A SNMP MIB to manage GMPLS with General Constraints support
draft-gmggm-ccamp-gencons-snmp-mib-01

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 constrains set
   (reusable by other technologies) and a WSON specific set. This
   document defines a MIB module for supporting general constrain
   information.

Status of this Memo

   This Internet-Draft is submitted in full conformance with the
   provisions of BCP 78 and BCP 79.

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   material or to cite them other than as "work in progress."

   This Internet-Draft will expire on April 25, 2013.

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Table of Contents

1. Introduction

   This memo defines a portion of the Management Information Base (MIB)
   used by Simple Network Management Protocol (SNMP) in GMPLS networks
   in patricular for Wavelength Switched Optical Networks (WSON) as
   defined in [RFC6163].

   Those extentions were divided in two parts: generic constrains (as
   they can be easily applied to other technologies) and WSON specific
   contraints. This document aim to defines MIBs extentions to conver
   only the generic constrain part. The WSON specific MIB extentions
   will be covered by a separate document
   [I-D.gmggm-ccamp-wson-snmp-mib].

   As such, document [I-D.ietf-ccamp-general-constraint-encode] defines
   specific TLVs while
   [I-D.ietf-ccamp-gmpls-general-constraints-ospf-te] implement OSPF-TE
   related extentions. This MIB document aim to cover information
   defined in those general constrain drafts.

   [EDITOR NOTE] Very early draft to start MIB activity on GMPSL-WSON
   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 paramenter.

[4](#). Overview

Regarding exsting GMPLS MIBs modules, since the TED module
[I-D.ietf-ccamp-gmpls-ted-mib] already provide and extention to
previous GMPLS modules, we provide here a direct extention to it.
Additional GMPLS MIB modules this document uses are [RFC4802] and
[RFC4803].

Current GMPLS MIBs are covered by several documents. The most
important to refererence here are the [RFC4802] and [RFC4803]. Most
recent works on GMPLS MIBs is in [I-D.ietf-ccamp-gmpls-ted-mib],
whenever possible this document will reuse the same approach.

General constrains can be classified in two broads categories: link
information (as other GMPLS TED information) and Node information
(this is different from what currently available). For link
information the most similar definions are the ones from [RFC4803]
where the label table is defined. For node information however, new
specific information has to be defined.

[5](#). Structure of the MIB Module

Modules defined here provide additional information to existing GMPLS
MIBS in order to represent the general constrains information as
reported in [I-D.ietf-ccamp-general-constraint-encode]. This module
is organized into two tables as reported in the following sub
sections.

[5.1](#). gmplsGenConsAvailableLabelsTable

This object represent the Available Labels sub-TLV as defined in
[I-D.ietf-ccamp-general-constraint-encode] section 2.3. The object
represent a list of labels available on a given link, so the object
looks very similar to gmplsLabelTable defined in [RFC4803] (so the
GmplsLabelEntry might be reused here). The table entry will likely
need a reference to [I-D.ietf-ccamp-gmpls-ted-mib] (the index of the
corresponding TED MIB entry). The entry definition must report also
the priority associated to the label set as defined in sub-TLV.

Note that there should be some relationship among entries in this
table and entries in gmplsLabelTable: if a label appears in this
table, it cannot appear in gmplsLabelTable.

[5.2](#). gmplsGenConsSharedBackupLabelsTable

This object is exactly the equivalent of gmplsGenConsAvailableLabels
but for backup/restoration purpose. The object table will be

   different but the table entry will be the same as the previous table.

5.3. gmplsGenConsNodeTable

   This table indicates the Node constraints introduced by
   [I-D.ietf-ccamp-general-constraint-encode] as additional constrains
   compared to link/label constrains reported above.

   Among main information available in this table there are:

   o Connectivity Matrixes. This information represent some node
      internal constrain in term of connectivity. More than one matrix
      can be defined for a node.

   o Port Labels restrictions. This information represent a constain
      on ports vs labels (i.e. some ports may not support all
      wavelenghts.

   TBD how to organize this information.

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
     -- to be added once the structure is clearly defined

   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:

   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

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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.

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