Definitions of Managed Objects for Service Level Agreements Performance Monitoring

Status of this Memo

This memo defines an Experimental Protocol for the Internet community. It does not specify an Internet standard of any kind. Discussion and suggestions for improvement are requested. Distribution of this memo is unlimited.

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Abstract

This memo defines a Management Information Base (MIB) for performance monitoring of Service Level Agreements (SLAs) defined via policy definitions. The MIB defined herein focuses on defining a set of objects for monitoring SLAs and not on replication of the content of the policy definitions being monitored. The goal of the MIB defined within this document is to defined statistics related to a policy rule definition for reporting on the effect that a policy rule has on a system and to defined a method of monitoring this data.

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1.0 Introduction

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, reference [13].

This document’s purpose is to define a MIB module for performance management of Service Level Agreements (SLAs). It is assumed that an SLA is defined via policy schema definitions. The policy definitions being modeled with respect to performance management is primarily related to network Quality of Service (QOS). There are a number of methods that exist for defining and administering policy. Definition of these methods is considered out side of the scope of this document.

The MIB module defined within this memo has been modeled using the various versions of the schema definitions being developed within the Policy Framework Working Group in the IETF. The content of the MIB defined within this memo has evolved along with the Policy Framework Working Group schema definitions.

2.0 The SNMP Network Management Framework

The SNMP Management Framework presently consists of five major components:

- An overall architecture, described in RFC 2571 [7].
- Mechanisms for describing and naming objects and events for the purpose of management. The first version of this Structure of Management Information (SMI) is called SMIv1 and described in STD 16, RFC 1155 [14], STD 16, RFC 1212 [15] and RFC 1215 [16]. The second version, called SMIv2, is described in STD 58, RFC 2578 [3], STD 58, RFC 2579 [4] and STD 58, RFC 2580 [5].
- Message protocols for transferring management information. The first version of the SNMP message protocol is called SNMPv1 and described in STD 15, RFC 1157 [1]. A second version of the SNMP message protocol, which is not an Internet standards track protocol, is called SNMPv2c and described in RFC 1901 [17] and RFC 1906 [18]. The third version of the message protocol is called SNMPv3 and described in RFC 1906 [18], RFC 2572 [8] and RFC 2574 [10].
- Protocol operations for accessing management information. The first set of protocol operations and associated PDU formats is described in STD 15, RFC 1157 [1]. A second set of protocol
operations and associated PDU formats is described in RFC 1905 [6].


Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. Objects in the MIB are defined using the mechanisms defined in the SMI.

This memo specifies a MIB module that is compliant to the SMIV2. A MIB conforming to the SMIV1 can be produced through the appropriate translations. The resulting translated MIB must be semantically equivalent, except where objects or events are omitted because no translation is possible (use of Counter64). Some machine readable information in SMIV2 will be converted into textual descriptions in SMIV1 during the translation process. However, this loss of machine readable information is not considered to change the semantics of the MIB.

### 3.0 Structure of the MIB

The SLAPM-MIB consists of the following components:

- scalar objects
- slapmPolicyNameTable
- slapmPolicyRuleStatsTable (equivalent to the deprecated slapmPolicyStatsTable)
- slapmPRMonTable (equivalent to the deprecated slapmPolicyMonitorTable)
- slapmSubcomponentTable

Refer to the compliance statement defined within SLAPM-MIB for a definition of what objects and notifications MUST be implemented by all systems as opposed to those that MUST be implemented by end systems only.

Initially most of the tables defined by the MIB module within this document where directly indexed using a policy’s name and a subordinate traffic profile name. Over time the structure and resulting naming has grown more complex and as such has exceeded the capacity of being used as a direct MIB table index. As a result of this the original tables (slapmPolicyStatsTable and
slapmPolicyMonitorTable) have been deprecated and replaced with new tables that use an Unsigned32 index element instead of "names". A new table has been defined, slapmPolicyNameTable, that maps the Unsigned32 index to a unique name associated with a given policy rule definition.

3.1 Scalar objects

Global objects defined within SLAPM-MIB:

- **slapmSpinLock**
  
  Enables multiple management application access to SLAPM-MIB. An agent MUST implement the slapmSpinLock object to enable management applications to coordinate their use of the SLAPM-MIB. Management application use of slapmSpinLock is OPTIONAL.

- **slapmPolicyCountQueries, slapmPolicyCountAccesses, slapmPolicyCountSuccessAccesses, and slapmPolicyCountNotFounds**
  
  Basic statistics on the amount of policy directory access that has occurred at a system.

- **slapmPolicyPurgeTime**
  
  Used to prevent the entries in various SLAPM-MIB tables that relate to a policy definition from immediately being deleted when the corresponding policy definition no longer exists. This gives management applications time to discover this condition and close out any polled based interval data that may be being collected. All dependent slapmPRMonTable entries are also deleted when its parent slapmPolicyRuleStatsEntry is removed. Refer to the OBJECT description for slapmPolicyPurgeTime for a more precise description of this function.

- **slapmPolicyTrapEnable**
  
  This object enables or suppresses generation of slapmPolicyRuleDeleted or slapmPolicyRuleMonDeleted notifications.

- **slapmPolicyTrapFilter**
  
  This object enables suppression of slapmSubcMonitorNotOkay notifications.
3.2 slapmPolicyNameTable

The slapmPolicyNameTable maps a Unsigned32 index to a unique name associated with a given policy rule definition.

Currently, the core schema definition being worked on within the Policy Framework working group defines five general classes: policyGroup, policyRule, policyCondition, policyTimePeriodCondition, and policyAction. "Policies can either be used in a stand-alone fashion or aggregated into policy groups to perform more elaborate functions. Stand-alone policies are called policy rules. Policy groups are aggregations of policy rules, or aggregations of policy groups, but not both." Each policy rule consists of a set of conditions and a set of actions. Policy rules may be aggregated into policy groups.

"Instances in a directory are identified by distinguished names (DNs), which provide the same type of hierarchical organization that a file system provides in a computer system. A distinguished name is a sequence of relative distinguished names (RDNs), where an RDN provides a unique identifier for an instance within the context of its immediate superior, in the same way that a filename provides a unique identifier for a file within the context of the folder in which it resides."

Each of these instances can also be named to fit in with the existing DEN practice with a commonName (cn) attribute as oppose to the classes name attribute.

"The cn, or commonName, attribute is an X.500 attribute. It stands for commonName. It specifies a user-friendly name by which the object is commonly known. This name may be ambiguous by itself. This name is used in a limited scope (such as an organization). It conforms to the naming conventions of the country or culture with which it is associated. CN is used universally in DEN as the naming attribute for a class."

An slapmPolicyNameEntry contains a single object, slapmPolicyNameOfRule, that contains the unique name associated with a policy rule instance. An slapmPolicyNameEntry is indexed by a Unsigned32 index, slapmPolicyNameIndex, that is assigned by the implementation of this MIB.
3.3 slapmPolicyRuleStatsTable

This table is functionally equivalent to the deprecated slapmPolicyStatsTable. The slapmPolicyStatsTable uses the name of both a policy definition and a traffic profile name to index an entry. The slapmPolicyRuleStatsTable uses an slapmPolicyNameEntry index (Unsigned32) instead.

The slapmPolicyRuleStatsTable is the main table defined by SLAPM-MIB. The primary index for this table is slapmPolicyNameSystemAddress that enables support of multiple systems from a single policy agent. The index element, slapmPolicyNameSystemAddress, value must be either the zero-length octet string when at a policy agent only a single system is being support, 4 octets for a ipv4 address, or 16 octets for a ipv6 address.

It is possible that on a single system multiple policy agent instances exists. The Entity MIB, refer to [19], should be used to handle the resulting MIBs.

With respect to slapmPolicyNameSystemAddress one slapmPolicyRuleStatsEntry exists for each policy rule instance. Entries in this table are not administered via SNMP. An agent implementation for this table MUST reflect its current set of policy rule instances via table entries. The mechanisms for policy administration are outside of the scope of this memo.

3.4 slapmPRMonTable

This table is functionally equivalent to the deprecated slapmPolicyMonitorTable. The slapmPolicyMonitorTable uses the name of both a policy definition and a traffic profile name to index an entry. The slapmPRMonTable uses an slapmPolicyNameEntry index (Unsigned32) instead.

The slapmPRMonTable provides a method of monitoring the effect of SLA policy being used at a system. A management application creates an slapmPRMonEntry for each collection that it requires. The value of the BITS slapmPRMonControl object determines what type of monitoring occurs, at what level to monitor and whether trap support is enabled:

- monitorMinRate(0)

  Use the value of slapmPRMonInterval as the interval to determine current traffic in and out rates, using slapmPRMonCurrentInRate and slapmPRMonCurrentOutRate, that can be compared to slapmPRMonMinRateLow for determining when to generate a slapmPolicyRuleMonNotOkay notification. The notification
slapmPolicyRuleMonOkay is generated when the problem is resolved. This can be determined by comparing the current rates to slapmPRMonMinRateHigh.

- **monitorMaxRate(1)**

  Use the value of slapmPRMonInterval as the interval to determine current traffic in and out rate, using slapmPRMonCurrentInRate and slapmPRMonCurrentOutRate, that can be compared to slapmPRMonMaxRateHigh for determining when to generate a slapmPolicyRuleMonNotOkay notification. The notification slapmPolicyRuleMonOkay is generated when the problem is resolved. This can be determined by comparing the current rates to slapmPRMonMaxRateLow.

- **monitorMaxDelay(2)**

  Use the value of slapmPRMonInterval as the interval to determine the current delay. This can be calculated on an aggregate level by averaging the round trip times for all TCP connections associated with the policy definition. For an individual subcomponent its round trip time can be used directly. Compare this value to slapmPRMonMaxDelayHigh for determining when to generate a slapmPolicyRuleMonNotOkay notification. The notification slapmPolicyRuleMonOkay is generated when the problem is resolved. This can be determined by comparing the current rates to slapmPRMonMaxDelayLow.

  UDP subcomponents don’t support max delay monitoring.

- **enableAggregateTraps(3)**

  The slapmPRMonitorControl BITS setting, enableAggregateTraps(3), MUST be set in order for any notifications relating to slapmPolicyRuleStatsTable monitoring to be generated.

