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**Definitions of Managed Objects for  
the General Switch Management Protocol (GSMP)**

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## Abstract

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it describes managed objects for the General Switch Management Protocol (GSMP).

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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 describes managed objects for the General Switch Management Protocol (GSMP). [[RFC1987](#)].

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](#)].

## **2. The SNMP Management Framework**

The SNMP Management Framework presently consists of five major components:

- \* An overall architecture, described in [RFC 2571](#) [[RFC2571](#)].
- \* Mechanisms for describing and naming objects and events for the purpose of management. The first version of this Structure of Management Information (SMI) is called SMIv1 and described in STD 16, [RFC 1155](#) [[RFC1155](#)], STD 16, [RFC 1212](#) [[RFC1212](#)] and [RFC 1215](#) [[RFC1215](#)]. The second version, called SMIv2, is described in STD 58, [RFC 2578](#) [[RFC2578](#)], [RFC 2579](#) [[RFC2579](#)] and [RFC 2580](#) [[RFC2580](#)].
- \* Message protocols for transferring management information. The first version of the SNMP message protocol is called SNMPv1 and described in STD 15, [RFC 1157](#) [[RFC1157](#)]. A second version of the SNMP message protocol, which is not an Internet standards track protocol, is called SNMPv2c and described in [RFC 1901](#) [[RFC1901](#)] and [RFC 1906](#) [[RFC1906](#)]. The third version of the message protocol is called SNMPv3 and described in [RFC 1906](#) [[RFC1906](#)], [RFC 2572](#) [[RFC2572](#)] and [RFC 2574](#) [[RFC2574](#)].
- \* Protocol operations for accessing management information. The first set of protocol operations and associated PDU formats is described in STD 15, [RFC 1157](#) [[RFC1157](#)]. A second set of operations and associated PDU formats is described in 1905 [[RFC1905](#)].



\* A set of fundamental applications described in [RFC 2573](#) [[RFC2573](#)] and the view-based access control mechanism described [RFC 2575](#) [[RFC2575](#)].

A more detailed introduction to the current SNMP Management Framework can be found in [RFC 2570](#) [[RFC2570](#)].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. Objects in the MIB are defined using the mechanisms defined in the SMI.

This memo specifies a MIB module that is compliant to the SMIv2. A MIB conforming to the SMIv1 can be produced through the appropriate translations. The resulting translated MIB must be semantically equivalent, except where objects or events are omitted because no translation is possible (use of Counter64). Some machine readable information in SMIv2 will be converted into textual descriptions in SMIv1 during the translation process. However, this loss of machine readable information is not considered to change the semantics of the MIB.

### **3. Structure of the MIB**

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it describes managed objects for the General Switch Management Protocol (GSMP) as defined in [[GSMPv3](#)].

#### **3.1 Overview**

The MIB provides objects to configure/set-up potential GSMP sessions on specific switch or controllers. Two tables are used to configure potential GSMP sessions, where each row in the table initiates a GSMP session. To create a Virtual Switch, an entry in the gsmpVseTable is created. To create a Virtual Switch Controller, an entry in the gsmpVsceTable is created.

In order to define and configure what encapsulation the potential GSMP session shall use, the encapsType object in the respective tables is set to either ethernet, atm or tcp/ip. If atm is used, a row in the gsmpAtmEncapTable has to be created with the same index. If tcp/ip is used, a row in the gsmpTcpIpEncapTable has to be created with the same index. No extra encapsulation info is needed if ethernet is used.

Another table, the gsmpSessionTable, shows the actual sessions that have been, or are in the process of being established. Each row represents a specific session between an Entity and a peer. This table carries information about the peer, the session and parameters that was negotiated by the adjacency procedures. The gsmpSessionStatTable augments the gsmpSessionTable with statistical information regarding the session.

#### **3.2 MIB groups**

##### **3.2.1 GSMP Virtual Switch Controller group**

The VSCE group is used to configure a potential GSMP session on a Virtual Switch Controller. A row in the gsmpVsceTable is created for each such session. If ATM or TCP/IP encapsulation is used a corresponding row has to be created in these tables before the session adjacency protocol is initiated.

The encapsulation used is specified in the encaps type object. If ATM or TCP/IP is used, further encaps data is defined in the corresponding encapsulation tables. If ethernet is used the MAC address of the interface defined for the session is set by the VSCE ID object.



The adjacency parameters are defined; such as

- Max supported GSMP version
- i Time between the periodic adjacency messages
- i VSCE Name, local port number and instance number.
- i The partition ID for this specific partition if partitions are used.
- i The switch type defined by the manufacturer, which might be predefined or configured.

The maximum number of controllers that are allowed for this VSE, which e.g. could be used to restrict multiple controllers if set to one. Also, the suggested maximum window size for unacknowledged request messages could be set.

The notification mapping is set to specify for with events the corresponding SNMP notifications are sent.

### **3.2.2 GSMP Virtual Switch group**

The VSE group is used to configure a potential GSMP session on a Virtual Switch. A row in the gsmpVseTable is created for each such session. If ATM or TCP/IP encapsulation is used a corresponding row has to be created in these tables before the session adjacency protocol is initiated.

The encapsulation used is specified in the encap type object. If ATM or TCP/IP is used, further encap data is defined in the corresponding encapsulation tables. If ethernet is used the MAC address of the interface defined for the session is set by the VSE ID object.

The adjacency parameters are defined; such as

- Max supported GSMP version
- i Time between the periodic adjacency messages
- i VSCE Name, local port number and instance number.
- i The partition ID for this specific partition if partitions are used.

The resynchronisation strategy for the session is specified. Also, a notification mapping is set to specify for with events the corresponding SNMP notifications are sent.

### **3.2.3 GSMP Encapsulation groups**

The ATM Encapsulation Table and the TCP/IP Encapsulation Table provides a way to configure information that are encapsulation specific. The encapsulation data is further specified in [[GSMPenc](#)].



If ATM encapsulation is used, the interface and the virtual channel are specified.

If TCP/IP is used, the IP address and the port number are specified.

No special config data needed if Ethernet encapsulation is used.

#### **3.2.4 GSMP General group**

The GSMP session table provides a way to define, configure and monitor new GSMP session. Each row in the GSMP session table will have a corresponding row in the session statistics table.

