

Internet Engineering Task Force  
Internet-Draft  
Intended status: Best Current  
Practice  
Expires: August 15, 2008

D. Harrington, Ed.  
Huawei Technologies (USA)  
February 12, 2008

**A Template for Internet Drafts Containing MIB Modules**  
**draft-harrington-text-mib-doc-template-04**

Status of This Memo

By submitting this Internet-Draft, each author represents that any applicable patent or other IPR claims of which he or she is aware have been or will be disclosed, and any of which he or she becomes aware will be disclosed, in accordance with [Section 6 of BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/1id-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on August 15, 2008.

Copyright Notice

Copyright (C) The IETF Trust (2008).

Abstract

This memo contains two annotated templates for IETF documents that contain the definition of MIB modules. It is intended to alleviate the work of the authors of such documents, making these more uniform and easier to read and review, thus furthering the quality of such documents and expediting their publication.

## Note: Foreword to RFC Editor

Note to RFC Editor - throughout the templates in the appendices, there are numerous sample requests for action by the RFC Editor that should not be removed from the template before publication of the template. These need to retain the RFC Editor requests to match the boilerplate included in the template.

For simplicity, there are no notes to the RFC Editor in this document that should be removed, except THIS section - the complete section entitled "Note: Foreword to RFC Editor".

## Table of Contents

<a href="#">1.</a>	Introduction . . . . .	<a href="#">3</a>
<a href="#">2.</a>	Overview . . . . .	<a href="#">3</a>
<a href="#">3.</a>	Security Considerations . . . . .	<a href="#">3</a>
<a href="#">4.</a>	IANA Considerations . . . . .	<a href="#">4</a>
<a href="#">5.</a>	Contributors . . . . .	<a href="#">4</a>
<a href="#">6.</a>	Normative References . . . . .	<a href="#">4</a>
<a href="#">Appendix A.</a>	Change Log . . . . .	<a href="#">4</a>
<a href="#">Appendix B.</a>	Open Issues . . . . .	<a href="#">4</a>
<a href="#">Appendix C.</a>	Text Template with Advice . . . . .	<a href="#">4</a>
<a href="#">Appendix D.</a>	Text Template without Advice . . . . .	<a href="#">15</a>



## **1. Introduction**

This memo contains two annotated templates for IETF documents that contain the definition of MIB modules. It is intended to alleviate the work of the authors of such documents, making these more uniform and easier to read and review, thus furthering the quality of such documents and expedite their publication.

## **2. Overview**

The template(s) enclosed in this document was developed at the request of the IETF MIB Doctors directorate, to make IETF documents that contain MIB modules more consistent. This makes it easier for a MIB Doctor to review the document. There are a number of MUSTs in the document; these usually refer to IESG requirements for internet drafts, and MIB Doctors are likely to check for these requirements.

The template contains boilerplates that are required for IETF MIB module documents. Using the latest revision of this template should ensure that the latest revision of the boilerplates are used, but the most up-to-date revisions are available at <http://www.ops.ietf.org/> and <http://www.rfc-editor.org/formatting.html>.

The template contains sections that describe the purpose and organization of the MIB module, and the relationship between this MIB module and other MIB modules. This makes it easier for MIB Doctors to understand the MIB module, which speeds the review process.

Editors should read [RFC4181](#) "Guidelines for Authors and Reviewers of MIB Documents" [[RFC4181](#)] which describes best current practices for MIB module document editing.

The document template does not include a template for the MIB module itself. Tools to validate MIB modules typically require that the MIB module be separated from the surrounding document. The MIB Doctors feel that the simplest approach is to develop the MIB module outside the document that contains the surrounding text, and then include the MIB module into the surrounding document written using this template.

An XML version of this template for use with xml2rfc is also available at <http://www.ops.ietf.org>.

## **3. Security Considerations**

This memo contains a template for editing; it has no impact on network security.



#### **4. IANA Considerations**

This memo includes no request to IANA.

#### **5. Contributors**

This template is based on contributions from the MIB Doctors, especially Juergen Schoenwaelder, Dave Perkins, C.M.Heard and Randy Presuhn.

#### **6. Normative References**

[RFC4181] Heard, C., "Guidelines for Authors and Reviewers of MIB Documents", [BCP 111](#), [RFC 4181](#), September 2005.

