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VPLS with Point-To-Multipoint LSPs Management Information Base
[draft-jain-l2vpn-mcast-vpls-mib-00](#)

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 to configure and/or monitor multicast in VPLS using Point-to-Multipoint LSPs or VPLS-MCAST [[I-D.ietf-l2vpn-vpls-mcast](#)].

Status of This Memo

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1. Introduction

VPLS using Point-to-Multipoint LSPs or [VPLS-MCAST] describes procedures for VPLS multicast that utilize multicast trees in the service provider (SP) network. The multicase tree is typically formed using point-to-multipoint LSPs and is used to flood broadcast, multicast, and unknown unicast traffic across a VPLS core network to all the PE routers.

This memo describes managed objects to configure and/or monitor multicast in VPLS using Point-to-Multipoint LSPs or VPLS-MCAST [[I-D.ietf-l2vpn-vpls-mcast](#)].

In the current version of this memo does not address MIB Objects for Inter-AS VPLS Multicast. Objects related to this would be addressed in subsequent updates of this proposal.

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. Terminology

Terminology used in this document:

VPLS : Virtual Provider LAN Service.

P2MP : Point-to-Multipoint.

MLDP : Multicast Label Distribution Protocol.

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SNMP : Simple Network Management Protocol.

MIB : Management Information Base.

PE Router: Provider Edge Router.

P Router : Provider Core Router.

I-PMSI : Inclusive-Provider Multicast Service Interface.

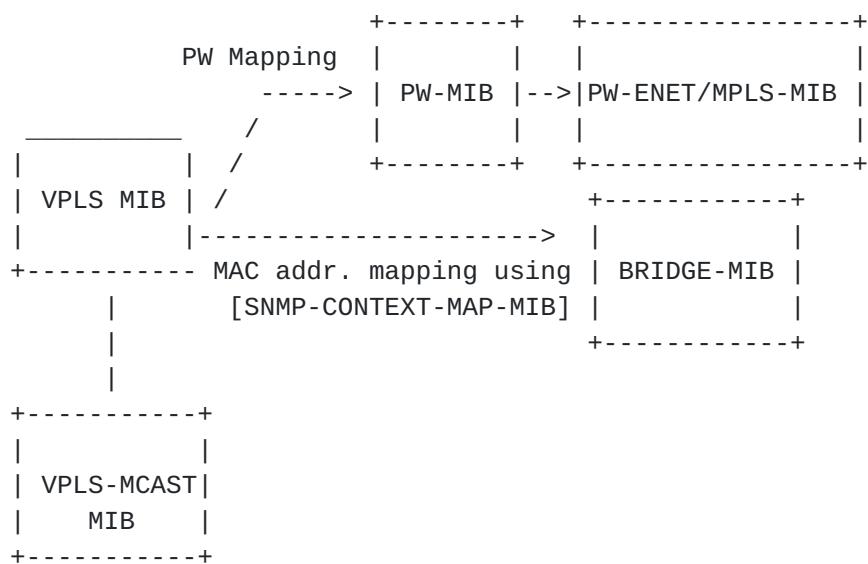
S-PMSI : Selective-Provider Multicast Service Interface.

MVPN : Multicast Virtual Private Networks.

5. Structure of the MIB Module

The MIB Structure for defining VPLS using Point-to-Multipoint LSPs or [VPLS-MCAST] would be based off the existing VPLS-MIB [I-D.ietf-12vpn-vpls-mib] defination.

Following is the relation of the VPLS-MCAST MIB with existing VPLS-MIB



5.1. Summary of MIB Module

The configuration and states specific to an VPLS-MCAST include the following:

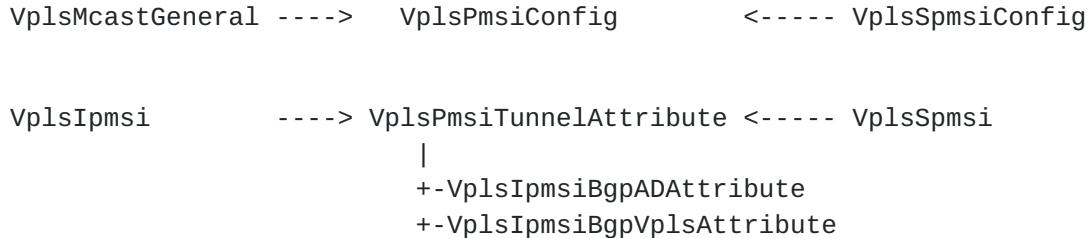
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- C-multicast routing exchange protocol BGP
- I-PMSI, S-PMSI and corresponding provider tunnels
- Mapping of c-multicast states to PMSI/tunnels

To represent them, the following tables defined.



