

Network Working Group	J. Schoenwaelder	
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	Cisco Systems	
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Definitions of Managed Objects for Mapping SYSLOG Messages to Simple Network Management Protocol (SNMP) Notifications

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Abstract

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In

particular, it defines a mapping of SYSLOG messages to Simple Network Management Protocol (SNMP) notifications.

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1. Introduction

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SNMP [\[RFC3410\]](#) (Case, J., Mundy, R., Partain, D., and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Management Framework," December 2002.) [\[RFC3411\]](#) (Harrington, D., Presuhn, R., and B. Wijnen, "An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks," December 2002.) and SYSLOG [\[RFC5424\]](#) (Gerhards, R., "The Syslog Protocol," March 2009.) are two widely used protocols to communicate event notifications. Although co-existence of several management protocols in one operational environment is possible, certain environments require that all event notifications are collected by a single system daemon such as a SYSLOG collector or an SNMP notification receiver via a single management protocol. In such environments, it is necessary to translate event notifications between management protocols.

This document defines an SNMP MIB module to represent SYSLOG messages and to send SYSLOG messages as SNMP notifications to SNMP notification receivers.

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

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 [\[RFC2578\]](#) (McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Structure of Management Information Version 2 (SMIV2)," April 1999.), STD 58, RFC 2579 [\[RFC2579\]](#) (McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Textual Conventions for SMIV2," April 1999.) and STD 58, RFC 2580 [\[RFC2580\]](#) (McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Conformance Statements for SMIV2," April 1999.) .

3. Conventions

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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 [\[RFC2119\]](#) (Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels," March 1997.).

4. Overview

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SYSLOG messages are translated to SNMP by a SYSLOG-to-SNMP translator. Such a translator acts as a SYSLOG collector [\[RFC5424\]](#) (Gerhards, R., "The Syslog Protocol," March 2009.) and implements a MIB module according to the SNMP architecture [\[RFC3411\]](#) (Harrington, D., Presuhn, R., and B. Wijnen, "An Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks," December 2002.). The translator might be tightly coupled to an SNMP agent or it might interface with an SNMP agent via a subagent protocol. After initialization, the SYSLOG-to-SNMP translator will listen for SYSLOG messages. On receiving a message, the message will be parsed to extract information as described in the MIB module. A conceptual table is populated with information extracted from the SYSLOG message and finally a notification may be generated.

The MIB module is organized into a group of scalars and two tables. The syslogMsgControl group contains two scalars controlling the maximum size of SYSLOG messages recorded in the tables and whether SNMP notifications are generated for SYSLOG messages.

```
--syslogMsgObjects(1)
|
+--syslogMsgControl(1)
|
+-- Unsigned32 syslogMsgTableMaxSize(1)
+-- TruthValue syslogMsgEnableNotifications(2)
```

The syslogMsgTable contains one entry for each recorded SYSLOG message. The basic fields of SYSLOG messages as well as message properties are represented in different columns of the conceptual table.

```
--syslogMsgObjects(1)
|
+--syslogMsgTable(2)
|
+--syslogMsgEntry(1) [syslogMsgIndex]
|
+-- Unsigned32      syslogMsgIndex(1)
+-- SyslogFacility  syslogMsgFacility(2)
+-- SyslogSeverity  syslogMsgSeverity(3)
+-- Unsigned32      syslogMsgVersion(4)
+-- SyslogTimeStamp syslogMsgTimeStamp(5)
+-- DisplayString    syslogMsgHostName(6)
+-- DisplayString    syslogMsgAppName(7)
+-- DisplayString    syslogMsgProcID(8)
+-- DisplayString    syslogMsgMsgID(9)
+-- Unsigned32       syslogMsgSDParams(10)
+-- OctetString      syslogMsgMsg(11)
```