#### **Appendix A. Change Log**

Changes from -03- to -04-

1. typographical corrections.
2. included both a template with advice and a template without advice.
3. fixed alignment problems in IANA section.

Changes from -02- to -03-

1. Put the template into a CDATA artwork
2. rewrote sections as an envelope for the template.

#### **Appendix B. Open Issues**

#### **Appendix C. Text Template with Advice**

--- start of template ---

Internet Engineering Task Force  
Internet-Draft  
Intended status: Historic  
Expires: August 4, 2008

Y. Name, Ed.  
Editor affiliation  
February 1, 2008



Your MIB module document name  
Your MIB Document name here

## Status of This Memo

By submitting this Internet-Draft, each author represents that any applicable patent or other IPR claims of which he or she is aware have been or will be disclosed, and any of which he or she becomes aware will be disclosed, in accordance with [Section 6 of BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/1id-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on August 4, 2008.

## Copyright Notice

Copyright (C) The IETF Trust (2008).

## Abstract

[[anchor1: This template is for authors of IETF specifications containing MIB modules. This template can be used as a starting point to produce specifications that comply with the Operations & Management Area guidelines for MIB module internet drafts. Throughout the template, the marker "[TEMPLATE TODO]" is used as a placeholder to indicate an element or text that requires replacement or removal. All the places with [TEMPLATE TODO] markers should be replaced or removed before the document is submitted.]]

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols. In particular it defines objects for managing [TEMPLATE TODO].

[[anchor2: [TEMPLATE TODO]: describe what functionality will be





managed using this MIB module. It can be good to mention the protocol being managed, and whether there is a particular aspect of the protocol to be managed, or a particular goal of the module. But keep it brief. Remember, don't put any citations in the abstract, and expand your acronyms.]]

#### Foreword to template users

This template helps authors write the surrounding text needed in a MIB module internet draft, but does not provide a template for writing the MIB module itself.

Throughout this template, the marker "[TEMPLATE TODO]" is used as a reminder to the template user to indicate an element or text that requires replacement or removal by the template user before submission to the internet draft editor. All [TEMPLATE TODO] markers should be resolved and removed before you submit your document to the internet-draft editor.

For updated information on MIB module guidelines and templates, see [\[RFC4181\]](#) and <http://www.ops.ietf.org/>.

For information on writing internet drafts or RFCs, see <http://www.ietf.org/ietf/1id-guidelines.txt> and [RFC2223\(bis\)](#), and look at <http://www.ietf.org/ID-Checklist.html> for issues to note when writing drafts.

This template is not meant to be a complete list of everything needed to write MIB module internet drafts, but to summarize the often-needed basic features to get a document containing a MIB module started. An important purpose of the template is to aid authors in developing an internet draft that is laid out in a manner consistent with other internet drafts containing MIB modules. Internet drafts submitted for advancement to the standards track typically require review by a MIB Doctor. This template standardizes the layout and naming of sections, includes the appropriate boilerplate text, and facilitates the development of tools to automate the checking of MIB module internet drafts, to speed the WG and IESG review processes.

An XML template is also available. For information on XML2RFC, see [RFC2629](#) [[RFC2629](#)], <http://xml.resource.org/public/rfc/html/rfc2629.html> and "bis": <http://xml.resource.org/authoring/draft-mrose-writing-rfcs.html>. Also see <http://xml.resource.org/authoring/README.html> for 'rfc' option strings. The benefit of using the XML version of the template is that comments in the XML describe how to fill in each section of the template, and then XML2RFC will generate the actual internet-draft with your information. XML2RFC automatically handles much of



the boilerplate, references, and idnits issues for you.

Within the template, there is reference to a SAMPLE-MIB; all references to SAMPLE-MIB should be removed from your internet draft, and should be replaced by references to your MIB module, as appropriate.

[TEMPLATE TODO] THIS section, the complete section entitled "Note: Foreword to template users" should be removed by the template user from their document before submission.

[TEMPLATE TODO] Remove all page headings from the template document, and replace them with the appropriate headings for your internet draft.

Note to RFC Editor re: [TEMPLATE TODO] markers

Note to RFC Editor: When a document is developed using this template, the editor of the document should replace or remove all the places marked [TEMPLATE TODO] before submitting the document. If there are still [TEMPLATE TODO] markers, please send the document back to the editor.