- **enableSubcomponentTraps(4)**

  This slapmPRMonitorControl BITS setting MUST be set in order for any notifications relating to slapmSubcomponetTable monitoring to be generated. The slapmPRMonitorControl BITS setting monitorSubcomponents(5) MUST be selected in order for this setting to be allowed.

- **monitorSubcomponents(5)**

  If selected monitor slapmSubcomponentTable entries individually. Note: aggregate policy rule monitoring is always enabled.
The index element `slapmPRMonOwnerIndex` is used as the first index in `slapmPRMonTable` in order to enable SNMP VACM security control. The `slapmPRMonTable` is the only table that supports SNMP RowStatus operations.

3.5 `slapmSubcomponentTable`

Entries are made into this table for the protocol entities (policy traffic profile subcomponents) to indicate actual policy rule usage, provide general statistics at either a TCP connection or UDP listener level, and enable subcomponent monitoring.

4.0 Definitions

SLAPM-MIB DEFINITIONS ::= BEGIN

IMPORTS
   MODULE-IDENTITY, OBJECT-TYPE,
   experimental, Integer32, NOTIFICATION-TYPE,
   Gauge32, Counter32, Unsigned32
   FROM SNMPv2-SMI -- RFC2578
   TEXTUAL-CONVENTION, RowStatus,
   TestAndIncr, DateAndTime
   FROM SNMPv2-TC -- RFC2579
   MODULE-COMPLIANCE, OBJECT-GROUP,
   NOTIFICATION-GROUP
   FROM SNMPv2-CONF -- RFC2580
   SnmpAdminString
   FROM SNMP-FRAMEWORK-MIB; -- RFC2571

slapmMIB MODULE-IDENTITY
   LAST-UPDATED "200001240000Z" -- 24 January 2000
   ORGANIZATION "International Business Machines Corp."
   CONTACT-INFO
      "Kenneth White
       International Business Machines Corporation
       Network Computing Software Division
       Research Triangle Park, NC, USA

       E-mail: wkenneth@us.ibm.com"
   DESCRIPTION
      "The Service Level Agreement Performance Monitoring MIB (SLAPM-MIB) provides data collection and monitoring capabilities for Service Level Agreements (SLAs) policy definitions."

   -- Revision history
::= { experimental 88 }

-- Textual Conventions

SlapmNameType ::= TEXTUAL-CONVENTION
STATUS deprecated
DESCRIPTION
"The textual convention for naming entities within this MIB. The actual contents of an object defined using this textual convention should consist of the distinguished name portion of an name. This is usually the right-most portion of the name. This convention is necessary, since names within this MIB can be used as index items and an instance identifier is limited to 128 subidentifiers.

This textual convention has been deprecated. All of the tables defined within this MIB that use this textual convention have been deprecated as well since the method of using a portion of the name (either of a policy definition or of a traffic profile) has been replaced by using an Unsigned32 index. The new slapmPolicyNameTable would then map the Unsigned32 index to a real name."
SYNTAX SnmpAdminString (SIZE(0..32))

SlapmStatus ::= TEXTUAL-CONVENTION
STATUS current
DESCRIPTION
"The textual convention for defining the various slapmPRMonTable (or old slapmPolicyMonitorTable) and the slapmSubcomponentTable states for actual policy rule traffic monitoring."
SYNTAX BITS {
  slaMinInRateNotAchieved(0),
  slaMaxInRateExceeded(1),
  slaMaxDelayExceeded(2),
  slaMinOutRateNotAchieved(3),
  slaMaxOutRateExceeded(4),
  monitorMinInRateNotAchieved(5),
  monitorMaxInRateExceeded(6),
  monitorMaxDelayExceeded(7),
  monitorMinOutRateNotAchieved(8),
  monitorMaxOutRateExceeded(9)
SlapmPolicyRuleName ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "1024t"
    STATUS current
    DESCRIPTION
    "To facilitate internationalization, this TC
    represents information taken from the ISO/IEC IS
    10646-1 character set, encoded as an octet string
    using the UTF-8 character encoding scheme described
    in RFC 2044. For strings in 7-bit US-ASCII,
    there is no impact since the UTF-8 representation
    is identical to the US-ASCII encoding."
    SYNTAX OCTET STRING (SIZE (0..1024))

-- Top-level structure of the MIB

slapmNotifications OBJECT IDENTIFIER ::= { slapmMIB 0 }
slapmObjects OBJECT IDENTIFIER ::= { slapmMIB 1 }
slapmConformance OBJECT IDENTIFIER ::= { slapmMIB 2 }

-- All scalar objects

slapmBaseObjects OBJECT IDENTIFIER ::= { slapmObjects 1 }

-- Scalar Object Definitions

slapmSpinLock OBJECT-TYPE
    SYNTAX TestAndIncr
    MAX-ACCESS read-write
    STATUS current
    DESCRIPTION
    "An advisory lock used to allow cooperating applications
    to coordinate their use of the contents of this MIB. This
    typically occurs when an application seeks to create an
    new entry or alter an existing entry in
    slapmPRMonTable (or old slapmPolicyMonitorTable). A
    management implementation MAY utilize the slapmSpinLock to
    serialize its changes or additions. This usage is not
    required. However, slapmSpinLock MUST be supported by
    agent implementations."
    ::= { slapmBaseObjects 1 }

slapmPolicyCountQueries OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
"The total number of times that a policy lookup occurred with respect to a policy agent. This is the number of times that a reference was made to a policy definition at a system and includes the number of times that a policy repository was accessed, slapmPolicyCountAccesses. The object slapmPolicyCountAccesses should be less than slapmPolicyCountQueries when policy definitions are cached at a system."

::= { slapmBaseObjects 2 }

slapmPolicyCountAccesses OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Total number of times that a policy repository was accessed with respect to a policy agent. The value of this object should be less than slapmPolicyCountQueries, since typically policy entries are cached to minimize repository accesses."

::= { slapmBaseObjects 3 }

slapmPolicyCountSuccessAccesses OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Total number of successful policy repository accesses with respect to a policy agent."

::= { slapmBaseObjects 4 }

slapmPolicyCountNotFounds OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Total number of policy repository accesses, with respect to a policy agent, that resulted in an entry not being located."

::= { slapmBaseObjects 5 }

slapmPolicyPurgeTime OBJECT-TYPE
SYNTAX Integer32 (0..3600) -- maximum of 1 hour
UNITS "seconds"
MAX-ACCESS read-write
STATUS current
DESCRIPTION
"The purpose of this object is to define the amount of time (in seconds) to wait before removing an slapmPolicyRuleStatsEntry (or old slapmPolicyStatsEntry) when a system detects that the associated policy definition has been deleted. This gives any polling management applications time to complete their last poll before an entry is removed. An slapmPolicyRuleStatsEntry (or old slapmPolicyStatsEntry) enters the deleteNeeded(3) state via slapmPolicyRuleStatsOperStatus (or old slapmPolicyStatsOperStatus) when a system first detects that the entry needs to be removed.

Once slapmPolicyPurgeTime has expired for an entry in deleteNeeded(3) state it is removed along with any dependent slapmPRMonTable (or slapmPolicyMonitorTable) entries.

A value of 0 for this option disables this function and results in the automatic purging of slapmPRMonTable (or slapmPolicyTable) entries upon transition into deleteNeeded(3) state.

A slapmPolicyRuleDeleted (or slapmPolicyProfileDeleted) notification is sent when an slapmPolicyRuleStatsEntry (or slapmPolicyStatsEntry) is removed. Dependent slapmPRMonTable (or slapmPolicyMonitorTable) deletion results in a slapmPolicyRuleMonDeleted (or slapmPolicyMonitorDeleted) notification being sent. These notifications are suppressed if the value of slapmPolicyTrapEnable is disabled(2)."

DEFVAL { 900 } -- 15 minute default purge time
::= { slapmBaseObjects 6 }

```
slapmPolicyTrapEnable OBJECT-TYPE
SYNTAX    INTEGER { enabled(1), disabled(2) }
MAX-ACCESS read-write
STATUS     current
DESCRIPTION
    "Indicates whether slapmPolicyRuleDeleted and
    slapmPolicyRuleMonDeleted (or slapmPolicyProfileDeleted
    and slapmPolicyMonitorDeleted) notifications should be
    generated by this system."
DEFVAL { disabled }
::= { slapmBaseObjects 7 }
```

```
slapmPolicyTrapFilter OBJECT-TYPE
SYNTAX    Integer32 {0..64}
UNITS     "intervals"
```
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
 "The purpose of this object is to suppress unnecessary
slapmSubcMonitorNotOkay (or
slapmSubcomponentMonitoredEventNotAchieved), for example,
notifications. Basically, a monitored event has to
not meet its SLA requirement for the number of
consecutive intervals indicated by the value of this
object."
DEFVAL { 3 }
::= { slapmBaseObjects 8 }

slapmTableObjects OBJECT IDENTIFIER ::= { slapmObjects 2 }

-- Sla Performance Monitoring Policy Statistics Table

slapmPolicyStatsTable OBJECT-TYPE
SYNTAX SEQUENCE OF SlapmPolicyStatsEntry
MAX-ACCESS not-accessible
STATUS deprecated
DESCRIPTION
 "Provides statistics on all policies known at a
system.

This table has been deprecated and replaced with
the slapmPolicyRuleStatsTable. Older implementations of
this MIB are expected to continue their support of this
table."
::= { slapmTableObjects 1 }

slapmPolicyStatsEntry OBJECT-TYPE
SYNTAX SlapmPolicyStatsEntry
MAX-ACCESS not-accessible
STATUS deprecated
DESCRIPTION
 "Defines an entry in the slapmPolicyStatsTable. This table
defines a set of statistics that is kept on a per system,
policy and traffic profile basis. A policy can be
defined to contain multiple traffic profiles that map to
a single action.