The session is defined by a Virtual Switch Controller Entity and Virtual Switch Entity pair.

#### **3.2.5 The GSMP Notifications Group**

The GSMP Notification Group defines notifications for GSMP entities. These notifications provide a mechanism for a GSMP device to inform the management station of status changes. Also a notification is defined for each type of GSMP events. To disable or enable sending of the notifications is done by setting the bitmap accordingly in the Notification mapping objects in the VSCE or VSE tables.

The group of notifications consists of the following notifications:

1) gsmpSessionDownTrap

This notification is generated when a session is terminating, to report the final accounting statistics of the session.

2) gsmpSessionUpTrap

This notification is generated when a new session is established.

3) gsmpSendFailureIndicationTrap

This notification is generated when a message with a failure indication was sent. This means that this notification identifies a change to the gsmpSessionStatFailureIndication object in a row of the gsmpSessionStatsTable.

4) gsmpReceivedFailureIndicationTrap



This notification is generated when a message with a failure indication received. This means that this notification identifies a change to the gsmpSessionStatReceivedFailure object in a row of the gsmpSessionStatsTable.

5) gsmpPortUpEventTrap

This notification is generated when a Port Up Event occurs. This means that this notification identifies a change to the gsmpSessionStatPortUpEvents object in a row of the gsmpSessionStatsTable.

6) gsmpPortDownEventTrap

This notification is generated when a Port Down Event occurs. This means that this notification identifies a change to the gsmpSessionStatPortDownEvents object in a row of the gsmpSessionStatsTable.

7) gsmpInvalidLabelEventTrap

This notification is generated when an Invalid Label Event occurs. This means that this notification identifies a change to the gsmpSessionStatInvalidLabelEvents object in a row of the gsmpSessionStatsTable.

8) gsmpNewPortEventTrap

This notification is generated when New Port Event occurs. This means that this notification identifies a change to the gsmpSessionStatNewPortEvents object in a row of the gsmpSessionStatsTable.

9) gsmpDeadPortEventTrap

This notification is generated when a Dead Port Event occurs. This means that this notification identifies a change to the gsmpSessionStatDeadPortEvents object in a row of the gsmpSessionStatsTable.

10) gsmpAdjacenyUpdateEventTrap

This notification is generated when an Adjacency Update Event occurs. This means that this notification identifies a change to the gsmpSessionStatAdjacenyUpdateEvents object in a row of the gsmpSessionStatsTable.



#### 4. GSMP MIB Definitions

GSMP-MIB DEFINITIONS ::= BEGIN

IMPORTS

```
OBJECT-TYPE, MODULE-IDENTITY, NOTIFICATION-TYPE,  
Unsigned32, experimental, Integer32, Counter32, IpAddress, BITS  
    FROM SNMPv2-SMI  
MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP  
    FROM SNMPv2-CONF  
RowStatus, TruthValue,TimeStamp  
    FROM SNMPv2-TC  
InterfaceIndex  
    FROM IF-MIB  
AtmVcIdentifier, AtmVpIdentifier  
    FROM ATM-TC-MIB  
;
```

gsmpMIB MODULE-IDENTITY

```
LAST-UPDATED "0006091400Z" -- 9 June 2000, 16.00 MET DST  
ORGANIZATION "General Switch Management Protocol (gsmp)  
Working Group"
```

CONTACT-INFO

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```

DESCRIPTION

```
"This MIB contains managed object definitions for the  
General Switch Management Protocol, GSMP, version 3"  
::= { experimental 9877 } -- to be assigned
```

--\*\*\*\*\*

-- GSMP Textual Conventions

--\*\*\*\*\*

```
gsmpObjects          OBJECT IDENTIFIER ::= { gsmpMIB 1 }  
gsmpNotifications   OBJECT IDENTIFIER ::= { gsmpMIB 2 }  
gsmpConformance     OBJECT IDENTIFIER ::= { gsmpMIB 3 }
```

--\*\*\*\*\*

-- GSMP Entity Objects

--\*\*\*\*\*

--

-- Virtual Switch Controller Entity table

--

gsmpVsceTable OBJECT-TYPE  
SYNTAX           SEQUENCE OF GsmpVsceEntry

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```
MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION
  "This table represents the Virtual Switch Controller
  Entity that needs to be configured before a gsmp session
  might be started."
 ::= { gsmpObjects 1 }

gsmpVsceEntry OBJECT-TYPE
  SYNTAX        GsmpVsceEntry
  MAX-ACCESS   not-accessible
  STATUS       current
  DESCRIPTION
    "An entry in the table showing
     the data for a specific Virtual Switch Controller
     Entity."
  INDEX   { gsmpVsceId }
  ::= { gsmpVsceTable 1 }

GsmpVsceEntry ::= SEQUENCE {
  gsmpVsceId          OCTET STRING,
  gsmpVsceEncapType   INTEGER,
  gsmpVsceMaxVersion  INTEGER,
  gsmpVsceTimer        Unsigned32,
  gsmpVsceName         OCTET STRING,
  gsmpVscePort         Unsigned32,
  gsmpVsceInstance     Unsigned32,
  gsmpVscePartitionId  OCTET STRING,
  gsmpVsceDoResync     TruthValue,
  gsmpVsceNotificationMapping BITS,
  gsmpVsceRowStatus    RowStatus
}

gsmpVsceId OBJECT-TYPE
  SYNTAX        OCTET STRING (SIZE(6))
  MAX-ACCESS   not-accessible
  STATUS       current
  DESCRIPTION
    "The Virtual Switch Controller Entity Id is a 48-
     bit quantity that is unique within the operational
     context of the device. A 48-bit IEEE 802 MAC address, if
     available, may be used for the VCSE Id."
  ::= { gsmpVsceEntry 1 }

gsmpVsceEncapType OBJECT-TYPE
  SYNTAX        INTEGER {
                ethernet(1),
                atm(2),
                tcpip(3)
```

```
        }  
MAX-ACCESS    read-create  
STATUS        current  
DESCRIPTION  
    "The encapsulation used to for this Vsce.
```