## Table of Contents

1. Introduction
2. The Internet-Standard Management Framework
3. Conventions
4. Overview
5. Structure of the MIB Module
  - 5.1. Textual Conventions
  - 5.2. The [TEMPLATE TODO] Subtree
  - 5.3. The Notifications Subtree
  - 5.4. The Table Structures
6. Relationship to Other MIB Modules
  - 6.1. Relationship to the [TEMPLATE TODO] MIB
  - 6.2. MIB modules required for IMPORTS
7. Definitions
8. Security Considerations
9. IANA Considerations
10. Contributors
11. References
  - 11.1. Normative References
  - 11.2. Informative References
- [Appendix A](#). Change Log
- [Appendix B](#). Open Issues

## [1. Introduction](#)



This memo defines a portion of the Management Information Base (MIB) for use with network management protocols. In particular it defines objects for managing the [TEMPLATE TODO]

[[anchor4: [TEMPLATE TODO]: describe what functionality will be managed using this MIB module. Include citations for protocol specifications, architectures, related MIB modules, and protocol-specific management requirements. Provide an overview of why a MIB module is appropriate for this protocol, whether there is a particular aspect of the protocol to be managed, and how the module is expected to be used to achieve particular goals. Highlight anything 'different' about the module. For example, a read-only MIB module.]]

## 2. The Internet-Standard Management Framework

[[anchor6: The title and text for this section has been copied from the official boilerplate, and should not be modified unless the boilerplate text at <http://ops.ietf.org/mib-boilerplate.html> has changed. See [RFC4818 section 3.1](#) for a discussion of the boilerplate section.]]

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

[[anchor8: [TEMPLATE TODO] This boilerplate should be used if the [RFC2119](#) key words are used in the internet draft. The text in this section has been copied from the official boilerplate, and should not be modified.]]

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](#)].

## 4. Overview



[[anchor10: [TEMPLATE TODO] The narrative part should include an overview section that describes the scope and field of application of the MIB modules defined by the specification. See [RFC4181 section 3.2](#) for a discussion of the Narrative section.]]

## **5. Structure of the MIB Module**

[[anchor12: [TEMPLATE TODO] The narrative part SHOULD include one or more sections to briefly describe the structure of the MIB modules defined in the specification.]]

### **5.1. Textual Conventions**

[[anchor14: [TEMPLATE TODO] describe the textual conventions defined in the MIB module, and their purpose. It may be helpful to highlight any textual conventions imported from partner documents. Generic and Common Textual Conventions can be found summarized at <http://www.ops.ietf.org/mib-common-tcs.html>. If there are no textual conventions used in your MIB module, this section should be removed.]]

### **5.2. The [TEMPLATE TODO] Subtree**

[[anchor16: [TEMPLATE TODO] copy this section for each subtree in the MIB module, and describe the purpose of the subtree. For example, "The fooStats subtree provides information for identifying fault conditions and performance degradation of the foo functionality."]]

### **5.3. The Notifications Subtree**

[[anchor18: [TEMPLATE TODO] describe the notifications defined in the MIB module, and their purpose. Include a discussion of congestion control. You might want to discuss throttling as well. See [RFC2914](#).]]

### **5.4. The Table Structures**

[[anchor20: [TEMPLATE TODO] Describe the tables in the MIB module, their purpose, and their relationship to each other. If the row in one table is related to a row in another table, what happens when one of the rows is deleted? Should the related row be deleted as well? Consider both directions.]]

## **6. Relationship to Other MIB Modules**

[[anchor22: [TEMPLATE TODO]: The narrative part should include a section that specifies the relationship (if any) of the MIB modules contained in this internet drafts to other standards, particularly to





standards containing other MIB modules. If the MIB modules defined by the specification import definitions from other MIB modules or are always implemented in conjunction with other MIB modules, then those facts should be noted in the narrative section, as should any special interpretations of objects in other MIB modules. Note that citations may NOT be put into the MIB module portions of the internet draft, but documents used for Imported items are Normative references, so the citations should exist in the narrative section of the internet draft. The preferred way to fill in a REFERENCE clause in a MIB module is of the form: "Guidelines for Writing an IANA Considerations Section in RFCs", [RFC2434, section 2.3.](#)]]

### **6.1. Relationship to the [TEMPLATE TODO] MIB**

[[anchor24: Example: The Interface MIB [RFC2863](#) requires that any MIB module which is an adjunct of the Interface MIB clarify specific areas within the Interface MIB. These areas were intentionally left vague in the Interface MIB to avoid over-constraining the MIB, thereby precluding management of certain media-types. [Section 4 of RFC2863](#) enumerates several areas which a media-specific MIB must clarify. The implementor is referred to [RFC2863](#) in order to understand the general intent of these areas.]]

