

Network Working Group
Request for Comments: 3418
STD: 62
Obsoletes: 1907
Category: Standards Track

Editor of this version:
R. Presuhn
BMC Software, Inc.
Authors of previous version:
J. Case
SNMP Research, Inc.
K. McCloghrie
Cisco Systems, Inc.
M. Rose
Dover Beach Consulting, Inc.
S. Waldbusser
International Network Services
December 2002

Management Information Base (MIB) for the
Simple Network Management Protocol (SNMP)

Status of this Memo

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "Internet Official Protocol Standards" (STD 1) for the standardization state and status of this protocol. Distribution of this memo is unlimited.

Copyright Notice

Copyright (C) The Internet Society (2002). All Rights Reserved.

Abstract

This document defines managed objects which describe the behavior of a Simple Network Management Protocol (SNMP) entity. This document obsoletes RFC 1907, Management Information Base for Version 2 of the Simple Network Management Protocol (SNMPv2).

Table of Contents

1. The Internet-Standard Management Framework	2
2. Definitions	2
3. Notice on Intellectual Property	20
4. Acknowledgments	21
5. Security Considerations	22
6. References	23
6.1. Normative References	23
6.2. Informative References	24
7. Changes from RFC 1907	24
8. Editor's Address	25
9. Full Copyright Statement	26

1. 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].

It is the purpose of this document to define managed objects which describe the behavior of an SNMP entity, as defined in the SNMP architecture STD 62, [RFC3411].

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 BCP 14, RFC 2119 [RFC2119].

2. Definitions

SNMPv2-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY, OBJECT-TYPE, NOTIFICATION-TYPE,
TimeTicks, Counter32, snmpModules, mib-2
FROM SNMPv2-SMI
DisplayString, TestAndIncr, TimeStamp

FROM SNMPv2-TC
MODULE-COMPLIANCE, OBJECT-GROUP, NOTIFICATION-GROUP
FROM SNMPv2-CONF;

snmpMIB MODULE-IDENTITY

LAST-UPDATED "200210160000Z"

ORGANIZATION "IETF SNMPv3 Working Group"

CONTACT-INFO

"WG-EMail: snmpv3@lists.tislabs.com
Subscribe: snmpv3-request@lists.tislabs.com

Co-Chair: Russ Mundy
Network Associates Laboratories
postal: 15204 Omega Drive, Suite 300
Rockville, MD 20850-4601
USA
EMail: mundy@tislabs.com
phone: +1 301 947-7107

Co-Chair: David Harrington
Enterasys Networks
postal: 35 Industrial Way
P. O. Box 5005
Rochester, NH 03866-5005
USA
EMail: dbh@enterasys.com
phone: +1 603 337-2614

Editor: Randy Presuhn
BMC Software, Inc.
postal: 2141 North First Street
San Jose, CA 95131
USA
EMail: randy_presuhn@bmc.com
phone: +1 408 546-1006"

DESCRIPTION

"The MIB module for SNMP entities.

Copyright (C) The Internet Society (2002). This
version of this MIB module is part of RFC 3418;
see the RFC itself for full legal notices.

"

REVISION "200210160000Z"

DESCRIPTION

"This revision of this MIB module was published as
RFC 3418."

REVISION "199511090000Z"

DESCRIPTION

```
        "This revision of this MIB module was published as
        RFC 1907."
REVISION      "199304010000Z"
DESCRIPTION   "The initial revision of this MIB module was published
              as RFC 1450."
 ::= { snmpModules 1 }

snmpMIBObjects OBJECT IDENTIFIER ::= { snmpMIB 1 }

-- ::= { snmpMIBObjects 1 }          this OID is obsolete
-- ::= { snmpMIBObjects 2 }          this OID is obsolete
-- ::= { snmpMIBObjects 3 }          this OID is obsolete

-- the System group
--
-- a collection of objects common to all managed systems.

system OBJECT IDENTIFIER ::= { mib-2 1 }

sysDescr OBJECT-TYPE
    SYNTAX      DisplayString (SIZE (0..255))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "A textual description of the entity. This value should
        include the full name and version identification of
        the system's hardware type, software operating-system,
        and networking software."
    ::= { system 1 }

sysObjectID OBJECT-TYPE
    SYNTAX      OBJECT IDENTIFIER
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The vendor's authoritative identification of the
        network management subsystem contained in the entity.
        This value is allocated within the SMI enterprises
        subtree (1.3.6.1.4.1) and provides an easy and
        unambiguous means for determining 'what kind of box' is
        being managed. For example, if vendor 'Flintstones,
        Inc.' was assigned the subtree 1.3.6.1.4.1.424242,
        it could assign the identifier 1.3.6.1.4.1.424242.1.1
        to its 'Fred Router'."
    ::= { system 2 }

sysUpTime OBJECT-TYPE
```