The syslogMsgSDTable contains one entry for each structured data element parameter contained in a SYSLOG message. Since structured data elements are optional, the relationship between the syslogMsgTable and the syslogMsgSDTable ranges from one-to-zero to one-to-many.

```

--syslogMsgObjects(1)
|
+--syslogMsgSDTable(3)
|
+--syslogMsgSDEntry(1) [syslogMsgIndex,
|                         syslogMsgSDParamIndex,
|                         syslogMsgSDID,
|                         syslogMsgSDParamName]
|
+-- Unsigned32          syslogMsgSDParamIndex(1)
+-- DisplayString       syslogMsgSDID(2)
+-- DisplayString       syslogMsgSDParamName(3)
+-- SnmpAdminString     syslogMsgSDParamValue(4)

```

5. Relationship to Other MIB Modules

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The NOTIFICATION-LOG-MIB [\[RFC3014\] \(Kavasserri, R., Ed., "Notification Log MIB," November 2002.\)](#) provides a generic mechanism for logging SNMP notifications in order to deal with lost SNMP notifications, e.g., due to transient communication problems. Applications can poll the notification log to verify that they have not missed important SNMP notifications.

The MIB module defined in this memo provides a mechanism for logging SYSLOG notifications. This additional SYSLOG notification log is provided because (a) SYSLOG messages might not lead to SNMP notification (this is configurable) and (b) SNMP notifications might not carry all information associated with a SYSLOG notification.

The MIB module IMPORTS objects from SNMPv2-SMI [\[RFC2578\] \(McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Structure of Management Information Version 2 \(SMIv2\)," April 1999.\)](#), SNMPv2-TC [\[RFC2579\] \(McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Textual Conventions for SMIv2," April 1999.\)](#), SNMPv2-CONF [\[RFC2580\] \(McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Conformance Statements for SMIv2," April 1999.\)](#), SNMP-FRAMEWORK-MIB [\[RFC3411\] \(Harrington, D., Presuhn, R., and B. Wijnen, "An Architecture for Describing Simple Network Management Protocol \(SNMP\) Management Frameworks," December 2002.\)](#), and SYSLOG-TC-MIB [\[RFC5427\] \(Keeni, G., "Textual Conventions for Syslog Management," March 2009.\)](#).

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6. Relationship to the SNMP Notification to SYSLOG Mapping

A companion document defines a mapping of SNMP notifications to SYSLOG messages [\[I-D.ietf-opsawg-syslog-snmp\]](#) (Marinov, V. and J. Schoenwaelder, "Mapping Simple Network Management Protocol (SNMP) Notifications to SYSLOG Messages," March 2009.). This section discusses the possibilities of using both specifications in combination.

A SYSLOG collector implementing the SYSLOG-MSG-MIB module and the mapping of SNMP notifications to SYSLOG messages may be configured to translate received SYSLOG messages containing SNMP notifications back into the original SNMP notification. In this case, the relevant tables of the SYSLOG-MSG-MIB will not be populated for SYSLOG messages carrying SNMP notifications. This configuration allows operators to build a forwarding chain where SNMP notifications are "tunneled" through SYSLOG messages. Due to size restrictions of the SYSLOG transports and the more verbose textual encoding used by SYSLOG, there is a possibility that SNMP notification content gets truncated while tunneled through SYSLOG and thus the resulting SNMP notification may be incomplete.

An SNMP management application supporting the SYSLOG-MSG-MIB and the mapping of SNMP notifications to SYSLOG messages may process information from the SYSLOG-MSG-MIB in order to emit a SYSLOG message representing the SYSLOG message recorded in the SYSLOG-MSG-MIB module. This configuration allows operators to build a forwarding chain where SYSLOG messages are "tunneled" through SNMP messages. A notification receiver can determine whether a syslogMsgNotification contained all structured data element parameters of a SYSLOG message. In case parameters are missing, a forwarding application MUST retrieve the missing parameters from the SYSLOG-MSG-MIB. Regular polling of the SYSLOG-MSG-MIB can be used to take care of any lost SNMP notifications.