```
If atm, a corresponing row in the gsmpAtmEncapTable  
has to be defined.  
If tcpip, a corresponing row in the gsmpTcpIpEncapTable  
has to be defined."  
 ::= { gsmpVsceEntry 2 }  
  
gsmpVsceMaxVersion OBJECT-TYPE  
SYNTAX      INTEGER {  
                  version1dot1(1),  
                  version2dot0(2),  
                  version3(3)  
                }  
MAX-ACCESS  read-create  
STATUS      current  
DESCRIPTION  
"The max version number of the GSMP protocol being used in  
this session. The version is negotiated by the  
adjacency protocol."  
 ::= { gsmpVsceEntry 3 }  
  
gsmpVsceTimer OBJECT-TYPE  
SYNTAX      Unsigned32  
MAX-ACCESS  read-create  
STATUS      current  
DESCRIPTION  
"The timer specifies the nominal time between  
periodic adjacency protocol messages. It is a constant  
for the duration of a GSMP session. The timer is  
specified in units of 100ms."  
 ::= { gsmpVsceEntry 4 }  
  
gsmpVsceName OBJECT-TYPE  
SYNTAX      OCTET STRING  
MAX-ACCESS  read-create  
STATUS      current  
DESCRIPTION  
"The name of the VSCE as advertised in the adjacency  
message. The most first three octets must be an  
Organisational Unique Identifier (OUI) that identifies  
the manufacturer of the VSCE."  
 ::= {gsmpVsceEntry 5}  
  
gsmpVscePort  OBJECT-TYPE  
SYNTAX      Unsigned32  
MAX-ACCESS  read-create  
STATUS      current  
DESCRIPTION  
"The local port number for the Virtual Switch Controller  
Entity."
```

```
::= { gsmpVsceEntry 6 }

gsmpVsceInstance OBJECT-TYPE
    SYNTAX          Unsigned32
    MAX-ACCESS     read-create
```

```
STATUS      current
DESCRIPTION
    "The instance number for the Virtual Switch Controller
     Entity."
 ::= { gsmpVsceEntry 7 }

gsmpVscePartitionId OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(1))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The Id for the specific switch partition that this Vsce
         is concerned with. The format of the Partition ID is not
         defined in GSMP. If desired, the Partition ID can be
         divided into multiple sub-identifiers within a single
         partition."
 ::= { gsmpVsceEntry 8 }

gsmpVsceDoResync OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "In case of loss of synchronisation, should the controller
         resyncronise or should it reset. If this object is set
         to true than the Vsce should resync with PFLAG=2."
 ::= { gsmpVsceEntry 9 }

gsmpVsceNotificationMapping OBJECT-TYPE
    SYNTAX      BITS {
                    sessionDown(0),
                    sessionUp(1),
                    sendFailureIndication(2),
                    receivedFailureIndication(3),
                    portUpEvent(4),
                    portDownEvent(5),
                    invalidLabelEvent(6),
                    newPortEvent(7),
                    deadPortEvent(8),
                    adjacencyUpdateEvent(9)
                }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This bitmap defines whether a corresponding SNMP
         notification should be send if an GSMP event is received
         by the VSCE. If the bit is set to 1 a notification should
         be send."
 ::= { gsmpVsceEntry 10 }
```

```
gsmpVsceRowStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
```

**DESCRIPTION**

"An object that allows entries in this table to be created and deleted using the RowStatus convention."

**::= { gsmpVsceEntry 11 }**

--

-- Virtual Switch Entity table

--

**gsmpVseTable OBJECT-TYPE**

SYNTAX       SEQUENCE OF GsmpVseEntry

MAX-ACCESS   not-accessible

STATUS       current

**DESCRIPTION**

"This table represents the Virtual Switch Entity that needs to be configured before a gsmp session might be started."

**::= { gsmpObjects 2 }**

**gsmpVseEntry OBJECT-TYPE**

SYNTAX       GsmpVseEntry

MAX-ACCESS   not-accessible

STATUS       current

**DESCRIPTION**

"An entry in the table showing the data for a specific Virtual Switch Controller Entity."

**INDEX { gsmpVseId }**

**::= { gsmpVseTable 1 }**

**GsmpVseEntry ::= SEQUENCE {**

gsmpVseId	OCTET STRING,
gsmpVseEncapType	INTEGER,
gsmpVseMaxVersion	INTEGER,
gsmpVseTimer	Unsigned32,
gsmpVseName	OCTET STRING,
gsmpVsePort	Unsigned32,
gsmpVseInstance	Unsigned32,
gsmpVsePartitionId	OCTET STRING,
gsmpVseAllowMultContr	Unsigned32,
gsmpVseNotificationMapping	BITS,
gsmpVseSwitchType	OCTET STRING,
gsmpVseWindowSize	Unsigned32,
gsmpVseRowStatus	RowStatus

}

**gsmpVseId OBJECT-TYPE**

SYNTAX       OCTET STRING (SIZE(6))

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The Virtual Switch Controller Entity Id is a 48-bit quantity that is unique within the operational

```
        context of the device. A 48-bit IEEE 802 MAC address, if
        available, may be used for the VSE Id."
 ::= { gsmpVseEntry 1 }

gsmpVseEncapType OBJECT-TYPE
    SYNTAX      INTEGER {
                  ethernet(1),
                  atm(2),
                  tcpip(3)
                }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The encapsulation used to for this Vse.
         If atm, a corresponing row in the gsmpAtmEncapTable
         has to be defined.
         If tcpip, a corresponing row in the gsmpTcpIpEncapTable
         has to be defined."
 ::= { gsmpVseEntry 2 }

gsmpVseMaxVersion OBJECT-TYPE
    SYNTAX      INTEGER {
                  version1dot1(1),
                  version2dot0(2),
                  version3(3)
                }
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The max version number of the GSMP protocol being
         supported by this VSE. The version is negotiated by the
         adjacency protocol."
 ::= { gsmpVseEntry 3 }

gsmpVseTimer OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The timer specifies the nominal time between
         periodic adjacency protocol messages. It is a constant
         for the duration of a GSMP session. The timer is
         specified in units of 100ms."
 ::= { gsmpVseEntry 4 }

gsmpVseName OBJECT-TYPE
    SYNTAX      OCTET STRING
    MAX-ACCESS  read-create
    STATUS      current
```

**DESCRIPTION**

"The name of the Vse. The first three octets must be an Organisationally Unique Identifier (OUI) that identifies the manufacturer of the Vse."

::= {gsmpVseEntry 5}

