

Internet Engineering Task Force  
Internet-Draft  
Intended status: Standards Track  
Expires: January 7, 2013

G. Galimberti, Ed.  
G. Martinelli, Ed.  
Cisco  
D. Hiremagalur  
G. Grammel  
Juniper  
July 6, 2012

A SNMP MIB to manage GMPLS with General Constraints support  
draft-gmngm-ccamp-gencons-snmp-mib-00

## Abstract

This memo defines a portion of the Management Information Base (MIB) used by Simple Network Management Protocol (SNMP) for GMPLS based networks.

In particular in the context Wavelength Switching Optical Network (WSON) two sets of information were defined: a general constraints set (reusable by other technologies) and a WSON specific set. This document defines a MIB module for supporting general constraint information.

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Internet-Draft

GMPLS General Constrain MIB

July 2012

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Internet-Draft

GMPLS General Constrain MIB

July 2012

## 1. Introduction

This memo defines a portion of the Management Information Base (MIB) used by Simple Network Management Protocol (SNMP) in GMPLS networks.

Extentions to current GMPLS to support Wavelength Switched Optical Networks (WSO) [[RFC6163](#)] include new objects with specific protocol extentions. In particular some information where selected as a generic constrains since they could be easily apply to other technologies than WSO. As such this [[I-D.ietf-ccamp-gmpls-general-constraints-ospf-te](#)] OSPF-TE was proposed.

GMPLS general constrain some additional information to be stored in GMPLS TE Database (TED). For this reason this document will refer to current GMPLS MIB module defined in [[I-D.ietf-ccamp-gmpls-ted-mib](#)].

[EDITOR NOTE] Very early draft to start MIB activity on GMPSL-WSO related extentions and collect feedback from working group.

## 2. The Internet-Standard Management Framework

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to [section 7 of RFC 3410](#) [[RFC3410](#)].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP). Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIV2, which is described in STD 58, [RFC 2578](#) [[RFC2578](#)], STD 58, [RFC 2579](#) [[RFC2579](#)] and STD 58, [RFC 2580](#) [[RFC2580](#)].

### 3. Conventions

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](#)]. In the description of OIDs the convention: Set (S) Get (G) and Trap (T) conventions will describe the action allowed by the parameter.

### 4. Overview

In order to work this module need to be used in conjunction with [\[I-D.ietf-ccamp-gmpls-ted-mib\]](#) that defines the GMPLS TED MIB.

General constrains can be classified in two broad categories: link information (as other GMPLS TED information) and Node information (this is different from what currently available). This modules defines two tables following this classification.

It should be noted that TLV(s) informations related to General Constrains are reported here [\[I-D.ietf-ccamp-gmpls-general-constraints-ospf-te\]](#) while terms are first defined here [\[I-D.ietf-ccamp-rwa-info\]](#).

### 5. Structure of the MIB Module

In this section we provide a brief description of objects and how the module structure is.

#### 5.1. tedGenConsLinkTable

The tedGenConsLinkTable extend the tedTable defined in [\[I-D.ietf-ccamp-gmpls-ted-mib\]](#) and only contains specific objects defined by the general constrains. For all other GMPLS TE objects tedTable will apply.

##### 5.1.1. tedPortLabelRestrictions

This object defined within the tedGenConsTable and represent the label restrictions associated to a port or interface.

#### [5.1.2.](#) tedAvailableLabels

Available labels at the link.

#### [5.1.3.](#) tedSharedBackupLabels

Shared backup labels at the link.

### [5.2.](#) tedNodeTable

The tedGenConsNodeTable is used to indicate additional TED information that are related to the node. This is independently defined since node informations is something different than other TED information (usually related to link).

#### [5.2.1.](#) tedConnectivityMatrix

This is the Connectivity Matrix TLV.