- vplsMcastGeneralTable

An entry in this table contains general information about VPLS-PMSI created on the device.

- vplsPmsiConfigTable

An entry in this table is created for each PMSI configured on this router. It can be referred to by base VPLS configuration (in vplsConfigEntry) or S-PMSI configuration (in vplsSpmsiConfigEntry).

- vplsIpmsiBgpADTable

This table specifies all advertised and received I-PMSI advertisements. An entry is created in this table for each IPMSI attribute advertised/ received in BGP-AD

- vplsIpmsiBgpVplsTable

An entry is created in this table for each IPMSI attribute advertised/ received in BGP-VPLS

- vplsPmsiTunnelAttributeTable

This table is specified for advertised/received PMSI attributes to be referred to by I-PMSI or S-PMSI table entries.

- vplsSpmsiConfigTable

This table specifies S-PMSI configuration for each VPLS entry

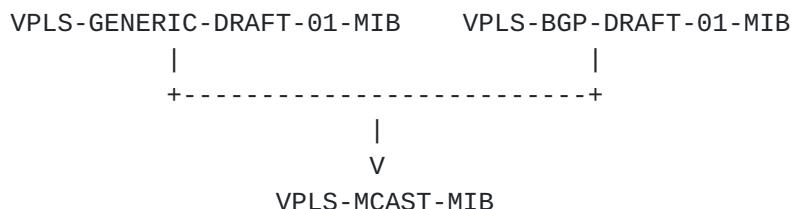
- **vplsSpmsiTable**

This table contains information about the VPLS S-PMSIs advertised/received for a given VPLS instance

6. Relationship to Other MIB Modules

This section provides an overview of the relationship between the VPLS-MCAST MIB module and other VPLS MIB modules.

The arrows in the following diagram show a 'depends on' relationship. A relationship "MIB module A depends on MIB module B" means that MIB module A uses an object, object identifier, or textual convention defined in MIB module B, or that MIB module A contains a pointer (index or RowPointer) to an object in MIB module B.



7. Definitions

```

VPLS-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

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

  SnmpAdminString
  FROM SNMP-FRAMEWORK-MIB
  
```

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```
InetAddress, InetAddressType
FROM INET-ADDRESS-MIB

MplsLabel
FROM MPLS-TC-STD-MIB

vplsConfigIndex,
vplsBgpADConfigRouteDistinguisher,
vplsBgpADConfigPrefix,
vplsBgpADConfigVplsId
FROM VPLS-GENERIC-DRAFT-01-MIB