Entries in this table are not created or deleted via SNMP
but reflect the set of policy definitions known at a system."
INDEX {
    slapmPolicyStatsSystemAddress,
    slapmPolicyStatsPolicyName,
    slapmPolicyStatsTrafficProfileName}
SlapmPolicyStatsEntry ::= SEQUENCE {
    slapmPolicyStatsSystemAddress OCTET STRING,
    slapmPolicyStatsPolicyName SlapmNameType,
    slapmPolicyStatsTrafficProfileName SlapmNameType,
    slapmPolicyStatsOperStatus INTEGER,
    slapmPolicyStatsActiveConns Gauge32,
    slapmPolicyStatsTotalConns Counter32,
    slapmPolicyStatsFirstActivated DateAndTime,
    slapmPolicyStatsLastMapping DateAndTime,
    slapmPolicyStatsInOctets Counter32,
    slapmPolicyStatsOutOctets Counter32,
    slapmPolicyStatsConnectionLimit Integer32,
    slapmPolicyStatsCountAccepts Counter32,
    slapmPolicyStatsCountDenies Counter32,
    slapmPolicyStatsInDiscards Counter32,
    slapmPolicyStatsOutDiscards Counter32,
    slapmPolicyStatsInPackets Counter32,
    slapmPolicyStatsOutPackets Counter32,
    slapmPolicyStatsInProfileOctets Counter32,
    slapmPolicyStatsOutProfileOctets Counter32,
    slapmPolicyStatsMinRate Integer32,
    slapmPolicyStatsMaxRate Integer32,
    slapmPolicyStatsMaxDelay Integer32
}

slapmPolicyStatsSystemAddress OBJECT-TYPE
SYNTAX OCTET STRING (SIZE(0 | 4 | 16))
MAX-ACCESS not-accessible
STATUS deprecated
DESCRIPTION
"Address of a system that an Policy definition relates to. A zero length octet string must be used to indicate that only a single system is being represented. Otherwise, the length of the octet string must be 4 for an ipv4 address or 16 for an ipv6 address."
::= { slapmPolicyStatsEntry 1 }

slapmPolicyStatsPolicyName OBJECT-TYPE
SYNTAX SlapmNameType
MAX-ACCESS not-accessible
STATUS deprecated
DESCRIPTION
"Policy name that this entry relates to."
::= { slapmPolicyStatsEntry 2 }
slapmPolicyStatsTrafficProfileName OBJECT-TYPE
SYNTAX    SlapmNameType
MAX-ACCESS not-accessible
STATUS     deprecated
DESCRIPTION "The name of a traffic profile that is associated with a policy."
 ::= { slapmPolicyStatsEntry 3 }

slapmPolicyStatsOperStatus OBJECT-TYPE
SYNTAX     INTEGER {
    inactive(1),
    active(2),
    deleteNeeded(3)
  }
MAX-ACCESS read-only
STATUS     deprecated
DESCRIPTION "The state of a policy entry:

 inactive(1)    - An policy entry was either defined by local system definition or discovered via a directory search but has not been activated (not currently being used).
 active(2)      - Policy entry is being used to affect traffic flows.
 deleteNeeded(3) - Either though local implementation dependent methods or by discovering that the directory entry corresponding to this table entry no longer exists and slapmPolicyPurgeTime needs to expire before attempting to remove the corresponding slapmPolicyStatsEntry and any dependent slapmPolicyMonitor table entries.

 Note: a policy traffic profile in a state other than active(1) is not being used to affect traffic flows."
 ::= { slapmPolicyStatsEntry 4 }

slapmPolicyStatsActiveConns OBJECT-TYPE
SYNTAX     Gauge32
MAX-ACCESS read-only
STATUS     deprecated
DESCRIPTION "The number of active TCP connections that are affected by the corresponding policy entry."
 ::= { slapmPolicyStatsEntry 5 }
slapmPolicyStatsTotalConns OBJECT-TYPE
SYNTAX    Counter32
MAX-ACCESS read-only
STATUS    deprecated
DESCRIPTION  
"The number of total TCP connections that are 
affected by the corresponding policy entry."
::= { slapmPolicyStatsEntry 6 }

slapmPolicyStatsFirstActivated OBJECT-TYPE
SYNTAX    DateAndTime
MAX-ACCESS read-only
STATUS    deprecated
DESCRIPTION  
"The timestamp for when the corresponding policy entry 
is activated.  The value of this object serves as 
the discontinuity event indicator when polling entries 
in this table.  The value of this object is updated on 
transition of slapmPolicyStatsOperStatus into the active(2) 
state."
DEFVAL { '0000000000000000'H }
::= { slapmPolicyStatsEntry 7 }

slapmPolicyStatsLastMapping OBJECT-TYPE
SYNTAX    DateAndTime
MAX-ACCESS read-only
STATUS    deprecated
DESCRIPTION  
"The timestamp for when the last time 
that the associated policy entry was used."
DEFVAL { '0000000000000000'H }
::= { slapmPolicyStatsEntry 8 }

slapmPolicyStatsInOctets OBJECT-TYPE
SYNTAX    Counter32
MAX-ACCESS read-only
STATUS    deprecated
DESCRIPTION  
"The number of octets that was received by IP for an 
entity that map to this entry."
::= { slapmPolicyStatsEntry 9 }

slapmPolicyStatsOutOctets OBJECT-TYPE
SYNTAX    Counter32
MAX-ACCESS read-only
STATUS    deprecated
DESCRIPTION  
"The number of octets that was transmitted by IP for an
entity that map to this entry.
::= { slapmPolicyStatsEntry 10 }

slapmPolicyStatsConnectionLimit OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION
"The limit for the number of active TCP connections that
are allowed for this policy definition. A value of zero
for this object implies that a connection limit has not
been specified."
::= { slapmPolicyStatsEntry 11 }

slapmPolicyStatsCountAccepts OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION
"This counter is incremented when a policy action’s
Permission value is set to Accept and a session
(TCP connection) is accepted."
::= { slapmPolicyStatsEntry 12 }

slapmPolicyStatsCountDenies OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION
"This counter is incremented when a policy action’s
Permission value is set to Deny and a session is denied,
or when a session (TCP connection) is rejected due to a
policy’s connection limit (slapmPolicyStatsConnectLimit)
being reached."
::= { slapmPolicyStatsEntry 13 }

slapmPolicyStatsInDiscards OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION
"This counter counts the number of in octets discarded.
This occurs when an error is detected. Examples of this
are buffer overflow, checksum error, or bad packet
format."
::= { slapmPolicyStatsEntry 14 }

slapmPolicyStatsOutDiscards OBJECT-TYPE
SYNTAX    Counter32
MAX-ACCESS read-only
STATUS    deprecated
DESCRIPTION
 "This counter counts the number of out octets discarded. Examples of this are buffer overflow, checksum error, or bad packet format."
 ::= { slapmPolicyStatsEntry 15 }

slapmPolicyStatsInPackets OBJECT-TYPE
SYNTAX    Counter32
MAX-ACCESS read-only
STATUS    deprecated
DESCRIPTION
 "This counter counts the number of in packets received that relate to this policy entry from IP."
 ::= { slapmPolicyStatsEntry 16 }

slapmPolicyStatsOutPackets OBJECT-TYPE
SYNTAX    Counter32
MAX-ACCESS read-only
STATUS    deprecated
DESCRIPTION
 "This counter counts the number of out packets sent by IP that relate to this policy entry."
 ::= { slapmPolicyStatsEntry 17 }

slapmPolicyStatsInProfileOctets OBJECT-TYPE
SYNTAX    Counter32
MAX-ACCESS read-only
STATUS    deprecated
DESCRIPTION
 "This counter counts the number of in octets that are determined to be within profile."
 ::= { slapmPolicyStatsEntry 18 }

slapmPolicyStatsOutProfileOctets OBJECT-TYPE
SYNTAX    Counter32
MAX-ACCESS read-only
STATUS    deprecated
DESCRIPTION
 "This counter counts the number of out octets that are determined to be within profile."
 ::= { slapmPolicyStatsEntry 19 }

slapmPolicyStatsMinRate OBJECT-TYPE
SYNTAX    Integer32
UNITS "Kilobits per second"
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION
   "The minimum transfer rate defined for this entry."
 ::= { slapmPolicyStatsEntry 20 }

slapmPolicyStatsMaxRate OBJECT-TYPE
SYNTAX     Integer32
UNITS      "Kilobits per second"
MAX-ACCESS read-only
STATUS     deprecated
DESCRIPTION
   "The maximum transfer rate defined for this entry."
 ::= { slapmPolicyStatsEntry 21 }

slapmPolicyStatsMaxDelay OBJECT-TYPE
SYNTAX     Integer32
UNITS      "milliseconds"
MAX-ACCESS read-only
STATUS     deprecated
DESCRIPTION
   "The maximum delay defined for this entry."
 ::= { slapmPolicyStatsEntry 22 }

-- SLA Performance Monitoring Policy Monitor Table

slapmPolicyMonitorTable OBJECT-TYPE
SYNTAX SEQUENCE OF SlapmPolicyMonitorEntry
MAX-ACCESS not-accessible
STATUS     deprecated
DESCRIPTION
   "Provides a method of monitoring policies and their
effect at a system.

