

Network Working Group
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Definition of Textual Conventions and OBJECT-IDENTITIES
for Generalized Multiprotocol Label Switching (GMPLS)
Management

[draft-nadeau-ccamp-gmpls-tc-mib-01.txt](#)

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Abstract

This memo describes Textual Conventions and OBJECT-

IDENTITIES common to the Management Information Bases (MIBs) for managing Generalized Multiprotocol Label

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Switching (GMPLS) networks.

It supplements [[TCMIB](#)] which describes Textual Conventions and OBJECT-IDENTITIES common to the Management Information Bases (MIBs) for managing Multiprotocol Label Switching (MPLS) networks.

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[1.](#) Changes and Pending Work

This section must be removed before the draft progresses to RFC.

[1.1.](#) Changes Since the Last Version

Changes to get the MIB to compile.

[1.2.](#) Pending Work

No pending work items have been identified for this draft.

2. 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 defines Textual Conventions used in IETF GMPLS and GMPLS-related MIBs.

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This document supplements [[TCMIB](#)] that defines Textual Conventions and OBJECT-IDENTITIES for Multiprotocol Label Switching (MPLS) Management. [[TCMIB](#)] may continue to be used without this MIB in networks that support only MPLS.

Comments should be made directly to the CCAMP mailing list at ccamp@ops.ietf.org.

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](#), reference [[RFC2119](#)].

For an introduction to the concepts of GMPLS, see [[GMPLSArch](#)].

3. 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 STD 16, [RFC 1215](#) [[RFC1215](#)]. The second version, called SMIV2, is described in STD 58, [RFC 2578](#) [[RFC2578](#)], STD 58, [RFC 2579](#) [[RFC2579](#)] and STD 58, [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.

4. GMPLS TC MIB Definitions

```
GMPLS-TC-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
    MODULE-IDENTITY, experimental
        FROM SNMPv2-SMI
    TEXTUAL-CONVENTION
        FROM SNMPv2-TC
    ;
```

```
gmplsTCMIB MODULE-IDENTITY
```

```
    LAST-UPDATED
        "200201251200Z" -- 25 Jan 2002 12:00:00 GMT
    ORGANIZATION
        "Common Control And Management Protocols
        (CCAMP) Working Group"
    CONTACT-INFO
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Email comments to the CCAMP WG Mailing List
at ccamp@ops.ietf.org."

DESCRIPTION

"This MIB module defines Textual Conventions
and OBJECT-IDENTITIES for use in documents
defining management information bases
(MIBs) for managing GMPLS networks."

-- Revision history.

REVISION

"200111111100Z" -- 11 Nov 2001 11:00:00 GMT

DESCRIPTION

"Initial version."

REVISION

"200201251200Z" -- 25 Jan 2002 12:00:00 GMT

```

DESCRIPTION
    "Revision for compilation and work in
    progress."
 ::= { gmplsMIB 1 }

-- This object identifier needs to be assigned by IANA.
gmplsMIB OBJECT IDENTIFIER ::= { experimental xxx }

-- Textual Conventions (sorted alphabetically).

GmplsFreeformLabel ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "This value represents a freeform
        generalized MPLS Label.  This can be used
        to represent label types which are not
        standard in the drafts."
    SYNTAX OCTET STRING (SIZE (0..64))

GmplsGeneralizedLabelSubtypes ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "Determines the interpretation that should
        be applied to a label given its label type
        as specified by
        GmplsGeneralizedLabelTypes."
    SYNTAX INTEGER {
        mplLabel(1),
        portWavelengthLabel(2),
        freeformGeneralizedLabel(3),
        sonetLabel(4),
        sdhLabel(5),
        wavebandLabel(6)
    }

GmplsGeneralizedLabelTypes ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "The label types that are defined for
        Generalized MPLS."
    SYNTAX INTEGER {
        mplLabel(1),
        generalizedLabel(2)
    }

GmplsHopAddrType ::= TEXTUAL-CONVENTION
    STATUS      current
    DESCRIPTION
        "Identifies the type of address encoded in

```

an address object that forms a hop of an

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```
    explicit or reported route."
SYNTAX  INTEGER {
    ipv4(1),
    ipv6(2),
    asNumber(3),
    lspid(4),
    lspidIPv6(5),
    unnumberedIfIPv4(6),
    unnumberedIfIPv6(7)
}
```

GmplsSegmentDirection ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"The direction of data flow on an LSP segment with respect to the head of the LSP.

Where an LSP is signaled using a conventional signaling protocol, the 'head' of the LSP is the source of the signaling (also known as the ingress) and the 'tail' is the destination (also known as the egress).

For manually configured LSPs an arbitrary decision must be made about which LER is the 'head'."

```
SYNTAX  INTEGER {
```

```
    forward(1),
    reverse(2)
```

```
}
```

GmplsTrapEnable ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"Controls whether a specific notification (or set of notifications) is generated, and if so how.

If set to disabled (0), the notifications are not emitted. If set to oneAtATime (1), each notification may only carry information about an event for a single object. If set to rangeAllowed (2), each notification MAY carry information an identical event for a set of objects that have contiguous indexing, but note that implementations may send multiple individual notifications even when rangeAllowed is selected."

```
SYNTAX INTEGER {  
    disabled (0),  
    oneAtATime (1),  
    rangeAllowed (2)  
}
```

END

5. Security Considerations

This memo defines textual conventions and object identities for use in GMPLS MIB modules. Security issues for these MIB modules are addressed in the memos defining those modules.

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