vplsBgpVName
FROM VPLS-BGP-DRAFT-01-MIB;
```

vplsMcastMIB MODULE-IDENTITY

LAST-UPDATED "201203141200Z" -- 14 March 2012 12:00:00 GMT
ORGANIZATION "IETF Layer-2 Virtual Private
Networks Working Group."

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"

DESCRIPTION

"This MIB contains managed object definitions for
multicast in Layer 2 VPLS defined by [L2VPN].
Copyright (C) The Internet Society (2012)."

-- Revision history.

REVISION "201203141200Z" -- 14 March 2012 12:00:00 GMT

DESCRIPTION

"Initial version of the draft."

::= { experimental 99 } -- number to be assigned

-- Top level components of this MIB.

-- Traps

vplsMcastNotifications OBJECT IDENTIFIER ::= { vplsMcastMIB 0 }

-- tables, scalars

vplsMcastObjects OBJECT IDENTIFIER ::= { vplsMcastMIB 1 }

-- conformance

vplsMcastConformance OBJECT IDENTIFIER ::= { vplsMcastMIB 2 }

vplsMcastScalars OBJECT IDENTIFIER ::= { vplsMcastObjects 1 }

vplsMcastGeneral OBJECT IDENTIFIER ::= { vplsMcastObjects 2 }

vplsMcastConfig OBJECT IDENTIFIER ::= { vplsMcastObjects 3 }

vplsMcastStates OBJECT IDENTIFIER ::= { vplsMcastObjects 4 }

-- Scalar Objects

vplsMcastNotificationEnable OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"If this object is TRUE, then the generation of all
notifications defined in this MIB is enabled."

DEFVAL { false }

::= { vplsMcastScalars 1 }

vplsMcastGeneralTable OBJECT-TYPE

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```

SYNTAX      SEQUENCE OF VplsMcastGeneralEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
  "This table specifies the general information about the VPLS-PMSI
   present in this device."
 ::= { vplsMcastGeneral 1 }

vplsMcastGeneralEntry OBJECT-TYPE
SYNTAX      VplsMcastGeneralEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
  "An entry in this table is created for every VPLS Instance in the
   device."
INDEX      { vplsConfigIndex }
 ::= { vplsMcastGeneralTable 1 }

VplsMcastGeneralEntry ::= SEQUENCE {
  vplsMcastGenOperStatusChange      INTEGER,
  vplsMcastGenOperChangeTime       TimeStamp,
  vplsMcastGenIpmsiConfig         RowPointer,
  vplsMcastGenInterasPmsiConfig    RowPointer,
  vplsMcastGenSiteType             INTEGER,
  vplsMcastGenExcludeUnknownUnicast TruthValue,
  vplsMcastGenRowStatus            RowStatus
}

vplsMcastGenOperStatusChange OBJECT-TYPE
SYNTAX      INTEGER { createdVplsPmsi(1),
                     deletedVplsPmsi(2),
                     modifiedVplsIpmsiConfig(3),
                     modifiedVplsSpmsiConfig(4)
}
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
  "This object describes the last operational change that
   happened for the given VPLS-PMSI.

  createdVplsPmsi - indicates that VPLS PMSI was created in the
  device.

  deletedVplsPmsi - indicates that the VPLS PMSI was deleted from the
  device. A row in this table will never have
  vplsMcastGenOperStatusChange equal to deletedVplsPmsi(2),
  because in that case the row itself will be deleted from the
  table. This value for vplsMcastGenOperStatusChange is defined

```

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mainly for use in vplsMcastPmsiChange notification.

modifiedVplsIpmsiConfig - indicates that the I-PMSI for the VPLS was configured, deleted or changed.

modifiedVplsSpmsiConfig - indicates that the S-PMSI for the VPLS was configured, deleted or changed."

DEFVAL { createdVplsPmsi }
 ::= { vplsMcastGeneralEntry 1 }

vplsMcastGenOperChangeTime OBJECT-TYPE
 SYNTAX TimeStamp
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "The time at which the last operational change for the VPLS-PMSI in question took place. The last operational change is specified by vplsMcastGenOperStatusChange."
 ::= { vplsMcastGeneralEntry 2 }

vplsMcastGenIpmsiConfig OBJECT-TYPE
 SYNTAX RowPointer
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "This points to a row in vplsMcastPmsiConfigTable, for I-PMSI configuration."
 ::= { vplsMcastGeneralEntry 3 }

vplsMcastGenInterasPmsiConfig OBJECT-TYPE
 SYNTAX RowPointer
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION
 "This points to a row in vplsMcastPmsiConfigTable, for inter-as I-PMSI configuration in case of segmented inter-as provider tunnels."
 ::= { vplsMcastGeneralEntry 4 }

vplsMcastGenSiteType OBJECT-TYPE
 SYNTAX INTEGER {
 senderReceiver (1),
 receiverOnly (2),
 senderOnly (3)
 }
 MAX-ACCESS read-write
 STATUS current
 DESCRIPTION

