pseudowire Edge-to-Edge
networks.

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initial version of this MIB module as published
in RFC YYYY. For full legal notices see the RFC
itself or see:
http://www.ietf.org/copyrights/ianamib.html

-- RFC Editor: Please replace YYYY with the RFC number and remove
-- this note.
"

-- Revision history.

REVISION "200709181200Z"  -- 18 September 2007 12:00:00 GMT
DESCRIPTION
"Original Version"
 ::= { transmission XXXX }

-- RFC Editor: please replace XXXX with IANA assigned value and
-- delete this note.

PwGroupID ::= TEXTUAL-CONVENTION
   DISPLAY-HINT "d"
   STATUS      current
   DESCRIPTION
"An administrative identification for grouping a
set of service-specific pseudowire services."
   SYNTAX  Unsigned32
PwIDType ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS      current
    DESCRIPTION
        "Pseudowire Identifier. Used to identify the PW 
        (together with some other fields) in the signaling 
        session."
    SYNTAX  Unsigned32

PwIndexType ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS      current
    DESCRIPTION
        "Pseudowire Index. A unique value, greater than zero, 
        for each locally-defined PW for indexing 
        several MIB tables associated with the particular PW. 
        It is recommended that values are assigned contiguously 
        starting from 1. The value for each PW MUST remain 
        constant at least from one re-initialization 
        to the next re-initialization."
    SYNTAX  Unsigned32 (1..4294967295)

PwIndexOrZeroType ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS      current
    DESCRIPTION
        "This textual convention is an extension of the 
        PwIndexType convention. The latter defines a greater-
        than-zero value used to identify a Pseudowire 
        in the managed system. This extension permits the 
        additional value of zero. The zero value is object-specific 
        and MUST therefore be defined as part of the description of 
        any object which uses this syntax. Examples of the usage of 
        zero might include situations where Pseudowire was unknown, 
        or when none or all Pseudowires need to be referenced."
    SYNTAX  Unsigned32 (0..4294967295)

PwVlanCfg ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "d"
    STATUS      current
    DESCRIPTION
        "VLAN configuration for Ethernet PW. 
        Values between 0 and 4095 indicate the actual VLAN field 
        value. 
        A value of 4096 indicates that the object refers to 
        untagged frames, i.e. frames without a 802.1Q field. 
        A value of 4097 indicates that the object is not 
        relevant."
        "VLAN configuration for Ethernet PW. 
        Values between 0 and 4095 indicate the actual VLAN field 
        value. 
        A value of 4096 indicates that the object refers to 
        untagged frames, i.e. frames without a 802.1Q field. 
        A value of 4097 indicates that the object is not 
        relevant."
SYNTAX  Unsigned32 (0..4097)

PwOperStatusTC ::= TEXTUAL-CONVENTION
STATUS      current
DESCRIPTION  "Indicates the operational status of the PW.

- up(1): Ready to pass packets.
- down(2): If PW signaling is not yet finished, or indications available at the service level indicate that the PW is not passing packets.
- testing(3): If AdminStatus at the PW level is set to test.
- dormant(4): The PW is not in a condition to pass packets, but is in a 'pending' state, waiting for some external event.
- notPresent(5): Some component is missing to accomplish the setup of the PW. It can be configuration error, incomplete configuration or missing of H/W component.
- lowerLayerDown(6): One or more of the lower-layer interfaces responsible for running the underlying PSN is not in OperStatus 'up' state."

SYNTAX  INTEGER {
  up(1),
  down(2),
  testing(3),
  dormant(4),
  notPresent(5),
  lowerLayerDown(6)
}

PwAttachmentIdentifierType ::= TEXTUAL-CONVENTION
STATUS      current
DESCRIPTION  "An octet string used in the generalized FEC element for identifying attachment forwarder and groups. A NULL identifier is of zero length."

