

SIP Working Group
Internet-Draft
Intended status: Standards Track
Expires: March 19, 2007

K. Lingle
Cisco Systems, Inc.
J-F. Mule
CableLabs
J. Maeng
D. Walker
September 15, 2006

Management Information Base for the Session Initiation Protocol (SIP)
draft-ietf-sip-mib-12.txt

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/lid-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 March 19, 2007.

Copyright Notice

Copyright (C) The Internet Society (2006).

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 describes a set of managed objects that are used to manage Session Initiation Protocol (SIP) entities, which include User Agents, Proxy, Redirect and Registrar servers.

Internet-Draft

SIP MIB Modules

September 2006

Table of Contents

| | | |
|-----------------------|--|--------------------|
| 1. | Conventions | 3 |
| 2. | Introduction | 3 |
| 3. | The Internet-Standard Management Framework | 3 |
| 4. | Overview | 3 |
| 5. | Structure of the SIP MIB | 4 |
| 5.1. | Textual Conventions | 6 |
| 5.2. | Relationship to the Network Services MIB | 6 |
| 5.3. | IMPORTed MIB Modules and REFERENCE Clauses | 10 |
| 6. | Accommodating SIP Extension Methods | 10 |
| 7. | Definitions | 11 |
| 7.1. | SIP Textual Conventions | 11 |
| 7.2. | SIP Common MIB Module | 15 |
| 7.3. | SIP User Agent MIB Module | 54 |
| 7.4. | SIP Server MIB Module (Proxy, Redirect and Registrar Servers) | 58 |
| 8. | IANA Considerations | 77 |
| 9. | Security Considerations | 77 |
| 10. | Contributor Acknowledgments | 79 |
| 11. | Changes from Previous Draft Revisions | 79 |
| 12. | References | 93 |
| 12.1. | Normative References | 93 |
| 12.2. | Informative References | 94 |
| | Authors' Addresses | 94 |
| | Intellectual Property and Copyright Statements | 96 |

Internet-Draft

SIP MIB Modules

September 2006

1. 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](#)].

2. Introduction

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it describes a set of managed objects that are used to manage Session Initiation Protocol (SIP) entities, which include User Agents, Proxy, Redirect and Registrar servers. The managed objects defined in this document are intended to provide basic SIP protocol management for SIP entities. The management of application-specific or service-specific SIP configuration is out of scope.

3. 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 set of MIB modules that are compliant to the SMIV2, which is described in STD 58, comprised of [RFC 2578](#) [[RFC2578](#)], [RFC 2579](#) [[RFC2579](#)], and [RFC 2580](#) [[RFC2580](#)].

4. Overview

SIP [[RFC3261](#)] is an application-layer control (signaling) protocol for creating, modifying, and terminating sessions with one or more participants. These sessions include Internet telephone calls, multimedia distribution, and multimedia conferences.

This MIB provides some managed objects for SIP entities defined in [RFC 3261](#) [[RFC3261](#)] - User Agents, and Proxy, Redirect and Registrar servers: it is intended to provide management of the basic SIP entities. It provides for monitoring of status and protocol statistics, as well as for configuration of SIP entities.

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

Four MIB modules are specified: SIP-COMMON-MIB, SIP-SERVER-MIB, SIP-UA-MIB and SIP-TC-MIB. SIP-COMMON-MIB contains common MIB objects used in all the SIP entities. SIP-SERVER-MIB contains objects specific to Proxy, Redirect and Registrar servers, and SIP-UA-MIB includes objects specific to User Agents. SIP-TC-MIB defines the textual conventions used throughout MIB modules.

The MIB modules contain following groups of objects:

SIP-COMMON-MIB: Management objects common to all the SIP entities

- o sipCommonMIBObjects

- * sipCommonCfgBase: This object group defines configuration objects common to all SIP entities including the SIP protocol version, the type of SIP entity (UA, proxy, redirect, registrar server), the operational and administrative status, the SIP organization name, the maximum number of SIP transactions an entity can manage, etc.
- * sipCommonCfgTimer: This object group defines timer configuration objects applicable to SIP user agent and stateful SIP proxy entities.
- * sipCommonSummaryStats: This object group defines a table containing the summary statistics objects applicable to all SIP entities, including the total number of all SIP requests and responses in/out, and the total number of transactions.
- * sipCommonMethodStats: This object group defines a table containing the SIP method statistics objects applicable to all SIP entities, including the number outbound and inbound

requests on a per method basis. Retransmissions, where appropriate, are also included in these statistics.

- * sipCommonStatusCode: This object group defines a table indicating the number of SIP responses (in and out) that the SIP entity has been requested to monitor on a per method basis (100, 200, 302, etc.).
- * sipCommonStatsTrans: This object group defines a table containing a gauge reflecting the number of transactions currently awaiting definitive responses by the managed SIP entity.
- * sipCommonStatsRetry: This object group defines statistic objects indicating the number of retransmissions sent on a per method basis.
- * sipCommonOtherStats: This object group defines additional statistic objects including the number of SIP requests received with unsupported URIs, the number of requests received with unsupported SIP methods, and the number of discarded messages.

- * sipCommonNotifObjects: This object group defines objects accessible only via a notification (MAX ACCESS clause of accessible-for-notify): they are related to the SNMP notifications defined in this MIB module.

The SIP-COMMON-MIB also contains notifications, including:

- o sipCommonStatusCodeNotif: indicates that a specific status code has been sent or received by the system.
- o sipCommonStatusCodeThreshExceededNotif: indicates that a specific status code has been sent or received by the system enough to exceed the configured threshold.

SIP-SERVER-MIB: Groups of objects for SIP Proxy, Redirect and Registrar servers

- o sipServerMIBObjects
 - * sipServerCfg: This object group defines common server configuration objects including the SIP server host address.
 - * sipServerProxyCfg: This object group defines configuration objects for SIP Proxy servers including the proxy mode of operation (stateless, stateful, call stateful), the proxy authentication method(s) and realm, etc.
 - * sipServerProxyStats: This object group defines a table

containing the statistics objects applicable to SIP proxy servers. It includes the number of occurrences of unsupported options being specified in received Proxy-Require headers.

- * sipServerRegCfg: This object group defines common configuration objects for SIP Registrar servers including the ability to accept third-party registrations, the maximum registration expiry that may be requested by user agents, the maximum number of users the registrar can support, the number of currently registered users, per contact registration information, etc.
- * sipServerRegStats: This object group contains summary statistics objects for SIP Registrar servers, precisely, the number of REGISTER requests that have been accepted or rejected.

SIP-UA-MIB: Group of objects for SIP User Agents.

o sipUAMIBObjects

- * sipUACfgServer: This object group specifies SIP server configuration objects applicable to SIP user agents including the Internet address of the SIP Server to use to register, proxy or redirect calls.

To conform with this specification, an SNMP agent MUST implement the SIP-TC-MIB module, plus the SIP-COMMON-MIB module and one of the SIP entity-type- specific MIB modules (SIP-SERVER-MIB or SIP-UA-MIB) as applicable for each instance of a SIP entity being managed. If a device has more than one SIP entity or multiple instances of the same

entity type, it MUST implement multiple SIP modules. [Section 5.2](#) describes handling of multiple instances in detail.

[5.1.](#) Textual Conventions

The data types SipTCTransportProtocol, SipTCEntityRole, SipTCOptionTagHeaders, and SipTCMethodName are defined in the SIP-TC-MIB module and used as Textual Conventions in this document.

[5.2.](#) Relationship to the Network Services MIB

In the design of the SIP MIB, the authors considered the following requirement: the SIP MIB must allow a single system with a single SNMP agent to support multiple instances of various SIP MIB modules. This requirement is met by using the framework provided by the

A device implementing the SIP MIB MUST support the NETWORK-SERVICES-MIB and, at a minimum, it MUST support the index and name objects (applIndex and applName) in the application table (applTable). In order to allow each instance of a SIP entity to be managed as a separate network service application, a naming convention SHOULD be used to make the application name unique. For example, if a system is running 2 SIP UAs that need to be managed as 2 separate SIP entities, by convention, the application names used in the Network Services Monitoring MIB application table should be "sip_ua1" and "sip_ua2". This convention allows each instance to have its own row in the application table (applTable).

It is therefore RECOMMENDED to adopt the following application name conventions:

- o for a SIP Proxy entity, the applName value SHOULD be equal to a character string starting with "sip_proxy" followed by a unique application instance identifier, for example, "sip_proxy1", "sip_proxy17"
- o for a SIP Registrar entity, the applName value SHOULD be equal to a character string starting with "sip_registrar" followed by a unique application instance identifier, for example, "sip_registrar1", "sip_registrar2"
- o for a SIP User Agent entity, the applName value SHOULD be equal to a character string starting with "sip_ua" followed by a unique application instance identifier, for example, "sip_ua1", "sip_ua2"
- o for any combination of Proxy, Registrar, or Redirect Server being managed as a single aggregate entity, the applName value for the combined server entity SHOULD reflect the appropriate combination followed by a unique application instance identifier. In order to facilitate consistent agent behavior and management application

expectations, the following order of names is RECOMMENDED:

- * if Proxy exists, list first.
- * if Proxy and Redirect exists, list Redirect second.
- * if Registrar exists, always list last.

For example "sip_proxy1", "sip_proxy_registrar1", "sip_proxy_redirect5", "sip_proxy_redirect_registrar2", or "sip_registrar1".

- o Note: the value of the network service application index

(applIndex) may be different from the instance identifier used in the system (the applIndex is dynamically created and the value assigned by the SNMP agent at the creation of the table entry whereas the value of the instance identifier to be used in the application name is provided as part of the application name applName by the system administrator or configuration files of the SIP entity). This note is illustrated in the first example provided below.

Finally, the SNMP agent MAY support any combination of the other attributes in applTable. If supported, the following objects SHOULD have values populated as follows:

- o applVersion: version of the SIP application,
- o applUptime: the value of applUptime MUST be identical to the value of sipCommonCfgServiceStartTime defined in the SIP-COMMON-MIB module,
- o applOperStatus: the value of applOperStatus SHOULD reflect the operational status of sipCommonCfgServiceOperStatus, at least by means of a mapping,
- o applLastChange: the value of applLastChange MUST be identical to the value of sipCommonCfgServiceLastChange defined in the SIP-COMMON module.

A number of other objects are defined as part of the applTable. They are not included for the sake of brevity and due to the fact that they do not enhance the concept being presented.

Example 1: The tables below illustrate how a system acting as both Proxy and Registrar server might be configured to maintain separate SIP-COMMON-MIB instances.

The NETWORK-SERVICES-MIB applTable might be populated as follows:

| applIndex | applName | applDescription |
|-----------|-------------------|----------------------|
| 1 | "sip_proxy10" | "ACME SIP Proxy" |
| 2 | "sip_registrar17" | "ACME SIP Registrar" |

The SIP-COMMON-MIB sipCommonCfgTable would have two rows: one for the

proxy (applIndex=1) and one for the registrar (applIndex=2). The SIP-SERVER-MIB tables would, however, only be populated with one row indexed by applIndex=1 and applIndex=2 respectively if the server provides either proxy or registrar.

SIP-COMMON-MIB sipCommonCfgTable might be populated as:

| applIndex | sipCommonCfgProtocolVersion | sipCommonCfgServiceOperStatus | ... |
|-----------|-----------------------------|-------------------------------|-----|
| 1 | "SIP/2.0" | up(1) | |
| 2 | "SIP/2.0" | restarting(4) | |

while sipServerProxyCfgTable in SIP-SERVER-MIB might be populated as:

| applIndex | sipServerCfgProxyStatefulness | ... |
|-----------|-------------------------------|-----|
| 1 | stateless(1) | |

and sipServerRegUserTable in SIP-SERVER-MIB might be populated as:

| applIndex | sipServerRegUserIndex | sipServerRegUserUri | ... |
|-----------|-----------------------|---------------------|-----|
| 2 | 1 | bob@example.com | |
| 2 | 2 | alice@example.com | |
| 2 | 3 | jim@example.com | |
| 2 | 4 | john@example.com | |

Example 2:

This example illustrates how to represent a system acting as both Proxy and Registrar server, where the two entities share a single instance of SIP-COMMON-MIB.

The NETWORK-SERVICES-MIB applTable might be populated as follows:

| applIndex | applName | applDescription |
|-----------|------------------------|--------------------------------|
| 1 | "sip_proxy_registrar1" | "ACME SIP Proxy and Registrar" |

The SIP-COMMON-MIB sipCommonCfgTable would have only one row to cover both the proxy and the registrar.

SIP-COMMON-MIB sipCommonCfgTable might be populated as:

| applIndex | sipCommonCfgProtocolVersion | sipCommonCfgServiceOperStatus |
|-----------|-----------------------------|-------------------------------|
| 1 | "SIP/2.0" | up(1) |

while sipServerRegUserTable in SIP-SERVER-MIB might be populated as:

| applIndex | sipServerRegUserIndex | sipServerRegUserUri | ... |
|-----------|-----------------------|---------------------|-----|
| 2 | 1 | bob@example.com | |
| 2 | 2 | alice@example.com | |
| 2 | 3 | kevin@example.com | |
| 2 | 4 | jf@example.com | |

The NETWORK-SERVICES-MIB assocTable is not considered a requirement for SIP systems. It is not a mandatory group for compliance with the NETWORK-SERVICES-MIB module.

The relationship between the value of applOperStatus and sipCommonCfgServiceOperStatus is as follows:

| sipCommonCfgServiceOperStatus | -- corresponds to --> | applOperStatus |
|-------------------------------|-----------------------|----------------|
| up | --> | up |
| down | --> | down |
| congested | --> | congested |
| restarting | --> | restarting |

| | | | | | | |
|--|-----------|--|-----|--|-----------|--|
| | quiescing | | --> | | quiescing | |
| | testing | | --> | | up | |

| | | | | | | |
|--------|---------|--------|-----|--------|-------------------|--------|
| | unknown | | --> | | --indeterminate-- | |
| +----- | | +----- | | +----- | | +----- |

If the sipOperStatus is 'unknown' there is no corresponding value of applOperStatus. Therefore, the last known value of applOperStatus SHOULD be maintained until the sipOperStatus transitions to a value that can be mapped appropriately.

5.3. IMPORTed MIB Modules and REFERENCE Clauses

The SIP MIB modules defined in this document IMPORT definitions normatively from the following MIB modules, beyond [\[RFC2578\]](#), [\[RFC2579\]](#) and [\[RFC2580\]](#): INET-ADDRESS-MIB [\[RFC4001\]](#), NETWORK-SERVICES-MIB [\[RFC2788\]](#), SNMP-FRAMEWORK-MIB [\[RFC3411\]](#).

This MIB module also includes REFERENCE clauses that normatively refer to SIP [\[RFC3261\]](#), and INET-ADDRESS-MIB [\[RFC4001\]](#).

Finally, this MIB module makes informative references to several RFCs in some of the examples described in the DESCRIPTION clauses, including Reliability of Provisional Responses in SIP [\[RFC3262\]](#), and SIP over SCTP [\[RFC4168\]](#).

6. Accommodating SIP Extension Methods

The core set of SIP methods is defined in [RFC 3261](#) [\[RFC3261\]](#). Other IETF RFCs define additional methods. In the future, additional methods may be defined. In order to avoid having to update the SIP-COMMON-MIB module to accommodate these extension methods, we use a method identifier name (SipTCMethodName textual-convention) to represent all SIP methods registered with IANA. See IANA Consideration section.

For example, the sipCommonMethodSupportedTable is the main table for listing all of the SIP methods supported by a system, including the SIP methods defined in [RFC 3261](#) [\[RFC3261\]](#) and other SIP methods registered with IANA. The table is informational in nature and populated by the system. Entries cannot be added or deleted by a

SNMP manager.

The SIP specification [RFC 3261 \[RFC3261\] section 27.4](#) establishes the sub-registries for SIP Methods and Response Codes under <http://www.iana.org/assignments/sip-parameters>. This document uses the existing sub-registry for the names of registered SIP method.

For example, in the sipCommonMethodSupportedTable of SIP-COMMON-MIB, the sipCommonMethodSupportedName values can be represented as

Lingle, et al.

Expires March 19, 2007

[Page 10]

Internet-Draft

SIP MIB Modules

September 2006

follows:

```
+-----+
| sipCommonMethodSupportedName |
+-----+
|          "ACK"                |
|          "BYE"                |
|          "CANCEL"             |
|          "INVITE"             |
|          "OPTIONS"            |
+-----+
```

[7.](#) Definitions

[7.1.](#) SIP Textual Conventions

```
SIP-TC-MIB DEFINITIONS ::= BEGIN
```

```
IMPORTS
```

```
    MODULE-IDENTITY,
    mib-2
```

```
    FROM SNMPv2-SMI          -- RFC 2578
```

```
    TEXTUAL-CONVENTION
```

```
    FROM SNMPv2-TC;         -- RFC 2579
```

```
sipTC MODULE-IDENTITY
```

```
    LAST-UPDATED "200609121700Z"
```

ORGANIZATION "IETF Session Initiation Protocol Working Group"
CONTACT-INFO

"SIP WG email: sip@ietf.org"

Co-editor Kevin Lingle
Cisco Systems, Inc.
postal: 7025 Kit Creek Road
P.O. Box 14987
Research Triangle Park, NC 27709
USA
email: klinge@cisco.com
phone: +1 919 392 2029

Co-editor Joon Maeng
email: jmaeng@austin.rr.com

Lingle, et al.

Expires March 19, 2007

[Page 11]

Internet-Draft

SIP MIB Modules

September 2006

Co-editor Jean-Francois Mule
CableLabs
postal: 858 Coal Creek Circle
Louisville, CO 80027
USA
email: jf.mule@cablelabs.com
phone: +1 303 661 9100

Co-editor Dave Walker
email: drwalker@rogers.com"

DESCRIPTION

"Session Initiation Protocol (SIP) MIB Textual Conventions
module used by other SIP-related MIB Modules.

Copyright (C) The Internet Society (2006). This version of
this MIB module is part of RFC XXXX; see the RFC itself for
full legal notices."

-- RFC Ed: replace XXXX with actual RFC number and remove this not
REVISION "200609121700Z"

DESCRIPTION

"Initial version of the IETF SIP-TC-MIB module. This version
published as part of RFC XXXX."