```
gsmpVsePort OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The local port number for the Virtual Switch
         Entity."
    ::= { gsmpVseEntry 6 }

gsmpVseInstance OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The instance number for the Virtual Switch
         Entity."
    ::= { gsmpVseEntry 7 }

gsmpVsePartitionId OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(1))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The Id for this specific switch partition that the Vse
         is represents. The format of the Partition ID is not
         defined in GSMP. "
    ::= { gsmpVseEntry 8 }

gsmpVseAllowMultContr OBJECT-TYPE
    SYNTAX      Unsigned32(0..255)
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "This object specifies the maximum number of controllers
         are allowed to control this VSE."
    ::= { gsmpVseEntry 9 }

gsmpVseNotificationMapping OBJECT-TYPE
    SYNTAX      BITS {
                    sessionDown(0),
                    sessionUp(1),
                    sendFailureIndication(2),
                    receivedFailureIndication(3),
                    portUpEvent(4),
                    portDownEvent(5),
                    invalidLabelEvent(6),
                    newPortEvent(7),
                    deadPortEvent(8),

```

```
        adjacencyUpdateEvent(9)
    }
MAX-ACCESS      read-create
STATUS          current
DESCRIPTION
```

```

"This bitmap defines whether a corresponding SNMP
notification should be send if an GSMP event is send
by the VSE. If the bit is set to 1 a notification should
be send."
 ::= { gsmpVseEntry 10 }

gsmpVseSwitchType OBJECT-TYPE
    SYNTAX          OCTET STRING (SIZE(2))
    MAX-ACCESS     read-create
    STATUS         current
    DESCRIPTION
        "A 16-bit field allocated by the manufacturer
        of the switch. The Switch Type
        identifies the product. When the Switch Type is combined
        with the OUI from the Switch Name the product is
        uniquely identified. "
 ::= { gsmpVseEntry 11 }

gsmpVseWindowSize OBJECT-TYPE
    SYNTAX          Unsigned32(1..65535)
    MAX-ACCESS     read-create
    STATUS         current
    DESCRIPTION
        "The maximum number of unacknowledged request messages
        that may be transmitted by the controller without the
        possibility of loss. This field is used to prevent
        request messages being lost in the switch because of
        overflow in the receive buffer. The field is a hint to
        the controller."
 ::= { gsmpVseEntry 12 }

gsmpVseRowStatus OBJECT-TYPE
    SYNTAX          RowStatus
    MAX-ACCESS     read-create
    STATUS         current
    DESCRIPTION
        "An object that allows entries in this table to
        be created and deleted using the
        RowStatus convention."
 ::= { gsmpVseEntry 13 }

--*****GSMP Encapsulation Objects*****
-- GSMP ATM Encapsulation Table
--
```

```
gsmpAtmEncapTable OBJECT-TYPE
  SYNTAX      SEQUENCE OF GsmpAtmEncapEntry
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
```

"This table contains the atm encapsulation data  
for the VSCE or VSE that uses atm as encapsulation."  
 ::= { gsmpObjects 3 }

gsmpAtmEncapEntry OBJECT-TYPE  
 SYNTAX GsmpAtmEncapEntry  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "An entry in the table showing  
 the encapsulation data for a  
 specific VSCE or VSE."  
 INDEX { gsmpAtmEncapEntityId }  
 ::= { gsmpAtmEncapTable 1 }

GsmpAtmEncapEntry ::= SEQUENCE {  
 gsmpAtmEncapEntityId OCTET STRING,  
 gsmpAtmEncapIfIndex InterfaceIndex,  
 gsmpAtmEncapVpi AtmVpIdentifier,  
 gsmpAtmEncapVci AtmVcIdentifier  
 }

gsmpAtmEncapEntityId OBJECT-TYPE  
 SYNTAX OCTET STRING (SIZE(6))  
 MAX-ACCESS not-accessible  
 STATUS current  
 DESCRIPTION  
 "The VSCE or VSE Id is a 48-  
 bit quantity that is unique within the operational  
 context of the device. A 48-bit IEEE 802 MAC address, if  
 available, may be used for the entity Id."  
 ::= { gsmpAtmEncapEntry 1 }

gsmpAtmEncapIfIndex OBJECT-TYPE  
 SYNTAX InterfaceIndex  
 MAX-ACCESS read-create  
 STATUS current  
 DESCRIPTION  
 "The interface index for the virtual channel over which  
 the GSMP session is established over, i.e the GSMP control  
 channel for LLC/SNAP encapsulated GSMP messages on an  
 ATM data link layer"  
 ::= { gsmpAtmEncapEntry 2 }

gsmpAtmEncapVpi OBJECT-TYPE  
 SYNTAX AtmVpIdentifier  
 MAX-ACCESS read-create  
 STATUS current  
 DESCRIPTION

" The VPI value for the virtual channel over which the GSMP session is established over, i.e the GSMP control channel for LLC/SNAP encapsulated GSMP messages on an ATM data link layer"

DEFVAL { 0 }

```
 ::= { gsmpAtmEncapEntry 3 }

gsmpAtmEncapVci OBJECT-TYPE
    SYNTAX      AtmVcIdentifier
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        " The VCI value for the virtual channel over which the
        GSMP session is established over, i.e the GSMP control
        channel for LLC/SNAP encapsulated GSMP messages on an
        ATM data link layer"
    DEFVAL { 15 }
    ::= { gsmpAtmEncapEntry 4 }

-- GSMP TCP/IP Encapsulation Table --
-- GSMP TCP/IP Encapsulation Table

gsmpTcpIpEncapTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF GsmpTcpIpEncapEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table contains the atm encapsulation data
        for the VSCE or VSE that uses atmTCP/IP as
        encapsulation."
    ::= { gsmpObjects 4 }

gsmpTcpIpEncapEntry OBJECT-TYPE
    SYNTAX      GsmpTcpIpEncapEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the table showing
        the encapsulation data for a
        specific VSCE or VSE."
    INDEX { gsmpTcpIpEncapEntityId }
    ::= { gsmpTcpIpEncapTable 1 }

GsmpTcpIpEncapEntry ::= SEQUENCE {
    gsmpTcpIpEncapEntityId      OCTET STRING,
    gsmpTcpIpEncapAddress       IpAddress,
    gsmpTcpIpPortNumber         Unsigned32
}

gsmpTcpIpEncapEntityId OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(6))
    MAX-ACCESS  not-accessible
    STATUS      current
```

**DESCRIPTION**

"The VSCE or VSE Id is a 48-bit quantity that is unique within the operational context of the device. A 48-bit IEEE 802 MAC address, if available, may be used for the entity Id."

