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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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GSMP MIB

November 2000

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).

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.

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November 2000

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 Scope

The GSMP mib is a protocol mib. It contains object to configure, monitor and maintain the GSMP protocol agent. It does not provide any information learned via the protocol, such as "all ports config" information.

The relationships between virtual entities, such as Virtual Switch Entities, and entities, such as Switch Entities, falls outside of the management of GSMP. This also applies for the management of switch partitions. So this is excluded from the GSMP mib.

It is possible to configure which and how many Switch Controllers that are controlling one Switch since every potential session with the switch has to be represented with an Switch entity. It is however not possible to define that one Switch Controller shouldn't allow other Switch controllers to control the same switch or partition on the switch. It is assumed that there are mechanisms that synchronise controllers and the configuration of them. This is outside the scope of this mib.

3.2 Overview

Each instance of a switch controller - switch partition adjacency is a session between a switch controller entity and a switch entity. The MIB provides objects to configure/setup these entities to form the GSMP sessions.

Two tables are used to configure potential GSMP sessions depending if you are acting as a GSMP switch controller or a GSMP switch. Each row in these tables initiates a GSMP session. To create a Switch Entity, an entry in the `gsmpSwitchTable` is created. To create a Switch Controller Entity, an entry in the `gsmpControllerTable` is created.

In order to define and configure what encapsulation the potential GSMP session shall use, the `gsmpControllerEncapType` or `gsmpSwitchEncapType` object in the respective tables is set to ethernet, atm or tcp/ip. If atm is used, a row in the `gsmpAtmEncapTable` has to be created with the same index as in the controller or switch table. If tcp/ip is used, a row in the

`gsmpTcpIpEncapTable` has to be created with the same index as in the controller or switch table. No extra encapsulation info is needed if ethernet is used.

Another table, the `gsmpSessionTable`, shows the actual sessions that are established 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 `gsmpSessionTable` also contains statistical information regarding the session.

[3.3](#) MIB groups

[3.3.1](#) GSMP Switch Controller group

The controller group is used to configure a potential GSMP session on a Switch Controller. A row in the `gsmpControllerTable` 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 `gsmpControllerEncapType` object. If ATM or TCP/IP is used, further encapsulation 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 Controller ID object.

The adjacency parameters are defined; such as

- Max supported GSMP version
- ; Time between the periodic adjacency messages

- ; Controller local port number and instance number.
- ; Whether partitions are being used and the partition ID for the specific partitions this controller is concerned with if partitions are used.
- ; The resynchronisation strategy for the session is specified.

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

[3.3.2](#) GSMP Switch group

The switch group is used to configure a potential GSMP session on a Switch. A row in the `gsmpSwitchTable` 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 `gsmpSwitchEncapType` object. If ATM or TCP/IP is used, further encapsulation 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 Switch ID object.

The adjacency parameters are defined; such as

- Max supported GSMP version
- ; Time between the periodic adjacency messages
- ; Switch Name, local port number and instance number.
- ; Whether partitions are being used and the partition ID for this specific partition if partitions are used.
- The switch type could be set.
- The suggested maximum window size for unacknowledged request messages.

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

[3.3.3](#) 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 (or DNS address) and the port number are specified.

No special config data needed if Ethernet encapsulation is used.

[3.3.4](#) GSMP General group

The GSMP session table provides a way to monitor and maintain GSMP sessions.

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

[3.3.5](#) 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 each notification is done by setting the bitmap accordingly in the

Notification mapping objects in the Controller Entity or Switch Entity tables.

The group of notifications consists of the following notifications:

- gsmpSessionDownTrap

This notification is generated when a session is terminating and also reports the final accounting statistics of the session.

- gsmpSessionUpTrap

This notification is generated when a new session is established.

- gsmpSendFailureIndTrap

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 gsmpSessionTable.

- gsmpReceivedFailureIndTrap

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 gsmpSessionTable.

- gsmpPortUpEventTrap

This notification is generated when a Port Up Event is either received or sent.

- gsmpPortDownEventTrap

This notification is generated when a Port Down Event is either received or sent.

- gsmpInvalidLabelEventTrap

This notification is generated when an Invalid Label Event is either received or sent.

- gsmpNewPortEventTrap

This notification is generated when New Port Event either is received or sent.

- gsmpDeadPortEventTrap

This notification is generated when a Dead Port Event is either received or sent.

- gsmpAdjacencyUpdateEventTrap

This notification is generated when an Adjacency Update Event is either received or sent.