SYNTAX TimeTicks
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The time (in hundredths of a second) since the
 network management portion of the system was last
 re-initialized."
::= { system 3 }

sysContact OBJECT-TYPE

SYNTAX DisplayString (SIZE (0..255))
MAX-ACCESS read-write
STATUS current
DESCRIPTION
 "The textual identification of the contact person for
 this managed node, together with information on how
 to contact this person. If no contact information is
 known, the value is the zero-length string."
::= { system 4 }

sysName OBJECT-TYPE

SYNTAX DisplayString (SIZE (0..255))
MAX-ACCESS read-write
STATUS current
DESCRIPTION
 "An administratively-assigned name for this managed
 node. By convention, this is the node's fully-qualified
 domain name. If the name is unknown, the value is
 the zero-length string."
::= { system 5 }

sysLocation OBJECT-TYPE

SYNTAX DisplayString (SIZE (0..255))
MAX-ACCESS read-write
STATUS current
DESCRIPTION
 "The physical location of this node (e.g., 'telephone
 closet, 3rd floor'). If the location is unknown, the
 value is the zero-length string."
::= { system 6 }

sysServices OBJECT-TYPE

SYNTAX INTEGER (0..127)
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "A value which indicates the set of services that this
 entity may potentially offer. The value is a sum.

This sum initially takes the value zero. Then, for each layer, L, in the range 1 through 7, that this node performs transactions for, 2 raised to (L - 1) is added to the sum. For example, a node which performs only routing functions would have a value of 4 ($2^{(3-1)}$). In contrast, a node which is a host offering application services would have a value of 72 ($2^{(4-1)} + 2^{(7-1)}$). Note that in the context of the Internet suite of protocols, values should be calculated accordingly:

layer	functionality
1	physical (e.g., repeaters)
2	datalink/subnetwork (e.g., bridges)
3	internet (e.g., supports the IP)
4	end-to-end (e.g., supports the TCP)
7	applications (e.g., supports the SMTP)

For systems including OSI protocols, layers 5 and 6 may also be counted."

```
::= { system 7 }
```

```
-- object resource information
```

```
--
```

```
-- a collection of objects which describe the SNMP entity's
-- (statically and dynamically configurable) support of
-- various MIB modules.
```

```
sysORLastChange OBJECT-TYPE
```

```
SYNTAX      TimeStamp
```

```
MAX-ACCESS read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

"The value of sysUpTime at the time of the most recent change in state or value of any instance of sysORID."

```
::= { system 8 }
```

```
sysORTable OBJECT-TYPE
```

```
SYNTAX      SEQUENCE OF SysOREntry
```

```
MAX-ACCESS not-accessible
```

```
STATUS      current
```

```
DESCRIPTION
```

"The (conceptual) table listing the capabilities of the local SNMP application acting as a command responder with respect to various MIB modules. SNMP entities having dynamically-configurable support of MIB modules will have a dynamically-varying number of conceptual rows."