-- RFC Ed: replace XXXX with actual RFC number and remove this note
::= { mib-2 XXX1 }
-- RFC Ed: replace XXX1 with actual IANA assigned number for this

-- sipTC mib module and remove this note

--

-- Textual Conventions

--

SipTCTransportProtocol ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"This convention is a bit map. Each bit represents a transport protocol. If a bit has value 1, then that selected transport protocol is in some way dependent on the context of the object using this convention. If a bit has value 0, then that transport protocol is not selected. Combinations of bits can be set when multiple transport protocols are selected.

bit 0: a protocol other than those defined here

bit 1: User Datagram Protocol bit 2 : Transmission Control Protocol

bit 3: Stream Control Transmission Protocol

bit 4: Transport Layer Security Protocol over TCP

bit 5: Transport Layer Security Protocol over SCTP

"

REFERENCE "[RFC 3261, Section 18](#) and [RFC 4168](#)"

SYNTAX BITS {
 other(0), -- none of the following
 udp(1),
 tcp(2),
 sctp(3), -- [RFC4168](#)
 tlsTcp(4),
 tlsSctp(5) -- [RFC 4168](#)
}

SipTCEntityRole ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"This convention defines the role of a SIP entity. Examples of SIP entities are proxies, user agents, redirect servers, registrars or combinations of the above.

User Agent (UA): A logical entity that can act as both a user

agent client and user agent server. User Agent Client (UAC): A logical entity that creates a new request, and then uses the client transaction state machinery to send it. The role of UAC lasts only for the duration of that transaction. In other words, if a piece of software initiates a request, it acts as a UAC for the duration of that transaction. If it receives a request later, it assumes the role of a user agent server for the processing of that transaction. User Agent Server (UAS): a logical entity that generates a response to a SIP request. The response accepts, rejects, or redirects the request. This role lasts only for the duration of that transaction. In other words, if a piece of software responds to a request, it acts as a UAS for the duration of that transaction. If it generates a request later, it assumes the role of a user agent client for the processing of that transaction.

Proxy, Proxy Server: An intermediary entity that acts as both a server and a client for the purpose of making requests on behalf of other clients. A proxy server primarily plays the role of routing, which means its job is to ensure that a request is sent to another entity 'closer' to the targeted user. Proxies are also useful for enforcing policy. A proxy interprets, and, if necessary, rewrites specific parts of a request message before forwarding it.

Redirect Server: A redirect server is a user agent server that generates 3xx responses to requests it receives, directing the client to contact an alternate set of URIs.

Registrar: A registrar is a server that accepts REGISTER

requests and places the information it receives in those requests into the location service for the domain it handles."

REFERENCE

["RFC 3261, Section 6"](#)

```
SYNTAX      BITS {
                other(0),
                userAgent(1),
                proxyServer(2),
                redirectServer(3),
                registrarServer(4)
            }
```

SipTCOptionTagHeaders ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"This convention defines the header fields that use the option tags per [section 19.2 of RFC 3261](#). These tags are used in Require ([Section 20.32](#)), Proxy-Require ([Section 20.29](#)), Supported ([Section 20.37](#)) and Unsupported ([Section 20.40](#)) header fields."

REFERENCE

"[RFC 3261](#), Sections [19.2](#), [20.32](#), [20.29](#), [20.37](#) and [20.40](#)"

SYNTAX

BITS {

require(0), -- Require header
proxyRequire(1), -- Proxy-Require header
supported(2), -- Supported header
unsupported(3) -- Unsupported header

}

SipTCMethodName ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"This textual convention is a string that uniquely identifies a SIP method. The scope of uniqueness is the context of all defined SIP methods.

Experimental support of extension methods is acceptable and expected. Extension methods are those defined in Internet-Draft documents but not yet allocated an official sanctioned by IANA.

To support experimental extension methods, any object using this textual convention as syntax MAY return/accept a method identifier value other than those sanctioned by IANA. That system MUST ensure no collisions with officially assigned method names."

REFERENCE

"[RFC 3261, Section 27.4](#)"

SYNTAX OCTET STRING (SIZE (1..100))

END

7.2. SIP Common MIB Module

SIP-COMMON-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY,
OBJECT-TYPE,
NOTIFICATION-TYPE,
Counter32,
Gauge32,
TimeTicks,
Unsigned32,
mib-2

FROM SNMPv2-SMI -- [RFC 2578](#)

RowStatus,
TimeStamp,
TruthValue

FROM SNMPv2-TC -- [RFC 2579](#)

MODULE-COMPLIANCE,
OBJECT-GROUP,
NOTIFICATION-GROUP

FROM SNMPv2-CONF -- [RFC 2580](#)

SnmpAdminString

FROM SNMP-FRAMEWORK-MIB -- [RFC 3411](#)

SipTCTransportProtocol,
SipTCMethodName,
SipTCEntityRole,
SipTCOptionTagHeaders

FROM SIP-TC-MIB

applIndex

FROM NETWORK-SERVICES-MIB -- [RFC 2788](#)

InetPortNumber

FROM INET-ADDRESS-MIB; -- [RFC 4001](#)

sipCommonMIB MODULE-IDENTITY

LAST-UPDATED "200609121700Z"

ORGANIZATION "IETF Session Initiation Protocol Working Group"

CONTACT-INFO

"SIP WG email: sip@ietf.org

Co-editor Kevin Lingle
Cisco Systems, Inc.
postal: 7025 Kit Creek Road
P.O. Box 14987
Research Triangle Park, NC 27709
USA
email: klinge@cisco.com
phone: +1 919 392 2029

Co-editor Joon Maeng
email: jmaeng@austin.rr.com

Co-editor Jean-Francois Mule
CableLabs
postal: 858 Coal Creek Circle
Louisville, CO 80027
USA
email: jf.mule@cablelabs.com
phone: +1 303 661 9100

Co-editor Dave Walker
email: drwalker@rogers.com"

DESCRIPTION

"Session Initiation Protocol (SIP) Common MIB module. This module defines objects which may be common to all SIP entities.

SIP is an application-layer signaling protocol for creating, modifying and terminating multimedia sessions with one or more participants. These sessions include Internet multimedia conferences and Internet telephone calls. SIP is defined in [RFC 3261](#) (June 2002).

This MIB is defined for managing objects which are common to SIP User Agents (UAs), Proxy, Redirect and Registrar servers. Objects specific to each of these entities MAY be managed using entity specific MIBs defined in other modules.

Copyright (C) The Internet Society (2006). This version of this MIB module is part of RFC XXXX; see the RFC itself for full legal notices."

-- RFC Ed: replace XXXX with actual RFC number and
-- remove this note

REVISION "200609121700Z"

DESCRIPTION

"Initial version of the IETF SIP-COMMON-MIB module. This

Internet-Draft

SIP MIB Modules

September 2006

```
-- RFC Ed: replace XXXX with actual RFC number and remove this note
    ::= { mib-2 XXX2 }
-- RFC Ed: replace XXX2 with actual IANA assigned number and
--         remove this note

-- Top-Level Components of this MIB.
sipCommonMIBNotifications OBJECT IDENTIFIER ::= { sipCommonMIB 0 }
sipCommonMIBObjects       OBJECT IDENTIFIER ::= { sipCommonMIB 1 }
sipCommonMIBConformance  OBJECT IDENTIFIER ::= { sipCommonMIB 2 }

--
-- This MIB contains objects that are common to all SIP entities.
--

-- Common basic configuration
sipCommonCfgBase          OBJECT IDENTIFIER ::= { sipCommonMIBObjects 1 }

-- Protocol timer configuration
sipCommonCfgTimer         OBJECT IDENTIFIER ::= { sipCommonMIBObjects 2 }

-- SIP message summary statistics
sipCommonSummaryStats     OBJECT IDENTIFIER ::= { sipCommonMIBObjects 3 }

-- Per method statistics
sipCommonMethodStats      OBJECT IDENTIFIER ::= { sipCommonMIBObjects 4 }

-- Per Status code or status code class statistics
sipCommonStatusCode       OBJECT IDENTIFIER ::= { sipCommonMIBObjects 5 }

-- Transaction statistics
sipCommonStatsTrans       OBJECT IDENTIFIER ::= { sipCommonMIBObjects 6 }

-- Method retry statistics
sipCommonStatsRetry       OBJECT IDENTIFIER ::= { sipCommonMIBObjects 7 }

-- Other statistics
sipCommonOtherStats       OBJECT IDENTIFIER ::= { sipCommonMIBObjects 8 }

-- Accessible-for-notify objects
sipCommonNotifObjects     OBJECT IDENTIFIER ::= { sipCommonMIBObjects 9 }
```

```
--
-- Common Configuration Objects
--
sipCommonCfgTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF SipCommonCfgEntry
    MAX-ACCESS  not-accessible
    STATUS      current
```

Lingle, et al.

Expires March 19, 2007

[Page 17]

Internet-Draft

SIP MIB Modules

September 2006

DESCRIPTION

"This table contains the common configuration objects applicable to all SIP entities."
 ::= { sipCommonCfgBase 1 }

```
sipCommonCfgEntry OBJECT-TYPE
    SYNTAX      SipCommonCfgEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
```

"A row of common configuration.

Each row represents objects for a particular SIP entity instance present in this system. applIndex is used to uniquely identify these instances of SIP entities and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](#))."

```
INDEX { applIndex }
::= { sipCommonCfgTable 1 }
```

```
SipCommonCfgEntry ::= SEQUENCE {
    sipCommonCfgProtocolVersion      SnmpAdminString,
    sipCommonCfgServiceOperStatus    INTEGER,
    sipCommonCfgServiceStartTime     TimeTicks,
    sipCommonCfgServiceLastChange    TimeTicks,
    sipCommonCfgOrganization          SnmpAdminString,
    sipCommonCfgMaxTransactions       Unsigned32,
    sipCommonCfgServiceNotifEnable    BITS,
    sipCommonCfgEntityType            SipTCEntityTypeRole
}
```

```
sipCommonCfgProtocolVersion OBJECT-TYPE
    SYNTAX      SnmpAdminString
```

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object will reflect the version of SIP supported by this SIP entity. It will follow the same format as SIP version information contained in the SIP messages generated by this SIP entity. For example, entities supporting SIP version 2 will return 'SIP/2.0' as dictated by the standard."

REFERENCE

["RFC 3261, Section 7.1"](#)

::= { sipCommonCfgEntry 1 }

sipCommonCfgServiceOperStatus OBJECT-TYPE

SYNTAX INTEGER {
unknown(1),

Lingle, et al.

Expires March 19, 2007

[Page 18]

Internet-Draft

SIP MIB Modules

September 2006

up(2),
down(3),
congested(4),
restarting(5),
quiescing(6),
testing(7)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object contains the current operational state of the SIP application."

- unknown : The operational status cannot be determined for some reason.
- up : The application is operating normally, and is processing (receiving and possibly issuing) SIP requests and responses.
- down : The application is currently unable to process SIP messages.
- congested : The application is operational but no additional inbound transactions can be accommodated at the moment.
- restarting : The application is currently unavailable but it is in the process of restarting and will, presumably, soon be able to process SIP messages.

quiescing : The application is currently operational but has been administratively put into quiescence mode. Additional inbound transactions MAY be rejected.

testing : The application is currently in test mode and MAY not be able to process SIP messages.

The operational status values defined for this object are not based on any specific information contained in the SIP standard."

::= { sipCommonCfgEntry 2 }

sipCommonCfgServiceStartTime OBJECT-TYPE

SYNTAX TimeTicks

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of sysUpTime at the time the SIP entity was last started. If started prior to the last re-initialization of the local network management subsystem, then this object contains a zero value."

::= { sipCommonCfgEntry 3 }

sipCommonCfgServiceLastChange OBJECT-TYPE

SYNTAX TimeTicks

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of sysUpTime at the time the SIP entity entered its current operational state. If the current state was entered prior to the last re-initialization of the local network management subsystem, then this object contains a zero value."

::= { sipCommonCfgEntry 4 }

sipCommonCfgOrganization OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object contains the organization name which the SIP entity inserts into Organization headers of SIP messages processed by this system. If the string is empty, no Organization header is

to be generated."
REFERENCE
["RFC 3261, Section 20.25"](#)
 ::= { sipCommonCfgEntry 5 }

sipCommonCfgMaxTransactions OBJECT-TYPE
SYNTAX Unsigned32 (1..4294967295)
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object indicates the maximum number of simultaneous transactions per second that the SIP entity can manage. In general, the value of this object SHOULD reflect a level of transaction processing per second that is considered high enough to impact the system's CPU and/or memory resources to the point of deteriorating SIP call processing but not high enough to cause catastrophic system failure."
 ::= { sipCommonCfgEntry 6 }

sipCommonCfgServiceNotifEnable OBJECT-TYPE
SYNTAX BITS {
sipCommonServiceColdStart(0),
sipCommonServiceWarmStart(1),
sipCommonServiceStatusChanged(2)
}
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"This object specifies which SIP service related notifications

are enabled. Each bit represents a specific notification. If a bit has a value 1, the associated notification is enabled and will be generated by the SIP entity at the appropriate time.

Support for these notifications is OPTIONAL: either none or all notification values are supported. If an implementation does not support this object, it should return a 'noSuchObject' exception to an SNMP GET operation. If notifications are supported, this object's default value SHOULD reflect sipCommonServiceColdStart and sipCommonServiceWarmStart enabled and sipCommonServiceStatusChanged disabled.

```
    This object value SHOULD persist across reboots."
DEFVAL { { sipCommonServiceColdStart,
           sipCommonServiceWarmStart } }
::= { sipCommonCfgEntry 7 }
```

```
sipCommonCfgEntityType OBJECT-TYPE
```

```
SYNTAX      SipTCEntityRole
```

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

```
STATUS      current
```

```
DESCRIPTION
```

```
"This object identifies the list of SIP entities this row is
related to. It is defined as a bit map. Each bit represents a
type of SIP entity. If a bit has value 1, the SIP entity
represented by this row plays the role of this entity type. If
a bit has value 0, the SIP entity represented by this row does
not act as this entity type. Combinations of bits can be set
when the SIP entity plays multiple SIP roles."
```

```
::= { sipCommonCfgEntry 8 }
```

```
--
```

```
-- Support for multiple ports
```

```
--
```

```
sipCommonPortTable OBJECT-TYPE
```

```
SYNTAX      SEQUENCE OF SipCommonPortEntry
```

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

```
STATUS      current
```

```
DESCRIPTION
```

```
"This table contains the list of ports that each SIP entity in
this system is allowed to use. These ports can be advertised
using the Contact header in a REGISTER request or response."
```

```
::= { sipCommonCfgBase 2 }
```

```
sipCommonPortEntry OBJECT-TYPE
```

```
SYNTAX      SipCommonPortEntry
```

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

```
STATUS      current
```

DESCRIPTION

"Specification of a particular port.

Each row represents those objects for a particular SIP entity present in this system. applIndex is used to uniquely identify

these instances of SIP entities and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](#))."

INDEX { applIndex, sipCommonPort }
 ::= { sipCommonPortTable 1 }

SipCommonPortEntry ::= SEQUENCE {
 sipCommonPort InetPortNumber,
 sipCommonPortTransportRcv SipTCTransportProtocol
}

sipCommonPort OBJECT-TYPE
 SYNTAX InetPortNumber (1..65535)
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "This object reflects a particular port that can be used by the SIP application."
 ::= { sipCommonPortEntry 1 }

sipCommonPortTransportRcv OBJECT-TYPE
 SYNTAX SipTCTransportProtocol
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "This object will specify the transport protocol the SIP entity will use to receive SIP messages."

 This object is a bit map. Each bit represents a transport protocol. If a bit has value 1, then that transport protocol is currently being used. If a bit has value 0, then that transport protocol is currently not being used."
 ::= { sipCommonPortEntry 2 }

--
-- Support for SIP option tags (SIP extensions).
-- SIP extensions MAY be supported or required by SIP entities.
--

sipCommonOptionTagTable OBJECT-TYPE
 SYNTAX SEQUENCE OF SipCommonOptionTagEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

"This table contains a list of the SIP option tags (SIP extensions) that either required, supported, or unsupported by the SIP entity. These option tags are used in the Require, Proxy-Require, Supported and Unsupported header fields.

Example: if a user agent client supports and requires the server to support reliability of provisional responses (IETF [RFC 3262](#)), this table contains a row with the option tag string '100rel' in sipCommonOptionTag and the OCTET STRING value of '1010 0000' or '0xA0' in sipCommonOptionTagHeaderField.

If a server does not support the required feature (indicated in a Require header to a UAS, or in a Proxy-Require to a Proxy Server), the server returns a 420 Bad Extension listing the feature in an Unsupported header.

Normally the list of such features supported by an entity is static (i.e. will not change over time)."

REFERENCE

"[RFC 3261](#), Sections [19.2](#), [20.32](#), [20.29](#), [20.37](#), and [20.40](#)"
 ::= { sipCommonCfgBase 3 }

sipCommonOptionTagEntry OBJECT-TYPE

SYNTAX SipCommonOptionTagEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A particular SIP option tag (extension) supported or unsupported by the SIP entity, and which may be supported or required by a peer.

Each row represents those objects for a particular SIP entity present in this system. applIndex is used to uniquely identify these instances of SIP entities and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](#))."

INDEX { applIndex, sipCommonOptionTagIndex }

::= { sipCommonOptionTagTable 1 }

SipCommonOptionTagEntry ::= SEQUENCE {

 sipCommonOptionTagIndex Unsigned32,

 sipCommonOptionTag SnmpAdminString,

 sipCommonOptionTagHeaderField SipTCOptionTagHeaders

}

sipCommonOptionTagIndex OBJECT-TYPE

SYNTAX Unsigned32 (1..4294967295)

MAX-ACCESS not-accessible

STATUS current

Internet-Draft

SIP MIB Modules

September 2006

DESCRIPTION

"This object uniquely identifies a conceptual row in the table."
 ::= { sipCommonOptionTagEntry 1 }

sipCommonOptionTag OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object indicates the SIP option tag. The option tag names are registered with IANA and available at <http://www.iana.org>."
REFERENCE "[RFC 3261, Section 27.1](#)"
 ::= { sipCommonOptionTagEntry 2 }

sipCommonOptionTagHeaderField OBJECT-TYPE

SYNTAX SipTCOptionTagHeaders

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object indicates whether the SIP option tag is supported (Supported header), unsupported (Unsupported header), required (Require or Proxy-Require header) by the SIP entity. A SIP option tag may be both supported and required."
 ::= { sipCommonOptionTagEntry 3 }

--

-- Supported SIP Methods

--

sipCommonMethodSupportedTable OBJECT-TYPE

SYNTAX SEQUENCE OF SipCommonMethodSupportedEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table contains a list of methods supported by each SIP entity in this system (see the standard set of SIP methods in [Section 7.1 of RFC 3261](#)). Any additional methods that may be incorporated into the SIP protocol can be represented by this table without any requirement to update this MIB module.

The table is informational in nature; conveying to the NMS capabilities of the managed system.

From a protocol point of view, the list of methods advertised by the SIP entity in the Allow header (Section 20.5 of [RFC 3261](#)) MUST be consistent with the methods reflected in this table."

::= { sipCommonCfgBase 4 }

sipCommonMethodSupportedEntry OBJECT-TYPE

SYNTAX SipCommonMethodSupportedEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A particular method supported by the SIP entity.

Each row represents those objects for a particular SIP entity present in this system. applIndex is used to uniquely identify these instances of SIP entities and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](#))."