7. Definitions

SYSLOG-MSG-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY, OBJECT-TYPE, NOTIFICATION-TYPE, Unsigned32, mib-2
FROM SNMPv2-SMI
TEXTUAL-CONVENTION, DisplayString, TruthValue
FROM SNMPv2-TC
OBJECT-GROUP, NOTIFICATION-GROUP, MODULE-COMPLIANCE
FROM SNMPv2-CONF
SnmpAdminString
FROM SNMP-FRAMEWORK-MIB
SyslogFacility, SyslogSeverity
FROM SYSLOG-TC-MIB;

syslogMsgMib MODULE-IDENTITY

LAST-UPDATED "200908050800Z"

ORGANIZATION "IETF OPSAWG Working Group"

CONTACT-INFO

"Juergen Schoenwaelder
<j.schoenwaelder@jacobs-university.de>
Jacobs University Bremen
Campus Ring 1
28757 Bremen
Germany

Alexander Clemm
<alex@cisco.com>
Cisco Systems
170 West Tasman Drive
San Jose, CA 95134-1706
USA

Anirban Karmakar
<akarmaka@cisco.com>
Cisco Systems
170 West Tasman Drive
San Jose, CA 95134-1706
USA"

DESCRIPTION

"This MIB module represent SYSLOG messages as SNMP objects.

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This version of this MIB module is part of RFC XXXX; see the RFC itself for full legal notices."

REVISION "200908050800Z"

DESCRIPTION

"Initial version issued as part of RFC XXXX."

- RFC Ed.: replace XXXX with actual RFC number & remove this note
::= { mib-2 XXX }
- RFC Ed.: replace XXX with IANA-assigned number & remove this note
- textual convention definitions

SyslogTimeStamp ::= TEXTUAL-CONVENTION

DISPLAY-HINT "2d-1d-1d,1d:1d:1d.3d,1a1d:1d"

STATUS current

DESCRIPTION

"A date-time specification. This type is similar to the DateAndTime type defined in the SNMPv2-TC except that the subsecond granulation is microseconds instead of deciseconds and that a zero-length string can be used to indicate a missing value.

field	octets	contents	range
-----	-----	-----	-----
1	1-2	year*	0..65536
2	3	month	1..12
3	4	day	1..31
4	5	hour	0..23
5	6	minutes	0..59
6	7	seconds	0..60
		(use 60 for leap-second)	
7	8-10	microseconds	0..999999
8	11	direction from UTC	'+' / '-'
9	12	hours from UTC*	0..13
10	13	minutes from UTC	0..59

* Notes:

- the value of year is in network-byte order
- the value of microseconds is in network-byte order
- daylight saving time in New Zealand is +13

For example, Tuesday May 26, 1992 at 1:30:15 PM EDT would be displayed as:

1992-5-26,13:30:15.0,-4:0

Note that if only local time is known, then timezone information (fields 11-13) is not present."

SYNTAX OCTET STRING (SIZE (0 | 10 | 13))

-- object definitions

syslogMsgNotifications OBJECT IDENTIFIER ::= { syslogMsgMib 0 }
syslogMsgObjects OBJECT IDENTIFIER ::= { syslogMsgMib 1 }
syslogMsgConformance OBJECT IDENTIFIER ::= { syslogMsgMib 2 }

syslogMsgControl OBJECT IDENTIFIER ::= { syslogMsgObjects 1 }

syslogMsgTableMaxSize OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The maximum number of syslog messages that may be held in syslogMsgTable. A particular setting does not guarantee that there is sufficient memory available for the maximum number of table entries indicated by this object. A value of 0 means no limit.

If an application reduces the limit while there are syslog messages in the syslogMsgTable, the syslog messages that are in the syslogMsgTable for the longest time MUST be discarded

to bring the table down to the new limit.

The value of this object should be kept in nonvolatile memory."