This table has been deprecated and replaced with
the slapmPRMonTable. Older implementations of
this MIB are expected to continue their support
of this table."
 ::= { slapmTableObjects 2 }

slapmPolicyMonitorEntry OBJECT-TYPE
SYNTAX     SlapmPolicyMonitorEntry
MAX-ACCESS not-accessible
STATUS     deprecated
DESCRIPTION
   "Defines an entry in the slapmPolicyMonitorTable. This
table defines which policies should be monitored on a
per policy traffic profile basis."
INDEX {
  slapmPolicyMonitorOwnerIndex,
  slapmPolicyMonitorSystemAddress,
  slapmPolicyMonitorPolicyName,
  slapmPolicyMonitorTrafficProfileName
}
::= { slapmPolicyMonitorTable 1 }

SlapmPolicyMonitorEntry ::= SEQUENCE {
  slapmPolicyMonitorOwnerIndex              SnmpAdminString,
  slapmPolicyMonitorSystemAddress           OCTET STRING,
  slapmPolicyMonitorPolicyName              SlapmNameType,
  slapmPolicyMonitorTrafficProfileName      SlapmNameType,
  slapmPolicyMonitorControl                 BITS,
  slapmPolicyMonitorStatus                  SlapmStatus,
  slapmPolicyMonitorInterval                Integer32,
  slapmPolicyMonitorIntTime                 DateAndTime,
  slapmPolicyMonitorCurrentInRate           Gauge32,
  slapmPolicyMonitorCurrentOutRate          Gauge32,
  slapmPolicyMonitorMinRateLow              Integer32,
  slapmPolicyMonitorMinRateHigh             Integer32,
  slapmPolicyMonitorMaxRateHigh             Integer32,
  slapmPolicyMonitorMaxRateLow              Integer32,
  slapmPolicyMonitorMaxDelayHigh            Integer32,
  slapmPolicyMonitorMaxDelayLow             Integer32,
  slapmPolicyMonitorMinInRateNotAchieves    Counter32,
  slapmPolicyMonitorMaxInRateExceeds        Counter32,
  slapmPolicyMonitorMaxDelayExceeds         Counter32,
  slapmPolicyMonitorMinOutRateNotAchieves   Counter32,
  slapmPolicyMonitorMaxOutRateExceeds       Counter32,
  slapmPolicyMonitorCurrentDelayRate        Gauge32,
  slapmPolicyMonitorRowStatus               RowStatus
}

slapmPolicyMonitorOwnerIndex OBJECT-TYPE
SYNTAX      SnmpAdminString (SIZE(0..16))
MAX-ACCESS  not-accessible
STATUS      deprecated
DESCRIPTION
"To facilitate the provisioning of access control by a
security administrator using the View-Based Access
Control Model (RFC 2575, VACM) for tables in which
multiple users may need to independently create or modify
entries, the initial index is used as an ‘owner index’.
Such an initial index has a syntax of SnmpAdminString,
and can thus be trivially mapped to a securityName or
groupName as defined in VACM, in accordance with a
security policy.

All entries in that table belonging to a particular user will have the same value for this initial index. For a
given user’s entries in a particular table, the object
identifiers for the information in these entries will
have the same subidentifiers (except for the ‘column’
subidentifier) up to the end of the encoded owner index.
To configure VACM to permit access to this portion of the
table, one would create vacmViewTreeFamilyTable entries
with the value of vacmViewTreeFamilySubtree including the
owner index portion, and vacmViewTreeFamilyMask
‘wildcarding’ the column subidentifier. More elaborate
configurations are possible.

::= { slapmPolicyMonitorEntry 1 }

slapmPolicyMonitorSystemAddress OBJECT-TYPE
SYNTAX OCTET STRING (SIZE(0 | 4 | 16))
MAX-ACCESS not-accessible
STATUS deprecated
DESCRIPTION
"Address of a system that an Policy definition relates to.
A zero length octet string can be used to indicate that
only a single system is being represented.
Otherwise, the length of the octet string should be
4 for an ipv4 address and 16 for an ipv6 address."
::= { slapmPolicyMonitorEntry 2 }

slapmPolicyMonitorPolicyName OBJECT-TYPE
SYNTAX SlapmNameType
MAX-ACCESS not-accessible
STATUS deprecated
DESCRIPTION
"Policy name that this entry relates to."
::= { slapmPolicyMonitorEntry 3 }

slapmPolicyMonitorTrafficProfileName OBJECT-TYPE
SYNTAX SlapmNameType
MAX-ACCESS not-accessible
STATUS deprecated
DESCRIPTION
"The corresponding Traffic Profile name."
::= { slapmPolicyMonitorEntry 4 }

slapmPolicyMonitorControl OBJECT-TYPE
SYNTAX BITS {
    monitorMinRate(0),
    monitorMaxRate(1),}
monitorMaxDelay(2),
   enableAggregateTraps(3),
   enableSubcomponentTraps(4),
   monitorSubcomponents(5)
}

MAX-ACCESS read-create
STATUS deprecated
DESCRIPTION
"The value of this object determines the type and level of monitoring that is applied to a policy/profile. The value of this object can’t be changed once the table entry that it is a part of is activated via a slapmPolicyMonitorRowStatus transition to active state.

   monitorMinRate(0) - Monitor minimum transfer rate.
   monitorMaxRate(1) - Monitor maximum transfer rate.
   monitorMaxDelay(2) - Monitor maximum delay.
   enableAggregateTraps(3) - The enableAggregateTraps(3) BITS setting enables notification generation when monitoring a policy traffic profile as an aggregate using the values in the corresponding slapmPolicyStatsEntry. By default this function is not enabled.
   enableSubcomponentTraps(4) - This BITS setting enables notification generation when monitoring all subcomponents that are mapped to an corresponding slapmPolicyStatsEntry. By default this function is not enabled.
   monitorSubcomponents(5) - This BITS setting enables monitoring of each subcomponent (typically a TCP connection or UDP listener) individually."

DEFVAL { { monitorMinRate, monitorMaxRate, monitorMaxDelay } }
::= { slapmPolicyMonitorEntry 5 }

slapmPolicyMonitorStatus OBJECT-TYPE
SYNTAX SlapmStatus
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION
"The value of this object indicates when a monitored value has not meet a threshold or isn’t meeting the defined service level. The SlapmStatus TEXTUAL-CONVENTION defines two levels of not meeting a threshold. The first set:

   slaMinInRateNotAchieved(0),
   slaMaxInRateExceeded(1),
   slaMaxDelayExceeded(2),
slaMinOutRateNotAchieved(3),
slaMaxOutRateExceeded(4)

are used to indicate when the SLA as an aggregate is
not meeting a threshold while the second set:

monitorMinInRateNotAchieved(5),
monitorMaxInRateExceeded(6),
monitorMaxDelayExceeded(7),
monitorMinOutRateNotAchieved(8),
monitorMaxOutRateExceeded(9)

indicate that at least one subcomponent is not meeting
a threshold.

::= {slapmPolicyMonitorEntry 6}

slapmPolicyMonitorInterval OBJECT-TYPE
SYNTAX Integer32 (15..86400) -- 15 second min, 24 hour max
UNITS "seconds"
MAX-ACCESS read-create
STATUS deprecated
DESCRIPTION
"The number of seconds that defines the sample period."
DEFVAL {20} -- 20 seconds
::= {slapmPolicyMonitorEntry 7}

slapmPolicyMonitorIntTime OBJECT-TYPE
SYNTAX DateAndTime
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION
"The timestamp for when the last interval ended."
DEFVAL { '0000000000000000'H }
::= {slapmPolicyMonitorEntry 8}

slapmPolicyMonitorCurrentInRate OBJECT-TYPE
SYNTAX Gauge32
UNITS "kilobits per second"
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION
"Using the value of the corresponding
slapmPolicyMonitorInterval, slapmPolicyStatsInOctets
is sampled and then divided by slapmPolicyMonitorInterval
to determine the current in transfer rate."
::= {slapmPolicyMonitorEntry 9}

slapmPolicyMonitorCurrentOutRate OBJECT-TYPE
SYNTAX          Gauge32
UNITS           "kilobits per second"
MAX-ACCESS      read-only
STATUS          deprecated
DESCRIPTION
"Using the value of the corresponding
slapmPolicyMonitorInterval, slapmPolicyStatsOutOctets
is sampled and then divided by slapmPolicyMonitorInterval
to determine the current out transfer rate."
::= { slapmPolicyMonitorEntry 10 }

slapmPolicyMonitorMinRateLow OBJECT-TYPE
SYNTAX          Integer32
UNITS           "kilobits per second"
MAX-ACCESS      read-create
STATUS          deprecated
DESCRIPTION
"The threshold for generating a
slapmMonitoredEventNotAchieved notification, signalling
that a monitored minimum transfer rate has not been meet.

A slapmMonitoredEventNotAchieved notification is not
generated again for an slapmPolicyMonitorEntry until
the minimum transfer rate exceeds slapmPolicyMonitorMinRateHigh (a
slapmMonitoredEventOkay notification is then transmitted)
and then fails below slapmPolicyMonitorMinRateLow. This
behavior reduces the slapmMonitoredEventNotAchieved
notifications that are transmitted.

A value of zero for this object is returned when the
slapmPolicyMonitorControl monitorMinRate(0) is not
enabled. When enabled the default value for this object
is the min rate value specified in the associated
action definition minus 10%. If the action definition
doesn’t have a min rate defined then there is no
default for this object and a value MUST be specified
prior to activating this entry when monitorMinRate(0)
is selected.

Note: The corresponding slapmPolicyMonitorControl
BITS setting, enableAggregateTraps(3), MUST be selected in
order for any notification relating to this entry to
potentially be generated."
::= { slapmPolicyMonitorEntry 11 }

slapmPolicyMonitorMinRateHigh OBJECT-TYPE
SYNTAX          Integer32
UNITS "kilobits per second"
MAX-ACCESS read-create
STATUS deprecated
DESCRIPTION
"The threshold for generating a slapmMonitoredEventOkay notification, signalling that a monitored minimum transfer rate has increased to an acceptable level.

A value of zero for this object is returned when the slapmPolicyMonitorControl monitorMinRate(0) is not enabled. When enabled the default value for this object is the min rate value specified in the associated action definition plus 10%. If the action definition doesn’t have a min rate defined then there is no default for this object and a value MUST be specified prior to activating this entry when monitorMinRate(0) is selected.

Note: The corresponding slapmPolicyMonitorControl BITS setting, enableAggregateTraps(3), MUST be selected in order for any notification relating to this entry to potentially be generated."
::= { slapmPolicyMonitorEntry 12 }

slapmPolicyMonitorMaxRateHigh OBJECT-TYPE
SYNTAX     Integer32
UNITS       "kilobits per second"
MAX-ACCESS  read-create
STATUS      deprecated
DESCRIPTION
"The threshold for generating a slapmMonitoredEventNotAchieved notification, signalling that a monitored maximum transfer rate has been exceeded.

A slapmMonitoredEventNotAchieved notification is not generated again for an slapmPolicyMonitorEntry until the maximum transfer rate fails below slapmPolicyMonitorMaxRateLow (a slapmMonitoredEventOkay notification is then transmitted) and then raises above slapmPolicyMonitorMaxRateHigh. This behavior reduces the slapmMonitoredEventNotAchieved notifications that are transmitted.