[3.4](#) Textual Conventions

The datatypes GsmpNameType, GsmpPartitionType, GsmpPartitionIdType and GsmpEncapType are used as textual conventions in this document.

These textual conventions have NO effect on neither the syntax nor the semantics of any managed object. Objects defined using these conventions are always encoded by means of the rules that define their primitive type. Hence, no changes to the SMI or the SNMP are necessary to accommodate these textual conventions which are adopted merely for the convenience of readers.

4. GSMP MIB Definitions

```
GSMP-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
    OBJECT-TYPE, MODULE-IDENTITY, NOTIFICATION-TYPE,  
    Unsigned32, Integer32, Counter32, mib-2  
        FROM SNMPv2-SMI -- RFC2578  
    RowStatus, TruthValue, TimeStamp, TEXTUAL-CONVENTION  
        FROM SNMPv2-TC -- RFC2579  
    MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP  
        FROM SNMPv2-CONF -- RFC2580  
    InterfaceIndex  
        FROM IF-MIB -- RFC2233  
    AtmVcIdentifier, AtmVpIdentifier  
        FROM ATM-TC-MIB -- RFC2514  
    InetAddressType, InetAddress  
        FROM INET-ADDRESS-MIB -- RFC2851  
    ;
```

```
gsmpMIB MODULE-IDENTITY
```

```
    LAST-UPDATED "200011130900Z" -- 13 November 2000, 10.00 MET  
    ORGANIZATION "General Switch Management Protocol (gsmp)  
        Working Group, IETF"
```

```
CONTACT-INFO
```

```
    "WG Chair: Avri Doria  
    Email: avri@nortelnetworks.com"
```

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GSMP MIB

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DESCRIPTION

"This MIB contains managed object definitions for the
General Switch Management Protocol, GSMP, version 3"
 ::= { mib-2 XXX }

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

--*****
-- GSMP Textual Conventions
--*****

GsmpNameType ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"The Name is a 48-bit quantity.
A 48-bit IEEE 802 MAC address, if
available, may be used."

SYNTAX OCTET STRING (SIZE(6))

GsmpPartitionType ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Defining if partitions are used and how the partition id
is negotiated. "

SYNTAX INTEGER {
noPartition(1),
fixedPartitionRequest(2),
fixedPartitionAssigned(3)
}

GsmpPartitionIdType ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"A 8-bit quantity. 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

subdivided into a 6-bit partition number and a 2-bit sub-identifier which would allow a switch to support 64 partitions with 4 available IDs per partition."
SYNTAX OCTET STRING (SIZE(1))

GsmEncapType ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION
"The encapsulation types defined for GSMP."
SYNTAX INTEGER {
ethernet(1),
atm(2),
tcpip(3)
}

GsmVersion ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION
"The version numbers defined for the GSMP protocol."
SYNTAX INTEGER {
noneOfTheBelow(0),
version1dot1(1),
version2dot0(2),
version3(3)
}

--*****
-- GSMP Entity Objects
--*****

--
-- Switch Controller Entity table
--

gsmControllerTable OBJECT-TYPE
SYNTAX SEQUENCE OF GsmControllerEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"This table represents the Switch Controller Entity that needs to be configured before a GSMP session might be started."
::= { gsmObjects 1 }

gsmControllerEntry OBJECT-TYPE
SYNTAX GsmControllerEntry
MAX-ACCESS not-accessible
STATUS current

DESCRIPTION

"An entry in the table showing the data for a specific Switch Controller Entity. If partitions are used, one entity corresponds to one specific switch partition. The entry should be persistently stored to survive a restart of the entity. "

INDEX { gsmcControllerEntityId }
 ::= { gsmcControllerTable 1 }

```
GsmcControllerEntry ::= SEQUENCE {
    gsmcControllerEntityId          GsmcNameType,
    gsmcControllerEncapType        GsmcEncapType,
    gsmcControllerMaxVersion       GsmcVersion,
    gsmcControllerTimer            Unsigned32,
    gsmcControllerPort             Unsigned32,
    gsmcControllerInstance         Unsigned32,
    gsmcControllerPartitionType    GsmcPartitionType,
    gsmcControllerPartitionId      GsmcPartitionIdType,
    gsmcControllerDoResync         TruthValue,
    gsmcControllerNotificationMap   BITS,
    gsmcControllerSessionState     INTEGER,
    gsmcControllerRowStatus        RowStatus
}
```

gsmcControllerEntityId OBJECT-TYPE

SYNTAX GsmcNameType
 MAX-ACCESS not-accessible
 STATUS current

DESCRIPTION

"The Switch Controller Entity Id is unique within the operational context of the device. "

::= { gsmcControllerEntry 1 }

gsmcControllerEncapType OBJECT-TYPE

SYNTAX GsmcEncapType
 MAX-ACCESS read-create
 STATUS current

DESCRIPTION

"The encapsulation used for this Switch Controller. If atm, a corresponding row in the gsmcAtmEncapTable has to be defined. If tcpip, a corresponding row in the gsmcTcpIpEncapTable has to be defined."

