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

[draft-nadeau-ccamp-gmpls-tc-mib-00.txt](#)

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Abstract

This memo describes Textual Conventions and OBJECT-IDENTITIES used for managing GMPLS networks. It supplements [[TCMIB](#)] which describes Textual Conventions and OBJECT-IDENTITIES used for managing 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](#)

This is the first version of this draft.

### [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.

This document supplements [\[TCMIB\]](#) that defines Textual Conventions and OBJECT-IDENTITIES for Multi-Protocol 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](mailto: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 [\[RFC2119\]](#).

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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

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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, Unsigned32, Integer32  
FROM SNMPv2-SMI  
transmission  
FROM [RFC1213](#)-MIB  
TEXTUAL-CONVENTION  
FROM SNMPv2-TC  
;

gmplsTCMIB MODULE-IDENTITY

LAST-UPDATED

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

## ORGANIZATION

"Common Control And Management Protocols (CCAMP)  
Working Group"

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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
    "2001111111100Z"    --    11    November    2001
11:00:00 GMT
DESCRIPTION
    "Initial version."
-- Above revision history to be replaced as
below.
REVISION
    "yyyymmddhhmmZ"
-- DESCRIPTION "Initial version, published as
RFC xxxx"
-- xxxx to be assigned by RFC Editor    ::= {
gmplsMIB 1 }

-- This object identifier needs to be assigned by IANA.
-- Note that MPLS has been assigned an ifType of 166 and
that an OID
-- of 166 has been suggested for the MPLS MIBs.
gmplsMIB OBJECT IDENTIFIER ::= { transmission 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),

```

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```

        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 {
        mplslabel(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
        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)
    }
```

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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