INDEX { applIndex, sipCommonMethodSupportedIndex }

::= { sipCommonMethodSupportedTable 1 }

SipCommonMethodSupportedEntry ::= SEQUENCE {

sipCommonMethodSupportedIndex Unsigned32,

sipCommonMethodSupportedName SipTCMethodName

}

sipCommonMethodSupportedIndex OBJECT-TYPE

SYNTAX Unsigned32 (1..4294967295)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This object uniquely identifies a conceptual row in the table and reflects an assigned number used to identifier a specific SIP method.

This identifier is suitable for referencing the associated method throughout this and other MIBs supported by this managed system."

::= { sipCommonMethodSupportedEntry 1 }

sipCommonMethodSupportedName OBJECT-TYPE

SYNTAX SipTCMethodName

```

MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "This object reflects the supported method's name.  The method
    name MUST be all upper case (e.g, 'INVITE')."
 ::= { sipCommonMethodSupportedEntry 2 }

```

--

-- SIP Timer Configuration

--

```

sipCommonCfgTimerTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF SipCommonCfgTimerEntry
    MAX-ACCESS   not-accessible

```

Lingle, et al.

Expires March 19, 2007

[Page 25]

Internet-Draft

SIP MIB Modules

September 2006

```

STATUS        current
DESCRIPTION
    "This table contains timer configuration objects applicable to
    SIP user agent and SIP stateful Proxy Server entities."
 ::= { sipCommonCfgTimer 1 }

```

```

sipCommonCfgTimerEntry OBJECT-TYPE
    SYNTAX      SipCommonCfgTimerEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "A row of timer configuration.

```

Each row represents those objects for a particular SIP entity present in this system. applIndex is used to uniquely identify these instances of SIP entities and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](http://tools.ietf.org/html/rfc2788)). The objects in this table entry SHOULD be non-volatile and their value SHOULD be kept at reboot."

```

INDEX { applIndex }
 ::= { sipCommonCfgTimerTable 1 }

```

```

SipCommonCfgTimerEntry ::= SEQUENCE {
    sipCommonCfgTimerA      Unsigned32,
    sipCommonCfgTimerB      Unsigned32,
    sipCommonCfgTimerC      Unsigned32,
    sipCommonCfgTimerD      Unsigned32,
    sipCommonCfgTimerE      Unsigned32,

```

| | |
|---------------------|-------------|
| sipCommonCfgTimerF | Unsigned32, |
| sipCommonCfgTimerG | Unsigned32, |
| sipCommonCfgTimerH | Unsigned32, |
| sipCommonCfgTimerI | Unsigned32, |
| sipCommonCfgTimerJ | Unsigned32, |
| sipCommonCfgTimerK | Unsigned32, |
| sipCommonCfgTimerT1 | Unsigned32, |
| sipCommonCfgTimerT2 | Unsigned32, |
| sipCommonCfgTimerT4 | Unsigned32 |

}

sipCommonCfgTimerA OBJECT-TYPE

SYNTAX Unsigned32 (100..1000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the initial value for the retransmit timer for the INVITE method. The retransmit timer doubles after each retransmission, ensuring an exponential backoff in network

traffic. This object represents the initial time a SIP entity will wait to receive a provisional response to an INVITE before resending the INVITE request."

REFERENCE

"[RFC 3261, Section 17.1.1.2](#)"

DEFVAL { 500 }

::= { sipCommonCfgTimerEntry 1 }

sipCommonCfgTimerB OBJECT-TYPE

SYNTAX Unsigned32 (32000..300000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the maximum time a SIP entity will wait to receive a final response to an INVITE. The timer is started upon transmission of the initial INVITE request."

REFERENCE

"[RFC 3261, Section 17.1.1.2](#)"

DEFVAL { 32000 }

::= { sipCommonCfgTimerEntry 2 }

sipCommonCfgTimerC OBJECT-TYPE

SYNTAX Unsigned32 (180000..300000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the maximum time a SIP Proxy Server will wait to receive a provisional response to an INVITE. The Timer C MUST be set for each client transaction when an INVITE request is proxied."

REFERENCE

["RFC 3261, Section 16.6"](#)

DEFVAL { 180000 }

::= { sipCommonCfgTimerEntry 3 }

sipCommonCfgTimerD OBJECT-TYPE

SYNTAX Unsigned32 (0..300000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the amount of time that the server transaction can remain in the 'Completed' state when unreliable transports are used. The default value MUST be equal or greater than 32000 for UDP transport and its value MUST be 0 for TCP/SCTP transport."

REFERENCE

["RFC 3261, Section 17.1.1.2"](#)

DEFVAL { 32000 }

::= { sipCommonCfgTimerEntry 4 }

sipCommonCfgTimerE OBJECT-TYPE

SYNTAX Unsigned32 (100..1000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the initial value for the retransmit timer for a non-INVITE method while in 'Trying State'. The retransmit timer doubles after each retransmission until it

reaches T2 to ensure an exponential backoff in network traffic. This object represents the initial time a SIP entity will wait to receive a provisional response to the request before resending the non-INVITE request."

REFERENCE

["RFC 3261, Section 17.1.2.2"](#)

DEFVAL { 500 }

::= { sipCommonCfgTimerEntry 5 }

sipCommonCfgTimerF OBJECT-TYPE

SYNTAX Unsigned32 (32000..300000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the maximum time a SIP entity will wait to receive a final response to a non-INVITE request. The timer is started upon transmission of the initial request."

REFERENCE

["RFC 3261, Section 17.1.2.2"](#)

DEFVAL { 32000 }

::= { sipCommonCfgTimerEntry 6 }

sipCommonCfgTimerG OBJECT-TYPE

SYNTAX Unsigned32 (0..1000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the initial value for the retransmit timer for final responses to INVITE requests. If timer G fires, the response is passed to the transport layer once more for retransmission, and timer G is set to fire in MIN(2*T1, T2)

seconds. From then on, when timer G fires, the response is passed to the transport again for transmission, and timer G is reset with a value that doubles, unless that value exceeds T2, in which case it is reset with the value of T2. The default value MUST be T1 for UDP transport and its value MUST be 0 for reliable transport like TCP/SCTP."

REFERENCE

["RFC 3261, Section 17.2.1"](#)

DEFVAL { 500 }

::= { sipCommonCfgTimerEntry 7 }

sipCommonCfgTimerH OBJECT-TYPE

SYNTAX Unsigned32 (32000..300000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the maximum time a server will wait to receive an ACK before it abandons retransmitting the response. The timer is started upon entering the 'Completed' state."

REFERENCE

["RFC 3261, Section 17.2.1"](#)

DEFVAL { 32000 }

::= { sipCommonCfgTimerEntry 8 }

sipCommonCfgTimerI OBJECT-TYPE

SYNTAX Unsigned32 (0..10000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the maximum time a SIP entity will wait to receive additional ACK message retransmissions.

The timer is started upon entering the 'Confirmed' state. The default value MUST be T4 for UDP transport and its value MUST be 0 for reliable transport like TCP/SCTP."

REFERENCE

["RFC 3261, Section 17.2.1"](#)

DEFVAL { 5000 }

::= { sipCommonCfgTimerEntry 9 }

sipCommonCfgTimerJ OBJECT-TYPE

SYNTAX Unsigned32 (32000..300000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the maximum time a SIP server will wait to receive retransmissions of non-INVITE request. The timer is started upon entering the 'Completed' state for non-INVITE transactions. When timer J fires, the server MUST transition to the 'Terminated' state."

REFERENCE

["RFC 3261, Section 17.2.2"](#)

DEFVAL { 32000 }

::= { sipCommonCfgTimerEntry 10 }

sipCommonCfgTimerK OBJECT-TYPE

SYNTAX Unsigned32 (0..10000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the maximum time a SIP client will wait to receive retransmissions of responses to non-INVITE requests. The timer is started upon entering the 'Completed' state for non-INVITE transactions. When timer K fires, the server MUST transition to the 'Terminated' state. The default value MUST be T4 for UDP transport and its value MUST be 0 for reliable transport like TCP/SCTP."

REFERENCE

["RFC 3261, Section 17.1.2.2"](#)

DEFVAL { 5000 }

::= { sipCommonCfgTimerEntry 11 }

sipCommonCfgTimerT1 OBJECT-TYPE

SYNTAX Unsigned32 (200..10000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the T1 timer for a SIP entity. T1 is an estimate of the round-trip time (RTT) between the client and server transactions."

REFERENCE

["RFC 3261, Section 17"](#)

DEFVAL { 500 }

::= { sipCommonCfgTimerEntry 12 }

sipCommonCfgTimerT2 OBJECT-TYPE

SYNTAX Unsigned32 (200..10000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

Internet-Draft

SIP MIB Modules

September 2006

"This object reflects the T2 timer for a SIP entity. T2 is the maximum retransmit interval for non-INVITE requests and INVITE responses. It's used in various parts of the protocol to reset other Timer* objects to this value."

REFERENCE

["RFC 3261, Section 17"](#)

DEFVAL { 4000 }

::= { sipCommonCfgTimerEntry 13 }

sipCommonCfgTimerT4 OBJECT-TYPE

SYNTAX Unsigned32 (200..10000)

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the T4 timer for a SIP entity. T4 is the maximum duration a message will remain in the network. It represents the amount of time the network will take to clear messages between client and server transactions. It's used in various parts of the protocol to reset other Timer* objects to this value."

REFERENCE

["RFC 3261, Section 17"](#)

DEFVAL { 5000 }

::= { sipCommonCfgTimerEntry 14 }

--

-- Common Statistics Objects

--

--

-- Summary Statistics

--

sipCommonSummaryStatsTable OBJECT-TYPE

SYNTAX SEQUENCE OF SipCommonSummaryStatsEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table contains the summary statistics objects applicable to all SIP entities. Each row represents those objects for a particular SIP entity present in this system."

::= { sipCommonSummaryStats 1 }

sipCommonSummaryStatsEntry OBJECT-TYPE
SYNTAX SipCommonSummaryStatsEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

Lingle, et al.

Expires March 19, 2007

[Page 31]

Internet-Draft

SIP MIB Modules

September 2006

"A row of summary statistics.

Each row represents those objects for a particular SIP entity present in this system. applIndex is used to uniquely identify these instances of SIP entities and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](#))."

INDEX { applIndex }
 ::= { sipCommonSummaryStatsTable 1 }

SipCommonSummaryStatsEntry ::= SEQUENCE {
 sipCommonSummaryInRequests Counter32,
 sipCommonSummaryOutRequests Counter32,
 sipCommonSummaryInResponses Counter32,
 sipCommonSummaryOutResponses Counter32,
 sipCommonSummaryTotalTransactions Counter32,
 sipCommonSummaryDisconTime TimeStamp
}

sipCommonSummaryInRequests OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This object indicates the total number of SIP request messages received by the SIP entity including retransmissions.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management Station can detect discontinuities in this counter by monitoring the sipCommonSummaryDisconTime object in the same row."

::= { sipCommonSummaryStatsEntry 1 }

sipCommonSummaryOutRequests OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object contains the total number of SIP request messages sent out (originated and relayed) by the SIP entity. Where a particular message is sent more than once, for example as a retransmission, or as a result of forking, each transmission is counted separately.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management Station can detect discontinuities in this counter by monitoring the sipCommonSummaryDisconTime object in the same

row."

::= { sipCommonSummaryStatsEntry 2 }

sipCommonSummaryInResponses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object contains the total number of SIP response messages received by the SIP entity including retransmissions.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management Station can detect discontinuities in this counter by monitoring the sipCommonSummaryDisconTime object in the same row."

::= { sipCommonSummaryStatsEntry 3 }

sipCommonSummaryOutResponses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object contains the total number of SIP response messages sent (originated and relayed) by the SIP entity including retransmissions.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management

Station can detect discontinuities in this counter by monitoring the sipCommonSummaryDisconTime object in the same row."

::= { sipCommonSummaryStatsEntry 4 }

sipCommonSummaryTotalTransactions OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object contains a count of the number of transactions that are in progress and transactions that have reached the terminated state. It is not applicable to stateless SIP Proxy Servers.

A SIP transaction occurs between a client and a server and comprises all messages from the first request sent from the client to the server up to a final (non-1xx) response sent from the server to the client.

If the request is INVITE and the final response is a non-2xx, the transaction also include an ACK to the response. The ACK for a 2xx response to an INVITE request is a separate transaction.

The branch ID parameter in the Via header field values serves as a transaction identifier.

A transaction is identified by the CSeq sequence number within a single call leg. The ACK request has the same CSeq number as the corresponding INVITE request, but comprises a transaction of its own.

In the case of a forked request, each branch counts as a single transaction.

For a transaction stateless Proxy Server, this counter is always 0.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management Station can detect discontinuities in this counter by

```

        monitoring the sipCommonSummaryDisconTime object in the same
        row."
 ::= { sipCommonSummaryStatsEntry 5 }

sipCommonSummaryDisconTime OBJECT-TYPE
    SYNTAX      TimeStamp
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "The value of the sysUpTime object when the counters for the
        summary statistics objects in this row last experienced a
        discontinuity."
 ::= { sipCommonSummaryStatsEntry 6 }

--
-- SIP Method Statistics
-- Total counts for each SIP method.
--
sipCommonMethodStatsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF SipCommonMethodStatsEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "This table contains the method statistics objects for SIP
        entities. Each row represents those objects for a particular
        SIP entity present in this system."

```

```

 ::= { sipCommonMethodStats 1 }

sipCommonMethodStatsEntry OBJECT-TYPE
    SYNTAX      SipCommonMethodStatsEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "A row of per entity method statistics.

        Each row represents those objects for a particular SIP entity
        present in this system. applIndex is used to uniquely identify
        these instances of SIP entities and correlate them through the
        common framework of the NETWORK-SERVICES-MIB (RFC 2788)."
    INDEX { applIndex, sipCommonMethodStatsName }
 ::= { sipCommonMethodStatsTable 1 }

```

```

SipCommonMethodStatsEntry ::= SEQUENCE {
    sipCommonMethodStatsName    SipTCMethodName,
    sipCommonMethodStatsOutbounds Counter32,
    sipCommonMethodStatsInbounds Counter32,
    sipCommonMethodStatsDisconTime TimeStamp
}

sipCommonMethodStatsName OBJECT-TYPE
    SYNTAX      SipTCMethodName
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "This object uniquely identifies the SIP method related to the
        objects in a particular row."
    ::= { sipCommonMethodStatsEntry 1 }

```

```

sipCommonMethodStatsOutbounds OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "This object reflects the total number of requests sent by the
        SIP entity, excluding retransmissions. Retransmissions are
        counted separately and are not reflected in this counter. A
        Management Station can detect discontinuities in this counter
        by monitoring the sipCommonMethodStatsDisconTime object in the
        same row."
    REFERENCE
        "RFC 3261, Section 7.1"
    ::= { sipCommonMethodStatsEntry 2 }

```

```

sipCommonMethodStatsInbounds OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "This object reflects the total number of requests received by
        the SIP entity. Retransmissions are counted separately and are
        not reflected in this counter. A Management Station can detect

```

discontinuities in this counter by monitoring the
sipCommonMethodStatsDisconTime object in the same row."

REFERENCE

["RFC 3261, Section 7.1"](#)

::= { sipCommonMethodStatsEntry 3 }

sipCommonMethodStatsDisconTime OBJECT-TYPE

SYNTAX TimeStamp

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of the sysUpTime object when the counters for the
method statistics objects in this row last experienced a
discontinuity."

::= { sipCommonMethodStatsEntry 4 }

--

-- Support for specific status codes

--

sipCommonStatusCodeTable OBJECT-TYPE

SYNTAX SEQUENCE OF SipCommonStatusCodeEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table contains the list of SIP status codes which each SIP
entity in this system has been requested to monitor. It is the
mechanism by which specific status codes are monitored.
Entries created in this table must not persist across reboots"

::= { sipCommonStatusCode 1 }

sipCommonStatusCodeEntry OBJECT-TYPE

SYNTAX SipCommonStatusCodeEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This row contains information on a particular SIP status code
that the SIP entity has been requested to monitor. Entries
created in this table must not persist across reboots.

Each row represents those objects for a particular SIP entity

these instances of SIP entities and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](#))."

```

INDEX { applIndex, sipCommonStatusCodeMethod,
        sipCommonStatusCodeValue }
 ::= { sipCommonStatusCodeTable 1 }

```

```

SipCommonStatusCodeEntry ::= SEQUENCE {
    sipCommonStatusCodeMethod      SipTCMethodName,
    sipCommonStatusCodeValue       Unsigned32,
    sipCommonStatusCodeIns         Counter32,
    sipCommonStatusCodeOuts        Counter32,
    sipCommonStatusCodeRowStatus   RowStatus,
    sipCommonStatusCodeDisconTime  TimeStamp
}

```

sipCommonStatusCodeMethod OBJECT-TYPE

```

SYNTAX      SipTCMethodName
MAX-ACCESS  not-accessible
STATUS      current

```

DESCRIPTION

"This object uniquely identifies a conceptual row in the table and reflects an assigned number used to identify a specific SIP method."

```
 ::= { sipCommonStatusCodeEntry 1 }

```

sipCommonStatusCodeValue OBJECT-TYPE

```

SYNTAX      Unsigned32 (100..999)
MAX-ACCESS  not-accessible
STATUS      current

```

DESCRIPTION

"This object contains a SIP status code value that the SIP entity has been requested to monitor. All of the other information in the row is related to this value."

```
 ::= { sipCommonStatusCodeEntry 2 }

```

sipCommonStatusCodeIns OBJECT-TYPE

```

SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current

```

DESCRIPTION

"This object reflects the total number of response messages received by the SIP entity with the status code value contained in the sipCommonStatusCodeValue column.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service, or when the monitoring of the Status code is temporarily disabled. A

Management Station can detect discontinuities in this counter by monitoring the sipCommonStatusCodeDisconTime object in the same row."

::= { sipCommonStatusCodeEntry 3 }

sipCommonStatusCodeOuts OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the total number of response messages sent by the SIP entity with the status code value contained in the sipCommonStatusCodeValue column.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service, or when the monitoring of the Status code is temporarily disabled. A Management Station can detect discontinuities in this counter by monitoring the sipCommonStatusCodeDisconTime object in the same row."

::= { sipCommonStatusCodeEntry 4 }

sipCommonStatusCodeRowStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The row augmentation in sipCommonStatusCodeNotifTable will be governed by the value of this RowStatus.

The values 'createAndGo' and 'destroy' are the only valid values allowed for this object. If a row exists, it will reflect a status of 'active' when queried."

::= { sipCommonStatusCodeEntry 5 }

sipCommonStatusCodeDisconTime OBJECT-TYPE

SYNTAX TimeStamp

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of the sysUpTime object when the counters for the status code statistic objects in this row last experienced a discontinuity."