```
::= { system 9 }
```

```
sysOREntry OBJECT-TYPE
    SYNTAX      SysOREntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry (conceptual row) in the sysORTable."
    INDEX       { sysORIndex }
    ::= { sysORTable 1 }

SysOREntry ::= SEQUENCE {
    sysORIndex      INTEGER,
    sysORID         OBJECT IDENTIFIER,
    sysORDescr      DisplayString,
    sysORUpTime     TimeStamp
}

sysORIndex OBJECT-TYPE
    SYNTAX      INTEGER (1..2147483647)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The auxiliary variable used for identifying instances
         of the columnar objects in the sysORTable."
    ::= { sysOREntry 1 }

sysORID OBJECT-TYPE
    SYNTAX      OBJECT IDENTIFIER
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "An authoritative identification of a capabilities
         statement with respect to various MIB modules supported
         by the local SNMP application acting as a command
         responder."
    ::= { sysOREntry 2 }

sysORDescr OBJECT-TYPE
    SYNTAX      DisplayString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "A textual description of the capabilities identified
         by the corresponding instance of sysORID."
    ::= { sysOREntry 3 }

sysORUpTime OBJECT-TYPE
    SYNTAX      TimeStamp
    MAX-ACCESS  read-only
```

```
STATUS      current
DESCRIPTION
    "The value of sysUpTime at the time this conceptual
    row was last instantiated."
 ::= { sysOREntry 4 }

-- the SNMP group
--
-- a collection of objects providing basic instrumentation and
-- control of an SNMP entity.

snmp      OBJECT IDENTIFIER ::= { mib-2 11 }

snmpInPkts OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of messages delivered to the SNMP
        entity from the transport service."
    ::= { snmp 1 }

snmpInBadVersions OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of SNMP messages which were delivered
        to the SNMP entity and were for an unsupported SNMP
        version."
    ::= { snmp 3 }

snmpInBadCommunityNames OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of community-based SNMP messages (for
        example, SNMPv1) delivered to the SNMP entity which
        used an SNMP community name not known to said entity.
        Also, implementations which authenticate community-based
        SNMP messages using check(s) in addition to matching
        the community name (for example, by also checking
        whether the message originated from a transport address
        allowed to use a specified community name) MAY include
        in this value the number of messages which failed the
        additional check(s).  It is strongly RECOMMENDED that
```


the documentation for any security model which is used to authenticate community-based SNMP messages specify the precise conditions that contribute to this value."

```
::= { snmp 4 }
```

snmpInBadCommunityUses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The total number of community-based SNMP messages (for example, SNMPv1) delivered to the SNMP entity which represented an SNMP operation that was not allowed for the SNMP community named in the message. The precise conditions under which this counter is incremented (if at all) depend on how the SNMP entity implements its access control mechanism and how its applications interact with that access control mechanism. It is strongly RECOMMENDED that the documentation for any access control mechanism which is used to control access to and visibility of MIB instrumentation specify the precise conditions that contribute to this value."

```
::= { snmp 5 }
```

snmpInASNParseErrs OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The total number of ASN.1 or BER errors encountered by the SNMP entity when decoding received SNMP messages."

```
::= { snmp 6 }
```

snmpEnableAuthenTraps OBJECT-TYPE

SYNTAX INTEGER { enabled(1), disabled(2) }

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Indicates whether the SNMP entity is permitted to generate authenticationFailure traps. The value of this object overrides any configuration information; as such, it provides a means whereby all authenticationFailure traps may be disabled.

Note that it is strongly recommended that this object be stored in non-volatile memory so that it remains constant across re-initializations of the network management system."

```
::= { snmp 30 }

snmpSilentDrops OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of Confirmed Class PDUs (such as
        GetRequest-PDUs, GetNextRequest-PDUs,
        GetBulkRequest-PDUs, SetRequest-PDUs, and
        InformRequest-PDUs) delivered to the SNMP entity which
        were silently dropped because the size of a reply
        containing an alternate Response Class PDU (such as a
        Response-PDU) with an empty variable-bindings field
        was greater than either a local constraint or the
        maximum message size associated with the originator of
        the request."
    ::= { snmp 31 }

snmpProxyDrops OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The total number of Confirmed Class PDUs
        (such as GetRequest-PDUs, GetNextRequest-PDUs,
        GetBulkRequest-PDUs, SetRequest-PDUs, and
        InformRequest-PDUs) delivered to the SNMP entity which
        were silently dropped because the transmission of
        the (possibly translated) message to a proxy target
        failed in a manner (other than a time-out) such that
        no Response Class PDU (such as a Response-PDU) could
        be returned."
    ::= { snmp 32 }

-- information for notifications
--
-- a collection of objects which allow the SNMP entity, when
-- supporting a notification originator application,
-- to be configured to generate SNMPv2-Trap-PDUs.