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```
"Whether this site is a receiver-only site or not.  
    sender-receiver (1): both sender and receiver site.  
    receiver-only     (2): receiver-only site.  
    sender-only      (3): sender only site."  
 ::= { vplsMcastGeneralEntry 5 }  
  
vplsMcastGenExcludeUnknownUnicast OBJECT-TYPE  
    SYNTAX          TruthValue  
    MAX-ACCESS     read-write  
    STATUS         current  
    DESCRIPTION  
        "If this object is TRUE, then Unknown Unicast will not  
        be mapped to the provider tunnel.  
        If this object is FALSE, then Unknown Unicast will be  
        mapped to the provider tunnel."  
    DEFVAL { false }  
 ::= { vplsMcastGeneralEntry 6 }  
  
vplsMcastGenRowStatus OBJECT-TYPE  
    SYNTAX          RowStatus  
    MAX-ACCESS     read-create  
    STATUS         current  
    DESCRIPTION  
        "This is used to create or delete a row in this table."  
 ::= { vplsMcastGeneralEntry 7 }  
  
-- VPLS PMSI Configuration Table  
  
vplsPmsiConfigTable OBJECT-TYPE  
    SYNTAX          SEQUENCE OF VplsPmsiConfigEntry  
    MAX-ACCESS     not-accessible  
    STATUS         current  
    DESCRIPTION  
        "An entry in this table is created for each PMSI configured  
        on this router. It can be referred to by base VPLS  
        configuration (in vplsConfigEntry) or S-PMSI configuration  
        (in vplsSpmsiConfigEntry)"  
 ::= { vplsMcastConfig 1 }  
  
vplsPmsiConfigEntry OBJECT-TYPE  
    SYNTAX          VplsPmsiConfigEntry  
    MAX-ACCESS     not-accessible  
    STATUS         current  
    DESCRIPTION  
        "An entry in this table is created for each PMSI configured  
        on this router under VPLS Service"  
 INDEX          { vplsConfigIndex }  
 ::= { vplsPmsiConfigTable 1 }
```

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```

vplsPmsiConfigEntry ::= SEQUENCE {
    vplsPmsiCfgTunnelType                  INTEGER,
    vplsPmsiCfgTunnelAuxInfo               Unsigned32,
    vplsPmsiCfgTunnelOrTemplateName        SnmpAdminString,
    vplsPmsiCfgRowStatus                  RowStatus
}

vplsPmsiCfgTunnelType OBJECT-TYPE
    SYNTAX          INTEGER { rsvpP2mp (1),
                           ldpP2mp (2),
                           ingressReplication (3)
                           }
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION     "Type of tunnel used to instantiate the PMSI."
    ::= { vplsPmsiConfigEntry 1 }

vplsPmsiCfgTunnelAuxInfo OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION     "Additional tunnel information depending on the type.
                    rsvp-p2mp:   1 for statically specified rsvp-p2mp tunnel
                               2 for dynamically created rsvp-p2mp tunnel
                    ingress-replication:
                               1 for using any existing p2p/mp2p lsp
                               2 for dynamically creating new p2p lsp"
    ::= { vplsPmsiConfigEntry 2 }

vplsPmsiCfgTunnelOrTemplateName OBJECT-TYPE
    SYNTAX          SnmpAdminString
    MAX-ACCESS      read-write
    STATUS          current
    DESCRIPTION     "The tunnel name or template name used to create tunnels.
                    Depending on vplsPmsiCfgTunnelType and
                    vplsPmsiCfgTunnelAuxInfo:
                    dynamically created rsvp-p2mp tunnel:           template name
                    statically specified rsvp-p2mp tunnel:         tunnel name
                    ingress-replication using
                    dynamically created lps:                      template name
                    other:                                         null"
    ::= { vplsPmsiConfigEntry 3 }

```

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```
vplsPmsiCfgRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "Used to create/modify/delete a row in this table."
    ::= { vplsPmsiConfigEntry 4 }
```

-- Table of IPMSI BGP-AD Advertised/Received.