::= { sipCommonStatusCodeEntry 6 }

--

-- Support for specific status code notifications
--

Internet-Draft

SIP MIB Modules

September 2006

sipCommonStatusCodeNotifTable OBJECT-TYPE

SYNTAX SEQUENCE OF SipCommonStatusCodeNotifEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table contains objects to control notifications related to particular status codes each SIP entity in this system has been requested to monitor.

There is an entry in this table corresponding to each entry in sipCommonStatusCodeTable. Therefore, this table augments that table and utilizes the same index methodology.

The objects in this table are not included directly in the sipCommonStatusCodeTable simply to keep the status code notification control objects separate from the actual status code statistics."

::= { sipCommonStatusCode 2 }

sipCommonStatusCodeNotifEntry OBJECT-TYPE

SYNTAX SipCommonStatusCodeNotifEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This row contains information controlling notifications for a particular SIP status code that the SIP entity has been requested to monitor."

AUGMENTS { sipCommonStatusCodeEntry }

::= { sipCommonStatusCodeNotifTable 1 }

SipCommonStatusCodeNotifEntry ::= SEQUENCE {

sipCommonStatusCodeNotifSend TruthValue,

sipCommonStatusCodeNotifEmitMode INTEGER,

sipCommonStatusCodeNotifThresh Unsigned32,

sipCommonStatusCodeNotifInterval Unsigned32

}

sipCommonStatusCodeNotifSend OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-write
STATUS current
DESCRIPTION

"This object controls whether a sipCommonStatusCodeNotif is emitted when the status code value specified in by sipCommonStatusCodeValue is sent or received. If the value of this object is 'true', then a notification is sent. If it is 'false', no notification is sent.

Lingle, et al.

Expires March 19, 2007

[Page 39]

Internet-Draft

SIP MIB Modules

September 2006

Note well, that a notification MAY be emitted for every message sent or received that contains the particular status code. Depending on the status code involved, this can cause a significant number of notification emissions that could be detrimental to network performance. Managers are forewarned to be prudent in the use of this object to enable notifications. Look to sipCommonStatusCodeNotifEmitMode for alternative controls for sipCommonStatusCodeNotif emissions."

DEFVAL { false }

::= { sipCommonStatusCodeNotifEntry 1 }

sipCommonStatusCodeNotifEmitMode OBJECT-TYPE

SYNTAX INTEGER {
normal(1),
oneShot(2),
triggered(3) -- read-only
}

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The object sipCommonStatusCodeNotifSend MUST be set to 'true' for the values of this object to have any effect. It is RECOMMENDED that the desired emit mode be established by this object prior to setting sipCommonStatusCodeNotifSend to 'true'. This object and the sipCommonStatusCodeNotifSend object can obviously be set independently, but their respective values will have a dependency on each other and the resulting notifications.

This object specifies the mode for emissions of sipCommonStatusCodeNotif notifications.

- normal : sipCommonStatusCodeNotif notifications will be emitted by the system for each SIP response messages sent or received that contains the desired status code.
- oneShot : Only one sipCommonStatusCodeNotif notification will be emitted. It will be the next SIP response messages sent or received that contains the desired status code.

No more notifications are emitted until this object is set to either 'oneShot' again or 'normal'. This option is provided as a means of quelling the potential promiscuous behavior that can be associated with the sipCommonStatusCodeNotif.

triggered : This value is only readable and cannot be set. It reflects the default value of the object or that the 'oneShot' case has occurred and indicates the mode needs to be reset to get further notifications. The mode is reset by setting this object to 'oneShot' or 'normal'."

DEFVAL { oneShot }

::= { sipCommonStatusCodeNotifEntry 2 }

sipCommonStatusCodeNotifThresh OBJECT-TYPE

SYNTAX Unsigned32

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This object specifies the number of response messages sent or received by this system that are considered excessive. Based on crossing that threshold, a sipCommonStatusCodeThreshExceededInNotif notification or a sipCommonStatusCodeThreshExceededOutNotif will be sent. The sipCommonStatusCodeThreshExceededInNotif and sipCommonStatusCodeThreshExceededOutNotif notifications can be used as an early warning mechanism in lieu of using sipCommonStatusCodeNotif.

Note that the configuration applied by this object will be

applied equally to inbound and outbound response messages."
DEFVAL { 500 }
::= { sipCommonStatusCodeNotifEntry 3 }

sipCommonStatusCodeNotifInterval OBJECT-TYPE

SYNTAX Unsigned32

UNITS "seconds"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This object specifies the time interval over which if sipCommonStatusCodeThresh is exceeded, with respect to sent or received messages, a sipCommonStatusCodeThreshExceededInNotif or sipCommonStatusCodeThreshExceededOutNotif notification will be sent.

Note that the configuration applied by this object will be applied equally to inbound and outbound response messages."

DEFVAL { 60 }

::= { sipCommonStatusCodeNotifEntry 4 }

--

-- Transaction Statistics

--

sipCommonTransCurrentTable OBJECT-TYPE

SYNTAX SEQUENCE OF SipCommonTransCurrentEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table contains information on the transactions currently awaiting definitive responses by each SIP entity in this system.

This table does not apply to transaction stateless Proxy Servers."

::= { sipCommonStatsTrans 1 }

sipCommonTransCurrentEntry OBJECT-TYPE

SYNTAX SipCommonTransCurrentEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Information on a particular SIP entity's current transactions.

Each row represents those objects for a particular SIP entity present in this system. applIndex is used to uniquely identify these instances of SIP entities and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](#))."

INDEX { applIndex }

::= { sipCommonTransCurrentTable 1 }

SipCommonTransCurrentEntry ::= SEQUENCE {
 sipCommonTransCurrentactions Gauge32
}

sipCommonTransCurrentactions OBJECT-TYPE

SYNTAX Gauge32 (0..4294967295)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object contains the number of transactions awaiting definitive (non-1xx) response. In the case of a forked request, each branch counts as a single transaction corresponding to the entity identified by applIndex."

::= { sipCommonTransCurrentEntry 1 }

--

-- SIP Retry Statistics

--

-- This group contains various statistic objects about

-- retransmission counts.

--

sipCommonStatsRetryTable OBJECT-TYPE

SYNTAX SEQUENCE OF SipCommonStatsRetryEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table contains retry statistics objects applicable to each SIP entity in this system."

::= { sipCommonStatsRetry 1 }

sipCommonStatsRetryEntry OBJECT-TYPE

SYNTAX SipCommonStatsRetryEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

"A row of retry statistics.

Each row represents those objects for a particular SIP entity present in this system. applIndex is used to uniquely identify these instances of SIP entities and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](#))."

INDEX { applIndex, sipCommonStatsRetryMethod }
::= { sipCommonStatsRetryTable 1 }

```
SipCommonStatsRetryEntry ::= SEQUENCE {  
    sipCommonStatsRetryMethod      SipTCMethodName,  
    sipCommonStatsRetries           Counter32,  
    sipCommonStatsRetryFinalResponses Counter32,  
    sipCommonStatsRetryNonFinalResponses Counter32,  
    sipCommonStatsRetryDisconTime   TimeStamp  
}
```

sipCommonStatsRetryMethod OBJECT-TYPE

SYNTAX SipTCMethodName
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

"This object uniquely identifies the SIP method related to the objects in a row."

::= { sipCommonStatsRetryEntry 1 }

sipCommonStatsRetries OBJECT-TYPE

SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This object reflects the total number of request retransmissions that have been sent by the SIP entity. Note

that there could be multiple retransmissions per request.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management

Station can detect discontinuities in this counter by monitoring the sipCommonStatsRetryDisconTime object in the same row."

::= { sipCommonStatsRetryEntry 2 }

sipCommonStatsRetryFinalResponses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the total number of Final Response retries that have been sent by the SIP entity. Note that there could be multiple retransmissions per request.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management Station can detect discontinuities in this counter by monitoring the sipCommonStatsRetryDisconTime object in the same row."

::= { sipCommonStatsRetryEntry 3 }

sipCommonStatsRetryNonFinalResponses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the total number of non-Final RResponse retries that have been sent by the SIP entity.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management Station can detect discontinuities in this counter by monitoring the sipCommonStatsRetryDisconTime object in the same row."

::= { sipCommonStatsRetryEntry 4 }

sipCommonStatsRetryDisconTime OBJECT-TYPE

SYNTAX TimeStamp

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of the sysUpTime object when the counters for the retry statistics objects in this row last experienced a discontinuity."

```
 ::= { sipCommonStatsRetryEntry 5 }

--
-- Other Common Statistics
--
sipCommonOtherStatsTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF SipCommonOtherStatsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table contains other common statistics supported by each
        SIP entity in this system."
    ::= { sipCommonOtherStats 1 }

sipCommonOtherStatsEntry OBJECT-TYPE
    SYNTAX      SipCommonOtherStatsEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "Information on a particular SIP entity's other common
        statistics.

        Each row represents those objects for a particular SIP entity
        present in this system.  applIndex is used to uniquely identify
        these instances of SIP entities and correlate them through the
        common framework of the NETWORK-SERVICES-MIB (RFC 2788)."
    INDEX { applIndex }
    ::= { sipCommonOtherStatsTable 1 }

SipCommonOtherStatsEntry ::= SEQUENCE {
    sipCommonOtherStatsNumUnsupportedUris      Counter32,
    sipCommonOtherStatsNumUnsupportedMethods   Counter32,
    sipCommonOtherStatsOtherwiseDiscardedMsgs Counter32,
    sipCommonOtherStatsDisconTime              TimeStamp
}

sipCommonOtherStatsNumUnsupportedUris OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "Number of RequestURIs received with unsupported scheme.  A
        server normally responds to such requests with a 400 Bad
        Request status code.

        Discontinuities in the value of this counter can occur at
        re-initialization of the SIP entity or service.  A Management
```

Station can detect discontinuities in this counter by

Internet-Draft

SIP MIB Modules

September 2006

monitoring the sipCommonOtherStatsDisconTime object in the same row."
 ::= { sipCommonOtherStatsEntry 1 }

sipCommonOtherStatsNumUnsupportedMethods OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Number of SIP requests received with unsupported methods. A server normally responds to such requests with a 501 (Not Implemented) or 405 (Method Not Allowed).

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management Station can detect discontinuities in this counter by monitoring the sipCommonOtherStatsDisconTime object in the same row."

::= { sipCommonOtherStatsEntry 2 }

sipCommonOtherStatsOtherwiseDiscardedMsgs OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Number of SIP messages received that for any number of reasons was discarded without a response.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management Station can detect discontinuities in this counter by monitoring the sipCommonOtherStatsDisconTime object in the same row."

::= { sipCommonOtherStatsEntry 3 }

sipCommonOtherStatsDisconTime OBJECT-TYPE

SYNTAX TimeStamp

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of the sysUpTime object when the counters for the statistics objects in this row last experienced a discontinuity."
 ::= { sipCommonOtherStatsEntry 4 }

--
-- Notification related objects
--

--
-- Status code related notification objects.
--
sipCommonStatusCodeNotifTo OBJECT-TYPE
SYNTAX SnmpAdminString
MAX-ACCESS accessible-for-notify
STATUS current
DESCRIPTION
"This object contains the value of the To header in the message containing the status code that caused the notification. The header name will be part of this object value. For example, 'To: Watson '."
 ::= { sipCommonNotifObjects 1 }

sipCommonStatusCodeNotifFrom OBJECT-TYPE
SYNTAX SnmpAdminString
MAX-ACCESS accessible-for-notify
STATUS current
DESCRIPTION
"This object contains the value of the From header in the message containing the status code that caused the notification. The header name will be part of this object value. For example, 'From: Watson '."
 ::= { sipCommonNotifObjects 2 }

sipCommonStatusCodeNotifCallId OBJECT-TYPE
SYNTAX SnmpAdminString
MAX-ACCESS accessible-for-notify
STATUS current
DESCRIPTION
"This object contains the value of the Call-ID in the message containing the status code that caused the notification. The header name will be part of this object value. For example,

```
    'Call-ID: 5551212@example.com'."
 ::= { sipCommonNotifObjects 3 }
```

```
sipCommonStatusCodeNotifCSeq OBJECT-TYPE
```

```
SYNTAX      Unsigned32
MAX-ACCESS  accessible-for-notify
STATUS      current
```

```
DESCRIPTION
```

```
    "This object contains the CSeq value in the message containing
     the status code that caused the notification. The header name
     will be part of this object value. For example, 'CSeq: 1722
     INVITE'."
```

```
 ::= { sipCommonNotifObjects 4 }
```

```
--
```

```
-- General notification related objects.
```

```
--
```

```
sipCommonNotifApplIndex OBJECT-TYPE
```

```
SYNTAX      Unsigned32 (1..2147483647)
MAX-ACCESS  accessible-for-notify
STATUS      current
```

```
DESCRIPTION
```

```
    "This object contains the applIndex as described in RFC 2788.
     This object is created in order to allow a variable binding
     containing a value of applIndex in a notification."
```

```
 ::= { sipCommonNotifObjects 5 }
```

```
sipCommonNotifSequenceNumber OBJECT-TYPE
```

```
SYNTAX      Unsigned32 (1..2147483647)
MAX-ACCESS  accessible-for-notify
STATUS      current
```

```
DESCRIPTION
```

```
    "This object contains a sequence number for each notification
     generated by this SIP entity. Each notification SHOULD have a
     unique sequence number. A network manager can use this
     information to determine whether notifications from a
     particular SIP entity have been missed. The value of this
     object MUST start at 1 and increase by one with each generated
     notification. If a system restarts, the sequence number MAY
     start again from 1."
```

```
 ::= { sipCommonNotifObjects 6 }
```

```
--
-- Notifications
--
sipCommonStatusCodeNotif NOTIFICATION-TYPE
    OBJECTS {
        sipCommonNotifSequenceNumber,
        sipCommonNotifApplIndex,
        sipCommonStatusCodeNotifTo,
        sipCommonStatusCodeNotifFrom,
        sipCommonStatusCodeNotifCallId,
        sipCommonStatusCodeNotifCSeq,
        sipCommonStatusCodeIns,
        sipCommonStatusCodeOuts
    }
    STATUS      current
    DESCRIPTION
        "Signifies that a specific status code has been sent or received
        by the system."
    ::= { sipCommonMIBNotifications 1 }

sipCommonStatusCodeThreshExceededInNotif NOTIFICATION-TYPE
```

```
    OBJECTS {
        sipCommonNotifSequenceNumber,
        sipCommonNotifApplIndex,
        sipCommonStatusCodeIns
    }
    STATUS      current
    DESCRIPTION
        "Signifies that a specific status code was found to have been
        received by the system enough to exceed the configured
        threshold. This notification can be used as an early warning
        mechanism in lieu of using sipCommonStatusCodeNotif."
    ::= { sipCommonMIBNotifications 2 }

sipCommonStatusCodeThreshExceededOutNotif NOTIFICATION-TYPE
    OBJECTS {
        sipCommonNotifSequenceNumber,
        sipCommonNotifApplIndex,
        sipCommonStatusCodeOuts
    }
}
```

STATUS current
DESCRIPTION
 "Signifies that a specific status code was found to have been
 sent by the system enough to exceed the configured threshold.
 This notification can be used as an early warning mechanism in
 lieu of using sipCommonStatusCodeNotif."
 ::= { sipCommonMIBNotifications 3 }

sipCommonServiceColdStart NOTIFICATION-TYPE

OBJECTS {
 sipCommonNotifSequenceNumber,
 sipCommonNotifApplIndex,
 sipCommonCfgServiceStartTime
}
STATUS current
DESCRIPTION
 "Signifies that the SIP service has reinitialized itself or
 started for the first time. This SHOULD result from a hard
 'down' to 'up' administrative status change. The configuration
 or behavior of the service MAY be altered."
 ::= { sipCommonMIBNotifications 4 }

sipCommonServiceWarmStart NOTIFICATION-TYPE

OBJECTS {
 sipCommonNotifSequenceNumber,
 sipCommonNotifApplIndex,
 sipCommonCfgServiceLastChange
}
STATUS current

DESCRIPTION
 "Signifies that the SIP service has reinitialized itself and is
 restarting after an administrative 'reset'. The configuration
 or behavior of the service MAY be altered."
 ::= { sipCommonMIBNotifications 5 }

sipCommonServiceStatusChanged NOTIFICATION-TYPE

OBJECTS {
 sipCommonNotifSequenceNumber,
 sipCommonNotifApplIndex,
 sipCommonCfgServiceLastChange,
 sipCommonCfgServiceOperStatus

```

    }
    STATUS      current
    DESCRIPTION
        "Signifies that the SIP service operational status has changed."
    ::= { sipCommonMIBNotifications 6 }

--
-- Conformance
--
sipCommonMIBCompliances
    OBJECT IDENTIFIER ::= { sipCommonMIBConformance 1 }
sipCommonMIBGroups
    OBJECT IDENTIFIER ::= { sipCommonMIBConformance 2 }

--
-- Compliance Statements
--
sipCommonCompliance MODULE-COMPLIANCE
    STATUS      current
    DESCRIPTION
        "The compliance statement for SIP entities."

    MODULE -- this module
        MANDATORY-GROUPS { sipCommonConfigGroup,
                           sipCommonStatsGroup
                           }

    OBJECT      sipCommonStatusCodeRowStatus
    SYNTAX      RowStatus { active(1) }
    WRITE-SYNTAX RowStatus { createAndGo(4), destroy(6) }
    DESCRIPTION
        "Support for createAndWait and notInService is not required."

    OBJECT      sipCommonCfgServiceNotifEnable
    MIN-ACCESS   not-accessible
    DESCRIPTION

```

"This object is optional and does not need to be supported."

```
GROUP      sipCommonInformationalGroup
```

```
DESCRIPTION
```

"This group is OPTIONAL. A SIP entity can elect to not provide

any support for these objects as they provide optional information."

GROUP sipCommonConfigTimerGroup

DESCRIPTION

"This group is OPTIONAL. A SIP entity can elect to not provide any timer configuration."

GROUP sipCommonStatsRetryGroup

DESCRIPTION

"This group is OPTIONAL. A SIP entity can elect to not provide any retry statistics."

GROUP sipCommonNotifGroup

DESCRIPTION

"This group is OPTIONAL. A SIP entity can elect to not provide any notifications. If implemented, the sipCommonStatusCodeNotifGroup and sipCommonNotifObjectsGroup MUST also be implemented."

GROUP sipCommonStatusCodeNotifGroup

DESCRIPTION

"This group is OPTIONAL. A SIP entity can elect to not provide any notifications. If implemented, the sipCommonNotifGroup and sipCommonNotifObjectsGroup MUST also be implemented."

GROUP sipCommonNotifObjectsGroup

DESCRIPTION

"This group is OPTIONAL. A SIP entity can elect to not provide any notifications. If implemented, the sipCommonStatusCodeNotifGroup and sipCommonNotifGroup MUST also be implemented."