DEFVAL { 0 }
::= { syslogMsgControl 1 }

syslogMsgEnableNotifications OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Indicates whether syslogMsgNotification notifications are generated.

The value of this object should be kept in nonvolatile memory."

DEFVAL { false }
::= { syslogMsgControl 2 }

syslogMsgTable OBJECT-TYPE

SYNTAX SEQUENCE OF SyslogMsgEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table containing recent syslog messages. The size of the table is controlled by the syslogMsgTableMaxSize object."

::= { syslogMsgObjects 2 }

syslogMsgEntry OBJECT-TYPE

SYNTAX SyslogMsgEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry of the syslogMsgTable."

INDEX { syslogMsgIndex }

::= { syslogMsgTable 1 }

SyslogMsgEntry ::= SEQUENCE {

syslogMsgIndex Unsigned32,
syslogMsgFacility SyslogFacility,
syslogMsgSeverity SyslogSeverity,
syslogMsgVersion Unsigned32,
syslogMsgTimeStamp SyslogTimeStamp,
syslogMsgHostName DisplayString,
syslogMsgAppName DisplayString,
syslogMsgProcID DisplayString,
syslogMsgMsgID DisplayString,
syslogMsgSDParams Unsigned32,

```

    syslogMsgMsg          OCTET STRING
}

syslogMsgIndex OBJECT-TYPE
    SYNTAX      Unsigned32 (1..4294967295)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A monotonically increasing number used to identify entries in
        the syslogMsgTable. When syslogMsgIndex reaches the maximum
        value the value wraps back to 1."
    ::= { syslogMsgEntry 1 }

syslogMsgFacility OBJECT-TYPE
    SYNTAX      SyslogFacility
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The facility of the syslog message."
    REFERENCE
        "RFC5424: The Syslog Protocol (section 6.2.1)
        RFC5427: Textual Conventions for Syslog Management"
    ::= { syslogMsgEntry 2 }

syslogMsgSeverity OBJECT-TYPE
    SYNTAX      SyslogSeverity
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The severity of the syslog message"
    REFERENCE
        "RFC5424: The Syslog Protocol (section 6.2.1)
        RFC5427: Textual Conventions for Syslog Management"
    ::= { syslogMsgEntry 3 }

syslogMsgVersion OBJECT-TYPE
    SYNTAX      Unsigned32 (0..999)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The version of the syslog message. A value of 0 indicates
        that the version is unknown."
    REFERENCE
        "RFC5424: The Syslog Protocol (section 6.2.2)"
    ::= { syslogMsgEntry 4 }

syslogMsgTimeStamp OBJECT-TYPE
    SYNTAX      SyslogTimeStamp
    MAX-ACCESS  read-only

```

STATUS current
DESCRIPTION
 "The timestamp of the syslog message. A zero length
 string is returned if the timestamp is unknown."
REFERENCE
 "RFC5424: The Syslog Protocol (section 6.2.3)"
::= { syslogMsgEntry 5 }

syslogMsgHostName OBJECT-TYPE

SYNTAX DisplayString (SIZE (0..255))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The host name of the syslog message. A zero-length string
 indicates an unknown host name. The SYSLOG protocol
 specification constrains this string to printable US-ASCII
 code points."
REFERENCE
 "RFC5424: The Syslog Protocol (section 6.2.4)"
::= { syslogMsgEntry 6 }

syslogMsgAppName OBJECT-TYPE

SYNTAX DisplayString (SIZE (0..48))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The app-name of the syslog message. A zero-length string
 indicates an unknown app-name. The SYSLOG protocol
 specification constrains this string to printable US-ASCII
 code points."
REFERENCE
 "RFC5424: The Syslog Protocol (section 6.2.5)"
::= { syslogMsgEntry 7 }

syslogMsgProcID OBJECT-TYPE

SYNTAX DisplayString (SIZE (0..128))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
 "The procid of the syslog message. A zero-length string
 indicates an unknown procid. The SYSLOG protocol specification
 constrains this string to printable US-ASCII code points."
REFERENCE
 "RFC5424: The Syslog Protocol (section 6.2.6)"
::= { syslogMsgEntry 8 }

syslogMsgMsgID OBJECT-TYPE

SYNTAX DisplayString (SIZE (0..32))
MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The msgid of the syslog message. A zero-length string indicates an unknown msgid. The SYSLOG protocol specification constrains this string to printable US-ASCII code points."