```
 ::= { gsmpTcpIpEncapEntry 1 }

gsmpTcpIpEncapAddress OBJECT-TYPE
    SYNTAX      IpAddress
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The IPv4 address of the GSMP session peer."
 ::= { gsmpTcpIpEncapEntry 2 }

gsmpTcpIpPortNumber OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The TCP port number used for the TCP session
         to the GSMP peer. The default value of this object
         is the well known GSMP port number. "
 ::= { gsmpTcpIpEncapEntry 3 }

--*****--  
-- GSMP Session Objects  
--*****--  
  
--  
-- GSMP Session table  
--  
  
gsmpSessionTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF GsmpSessionEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table represents the sessions between
         VSCE and VSE pairs. "
 ::= { gsmpObjects 5 }

gsmpSessionEntry OBJECT-TYPE
    SYNTAX      GsmpSessionEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry in the table showing
         the data for a specific VSCE and
         VSE pair."
INDEX { gsmpSessionThisSideId, gsmpSessionFarSideId }
 ::= { gsmpSessionTable 1 }

GsmpSessionEntry ::= SEQUENCE {
```

gsmpSessionThisSideId	OCTET STRING,
gsmpSessionFarSideId	OCTET STRING,
gsmpSessionVersion	INTEGER,
gsmpSessionTimer	Integer32,
gsmpSessionState	INTEGER,

```
gsmpSessionAdjacencyCount      Unsigned32,
gsmpSessionFarSideName         OCTET STRING,
gsmpSessionFarSidePort         Unsigned32,
gsmpSessionFarSideInstance     Unsigned32,
gsmpSessionLastFailureCode    Unsigned32,
gsmpSessionDiscontinuityTime  TimeStamp
}

gsmpSessionThisSideId OBJECT-TYPE
  SYNTAX      OCTET STRING (SIZE(6))
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "This side ID uniquely identifies the entity that this
     session relates to within the operational
     context of the device."
 ::= { gsmpSessionEntry 1 }

gsmpSessionFarSideId OBJECT-TYPE
  SYNTAX      OCTET STRING (SIZE(6))
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "The Far side ID uniquely identifies the entity that this
     session is established against."
 ::= { gsmpSessionEntry 2 }

gsmpSessionVersion OBJECT-TYPE
  SYNTAX      INTEGER {
                version1dot1(1),
                version2dot0(2),
                version3(3)
              }
  MAX-ACCESS  read-only
  STATUS      current
  DESCRIPTION
    "The version number of the GSMP protocol being used in
     this session. The version is the result of the
     negotiation by the adjacency protocol."
 ::= { gsmpSessionEntry 3 }

gsmpSessionTimer OBJECT-TYPE
  SYNTAX      Integer32
  MAX-ACCESS  read-only
  STATUS      current
  DESCRIPTION
    "The timer specifies the time remaining until the
     adjacency timer expires. The object could take negative
     values since if no valid GSMP messages are
```

received in any period of time in excess of three times  
the value of the Timer negotiated by the adjacency protocol  
loss of synchronisation may be declared. The timer is  
specified in units of 100ms."

::= { gsmpSessionEntry 4 }

```
gsmpSessionState OBJECT-TYPE
    SYNTAX      INTEGER {
                    null(1),
                    synsent(2),
                    synrcvd(3),
                    estab(4)
                }
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The state the session currently is in. "
    ::= { gsmpSessionEntry 5 }

gsmpSessionAdjacencyCount OBJECT-TYPE
    SYNTAX      Unsigned32(1..255)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This object specifies the current number of adjecencies
         that are established with the controller and partition
         that is used for this session."
    ::= { gsmpSessionEntry 6 }

gsmpSessionFarSideName OBJECT-TYPE
    SYNTAX      OCTET STRING
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The name of the far side as advertised in the adjacency
         message."
    ::= { gsmpSessionEntry 7 }

gsmpSessionFarSidePort  OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The local port number of the link across which the message
         is being sent."
    ::= { gsmpSessionEntry 8 }

gsmpSessionFarSideInstance OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The instance number used for the link during this session.
         Zero is not a valid instance number."
```

```
::= { gsmpSessionEntry 9 }

gsmpSessionLastFailureCode OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  read-only
```

```
STATUS      current
DESCRIPTION
  "This is the last failure code that was received over
   this session. If no failure code has been received, the
   value is zero."
 ::= { gsmpSessionEntry 10 }
```

```
gsmpSessionDiscontinuityTime OBJECT-TYPE
  SYNTAX      TimeStamp
  MAX-ACCESS  read-only
  STATUS      current
  DESCRIPTION
    "The value of sysUpTime on the most recent occasion at
     which any one or more of this session's counters
     suffered a discontinuity. The relevant counters are
     the specific instances associated with this session
     of any Counter32 or Counter64 object contained in the
     gsmpSessionStatsTable. If no such discontinuities have
     occurred since then this object contains a zero
     value.
    Also, an NMS can distinguish when a session
    between a given Entity and the far side goes away and
    then is 're-established'. This value would change and
    thus indicate to the NMS that this is a
    different session."
 ::= { gsmpSessionEntry 11 }
```

```
-- GSMP Session stats table
--
```

```
gsmpSessionStatTable OBJECT-TYPE
  SYNTAX      SEQUENCE OF GsmpSessionStatEntry
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "This table contains the statistics collected for
     the different sessions. "
 ::= { gsmpObjects 6 }
```

```
gsmpSessionStatEntry OBJECT-TYPE
  SYNTAX      GsmpSessionStatEntry
  MAX-ACCESS  not-accessible
  STATUS      current
  DESCRIPTION
    "An entry in the table contains
     statistics data for a specific session."
AUGMENTS { gsmpSessionEntry }
 ::= { gsmpSessionStatTable 1 }
```

```
GsmpSessionStatEntry ::= SEQUENCE {
    gsmpSessionStatUptime            Counter32,
    gsmpSessionStatSendmessages     Counter32,
    gsmpSessionStatFailureIndication Counter32,
```