snmpTrap          OBJECT IDENTIFIER ::= { snmpMIBObjects 4 }

snmpTrapOID OBJECT-TYPE
    SYNTAX      OBJECT IDENTIFIER
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION
```

```
        "The authoritative identification of the notification
        currently being sent.  This variable occurs as
        the second varbind in every SNMPv2-Trap-PDU and
        InformRequest-PDU."
 ::= { snmpTrap 1 }

-- ::= { snmpTrap 2 }    this OID is obsolete

snmpTrapEnterprise OBJECT-TYPE
    SYNTAX      OBJECT IDENTIFIER
    MAX-ACCESS  accessible-for-notify
    STATUS      current
    DESCRIPTION
        "The authoritative identification of the enterprise
        associated with the trap currently being sent.  When an
        SNMP proxy agent is mapping an RFC1157 Trap-PDU
        into a SNMPv2-Trap-PDU, this variable occurs as the
        last varbind."
 ::= { snmpTrap 3 }

-- ::= { snmpTrap 4 }    this OID is obsolete

-- well-known traps

snmpTraps      OBJECT IDENTIFIER ::= { snmpMIBObjects 5 }

coldStart NOTIFICATION-TYPE
    STATUS      current
    DESCRIPTION
        "A coldStart trap signifies that the SNMP entity,
        supporting a notification originator application, is
        reinitializing itself and that its configuration may
        have been altered."
 ::= { snmpTraps 1 }

warmStart NOTIFICATION-TYPE
    STATUS      current
    DESCRIPTION
        "A warmStart trap signifies that the SNMP entity,
        supporting a notification originator application, is
        reinitializing itself such that its configuration
        is unaltered."
 ::= { snmpTraps 2 }

-- Note the linkDown NOTIFICATION-TYPE ::= { snmpTraps 3 }
-- and the linkUp NOTIFICATION-TYPE ::= { snmpTraps 4 }
-- are defined in RFC 2863 [RFC2863]
```

```

authenticationFailure NOTIFICATION-TYPE
    STATUS current
    DESCRIPTION
        "An authenticationFailure trap signifies that the SNMP
        entity has received a protocol message that is not
        properly authenticated. While all implementations
        of SNMP entities MAY be capable of generating this
        trap, the snmpEnableAuthenTraps object indicates
        whether this trap will be generated."
    ::= { snmpTraps 5 }

-- Note the egpNeighborLoss notification is defined
-- as { snmpTraps 6 } in RFC 1213

-- the set group
--
-- a collection of objects which allow several cooperating
-- command generator applications to coordinate their use of the
-- set operation.

snmpSet          OBJECT IDENTIFIER ::= { snmpMIBObjects 6 }

snmpSetSerialNo OBJECT-TYPE
    SYNTAX      TestAndIncr
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "An advisory lock used to allow several cooperating
        command generator applications to coordinate their
        use of the SNMP set operation.

        This object is used for coarse-grain coordination.
        To achieve fine-grain coordination, one or more similar
        objects might be defined within each MIB group, as
        appropriate."
    ::= { snmpSet 1 }

-- conformance information

snmpMIBConformance
    OBJECT IDENTIFIER ::= { snmpMIB 2 }

snmpMIBCompliances
    OBJECT IDENTIFIER ::= { snmpMIBConformance 1 }
snmpMIBGroups    OBJECT IDENTIFIER ::= { snmpMIBConformance 2 }

-- compliance statements

```

```

--      ::= { snmpMIBCompliances 1 }          this OID is obsolete
snmpBasicCompliance MODULE-COMPLIANCE
    STATUS deprecated
    DESCRIPTION
        "The compliance statement for SNMPv2 entities which
        implement the SNMPv2 MIB.

        This compliance statement is replaced by
        snmpBasicComplianceRev2."
    MODULE -- this module
        MANDATORY-GROUPS { snmpGroup, snmpSetGroup, systemGroup,
                           snmpBasicNotificationsGroup }

    GROUP    snmpCommunityGroup
    DESCRIPTION
        "This group is mandatory for SNMPv2 entities which
        support community-based authentication."