```
vplsPmsiBgpADTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF VplsPmsiBgpADEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table specifies all advertised and received IPmsi
advertisements."
    ::= { vplsMcastStates 1 }
```

```
vplsPmsiBgpADEntry OBJECT-TYPE
    SYNTAX      VplsPmsiBgpADEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry is created in this table for each IPMSI attribute
advertised/received in BGP-AD"
    INDEX      { vplsConfigIndex,
                  vplsBgpADConfigRouteDistinguisher,
                  vplsBgpADConfigPrefix,
                  vplsBgpADConfigVplsId }
    ::= { vplsPmsiBgpADTable 1 }
```

```
VplsPmsiBgpADEntry ::= SEQUENCE {
    vplsPmsiBgpADAttribute          RowPointer
}
```

```
vplsPmsiBgpADAttribute OBJECT-TYPE
    SYNTAX      RowPointer
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Points to a row in the vplsIpmsiTunnelAttributeTable."
    ::= { vplsPmsiBgpADEntry 1 }
```

-- Table of IPMSI BGP-VPLS Advertised/Received.

```
vplsPmsiBgpVplsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF VplsPmsiBgpVplsEntry
```

MAX-ACCESS

not-accessible

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```
STATUS          current
DESCRIPTION
  "This table specifies the all advertised and received IPmsi
advertisements."
 ::= { vplsMcastStates 2 }

vplsPmsiBgpVplsEntry OBJECT-TYPE
  SYNTAX      VplsPmsiBgpVplsEntry
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "An entry is created in this table for each IPMSI attribute
advertised/received in BGP-VPLS"
  INDEX      { vplsConfigIndex,
                vplsBgpVEName}
  ::= { vplsPmsiBgpVplsTable 1 }

VplsPmsiBgpVplsEntry ::= SEQUENCE {
  vplsPmsiBgpVplsAttribute          RowPointer
}

vplsPmsiBgpVplsAttribute      OBJECT-TYPE
  SYNTAX      RowPointer
  MAX-ACCESS  read-only
  STATUS      current
  DESCRIPTION
    "Points to a row in the vplsPmsiTunnelAttributeTable."
  ::= { vplsPmsiBgpVplsEntry 1 }

-- Table of VPLS PMSI attributes

vplsPmsiTunnelAttributeTable OBJECT-TYPE
  SYNTAX      SEQUENCE OF VplsPmsiTunnelAttributeEntry
  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"
  ::= { vplsMcastStates 3 }

vplsPmsiTunnelAttributeEntry OBJECT-TYPE
  SYNTAX      VplsPmsiTunnelAttributeEntry
  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."
INDEX {
    vplsPmsiTunnelAttributeType,
    vplsPmsiTunnelAttributeLabel,
    vplsPmsiTunnelAttributeFlags,
    vplsPmsiTunnelAttributeId
}
 ::= { vplsPmsiTunnelAttributeTable 1 }

VplsPmsiTunnelAttributeEntry ::= SEQUENCE {
    vplsPmsiTunnelAttributeType      Unsigned32,
    vplsPmsiTunnelAttributeLabel    MplsLabel,
    vplsPmsiTunnelAttributeFlags    OCTET STRING,
    vplsPmsiTunnelAttributeId       OCTET STRING,
    vplsPmsiTunnelPointer          RowPointer,
    vplsPmsiTunnelIf                RowPointer
}

vplsPmsiTunnelAttributeType OBJECT-TYPE
SYNTAX      Unsigned32
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
"The tunnel type identifies the type of tunneling technology
used to establish the PMSI tunnel. This document discusses the
following tunnel types:
    0 - No tunnel information present
    1 - RSVP-TE P2MP LSP
    2 - mLDP P2MP LSP
"
 ::= { vplsPmsiTunnelAttributeEntry 1 }

vplsPmsiTunnelAttributeLabel OBJECT-TYPE
SYNTAX      MplsLabel
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
"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."
 ::= { vplsPmsiTunnelAttributeEntry 2 }

vplsPmsiTunnelAttributeFlags OBJECT-TYPE
SYNTAX      OCTET STRING (SIZE (1))
MAX-ACCESS  not-accessible
STATUS      current

```

DESCRIPTION

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"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)"

::= { vplsPmsiTunnelAttributeEntry 3 }

vplsPmsiTunnelAttributeId OBJECT-TYPE

SYNTAX OCTET STRING (SIZE (4|8|12))

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"When the type is set to 'No tunnel information present', the PMSI Tunnel attribute carries no tunnel information (no Tunnel Identifier). This type is to be used only in the following case: to enable explicit tracking for a particular customer multicast flow

(by

binding setting the Leaf Information Required flag to 1), but without

this flow to a particular provider tunnel (by omitting any tunnel information).