REFERENCE

"RFC5424: The Syslog Protocol (section 6.2.7)"

::= { syslogMsgEntry 9 }

syslogMsgSDParams OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The total number of structured data element parameters carried in the syslog message. This number effectively indicates the number of entries in the syslogMsgSDTable. It can be used, for example, by a notification receiver to determine whether a notification carried all structured data element parameters of a syslog message."

::= { syslogMsgEntry 10 }

syslogMsgMsg OBJECT-TYPE

SYNTAX OCTET STRING

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The message part of the syslog message. The syntax does not impose a size restriction. Implementations of this MIB module may truncate the message part of the syslog message such that it fits into the size constraints imposed by the implementation environment. Such truncations can also happen elsewhere in the syslog forwarding chain.

If the first octets contain the value 'EFBBBF'h, then the rest of the message is a UTF-8 string. Since syslog messages may be truncated at arbitrary octet boundaries during forwarding, the message may contain invalid UTF-8 encodings at the end."

REFERENCE

"RFC5424: The Syslog Protocol (sections 6.1 and 6.4)"

::= { syslogMsgEntry 11 }

syslogMsgSDTable OBJECT-TYPE

SYNTAX SEQUENCE OF SyslogMsgSDEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table containing structured data elements of syslog messages."

```

 ::= { syslogMsgObjects 3 }

syslogMsgSDEntry OBJECT-TYPE
    SYNTAX      SyslogMsgSDEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An entry of the syslogMsgSDTable."
    INDEX { syslogMsgIndex, syslogMsgSDParamIndex,
            syslogMsgSDID, syslogMsgSDParamName }
    ::= { syslogMsgSDTable 1 }

SyslogMsgSDEntry ::= SEQUENCE {
    syslogMsgSDParamIndex  Unsigned32,
    syslogMsgSDID          DisplayString,
    syslogMsgSDParamName   DisplayString,
    syslogMsgSDParamValue  SnmpAdminString
}

syslogMsgSDParamIndex OBJECT-TYPE
    SYNTAX      Unsigned32 (1..4294967295)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object indexes the structured data element parameters
        contained in a SYSLOG message. The first structured data
        element parameter has the index value 1 and subsequent
        parameters are indexed by incrementing the index of the
        previous parameter. The index increases across structured
        data element boundaries so that the value reflects the
        position of a structured data element parameter in a
        SYSLOG message."
    REFERENCE
        "RFC5424: The Syslog Protocol (section 6.3.3)"
    ::= { syslogMsgSDEntry 1 }

syslogMsgSDID OBJECT-TYPE
    SYNTAX      DisplayString (SIZE (1..32))
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The name (SD-ID) of a structured data element. The SYSLOG
        protocol specification constrains this string to printable
        US-ASCII code points."
    REFERENCE
        "RFC5424: The Syslog Protocol (section 6.3.2)"
    ::= { syslogMsgSDEntry 2 }

syslogMsgSDParamName OBJECT-TYPE

```

```

SYNTAX      DisplayString (SIZE (1..32))
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "The name of a parameter of the structured data element. The
    SYSLOG protocol specification constrains this string to
    printable US-ASCII code points."
REFERENCE
    "RFC5424: The Syslog Protocol (section 6.3.3)"
::= { syslogMsgSDEntry 3 }