    ::= { snmpMIBCompliances 2 }

snmpBasicComplianceRev2 MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
        "The compliance statement for SNMP entities which
        implement this MIB module."
    MODULE -- this module
        MANDATORY-GROUPS { snmpGroup, snmpSetGroup, systemGroup,
                           snmpBasicNotificationsGroup }

    GROUP    snmpCommunityGroup
    DESCRIPTION
        "This group is mandatory for SNMP entities which
        support community-based authentication."

    GROUP    snmpWarmStartNotificationGroup
    DESCRIPTION
        "This group is mandatory for an SNMP entity which
        supports command responder applications, and is
        able to reinitialize itself such that its
        configuration is unaltered."

    ::= { snmpMIBCompliances 3 }

-- units of conformance

--      ::= { snmpMIBGroups 1 }          this OID is obsolete
--      ::= { snmpMIBGroups 2 }          this OID is obsolete
--      ::= { snmpMIBGroups 3 }          this OID is obsolete

```

```
-- ::= { snmpMIBGroups 4 }           this OID is obsolete

snmpGroup OBJECT-GROUP
  OBJECTS { snmpInPkts,
            snmpInBadVersions,
            snmpInASNParseErrs,
            snmpSilentDrops,
            snmpProxyDrops,
            snmpEnableAuthenTraps }
  STATUS current
  DESCRIPTION
    "A collection of objects providing basic instrumentation
    and control of an SNMP entity."
  ::= { snmpMIBGroups 8 }

snmpCommunityGroup OBJECT-GROUP
  OBJECTS { snmpInBadCommunityNames,
            snmpInBadCommunityUses }
  STATUS current
  DESCRIPTION
    "A collection of objects providing basic instrumentation
    of a SNMP entity which supports community-based
    authentication."
  ::= { snmpMIBGroups 9 }

snmpSetGroup OBJECT-GROUP
  OBJECTS { snmpSetSerialNo }
  STATUS current
  DESCRIPTION
    "A collection of objects which allow several cooperating
    command generator applications to coordinate their
    use of the set operation."
  ::= { snmpMIBGroups 5 }

systemGroup OBJECT-GROUP
  OBJECTS { sysDescr, sysObjectID, sysUpTime,
            sysContact, sysName, sysLocation,
            sysServices,
            sysORLastChange, sysORID,
            sysORUpTime, sysORDescr }
  STATUS current
  DESCRIPTION
    "The system group defines objects which are common to all
    managed systems."
  ::= { snmpMIBGroups 6 }

snmpBasicNotificationsGroup NOTIFICATION-GROUP
  NOTIFICATIONS { coldStart, authenticationFailure }
```

```
STATUS          current
DESCRIPTION
    "The basic notifications implemented by an SNMP entity
    supporting command responder applications."
::= { snmpMIBGroups 7 }

snmpWarmStartNotificationGroup NOTIFICATION-GROUP
NOTIFICATIONS { warmStart }
STATUS          current
DESCRIPTION
    "An additional notification for an SNMP entity supporting
    command responder applications, if it is able to reinitialize
    itself such that its configuration is unaltered."
::= { snmpMIBGroups 11 }

snmpNotificationGroup OBJECT-GROUP
OBJECTS { snmpTrapOID, snmpTrapEnterprise }
STATUS current
DESCRIPTION
    "These objects are required for entities
    which support notification originator applications."
::= { snmpMIBGroups 12 }

-- definitions in RFC 1213 made obsolete by the inclusion of a
-- subset of the snmp group in this MIB

snmpOutPkts OBJECT-TYPE
SYNTAX          Counter32
MAX-ACCESS      read-only
STATUS          obsolete
DESCRIPTION
    "The total number of SNMP Messages which were
    passed from the SNMP protocol entity to the
    transport service."
::= { snmp 2 }

