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L2L3 VPN Multicast MIB
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Abstract

This memo defines an experimental portion of the Management Information Base for use with network management protocols in the Internet community.

In particular, it describes managed objects common to both VPLS and VPN Multicast.

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1. Introduction

Multicast in VPLS and VPN can be achieved by using provider tunnels to deliver to all or a subset of PEs. The signaling of provider tunnel choice is very similar for both VPLS and VPN multicast (aka MVPN), and this memo describes managed objects common to both VPLS Multicast [I-D.ietf-l2vpn-vpls-mcast] and MVPN [RFC 6513/6514].

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. 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 [RFC2119].

4. Summary of MIB Module

L2L3-VPN-MCAST-MIB contains a Textual Convention, L2L3VpnMcastProviderTunnelType, and a l2L3VpnMcastPmsiTunnelAttributeTable. Other MIB objects ([I-D.ietf-l2vpn-vpls-mcast], [I-D. ietf-l3vpn-mvpn-mib]) may point to entries in the l2L3VpnMcastPmsiTunnelAttributeTable.

5. Definitions

```
L2L3-VPN-MCAST-MIB DEFINITIONS ::= BEGIN

IMPORTS
    MODULE-IDENTITY, OBJECT-TYPE, NOTIFICATION-TYPE,
    experimental, Unsigned32
       FROM SNMPv2-SMI

    MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP
```

```
           FROM SNMPv2-CONF

        TEXTUAL-CONVENTION, TruthValue, RowPointer, RowStatus,
        TimeStamp, TimeInterval
           FROM SNMPv2-TC

        SnmpAdminString
           FROM SNMP-FRAMEWORK-MIB

        InetAddress, InetAddressType
           FROM INET-ADDRESS-MIB

        MplsLabel
           FROM MPLS-TC-STD-MIB;

    l2L3VpnMcastMIB MODULE-IDENTITY
        LAST-UPDATED "201310141200Z"  -- 14 October 2013 12:00:00 GMT
        ORGANIZATION "IETF Layer-3 Virtual Private Networks Working Group."
        CONTACT-INFO

        "
        Comments and discussion to l3vpn@ietf.org
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        Westford, MA 01886
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        "

        DESCRIPTION
         "This MIB contains common managed object definitions for
          multicast in Layer 2 and Layer 3 VPNs, defined by
          [I-D.ietf-l2vpn-vpls-mcast] and RFC 6513/6514.
          Copyright (C) The Internet Society (2013)."

        -- Revision history.

        REVISION "201310141200Z"  -- 14 October 2013 12:00:00 GMT
        DESCRIPTION
               "Initial version of the draft."
        ::= { experimental 99 } -- number to be assigned

    -- Texual convention

    L2L3VpnMcastProviderTunnelType ::= TEXTUAL-CONVENTION
      STATUS       current
      DESCRIPTION
```

```
          "Types of provider tunnels used for multicast in a l2/l3vpn."
      SYNTAX       INTEGER { unconfigured (0),
                             rsvp-p2mp (1),
                             ldp-p2mp (2),
                             pim-asm (3),
                             pim-ssm (4),
                             pim-bidir (5),
                             ingress-replication (6),
                             ldp-mp2mp (7)
                           }

    -- Top level components of this MIB.
    -- tables, scalars, conformance information

    l2L3VpnMcastObjects     OBJECT IDENTIFIER ::= { l2L3VpnMcastMIB 1 }
    l2L3VpnMcastConformance OBJECT IDENTIFIER ::= { l2L3VpnMcastMIB 2 }

    l2L3VpnMcastStates  OBJECT IDENTIFIER ::= { l2L3VpnMcastObjects 1 }

    -- Table of PMSI attributes

    l2L3VpnMcastPmsiTunnelAttributeTable OBJECT-TYPE
       SYNTAX        SEQUENCE OF L2L3VpnMcastPmsiTunnelAttributeEntry
       MAX-ACCESS    not-accessible
       STATUS        current
       DESCRIPTION
           "This table is for advertised/received PMSI attributes,
            to be referred to by I-PMSI or S-PMSI table entries"
       ::= {l2L3VpnMcastStates 1 }

    l2L3VpnMcastPmsiTunnelAttributeEntry OBJECT-TYPE
       SYNTAX        L2L3VpnMcastPmsiTunnelAttributeEntry
       MAX-ACCESS    not-accessible
       STATUS        current
       DESCRIPTION
           "An entry in this table corresponds to an PMSI attribute
            that is advertised/received on this router.
            For BGP-based signaling (for I-PMSI via auto-discovery
            procedure, or for S-PMSI via S-PMSI A-D routes),
            they are just as signaled by BGP (RFC 6514 section 5,
            'PMSI Tunnel attribute').
            For UDP-based S-PMSI signaling for PIM-MVPN,
            they're derived from S-PMSI Join Message
            (RFC 6513 section 7.4.2, 'UDP-based Protocol')..

            Note that BGP-based signaling may be used for
            PIM-MVPN as well."
       INDEX {
```

```
               l2L3VpnMcastPmsiTunnelAttributeFlags,
               l2L3VpnMcastPmsiTunnelAttributeType,
               l2L3VpnMcastPmsiTunnelAttributeLabel,
               l2L3VpnMcastPmsiTunnelAttributeId
              }
       ::= { l2L3VpnMcastPmsiTunnelAttributeTable 1 }

    L2L3VpnMcastPmsiTunnelAttributeEntry ::= SEQUENCE {
       l2L3VpnMcastPmsiTunnelAttributeFlags OCTET STRING,
       l2L3VpnMcastPmsiTunnelAttributeType  L2L3VpnMcastProviderTunnelType,