::= { sipCommonMIBCompliances 1 }

--

-- Units of Conformance

--

sipCommonConfigGroup OBJECT-GROUP

OBJECTS {

sipCommonCfgProtocolVersion,
sipCommonCfgServiceOperStatus,
sipCommonCfgServiceStartTime,

```

        sipCommonCfgServiceLastChange,
        sipCommonPortTransportRcv,
        sipCommonOptionTag,
        sipCommonOptionTagHeaderField,
        sipCommonCfgMaxTransactions,
        sipCommonCfgServiceNotifEnable,
        sipCommonCfgEntityType,
        sipCommonMethodSupportedName
    }
    STATUS    current
    DESCRIPTION
        "A collection of objects providing configuration common to all
        SIP entities."
    ::= { sipCommonMIBGroups 1 }

sipCommonInformationalGroup OBJECT-GROUP
    OBJECTS {
        sipCommonCfgOrganization
    }
    STATUS    current
    DESCRIPTION
        "A collection of objects providing configuration common to all
        SIP entities."
    ::= { sipCommonMIBGroups 2 }

sipCommonConfigTimerGroup OBJECT-GROUP
    OBJECTS {
        sipCommonCfgTimerA,
        sipCommonCfgTimerB,
        sipCommonCfgTimerC,
        sipCommonCfgTimerD,
        sipCommonCfgTimerE,
        sipCommonCfgTimerF,
        sipCommonCfgTimerG,
        sipCommonCfgTimerH,
        sipCommonCfgTimerI,
        sipCommonCfgTimerJ,
        sipCommonCfgTimerK,
        sipCommonCfgTimerT1,
        sipCommonCfgTimerT2,
        sipCommonCfgTimerT4
    }
    STATUS    current
    DESCRIPTION
        "A collection of objects providing timer configuration common to
        all SIP entities."
    ::= { sipCommonMIBGroups 3 }

```

Internet-Draft

SIP MIB Modules

September 2006

sipCommonStatsGroup OBJECT-GROUP

OBJECTS {

- sipCommonSummaryInRequests,
- sipCommonSummaryOutRequests,
- sipCommonSummaryInResponses,
- sipCommonSummaryOutResponses,
- sipCommonSummaryTotalTransactions,
- sipCommonSummaryDisconTime,
- sipCommonMethodStatsOutbounds,
- sipCommonMethodStatsInbounds,
- sipCommonMethodStatsDisconTime,
- sipCommonStatusCodeIns,
- sipCommonStatusCodeOuts,
- sipCommonStatusCodeRowStatus,
- sipCommonStatusCodeDisconTime,
- sipCommonTransCurrentactions,
- sipCommonOtherStatsNumUnsupportedUris,
- sipCommonOtherStatsNumUnsupportedMethods,
- sipCommonOtherStatsOtherwiseDiscardedMsgs,
- sipCommonOtherStatsDisconTime

}

STATUS current

DESCRIPTION

"A collection of objects providing statistics common to all SIP entities."

::= { sipCommonMIBGroups 4 }

sipCommonStatsRetryGroup OBJECT-GROUP

OBJECTS {

- sipCommonStatsRetries,
- sipCommonStatsRetryFinalResponses,
- sipCommonStatsRetryNonFinalResponses,
- sipCommonStatsRetryDisconTime

}

STATUS current

DESCRIPTION

"A collection of objects providing retry statistics."

::= { sipCommonMIBGroups 5 }

sipCommonNotifGroup NOTIFICATION-GROUP

NOTIFICATIONS {

- sipCommonStatusCodeNotif,

```

        sipCommonStatusCodeThreshExceededInNotif,
        sipCommonStatusCodeThreshExceededOutNotif,
        sipCommonServiceColdStart,
        sipCommonServiceWarmStart,
        sipCommonServiceStatusChanged
    }

```

```

STATUS    current
DESCRIPTION
    "A collection of notifications common to all SIP entities."
 ::= { sipCommonMIBGroups 6 }

```

```

sipCommonStatusCodeNotifGroup OBJECT-GROUP
    OBJECTS {
        sipCommonStatusCodeNotifSend,
        sipCommonStatusCodeNotifEmitMode,
        sipCommonStatusCodeNotifThresh,
        sipCommonStatusCodeNotifInterval
    }
    STATUS    current
    DESCRIPTION
        "A collection of objects related to controlling and attribution
        of notifications common to all SIP entities."
    ::= { sipCommonMIBGroups 7 }

```

```

sipCommonNotifObjectsGroup OBJECT-GROUP
    OBJECTS {
        sipCommonStatusCodeNotifTo,
        sipCommonStatusCodeNotifFrom,
        sipCommonStatusCodeNotifCallId,
        sipCommonStatusCodeNotifCSeq,
        sipCommonNotifApplIndex,
        sipCommonNotifSequenceNumber
    }
    STATUS    current
    DESCRIPTION
        "A collection of accessible-for-notify objects related to the
        notification defined in this MIB module."
    ::= { sipCommonMIBGroups 8 }

```

END

[7.3.](#) SIP User Agent MIB Module

SIP-UA-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY,
OBJECT-TYPE,
Unsigned32,
mib-2

FROM SNMPv2-SMI -- [RFC 2578](#)

MODULE-COMPLIANCE,
OBJECT-GROUP

Lingle, et al.

Expires March 19, 2007

[Page 54]

Internet-Draft

SIP MIB Modules

September 2006

FROM SNMPv2-CONF -- [RFC 2580](#)

applIndex

FROM NETWORK-SERVICES-MIB -- [RFC 2788](#)

InetAddressType,
InetAddress

FROM INET-ADDRESS-MIB -- [RFC 4001](#)

SipTCEntityRole

FROM SIP-TC-MIB;

sipUAMIB MODULE-IDENTITY

LAST-UPDATED "200609121700Z"

ORGANIZATION "IETF Session Initiation Protocol Working Group"

CONTACT-INFO

"SIP WG email: sip@ietf.org"

Co-editor Kevin Lingle

Cisco Systems, Inc.

postal: 7025 Kit Creek Road

P.O. Box 14987

Research Triangle Park, NC 27709

USA

email: klinge@cisco.com

phone: +1 919 392 2029

Co-editor Joon Maeng

email: jmaeng@austin.rr.com

Co-editor Jean-Francois Mule
CableLabs

postal: 858 Coal Creek Circle
Louisville, CO 80027
USA

email: jf.mule@cablelabs.com
phone: +1 303 661 9100

Co-editor Dave Walker
email: drwalker@rogers.com"

DESCRIPTION

"Session Initiation Protocol (SIP) User Agent (UA) MIB module.

SIP is an application-layer signaling protocol for creating, modifying and terminating multimedia sessions with one or more participants. These sessions include Internet multimedia conferences and Internet telephone calls. SIP is defined in [RFC 3261](#) (June 2002).

Lingle, et al.

Expires March 19, 2007

[Page 55]

Internet-Draft

SIP MIB Modules

September 2006

A User Agent is an application that contains both a User Agent Client (UAC) and a User Agent Server (UAS). A UAC is an application that initiates a SIP request. A UAS is an application that contacts the user when a SIP request is received and that returns a response on behalf of the user. The response accepts, rejects, or redirects the request.

Copyright (C) The Internet Society (2006). This version of this MIB module is part of RFC XXXX; see the RFC itself for full legal notices."

-- RFC Ed: replace XXXX with actual RFC number and remove this note
REVISION "200609121700Z"

DESCRIPTION

"Initial version of the IETF SIP-UA-MIB module. This version published as part of RFC XXXX."

-- RFC Ed: replace XXXX with actual RFC number and remove this note
::= { mib-2 XXX3 }

-- RFC Ed: replace XXX3 with actual IANA assigned number

-- RFC Ed: and remove these notes

```

-- Top-Level Components of this MIB.
sipUAMIBObjects          OBJECT IDENTIFIER ::= { sipUAMIB 1 }
sipUAMIBConformance      OBJECT IDENTIFIER ::= { sipUAMIB 2 }

--
-- This MIB contains objects related to SIP User Agents.
--
sipUACfgServer           OBJECT IDENTIFIER ::= { sipUAMIBObjects 1 }

--
-- SIP Server Configuration
--
sipUACfgServerTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF SipUACfgServerEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table contains SIP server configuration objects applicable
         to each SIP user agent in this system."
    ::= { sipUACfgServer 1 }

sipUACfgServerEntry OBJECT-TYPE
    SYNTAX      SipUACfgServerEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A row of server configuration."

```

Each row represents those objects for a particular SIP user agent present in this system. applIndex is used to uniquely identify these instances of SIP user agents and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](#)). The same value of applIndex used in the corresponding SIP-COMMON-MIB is used here."

```

INDEX { applIndex, sipUACfgServerIndex }
::= { sipUACfgServerTable 1 }

```

```

SipUACfgServerEntry ::= SEQUENCE {
    sipUACfgServerIndex      Unsigned32,
    sipUACfgServerAddressType InetAddressType,
    sipUACfgServerAddress    InetAddress,
    sipUACfgServerRole       SipTCEntityRole
}

```

}

sipUACfgServerIndex OBJECT-TYPE

SYNTAX Unsigned32 (1..4294967295)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A unique identifier of a server address when multiple addresses are configured by the SIP entity. If one address isn't reachable, then another can be tried."

::= { sipUACfgServerEntry 1 }

sipUACfgServerAddressType OBJECT-TYPE

SYNTAX InetAddressType

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the type of address contained in the associated instance of sipUACfgServerAddress."

REFERENCE

"INET-ADDRESS-MIB ([RFC 4001](#))"

::= { sipUACfgServerEntry 2 }

sipUACfgServerAddress OBJECT-TYPE

SYNTAX InetAddress

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the address of a SIP server this user agent will use to proxy/redirect calls. The type of this address is determined by the value of the sipUACfgServerAddressType object."

REFERENCE "INET-ADDRESS-MIB ([RFC 4001](#))"

::= { sipUACfgServerEntry 3 }

sipUACfgServerRole OBJECT-TYPE

SYNTAX SipTCEntityRole

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the function of the SIP server this user agent should communicate with: registrar, proxy (outbound

```

        proxy), etc."
 ::= { sipUACfgServerEntry 4 }

--
-- Conformance
--
sipUAMIBCompliances OBJECT IDENTIFIER ::= { sipUAMIBConformance 1 }
sipUAMIBGroups       OBJECT IDENTIFIER ::= { sipUAMIBConformance 2 }

--
-- Compliance Statements
--
sipUACompliance MODULE-COMPLIANCE
    STATUS          current
    DESCRIPTION
        "The compliance statement for SIP entities that implement the
        SIP-UA-MIB module."
    MODULE -- this module
        MANDATORY-GROUPS { sipUAConfigGroup }

    ::= { sipUAMIBCompliances 1 }

--
-- Units of Conformance
--
sipUAConfigGroup OBJECT-GROUP
    OBJECTS {
        sipUACfgServerAddressType,
        sipUACfgServerAddress,
        sipUACfgServerRole
    }
    STATUS current
    DESCRIPTION
        "A collection of objects providing information about the
        configuration of SIP User Agents."
    ::= { sipUAMIBGroups 1 }

END

```

[7.4.](#) SIP Server MIB Module (Proxy, Redirect and Registrar Servers)

SIP-SERVER-MIB DEFINITIONS ::= BEGIN

IMPORTS

MODULE-IDENTITY,
OBJECT-TYPE,
Counter32,
Unsigned32,
Gauge32,
mib-2
FROM SNMPv2-SMI -- [RFC 2578](#)

TruthValue,
TimeStamp, DateAndTime
FROM SNMPv2-TC -- [RFC 2579](#)

MODULE-COMPLIANCE,
OBJECT-GROUP
FROM SNMPv2-CONF -- [RFC 2580](#)

SnmpAdminString
FROM SNMP-FRAMEWORK-MIB -- [RFC 3411](#)

applIndex
FROM NETWORK-SERVICES-MIB -- [RFC 2788](#)

InetAddressType,
InetAddress
FROM INET-ADDRESS-MIB; -- [RFC 4001](#)

sipServerMIB MODULE-IDENTITY

LAST-UPDATED "200609121700Z"
ORGANIZATION "IETF Session Initiation Protocol
Working Group"

CONTACT-INFO
"SIP WG email: sip@ietf.org"

Co-editor: Kevin Lingle
Cisco Systems, Inc.
postal: 7025 Kit Creek Road
P.O. Box 14987
Research Triangle Park, NC 27709
USA
email: klinge@cisco.com
phone: +1 919 392 2029

Co-editor: Joon Maeng
email: jmaeng@austin.rr.com

Internet-Draft

SIP MIB Modules

September 2006

Co-editor: Jean-Francois Mule
CableLabs
postal: 858 Coal Creek Circle
Louisville, CO 80027
USA
email: jf.mule@cablelabs.com
phone: +1 303 661 9100

Co-editor: Dave Walker
email: drwalker@rogers.com

"

DESCRIPTION

"Session Initiation Protocol (SIP) Server MIB module. SIP is an application-layer signaling protocol for creating, modifying and terminating multimedia sessions with one or more participants. These sessions include Internet multimedia conferences and Internet telephone calls. SIP is defined in [RFC 3261](#) (June 2002).

This MIB is defined for the management of SIP Proxy, Redirect and Registrar Servers.

A Proxy Server acts as both a client and a server. It accepts requests from other clients, either responding to them or passing them on to other servers, possibly after modification.

A Redirect Server accepts requests from clients and returns zero or more addresses to that client. Unlike a User Agent Server it does not accept calls.

A Registrar is a server that accepts REGISTER requests. A Registrar is typically co-located with a Proxy or Redirect Server.

Copyright (C) The Internet Society (2006). This version of this MIB module is part of RFC XXXX; see the RFC itself for full legal notices."

-- RFC Ed: replace XXXX with actual RFC number and remove this note
REVISION "200609121700Z"

DESCRIPTION

"Initial version of the IETF SIP-SERVER-MIB module. This version published as part of RFC XXXX."

-- RFC Ed: replace XXXX with actual RFC number and remove this note

```
 ::= { mib-2 XXX4 }
-- RFC Ed: replace XXX4 with actual IANA assigned number
-- and remove this note

-- Top-Level Components of this MIB.
```

Lingle, et al.

Expires March 19, 2007

[Page 60]

Internet-Draft

SIP MIB Modules

September 2006

```
 sipServerMIBObjects      OBJECT IDENTIFIER ::= { sipServerMIB 1 }
 sipServerMIBConformance OBJECT IDENTIFIER ::= { sipServerMIB 2 }

--
-- These groups contain objects common to all SIP servers.
--
 sipServerCfg              OBJECT IDENTIFIER ::= { sipServerMIBObjects 1 }

--
-- Common Server Configuration Objects
--
 sipServerCfgTable OBJECT-TYPE
     SYNTAX      SEQUENCE OF SipServerCfgEntry
     MAX-ACCESS  not-accessible
     STATUS      current
     DESCRIPTION
         "This table contains configuration objects applicable to SIP
          Redirect and Proxy Servers."
     ::= { sipServerCfg 1 }

 sipServerCfgEntry OBJECT-TYPE
     SYNTAX      SipServerCfgEntry
     MAX-ACCESS  not-accessible
     STATUS      current
     DESCRIPTION
         "A row of common configuration.

         Each row represents those objects for a particular SIP server
         present in this system.  applIndex is used to uniquely identify
         these instances of SIP servers and correlate them through the
         common framework of the NETWORK-SERVICES-MIB (RFC 2788).  The
         same value of applIndex used in the corresponding
         SIP-COMMON-MIB is used here."
     INDEX { applIndex }
     ::= { sipServerCfgTable 1 }
```

```
SipServerCfgEntry ::=
    SEQUENCE {
        sipServerCfgHostAddressType      InetAddressType,
        sipServerCfgHostAddress          InetAddress
    }
```

```
sipServerCfgHostAddressType OBJECT-TYPE
    SYNTAX      InetAddressType
    MAX-ACCESS  read-only

    STATUS      current
    DESCRIPTION
```

Lingle, et al.

Expires March 19, 2007

[Page 61]

Internet-Draft

SIP MIB Modules

September 2006

```
    "The type of Internet address by which the SIP server is
    reachable."
```

```
REFERENCE
```

```
    "RFC 3261, Section 19.1.1"
    ::= { sipServerCfgEntry 1 }
```

```
sipServerCfgHostAddress OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
```

```
    "This is the host portion of a SIP URI that is assigned to the
    SIP server.  It MAY contain a fully qualified domain name, or
    an IP address.  The length of the value will depend on the type
    of address specified.  The type of address given by this object
    is controlled by sipServerCfgHostAddressType."
```

```
REFERENCE
```

```
    "RFC 3261, Section 19.1.1"
    ::= { sipServerCfgEntry 2 }
```

```
--
```

```
-- This group contains MIB objects
-- related to SIP Proxy Servers.
```

```
--
```

```
sipServerProxyCfg      OBJECT IDENTIFIER ::= { sipServerMIBObjects 3 }
sipServerProxyStats    OBJECT IDENTIFIER ::= { sipServerMIBObjects 4 }
```

```
--
```

```
-- Proxy Server Configuration
```

--

sipServerProxyCfgTable OBJECT-TYPE

SYNTAX SEQUENCE OF SipServerProxyCfgEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table contains configuration objects applicable to SIP
Proxy Servers."

::= { sipServerProxyCfg 1 }

sipServerProxyCfgEntry OBJECT-TYPE

SYNTAX SipServerProxyCfgEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A row of common proxy configuration.

Each row represents those objects for a particular SIP server
present in this system. applIndex is used to uniquely identify

these instances of SIP servers and correlate them through the
common framework of the NETWORK-SERVICES-MIB ([RFC 2788](#)). The
same value of applIndex used in the corresponding
SIP-COMMON-MIB is used here."

INDEX { applIndex }

::= { sipServerProxyCfgTable 1 }

SipServerProxyCfgEntry ::=

SEQUENCE {

| | |
|-----------------------------------|-----------------|
| sipServerCfgProxyStatefulness | INTEGER, |
| sipServerCfgProxyRecursion | TruthValue, |
| sipServerCfgProxyRecordRoute | TruthValue, |
| sipServerCfgProxyAuthMethod | BITS, |
| sipServerCfgProxyAuthDefaultRealm | SnmpAdminString |

}

sipServerCfgProxyStatefulness OBJECT-TYPE

SYNTAX INTEGER {

stateless(1),
transactionStateful(2),
callStateful(3)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the default mode of operation for the Proxy Server entity.

A stateless proxy is a logical entity that does not maintain the client or server transaction state machines when it processes requests. A stateless proxy forwards every request it receives downstream and every response it receives upstream. If the value of this object is stateless(1), the proxy defaults to stateless operations.

A transaction stateful proxy, or simply a 'stateful proxy', is a logical entity that maintains the client and server transaction state machines during the processing of a request. A (transaction) stateful proxy is not the same as a call stateful proxy. If the value of this object is transactionStateful(2), the proxy is stateful on a transaction basis.