## [6.](#) Relationship to Other MIB Modules

### [6.1.](#) Relationship to the [TEMPLATE TODO] MIB

### [6.2.](#) MIB modules required for IMPORTS

## [7.](#) Definitions

```
TED-GENCONS-MIB DEFINITIONS ::= BEGIN
```

```
--  
-- TED GENCONS Table  
--
```

```
tedGenConsTable OBJECT-TYPE
```

```

SYNTAX      SEQUENCE OF TedGenConsEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "GMPLS General Constrain MIB"
 ::= { tedObjects 1 }

tedGenConsEntry OBJECT-TYPE
    SYNTAX      TedGenConsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This entry"
    INDEX { }
 ::= { tedTable 1 }

TedGenConsEntry ::= SEQUENCE {

    }

```

END

## [8.](#) Security Considerations

There are a number of management objects defined in this MIB module with 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. These are the tables and objects and their sensitivity/vulnerability:

o

Some of the readable objects in this MIB module (i.e., objects with a MAX-ACCESS other than not-accessible) may be considered sensitive or vulnerable in some network environments. It is thus important to

control even GET and/or NOTIFY access to these objects and possibly to even encrypt the values of these objects when sending them over the network via SNMP.

SNMP versions prior to SNMPv3 did not include adequate security. 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 module.

It is RECOMMENDED that implementers consider the security features as provided by the SNMPv3 framework (see [\[RFC3410\], section 8](#)), including full support for the SNMPv3 cryptographic mechanisms (for authentication and privacy).

Further, deployment of SNMP versions prior to SNMPv3 is NOT RECOMMENDED. Instead, it is RECOMMENDED to deploy SNMPv3 and to enable cryptographic security. It is then a customer/operator responsibility to ensure that the SNMP entity giving access to an instance of this MIB module 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.

## [9.](#) IANA Considerations

Option #1:

The MIB module in this document uses the following IANA-assigned OBJECT IDENTIFIER values recorded in the SMI Numbers registry:

Descriptor	OBJECT IDENTIFIER value
-----	-----

sampleMIB	{ mib-2 XXX }
-----------	---------------

## Option #2:

Editor's Note (to be removed prior to publication): the IANA is requested to assign a value for "XXX" under the 'mib-2' subtree and to record the assignment in the SMI Numbers registry. When the assignment has been made, the RFC Editor is asked to replace "XXX" (here and in the MIB module) with the assigned value and to remove this note.

Note well: prior to official assignment by the IANA, an internet draft MUST use placeholders (such as "XXX" above) rather than actual numbers. See [RFC4181 Section 4.5](#) for an example of how this is done in an internet draft MIB module.

## Option #3:

This memo includes no request to IANA.

## [10.](#) Contributors

to be added.

## [11.](#) References

### [11.1.](#) Normative References

- [RFC2863] McCloghrie, K. and F. Kastenholz, "The Interfaces Group MIB", [RFC 2863](#), June 2000.
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[RFC2580] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Conformance Statements for SMIV2", STD 58, [RFC 2580](#), April 1999.

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## [11.2.](#) Informative References

[RFC3410] Case, J., Mundy, R., Partain, D., and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Management Framework", [RFC 3410](#), December 2002.

[RFC2629] Rose, M., "Writing I-Ds and RFCs using XML", [RFC 2629](#), June 1999.

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[I-D.ietf-ccamp-rwa-info]  
Lee, Y., Bernstein, G., Li, D., and W. Imajuku, "Routing and Wavelength Assignment Information Model for Wavelength Switched Optical Networks", [draft-ietf-ccamp-rwa-info-14](#) (work in progress), March 2012.

## [Appendix A.](#) Change Log

This optional section should be removed before the internet draft is submitted to the IESG for publication as an RFC.

Note to RFC Editor: please remove this appendix before publication as an RFC.

[Appendix B](#). Open Issues

Note to RFC Editor: please remove this appendix before publication as an RFC.

Authors' Addresses

Gabriele M. Galimberti (editor)  
Cisco  
Via Philips,12  
20900 - Monza  
Italy

Phone: +390392091462  
Email: ggalimbe@cisco.com

Giovanni Martinelli (editor)  
Cisco  
Via Philips,12  
20900 - Monza  
Italy

Email: giomarti@cisco.com

Dharini Hiremagalur  
Juniper  
1194 N Mathilda Avenue  
Sunnyvale - 94089 CA  
USA

Email: dharinih@juniper.net

Gert Grammel  
Juniper  
1194 N Mathilda Avenue  
Sunnyvale - 94089 CA  
USA

Email: [ggrammel@juniper.net](mailto:ggrammel@juniper.net)

Galimberti, et al.

Expires January 7, 2013

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