-- { snmp 7 } is not used

snmpInTooBigs OBJECT-TYPE
SYNTAX          Counter32
MAX-ACCESS      read-only
STATUS          obsolete
DESCRIPTION
    "The total number of SNMP PDUs which were
    delivered to the SNMP protocol entity and for
    which the value of the error-status field was
    'tooBig'."
::= { snmp 8 }
```

`snmpInNoSuchNames OBJECT-TYPE``SYNTAX Counter32``MAX-ACCESS read-only``STATUS obsolete``DESCRIPTION`

"The total number of SNMP PDUs which were delivered to the SNMP protocol entity and for which the value of the error-status field was 'noSuchName'."

`::= { snmp 9 }``snmpInBadValues OBJECT-TYPE``SYNTAX Counter32``MAX-ACCESS read-only``STATUS obsolete``DESCRIPTION`

"The total number of SNMP PDUs which were delivered to the SNMP protocol entity and for which the value of the error-status field was 'badValue'."

`::= { snmp 10 }``snmpInReadOnlys OBJECT-TYPE``SYNTAX Counter32``MAX-ACCESS read-only``STATUS obsolete``DESCRIPTION`

"The total number valid SNMP PDUs which were delivered to the SNMP protocol entity and for which the value of the error-status field was 'readOnly'. It should be noted that it is a protocol error to generate an SNMP PDU which contains the value 'readOnly' in the error-status field, as such this object is provided as a means of detecting incorrect implementations of the SNMP."

`::= { snmp 11 }``snmpInGenErrs OBJECT-TYPE``SYNTAX Counter32``MAX-ACCESS read-only``STATUS obsolete``DESCRIPTION`

"The total number of SNMP PDUs which were delivered to the SNMP protocol entity and for which the value of the error-status field was 'genErr'."

`::= { snmp 12 }``snmpInTotalReqVars OBJECT-TYPE`


```
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      obsolete
DESCRIPTION
    "The total number of MIB objects which have been
    retrieved successfully by the SNMP protocol entity
    as the result of receiving valid SNMP Get-Request
    and Get-Next PDUs."
 ::= { snmp 13 }
```

snmpInTotalSetVars OBJECT-TYPE

```
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      obsolete
DESCRIPTION
    "The total number of MIB objects which have been
    altered successfully by the SNMP protocol entity as
    the result of receiving valid SNMP Set-Request PDUs."
 ::= { snmp 14 }
```

snmpInGetRequests OBJECT-TYPE

```
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      obsolete
DESCRIPTION
    "The total number of SNMP Get-Request PDUs which
    have been accepted and processed by the SNMP
    protocol entity."
 ::= { snmp 15 }
```

snmpInGetNexts OBJECT-TYPE

```
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      obsolete
DESCRIPTION
    "The total number of SNMP Get-Next PDUs which have been
    accepted and processed by the SNMP protocol entity."
 ::= { snmp 16 }
```

snmpInSetRequests OBJECT-TYPE

```
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      obsolete
DESCRIPTION
    "The total number of SNMP Set-Request PDUs which
    have been accepted and processed by the SNMP protocol
    entity."
 ::= { snmp 17 }
```

```
snmpInGetResponses OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      obsolete
    DESCRIPTION
        "The total number of SNMP Get-Response PDUs which
        have been accepted and processed by the SNMP protocol
        entity."
    ::= { snmp 18 }

snmpInTraps OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      obsolete
    DESCRIPTION
        "The total number of SNMP Trap PDUs which have been
        accepted and processed by the SNMP protocol entity."
    ::= { snmp 19 }

snmpOutTooBig OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      obsolete
    DESCRIPTION
        "The total number of SNMP PDUs which were generated
        by the SNMP protocol entity and for which the value
        of the error-status field was 'tooBig.'"
    ::= { snmp 20 }

snmpOutNoSuchNames OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      obsolete
    DESCRIPTION
        "The total number of SNMP PDUs which were generated
        by the SNMP protocol entity and for which the value
        of the error-status was 'noSuchName'."
    ::= { snmp 21 }