A call stateful proxy is a logical entity if it retains state for a dialog from the initiating INVITE to the terminating BYE request. A call stateful proxy is always transaction stateful, but the converse is not necessarily true. If the value of this object is callStateful(3), the proxy is call stateful."

Lingle, et al.

Expires March 19, 2007

[Page 63]

Internet-Draft

SIP MIB Modules

September 2006

REFERENCE

["RFC 3261, Section 16"](#)

::= { sipServerProxyCfgEntry 1 }

sipServerCfgProxyRecursion OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects whether or not the Proxy performs recursive search on the Contacts provided in 3xx redirects.

If the value of this object is 'true', a recursive search is performed. If the value is 'false', no search is performed, the 3xx response is sent upstream towards the source of the

```
        request."
REFERENCE
    "RFC 3261 Sections 16.5 and 16.6"
 ::= { sipServerProxyCfgEntry 2 }
```

sipServerCfgProxyRecordRoute OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects whether or not the proxy adds itself to the Record-Route header as a default action. This header is used to list the proxies that insist on being in the signaling path for subsequent requests related to the call-leg.

If the value of this object is 'true', the proxy adds itself to the end of the Record-Route header, creating the header if required. If the value is 'false', the proxy does not add itself to the Record-Route header."

REFERENCE

"[RFC 3261, Section 20.30](#)"

::= { sipServerProxyCfgEntry 3 }

--

-- Security

--

sipServerCfgProxyAuthMethod OBJECT-TYPE

SYNTAX BITS {
 none(0),
 tls(1),
 digest(2)
 }

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the authentication methods that MAY be used to authenticate request originators.

bit 0 no authentication is performed

bit 1 TLS is used

bit 2 HTTP Digest is used."

REFERENCE

"[RFC 3261](#) Sections [22](#), [23](#), [26](#), [26.2.3](#)"
 ::= { sipServerProxyCfgEntry 4 }

sipServerCfgProxyAuthDefaultRealm OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the default realm value used in Proxy-Authenticate headers. Note that this MAY need to be stored per user, in which case, this default value is ignored."
"

REFERENCE

"[RFC 3261, Section 22.1](#)"
 ::= { sipServerProxyCfgEntry 5 }

--

-- Proxy Server Statistics

--

sipServerProxyStatsTable OBJECT-TYPE

SYNTAX SEQUENCE OF SipServerProxyStatsEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"This table contains the statistics objects applicable to all SIP Proxy Servers in this system."
 ::= { sipServerProxyStats 1 }

sipServerProxyStatsEntry OBJECT-TYPE

SYNTAX SipServerProxyStatsEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A row of summary statistics.

Each row represents those objects for a particular SIP server present in this system. applIndex is used to uniquely identify these instances of SIP servers and correlate them through the

```

        same value of applIndex used in the corresponding
        SIP-COMMON-MIB is used here."
INDEX { applIndex }
 ::= { sipServerProxyStatsTable 1 }

SipServerProxyStatsEntry ::=
    SEQUENCE {
        sipServerProxyStatProxyReqFailures Counter32,
        sipServerProxyStatsDisconTime      TimeStamp
    }

sipServerProxyStatProxyReqFailures OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "This object contains the number of occurrences of unsupported
        options being specified in received Proxy-Require headers.
        Such occurrences result in a 420 Bad Extension status code
        being returned.

        Discontinuities in the value of this counter can occur at
        re-initialization of the SIP entity or service. A Management
        Station can detect discontinuities in this counter by
        monitoring the sipServerProxyStatsDisconTime object in the same
        row."
    ::= { sipServerProxyStatsEntry 1 }

sipServerProxyStatsDisconTime OBJECT-TYPE
    SYNTAX      TimeStamp
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "The value of the sysUpTime object when the counters for the server
        statistics objects in this row last experienced a discontinuity."
    ::= { sipServerProxyStatsEntry 2 }

--
-- This group contains MIB objects related to SIP Registrars.
--
sipServerRegCfg      OBJECT IDENTIFIER ::= { sipServerMIBObjects 5 }
sipServerRegStats    OBJECT IDENTIFIER ::= { sipServerMIBObjects 6 }

--
-- Registrar Configuration
--
sipServerRegCfgTable OBJECT-TYPE

```

```
SYNTAX      SEQUENCE OF SipServerRegCfgEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "This table contains configuration objects applicable SIP
    Registrars."
 ::= { sipServerRegCfg 1 }
```

sipServerRegCfgEntry OBJECT-TYPE

```
SYNTAX      SipServerRegCfgEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "A row of common Registrar configuration.

    Each row represents those objects for a particular SIP server
    present in this system.  applIndex is used to uniquely identify
    these instances of SIP servers and correlate them through the
    common framework of the NETWORK-SERVICES-MIB (RFC 2788). The
    same value of applIndex used in the corresponding
    SIP-COMMON-MIB is used here."
INDEX { applIndex }
 ::= { sipServerRegCfgTable 1 }
```

SipServerRegCfgEntry ::=

```
SEQUENCE {
    sipServerRegMaxContactExpiryDuration  Unsigned32,
    sipServerRegMaxUsers                  Unsigned32,
    sipServerRegCurrentUsers              Gauge32,
    sipServerRegDfltRegActiveInterval     Unsigned32
}
```

sipServerRegMaxContactExpiryDuration OBJECT-TYPE

```
SYNTAX      Unsigned32 (0..4294967295)
UNITS       "seconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "This object reflects the maximum expiry that may be requested
    by a User Agent for a particular Contact.  User Agents can
    specify expiry using either an Expiry header in a REGISTER
    request, or using an Expires parameter in a Contact header in
    a REGISTER request.  If the value requested by the User Agent
    is greater than the value of this object, then the contact
    information is given the duration specified by this object, and
    that duration is indicated to the User Agent in the response."
```

::= { sipServerRegCfgEntry 1 }

sipServerRegMaxUsers OBJECT-TYPE

SYNTAX Unsigned32 (1..4294967295)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the maximum number of users that the Registrar supports. The current number of users is reflected by sipServerRegCurrentUsers."

::= { sipServerRegCfgEntry 2 }

sipServerRegCurrentUsers OBJECT-TYPE

SYNTAX Gauge32 (0..4294967295)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the number of users currently registered with the Registrar."

::= { sipServerRegCfgEntry 3 }

sipServerRegDfltRegActiveInterval OBJECT-TYPE

SYNTAX Unsigned32 (1..4294967295)

UNITS "seconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object reflects the default time interval the Registrar considers registrations to be active. The value is used to compute the Expires header in the REGISTER response. If a user agent requests a time interval shorter than specified by this object, the Registrar SHOULD honor that request. If a Contact entry does not have an 'expires' parameter, the value of the Expires header field is used instead. If a Contact entry has no 'expires' parameter and no the Expires header field is present, the value of this object is used as the default value."

REFERENCE

["RFC 3261, Section 10.2"](#)

::= { sipServerRegCfgEntry 4 }

--

-- Per User Information

--

```
sipServerRegUserTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF SipServerRegUserEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This table contains information on all users registered to each
        Registrar in this system."
    ::= { sipServerRegCfg 2 }
```

Lingle, et al.

Expires March 19, 2007

[Page 68]

Internet-Draft

SIP MIB Modules

September 2006

```
sipServerRegUserEntry OBJECT-TYPE
    SYNTAX      SipServerRegUserEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This entry contains information for a single user registered to
        this Registrar.

        Each row represents those objects for a particular SIP server
        present in this system.  applIndex is used to uniquely identify
        these instances of SIP servers and correlate them through the
        common framework of the NETWORK-SERVICES-MIB (RFC 2788).  The
        same value of applIndex used in the corresponding
        SIP-COMMON-MIB is used here."
    INDEX { applIndex, sipServerRegUserIndex }
    ::= { sipServerRegUserTable 1 }
```

```
SipServerRegUserEntry ::=
    SEQUENCE {
        sipServerRegUserIndex          Unsigned32,
        sipServerRegUserUri            SnmpAdminString,
        sipServerRegUserAuthenticationFailures Counter32,
        sipServerRegUserDisconTime     TimeStamp
    }
```

```
sipServerRegUserIndex OBJECT-TYPE
    SYNTAX      Unsigned32 (1..4294967295)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "This object uniquely identifies a conceptual row in the table."
    ::= { sipServerRegUserEntry 1 }
```

sipServerRegUserUri OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This object contains the user's address-of-record. It is the main form by which the Registrar knows the user. The format is typically 'user@domain'. It is contained in the To header for all REGISTER requests."

::= { sipServerRegUserEntry 2 }

sipServerRegUserAuthenticationFailures OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

Lingle, et al.

Expires March 19, 2007

[Page 69]

Internet-Draft

SIP MIB Modules

September 2006

DESCRIPTION

"This object contains a count of the number of times the user has failed authentication.

Discontinuities in the value of this counter can occur due to successful user authentications, and at re-initialization of the SIP entity or service. A Management Station can detect discontinuities in this counter by monitoring the sipServerRegUserDisconTime object in the same row."

::= { sipServerRegUserEntry 3 }

sipServerRegUserDisconTime OBJECT-TYPE

SYNTAX TimeStamp

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of the sysUpTime object when the counters for the user registration statistic objects in this row last experienced a discontinuity."

::= { sipServerRegUserEntry 4 }

--

-- Per Contact Information

--

sipServerRegContactTable OBJECT-TYPE

SYNTAX SEQUENCE OF SipServerRegContactEntry

```

MAX-ACCESS    not-accessible
STATUS        current
DESCRIPTION
    "This table contains information on every location where a
    registered user (specified by sipServerRegUserIndex) wishes to
    be found (i.e. the user has provided Contact information to
    each SIP Registrar in this system)."
```

::= { sipServerRegCfg 3 }

sipServerRegContactEntry OBJECT-TYPE

```
SYNTAX        SipsServerRegContactEntry
```

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

```
STATUS        current
```

```
DESCRIPTION
```

"This entry contains information for a single Contact. Multiple contacts may exist for a single user.

Each row represents those objects for a particular SIP server present in this system. applIndex is used to uniquely identify these instances of SIP servers and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](http://tools.ietf.org/html/rfc2788)). The same value of applIndex used in the corresponding SIP-COMMON-MIB is used here."

```

INDEX { applIndex,
        sipServerRegUserIndex,
        sipServerRegContactIndex
      }
 ::= { sipServerRegContactTable 1 }
```

SipServerRegContactEntry ::=

```

SEQUENCE {
    sipServerRegContactIndex      Unsigned32,
    sipServerRegContactDisplayName SnmpAdminString,
    sipServerRegContactURI        SnmpAdminString,
    sipServerRegContactLastUpdated TimeStamp,
    sipServerRegContactExpiry     DateAndTime,
    sipServerRegContactPreference SnmpAdminString
}
```

sipServerRegContactIndex OBJECT-TYPE

```
SYNTAX        Unsigned32 (1..4294967295)
```

MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Along with the sipServerRegUserIndex, this object uniquely identifies a conceptual row in the table."
 ::= { sipServerRegContactEntry 1 }

sipServerRegContactDisplayName OBJECT-TYPE
SYNTAX SnmpAdminString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object contains the display name for the Contact. For example, 'Santa at Home', or 'Santa on his Sled', corresponding to contact URIs of sip:BigGuy@example.com or sip:sclaus817@example.com, respectively."
 ::= { sipServerRegContactEntry 2 }

sipServerRegContactURI OBJECT-TYPE
SYNTAX SnmpAdminString
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object contains either a SIP URI where the user can be contacted. This URI is normally returned to a client from a Redirect Server, or is used as the RequestURI in a SIP request line for requests forwarded by a proxy."
 ::= { sipServerRegContactEntry 3 }

sipServerRegContactLastUpdated OBJECT-TYPE

SYNTAX TimeStamp
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This object indicates the time when this contact information was accepted. If the contact information is updated via a subsequent REGISTER of the same information, this object is also updated."
 ::= { sipServerRegContactEntry 4 }

sipServerRegContactExpiry OBJECT-TYPE

SYNTAX DateAndTime
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "This object contains the date and time when the contact
 information will no longer be valid. Such times may be
 specified by the user at registration (Expires header or expiry
 parameter in the Contact information), or a system default can
 be applied."
 ::= { sipServerRegContactEntry 5 }

sipServerRegContactPreference OBJECT-TYPE

SYNTAX SnmpAdminString
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION
 "This object indicates a relative preference for the particular
 Contact header field value compared to other bindings for this
 address-of-record. A registering user may provide this
 preference as a 'qvalue' parameter in the Contact header.

 The format of this item is a decimal number between 0 and 1
 (for example 0.9). Higher values indicate locations preferred
 by the user."
 REFERENCE
 [RFC 3261, Section 10.2.1.2](#), 16.6 and 20.10"
 ::= { sipServerRegContactEntry 6 }

--

-- Registrar Statistics

--

sipServerRegStatsTable OBJECT-TYPE

SYNTAX SEQUENCE OF SipServerRegStatsEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION

 "This table contains the summary statistics objects applicable

 to all SIP Registrars in this system."
 ::= { sipServerRegStats 1 }

sipServerRegStatsEntry OBJECT-TYPE

SYNTAX SipServerRegStatsEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

"A row of summary statistics.

Each row represents those objects for a particular SIP server present in this system. applIndex is used to uniquely identify these instances of SIP servers and correlate them through the common framework of the NETWORK-SERVICES-MIB ([RFC 2788](#)). The same value of applIndex used in the corresponding SIP-COMMON-MIB is used here."

INDEX { applIndex }
::= { sipServerRegStatsTable 1 }

SipServerRegStatsEntry ::=

SEQUENCE {
 sipServerRegStatsAcceptedRegs Counter32,
 sipServerRegStatsRejectedRegs Counter32,
 sipServerRegStatsDisconTime TimeStamp
}

sipServerRegStatsAcceptedRegs OBJECT-TYPE

SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"This object contains a count of the number of REGISTER requests that have been accepted (status code 200) by the Registrar. This includes additions of new contact information, refreshing contact information, as well as requests for deletion of contact information.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management Station can detect discontinuities in this counter by monitoring the sipServerRegStatsDisconTime object in the same row."

::= { sipServerRegStatsEntry 1 }

sipServerRegStatsRejectedRegs OBJECT-TYPE

SYNTAX Counter32
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"This object contains a count of the number REGISTER requests that have been rejected by the Registrar.

Discontinuities in the value of this counter can occur at re-initialization of the SIP entity or service. A Management Station can detect discontinuities in this counter by monitoring the sipServerRegStatsDisconTime object in the same row."

::= { sipServerRegStatsEntry 2 }

sipServerRegStatsDisconTime OBJECT-TYPE

SYNTAX TimeStamp

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of the sysUpTime object when the counters for the registrar statistic objects in this row last experienced a discontinuity."

::= { sipServerRegStatsEntry 3 }

--

-- Conformance

--

sipServerMIBCompliances

OBJECT IDENTIFIER ::= { sipServerMIBConformance 1 }

sipServerMIBGroups

OBJECT IDENTIFIER ::= { sipServerMIBConformance 2 }

--

-- Compliance Statements

--

sipServerProxyServerCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION

"The compliance statement for SIP entities acting as Proxy Servers."

MODULE -- this module

MANDATORY-GROUPS { sipServerConfigGroup,
sipServerProxyConfigGroup,
sipServerProxyStatsGroup
}

::= { sipServerMIBCompliances 1 }

sipRedirectServerCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION

Internet-Draft

SIP MIB Modules

September 2006

```
        Servers."
MODULE -- this module
    MANDATORY-GROUPS { sipServerConfigGroup }
    ::= { sipServerMIBCompliances 2 }

sipServerRegistrarServerCompliance MODULE-COMPLIANCE
    STATUS          current
    DESCRIPTION
        "The compliance statement for SIP entities acting as
        Registrars."
    MODULE -- this module
        MANDATORY-GROUPS { sipServerConfigGroup,
                             sipServerRegistrarConfigGroup,
                             sipServerRegistrarStatsGroup }
    GROUP sipServerRegistrarUsersGroup
    DESCRIPTION
        "This is an optional group."
    ::= { sipServerMIBCompliances 3 }

--
-- Units of Conformance
--
sipServerConfigGroup OBJECT-GROUP
    OBJECTS {
        sipServerCfgHostAddressType,
        sipServerCfgHostAddress
    }
    STATUS          current
    DESCRIPTION
        "A collection of objects providing configuration common to SIP
        Proxy and Redirect servers."
    ::= { sipServerMIBGroups 1 }

sipServerProxyConfigGroup OBJECT-GROUP
    OBJECTS {
        sipServerCfgProxyStatefulness,
        sipServerCfgProxyRecursion,
        sipServerCfgProxyRecordRoute,
        sipServerCfgProxyAuthMethod,
        sipServerCfgProxyAuthDefaultRealm
```

```

}
STATUS      current
DESCRIPTION
    "A collection of objects providing configuration for SIP Proxy
    servers."
 ::= { sipServerMIBGroups 2 }

```

sipServerProxyStatsGroup OBJECT-GROUP

```

OBJECTS {
    sipServerProxyStatProxyReqFailures,
    sipServerProxyStatsDisconTime
}
STATUS      current
DESCRIPTION
    "A collection of objects providing statistics for SIP Proxy
    servers."
 ::= { sipServerMIBGroups 3 }

```

sipServerRegistrarConfigGroup OBJECT-GROUP

```

OBJECTS {
    sipServerRegMaxContactExpiryDuration,
    sipServerRegMaxUsers,
    sipServerRegCurrentUsers,
    sipServerRegDfltRegActiveInterval
}
STATUS      current
DESCRIPTION
    "A collection of objects providing configuration for SIP
    Registrars."
 ::= { sipServerMIBGroups 4 }

```

sipServerRegistrarStatsGroup OBJECT-GROUP

```

OBJECTS {
    sipServerRegStatsAcceptedRegs,
    sipServerRegStatsRejectedRegs,
    sipServerRegStatsDisconTime
}
STATUS      current
DESCRIPTION
    "A collection of objects providing statistics for SIP
    Registrars."

```

```

 ::= { sipServerMIBGroups 5 }

sipServerRegistrarUsersGroup OBJECT-GROUP
OBJECTS {
    sipServerRegUserUri,
    sipServerRegUserAuthenticationFailures,
    sipServerRegUserDisconTime,
    sipServerRegContactDisplayName,
    sipServerRegContactURI,
    sipServerRegContactLastUpdated,
    sipServerRegContactExpiry,
    sipServerRegContactPreference
}
STATUS      current
DESCRIPTION

```

Lingle, et al.