```

syslogMsgSDParamValue OBJECT-TYPE

```

SYNTAX      SnmpAdminString
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The value of the parameter of a syslog message identified by
    the index of this table. The value is stored in the unescaped
    format."
REFERENCE
    "RFC5424: The Syslog Protocol (section 6.3.3)"
::= { syslogMsgSDEntry 4 }

```

-- notification definitions

syslogMsgNotification NOTIFICATION-TYPE

```

OBJECTS      { syslogMsgFacility, syslogMsgSeverity,
               syslogMsgVersion, syslogMsgTimeStamp,
               syslogMsgHostName, syslogMsgAppName,
               syslogMsgProcID, syslogMsgMsgID,
               syslogMsgSDParams, syslogMsgMsg }
STATUS      current
DESCRIPTION
    "The syslogMsgNotification is generated when a new syslog
    message is received and the value of
    syslogMsgGenerateNotifications is true.

    Implementations may add syslogMsgSDParamValue objects as long
    as the resulting notification fits into the size constraints
    imposed by the implementation environment and the notification
    message size constraints imposed by maxMessageSize [RFC3412]
    and SNMP transport mappings."
::= { syslogMsgNotifications 1 }

```

-- conformance statements

```

syslogMsgGroups      OBJECT IDENTIFIER ::= { syslogMsgConformance 1 }
syslogMsgCompliances OBJECT IDENTIFIER ::= { syslogMsgConformance 2 }

```



```

syslogMsgFullCompliance MODULE-COMPLIANCE
    STATUS          current
    DESCRIPTION
        "The compliance statement for implementations of the
        SYSLOG-MSG-MIB."
    MODULE          -- this module
    MANDATORY-GROUPS {
        syslogMsgGroup,
        syslogMsgSDGroup,
        syslogMsgControlGroup,
        syslogMsgNotificationGroup
    }
    ::= { syslogMsgCompliances 1 }

syslogMsgReadOnlyCompliance MODULE-COMPLIANCE
    STATUS          current
    DESCRIPTION
        "The compliance statement for implementations of the
        SYSLOG-MSG-MIB that do not support read-write access."
    MODULE          -- this module
    MANDATORY-GROUPS {
        syslogMsgGroup,
        syslogMsgSDGroup,
        syslogMsgControlGroup,
        syslogMsgNotificationGroup
    }
    OBJECT syslogMsgTableMaxSize
        MIN-ACCESS  read-only
        DESCRIPTION
            "Write access is not required."
    OBJECT syslogMsgEnableNotifications
        MIN-ACCESS  read-only
        DESCRIPTION
            "Write access is not required."
    ::= { syslogMsgCompliances 2 }

syslogMsgNotificationCompliance MODULE-COMPLIANCE
    STATUS          current
    DESCRIPTION
        "The compliance statement for implementations of the
        SYSLOG-MSG-MIB that do only generate notifications and not
        provide a table to allow read access to syslog message
        details."
    MODULE          -- this module
    MANDATORY-GROUPS {
        syslogMsgGroup,
        syslogMsgSDGroup,
        syslogMsgNotificationGroup
    }

```

```

OBJECT      syslogMsgFacility
MIN-ACCESS  accessible-for-notify
DESCRIPTION
    "Read access is not required."
OBJECT      syslogMsgSeverity
MIN-ACCESS  accessible-for-notify
DESCRIPTION
    "Read access is not required."
OBJECT      syslogMsgVersion
MIN-ACCESS  accessible-for-notify
DESCRIPTION
    "Read access is not required."
OBJECT      syslogMsgTimeStamp
MIN-ACCESS  accessible-for-notify
DESCRIPTION
    "Read access is not required."
OBJECT      syslogMsgHostName
MIN-ACCESS  accessible-for-notify
DESCRIPTION
    "Read access is not required."
OBJECT      syslogMsgAppName
MIN-ACCESS  accessible-for-notify
DESCRIPTION
    "Read access is not required."
OBJECT      syslogMsgProcID
MIN-ACCESS  accessible-for-notify
DESCRIPTION
    "Read access is not required."
OBJECT      syslogMsgMsgID
MIN-ACCESS  accessible-for-notify
DESCRIPTION
    "Read access is not required."
OBJECT      syslogMsgSDParams
MIN-ACCESS  accessible-for-notify
DESCRIPTION
    "Read access is not required."
OBJECT      syslogMsgMsg
MIN-ACCESS  accessible-for-notify
DESCRIPTION
    "Read access is not required."
OBJECT      syslogMsgSDParamValue
MIN-ACCESS  accessible-for-notify
DESCRIPTION
    "Read access is not required."
::= { syslogMsgCompliances 3 }