### **6.2. MIB modules required for IMPORTS**

[[anchor26: [TEMPLATE TODO]: Citations are not permitted within a MIB module, but any module mentioned in an IMPORTS clause or document mentioned in a REFERENCE clause is a Normative reference, and must be cited someplace within the narrative sections. If there are imported items in the MIB module, such as Textual Conventions, that are not already cited, they can be cited in text here. Since relationships to other MIB modules should be described in the narrative text, this section is typically used to cite modules from which Textual Conventions are imported. Example: "The following MIB module IMPORTS objects from SNMPv2-SMI [RFC2578](#), SNMPv2-TC [RFC2579](#), SNMPv2-CONF [RFC2580](#), and IF-MIB [RFC2863](#)."]]

## **7. Definitions**

[[anchor28: This section contains the actual MIB module(s). These MIB modules MUST be written in SMIV2 [RFC2578](#) [RFC2579](#) [RFC2580](#). See [Section 4 of RFC 4181](#) for guidelines on SMIV2 usage. See [Appendix C of RFC 4181](#) for suggested naming conventions.]]

[TEMPLATE TODO]: put your valid MIB module here.  
A list of tools that can help automate the process of checking MIB definitions can be found at <http://www.ops.ietf.org/mib-review-tools.html>



## 8. Security Considerations

[[anchor30: [TEMPLATE TODO] Each internet draft that defines one or more MIB modules MUST contain a section that discusses security considerations relevant to those modules. This section MUST be patterned after the latest approved template (available at <http://www.ops.ietf.org/mib-security.html>).]]

[[anchor31: [TEMPLATE TODO] if you have any read-write and/or read-create objects, please include the following boilerplate paragraph, and list the objects and their sensitivity.]]

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

[[anchor32: [TEMPLATE TODO] else if there are no read-write or read-create objects in your MIB module, use the following boilerplate paragraph.]]

There are no management objects defined in this MIB module that have a MAX-ACCESS clause of read-write and/or read-create. So, if this MIB module is implemented correctly, then there is no risk that an intruder can alter or create any management objects of this MIB module via direct SNMP SET operations.

[[anchor33: For all MIB modules you must evaluate whether any readable objects are sensitive or vulnerable (for instance, if they might reveal customer information or violate personal privacy laws such as those of the European Union if exposed to unauthorized parties). If so, please include the following boilerplate paragraph.]]

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. These are the tables and objects and their sensitivity/vulnerability:

o



- o [[anchor34: [TEMPLATE TODO] you should explicitly list by name any readable objects that are sensitive or vulnerable and the associated security risks should be spelled out (for instance, if they might reveal customer information or violate personal privacy laws such as those of the European Union if exposed to unauthorized parties).]]

[[anchor35: [TEMPLATE TODO] The following three boilerplate paragraphs should not be changed without very good reason. Changes will almost certainly require justification during IESG review.]]

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**

[[anchor37: [TEMPLATE TODO] In order to comply with IESG policy as set forth in <http://www.ietf.org/ID-Checklist.html>, every Internet-Draft that is submitted to the IESG for publication MUST contain an IANA Considerations section. The requirements for this section vary depending what actions are required of the IANA. See "Guidelines for Writing an IANA Considerations Section in RFCs" [\[RFC2434\]](#). and see [RFC4181 section 3.5](#) for more information on writing an IANA clause for a MIB module internet draft.]]

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**

## **11. References**

### **11.1. Normative References**

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC2578] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Structure of Management Information Version 2 (SMIv2)", STD 58, [RFC 2578](#), April 1999.
- [RFC2579] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Textual Conventions for SMIv2", STD 58, [RFC 2579](#), April 1999.
- [RFC2580] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Conformance Statements for SMIv2", STD 58, [RFC 2580](#), April 1999.

### **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.

[RFC4181] Heard, C., "Guidelines for Authors and Reviewers of MIB Documents", [BCP 111](#), [RFC 4181](#), September 2005.