::= { gsmcControllerEntry 2 }

gsmcControllerMaxVersion OBJECT-TYPE

SYNTAX GsmVersion
MAX-ACCESS read-create

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STATUS current
DESCRIPTION
"The max version number of the GSMP protocol being used
in this session. The version is negotiated by the
adjacency protocol."
DEFVAL { version3 }
::= { gsmControllerEntry 3 }

gsmControllerTimer OBJECT-TYPE

SYNTAX Unsigned32(1..255)
UNITS "100ms"
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."
::= { gsmControllerEntry 4 }

gsmControllerPort OBJECT-TYPE

SYNTAX Unsigned32
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The local port number for the Switch Controller
Entity."
::= { gsmControllerEntry 5 }

gsmControllerInstance OBJECT-TYPE

SYNTAX Unsigned32(1..16777215)
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The instance number for the Switch Controller
Entity."
::= { gsmControllerEntry 6 }

gsmControllerPartitionType OBJECT-TYPE

SYNTAX GsmPartitionType
MAX-ACCESS read-create

STATUS current

DESCRIPTION

"A controller can assign the specific partition identifier to the session by setting the Partition Type to fixedPartitionAssigned(3). A controller can let the switch assign the partition identifier by setting the Partition Type to fixedPartitionRequest(2). A controller can specify that no partitions are handled in the session by setting the

Partition Type to noPartition(1)."
 ::= { gsmpControllerEntry 7 }

gsmpControllerPartitionId OBJECT-TYPE

SYNTAX GsmpPartitionIdType

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The Id for the specific switch partition that this Switch Controller is concerned with. If partitions are not used, i.e Partition Type = noPartition(1), or if the controller lets the switch assigns Partition ID, i.e Partition Type = fixedPartitionRequest(2), then this object should be set to zero."

::= { gsmpControllerEntry 8 }

gsmpControllerDoResync OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"This object specifies whether the controller should resynchronise or reset in case of loss of synchronisation. If this object is set to true then the Controller should resync with PFLAG=2 (recovered adjacency)."

DEFVAL { true }

::= { gsmpControllerEntry 9 }

gsmpControllerNotificationMap 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 sent if a GSMP event is received
    by the Switch Controller. If the bit is set to 1 a
    notification should be sent."

```

```

DEFVAL {{ sessionDown, sessionUp,
        sendFailureIndication, receivedFailureIndication }}
 ::= { gsmpControllerEntry 10 }

gsmpControllerSessionState OBJECT-TYPE
SYNTAX          INTEGER {
                    null(1),
                    synsent(2),
                    synrcvd(3),
                    estab(4)
                }
MAX-ACCESS      read-only
STATUS          current
DESCRIPTION
    "The state for the existing or potential session that
    this entity is concerned with.
    The NULL state is returned if the proper encapsulation
    data is not yet configured, if the row is not in active
    status or if the session is in NULL state as defined in
    the GSMP specification."
 ::= { gsmpControllerEntry 11}

gsmpControllerRowStatus 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."
 ::= { gsmpControllerEntry 12 }

--
-- Switch Entity table
--

gsmpSwitchTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF GsmpSwitchEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This table represents the Switch
        Entity that needs to be configured before a gsmp
        session might be started."
    ::= { gsmpObjects 2 }

gsmpSwitchEntry OBJECT-TYPE
    SYNTAX          GsmpSwitchEntry
    MAX-ACCESS      not-accessible

```

```

    STATUS          current
    DESCRIPTION
        "An entry in the table showing
        the data for a specific Switch
        Entity. If partitions are used, one entity
        corresponds to one specific switch partition.
        The entry should be persistently stored to
        survive a restart of the entity. "
    INDEX { gsmpSwitchEntityId }
    ::= { gsmpSwitchTable 1 }