```

```

syslogMsgNotificationGroup NOTIFICATION-GROUP
    NOTIFICATIONS {
        syslogMsgNotification
    }

```

```

    }
    STATUS          current
    DESCRIPTION
        "The notifications emitted by this MIB module."
    ::= { syslogMsgGroups 1 }

syslogMsgGroup OBJECT-GROUP
    OBJECTS {
        -- syslogMsgIndex,
        syslogMsgFacility,
        syslogMsgSeverity,
        syslogMsgVersion,
        syslogMsgTimeStamp,
        syslogMsgHostName,
        syslogMsgAppName,
        syslogMsgProcID,
        syslogMsgMsgID,
        syslogMsgSDParams,
        syslogMsgMsg
    }
    STATUS          current
    DESCRIPTION
        "A collection of objects representing a syslog message
        excluding structured data elements."
    ::= { syslogMsgGroups 2 }

syslogMsgSDGroup OBJECT-GROUP
    OBJECTS {
        -- syslogMsgSDParamIndex,
        -- syslogMsgSDID,
        -- syslogMsgSDParamName,
        syslogMsgSDParamValue
    }
    STATUS          current
    DESCRIPTION
        "A collection of objects representing the structured data
        elements of a syslog message."
    ::= { syslogMsgGroups 3 }

syslogMsgControlGroup OBJECT-GROUP
    OBJECTS {
        syslogMsgTableMaxSize,
        syslogMsgEnableNotifications
    }
    STATUS          current
    DESCRIPTION
        "A collection of control objects to control the size of the
        syslogMsgTable and to enable / disable notifications."
    ::= { syslogMsgGroups 4 }

```

END

8. Usage Example

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The following example shows a valid syslog message including structured data. The otherwise-unprintable Unicode BOM is represented as "BOM" in the example.

```
<165>1 2003-10-11T22:14:15.003Z mymachine.example.com
evtslog - ID47 [exampleSDID@0 iut="3" eventSource="Application"
eventID="1011"] BOMAn application event log entry...
```

This syslog message leads to the following entries in the syslogMsgTable and the syslogMsgSDTable (note that string indexes are written as strings for readability reasons):

```
syslogMsgIndex.1 = 1
syslogMsgFacility.1 = 20
syslogMsgSeverity.1 = 5
syslogMsgVersion.1 = 1
syslogMsgTimeStamp.1 = 2003-10-11,22:14:15.003,+0:0
syslogMsgHostName.1 = "mymachine.example.com"
syslogMsgAppName.1 = "evtslog"
syslogMsgProcID.1 = "-"
syslogMsgMsgID.1 = "ID47"
syslogMsgMsg.1 = "BOMAn application event log entry..."
syslogMsgSDParamValue.1.1."exampleSDID@0"."iut"
    = "3"
syslogMsgSDParamValue.1.2."exampleSDID@0"."eventSource"
    = "Application"
syslogMsgSDParamValue.1.3."exampleSDID@0"."eventID"
    = "1011"
```

9. IANA Considerations

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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.

10. Security Considerations

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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:

*syslogMsgTableMaxSize: This object controls how many entries are kept in the syslogMsgTable. Unauthorized modifications may either cause increased memory consumption (by setting this object to a large value) or turn off the capability to retrieve notifications using GET class operations (by setting this object to zero). This might be used to hide traces of an attack.