When the type is set to RSVP-TE P2MP LSP, the Tunnel Identifier is (Extended Tunnel ID, Reserved, Tunnel ID, P2MP ID) as carried in the

RSVP-TE P2MP LSP SESSION Object [[RFC4875](#)].

When the type is set to mLDP P2MP LSP, the Tunnel Identifier is a P2MP FEC Element [[mLDP](#)]."

::= { vplsPmsiTunnelAttributeEntry 4 }

vplsPmsiTunnelPointer 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."

::= { vplsPmsiTunnelAttributeEntry 5 }

vplsPmsiTunnelIf 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."  
 ::= { vplsPmsiTunnelAttributeEntry 6 }
```

```
-- S-PMSI configuration table

vplsSpmsiConfigTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF VplsSpmsiConfigEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table specifies S-PMSI configuration."
    ::= { vplsMcastConfig 2 }

vplsSpmsiConfigEntry OBJECT-TYPE
    SYNTAX      VplsSpmsiConfigEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry is created for each S-PMSI configuration."
    INDEX       { vplsConfigIndex,
                  vplsSpmsiCfgCmcastAddressType,
                  vplsSpmsiCfgCmcastGroupAddress,
                  vplsSpmsiCfgCmcastGroupPrefixLen,
                  vplsSpmsiCfgCmcastSrcAddress,
                  vplsSpmsiCfgCmcastSrcPrefixLen }
    ::= { vplsSpmsiConfigTable 1 }

VplsSpmsiConfigEntry ::= SEQUENCE {
    vplsSpmsiCfgCmcastAddressType      InetAddressType,
    vplsSpmsiCfgCmcastGroupAddress    InetAddress,
    vplsSpmsiCfgCmcastGroupPrefixLen Unsigned32,
    vplsSpmsiCfgCmcastSrcAddress     InetAddress,
    vplsSpmsiCfgCmcastSrcPrefixLen   Unsigned32,
    vplsSpmsiCfgThreshold           Unsigned32,
    vplsSpmsiCfgPmsiPointer         RowPointer,
    vplsSpmsiCfgRowStatus            RowStatus
}

vplsSpmsiCfgCmcastAddressType OBJECT-TYPE
    SYNTAX      InetAddressType
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Type of C-multicast address"
    ::= { vplsSpmsiConfigEntry 1 }

vplsSpmsiCfgCmcastGroupAddress OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
```

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```
"C-multicast group address"
 ::= { vplsSpmsiConfigEntry 2 }

vplsSpmsiCfgCmcastGroupPrefixLen OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "C-multicast group address prefix length.
         A group 0 (or ::0) with prefix length 32 (or 128)
         indicates wildcard group, while a group 0 (or ::0)
         with prefix length 0 indicates any group."
    ::= { vplsSpmsiConfigEntry 3 }

vplsSpmsiCfgCmcastSrcAddress OBJECT-TYPE
    SYNTAX          InetAddress
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "C-multicast source address"
    ::= { vplsSpmsiConfigEntry 4 }

vplsSpmsiCfgCmcastSrcPrefixLen OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "C-multicast source address prefix length.
         A source 0 (or ::0) with prefix length 32 (or 128)
         indicates a wildcard source, while a source 0 (or ::0)
         with prefix length 0 indicates any source."
    ::= { vplsSpmsiConfigEntry 5 }

vplsSpmsiCfgThreshold OBJECT-TYPE
    SYNTAX          Unsigned32 (0..4294967295)
    UNITS           "kilobits per second"
    MAX-ACCESS      read-create
    STATUS          current
    DESCRIPTION
        "The bandwidth threshold value which when exceeded for a
         multicast routing entry in the given VPLS, triggers usage
         of S-PMSI."
    ::= { vplsSpmsiConfigEntry 6 }

vplsSpmsiCfgPmsiPointer OBJECT-TYPE
    SYNTAX          RowPointer
    MAX-ACCESS      read-create
    STATUS          current
```