       l2L3VpnMcastPmsiTunnelAttributeLabel MplsLabel,
       l2L3VpnMcastPmsiTunnelAttributeId    OCTET STRING,
       l2L3VpnMcastPmsiTunnelPointer        RowPointer,
       l2L3VpnMcastPmsiTunnelIf             RowPointer
       }

    l2L3VpnMcastPmsiTunnelAttributeFlags OBJECT-TYPE
       SYNTAX        OCTET STRING (SIZE (1))
       MAX-ACCESS    not-accessible
       STATUS        current
       DESCRIPTION
           "For UDP-based S-PMSI signaling for PIM-MVPN, this is 0.
            For BGP-based I/S-PMSI signaling,
            per RFC 6514 section 5, 'PMSI Tunnel Attribute':

       The Flags field has the following format:

                      0 1 2 3 4 5 6 7
                     +-+-+-+-+-+-+-+-+
                     |  reserved   |L|
                     +-+-+-+-+-+-+-+-+

       This document defines the following flags:

         + Leaf Information Required (L)"
       ::= { l2L3VpnMcastPmsiTunnelAttributeEntry 1 }

    l2L3VpnMcastPmsiTunnelAttributeType OBJECT-TYPE
       SYNTAX        L2L3VpnMcastProviderTunnelType
       MAX-ACCESS    not-accessible
       STATUS        current
       DESCRIPTION
           "For BGP-based I/S-PMSI signaling for either PIM or BGP-MVPN,
            per RFC 6514 section 5, 'PMSI Tunnel Attribute':

       The Tunnel Type identifies the type of the tunneling technology used
       to establish the PMSI tunnel. The type determines the syntax and
       semantics of the Tunnel Identifier field. This document defines the
```

```
       following Tunnel Types:

         0 - No tunnel information present
         1 - RSVP-TE P2MP LSP
         2 - mLDP P2MP LSP
         3 - PIM-SSM Tree
         4 - PIM-SM Tree
         5 - PIM-Bidir Tree
         6 - Ingress Replication
         7 - mLDP MP2MP LSP

             For UDP-based S-PMSI signaling for PIM-MVPN, RFC 6513 does not
             specify if a PIM provider tunnel is SSM, SM or Bidir,
             and an agent can use either type 3, 4, or 5 based on its
             best knowledge."
       ::= { l2L3VpnMcastPmsiTunnelAttributeEntry 2 }

    l2L3VpnMcastPmsiTunnelAttributeLabel OBJECT-TYPE
       SYNTAX        MplsLabel
       MAX-ACCESS    not-accessible
       STATUS        current
       DESCRIPTION
           "For BGP-based I/S-PMSI signaling,
            per RFC 6514 section 5, 'PMSI Tunnel Attribute':

       If the MPLS Label field is non-zero, then it contains an MPLS label
       encoded as 3 octets, where the high-order 20 bits contain the label
       value. Absence of MPLS Label is indicated by setting the MPLS Label
       field to zero.

            For UDP-based S-PMSI signaling for PIM-MVPN, this is not
            applicable for now, as RFC 6513 does not specify
            mpls encapsulation and tunnel aggregation with UDP-based
            signaling."
       ::= { l2L3VpnMcastPmsiTunnelAttributeEntry 3 }

    l2L3VpnMcastPmsiTunnelAttributeId OBJECT-TYPE
       SYNTAX        OCTET STRING ( SIZE (0..37) )
       MAX-ACCESS    not-accessible
       STATUS        current
       DESCRIPTION
           "For BGP-based signaling, as defined in RFC 6514 section 5,
            'PMSI Tunnel Attribute'.

            For UDP-based S-PMSI signaling for PIM-MVPN, RFC 6513 only
            specifies the 'P-Group' address, and that is filled into
            the first four octets of this field."
       ::= { l2L3VpnMcastPmsiTunnelAttributeEntry 4 }
```

```
    l2L3VpnMcastPmsiTunnelPointer OBJECT-TYPE
       SYNTAX        RowPointer
       MAX-ACCESS    read-only
       STATUS        current
       DESCRIPTION
           "If the tunnel exists in some MIB table, this is the row pointer
            to it."
       ::= { l2L3VpnMcastPmsiTunnelAttributeEntry 5 }

    l2L3VpnMcastPmsiTunnelIf OBJECT-TYPE
       SYNTAX        RowPointer
       MAX-ACCESS    read-only
       STATUS        current
       DESCRIPTION
           "If the tunnel has a corresponding interface, this is the
            row pointer to the ifName table."
       ::= { l2L3VpnMcastPmsiTunnelAttributeEntry 6 }

    -- Conformance Information

    l2L3VpnMcastGroups      OBJECT IDENTIFIER ::= { l2L3VpnMcastConformance 1}
    l2L3VpnMcastCompliances OBJECT IDENTIFIER ::= { l2L3VpnMcastConformance 2}

    -- Compliance Statements

    l2L3VpnMcastCompliance MODULE-COMPLIANCE
        STATUS  current
        DESCRIPTION
           "The compliance statement: no mandatory groups "
        MODULE  -- this module
        ::= { l2L3VpnMcastCompliances 1 }

    -- units of conformance

    l2L3VpnMcastOptionalGroup    OBJECT-GROUP
        OBJECTS {
            l2L3VpnMcastPmsiTunnelPointer,
            l2L3VpnMcastPmsiTunnelIf
            }
        STATUS      current
        DESCRIPTION
            "Support of these object is not required."
        ::= { l2L3VpnMcastGroups 1 }

    END
```

6. Security Considerations

N/A

7. IANA Considerations

IANA is requested to root MIB objects in the MIB module contained in this document under the transmission subtree.

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8. References

8.1. Normative References

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8.2. Informative References

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