GsmpSwitchEntry ::= SEQUENCE {
    gsmpSwitchEntityId      GsmpNameType,
    gsmpSwitchEncapType     GsmpEncapType,
    gsmpSwitchMaxVersion    GsmpVersion,
    gsmpSwitchTimer         Unsigned32,
    gsmpSwitchName          GsmpNameType,
    gsmpSwitchPort          Unsigned32,
    gsmpSwitchInstance      Unsigned32,
    gsmpSwitchPartitionType GsmpPartitionType,
    gsmpSwitchPartitionId   GsmpPartitionIdType,
    gsmpSwitchNotificationMap BITS,
    gsmpSwitchSwitchType    OCTET STRING,

```

```
gsmSwitchWindowSize      Unsigned32,
gsmSwitchSessionState    INTEGER,
gsmSwitchRowStatus       RowStatus
}
```

```
gsmSwitchEntityId OBJECT-TYPE
    SYNTAX      GsmNameType
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The Switch Entity Id is unique
        within the operational context of the device. "
    ::= { gsmSwitchEntry 1 }
```

```
gsmSwitchEncapType OBJECT-TYPE
    SYNTAX      GsmEncapType
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The encapsulation used to for this Switch Entity.
        If atm, a corresponding row in the gsmAtmEncapTable
        has to be defined.
        If tcpip, a corresponding row in the gsmTcpIpEncapTable
        has to be defined."
    ::= { gsmSwitchEntry 2 }
```

```
gsmSwitchMaxVersion OBJECT-TYPE
    SYNTAX      GsmVersion
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The max version number of the GSMP protocol being
        supported by this Switch. The version is negotiated by
        the adjacency protocol."
    DEFVAL { version3 }
    ::= { gsmSwitchEntry 3 }
```

```
gsmSwitchTimer OBJECT-TYPE
    SYNTAX      Unsigned32(1..255)
    UNITS       "100ms"
    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."

::= { gsmpSwitchEntry 4 }

gsmpSwitchName OBJECT-TYPE

SYNTAX GsmpNameType

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The name of the Switch. The first three octets must be an Organisationally Unique Identifier (OUI) that identifies the manufacturer of the Switch. This is by default set to the same value as the gsmpSwitchId object if not separately specified. "

::= {gsmpSwitchEntry 5}

gsmpSwitchPort OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The local port number for this Switch Entity."

::= { gsmpSwitchEntry 6 }

gsmpSwitchInstance OBJECT-TYPE

SYNTAX Unsigned32(1..16777215)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The instance number for the Switch Entity."

::= { gsmpSwitchEntry 7 }

gsmpSwitchPartitionType OBJECT-TYPE

SYNTAX GsmpPartitionType

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"A switch can assign the specific partition identifier to the session by setting the Partition Type to fixedPartitionAssigned(3). A switch can let the controller assign the partition identifier by setting the Partition

Type to fixedPartitionRequest(2). A switch can specify that no partitions are handled in the session by setting the Partition Type to noPartition(1)."
 ::= { gsmpSwitchEntry 8 }

gsmpSwitchPartitionId OBJECT-TYPE

SYNTAX GsmpPartitionIdType

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The Id for this specific switch partition that the switch entity represents. If partitions are not used, i.e. Partition Type = noPartition(1), or if the switch lets the controller assigns Partition ID, i.e. Partition Type = fixedPartitionRequest(2), then this object should be set to zero."

::= { gsmpSwitchEntry 9 }

gsmpSwitchNotificationMap 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 sent if an GSMP event is sent by the Switch Entity. If the bit is set to 1 a notification should be sent."

DEFVAL {{ sessionDown, sessionUp,
 sendFailureIndication, receivedFailureIndication }}
 ::= { gsmpSwitchEntry 10 }

gsmpSwitchSwitchType 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. "
 ::= { gsmpSwitchEntry 11 }

gsmpSwitchWindowSize 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 from being lost in the switch because of
 overflow in the receive buffer. The field is a hint to
 the controller."
 ::= { gsmpSwitchEntry 12 }

gsmpSwitchSessionState OBJECT-TYPE

SYNTAX INTEGER {
 null(1),
 syntent(2),
 synrcvd(3),
 estab(4)
 }
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The state for the existing or potential session that
 this entity is concerned with.
 The NULL state is returned if the proper encapsulation
 data is not yet configured, if the row is not in active
 status or if the session is in NULL state as defined in
 the GSMP specification."
 ::= { gsmpSwitchEntry 13}

gsmpSwitchRowStatus 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."
 ::= { gsmpSwitchEntry 14 }

--*****
-- 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 Controller or Switch that uses atm as
        encapsulation.
        The entry should be persistently stored to
        survive a restart of the entity. "
    ::= { 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 Switch Controller or Switch."
    INDEX { gsmpAtmEncapEntityId }
    ::= { gsmpAtmEncapTable 1 }