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```

DESCRIPTION
  "This points to a row in vplsSpmsiConfigTable,
   to specify tunnel attributes."
 ::= { vplsSpmsiConfigEntry 7 }

vplsSpmsiCfgRowStatus OBJECT-TYPE
  SYNTAX          RowStatus
  MAX-ACCESS     read-create
  STATUS         current
  DESCRIPTION
    "Used to create/modify/delete a row in this table."
 ::= { vplsSpmsiConfigEntry 8 }

-- Table of S-PMSIs advertised/received

vplsSpmsiTable OBJECT-TYPE
  SYNTAX          SEQUENCE OF VplsSpmsiEntry
  MAX-ACCESS     not-accessible
  STATUS         current
  DESCRIPTION
    "This table has information about the S-PMSIs sent/received
     by a device."
 ::= { vplsMcastStates 4 }

vplsSpmsiEntry OBJECT-TYPE
  SYNTAX          VplsSpmsiEntry
  MAX-ACCESS     not-accessible
  STATUS         current
  DESCRIPTION
    "An entry in this table is created or updated for every S-PMSI
     advertised/received in a particular VPLS."
  INDEX  { vplsConfigIndex,
            vplsSpmsiCmcastAddrType,
            vplsSpmsiCmcastGroup,
            vplsSpmsiCmcastGroupPrefixLen,
            vplsSpmsiCmcastSource,
            vplsSpmsiCmcastSourcePrefixLen,
            vplsSpmsiOrigAddrType,
            vplsSpmsiOrigAddress}
 ::= { vplsSpmsiTable 1 }

VplsSpmsiEntry ::= SEQUENCE {
  vplsSpmsiCmcastAddrType      InetAddressType,
  vplsSpmsiCmcastGroup        InetAddress,
  vplsSpmsiCmcastGroupPrefixLen Unsigned32,
  vplsSpmsiCmcastSource       InetAddress,

```

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```

vplsSpmsiCmcastSourcePrefixLen InetAddress,
vplsSpmsiOrigAddrType      InetAddressType,
vplsSpmsiOrigAddress       InetAddress,
vplsSpmsiTunnelAttribute   RowPointer,
vplsSpmsiUpTime            TimeInterval,
vplsSpmsiExpTime           TimeInterval,
vplsSpmsiRefCnt            Unsigned32
}

vplsSpmsiCmcastAddrType OBJECT-TYPE
  SYNTAX      InetAddressType
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "The Internet address type of vplsSpmsiCmcastGroup/Source."
 ::= { vplsSpmsiEntry 1 }

vplsSpmsiCmcastGroup OBJECT-TYPE
  SYNTAX      InetAddress (SIZE (4|16|20))
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "S-PMSI C-multicast group address.
     If it is 0 (or ::0), this is a wildcard group,
     and vplsSpmsiCmcastGroupPrefixLen must be 32 (or 128)."
 ::= { vplsSpmsiEntry 2 }

vplsSpmsiCmcastGroupPrefixLen OBJECT-TYPE
  SYNTAX      Unsigned32
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "S-PMSI C-multicast group address prefix length."
 ::= { vplsSpmsiEntry 3 }

vplsSpmsiCmcastSource OBJECT-TYPE
  SYNTAX      InetAddress (SIZE (4|16|20))
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "S-PMSI C-multicast source address
     If it is 0 (or ::0), this is a wildcard source,
     and vplsSpmsiCmcastSourcePrefixLen must be 32 (or 128)."
 ::= { vplsSpmsiEntry 4 }

vplsSpmsiCmcastSourcePrefixLen OBJECT-TYPE
  SYNTAX      InetAddress (SIZE (4|16|20))
  MAX-ACCESS  not-accessible