Expires March 19, 2007

[Page 76]

Internet-Draft

SIP MIB Modules

September 2006

```

    "A collection of objects related to registered users."
 ::= { sipServerMIBGroups 6 }

```

END

8. IANA Considerations

The MIB modules defined in this document use the following IANA-assigned OBJECT IDENTIFIER values recorded in the SMI Numbers registry:

| Descriptor | OBJECT IDENTIFIER value |
|--------------|-------------------------|
| sipTC | { mib-2 XXX1 } |
| sipCommonMIB | { mib-2 XXX2 } |
| sipUAMIB | { mib-2 XXX3 } |
| sipServerMIB | { mib-2 XXX4 } |

-- RFC Ed:(note to be removed prior to publication): the IANA is requested to assign 4 values in the SMI Numbers registry for "XXX1", "XXX2", "XXX3", and "XXX4", all under the 'mib-2' sub-tree and to record the assignments in the SMI Numbers registry. When the assignments have been made, the RFC Editor is asked to replace "XXX1"

through "XXX4" (here and in the 4 MIB modules) with the corresponding assigned value and to remove this note.

9. Security Considerations

There are a number of management objects defined in the SIP-COMMON-MIB 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.

The following read-create object in SIP-COMMON-MIB is used to configure the status code statistics that will be monitored by the SIP entity:

 sipCommonStatusCodeRowStatus:

 if this object is SET maliciously, it may result in an over allocation of resources in a system for the purpose of accumulating and maintaining statistics.

The following read-write objects in SIP-COMMON-MIB are used to

configure the behavior of certain SNMP notifications potentially generated by a SIP entity:

 sipCommonStatusCodeNotifSend, sipCommonStatusCodeNotifEmitMode,
 sipCommonStatusCodeNotifThresh, sipCommonStatusCodeNotifInterval,
 sipCommonCfgServiceNotifEnable:

 If these objects are SET maliciously, it may result in a system and/or network performance impact due to the generation of SNMP notifications.

Some of the readable objects in the MIB modules (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.

The following object values may contain private or confidential customer information like first name, last name, customer identification, location, company affiliation, the time the

information was updated, etc.

 sipServerRegContactDisplayName, sipServerRegContactURI,
 sipServerRegContactLastUpdated and sipCommonCfgOrganization.

The sipCommonCfgTable table contains some objects that may help attackers gain knowledge about the status and operations of the SIP service. In particular, the object value of sipCommonCfgServiceOperStatus may indicate that the SIP entity is in congested state and may lead attackers to build additional service attacks to overload the system.

The sipCommonCfgEntityType object indicates the type of SIP entity and the sipCommonMethodSupportedTable table contains in the SIP-COMMON-MIB MIB module list of SIP methods supported by each entity in the system. Gaining access to this information may allow attackers to build method specific attacks or use unsupported methods to create denial of service attack scenarios.

In the SIP-UA-MIB MIB module, the sipUACfgServerTable contains the address of the SIP servers providing services to the UA and obtaining this information may disclose some private or sensitive information about the SIP service usage.

In the SIP-SERVER-MIB MIB module, the sipServerCfgProxyAuthMethod object defines the authentication methods supported by the server and may be used to build specific denial of service attackers targeted at the security mechanisms employed by the SIP entity.

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 set of MIB modules.

It is RECOMMENDED that implementers consider the security features as provided by the SNMPv3 framework (see [RFC 3410](#) [[RFC3410](#)]), 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.

10. Contributor Acknowledgments

We wish to thank the members of the IETF SIP and SIPPING working groups, and the SIP-MIB Design team for their comments and suggestions. Detailed comments were provided by Tom Taylor, Kavitha Patchayappan, Dan Romascanu, Cullen Jennings, Orit Levin, AC Mahendran, Mary Barnes, Rohan Mahy, Bob Penfield, Charles Eckel and Dean Willis. Special thanks to Bert Wijnen for his expert reviews which have greatly improved the SIP MIB modules.

11. Changes from Previous Draft Revisions

-- RFC Ed: this entire section to be removed by RFC Editor before publication.

Changes from [draft-ietf-sip-mib-11](#).

The changes are due to IESG Review, additional comments from Bert Wijnen's MIB doctor review and more editorial comments. The list of changes includes:

- o editorial nits included fixing a section number on page 5, table indenting on page 7, etc.
- o technical change: in sipCommonCfgServiceNotifEnable, replaced the error returned to inconsistentValue when this object is not supported but SET per [RFC 3416](#) and Bert's comments.
- o Technical: changed the module name of SIP-TC to SIP-TC-MIB per [RFC4181, appendix C](#)'s naming conventions.

- o Technical: added discontinuity timestamps for all counter tables where discontinuity can occur per Bert's recommendation. This includes: in SIP-COMMON-MIB sipCommonSummaryStatsTable, sipCommonMethodStatsTable, sipCommonStatusCodeTable, sipCommonStatsRetryTable, sipCommonOtherStatsTable, and in SIP-

SERVER-MIB, sipServerProxyStatsTable, sipServerRegUserTable, sipServerRegStatsTable.

- o removed the requirements on persistency of objects for non-writeable objects.
- o In [section 5.2](#), changed MUST into SHOULD in the following sentence: "the applName value for the combined server entity SHOULD reflect the appropriate combination followed by a unique application instance identifier".
- o renamed all objects in all MIB modules to ensure the object names start with either SipTC___, sipCommon____, sipServer___, sipUA____ per Bert Wijnen extensive set of comments and to avoid any to avoid any possible future name clashes with [RFC1694](#) (MIB module named sipMIB where numerous objects start with sip___)
- o changed naming of sipMethodName to sipCommonMethodSupportedName because the object 'sipMethodName' did differ from the old 'SIP-TC-MIB::SipMethodName' only in case (per Dan Romanescu's comments).
- o changed the size limit of sipMethodName TC due to its use in the indexing of sipCommonMethodStatsEntry, sipCommonStatusCodeEntry and sipCommonStatsRetryEntry (per Dan Romanescu's comments).
- o in sipCommonCfgServiceNotifEnable, added a requirement that if an agent does not support his object, it should return a noSuchObject exception, per Bert's comments and clarified the optionality of this object by adding an OBJECT statement in the MODULE-COMPLIANCE section for SIP-COMMON.

Changes from [draft-ietf-sip-mib-10](#).

The changes were mainly due to Last Call comments. The list of changes includes:

- o minor editorial nits including updates of all examples to use the example.com domain name;
- o technical changes and updates to SipTCTransportProtocol to clarify the use of TLS over TCP and TLS over SCTP;
- o changed sipCommonCfgMaxTransactions to reflect that it is max transactions per second;
- o removed sipCommonCfgOrganization from mandatory sipCommonConfigGroup in MODULE-COMPLIANCE and created a new (optional) object group sipCommonInformationalGroup;
- o updated DESCRIPTION of sipServerProxyDefaultAuthRealm to indicate that this object is the *default* realm value used by the proxy in Proxy-Authenticate headers and, added a note to say that in case of per user storage, the default value is ignored by the proxy.

- o removed sipServerRegAllowThirdParty because no registrar implementer seems to track them differently internally (no comment on the list), and a registrar would have to implement new logic in order to be able to exercise this part of the mib.
- o added a couple of references like [RFC 3262](#) and [RFC 4168](#).

Changes from [draft-ietf-sip-mib-09](#).

The changes were minimal and mostly done to address MIB doctor comments on SipMethodIdentifier. The list of changes includes:

- o removal of SipMethodIdentifier textual convention per MIB doctor feedback
- o updates of normative references (e.g. [RFC 3291](#) --> [RFC 4001](#))
- o added a new section to provide a citation to IMPORTed RFCs as they are norm. references

Changes from [draft-ietf-sip-mib-08](#).

The majority of changes are in response to additional SIP Working Group comments.

- o General
 - * The IANA Consideration section was updated and a new [section 9.2](#) was added to conform with the Guidelines for Authors and Reviewers of MIB Documents, [draft-ietf-ops-mib-review-guidelines-03.txt](#), [section 3.7](#).
 - * In general the ability to configure SIP entities via read-create or read-write objects was removed and those objects MAX-ACCESS constrained to read-only. This change was made based on general consensus that SNMP should be limited to monitoring rather than configuring/provisioning.
 - * The [section 5.2](#) (Relationship to the Network Services MIB) was updated to allow each instance of a SIP entity to have its own row in the applTable (a unique application identifier should now be appended to the "sip_xxx" entity-name). We also lowered the level of requirement on the naming convention to a SHOULD instead of a MUST per wg input.
 - * Updated the ORGANISATION clause of all MIB modules to include the full SIP working group name.
 - * Minor other editorial changes were made to the document.
 - * Updated Security consideration section.
- o SIP-COMMON-MIB
 - * Module description of various SIP entities enhanced.
 - * sipCommonServiceAdminStatus removed from the MIB due to general removal of configuration capability. Resulting OID value changes to succeeding entry objects.
 - * sipCommonCfgOrganization MAX-ACCESS changed to read-only.

Internet-Draft

SIP MIB Modules

September 2006

- * sipCommonCfgTimerA MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerB MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerC MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerD MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerE MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerF MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerG MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerH MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerI MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerJ MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerK MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerT1 MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerT2 MAX-ACCESS changed to read-only.
- * sipCommonCfgTimerT4 MAX-ACCESS changed to read-only.
- * sipCommonStatusCodeTable indexing changed to also include sipCommonStatusCodeMethod. Thusly, introducing sipCommonStatusCodeMethod as a new not-accessible object in that table. Resulting OID value changes to succeeding entry objects.
- * sipCommonCfgTimer* OBJECT clauses regarding MIN-ACCESS levels in the MODULE-COMPLIANCE were no longer needed due to MAX-ACCESS changes for those objects.
- * The description clause of sipCommonMethodStatsInbounds was changed to state that retransmissions are not counted.
- * The description clause of sipCommonStatsRetries was changed to indicate there could be multiple retries per request (we also corrected a typo by removing the specific mention to INVITE requests).
- * The description clause of sipCommonStatsRetryFinalResponses was changed to indicate there could be multiple retries per response.
- o SIP-SERVER-MIB
 - * Removed sipCommonCfgExpires OID declaration as this object group no longer exists since draft08.
 - * sipUserTableRowStatus removed from the MIB due to general removal of configuration capability. In conjunction, RowStatus textual convention is no longer imported.
 - * sipServerCfgHostAddressType MAX-ACCESS changed to read-only.
 - * sipServerCfgHostAddress MAX-ACCESS changed to read-only.
 - * sipServerCfgProxyRecursion MAX-ACCESS changed to read-only.
 - * sipServerCfgProxyRecordRoute MAX-ACCESS changed to read-only.
 - * sipServerCfgProxyAuthMethod MAX-ACCESS changed to read-only.

- * sipServerRegAllowThirdParty MAX-ACCESS changed to read-only.
- * sipServerRegMaxContactExpiryDuration MAX-ACCESS changed to read-only.
- * sipServerRegDfltRegActiveInterval MAX-ACCESS changed to read-only.

- * sipServerRegUserUri MAX-ACCESS changed to read-only.
- * 'smime' removed as a possible value for sipServerCfgProxyAuthMethod.
- o SIP-UA-MIB
 - * sipUACfgServerStatus removed from the MIB due to general removal of configuration capability. In conjunction, RowStatus textual convention is no longer imported.
 - * sipUACfgServerAddressType MAX-ACCESS changed to read-only.
 - * sipUACfgServerAddress MAX-ACCESS changed to read-only.
 - * sipUACfgServerRole MAX-ACCESS changed to read-only.

Changes from [draft-ietf-sip-mib-07](#).

The vast majority of changes are in response to the Working Group Last Call and expert review comments.

- o General
 - * IANA requirements section added to specify the need for registered numbers for all SIP methods. These will be used in the MIB objects.
 - * Updated the security consideration section to reflect the addition and deletion of a number of objects.
- o SIP-COMMON-MIB
 - * Module description of various SIP entities enhanced.
 - * sipMaxSessions renamed sipCommonCfgMaxTransactions. Workgroup last call reviewers suggested a change based on some change of terms in the standard. Transactions seemed the appropriate term. The object description was also enhanced.
 - * sipRequestUriHostMatching object removed based on comments from workgroup last call comments.
 - * sipCommonCfgEntityType changed from enumerated INTEGER to SipTCEntityType textual convention syntax.
 - * sipCommonServiceAdminStatus enumerated value 'quiesceSessions' changed to 'quiesceDialogs'.
 - * sipCommonPortTable was redesigned. sipTransportSnd object was removed as it did not make much sense. sipCommonPortStatus was

- removed to prevent any row creation deletion. The remaining object, sipCommonPortTransportRcv was made read-only.
- * sipUriSupportedTable was removed as it was not deemed useful anymore.
 - * sipExtMethodSupportedTable replaced with a general sipCommonMethodSupportedTable. IANA SIP method identifiers/ numbers will be used in this new table. The previous concept of explicitly defining objects per the current well-know methods and then providing separate, semantically similar, 'extension methods' tables has been eliminated.
 - * sipCommonCfgTimerExtMethodTable was removed. No more need for 'extension methods' tables.

- * sipCommonCfgRetryTable was removed. Limits on retransmissions are controlled by timers in the SIP standard now rather than by maximum counts; therefore, these objects were no longer relevant. sipCommonConfigRetryGroup was likewise removed.
- * sipFtrSupportedTable was redesigned as sipCommonOptionTagsTable.
- * sipCommonCfgTimerExtMethodTable was removed.
- * sipCommonSummaryTotalTransactions description changed to reflect that in the case of forked request, _each_ branch rather than _all_ branches count as a single transaction.
- * sipCommonMethodStatsTable was redesigned, taking into account the new SipMethodIdentifier textual convention. The objects were generalized to two: sipCommonStatsOutbound and sipCommonStatsInbound. The indexing object (sipCommonMethodStats) has syntax SipMethodIdentifier and thereby identifies the method associated with the instances of in/out counter objects.
- * sipCommonTransCurrentactions description changed to reflect that in the case of forked request, _each_ branch rather than _all_ branches count as a single transaction.
- * sipCommonStatsRetryTable was redesigned, taking into account the new SipMethodIdentifier textual convention. A single, generalize object (sipCommonStatsRetries) replaces several method-specific objects. The new, additional indexing object (sipCommonStatsRetryMethod) has syntax SipMethodIdentifier and thereby identifies the method associated with the instances of the counter objects in each row.
- * sipCommonStatsRetryExtMethodTable was removed.

- * sipStatusCodeClassesTable removed.
- * sipCommonOtherStatsTable has two new objects added:
sipCommonNumUnsupportedMethods and
sipCommonOtherStatsOtherwiseDiscardedMsgs.
- * The following object-groups were removed because their
associated objects were removed:
sipCommonConfigTimerExtMethodGroup, sipCommonConfigRetryGroup,
sipCommonConfigRetryExtMethodGroup,
sipCommonStatsRetryExtMethodsGroup, and
sipCommonConfigExpiresGroup. The references to these object-
groups as optional in the module-compliance was updated
accordingly.
- * GROUP clause for sipCommonStatsRetryGroup in module-compliance
was updated to no longer state any dependency on
sipCommonConfigRetryGroup (now removed).
- * New OBJECT clauses were added to the module-compliance to
formalize MIN-ACCESS read-only for objects in
sipCommonCfgTimerTable.

- * sipCommonConfigGroup updated with new objects
(sipCommonOptionTag, sipCommonOptionTagHeaderField,
sipMethodName), removed objects (sipTransportSnd,
sipCommonPortStatus, sipUriSupported, sipFtrSupported,
sipExtMethodName, sipRequestUriHostMatching), and changed
objects (sipCommonCfgMaxTransactions).
- * sipCommonStatsGroup updated with new objects
(sipCommonMethodStatsOutbounds, sipCommonMethodStatsInbounds,
sipCommonNumUnsupportedMethods,
sipCommonOtherStatsOtherwiseDiscardedMsgs) and removed objects
(sipCommonStatsInviteIns, sipCommonStatsInviteOuts,
sipCommonStatsAckIns, sipCommonStatsAckOuts,
sipCommonStatsByeIns, sipCommonStatsByeOuts,
sipCommonStatsCancelIns, sipCommonStatsCancelOuts,
sipCommonStatsOptionsIns, sipCommonStatsOptionsOuts,
sipCommonStatsRegisterIns, sipCommonStatsRegisterOuts,
sipCommonStatsExtMethodIns, sipCommonStatsExtMethodOuts,
sipCommonStatsInfoClassIns, sipCommonStatsInfoClassOuts,
sipCommonStatsSuccessClassIns, sipCommonStatsSuccessClassOuts,
sipCommonStatsRedirClassIns, sipCommonStatsRedirClassOuts,
sipCommonStatsReqFailClassIns, sipCommonStatsReqFailClassOuts,

- sipCommonStatsServerFailClassIns,
 - sipCommonStatsServerFailClassOuts,
 - sipCommonStatsGlobalFailClassIns,
 - sipCommonStatsGlobalFailClassOuts,
 - sipCommonOtherStatsClassesIns, sipCommonOtherStatsClassesOuts).
- * sipCommonStatsRetryGroup updated with new object (sipCommonStatsRetries) and removed objects (sipCommonStatsRetryInvites, sipCommonStatsRetryByes, sipCommonStatsRetryCancels, sipCommonStatsRetryRegisters, sipCommonStatsRetryOptions).
- o SIP-SERVER-MIB
 - * Module description of various SIP entities enhanced.
 - * sipServerStats 'placeholder' IOD removed. No objects were ever defined under that subtree.
 - * Removed the following objects from sipServerProxyCfgTable: sipRequestMaxExpires, sipServerProxySendsCancel, sipServerProxyForwardAll1xx, sipServerProxyProvideAlternatives, and sipServerProxyNonceLifeTime. sipServerProxyConfigGroup updated accordingly.
 - * sipServerCfgProxyStatefulness MAX-ACCESS changed to read-only.
 - * DEFVAL removed from sipServerRegMaxContactExpiryDuration.
 - * sipServerRegContactRetryAfter removed from sipServerRegContactTable.
 - * sipUser* and sipServerRegContact* objects were moved from sipServerRegistrarConfigGroup to a new object-group: sipServerRegistrarUsersGroup. The new group was made an optional group in the MODULE-COMPLIANCE.

- o SIP-UA-MIB
 - * SipTCEntityRole imported from SIP-TC-MIB module and used as the syntax for new object sipUACfgServerRole.
 - * sipUACfgSipServerTable (and objects therein) have their descriptors changed to sipUACfgServer* ("Sip" removed). sipUAConfigGroup updated accordingly.
 - * sipUACfgServerRole added to sipUACfgServerTable.
 - * DEFVAL { ipv4 } removed from sipUACfgServerAddressType.
- o SIP-TC-MIB
 - * New textual conventions: SipTCEntityRole, SipTCOptionTagHeaders, and SipMethodIdentifier added.