GsmpAtmEncapEntry ::= SEQUENCE {
    gsmpAtmEncapEntityId GsmpNameType,
    gsmpAtmEncapIfIndex InterfaceIndex,
    gsmpAtmEncapVpi AtmVpIdentifier,
    gsmpAtmEncapVci AtmVcIdentifier,
    gsmpAtmEncapRowStatus RowStatus
}

gsmpAtmEncapEntityId OBJECT-TYPE
    SYNTAX GsmpNameType

```

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```
MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION
    "The Controller Id or Switch Id that is unique
    within the operational context of the device. "
 ::= { 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, 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, 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, i.e., the GSMP control
    channel for LLC/SNAP encapsulated GSMP messages on an
    ATM data link layer."
DEFVAL { 15 }
 ::= { gsmpAtmEncapEntry 4 }
```

```
gsmpAtmEncapRowStatus 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."
 ::= { gsmpAtmEncapEntry 5 }

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

gsmpTcpIpEncapTable OBJECT-TYPE
    SYNTAX          SEQUENCE OF GsmpTcpIpEncapEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "This table contains the encapsulation data
        for the Controller or Switch that uses TCP/IP as
        encapsulation. The entry should be persistently
        stored to survive a restart of the entity. "
    ::= { 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 Controller or Switch."
    INDEX { gsmpTcpIpEncapEntityId }
    ::= { gsmpTcpIpEncapTable 1 }

GsmpTcpIpEncapEntry ::= SEQUENCE {
    gsmpTcpIpEncapEntityId      GsmpNameType,
    gsmpTcpIpEncapAddressType  InetAddressType,
    gsmpTcpIpEncapAddress      InetAddress,
    gsmpTcpIpEncapPortNumber   Unsigned32,
    gsmpTcpIpEncapRowStatus    RowStatus
}

gsmpTcpIpEncapEntityId OBJECT-TYPE
```

SYNTAX Gsm>NameType
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"The Controller or Switch Id is unique
within the operational context of the device."
 ::= { gsm>TcpIpEncapEntry 1 }

gsm>TcpIpEncapAddressType OBJECT-TYPE
SYNTAX InetAddressType
MAX-ACCESS read-create

STATUS current
DESCRIPTION
"The type of address in gsm>TcpIpEncapAddress."
 ::= { gsm>TcpIpEncapEntry 2 }

gsm>TcpIpEncapAddress OBJECT-TYPE
SYNTAX InetAddress
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The IPv4 or IPv6 address used for
the GSMP session peer."
 ::= { gsm>TcpIpEncapEntry 3 }

gsm>TcpIpEncapPortNumber OBJECT-TYPE
SYNTAX Unsigned32(0..65535)
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The TCP port number used for the TCP session
establishment to the GSMP peer."
DEFVAL { 6068 }
 ::= { gsm>TcpIpEncapEntry 4 }

gsm>TcpIpEncapRowStatus 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."

```

 ::= { gsmpTcpIpEncapEntry 5 }

--*****
-- 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
        Controller and Switch pairs. "

```

```

 ::= { gsmpObjects 5 }

gsmpSessionEntry OBJECT-TYPE
    SYNTAX          GsmpSessionEntry
    MAX-ACCESS      not-accessible
    STATUS          current
    DESCRIPTION
        "An entry in the table showing
        the session data for a specific Controller and
        Switch pair. Also, statistics for this specific
        session is shown."
    INDEX { gsmpSessionThisSideId, gsmpSessionFarSideId }
    ::= { gsmpSessionTable 1 }

GsmpSessionEntry ::= SEQUENCE {
    gsmpSessionThisSideId          GsmpNameType,
    gsmpSessionFarSideId          GsmpNameType,
    gsmpSessionVersion            GsmpVersion,
    gsmpSessionTimer              Integer32,
    gsmpSessionPartitionId       GsmpPartitionIdType,
    gsmpSessionAdjacencyCount     Unsigned32,
    gsmpSessionFarSideName       GsmpNameType,
    gsmpSessionFarSidePort       Unsigned32,
    gsmpSessionFarSideInstance   Unsigned32,
    gsmpSessionLastFailureCode   Unsigned32,
    gsmpSessionDiscontinuityTime TimeStamp,