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

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

## [Appendix B](#). Open Issues

[[anchor43: [TEMPLATE TODO] This list of issues listed in this optional section should be cleared and removed, and this optional section should be removed before the internet draft is submitted to the IESG for publication as an RFC.]]

### Author's Address

Editor name (editor)  
Editor affiliation  
Editor affiliation address  
Editor affiliation address  
Editor affiliation address

Phone: Editor address  
EMail: Editor email

### Full Copyright Statement

Copyright (C) The IETF Trust (2008).

This document is subject to the rights, licenses and restrictions contained in [BCP 78](#), and except as set forth therein, the authors retain all their rights.

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY, THE IETF TRUST AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

### Intellectual Property

The IETF takes no position regarding the validity or scope of any



Intellectual Property Rights or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights. Information on the procedures with respect to rights in RFC documents can be found in [BCP 78](#) and [BCP 79](#).

Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF on-line IPR repository at <http://www.ietf.org/ipr>.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at [ietf-ipr@ietf.org](mailto:ietf-ipr@ietf.org).

#### Acknowledgement

Funding for the RFC Editor function is provided by the IETF Administrative Support Activity (IASA).

---- end of template ---

#### [Appendix D](#). Text Template without Advice

--- start of template ---

Internet Engineering Task Force  
Internet-Draft  
Intended status: Historic  
Expires: August 4, 2008

Y. Name, Ed.  
Editor affiliation  
February 1, 2008



Your MIB module document name  
Your MIB Document name here

#### Status of This Memo

By submitting this Internet-Draft, each author represents that any applicable patent or other IPR claims of which he or she is aware have been or will be disclosed, and any of which he or she becomes aware will be disclosed, in accordance with [Section 6 of BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/1id-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on August 4, 2008.

#### Copyright Notice

Copyright (C) The IETF Trust (2008).

#### Abstract

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols. In particular it defines objects for managing [TEMPLATE TODO].

#### Foreword to template users

This template helps authors write the surrounding text needed in a MIB module internet draft, but does not provide a template for writing the MIB module itself.

Throughout this template, the marker "[TEMPLATE TODO]" is used as a reminder to the template user to indicate an element or text that requires replacement or removal by the template user before submission to the internet draft editor. All [TEMPLATE TODO] markers



should be resolved and removed before you submit your document to the internet-draft editor.

For updated information on MIB module guidelines and templates, see [RFC4181] and <http://www.ops.ietf.org/>.

For information on writing internet drafts or RFCs, see <http://www.ietf.org/ietf/1id-guidelines.txt> and RFC2223(bis), and look at <http://www.ietf.org/ID-Checklist.html> for issues to note when writing drafts.

This template is not meant to be a complete list of everything needed to write MIB module internet drafts, but to summarize the often-needed basic features to get a document containing a MIB module started. An important purpose of the template is to aid authors in developing an internet draft that is laid out in a manner consistent with other internet drafts containing MIB modules. Internet drafts submitted for advancement to the standards track typically require review by a MIB Doctor. This template standardizes the layout and naming of sections, includes the appropriate boilerplate text, and facilitates the development of tools to automate the checking of MIB module internet drafts, to speed the WG and IESG review processes.

An XML template is also available. For information on XML2RFC, see RFC2629 [RFC2629], <http://xml.resource.org/public/rfc/html/rfc2629.html> and "bis": <http://xml.resource.org/authoring/draft-mrose-writing-rfcs.html>. Also see <http://xml.resource.org/authoring/README.html> for 'rfc' option strings. The benefit of using the XML version of the template is that comments in the XML describe how to fill in each section of the template, and then XML2RFC will generate the actual internet-draft with your information. XML2RFC automatically handles much of the boilerplate, references, and idnits issues for you.

Within the template, there is reference to a SAMPLE-MIB; all references to SAMPLE-MIB should be removed from your internet draft, and should be replaced by references to your MIB module, as appropriate.

[TEMPLATE TODO] THIS section, the complete section entitled "Note: Foreword to template users" should be removed by the template user from their document before submission.

[TEMPLATE TODO] Remove all page headings from the template document, and replace them with the appropriate headings for your internet draft.

Note to RFC Editor re: [TEMPLATE TODO] markers





Note to RFC Editor: When a document is developed using this template, the editor of the document should replace or remove all the places marked [TEMPLATE TODO] before submitting the document. If there are still [TEMPLATE TODO] markers, please send the document back to the editor.