*syslogMsgEnableNotifications: This object enables notifications. Unauthorized modifications to disable notification generation can be used to hide an attack by preventing management applications that use SNMP from receiving real-time notifications about events carried in syslog messages. Unauthorized modifications to enable notification generation may be used as part of a denial of service attack against a network management system if for example the SYSLOG-to-SNMP translator accepts unauthorized syslog messages.

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:

*syslogMsgTableMaxSize, syslogMsgEnableNotifications: These objects provide information whether SYSLOG messages are forwarded as SNMP notifications and how many messages will be maintained in the syslogMsgTable. This information might be exploited by an attacker in order to plan actions with the goal of hiding attack activities.

*syslogMsgFacility, syslogMsgSeverity, syslogMsgVersion, syslogMsgTimeStamp, syslogMsgHostName, syslogMsgAppName, syslogMsgProcID, syslogMsgMsgID, syslogMsgSDParams, syslogMsgMsg, syslogMsgSDParamValue: These objects carry the content of syslog messages and the syslog message oriented security considerations of [\[RFC5424\]](#) (Gerhards, R., "The Syslog Protocol," March 2009.) apply. In particular, an attacker who gains access to SYSLOG

messages via SNMP may use the knowledge gained from SYSLOG messages to compromise a machine or do other damage. It is therefore desirable to configure SNMP access control rules enforcing a consistent security policy for SYSLOG messages.

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.

11. Acknowledgments

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12. References

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12.1. Normative References

[TOC](#)

[I-D.ietf-opsawg-syslog-snmp]	Marinov, V. and J. Schoenwaelder, "Mapping Simple Network Management Protocol (SNMP) Notifications to SYSLOG Messages," Internet Draft (work in progress), March 2009.
[RFC2119]	Bradner, S., " Key words for use in RFCs to Indicate Requirement Levels ," BCP 14, RFC 2119, March 1997.
[RFC2578]	

	McCloghrie, K., Perkins, D., and J. Schoenwaelder, " Structure of Management Information Version 2 (SMIv2) ," RFC 2578, STD 58, April 1999.
[RFC2579]	McCloghrie, K., Perkins, D., and J. Schoenwaelder, " Textual Conventions for SMIv2 ," RFC 2579, STD 58, April 1999.
[RFC2580]	McCloghrie, K., Perkins, D., and J. Schoenwaelder, " Conformance Statements for SMIv2 ," RFC 2580, STD 58, 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.
[RFC3412]	Case, J., Harrington, D., Presuhn, R., and B. Wijnen, " Message Processing and Dispatching for the Simple Network Management Protocol (SNMP) ," STD 62, RFC 3412, December 2002.
[RFC5424]	Gerhards, R., " The Syslog Protocol ," RFC 5424, March 2009.
[RFC5427]	Keeni, G., " Textual Conventions for Syslog Management ," RFC 5427, March 2009.

12.2. Informative References

[TOC](#)

[RFC3014]	Kavasseri, R., Ed., " Notification Log MIB ," RFC 3014, November 2002.
[RFC3410]	Case, J., Mundy, R., Partain, D., and B. Stewart, " Introduction and Applicability Statements for Internet-Standard Management Framework ," RFC 3410, December 2002.

Authors' Addresses

[TOC](#)

	Juergen Schoenwaelder
	Jacobs University Bremen
	Campus Ring 1
	28725 Bremen
	Germany
Email:	j.schoenwaelder@jacobs-university.de
	Alexander Clemm
	Cisco Systems
	170 West Tasman Drive
	San Jose, CA 95134-1706
	USA

Email:	alex@cisco.com
	Anirban Karmakar
	Cisco Systems
	170 West Tasman Drive
	San Jose, CA 95134-1706
	USA
Email:	akarmaka@cisco.com