```

```

gsmSessionStatUptime           Counter32,
gsmSessionStatSentMessages     Counter32,
gsmSessionStatFailureIndication Counter32,
gsmSessionStatReceivedMessages Counter32,
gsmSessionStatReceivedFailure  Counter32,
gsmSessionStatPortUpEvents     Counter32,
gsmSessionStatPortDownEvents   Counter32,
gsmSessionStatInvLabelEvents   Counter32,
gsmSessionStatNewPortEvents    Counter32,
gsmSessionStatDeadPortEvents   Counter32,
gsmSessionStatAdjUpdateEvents  Counter32
}

```

gsmSessionThisSideId OBJECT-TYPE

```

SYNTAX          GsmNameType
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. "

```
 ::= { gsmSessionEntry 1 }
```

gsmSessionFarSideId OBJECT-TYPE

```

SYNTAX          GsmNameType
MAX-ACCESS      not-accessible
STATUS          current
DESCRIPTION

```

"The Far side ID uniquely identifies the entity that this session is established against. "

```
 ::= { gsmSessionEntry 2 }
```

gsmSessionVersion OBJECT-TYPE

```

SYNTAX          GsmVersion
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."

```
 ::= { gsmSessionEntry 3 }
```

gsmSessionTimer OBJECT-TYPE

SYNTAX Integer32
UNITS "100ms"
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 }

gsmpSessionPartitionId OBJECT-TYPE
SYNTAX GsmpPartitionIdType
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The Partition Id for the specific switch partition that this session is concerned with."
 ::= { gsmpSessionEntry 5 }

gsmpSessionAdjacencyCount OBJECT-TYPE
SYNTAX Unsigned32(1..255)
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object specifies the current number of adjacencies

that are established with controllers and the switch partition that is used for this session. The value includes this session."
 ::= { gsmpSessionEntry 6 }

gsmpSessionFarSideName OBJECT-TYPE
SYNTAX GsmpNameType
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(1..16777215)

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(0..255)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is the last failure code that was received over this session. If no failure code have 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 one or more of this session's counters

suffered a discontinuity. 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 }

```

gsmSessionStatUptime OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The time in seconds that the session have been in
        established state."
    ::= { gsmSessionEntry 12 }

gsmSessionStatSentMessages OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of messages that have been sent in this
        session."
    ::= { gsmSessionEntry 13 }

gsmSessionStatFailureIndication OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of messages that have been sent with a
        failure indication in this session."
    ::= { gsmSessionEntry 14 }

gsmSessionStatReceivedMessages OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of messages that have been received in
        this session."
    ::= { gsmSessionEntry 15 }

gsmSessionStatReceivedFailure OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current

```

```

DESCRIPTION
    "The number of messages that have been received in

```

this session with a failure indication."
 ::= { gsmpSessionEntry 16 }

gsmpSessionStatPortUpEvents OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

 "The number of Port Up events that have been sent or
 received on this session."

::= { gsmpSessionEntry 17 }

gsmpSessionStatPortDownEvents OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

 "The number of Port Down events that have been sent or
 received on this session."

::= { gsmpSessionEntry 18 }

gsmpSessionStatInvLabelEvents OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

 "The number of Invalid label events that have been sent
 or received on this session."

::= { gsmpSessionEntry 19 }

gsmpSessionStatNewPortEvents OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

 "The number of New Port events that have been sent or
 received on this session."

::= { gsmpSessionEntry 20 }

gsmpSessionStatDeadPortEvents OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

 "The number of Dead Port events that have been sent or
 received on this session."

::= { gsmpSessionEntry 21 }

```
gsmpSessionStatAdjUpdateEvents OBJECT-TYPE
    SYNTAX          Counter32
    MAX-ACCESS      read-only
    STATUS          current
    DESCRIPTION
        "The number of Adjacency Update events that have been sent
        or received on this session."
    ::= { gsmpSessionEntry 22 }

-- *****
-- 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
```

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```
        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 }

gsmpThisSideId OBJECT-TYPE
    SYNTAX      Gsm>NameType
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION
        "This side ID uniquely identifies the entity that this
        session event relates to. "
 ::= { gsmpNotificationsObjects 5 }

gsmpFarSideId OBJECT-TYPE
    SYNTAX      Gsm>NameType
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION
        "Far side ID uniquely identifies the other entity that
        this session event relates to. "
 ::= { gsmpNotificationsObjects 6 }

--
-- Notifications
--

gsmpSessionDownTrap NOTIFICATION-TYPE
    OBJECTS {
        gsmpThisSideId,
        gsmpFarSideId,
        gsmpSessionStatUptime,
        gsmpSessionStatSentMessages,
        gsmpSessionStatFailureIndication,
        gsmpSessionStatReceivedMessages,
        gsmpSessionStatReceivedFailure,
```