```
gsmpSessionStatReceivedmessages      Counter32,
gsmpSessionStatReceivedFailure     Counter32,
gsmpSessionStatPortUpEvents        Counter32,
gsmpSessionStatPortDownEvents     Counter32,
gsmpSessionStatInvalidLabelEvents Counter32,
gsmpSessionStatNewPortEvents      Counter32,
gsmpSessionStatDeadPortEvents     Counter32,
gsmpSessionStatAdjacenyUpdateEvents Counter32
}

gsmpSessionStatUptime  OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The time in seconds that the session has been in
established state."
 ::= { gsmpSessionStatEntry 1 }

gsmpSessionStatSendmessages  OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The number of messages that has been sent in this
session."
 ::= { gsmpSessionStatEntry 2 }

gsmpSessionStatFailureIndication  OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The number of messages that has been sent with a
failure indication in this session."
 ::= { gsmpSessionStatEntry 3 }

gsmpSessionStatReceivedmessages  OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The number of messages that has been received in
this session."
 ::= { gsmpSessionStatEntry 4 }

gsmpSessionStatReceivedFailure   OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
```

STATUS current  
DESCRIPTION  
    "The number of messages that has been received in  
    this session with a failure indication."  
 ::= { gsmpSessionStatEntry 5 }

```
gsmpSessionStatPortUpEvents OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of Port Up events that has been send or
         received on this session."
    ::= { gsmpSessionStatEntry 6 }

gsmpSessionStatPortDownEvents OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of Port Down events that has been send or
         received on this session."
    ::= { gsmpSessionStatEntry 7 }

gsmpSessionStatInvalidLabelEvents OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of Invalid label events that has been send or
         received on this session."
    ::= { gsmpSessionStatEntry 8 }

gsmpSessionStatNewPortEvents OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of New Port events that has been send or
         received on this session."
    ::= { gsmpSessionStatEntry 9 }

gsmpSessionStatDeadPortEvents OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of Dead Port events that has been send or
         received on this session."
    ::= { gsmpSessionStatEntry 10 }

gsmpSessionStatAdjacenyUpdateEvents OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
```

STATUS current  
DESCRIPTION  
    "The number of Adjacency Update events that has been send or  
    received on this session."  
 ::= { gsmpSessionStatEntry 11 }

```
-- ****
-- GSMP Notifications
-- ****

gsmpNotificationsPrefix OBJECT IDENTIFIER ::= { gsmpNotifications 0 }
gsmpNotificationsObjects OBJECT IDENTIFIER ::= { gsmpNotifications 1 }

--
-- Notification objects
--

gsmpEventPort OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION
        "This object specifies the Port Number that is
         carried in this event."
    ::= { gsmpNotificationsObjects 1 }

gsmpEventPortSessionNumber OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION
        "This object specifies the Port Session Number that is
         carried in this event."
    ::= { gsmpNotificationsObjects 2 }

gsmpEventSequenceNumber OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION
        "This object specifies the Event Sequence Number that is
         carried in this event."
    ::= { gsmpNotificationsObjects 3 }

gsmpEventLabel OBJECT-TYPE
    SYNTAX      Unsigned32
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION
        "This object specifies the Label that is
         carried in this event."
    ::= { gsmpNotificationsObjects 4 }
```

--

-- Notifications

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--

```
gsmpSessionDownTrap NOTIFICATION-TYPE
OBJECTS {
    gsmpSessionThisSideId,
    gsmpSessionFarSideId,
    gsmpSessionStatUptime,
    gsmpSessionStatSendmessages,
    gsmpSessionStatFailureIndication,
    gsmpSessionStatReceivedmessages,
    gsmpSessionStatReceivedFailure,
    gsmpSessionStatPortUpEvents,
    gsmpSessionStatPortDownEvents,
    gsmpSessionStatInvalidLabelEvents,
    gsmpSessionStatNewPortEvents,
    gsmpSessionStatDeadPortEvents,
    gsmpSessionStatAdjacenyUpdateEvents
}
STATUS current
DESCRIPTION
"When it has been enabled, this notification is generated whenever a session is taken down, regardless of whether the session went down normally or abnormally. Its purpose is to allow a management application (primarily an accounting application) that is monitoring the session statistics to receive the final values of these counts, so that the application can properly account for the amounts the counts were incremented since the last time the application polled them. The gsmpSessionStatUptime object provides the total amount of time that the session was active.

This notification is not a substitute for polling the session statistic counts. In particular, the count values reported in this notification cannot be assumed to be the complete totals for the life of the session, since they may have wrapped while the session was up.

The session to which the objects in this notification apply is identified by the session gsmpSessionThisSideId, gsmpSessionFarSideId objects.

An instance of this notification will contain exactly one instance of each of its objects, and these objects will all belong to the same conceptual row of the gsmpSessionTable."
::= { gsmpNotificationsPrefix 1 }

gsmpSessionUpTrap NOTIFICATION-TYPE
```

```
OBJECTS {  
    gsmpSessionThisSideId,  
    gsmpSessionFarSideId,  
    gsmpSessionState  
}
```

```
STATUS current
DESCRIPTION
  "When it has been enabled, this notification is generated
  when new session is established.

  The new session is identified by the session
  gsmpSessionThisSideId, gsmpSessionFarSideId objects."
 ::= { gsmpNotificationsPrefix 2 }

gsmpSendFailureIndicationTrap NOTIFICATION-TYPE
OBJECTS {
    gsmpSessionThisSideId,
    gsmpSessionFarSideId,
    gsmpSessionLastFailureCode,
    gsmpSessionStatFailureIndication
}
STATUS current
DESCRIPTION
  "When it has been enabled, this notification is generated
  when a message with a failure indication was sent.

  The notification indicates a change in the value of
  gsmpSessionStatFailureIndication. The
  gsmpSessionLastFailureCode contains the failure reason."
 ::= { gsmpNotificationsPrefix 3 }

gsmpReceivedFailureIndicationTrap NOTIFICATION-TYPE
OBJECTS {
    gsmpSessionThisSideId,
    gsmpSessionFarSideId,
    gsmpSessionLastFailureCode,
    gsmpSessionStatReceivedFailure
}
STATUS current
DESCRIPTION
  "When it has been enabled, this notification is generated
  when a message with a failure indication received.