Changes from [draft-ietf-sip-mib-06](#)

- o General

- * Minor editorial changes in the Textual Conventions section.
- o SIP-COMMON-MIB
 - * sipCommonStatusCodeValue SYNTAX changed from INTEGER to Unsigned32.
 - * Optional sipCommonNotifObjectsGroup explicitly added to MODULE-COMPLIANCE.
 - * Removed OBJECT refinement for sipCommonStatusCodeRowStatus added to compliance in previous revision. SMIC MIB compiler issues required it to be commented out. Instead, simply removed it.
- o SIP-SERVER-MIB
 - * Removed OID placeholders: sipRedirCfg, sipRedirStats. sipServerRegCfg and sipServerRegStats OID values subsequently changed as a result.
- o SIP-UA-MIB
 - * Removed OBJECT refinement for sipUACfgSipServerStatus added to compliance in previous revision. SMIC MIB compiler issues required it to be commented out. Instead, simply removed it.

Changes from [draft-ietf-sip-mib-05](#)

- o Front paper/Back paper and General changes
 - * Removed all references and special handling of SIP INFO method. Removed references and objects specific to [RFC 2976](#): INFO will be treated as any SIP extension method.
 - * Changed requirements verbs from lowercase to uppercase wherever appropriate.
 - * Added RFC Editor notes.
 - * Updated all REFERENCE clauses and DESCRIPTIONS from [RFC 2543](#) to [RFC 3261](#).
 - * Explained the approach taken for extension methods that might be defined in the future.
 - * Defined a mapping of sipCommonCfgServiceOperStatus to applOperStatus.

- * Enhanced Security section with details on various objects.
- * Added descriptive language to various Entry objects regarding the expected persistence of data across system restarts.
- o SIP-COMMON-MIB
 - * Removed sipTransactionTable after input from SIP community.
 - * Made all extension method tables augmentations of sipExtMethodSupportedTable. This resulted in the removal of

- the following objects: sipCfgTimerExtMethodName, sipCfgRetryExtMethodName, sipCommonStatsExtMethodName, sipCommonStatsRetryExtMethodName.
- * sipCommonStatusCodeNotifEmitMode default value changed to 'triggered'.
 - * sipCommonStatusCodeThreshExceededNotif was replaced by two notifications: sipCommonStatusCodeThreshExceededOutNotif and sipCommonStatusCodeThreshExceededInNotif.
 - * Re-arranged the enumerated value of sipCommonCfgServiceOperStatus; making 'unknown' the first value. Added some words to the DESCRIPTION of that object stating the values are not based on anything in the SIP standard.
 - * Clarified rules for capitalization of sipExtMethodName.
 - * All counters in the MIB are consistent with respect to resetting to zero. No counters can be reset to zero. Entries in sipCommonStatusCodeTable can simply be created or destroyed - no ability to set to 'notInService' where there was the question/possibility of resetting the counters to zero. sipCommonStatsExtMethodTable no longer has its own RowStatus object, so it too can no longer be set to 'notInService' where there was the question/possibility of resetting the counters to zero. sipCommonStatsExtMethodTable rows are augmentations of sipExtMethodSupportedEntry.
 - * OBJECT refinement for sipCommonStatusCodeRowStatus added to compliance.
 - * Clarified the relationship between sipCommonStatusCodeNotifEmitMode and sipCommonStatusCodeNotifSend.
 - * Explained the existence of sipCommonNotifApplIndex object better.
 - * sipCfgExpiresStatusCodeValue syntax changed from INTEGER to Unsigned32.
 - * sipCommonCfgEntityType object added to sipCommonCfgTable.
 - * All accessible-for-notify objects are moved into sipCommonNotifObjects group. OIDs for actual notifications are re-assigned as a result.
 - * sipCommonNotifSequenceNumber accessible-for-notify object added as a way for managers to gain insight into possible missed notifications. It is bound to each notification defined in the MIB.

- * New notifications related to SIP service operational status are added: sipCommonServiceColdStart, sipCommonServiceWarmStart, and sipCommonCfgServiceLastChange.
- * New object sipCommonCfgServiceNotifEnable added to control the new SIP related notifications.
- * Minor object descriptor changes: sipCommonStatusCodeTable renamed to sipStatusCodeClassesTable SipCommonStatusCodeEntry renamed to SipStatusCodeClassesEntry sipCommonStatusCodeEntry renamed to sipStatusCodeClassesEntry sipCommonStatusCodeTable renamed to sipCommonStatusCodeTable SipCommonStatusCodeEntry renamed to SipCommonStatusCodeEntry sipCommonStatusCodeEntry renamed to sipCommonStatusCodeEntry sipCommonStatusCodeValue renamed to sipCommonStatusCodeValue sipCommonStatusCodeIns renamed to sipCommonStatusCodeIns sipCommonStatusCodeOuts renamed to sipCommonStatusCodeOuts sipCommonStatusCodeStatus renamed to sipCommonStatusCodeRowStatus sipCommonStatusCodeNotifTable renamed to sipCommonStatusCodeNotifTable SipCommonStatusCodeNotifEntry renamed to SipCommonStatusCodeNotifEntry sipCommonStatusCodeNotifEntry renamed to sipCommonStatusCodeNotifEntry sipCommonStatusCodeNotifSend renamed to sipCommonStatusCodeNotifSend sipCommonStatusCodeNotifEmitMode renamed to sipCommonStatusCodeNotifEmitMode sipCommonStatusCodeNotifThresh renamed to sipCommonStatusCodeNotifThresh sipCommonStatusCodeNotifInterval renamed to sipCommonStatusCodeNotifInterval
- * Removed all INFO method specific objects: sipCfgRetryInfo, sipCommonStatsInfoIns, sipCommonStatsInfoOuts, and sipCommonStatsRetryInfos
- * Clarifying words added to sipCommonStatusCodeNotifTable DESCRIPTION to explain why it's a separate table from sipCommonStatusCodeTable.
- o SIP-SERVER-MIB
 - * Deleted objects related to 'action' parameter. [RFC 3261 section 10.2](#) deprecates the 'action' parameter deleted 3 objects: sipServerContactDfltAction, sipServerRespectUAAAction, sipServerRegContactAction.
 - * Deleted pgp-related objects. [RFC 3261 section 23](#) deprecates use of pgp deleted 3 objects: sipServerProxyAuthPgpAlgorithm, sipPgpPrivateKey, sipPgpVersion.
 - * Removed sipServerProxyStateTimeout object. Timers G and timer H have been introduced in [RFC 3261](#) for this purpose (see [RFC 3261 section 17.2.1](#)).
 - * Updated description clause of sipServerCfgProxyStatefulness. The 3 definitions of stateless/statefulness now match the text in [RFC 3261](#).

Internet-Draft

SIP MIB Modules

September 2006

- * Changed DEFVAL for object sipServerProxyProvideAlternatives. Changed DEFVAL to true to align with [RFC 3261](#) that states that 485 responses SHOULD contain a contact header and 303 MAY... and updated REFERENCE clause to "[RFC 3261](#) Sections [13.2.2.2](#) and [16.5](#)".
- * Removed basic authentication value from sipServerCfgProxyAuthMethod object Per [section 22 of RFC 3261](#), deprecated.
- * Changed SYNTAX of sipServerProxyNonceLifeTime from Integer32 to Unsigned32.
- * Updated description clause of sipServerRegDfltRegActiveInterval Per [RFC 3261 Section 10.2](#).
- o SIP-UA-MIB
 - * OBJECT refinement for sipUACfgSipServerStatus added to compliance.
 - * Changed the object descriptors of sipUACfgSipServerAddrIndex to sipUACfgSipServerIndex, and sipUACfgSipServerAddrStatus to sipUACfgSipServerStatus.

Changes from [draft-ietf-sip-mib-04](#)

- o Started realignment with SIP [RFC3261](#).

Changes from [draft-ietf-sip-mib-03](#)

- o Front paper/Back paper and General changes
 - * Rewrote section on Network Services MIB
 - * Fixed minor editorial nits
- o SIP-COMMON-MIB
 - * CONTACT-INFO "SIP MIB email" changed to sip@ietf.org
 - * sipInviteTimeout was removed from the MIB. See below regarding new sipCommonCfgExpires objects. They provide equivalent functionality with extensibility beyond INVITE.
 - * sipCommonCfgExpires OID subtree added. Per method Expires configuration objects were added there. This new high-level OID was placed under the existing sipCommonCfgRetry OID and therefore, caused the OIDs for the subsequent groups to change (incrementing by one).
 - * Objects from tables under sipCommonCfgExpires were added to a new OBJECT-GROUP sipCommonConfigExpiresGroup, and that group was listed as optional in sipCommonCompliance.
 - * Minor DESCRIPTION change for sipCommonCfgEntry. No behavior change.
 - * sipCommonCfgServiceOperStatus SYNTAX changed. New values added: congested and quiescing Old values removed: halted The

order of the enumeration was altered as well.

- * sipCommonServiceAdminStatus SYNTAX changed. New values added: noop, up, down, quiesceSessions, and quiesceApplications Old values removed: shutdown, restart, stop, rts. These changes were made based on comments from last call reviewer and general

known ambiguities in the previous design of the object.

- * Clarifying changes to the DESCRIPTION of sipCommonCfgServiceStartTime.
- * Clarifying changes to the DESCRIPTION of sipCommonCfgServiceStartTime.
- * Clarification of behavior for sipCommonPortStatus while row is 'active'
- * Clarifying changes to the DESCRIPTION of sipUriSupportedTable.
- * Clarifying changes to the DESCRIPTIONs of sipFtrSupportedTable, sipFtrSupportedEntry, and sipFtrSupported. Specifically, IETF standard features and non-standard features are now represented by this table. Only non-standard features were mentioned in prior revisions of the draft.
- * Reference to usage of [RFC 2788](#) applIndex moved from sipCommonCfgTimerExtMethodTable to sipCommonCfgTimerExtMethodEntry. This was the convention for other table/entry definitions in the MIB, so these objects were previously unconventional.
- * DEFVAL removed from sipCfgTimerExtMethodTimer. The generic nature of the "extension" object does not lend itself to being able to specify a particular default value.
- * Since the removal of the DEFVAL clause from sipCfgTimerExtMethodTimer, a value for that object must be specified when creating a sipCommonCfgTimerExtMethodEntry. The description of sipCfgTimerExtMethodStatus was updated to reflect this.
- * sipCommonCfgRetryExtMethodTable is now properly defined under sipCommonCfgRetry OID space instead of under sipCommonCfgTimer OID space.
- * DEFVAL removed from sipCfgRetryExtMethodRetry. The generic nature of the "extension" object does not lend itself to being able to specify a particular default value.
- * Since the removal of the DEFVAL clause from sipCfgRetryExtMethodRetry, a value for that object must be specified when creating a sipCommonCfgRetryExtMethodEntry. The description of sipCfgRetryExtMethodStatus was updated to

- reflect this.
- * Clarifying changes to the DESCRIPTION of sipCommonSummaryTotalTransactions. Specifically, the object is not applicable to stateless SIP proxy servers and the object should always return a value of 0 if implemented by a stateless proxy.
 - * Clarifying changes to the DESCRIPTION of sipCommonStatsExtMethodStatus.
 - * sipCommonOtherStatsClassesIns and sipCommonOtherStatsClassesOuts counter objects were added to sipCommonStatusCodeTable to handle possible future classes of response status codes.

- * Text referring specifically to Redirect Server in sipCommonStatsRedirClassIns and sipCommonStatsRedirClassOuts was removed.
- * Text defining protocol behavior in sipCommonStatsServerFailClassIns, sipCommonStatsServerFailClassOuts, sipCommonStatsGlobalFailClassIns, and sipCommonStatsGlobalFailClassOuts was removed.
- * sipCommonStatusCodeNotifInterval SYNTAX changed from TimeTicks to Unsigned32 w/ a UNITS of "seconds" added to the definition. DEFVAL clause changed accordingly.
- * sipCommonStatusCodeNotifTo, sipCommonStatusCodeNotifFrom, sipCommonStatusCodeNotifCallId, and sipCommonStatusCodeNotifCSeq all had clarifying changes to their DESCRIPTIONs. Specifically, the header name will be part of the object value and example values were given.
- * Clarifying changes to the DESCRIPTION of sipCommonTransCurrentTable and sipTransactionTable. Specifically, these tables are not applicable to transaction stateless SIP Proxy Servers.
- * Minor grammatical change to the DESCRIPTION of sipCommonTransCurrentEntry.
- * sipTransMethod and sipTransActivityInfo objects were added to sipTransactionTable while sipTransCallingPartyContentType and sipTransCalledPartyContentType were removed.
- * Clarifying changes to the DESCRIPTION of sipTransState. Specifically, noting that not all values of the object are applicable to all transaction types.
- * sipTransTo, sipTransFrom, sipTransCallId, and sipTransCSeq all

had clarifying changes to their DESCRIPTIONs. Specifically, the header name will be part of the object value and example values were given.

- * Minor grammatical change to the DESCRIPTION of sipCommonOtherStatsEntry.
- * sipCommonStatusCodeIns and sipCommonStatusCodeOuts objects were added to the varbind of sipCommonStatusCodeNotif.
- * Appropriate changes were made to sipCommonStatsGroup OBJECT-GROUP based on objects being added and/or removed from the MIB.
- o SIP-SERVER-MIB
 - * CONTACT-INFO "SIP MIB email" changed to sip@ietf.org
 - * The statement "Unlike a Proxy server it does not initiate requests." was removed from where a Redirect Server is defined in the MIB's DESCRIPTION.
 - * sipServerMIBNotifs OID removed. No notifications were ever defined under this subtree.
 - * Clarifying text added to all of the Table DESCRIPTIONS stating that the value of applIndex used in this MIB corresponds to the value of applIndex used in the SIP-COMMON-MIB.

Lingle, et al.

Expires March 19, 2007

[Page 91]

Internet-Draft

SIP MIB Modules

September 2006

- * Clarifying changes to the DESCRIPTION of sipServerCfgProxyStatefulness.
- * sipServerRegContactPreference SYNTAX changed from OCTET STRING to SnmpAdminString.
- o SIP-UA-MIB
 - * CONTACT-INFO "SIP MIB email" changed to sip@ietf.org
 - * sipUAMIBNotifs OID removed. No notifications were ever defined under this subtree.
 - * sipUAStats OID removed. No notifications were ever defined under this subtree.
 - * Clarifying text added to all of the Table DESCRIPTIONS stating that the value of applIndex used in this MIB corresponds to the value of applIndex used in the SIP-COMMON-MIB.
- o SIP-TC-MIB
 - * CONTACT-INFO "SIP MIB email" changed to sip@ietf.org

Changes from [draft-ietf-sip-mib-02](#)

- o General
 - * Eliminated the SIP-MIB-SMI modules. Each MIB module will now get it's own IANA OID.
 - * Top-level OID subtrees restructured in each MIB.
 - * General cleanup/removal of "placeholder" OID subtrees for

- object groups and notifications that never materialized.
- o SIP-COMMON-MIB
 - * Removed sipCfgInitialTimerAck.
 - * Removed sipCfgRetryAck.
 - * Removed sipCommonStatsRetryAcks.
 - * sipCommonStatsRetryExtMethodEntry was missing its INDEX clause.
 - * sipCommonOtherStatsNumUnsupportedUris OID was "5" when it was the only object in the table. OID is now "1".
 - * High-level OID structure of the MIB is now sequential.
 - * Incorrect object descriptor for sipCfgInitialTimerRsp inconsistent with reference in compliance section.
 - * Inconsistencies between sipCommonStatsRetryGroup definition and SipCommonStatsRetryEntry OBJECT-TYPE corrected.
 - * sipCommonNotifApplIndex was not in any object group in the conformance section.
- o SIP-SERVER-MIB
 - * Removed sipInformationTryingInterval.
 - * Removed sipRxProxyAuthTable.
 - * Removed sipServerRegRespHasContacts.
 - * Removed sipServerRegContactDfltExpiryDate.
 - * Removed sipServerRegContactDfltExpiryDuration.
 - * Removed sipUserPassword.
 - * sipRequestMaxExpires DESCRIPTION changed to no longer specifically mention 400 response.

- * sipServerProxyStateful object descriptor changed to sipServerProxyStatefullness and the SYNTAX changed from TruthValue to an enumerated INTEGER.
- * sipServerProxyStateTimeout DESCRIPTION changed to now reflect only INVITE.
- * Gauge32 was not being IMPORTed.
- * sipServerContactDfltAction showed up in conformance and other object descriptions in an older form.
- * sipServerHost replaced with InetAddressType/InetAddress object pair (sipServerCfgHostAddressType and sipServerCfgHostAddress).
- o SIP-UA-MIB
 - * IMPORTed Unsigned32 to support sipUACfgSipServerAddrIndex.
 - * sipUACfgSipServerEntry was referencing the wrong auxiliary object and listing that object in the conformance section.
 - * sipUACfgSipServerEntry listed sipUACfgSipServerStatus when it

- should have been listing sipUACfgSipServerAddrStatus.
- * SIP-UA-MIB IMPORTed Counter32, but never used it. Removed the IMPORT of Counter32.

12. References

12.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC3261] Rosenberg, J., Schulzrinne, H., Camarillo, G., Johnston, A., Peterson, J., Sparks, R., Handley, M., and E. Schooler, "SIP: Session Initiation Protocol", [RFC 3261](#), June 2002.
- [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.
- [RFC2788] Freed, N. and S. Kille, "Network Services Monitoring MIB", [RFC 2788](#), March 2000.
- [RFC3411] Harrington, D., Presuhn, R., and B. Wijnen, "An

Lingle, et al.

Expires March 19, 2007

[Page 93]

Internet-Draft

SIP MIB Modules

September 2006

Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks", STD 62, [RFC 3411](#), December 2002.

- [RFC4001] Daniele, M., Haberman, B., Routhier, S., and J. Schoenwaelder, "Textual Conventions for Internet Network Addresses", [RFC 4001](#), February 2005.

12.2. 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.
- [RFC3262] Rosenberg, J. and H. Schulzrinne, "Reliability of Provisional Responses in Session Initiation Protocol (SIP)", [RFC 3262](#), June 2002.
- [RFC4168] Rosenberg, J., Schulzrinne, H., and G. Camarillo, "The Stream Control Transmission Protocol (SCTP) as a Transport for the Session Initiation Protocol (SIP)", [RFC 4168](#), October 2005.

Authors' Addresses

Kevin Lingle
Cisco Systems, Inc.
7025 Kit Creek Road
P.O. Box 14987
Research Triangle Park, NC 27709
US

Phone: +1 919 392 2029
Email: klingle@cisco.com

Jean-Francois Mule
CableLabs
858 Coal Creek Circle
Louisville, CO 80027
US

Phone: +1 303 661 9100
Email: jf.mule@cablelabs.com

5612 Sedona Drive
Austin, TX 78759
US

Phone: +1 512 418 0590
Email: jmaeng@austin.rr.com

Dave Walker

Email: drwalker@rogers.com

Full Copyright Statement

Copyright (C) The Internet Society (2006).

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 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.

Acknowledgment

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