A value of zero for this object is returned when the slapmPolicyMonitorControl monitorMaxRate(1) is not enabled. When enabled the default value for this object is the max rate value specified in the associated action definition plus 10%. If the action definition
doesn’t have a max rate defined then there is no
default for this object and a value MUST be specified
prior to activating this entry when monitorMaxRate(1)
is selected.

Note: The corresponding slapmPolicyMonitorControl
BITS setting, enableAggregateTraps(3), MUST be selected in
order for any notification relating to this entry to
potentially be generated.

::= { slapmPolicyMonitorEntry 13 }

slapmPolicyMonitorMaxRateLow OBJECT-TYPE
SYNTAX      Integer32
UNITS       "kilobits per second"
MAX-ACCESS  read-create
STATUS      deprecated
DESCRIPTION
"The threshold for generating a slapmMonitoredEventOkay
notification, signalling that a monitored maximum
transfer rate has fallen to an acceptable level.

A value of zero for this object is returned when the
slapmPolicyMonitorControl monitorMaxRate(1) is not
enabled. When enabled the default value for this object
is the max rate value specified in the associated
action definition minus 10%. If the action definition
doesn’t have a max rate defined then there is no
default for this object and a value MUST be specified
prior to activating this entry when monitorMaxRate(1)
is selected.

Note: The corresponding slapmPolicyMonitorControl
BITS setting, enableAggregateTraps(3), MUST be selected in
order for any notification relating to this entry to
potentially be generated.

::= { slapmPolicyMonitorEntry 14 }

slapmPolicyMonitorMaxDelayHigh OBJECT-TYPE
SYNTAX      Integer32
UNITS       "milliseconds"
MAX-ACCESS  read-create
STATUS      deprecated
DESCRIPTION
"The threshold for generating a
slapmMonitoredEventNotAchieved notification, signalling
that a monitored maximum delay rate has been exceeded.

A slapmMonitoredEventNotAchieved notification is not
generated again for an slapmPolicyMonitorEntry until the maximum delay rate falls below
slapmPolicyMonitorMaxDelayLow (a slapmMonitoredEventOkay notification is then transmitted) and raises above
slapmPolicyMonitorMaxDelayHigh. This behavior reduces the slapmMonitoredEventNotAchieved notifications that are transmitted.

A value of zero for this object is returned when the slapmPolicyMonitorControl monitorMaxDelay(4) is not enabled. When enabled the default value for this object is the max delay value specified in the associated action definition plus 10%. If the action definition doesn’t have a max delay defined then there is no default for this object and a value MUST be specified prior to activating this entry when monitorMaxDelay(4) is selected.

Note: The corresponding slapmPolicyMonitorControl BITS setting, enableAggregateTraps(3), MUST be selected in order for any notification relating to this entry to potentially be generated.

::= { slapmPolicyMonitorEntry 15 }

slapmPolicyMonitorMaxDelayLow OBJECT-TYPE
SYNTAX Integer32
UNITS "milliseconds"
MAX-ACCESS read-create
STATUS deprecated
DESCRIPTION "The threshold for generating a slapmMonitoredEventOkay notification, signalling that a monitored maximum delay rate has fallen to an acceptable level.

A value of zero for this object is returned when the slapmPolicyMonitorControl monitorMaxDelay(4) is not enabled. When enabled the default value for this object is the max delay value specified in the associated action definition minus 10%. If the action definition doesn’t have a max delay defined then there is no default for this object and a value MUST be specified prior to activating this entry when monitorMaxDelay(4) is selected.

Note: The corresponding slapmPolicyMonitorControl BITS setting, enableAggregateTraps(3), MUST be selected in order for any notification relating to this entry to potentially be generated."
::= { slapmPolicyMonitorEntry 16 }

slapmPolicyMonitorMinInRateNotAchieves OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION "The number of times that a minimum transfer in rate
was not achieved."
::= { slapmPolicyMonitorEntry 17 }

slapmPolicyMonitorMaxInRateExceeds OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION "The number of times that a maximum transfer in rate
was exceeded."
::= { slapmPolicyMonitorEntry 18 }

slapmPolicyMonitorMaxDelayExceeds OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION "The number of times that a maximum delay in rate
was exceeded."
::= { slapmPolicyMonitorEntry 19 }

slapmPolicyMonitorMinOutRateNotAchieves OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION "The number of times that a minimum transfer out rate
was not achieved."
::= { slapmPolicyMonitorEntry 20 }

slapmPolicyMonitorMaxOutRateExceeds OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS deprecated
DESCRIPTION "The number of times that a maximum transfer out rate
was exceeded."
::= { slapmPolicyMonitorEntry 21 }

slapmPolicyMonitorCurrentDelayRate OBJECT-TYPE
SYNTAX      Gauge32
UNITS       "milliseconds"
MAX-ACCESS  read-only
STATUS      deprecated
DESCRIPTION
"The current delay rate for this entry. This is calculated by taking the average of the TCP round trip times for all associating slapmSubcomponentTable entries within an interval."
::= { slapmPolicyMonitorEntry 22 }

slapmPolicyMonitorRowStatus  OBJECT-TYPE
SYNTAX       RowStatus
MAX-ACCESS   read-create
STATUS       deprecated
DESCRIPTION
"This object allows entries to be created and deleted in the slapmPolicyMonitorTable. An entry in this table is deleted by setting this object to destroy(6).

Removal of a corresponding (same policy and traffic profile names) slapmPolicyStatsEntry has the side effect of the automatic deletion an entry in this table."
::= { slapmPolicyMonitorEntry 23 }

-- Subcomponent Table

slapmSubcomponentTable OBJECT-TYPE
SYNTAX      SEQUENCE OF SlapmSubcomponentEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
"Defines a table to provide information on the individually components that are mapped to a policy rule (or old traffic profile).

The indexing for this table is designed to support the use of an SNMP GET-NEXT operation using only the remote address and remote port as a way for a management station to retrieve the table entries relating to a particular client."
::= { slapmTableObjects 3 }

slapmSubcomponentEntry OBJECT-TYPE
SYNTAX      SlapmSubcomponentEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
"Describes a particular subcomponent entry. This table does not have an OwnerIndex as part of its indexing since this table's contents is intended to span multiple users."

INDEX {
  slapmSubcomponentRemAddress,
  slapmSubcomponentRemPort,
  slapmSubcomponentLocalAddress,
  slapmSubcomponentLocalPort
}
::= { slapmSubcomponentTable 1 }

SlapmSubcomponentEntry ::= SEQUENCE {
  slapmSubcomponentRemAddress            OCTET STRING,
  slapmSubcomponentRemPort               Integer32,
  slapmSubcomponentLocalAddress          OCTET STRING,
  slapmSubcomponentLocalPort             Integer32,
  slapmSubcomponentProtocol              INTEGER,
  slapmSubcomponentSystemAddress         OCTET STRING,
  slapmSubcomponentPolicyName            SlapmNameType,
  slapmSubcomponentTrafficProfileName    SlapmNameType,
  slapmSubcomponentLastActivity          DateAndTime,
  slapmSubcomponentInOctets              Counter32,
  slapmSubcomponentOutOctets             Counter32,
  slapmSubcomponentTcpOutBufferedOctets  Counter32,
  slapmSubcomponentTcpInBufferedOctets   Counter32,
  slapmSubcomponentTcpReXmts             Counter32,
  slapmSubcomponentTcpRoundTripTime      Integer32,
  slapmSubcomponentTcpRoundTripVariance  Integer32,
  slapmSubcomponentInPdus                Counter32,
  slapmSubcomponentOutPdus               Counter32,
  slapmSubcomponentAppName               SnmpAdminString,
  slapmSubcomponentMonitorStatus         SlapmStatus,
  slapmSubcomponentMonitorIntTime        DateAndTime,
  slapmSubcomponentMonitorCurrentInRate  Gauge32,
  slapmSubcomponentMonitorCurrentOutRate Gauge32,
  slapmSubcomponentPolicyRuleIndex       Unsigned32
}

slapmSubcomponentRemAddress OBJECT-TYPE
SYNTAX OCTET STRING (SIZE(0 | 4 | 16))
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "Indicate the remote address of a subcomponent.
A remote address can be either an ipv4 address in which case 4 octets are required or as an ipv6 address that
requires 16 octets. The value of this subidentifier
is a zero length octet string when this entry relates
to a UDP listener."
::= { slapmSubcomponentEntry 1 }

slapmSubcomponentRemPort OBJECT-TYPE
SYNTAX Integer32(0..65535)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Indicate the remote port of a subcomponent.
The value of this subidentifier
is 0 when this entry relates to a UDP listener."
::= { slapmSubcomponentEntry 2 }

slapmSubcomponentLocalAddress OBJECT-TYPE
SYNTAX OCTET STRING (SIZE(4 | 16))
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Indicate the local address of a subcomponent.
A local address can be either an ipv4 address in which
case 4 octets are required or as an ipv6 address that
requires 16 octets."
::= { slapmSubcomponentEntry 3 }

slapmSubcomponentLocalPort OBJECT-TYPE
SYNTAX Integer32(0..65535)
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Indicate the local port of a subcomponent."
::= { slapmSubcomponentEntry 4 }

slapmSubcomponentProtocol OBJECT-TYPE
SYNTAX INTEGER {
    udpListener(1),
    tcpConnection(2)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Indicate the protocol in use that identifies the
type of subcomponent."
::= { slapmSubcomponentEntry 5 }

slapmSubcomponentSystemAddress OBJECT-TYPE
SYNTAX      OCTET STRING (SIZE(0 | 4 | 16))
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"Address of a system that an Policy definition relates to. A zero length octet string can be used to indicate that only a single system is being represented. Otherwise, the length of the octet string should be 4 for an ipv4 address and 16 for an ipv6 address."
::= { slapmSubcomponentEntry 6 }

slapmSubcomponentPolicyName OBJECT-TYPE
SYNTAX      SlapmNameType
MAX-ACCESS  read-only
STATUS      deprecated
DESCRIPTION
"Policy name that this entry relates to.