  The notification indicates a change in the value of
  gsmpSessionStatReceivedFailure. The
  gsmpSessionLastFailureCode contains the failure reason."
 ::= { gsmpNotificationsPrefix 4 }

gsmpPortUpEventTrap NOTIFICATION-TYPE
OBJECTS {
    gsmpSessionThisSideId,
    gsmpSessionFarSideId,
    gsmpSessionStatPortUpEvents,
    gsmpEventPort,
```

```
    gsmpEventPortSessionNumber,  
    gsmpEventSequenceNumber  
}  
STATUS current  
DESCRIPTION
```

"When it has been enabled, this notification is generated when a Port Up Event occurs.

The notification indicates a change in the value of gsmpSessionStatPortUpEvents."

```
::= { gsmpNotificationsPrefix 5 }
```

gsmpPortDownEventTrap NOTIFICATION-TYPE

OBJECTS {

    gsmpSessionThisSideId,  
    gsmpSessionFarSideId,  
    gsmpSessionStatPortDownEvents,  
    gsmpEventPort,  
    gsmpEventPortSessionNumber,  
    gsmpEventSequenceNumber  
}

STATUS current

DESCRIPTION

"When it has been enabled, this notification is generated when a Port Down Event occurs.

The notification indicates a change in the value of gsmpSessionStatPortDownEvents."

```
::= { gsmpNotificationsPrefix 6 }
```

gsmpInvalidLabelEventTrap NOTIFICATION-TYPE

OBJECTS {

    gsmpSessionThisSideId,  
    gsmpSessionFarSideId,  
    gsmpSessionStatInvalidLabelEvents,  
    gsmpEventPort,  
    gsmpEventLabel,  
    gsmpEventSequenceNumber  
}

STATUS current

DESCRIPTION

"When it has been enabled, this notification is generated when an Invalid Label Event occurs.

The notification indicates a change in the value of gsmpSessionStatInvalidLabelEvents."

```
::= { gsmpNotificationsPrefix 7 }
```

gsmpNewPortEventTrap NOTIFICATION-TYPE

OBJECTS {

    gsmpSessionThisSideId,  
    gsmpSessionFarSideId,  
    gsmpSessionStatNewPortEvents,  
    gsmpEventPort,

```
    gsmpEventPortSessionNumber,  
    gsmpEventSequenceNumber  
}  
STATUS current  
DESCRIPTION
```

"When it has been enabled, this notification is generated when a New Port Event occurs.

The notification indicates a change in the value of gsmpSessionStatNewPortEvents."

::= { gsmpNotificationsPrefix 8 }

gsmpDeadPortEventTrap NOTIFICATION-TYPE

OBJECTS {

    gsmpSessionThisSideId,  
    gsmpSessionFarSideId,  
    gsmpSessionStatDeadPortEvents,  
    gsmpEventPort,  
    gsmpEventPortSessionNumber,  
    gsmpEventSequenceNumber  
}

STATUS current

DESCRIPTION

"When it has been enabled, this notification is generated when a Dead Port Event occurs.

The notification indicates a change in the value of gsmpSessionStatDeadPortEvents."

::= { gsmpNotificationsPrefix 9 }

gsmpAdjacencyUpdateEventTrap NOTIFICATION-TYPE

OBJECTS {

    gsmpSessionThisSideId,  
    gsmpSessionFarSideId,  
    gsmpSessionAdjacencyCount,  
    gsmpSessionStatAdjacencyUpdateEvents,  
    gsmpEventSequenceNumber  
}

STATUS current

DESCRIPTION

"When it has been enabled, this notification is generated when an Adjacency Update Event occurs.

The gsmpSessionAdjacencyCount contains the new value of the number of adjacencies that are established with the controller and partition that is used for this session.

The notification indicates a change in the value of gsmpSessionStatAdjacencyUpdateEvents."

::= { gsmpNotificationsPrefix 10 }

- - \*\*\*\*

-- GSMP Compliance

```
--*****  
gsmpGroups      OBJECT IDENTIFIER ::= { gsmpConformance 1 }  
gsmpCompliances OBJECT IDENTIFIER ::= { gsmpConformance 2 }
```

```
gsmpModuleCompliance MODULE-COMPLIANCE
  STATUS current
  DESCRIPTION
    "The compliance statement for agents that support
     the GSMP MIB."
  MODULE -- this module
  MANDATORY-GROUPS { gsmpGeneralGroup
    }
  GROUP gsmpVsceGroup
  DESCRIPTION
    "This group is mandatory for all Virtual Switch
     Controllers"

  GROUP gsmpVseGroup
  DESCRIPTION
    "This group is mandatory for all Virtual Switches"

  GROUP gsmpAtmEncapGroup
  DESCRIPTION
    "This group must be supported if ATM is used for GSMP
     encapsulation. "

  GROUP gsmpTcpIpEncapGroup
  DESCRIPTION
    "This group must be supported if TCP/IP is used for GSMP
     encapsulation. "

  GROUP gsmpNotificationObjectsGroup
  DESCRIPTION
    "This group must be supported if notifications
     are supported. "

  GROUP gsmpNotificationsGroup
  DESCRIPTION
    "This group must be supported if notifications
     are supported. "

 ::= { gsmpCompliances 1 }

-- units of conformance

gsmpGeneralGroup OBJECT-GROUP
  OBJECTS {
    gsmpSessionVersion,
    gsmpSessionTimer,
    gsmpSessionState,
    gsmpSessionAdjacencyCount,
    gsmpSessionFarSideName,
    gsmpSessionFarSidePort,
```

gsmpSessionFarSideInstance,  
gsmpSessionLastFailureCode,  
gsmpSessionDiscontinuityTime,  
gsmpSessionStatUptime,

```
gsmpSessionStatSendmessages,
gsmpSessionStatFailureIndication,
gsmpSessionStatReceivedmessages,
gsmpSessionStatReceivedFailure,
gsmpSessionStatPortUpEvents,
gsmpSessionStatPortDownEvents,
gsmpSessionStatInvalidLabelEvents,
gsmpSessionStatNewPortEvents,
gsmpSessionStatDeadPortEvents,
gsmpSessionStatAdjacenyUpdateEvents
}
STATUS    current
DESCRIPTION
    "Objects that apply to all GSMP implementations."
::= { gsmpGroups 1 }
```

