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L2L3 VPN Multicast MIB
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Abstract

This memo defines a 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 L2 and IP VPN Multicast.

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Table of Contents

1.	Introduction	2
1.1.	Terminology	2
2.	The Internet-Standard Management Framework	2
3.	Summary of MIB Module	3
4.	Definitions	3
5.	Security Considerations	7
6.	IANA Considerations	8
7.	References	8
7.1.	Normative References	8
7.2.	Informative References	8
	Author's Address	9

[1.](#) Introduction

Multicast in BGP/MPLS IP or L2 VPN (referred to MVPN and L2 VPN Multicast respectively) can be achieved by using provider tunnels to deliver to all or a subset of PEs. An example of L2 VPN is VPLS. The signaling of provider tunnel choice is very similar for both cases, and this memo describes managed objects common to both VPLS Multicast [[RFC7117](#)] and MVPN [RFC6513, [RFC6514](#)].

[1.1.](#) Terminology

This document adopts the definitions, acronyms and mechanisms described in [RFC6513, [RFC6514](#), [RFC 7117](#)] and other documents that they refer to. Familiarity with Multicast, MPLS, L3VPN, MVPN concepts and/or mechanisms is assumed. Some of the terms are listed below.

- o PMSI: P-Multicast Service Interface
- o I-PMSI: Inclusive PMSI
- o S-PMSI: Selective PMSI

[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. Summary of MIB Module

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

4. 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 BESS Working Group."
```

```
    CONTACT-INFO
```

```
"
```

```
    Comments and discussion to bess@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
[RFC 7117](#) 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

-- Textual convention

L2L3VpnMcastProviderTunnelType ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Types of provider tunnels used for multicast in
BGP/MPLS L2 or IP VPN."

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, this is the Flags
field in PMSI Tunnel Attribute of the corresponding

I/S-PMSI A-D route."
 ::= { l2L3VpnMcastPmsiTunnelAttributeEntry 1 }

l2L3VpnMcastPmsiTunnelAttributeType OBJECT-TYPE

SYNTAX L2L3VpnMcastProviderTunnelType

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"As defined for L2L3VpnMcastProviderTunnelType.
For UDP-based S-PMSI signaling for PIM-MVPN,
this is pim-asm (3), pim-ssm (4), or pim-bidir (5).
For BGP-based I/S-PMSI signaling, this is the Tunnel Type
field in PMSI Tunnel Attribute of the corresponding I/S-PMSI
A-D or Leaf A-D route."

::= { l2L3VpnMcastPmsiTunnelAttributeEntry 2 }

l2L3VpnMcastPmsiTunnelAttributeLabel OBJECT-TYPE

SYNTAX MplsLabel

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"For UDP-based I/S-PMSI signaling for PIM-MVPN, this is 0.
For BGP-based I/S-PMSI signaling, this is the MPLS Label
field in PMSI Tunnel Attribute of the corresponding
I/S-PMSI A-D route."

::= { l2L3VpnMcastPmsiTunnelAttributeEntry 3 }

l2L3VpnMcastPmsiTunnelAttributeId OBJECT-TYPE

SYNTAX OCTET STRING (SIZE (0..37))

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"For UDP-based S-PMSI signaling for PIM-MVPN, the first
four or sixteen octets of this attribute are filled with
the provider tunnel group address (IPv4 or IPv6)..
For BGP-based I/S-PMSI signaling, this is the Tunnel Identifier
Field in PMSI Tunnel Attribute of the corresponding I/S-PMSI
A-D route."

::= { 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
```

5. Security Considerations

This MIB contains some read-only objects that may be deemed sensitive by some though perhaps not all operators. Appropriate security procedures related to SNMP in general but not specific to this MIB need to be implemented by concerned operators.

6. IANA Considerations

IANA is requested to root MIB objects in the MIB module contained in this document under the mib-2 subtree.

7. References

7.1. Normative References

- [RFC2578] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Structure of Management Information Version 2 (SMIv2)", STD 58, [RFC 2578](#), DOI 10.17487/RFC2578, April 1999, <<http://www.rfc-editor.org/info/rfc2578>>.
- [RFC2579] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Textual Conventions for SMIv2", STD 58, [RFC 2579](#), DOI 10.17487/RFC2579, April 1999, <<http://www.rfc-editor.org/info/rfc2579>>.
- [RFC2580] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Conformance Statements for SMIv2", STD 58, [RFC 2580](#), DOI 10.17487/RFC2580, April 1999, <<http://www.rfc-editor.org/info/rfc2580>>.
- [RFC6513] Rosen, E., Ed. and R. Aggarwal, Ed., "Multicast in MPLS/BGP IP VPNs", [RFC 6513](#), DOI 10.17487/RFC6513, February 2012, <<http://www.rfc-editor.org/info/rfc6513>>.
- [RFC6514] Aggarwal, R., Rosen, E., Morin, T., and Y. Rekhter, "BGP Encodings and Procedures for Multicast in MPLS/BGP IP VPNs", [RFC 6514](#), DOI 10.17487/RFC6514, February 2012, <<http://www.rfc-editor.org/info/rfc6514>>.
- [RFC7117] Aggarwal, R., Ed., Kamite, Y., Fang, L., Rekhter, Y., and C. Kodeboniya, "Multicast in Virtual Private LAN Service (VPLS)", [RFC 7117](#), DOI 10.17487/RFC7117, February 2014, <<http://www.rfc-editor.org/info/rfc7117>>.

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](#), DOI 10.17487/RFC3410, December 2002, <<http://www.rfc-editor.org/info/rfc3410>>.

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