```
gsmSessionStatPortUpEvents,  
gsmSessionStatPortDownEvents,  
gsmSessionStatInvLabelEvents,  
gsmSessionStatNewPortEvents,  
gsmSessionStatDeadPortEvents,  
gsmSessionStatAdjUpdateEvents
```

```
    }  
    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 not.  
        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 counters, so that the application can  
        properly account for the amounts the counters were  
        incremented since the last time the application polled  
        them. The gsmSessionStatUptime 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 gsmThisSideId,  
        gsmFarSideId 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  
        gsmSessionTable."  
 ::= { gsmNotificationsPrefix 1 }  
  
gsmSessionUpTrap NOTIFICATION-TYPE  
    OBJECTS {  
        gsmThisSideId,  
        gsmFarSideId  
    }  
    STATUS current
```

DESCRIPTION

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

The new session is identified by the gsmpThisSideId, gsmpFarSideId objects."

::= { gsmpNotificationsPrefix 2 }

gsmpSentFailureIndTrap NOTIFICATION-TYPE

OBJECTS {
 gsmpThisSideId,
 gsmpFarSideId,

 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 }

gsmpReceivedFailureIndTrap NOTIFICATION-TYPE

OBJECTS {
 gsmpThisSideId,
 gsmpFarSideId,
 gsmpSessionLastFailureCode,
 gsmpSessionStatReceivedFailure
}

STATUS current

DESCRIPTION

"When it has been enabled, this notification is generate when a message with a failure indication is received.

The notification indicates a change in the value of gsmpSessionStatReceivedFailure. The gsmpSessionLastFailureCode contains the failure

```
        reason."
 ::= { gsmpNotificationsPrefix 4 }
```

```
gsmpPortUpEventTrap NOTIFICATION-TYPE
```

```
  OBJECTS {
    gsmpThisSideId,
    gsmpFarSideId,
    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 {
    gsmpThisSideId,
    gsmpFarSideId,
    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 {
    gsmpThisSideId,
    gsmpFarSideId,
```

```

        gsmpSessionStatInvLabelEvents,
        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
    gsmpSessionStatInvLabelEvents."
 ::= { gsmpNotificationsPrefix 7 }

```

```

gsmpNewPortEventTrap NOTIFICATION-TYPE
OBJECTS {
    gsmpThisSideId,
    gsmpFarSideId,
    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 {
    gsmpThisSideId,
    gsmpFarSideId,
    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 {
 gsmpThisSideId,
 gsmpFarSideId,
 gsmpSessionAdjacencyCount,
 gsmpSessionStatAdjUpdateEvents,
 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 controllers and the switch partition that is used for this session.

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

::= { 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 { gsmGeneralGroup
                    }
GROUP gsmControllerGroup
DESCRIPTION
    "This group is mandatory for all Switch
    Controllers"

GROUP gsmSwitchGroup
DESCRIPTION
    "This group is mandatory for all Switches"

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

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

OBJECT gsmTcpIpEncapAddressType
DESCRIPTION
    "An implementation is only required to support
    'unknown(0)', and IPv4 addresses. Supporting IPv6 addresses
    is optional. Defining Internet addresses by using DNS
    domain names are not allowed."

OBJECT gsmTcpIpEncapAddress
DESCRIPTION
    "An implementation is only required to support
    IPv4 addresses. Supporting IPv6 addresses
    is optional. Prefix sizes could range from 0..20."

GROUP gsmNotificationObjectsGroup
DESCRIPTION
```

```
"This group must be supported if notifications
are supported. "
```

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

```

 ::= { gsmpCompliances 1 }

-- units of conformance

gsmpGeneralGroup OBJECT-GROUP
  OBJECTS {
    gsmpSessionVersion,
    gsmpSessionTimer,
    gsmpSessionPartitionId,
    gsmpSessionAdjacencyCount,
    gsmpSessionFarSideName,
    gsmpSessionFarSidePort,
    gsmpSessionFarSideInstance,
    gsmpSessionLastFailureCode,
    gsmpSessionDiscontinuityTime,
    gsmpSessionStatUptime,
    gsmpSessionStatSentMessages,
    gsmpSessionStatFailureIndication,
    gsmpSessionStatReceivedMessages,
    gsmpSessionStatReceivedFailure,
    gsmpSessionStatPortUpEvents,
    gsmpSessionStatPortDownEvents,
    gsmpSessionStatInvLabelEvents,
    gsmpSessionStatNewPortEvents,
    gsmpSessionStatDeadPortEvents,
    gsmpSessionStatAdjUpdateEvents
  }
  STATUS      current
  DESCRIPTION
    "Objects that apply to all GSMP implementations."
  ::= { gsmpGroups 1 }

gsmpControllerGroup OBJECT-GROUP
  OBJECTS {
    gsmpControllerEncapType,
    gsmpControllerMaxVersion,
    gsmpControllerTimer,
    gsmpControllerPort,
    gsmpControllerInstance,
    gsmpControllerPartitionType,
    gsmpControllerPartitionId,

```