SYNTAX  OCTET STRING (SIZE (0..255))

PwGenIdType ::= TEXTUAL-CONVENTION
STATUS      current
DESCRIPTION  "Represents the AGI Type and AII Type in generalized FEC signaling and configuration."
SYNTAX    Unsigned32( 0..254 )

PwCwStatusTC ::= TEXTUAL-CONVENTION
STATUS       current
DESCRIPTION  "Indicates the status of the control word negotiation based on the local configuration and the indications received from the peer node.

waitingForNextMsg(1) indicates that the node is waiting for another label mapping from the peer.

sentWrongBitErrorCode(2) indicates that the local node has notified the peer about a mismatch in the C bit.

rxWithdrawWithWrongBitErrorCode(3) indicates that a withdraw message has been received with the wrong C-bit error code.

illegalReceivedBit(4) indicates a C-bit configuration with the peer which is not compatible with the PW type.

cwPresent(5) indicates that the CW is present for this PW:
If signaling is used - the C bit is set and agreed between the nodes, and for manually-configured PW the local configuration requires the use of the CW.

cwNotPresent(6) indicates that the CW is not present for this PW:
If signaling is used - the C bit is reset and agreed between the nodes, and for manually-configured PW the local configuration requires that the CW not be used.

notYetKnown(7) indicates that a label mapping has not yet been received from the peer.
"

REFERENCE

SYNTAX    INTEGER {
    waitingForNextMsg (1),
    sentWrongBitErrorCode (2),
    rxWithdrawWithWrongBitErrorCode (3),
    illegalReceivedBit (4),
    cwPresent (5),
    cwNotPresent (6),
    notYetKnown (7)
}
PwStatus ::= TEXTUAL-CONVENTION
   STATUS current
   DESCRIPTION "Indicates the status of the PW and the interfaces affecting
   this PW. If none of the bits are set, it indicates no faults are reported.
   "
   SYNTAX BITS {
      pwNotForwarding (0),
      servicePwRxFault (1),
      servicePwTxFault (2),
      psnPwRxFault (3),
      psnPwTxFault (4)
   }

PwFragSize ::= TEXTUAL-CONVENTION
   DISPLAY-HINT "d"
   STATUS current
   DESCRIPTION "If set to a value other than zero, it indicates the desired
   fragmentation length in bytes. If set to zero, fragmentation is not desired for PSN bound packets.
   "
   SYNTAX Unsigned32

PwFragStatus ::= TEXTUAL-CONVENTION
   STATUS current
   DESCRIPTION "Indicates the status of the fragmentation process based on
   local configuration and peer capability.

   noFrag(0) bit indicates that local configuration is for no fragmentation.

   cfgFragGreaterThanPsnMtu(1) bit indicates the local node is set to fragment, but the fragmentation size is greater
   than the MTU available at the PSN between the nodes. Fragmentation is not done in this case.

   cfgFragButRemoteIncapable(2) bit indicates that the local configuration indicates the desire for fragmentation but
   the peer is not capable of fragmentation.

   remoteFragCapable(3) bit indicates that the remote node is capable to accept fragmented PDUs.

   fragEnabled(4) bit indicates that fragmentation will be used on this PW. Fragmentation can be used if the local node was
configured for fragmentation, the peer has the capability to accept fragmented packets, and the CW is in use for this PW.

REFERENCE

SYNTAX   BITS {
    noFrag (0),
    cfgFragGreaterThanPsnMtu (1),
    cfgFragButRemoteIncapable (2),
    remoteFragCapable (3),
    fragEnabled (4)
}

PwCfgIndexOrzero ::= TEXTUAL-CONVENTION
DISPLAY-HINT "d"
STATUS    current
DESCRIPTION
"Index in any of the relevant configuration tables for supplement information regarding configuration of the specific technology. Value 0 implies no additional configuration information is applicable."
SYNTAX  Unsigned32 (0..4294967295)
END

5. Security Considerations

This module does not define any management objects. Instead, it defines a set of textual conventions that may be used by other PWE3 MIB modules to define management objects.

Meaningful security considerations can only be written in the MIB modules that define management objects. Therefore, this document has no impact on the security of the Internet.

6. IANA Considerations

The MIB module in this document uses the following IANA-assigned OBJECT IDENTIFIER values recorded in the SMI Numbers registry:

<table>
<thead>
<tr>
<th>Descriptor</th>
<th>OBJECT IDENTIFIER value</th>
</tr>
</thead>
</table>

Editor’s Note (to be removed prior to publication): The IANA is requested to assign a value for "XXXX" under the ‘transmission’ subtree and to record the assignment in the SMI Numbers registry. When the assignment has been made, the RFC Editor is asked to replace "XXXX" (here and in the MIB module) with the assigned value and to remove this note.

7. References

7.1. Normative References


7.2. Informative References


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