snmpOutBadValues OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      obsolete
    DESCRIPTION
        "The total number of SNMP PDUs which were generated
        by the SNMP protocol entity and for which the value
        of the error-status field was 'badValue'."
    ::= { snmp 22 }
```

-- { snmp 23 } is not used

snmpOutGenErrs OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS obsolete

DESCRIPTION

"The total number of SNMP PDUs which were generated by the SNMP protocol entity and for which the value of the error-status field was 'genErr'."

::= { snmp 24 }

snmpOutGetRequests OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS obsolete

DESCRIPTION

"The total number of SNMP Get-Request PDUs which have been generated by the SNMP protocol entity."

::= { snmp 25 }

snmpOutGetNexts OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS obsolete

DESCRIPTION

"The total number of SNMP Get-Next PDUs which have been generated by the SNMP protocol entity."

::= { snmp 26 }

snmpOutSetRequests OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS obsolete

DESCRIPTION

"The total number of SNMP Set-Request PDUs which have been generated by the SNMP protocol entity."

::= { snmp 27 }

snmpOutGetResponses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS obsolete

DESCRIPTION

"The total number of SNMP Get-Response PDUs which have been generated by the SNMP protocol entity."

::= { snmp 28 }

```

snmpOutTraps OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      obsolete
    DESCRIPTION
        "The total number of SNMP Trap PDUs which have
        been generated by the SNMP protocol entity."
    ::= { snmp 29 }

