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

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Status of this Memo

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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 protocol operations and associated PDU formats is described in RFC 1905 [RFC1905].

- A set of fundamental applications described in RFC 2573 [RFC2573] and the view-based access control mechanism described in 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 mib modelsprovides some managed objects according to GSMP v1.1 [RFC1987]. It does not address any of the new features in version 2

[RFC2397]. It is provided as a base for the work within the working group to define a mib.

3.1 The GSMP Server Group

3.1.1. The GSMP Control Port

Used to configure the interface used for the control port. This does not deal with the extended bearer capabilities of [24].

3.1.2. The GSMP Status

The status of the GSMP adjacency. THis does not deal with the additional states defined in [24].

3.1.3. The GSMP Port table

This is a read only table of all ports available to the GSMP. This does not deal with the new interface types or cababilities as defined in [24].

3.2. The GSMP Notifications Group

This is currently empty, but should be extended with notifications as defined in [24].

4. GSMP MIB Definitions

```
GSMP-MIB DEFINITIONS ::= BEGIN

     IMPORTS
         OBJECT-TYPE, MODULE-IDENTITY, NOTIFICATION-TYPE,
         Unsigned32, experimental
             FROM SNMPv2-SMI
         MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP
             FROM SNMPv2-CONF
         TEXTUAL-CONVENTION, TruthValue, RowStatus, TimeInterval
             FROM SNMPv2-TC
        InterfaceIndex
```



```
             FROM IF-MIB
        AtmVcIdentifier, AtmVpIdentifier
             FROM ATM-TC-MIB
         ;
```

```
      gsmpMIB MODULE-IDENTITY
         LAST-UPDATED "9910111200Z"  -- October 11, 1999
         ORGANIZATION "General Switch Management Protocol (gsmp) Working
Group"
         CONTACT-INFO
             "Hans Sjostrand (hans.sjostrand@etx.ericsson.se)
              Ericsson"
         DESCRIPTION
             "This MIB contains managed object definitions for the
             General Switch Management Protocol, GSMP, as defined in
             [RFC1987]."
         ::= { experimental 9877 } -- to be assigned

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

     gsmpServerObjects       OBJECT IDENTIFIER ::= { gsmpMIB 1 }
     gsmpClientObjects       OBJECT IDENTIFIER ::= { gsmpMIB 2 }
     gsmpNotifications       OBJECT IDENTIFIER ::= { gsmpMIB 3 }
     gsmpConformance         OBJECT IDENTIFIER ::= { gsmpMIB 4 }

     --*****************************************************************
     -- GSMP Objects
     --*****************************************************************
     --
     -- GSMP Control Port
     --

     gmspCtrlPortId OBJECT-TYPE
        SYNTAX  InterfaceIndex
        MAX-ACCESS  read-write
        STATUS  current
        DESCRIPTION
                "Identifyer of the interface which is used by the control
                part to control via GSMP the forwarding part. In the case
                with intergrated control part, this object is undefined.
                Changing this value is not allowed if thera are any gsmp
                ports defined. "
        ::= { gsmpServerObjects 1 }

     --
     -- GSMP Status
     --
```

```
gsmpAdjacencyStatus OBJECT-TYPE
   SYNTAX  INTEGER {
                   up(1),
                   down(2)
                   }
   MAX-ACCESS  read-only
   STATUS  current
   DESCRIPTION
           "Gives the status of the GSMP adjacency."
   ::= { gsmpServerObjects 2 }

--
-- GSMP Port table
--

gsmpPortTable OBJECT-TYPE
   SYNTAX        SEQUENCE OF GsmpPortEntry
   MAX-ACCESS    not-accessible
   STATUS        current
   DESCRIPTION
       "The table showing all ports that are accesible and
        controlable over the GSMP interface."
   ::= { gsmpServerObjects 3 }

gsmpPortEntry OBJECT-TYPE
   SYNTAX        GsmpPortEntry
   MAX-ACCESS    not-accessible
   STATUS        current
   DESCRIPTION
       "An entry in the table showing
        the data belonging to one port as
        defined over the GSMP interface."
   INDEX         { gsmpPortId }
   ::= { gsmpPortTable 1 }

GsmpPortEntry ::= SEQUENCE {
   gsmpPortId              InterfaceIndex,
   gsmpPortSessionNbr      Unsigned32,
   gsmpPortMinVpi          INTEGER,
   gsmpPortMinVci          INTEGER,
   gsmpPortMaxVpi          INTEGER,
   gsmpPortMaxVci          INTEGER,
   gsmpPortCellRate        Unsigned32,
   gsmpPortStatus          INTEGER,
   gsmpPortLineStatus      INTEGER
           }

gsmpPortId OBJECT-TYPE
```

```
        SYNTAX        InterfaceIndex
        MAX-ACCESS    not-accessible
        STATUS        current
        DESCRIPTION
            "This attribute identifies the ATM port over GSMP to
             to this ocnfiguration information refers.
             It corresponds to the IfIndex. "
        ::= { gsmpPortEntry 1 }

     gsmpPortSessionNbr OBJECT-TYPE