## Table of Contents

- 1. Introduction
- 2. The Internet-Standard Management Framework
- 3. Conventions
- 4. Overview
- 5. Structure of the MIB Module
  - 5.1. Textual Conventions
  - 5.2. The [TEMPLATE TODO] Subtree
  - 5.3. The Notifications Subtree
  - 5.4. The Table Structures
- 6. Relationship to Other MIB Modules
  - 6.1. Relationship to the [TEMPLATE TODO] MIB
  - 6.2. MIB modules required for IMPORTS
- 7. Definitions
- 8. Security Considerations
- 9. IANA Considerations
- 10. Contributors
- 11. References
  - 11.1. Normative References
  - 11.2. Informative References
- [Appendix A](#). Change Log
- [Appendix B](#). Open Issues

## **1. Introduction**

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols. In particular it defines objects for managing the [TEMPLATE TODO]

## **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](#)].

### **4. Overview**

### **5. Structure of the MIB Module**

#### **5.1. Textual Conventions**

#### **5.2. The [TEMPLATE TODO] Subtree**

#### **5.3. The Notifications Subtree**

#### **5.4. The Table Structures**

### **6. Relationship to Other MIB Modules**

#### **6.1. Relationship to the [TEMPLATE TODO] MIB**

#### **6.2. MIB modules required for IMPORTS**

### **7. Definitions**

[TEMPLATE TODO]: put your valid MIB module here.  
A list of tools that can help automate the process of checking MIB definitions can be found at <http://www.ops.ietf.org/mib-review-tools.html>

### **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

There are no management objects defined in this MIB module that have



a MAX-ACCESS clause of read-write and/or read-create. So, if this MIB module is implemented correctly, then there is no risk that an intruder can alter or create any management objects of this MIB module via direct SNMP SET operations.

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. These are the tables and objects and their sensitivity/vulnerability:

o

o

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

## [11.](#) References

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

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC2578] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Structure of Management Information Version 2 (SMIv2)", STD 58, [RFC 2578](#), April 1999.
- [RFC2579] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Textual Conventions for SMIv2", STD 58, [RFC 2579](#), April 1999.
- [RFC2580] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Conformance Statements for SMIv2", STD 58, [RFC 2580](#), April 1999.

### [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.





[RFC4181] Heard, C., "Guidelines for Authors and Reviewers of MIB Documents", [BCP 111](#), [RFC 4181](#), September 2005.

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

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

## [Appendix B](#). Open Issues

### Author's Address

Editor name (editor)  
Editor affiliation  
Editor affiliation address  
Editor affiliation address  
Editor affiliation address

Phone: Editor address  
EMail: Editor email

### Full Copyright Statement

Copyright (C) The IETF Trust (2008).

This document is subject to the rights, licenses and restrictions contained in [BCP 78](#), and except as set forth therein, the authors retain all their rights.

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY, THE IETF TRUST AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

### Intellectual Property

The IETF takes no position regarding the validity or scope of any Intellectual Property Rights or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights. Information on the procedures with respect to rights in RFC documents can be found in [BCP 78](#) and [BCP 79](#).



Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF on-line IPR repository at <http://www.ietf.org/ipr>.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at [ietf-ipr@ietf.org](mailto:ietf-ipr@ietf.org).

#### Acknowledgement

Funding for the RFC Editor function is provided by the IETF Administrative Support Activity (IASA).

---- end of template ---

#### Author's Address

David Harrington (editor)  
Huawei Technologies (USA)  
1700 Alma Drive, Suite 100  
Plano, TX 75075  
USA

Phone: +1 603 436 8634  
EMail: [dharrington@huawei.com](mailto:dharrington@huawei.com)



## Full Copyright Statement

Copyright (C) The IETF Trust (2008).

This document is subject to the rights, licenses and restrictions contained in [BCP 78](#), and except as set forth therein, the authors retain all their rights.

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY, THE IETF TRUST AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

## Intellectual Property

The IETF takes no position regarding the validity or scope of any Intellectual Property Rights or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights. Information on the procedures with respect to rights in RFC documents can be found in [BCP 78](#) and [BCP 79](#).

Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF on-line IPR repository at <http://www.ietf.org/ipr>.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at [ietf-ipr@ietf.org](mailto:ietf-ipr@ietf.org).

## Acknowledgement

Funding for the RFC Editor function is provided by the IETF Administrative Support Activity (IASA).