snmpObsoleteGroup OBJECT-GROUP
    OBJECTS { snmpOutPkts, snmpInTooBigs, snmpInNoSuchNames,
              snmpInBadValues, snmpInReadOnlys, snmpInGenErrs,
              snmpInTotalReqVars, snmpInTotalSetVars,
              snmpInGetRequests, snmpInGetNexts, snmpInSetRequests,
              snmpInGetResponses, snmpInTraps, snmpOutTooBigs,
              snmpOutNoSuchNames, snmpOutBadValues,
              snmpOutGenErrs, snmpOutGetRequests, snmpOutGetNexts,
              snmpOutSetRequests, snmpOutGetResponses, snmpOutTraps
            }
    STATUS      obsolete
    DESCRIPTION
        "A collection of objects from RFC 1213 made obsolete
        by this MIB module."
    ::= { snmpMIBGroups 10 }

```

END

3. Notice on Intellectual Property

The IETF takes no position regarding the validity or scope of any intellectual property 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; neither does it represent that it has made any effort to identify any such rights. Information on the IETF's procedures with respect to rights in standards-track and standards-related documentation can be found in BCP-11. Copies of claims of rights made available for publication 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 implementors or users of this specification can be obtained from the IETF Secretariat.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights which may cover technology that may be required to practice this standard. Please address the information to the IETF Executive Director.

4. Acknowledgments

This document is the product of the SNMPv3 Working Group. Some special thanks are in order to the following Working Group members:

Randy Bush
Jeffrey D. Case
Mike Daniele
Rob Frye
Lauren Heintz
Keith McCloghrie
Russ Mundy
David T. Perkins
Randy Presuhn
Aleksey Romanov
Juergen Schoenwaelder
Bert Wijnen

This version of the document, edited by Randy Presuhn, was initially based on the work of a design team whose members were:

Jeffrey D. Case
Keith McCloghrie
David T. Perkins
Randy Presuhn
Juergen Schoenwaelder

The previous versions of this document, edited by Keith McCloghrie, was the result of significant work by four major contributors:

Jeffrey D. Case
Keith McCloghrie
Marshall T. Rose
Steven Waldbusser

Additionally, the contributions of the SNMPv2 Working Group to the previous versions are also acknowledged. In particular, a special thanks is extended for the contributions of:

Alexander I. Alten
Dave Arneson
Uri Blumenthal
Doug Book
Kim Curran
Jim Galvin
Maria Greene
Iain Hanson
Dave Harrington
Nguyen Hien
Jeff Johnson
Michael Kornegay
Deirdre Kostick
David Levi
Daniel Mahoney
Bob Natale
Brian O'Keefe
Andrew Pearson
Dave Perkins
Randy Presuhn
Aleksey Romanov
Shawn Routhier
Jon Saperia
Juergen Schoenwaelder
Bob Stewart
Kaj Tesink
Glenn Waters
Bert Wijnen

5. Security Considerations

There are a number of management objects defined in this MIB that have a MAX-ACCESS clause of read-write. 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.

SNMPv1 by itself is not a secure environment. 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) the objects in this MIB.

It is recommended that the implementors consider the security features as provided by the SNMPv3 framework. Specifically, the use of the User-based Security Model STD 62, RFC 3414 [RFC3414] and the View-based Access Control Model STD 62, RFC 3415 [RFC3415] is recommended.

It is then a customer/user responsibility to ensure that the SNMP entity giving access to an instance of this MIB is properly configured to give access to the objects only to those principals (users) that have legitimate rights to indeed GET or SET (change) them.

6. References

6.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.
- [RFC2578] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Structure of Management Information Version 2 (SMIv2)", STD 58, RFC 2578, April 1999.
- [RFC2579] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Textual Conventions for SMIv2", STD 58, RFC 2579, April 1999.
- [RFC2580] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Conformance Statements for SMIv2", STD 58, RFC 2580, April 1999.
- [RFC3411] Harrington, D., Presuhn, R. and B. Wijnen, "An Architecture for describing Simple Network Management Protocol (SNMP) Management Frameworks", STD 62, RFC 3411, December 2002.
- [RFC3414] Blumenthal, U. and B. Wijnen, "The User-Based Security Model (USM) for Version 3 of the Simple Network Management Protocol (SNMPv3)", STD 62, RFC 3414, December 2002.
- [RFC3415] Wijnen, B., Presuhn, R. and K. McCloghrie, "View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)", STD 62, RFC 3415, December 2002.

6.1. Informative References

- [RFC1157] Case, J., Fedor, M., Schoffstall, M. and J. Davin, "Simple Network Management Protocol", STD 15, RFC 1157, May 1990.
- [RFC1213] McCloghrie, K. and M. Rose, "Management Information Base for Network Management of TCP/IP-based internets: MIB-II", STD 16, RFC 1213, March 1991.
- [RFC2863] McCloghrie, K. and F. Kastenholz, "The Interfaces Group MIB", RFC 2863, June 2000.
- [RFC3410] Case, J., Mundy, R., Partain, D. and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Management Framework", RFC 3410, December 2002.

7. Changes from RFC 1907

These are the changes from RFC 1907:

- Corrected typo in copyright statement;
- Updated copyright date;
- Updated with new editor's name and contact information;
- Cosmetic fixes to layout and typography;
- Changed title;
- Replace introduction with current MIB boilerplate;
- Updated references;
- Fixed typo in sysORUpTime;
- Re-worded description of snmpSilentDrops;
- Updated reference to RFC 1573 to 2863;
- Added IPR boilerplate as required by RFC 2026;
- Weakened authenticationFailure description from MUST to MAY, clarified that it pertains to all SNMP entities;

- Clarified descriptions of `snmpInBadCommunityNames` and `snmpInBadCommunityUses`;
- Updated module-identity and contact information;
- Updated the acknowledgments section;
- Replaced references to "manager role", "agent role" and "SNMPv2 entity" with appropriate terms from RFC 2571;
- Updated document headers and footers;
- Added security considerations, based on current recommendations for MIB modules;
- Added NOTIFICATION-GROUP and OBJECT-GROUP constructs for NOTIFICATION-TYPES and OBJECT-TYPES that were left unreferenced in RFC 1907;
- Fixed typos in `sysServices DESCRIPTION`;
- Changed description of `snmpProxyDrops` to use terms from architecture;
- Changed value used in example for `sysObjectID`;
- Added an abstract;
- Deprecated the `snmpBasicCompliance MODULE-COMPLIANCE`, and added the `snmpBasicComplianceRev2 MODULE-COMPLIANCE` to take its place;
- Updated working group mailing list address;
- Added co-chair's address.

8. Editor's Address

Randy Presuhn
BMC Software, Inc.
2141 North First Street
San Jose, CA 95131
USA

Phone: +1 408 546 1006
EMail: randy_presuhn@bmc.com

9. Full Copyright Statement

Copyright (C) The Internet Society (2002). All Rights Reserved.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself may not be modified in any way, such as by removing the copyright notice or references to the Internet Society or other Internet organizations, except as needed for the purpose of developing Internet standards in which case the procedures for copyrights defined in the Internet Standards process must be followed, or as required to translate it into languages other than English.

The limited permissions granted above are perpetual and will not be revoked by the Internet Society or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIMS 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.

Acknowledgement

Funding for the RFC Editor function is currently provided by the Internet Society.