This object, along with slapmSubcomponentTrafficProfileName, have been replaced with the use of an unsigned integer index that is mapped to an slapmPolicyNameEntry to actually identify policy naming."
::= { slapmSubcomponentEntry 7 }

slapmSubcomponentTrafficProfileName OBJECT-TYPE
SYNTAX      SlapmNameType
MAX-ACCESS  read-only
STATUS      deprecated
DESCRIPTION
"The corresponding traffic profile name.

This object, along with slapmSubcomponentProfileName, have been replaced with the use of an unsigned integer index that is mapped to an slapmPolicyNameEntry to actually identify policy naming."
::= { slapmSubcomponentEntry 8 }

slapmSubcomponentLastActivity OBJECT-TYPE
SYNTAX      DateAndTime
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The date and timestamp of when this entry was last used."
DEFVAL { '0000000000000000'H }
::= { slapmSubcomponentEntry 9 }

slapmSubcomponentInOctets OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of octets received from IP for this
connection."
::= { slapmSubcomponentEntry 10 }

slapmSubcomponentOutOctets OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of octets sent to IP for this connection."
::= { slapmSubcomponentEntry 11 }

slapmSubcomponentTcpOutBufferedOctets OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Number of outgoing octets buffered. The value
of this object is zero when the entry is not
for a TCP connection."
::= { slapmSubcomponentEntry 12 }

slapmSubcomponentTcpInBufferedOctets OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Number of incoming octets buffered. The value
of this object is zero when the entry is not
for a TCP connection."
::= { slapmSubcomponentEntry 13 }

slapmSubcomponentTcpReXmts OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Number of retransmissions. The value
of this object is zero when the entry is not
for a TCP connection."
::= { slapmSubcomponentEntry 14 }

slapmSubcomponentTcpRoundTripTime OBJECT-TYPE
SYNTAX Integer32
UNITS "milliseconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The amount of time that has elapsed, measured in milliseconds, from when the last TCP segment was transmitted by the TCP Stack until the ACK was received.

The value of this object is zero when the entry is not for a TCP connection."
::= { slapmSubcomponentEntry 15 }

slapmSubcomponentTcpRoundTripVariance OBJECT-TYPE
SYNTAX Integer32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"Round trip time variance.

The value of this object is zero when the entry is not for a TCP connection."
::= { slapmSubcomponentEntry 16 }

slapmSubcomponentInPdus OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of protocol related data units transferred inbound:

slapmSubcomponentProtocol PDU Type
udpListener(1) UDP datagrams
tcpConnection(2) TCP segments"
::= { slapmSubcomponentEntry 17 }

slapmSubcomponentOutPdus OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of protocol related data units transferred outbound:

slapmSubcomponentProtocol PDU Type
udpListener(1) UDP datagrams
tcpConnection(2)  TCP segments
::= { slapmSubcomponentEntry 18 }

slapmSubcomponentApplName OBJECT-TYPE
SYNTAX       SnmpAdminString (SIZE(0..32))
MAX-ACCESS   read-only
STATUS       current
DESCRIPTION
"The application name associated with this entry if known,
otherwise a zero-length octet string is returned as the
value of this object."
::= { slapmSubcomponentEntry 19 }

slapmSubcomponentMonitorStatus OBJECT-TYPE
SYNTAX      SlapmStatus
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The value of this object indicates when a monitored
value has exceeded a threshold or isn’t meeting the
defined service level. Only the following SlapmStatus
BITS setting can be reported here:

monitorMinInRateNotAchieved(5),
mmonitorMaxInRateExceeded(6),
mmonitorMaxDelayExceeded(7),
mmonitorMinOutRateNotAchieved(8),
mmonitorMaxOutRateExceeded(9)

This object only has meaning when an corresponding
slapmPolicyMonitorEntry exists with the
slapmPolicyMonitorControl BITS setting
monitorSubcomponents(5) enabled."
::= { slapmSubcomponentEntry 20 }

slapmSubcomponentMonitorIntTime OBJECT-TYPE
SYNTAX      DateAndTime
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"The timestamp for when the last interval ended.

This object only has meaning when an corresponding
slapmPRMonEntry (or old slapmPolicyMonitorEntry)
exists with the slapmPRMonControl (or
slapmPolicyMonitorControl) BITS setting
monitorSubcomponents(5) enabled. All of the
octets returned when monitoring is not in effect
must be zero."
DEFVAL { 0000000000000000'H }
::= { slapmSubcomponentEntry 21 }

slapmSubcomponentMonitorCurrentInRate OBJECT-TYPE
SYNTAX      Gauge32
UNITS       "kilobits per second"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
 "Using the value of the corresponding
 slapmPRMonInterval (or slapmPolicyMonitorInterval),
 slapmSubcomponentStatsInOctets
 is divided by slapmSubcomponentMonitorInterval to determine
 the current in transfer rate.

 This object only has meaning when an corresponding
 slapmPRMonEntry (or slapmPolicyMonitorEntry) 
 exists with the slapmPRMonControl (or
 slapmPolicyMonitorControl) BITS setting
 monitorSubcomponents(5) enabled. The value of this
 object is zero when monitoring is not in effect."
 ::= { slapmSubcomponentEntry 22 }

slapmSubcomponentMonitorCurrentOutRate OBJECT-TYPE
SYNTAX      Gauge32
UNITS       "kilobits per second"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
 "Using the value of the corresponding slapmPRMonInterval (or
 slapmPolicyMonitorInterval), slapmSubcomponentStatsOutOctets
 is divided by slapmPRMonInterval (or
 slapmPolicyMonitorInterval) to determine the
 current out transfer rate.

 This object only has meaning when an corresponding
 slapmPRMonEntry (or slapmPolicyMonitorEntry) exists with
 the slapmPRMonControl (or slapmPolicyMonitorControl)
 BITS setting monitorSubcomponents(5) enabled. The value
 of this object is zero when monitoring is not in effect."
 ::= { slapmSubcomponentEntry 23 }

slapmSubcomponentPolicyRuleIndex OBJECT-TYPE
SYNTAX      Unsigned32 (0..4294967295)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
"Points to an slapmPolicyNameEntry when combined with
slapmSubcomponentSystemAddress to indicate the
policy naming that relates to this entry.

A value of 0 for this object MUST be returned when
the corresponding slapmSubcomponentEntry has no
policy rule associated with it."
::= { slapmSubcomponentEntry 24 }

-- Table that maps an unsigned integer index to whatever
-- names a policy rule.

slapmPolicyNameTable OBJECT-TYPE
SYNTAX SEQUENCE OF SlapmPolicyNameEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Provides the mapping between a policy index as a
unsigned 32 bit integer and the unique name associated
with a policy rule."
::= { slapmTableObjects 4 }

slapmPolicyNameEntry OBJECT-TYPE
SYNTAX SlapmPolicyNameEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Defines an entry in the slapmPolicyNameTable."
INDEX {
    slapmPolicyNameSystemAddress,
    slapmPolicyNameIndex
}
 ::= { slapmPolicyNameTable 1 }

SlapmPolicyNameEntry ::= 
SEQUENCE {
    slapmPolicyNameSystemAddress   OCTET STRING,
    slapmPolicyNameIndex           Unsigned32,
    slapmPolicyNameOfRule          SlapmPolicyRuleName
}

slapmPolicyNameSystemAddress OBJECT-TYPE
SYNTAX      OCTET STRING (SIZE(0 | 4 | 16))
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
"Address of a system that an Policy rule definition relates
to. A zero length octet string must be used to indicate
that only a single system is being represented. Otherwise, the length of the octet string must be 4 for an ipv4 address or 16 for an ipv6 address.

::= { slapmPolicyNameEntry 1 }

slapmPolicyNameIndex OBJECT-TYPE
SYNTAX      Unsigned32 (1..4294967295)
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
   "A locally arbitrary, but unique identifier associated with this table entry. This value is not expected to remain constant across reIPLs."
::= { slapmPolicyNameEntry 2 }

slapmPolicyNameOfRule OBJECT-TYPE
SYNTAX      SlapmPolicyRuleName
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
   "The unique name that identifies a policy rule definition."
::= { slapmPolicyNameEntry 3 }

-- Sla Performance Monitoring Policy Rule Statistics Table

slapmPolicyRuleStatsTable OBJECT-TYPE
SYNTAX SEQUENCE OF SlapmPolicyRuleStatsEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
   "Provides statistics on a per system and a per policy rule basis."
::= { slapmTableObjects 5 }

slapmPolicyRuleStatsEntry OBJECT-TYPE
SYNTAX SlapmPolicyRuleStatsEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
   "Defines an entry in the slapmPolicyRuleStatsTable. This table defines a set of statistics that is kept on a per system and per policy rule basis.

Entries in this table are not created or deleted via SNMP but reflect the set of policy rule definitions known at a system."
INDEX {
   slapmPolicyNameSystemAddress,
slapmPolicyNameIndex
}
::= { slapmPolicyRuleStatsTable 1 }

SlapmPolicyRuleStatsEntry ::=  
SEQUENCE {
  slapmPolicyRuleStatsOperStatus     INTEGER,
  slapmPolicyRuleStatsActiveConns    Gauge32,
  slapmPolicyRuleStatsTotalConns     Counter32,
  slapmPolicyRuleStatsLastActivated  DateAndTime,
  slapmPolicyRuleStatsLastMapping    DateAndTime,
  slapmPolicyRuleStatsInOctets       Counter32,
  slapmPolicyRuleStatsOutOctets      Counter32,
  slapmPolicyRuleStatsConnLimit      Unsigned32,
  slapmPolicyRuleStatsCountAccepts   Counter32,
  slapmPolicyRuleStatsCountDenies    Counter32,
  slapmPolicyRuleStatsInDiscards     Counter32,
  slapmPolicyRuleStatsOutDiscards    Counter32,
  slapmPolicyRuleStatsInPackets      Counter32,
  slapmPolicyRuleStatsOutPackets     Counter32,
  slapmPolicyRuleStatsInProOctets    Counter32,
  slapmPolicyRuleStatsOutProOctets   Counter32,
  slapmPolicyRuleStatsInRsvpFlows    Counter32,
  slapmPolicyRuleStatsActRsvpFlows   Gauge32
}

slapmPolicyRuleStatsOperStatus OBJECT-TYPE
SYNTAX INTEGER {
inactive(1),
active(2),
deleteNeeded(3)
}
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The state of a policy entry:

  inactive(1)  - An policy entry was either defined by local system definition or
discovered via
a directory search but has not been activated (not currently being used).

  active(2)    - Policy entry is being used to affect traffic flows.

  deleteNeeded(3) - Either though local implementation
dependent methods or by discovering that the directory entry corresponding to this table entry no longer exists and slapmPolicyPurgeTime needs to expire before attempting to remove the corresponding slapmPolicyStatsEntry and any dependent slapmPolicyMonitor table entries.