```
gsmpVsceGroup OBJECT-GROUP
OBJECTS {
gsmpVsceEncapType,
gsmpVsceMaxVersion,
gsmpVsceTimer,
gsmpVsceName,
gsmpVscePort,
gsmpVsceInstance,
gsmpVscePartitionId,
gsmpVsceDoResync,
gsmpVsceNotificationMapping,
gsmpVsceRowStatus
}
STATUS    current
DESCRIPTION
    "Objects that apply GSMP implementations of
    Virtual Switch Controllers."
::= { gsmpGroups 2 }
```

```
gsmpVseGroup OBJECT-GROUP
OBJECTS {
gsmpVseEncapType,
gsmpVseMaxVersion,
gsmpVseTimer,
gsmpVseName,
gsmpVsePort,
gsmpVseInstance,
gsmpVsePartitionId,
gsmpVseAllowMultContr,
gsmpVseNotificationMapping,
gsmpVseSwitchType,
gsmpVseWindowSize,
gsmpVseRowStatus
```

```
}
```

STATUS current

DESCRIPTION

"Objects that apply GSMP implementations of  
Virtual Switches."

```
 ::= { gsmpGroups 3 }

gsmpAtmEncapGroup OBJECT-GROUP
OBJECTS {
gsmpAtmEncapIfIndex,
gsmpAtmEncapVpi,
gsmpAtmEncapVci
}
STATUS current
DESCRIPTION
"Objects that apply to GSMP implementations that
supports ATM for GSMP encapsulation."
 ::= { gsmpGroups 4 }

gsmpTcpIpEncapGroup OBJECT-GROUP
OBJECTS {
gsmpTcpIpEncapAddress,
gsmpTcpIpPortNumber
}
STATUS current
DESCRIPTION
"Objects that apply to GSMP implementations that
supports TCP/IP for GSMP encapsulation."
 ::= { gsmpGroups 5 }

gsmpNotificationObjectsGroup OBJECT-GROUP
OBJECTS {
gsmpEventPort,
gsmpEventPortSessionNumber,
gsmpEventSequenceNumber,
gsmpEventLabel
}
STATUS current
DESCRIPTION
"Objects that are contained in the notifications."
 ::= { gsmpGroups 6 }

gsmpNotificationsGroup NOTIFICATION-GROUP
NOTIFICATIONS {
gsmpSessionDownTrap,
gsmpSessionUpTrap,
gsmpSendFailureIndicationTrap,
gsmpReceivedFailureIndicationTrap,
gsmpPortUpEventTrap,
gsmpPortDownEventTrap,
gsmpInvalidLabelEventTrap,
gsmpNewPortEventTrap,
gsmpDeadPortEventTrap,
gsmpAdjacenyUpdateEventTrap
```

```
}
```

STATUS current

DESCRIPTION

"The notifications which indicate specific changes in the value of objects gsmpSessionTable and gsmpSessionStatTable."

```
 ::= { gsmpGroups 7 }
```

END

## **5. Revision History**

This section should be removed when this document is published as an RFC.

### **5.1 Design considerations**

#### **5.1.1 Switch partitions**

The management of switch partitions falls outside of the management of GSMP, so this is excluded from the GSMP mib.

#### **5.1.2 Protocol mib**

The GSMP mib is only a protocol mib. It contains object to manage the GSMP protocol. It does not provide any information learned via the protocol, such as "all ports config" information.

#### **5.1.3 VSCE/VSE/VSC/VS relationships**

The relationships between Virtual Switch Controller Entity, Virtual Switch Entity, Virtual Switch Controller and Virtual Switch are not included in the mib.

#### **5.1.4 Multiple controllers**

It is possible to define the maximum number of VSCE controlling one VSE. It is however not possible to define that one VSCE doesn't allow other VSCE on the same switch. It is assumed that there are mechanisms that synchronize controllers and the configuration of them. This is outside the scope of this mib.

#### **5.1.5 Row index in notifications**

{gsmpSessionThisSideId, gsmpSessionFarSideId} are used as index in the notifications. Since they are row indexes they are specified as not-accessible in their definition and are hence not possible to send in a notification. It is considered poor MIB design to use index items in these clauses because their value is the same as the instance returned. Their value is inferred from the instance OID of other objects in the notification.



However, we violated this rule on purpose since we think that it's clearer this way. We need input from the WG for how their respective management systems prefer to get the information.

The mib compiles (smicng) if option -CN is used.

### **5.2 Changes from < [draft-ietf-gsmp-mib-00.txt](#) >**

Mib totally remade :-)

### **5.3 Changes from < [draft-ietf-gsmp-mib-01.txt](#) >**

- Imported AtmVcIdentifier, AtmVpIdentifier FROM ATM-TC-MIB
- Removed serviceModelType
- Separated the Vse and Vsce config stuff in separate tables.
- Also added ATM,TCP/IP, Vse and Vsce groups
- Added control of multiple controllers
- Added Vse window size and switch type configuration.
- Added control of resync strategy
- Added last failure code and discontinuity time
- Added event config and count
- Added notifications

## **6. Acknowledgments**

The authors would like to thank Avri Doria for valuable input and comments.

## **7. References**

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## 8. Security Considerations

Assuming that secure network management (such as SNMP v3) is implemented, the objects represented in this MIB do not pose a threat to the security of the network.

There are a number of management objects defined in this MIB that have a MAX-ACCESS clause of read-write and/or read-create. 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.

There are a number of managed objects in this MIB that may contain sensitive information. These are contained in the gsmpVsceTable and gsmpVseTable. It is thus important to control even GET access to these objects and possibly to even encrypt the values of these object when sending them over the network via SNMP. Not all

versions of SNMP provide features for such a secure environment.

SNMPv2 by itself is not a secure environment. 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.

It is recommended that the implementers consider the security features as provided by the SNMPv3 framework. Specifically, the use of the User-based Security Model [RFC 2574](#) [[RFC2574](#)] and the View-based Access Control Model [RFC 2575](#) [[RFC2575](#)] is recommended.

It is then a customer/user responsibility to ensure that the SNMP entity giving access to an instance of this MIB, 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.

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