```

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```
STATUS          current
DESCRIPTION
  "S-PMSI C-multicast source address prefix length."
 ::= { vplsSpmsiEntry 5 }

vplsSpmsiOrigAddrType OBJECT-TYPE
  SYNTAX          InetAddressType
  MAX-ACCESS     not-accessible
  STATUS         current
  DESCRIPTION
    "The Internet address type of vplsSpmsiOrigAddress."
 ::= { vplsSpmsiEntry 6 }

vplsSpmsiOrigAddress OBJECT-TYPE
  SYNTAX          InetAddress
  MAX-ACCESS     not-accessible
  STATUS         current
  DESCRIPTION
    "The BGP address of the device that originated the S-PMSI."
 ::= { vplsSpmsiEntry 7 }

vplsSpmsiTunnelAttribute OBJECT-TYPE
  SYNTAX          RowPointer
  MAX-ACCESS     read-only
  STATUS         current
  DESCRIPTION
    "A row pointer to the vplsPmsiTunnelAttributeTable"
 ::= { vplsSpmsiEntry 8 }

vplsSpmsiUpTime OBJECT-TYPE
  SYNTAX          TimeInterval
  MAX-ACCESS     read-only
  STATUS         current
  DESCRIPTION
    "The time since this S-PMSI
      was first advertised/received by the device."
 ::= { vplsSpmsiEntry 9 }

vplsSpmsiExpTime OBJECT-TYPE
  SYNTAX          TimeInterval
  MAX-ACCESS     read-only
  STATUS         current
  DESCRIPTION
    "For UDP-based S-PMSI signaling for VPLS,
      the amount of time remaining before this
      received S-PMSI Join Message expires,
      or the next S-PMSI Join Message refresh is to be
      advertised again from the device."
```

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```
 ::= { vplsSpmsiEntry 10 }

vplsSpmsiRefCnt OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS     read-only
    STATUS         current
    DESCRIPTION
        "The number of c-multicast routes that are mapped to
         this S-PMSI."
 ::= { vplsSpmsiEntry 11 }

-- Module compliance.
vplsMcastCompliances
    OBJECT IDENTIFIER ::= { vplsMcastConformance 1 }

vplsMcastModuleFullCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
        "Compliance requirement for implementations that
         provide full support for VPLS-LDP-DRAFT-01-MIB.
         Such devices can then be monitored and configured using
         this MIB module."

MODULE -- this module

MANDATORY-GROUPS {
    vplsMcastGroup,
    vplsMcastNotificationGroup
}

 ::= { vplsMcastCompliances 1 }

-- Units of conformance.

vplsMcastGroups
    OBJECT IDENTIFIER ::= { vplsMcastConformance 2 }

vplsMcastGroup OBJECT-GROUP
    OBJECTS {
        vplsMcastGenOperStatusChange,
        vplsMcastGenOperChangeTime,
        vplsMcastGenIpmsiConfig,
        vplsMcastGenInterasPmsiConfig,
        vplsMcastGenCfgSiteType,
        vplsMcastGenCfgExcludeUnknownUnicast,
        vplsMcastGenRowStatus,
```

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```
vplsPmsiCfgTunnelType,
vplsPmsiCfgTunnelAuxInfo,
vplsPmsiCfgTunnelOrTemplateName,
vplsPmsiCfgRowStatus,
vplsPmsiBgpADAttribute,
vplsPmsiBgpVplsAttribute,
vplsPmsiTunnelPointer,
vplsPmsiTunnelIf,
vplsSpmsiCfgThreshold,
vplsSpmsiCfgPmsiPointer,
vplsSpmsiCfgRowStatus,
vplsSpmsiTunnelAttribute,
vplsSpmsiUpTime,
vplsSpmsiExpTime,
vplsSpmsiRefCnt
}
STATUS current
DESCRIPTION
    "TODO"
::= { vplsMcastGroups 1 }

vplsMcastNotificationGroup OBJECT-GROUP
    OBJECTS { vplsMcastNotificationEnable
    }
    STATUS current
    DESCRIPTION
        "TODO"
    ::= { vplsMcastGroups 2 }

END
```

8. Security Considerations

TODO

9. IANA Considerations

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

10. Contributors

TODO.

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[11.](#) Acknowledgements

[TODO].

[12.](#) References

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