Note: a policy rule in a state other than active(2) is not being used to affect traffic flows.

::= { slapmPolicyRuleStatsEntry 1 }

slapmPolicyRuleStatsActiveConns OCTET STRING
SYNTAX Gauge32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The number of active TCP connections that are affected by the corresponding policy entry."
::= { slapmPolicyRuleStatsEntry 2 }

slapmPolicyRuleStatsTotalConns OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The number of total TCP connections that are affected by the corresponding policy entry."
::= { slapmPolicyRuleStatsEntry 3 }

slapmPolicyRuleStatsLActivated OBJECT-TYPE
SYNTAX DateAndTime
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The timestamp for when the corresponding policy entry was last activated. The value of this object serves as the discontinuity event indicator when polling entries in this table. The value of this object is updated on transition of slapmPolicyRuleStatsOperStatus into the active(2) state."
DEFVAL { '0000000000000000'H }
::= { slapmPolicyRuleStatsEntry 4 }

slapmPolicyRuleStatsLastMapping OBJECT-TYPE
SYNTAX DateAndTime
MAX-ACCESS read-only
STATUS current
...
DESCRIPTION
"The timestamp for when the last time
that the associated policy entry was used."
DEFVAL { '0000000000000000'H }
::= { slapmPolicyRuleStatsEntry 5 }

slapmPolicyRuleStatsInOctets OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of octets that was received by IP for an
entity that map to this entry."
::= { slapmPolicyRuleStatsEntry 6 }

slapmPolicyRuleStatsOutOctets OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of octets that was transmitted by IP for an
entity that map to this entry."
::= { slapmPolicyRuleStatsEntry 7 }

slapmPolicyRuleStatsConnLimit OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The limit for the number of active TCP connections that
are allowed for this policy definition. A value of zero
for this object implies that a connection limit has not
been specified."
::= { slapmPolicyRuleStatsEntry 8 }

slapmPolicyRuleStatsCountAccepts OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"This counter is incremented when a policy action’s
Permission value is set to Accept and a session
(TCP connection) is accepted."
::= { slapmPolicyRuleStatsEntry 9 }

slapmPolicyRuleStatsCountDenies OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS     current
DESCRIPTION  
"This counter is incremented when a policy action’s
Permission value is set to Deny and a session is denied,
or when a session (TCP connection) is rejected due to a
policy’s connection limit (slapmPolicyRuleStatsConnectLimit)
being reached."
 ::= { slapmPolicyRuleStatsEntry 10 }

slapmPolicyRuleStatsInDiscards OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  
"This counter counts the number of in octets discarded.
This occurs when an error is detected. Examples of this
are buffer overflow, checksum error, or bad packet format."
 ::= { slapmPolicyRuleStatsEntry 11 }

slapmPolicyRuleStatsOutDiscards OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  
"This counter counts the number of out octets discarded.
Examples of this are buffer overflow, checksum error, or
bad packet format."
 ::= { slapmPolicyRuleStatsEntry 12 }

slapmPolicyRuleStatsInPackets OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  
"This counter counts the number of in packets received
that relate to this policy entry from IP."
 ::= { slapmPolicyRuleStatsEntry 13 }

slapmPolicyRuleStatsOutPackets OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  
"This counter counts the number of out packets sent
by IP that relate to this policy entry."
 ::= { slapmPolicyRuleStatsEntry 14 }
slapmPolicyRuleStatsInProOctets OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  
"This counter counts the number of in octets that are
determined to be within profile."
 ::= { slapmPolicyRuleStatsEntry 15 }

slapmPolicyRuleStatsOutProOctets OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  
"This counter counts the number of out octets that are
determined to be within profile."
 ::= { slapmPolicyRuleStatsEntry 16 }

slapmPolicyRuleStatsMinRate OBJECT-TYPE
SYNTAX      Unsigned32
UNITS       "Kilobits per second"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  
"The minimum transfer rate defined for this entry."
 ::= { slapmPolicyRuleStatsEntry 17 }

slapmPolicyRuleStatsMaxRate OBJECT-TYPE
SYNTAX      Unsigned32
UNITS       "Kilobits per second"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  
"The maximum transfer rate defined for this entry."
 ::= { slapmPolicyRuleStatsEntry 18 }

slapmPolicyRuleStatsMaxDelay OBJECT-TYPE
SYNTAX      Unsigned32
UNITS       "milliseconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION  
"The maximum delay defined for this entry."
 ::= { slapmPolicyRuleStatsEntry 19 }
STATUS current
DESCRIPTION "Total number of RSVP flows that have been activated."
::= { slapmPolicyRuleStatsEntry 20 }

slapmPolicyRuleStatsActRsvpFlows OBJECT-TYPE
SYNTAX Gauge32
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Current number of active RSVP flows."
::= { slapmPolicyRuleStatsEntry 21 }

-- SLA Performance Monitoring Policy Rule Monitor Table

slapmPRMonTable OBJECT-TYPE
SYNTAX SEQUENCE OF SlapmPRMonEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "Provides a method of monitoring policies and their effect at a system."
::= { slapmTableObjects 6 }

slapmPRMonEntry OBJECT-TYPE
SYNTAX SlapmPRMonEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION "Defines an entry in the slapmPRMonTable. This table defines which policies should be monitored on a per policy rule basis."

An attempt to set any read-create object defined within an slapmPRMonEntry while the value of slapmPRMonRowStatus is active(1) will result in an inconsistentValue error.

INDEX {
  slapmPRMonOwnerIndex,
  slapmPRMonSystemAddress,
  slapmPRMonIndex
}
::= { slapmPRMonTable 1 }

SlapmPRMonEntry ::= SEQUENCE {
  slapmPRMonOwnerIndex SnmpAdminString,
  slapmPRMonSystemAddress OCTET STRING,
  slapmPRMonIndex Unsigned32,
slapmPRMonControl BITS,
slapmPRMonStatus SlapmStatus,
slapmPRMonInterval Unsigned32,
slapmPRMonIntTime DateAndTime,
slapmPRMonCurrentInRate Gauge32,
slapmPRMonCurrentOutRate Gauge32,
slapmPRMonMinRateLow Unsigned32,
slapmPRMonMinRateHigh Unsigned32,
slapmPRMonMaxRateHigh Unsigned32,
slapmPRMonMaxRateLow Unsigned32,
slapmPRMonMaxDelayHigh Unsigned32,
slapmPRMonMaxDelayLow Unsigned32,
slapmPRMonMinInRateNotAchieves Counter32,
slapmPRMonMaxInRateExceeds Counter32,
slapmPRMonMaxDelayExceeds Counter32,
slapmPRMonMinOutRateNotAchieves Counter32,
slapmPRMonMaxOutRateExceeds Counter32,
slapmPRMonCurrentDelayRate Gauge32,
slapmPRMonRowStatus RowStatus
}

slapmPRMonOwnerIndex OBJECT-TYPE
SYNTAX SnmpAdminString (SIZE(0..16))
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"To facilitate the provisioning of access control by a security administrator using the View-Based Access Control Model (RFC 2575, VACM) for tables in which multiple users may need to independently create or modify entries, the initial index is used as an 'owner index'. Such an initial index has a syntax of SnmpAdminString, and can thus be trivially mapped to a securityName or groupName as defined in VACM, in accordance with a security policy.

All entries in that table belonging to a particular user will have the same value for this initial index. For a given user’s entries in a particular table, the object identifiers for the information in these entries will have the same subidentifiers (except for the 'column' subidentifier) up to the end of the encoded owner index. To configure VACM to permit access to this portion of the table, one would create vacmViewTreeFamilyTable entries with the value of vacmViewTreeFamilySubtree including the owner index portion, and vacmViewTreeFamilyMask ‘wildcarding’ the column subidentifier. More elaborate configurations are possible."

White Experimental [Page 45]
::= { slapmPRMonEntry 1 }

slapmPRMonSystemAddress OBJECT-TYPE
SYNTAX OCTET STRING (SIZE(0 | 4 | 16))
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"Address of a system that an Policy definition relates to. A zero length octet string can be used to indicate that only a single system is being represented. Otherwise, the length of the octet string should be 4 for an ipv4 address and 16 for an ipv6 address."
::= { slapmPRMonEntry 2 }

slapmPRMonIndex OBJECT-TYPE
SYNTAX Unsigned32
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION
"An slapmPolicyNameTable index, slapmPolicyNameIndex, that points to the unique name associated with a policy rule definition."
::= { slapmPRMonEntry 3 }

slapmPRMonControl OBJECT-TYPE
SYNTAX BITS {
    monitorMinRate(0),
    monitorMaxRate(1),
    monitorMaxDelay(2),
    enableAggregateTraps(3),
    enableSubcomponentTraps(4),
    monitorSubcomponents(5)
}
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The value of this object determines the type and level of monitoring that is applied to a policy rule. The value of this object can’t be changed once the table entry that it is a part of is activated via a slapmPRMonRowStatus transition to active state.

monitorMinRate(0) - Monitor minimum transfer rate.
monitorMaxRate(1) - Monitor maximum transfer rate.
monitorMaxDelay(2) - Monitor maximum delay.
enableAggregateTraps(3) - The enableAggregateTraps(3) BITS setting enables notification generation when monitoring a policy rule as an
aggregate using the values in the corresponding
slapmPRMonStatsEntry. By default this function
is not enabled.

enableSubcomponentTraps(4) - This BITS setting enables
notification generation when monitoring all
subcomponents that are mapped to an corresponding
slapmPRMonStatsEntry. By default this
function is not enabled.

monitorSubcomponents(5) - This BITS setting enables
monitoring of each subcomponent (typically a
TCP connection or UDP listener) individually.