```
gsmcControllerNotificationMap,  
gsmcControllerSessionState,  
gsmcControllerRowStatus  
}  
STATUS current  
DESCRIPTION  
  "Objects that apply GSMP implementations of  
  Switch Controllers."  
 ::= { gsmcGroups 2 }
```

gsmSwitchGroup OBJECT-GROUP

```
OBJECTS {  
gsmSwitchEncapType,  
gsmSwitchMaxVersion,  
gsmSwitchTimer,  
gsmSwitchName,  
gsmSwitchPort,  
gsmSwitchInstance,  
gsmSwitchPartitionType,  
gsmSwitchPartitionId,  
gsmSwitchNotificationMap,  
gsmSwitchSwitchType,  
gsmSwitchWindowSize,  
gsmSwitchSessionState,  
gsmSwitchRowStatus  
}  
STATUS current  
DESCRIPTION  
  "Objects that apply GSMP implementations of  
  Switches."  
 ::= { gsmcGroups 3 }
```

gsmAtmEncapGroup OBJECT-GROUP

```
OBJECTS {  
gsmAtmEncapIfIndex,  
gsmAtmEncapVpi,  
gsmAtmEncapVci,  
gsmAtmEncapRowStatus  
}  
STATUS current  
DESCRIPTION  
  "Objects that apply to GSMP implementations that  
  supports ATM for GSMP encapsulation."  
 ::= { gsmcGroups 4 }
```

gsmTcpIpEncapGroup OBJECT-GROUP

```
OBJECTS {  
gsmTcpIpEncapAddressType,
```

```
gsmpTcpIpEncapAddress,  
gsmpTcpIpEncapPortNumber,  
gsmpTcpIpEncapRowStatus  
}
```

```
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,  
gsmpThisSideId,  
gsmpFarSideId}
```

```
STATUS current
```

```
DESCRIPTION
```

```
"Objects that are contained in the notifications."
```

```
::= { gsmpGroups 6 }
```

```
gsmpNotificationsGroup NOTIFICATION-GROUP
```

```
NOTIFICATIONS {
```

```
gsmpSessionDownTrap,  
gsmpSessionUpTrap,  
gsmpSentFailureIndTrap,  
gsmpReceivedFailureIndTrap,  
gsmpPortUpEventTrap,  
gsmpPortDownEventTrap,  
gsmpInvalidLabelEventTrap,  
gsmpNewPortEventTrap,  
gsmpDeadPortEventTrap,  
gsmpAdjacencyUpdateEventTrap  
}
```

```
STATUS current
```

```
DESCRIPTION
```

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

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

```
END
```

Internet Draft

GSMP MIB

November 2000

5. Revision History

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

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

Mib totally remade :-)

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

Besides from editorial changes the following updates was made;

- Imported AtmVcIdentifier, AtmVpIdentifier FROM ATM-TC-MIB
- Removed serviceModelType
- Separated the Vse and Vsce config stuf 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

5.3 Changes from < [draft-ietf-gsmp-mib-02.txt](#) >

Besides from editorial changes the following updates was made;

- Added gsmpThisSideId and gsmpFarSideId helper objects.
- Replaced Ipv4 address type with TC for Internet Network Addresses
- Added textual conventions for reader convenience.
- Removed gsmpVsceName object and added default behaviour of gsmpVseName
 - ; Added row status objects for the encap tables.
 - ; Added DEFVAL and ranges to objects.
 - ; Persistent storage clarified
 - ; "Virtual" removed from names and concepts. gsmpVsceTable now gsmpControllerTable and gsmpVseTable is gsmpSwitchTable.
 - ; Partition Type object added.
 - ; Session state moved from Session table to Controller and Switch tables.
 - ; Removed gsmpSwitchAllowMultContr object, it's redundant.
 - ; BITS import removed.

; Partition ID object added to session table.
; gsmpSessionStat table merged into the gmspSessionTable.

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6. Acknowledgments

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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 gsmpSwitchTable and gsmpControllerTable. 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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