        SYNTAX        Unsigned32
        MAX-ACCESS    read-only
        STATUS        current
        DESCRIPTION
             "The current Port Session Number for the specified port.
             Each switch port maintains a Port Session Number assigned
             by the switch. The Port Session Number of a port remains
             unchanged while the port is continuously in the Available
             state. When a port returns to the Available state after it
             has been Unavailable, or after a power cycle, its Port
             Session Number is changed."
        ::= { gsmpPortEntry 2 }

     gsmpPortMinVpi OBJECT-TYPE
        SYNTAX        AtmVpIdentifier
        MAX-ACCESS    read-only
        STATUS        current
        DESCRIPTION
             "The minimum value of dynamically assigned incoming VPI that
             the connection table on the input port can support and may
             be controlled by GSMP."
        ::= { gsmpPortEntry 3 }

     gsmpPortMinVci OBJECT-TYPE
        SYNTAX        AtmVcIdentifier
        MAX-ACCESS    read-only
        STATUS        current
        DESCRIPTION
             "The minimum value of dynamically assigned incoming VCI that
             the connection table on the input port can support and may
             be controlled by GSMP."
        ::= { gsmpPortEntry 4 }

     gsmpPortMaxVpi OBJECT-TYPE
        SYNTAX        AtmVpIdentifier
        MAX-ACCESS    read-only
        STATUS        current
        DESCRIPTION
```

```
            "The maximum value of dynamically assigned incoming VPI that
            the connection table on the input port can support and may
            be controlled by GSMP. It is assumed that the input port
            can handle all values of VPI within the range Min VPI to
            Max VPI inclusive and that GSMP may control all values
            within this range."
        ::= { gsmpPortEntry 5 }

    gsmpPortMaxVci OBJECT-TYPE
        SYNTAX        AtmVpIdentifier
        MAX-ACCESS    read-only
        STATUS        current
        DESCRIPTION
            "The maximum value of dynamically assigned incoming VPI that
            the connection table on the input port can support and may
            be controlled by GSMP. It is assumed that the input port
            can handle all values of VPI within the range Min VPI to
            Max VPI inclusive and that GSMP may control all values
            within this range."
        ::= { gsmpPortEntry 6 }

    gsmpPortCellRate OBJECT-TYPE
        SYNTAX        Unsigned32
        MAX-ACCESS    read-only
        STATUS        current
        DESCRIPTION
            "A measure of the bandwidth of the port. It is the rate of
            cells arriving at or departing from the port in cells/s. It
            is assumed that both input port and output port have the
            same cell rate."
        ::= { gsmpPortEntry 7 }

    gsmpPortStatus OBJECT-TYPE
        SYNTAX        INTEGER {
                                available(1),
                                unavailable(2),
                                internalloopback(3),
                                externalloopback(4),
                                bothwayloopback(5)
                              }
        MAX-ACCESS    read-only
        STATUS        current
        DESCRIPTION
            "Gives the administrative state of the port."
```

```
        ::= { gsmpPortEntry 8 }

     gsmpPortLineStatus OBJECT-TYPE
        SYNTAX        INTEGER {
```



```
                                up(1),
                                down(2),
                                test(3)
                              }
        MAX-ACCESS    read-only
        STATUS        current
        DESCRIPTION
             "The status of the physical transmission medium connected to
             the port."
        ::= { gsmpPortEntry 9 }

     --*****************************************************************
     -- Module Compliance Statement
     --*****************************************************************

     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 {
                                gsmpServerGroup
                              }
         ::= { gsmpCompliances 1 }

     -- units of conformance

     gsmpServerGroup OBJECT-GROUP
         OBJECTS {
                gmspCtrlPortId,
                gsmpAdjacencyStatus,
                gsmpPortSessionNbr,
                gsmpPortMinVpi,
```

```
                gsmpPortMinVci,
                gsmpPortMaxVpi,
                gsmpPortMaxVci,
                gsmpPortCellRate,
                gsmpPortStatus,
                gsmpPortLineStatus
                   }
        STATUS    current
```



```
        DESCRIPTION
            "Objects that apply to all GSMP Server implementations."
        ::= { gsmpGroups 1 }

END
```

5. Revision History

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

This is the 00 version.

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.

9. Authors' Addresses

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10. Full Copyright Statement