DEFVAL { { monitorMinRate, monitorMaxRate,
monitorMaxDelay } }
 ::= { slapmPRMonEntry 4 }

slapmPRMonStatus OBJECT-TYPE
SYNTAX SlapmStatus
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The value of this object indicates when a monitored
value has not meet a threshold or isn’t meeting the
defined service level. The SlapmStatus TEXTUAL-CONVENTION
defines two levels of not meeting a threshold. The first
set:

    slaMinInRateNotAchieved(0),
slaMaxInRateExceeded(1),
slaMaxDelayExceeded(2),
slaMinOutRateNotAchieved(3),
slaMaxOutRateExceeded(4)

are used to indicate when the SLA as an aggregate is
not meeting a threshold while the second set:

    monitorMinInRateNotAchieved(5),
monitorMaxInRateExceeded(6),
monitorMaxDelayExceeded(7),
monitorMinOutRateNotAchieved(8),
monitorMaxOutRateExceeded(9)

indicate that at least one subcomponent is not meeting
a threshold."
 ::= { slapmPRMonEntry 5 }

slapmPRMonInterval OBJECT-TYPE
SYNTAX Unsigned32 (15..86400) -- 15 second min, 24 hour max
UNITS "seconds"
MAX-ACCESS read-create
STATUS current
DESCRIPTION "The number of seconds that defines the sample period."
DEFVAL {20} -- 20 seconds
::= { slapmPRMonEntry 6 }

slapmPRMonIntTime OBJECT-TYPE
SYNTAX DateAndTime
MAX-ACCESS read-only
STATUS current
DESCRIPTION "The timestamp for when the last interval ended."
DEFVAL {'0000000000000000'H}
::= { slapmPRMonEntry 7 }

slapmPRMonCurrentInRate OBJECT-TYPE
SYNTAX Gauge32
UNITS "kilobits per second"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Using the value of the corresponding slapmPRMonInterval, slapmPolicyRuleStatsInOctets is sampled and then divided by slapmPRMonInterval to determine the current in transfer rate."
::= { slapmPRMonEntry 8 }

slapmPRMonCurrentOutRate OBJECT-TYPE
SYNTAX Gauge32
UNITS "kilobits per second"
MAX-ACCESS read-only
STATUS current
DESCRIPTION "Using the value of the corresponding slapmPolicyMonInterval, slapmPolicyRuleStatsOutOctets is sampled and then divided by slapmPRMonInterval to determine the current out transfer rate."
::= { slapmPRMonEntry 9 }

slapmPRMonMinRateLow OBJECT-TYPE
SYNTAX Unsigned32
UNITS "kilobits per second"
MAX-ACCESS read-create
STATUS current
DESCRIPTION "The threshold for generating a slapmPolicyRuleMonNotOkay notification, signalling that a monitored minimum transfer rate has not been meet."
A slapmPolicyRuleMonNotOkay notification is not generated again for an slapmPRMonEntry until the minimum transfer rate exceeds slapmPRMonMinRateHigh (a slapmPolicyRuleMonOkay notification is then transmitted) and then fails below slapmPRMonMinRateLow. This behavior reduces the slapmPolicyRuleMonNotOkay notifications that are transmitted.

A value of zero for this object is returned when the slapmPRMonControl monitorMinRate(0) is not enabled. When enabled the default value for this object is the min rate value specified in the associated action definition minus 10%. If the action definition doesn’t have a min rate defined then there is no default for this object and a value MUST be specified prior to activating this entry when monitorMinRate(0) is selected.

Note: The corresponding slapmPRMonControl BITS setting, enableAggregateTraps(3), MUST be selected in order for any notification relating to this entry to potentially be generated."

::= { slapmPRMonEntry 10 }

slapmPRMonMinRateHigh OBJECT-TYPE
SYNTAX      Unsigned32
UNITS       "kilobits per second"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
"The threshold for generating a slapmPolicyRuleMonOkay notification, signalling that a monitored minimum transfer rate has increased to an acceptable level.

A value of zero for this object is returned when the slapmPRMonControl monitorMinRate(0) is not enabled. When enabled the default value for this object is the min rate value specified in the associated action definition plus 10%. If the action definition doesn’t have a min rate defined then there is no default for this object and a value MUST be specified prior to activating this entry when monitorMinRate(0) is selected.

Note: The corresponding slapmPRMonControl BITS setting, enableAggregateTraps(3), MUST be selected in order for any notification relating to this entry to
slapmPRMonMaxRateHigh OBJECT-TYPE
SYNTAX Unsigned32
UNITS "kilobits per second"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The threshold for generating a slapmPolicyRuleMonNotOkay notification, signalling that a monitored maximum transfer rate has been exceeded.

A slapmPolicyRuleNotOkay notification is not generated again for an slapmPRMonEntry until the maximum transfer rate fails below slapmPRMonMaxRateLow (a slapmPolicyRuleMonOkay notification is then transmitted) and then raises above slapmPRMonMaxRateHigh. This behavior reduces the slapmPolicyRuleMonNotOkay notifications that are transmitted.

A value of zero for this object is returned when the slapmPRMonControl monitorMaxRate(1) is not enabled. When enabled the default value for this object is the max rate value specified in the associated action definition plus 10%. If the action definition doesn’t have a max rate defined then there is no default for this object and a value MUST be specified prior to activating this entry when monitorMaxRate(1) is selected.

Note: The corresponding slapmPRMonControl BITS setting, enableAggregateTraps(3), MUST be selected in order for any notification relating to this entry to potentially be generated."

::= { slapmPRMonEntry 11 }

slapmPRMonMaxRateLow OBJECT-TYPE
SYNTAX Unsigned32
UNITS "kilobits per second"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The threshold for generating a slapmPolicyRuleMonOkay notification, signalling that a monitored maximum transfer rate has fallen to an acceptable level.
A value of zero for this object is returned when the slapmPRMonControl monitorMaxRate(1) is not enabled. When enabled the default value for this object is the max rate value specified in the associated action definition minus 10%. If the action definition doesn’t have a max rate defined then there is no default for this object and a value MUST be specified prior to activating this entry when monitorMaxRate(1) is selected.

Note: The corresponding slapmPRMonControl BITS setting, enableAggregateTraps(3), MUST be selected in order for any notification relating to this entry to potentially be generated.

\[ ::= \{ slapmPRMonEntry 13 \} \]

**slapmPRMonMaxDelayHigh**

**OBJECT-TYPE**

**SYNTAX** Unsigned32

**UNITS** "milliseconds"

**MAX-ACCESS** read-create

**STATUS** current

**DESCRIPTION**

"The threshold for generating a slapmPolicyRuleMonNotOkay notification, signalling that a monitored maximum delay rate has been exceeded. A slapmPolicyRuleMonNotOkay notification is not generated again for an slapmPRMonEntry until the maximum delay rate falls below slapmPRMonMaxDelayLow (a slapmPolicyRuleMonOkay notification is then transmitted) and raises above slapmPRMonMaxDelayHigh. This behavior reduces the slapmPolicyRuleMonNotOkay notifications that are transmitted.

A value of zero for this object is returned when the slapmPRMonControl monitorMaxDelay(4) is not enabled. When enabled the default value for this object is the max delay value specified in the associated action definition plus 10%. If the action definition doesn’t have a max delay defined then there is no default for this object and a value MUST be specified prior to activating this entry when monitorMaxDelay(4) is selected.

Note: The corresponding slapmPRMonControl BITS setting, enableAggregateTraps(3), MUST be selected in order for any notification relating to this entry to..."
The threshold for generating a slapmPolicyRuleMonOkay notification, signalling that a monitored maximum delay rate has fallen to an acceptable level.

A value of zero for this object is returned when the slapmPRMonControl monitorMaxDelay(4) is not enabled. When enabled the default value for this object is the max delay value specified in the associated action definition minus 10%. If the action definition doesn’t have a max delay defined then there is no default for this object and a value MUST be specified prior to activating this entry when monitorMaxDelay(4) is selected.

Note: The corresponding slapmPRMonControl BITS setting, enableAggregateTraps(3), MUST be selected in order for any notification relating to this entry to potentially be generated.
RFC 2758 SLAPM-MIB February 2000

SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of times that a maximum delay in rate
was exceeded."
::= { slapmPRMonEntry 18 }

slapmPRMonMinOutRateNotAchieves OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of times that a minimum transfer out rate
was not achieved."
::= { slapmPRMonEntry 19 }

slapmPRMonMaxOutRateExceeds OBJECT-TYPE
SYNTAX Counter32
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of times that a maximum transfer out rate
was exceeded."
::= { slapmPRMonEntry 20 }

slapmPRMonCurrentDelayRate OBJECT-TYPE
SYNTAX Gauge32
UNITS "milliseconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The current delay rate for this entry.  This is
calculated by taking the average of the TCP
round trip times for all associating
slapmSubcomponentTable entries within a interval."
::= { slapmPRMonEntry 21 }

slapmPRMonRowStatus OBJECT-TYPE
SYNTAX RowStatus
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"This object allows entries to be created and deleted
in the slapmPRMonTable.  An entry in this table
is deleted by setting this object to destroy(6).

Removal of an corresponding (same policy index)
slapmPolicyRuleStatsEntry has the side effect of the automatic deletion an entry in this table.

Note that an attempt to set any read-create object defined within an slapmPRMonEntry while the value of slapmPRMonRowStatus is active(1) will result in an inconsistentValue error.

 ::= { slapmPRMonEntry 22 }

-- Notifications

slapmMonitoredEventNotAchieved NOTIFICATION-TYPE
OBJECTS {
  slapmPolicyMonitorIntTime,
  slapmPolicyMonitorControl,
  slapmPolicyMonitorStatus,
  slapmPolicyMonitorStatus,
  slapmPolicyMonitorCurrentInRate,
  slapmPolicyMonitorCurrentOutRate,
  slapmPolicyMonitorCurrentDelayRate
}
STATUS deprecated
DESCRIPTION
"This notification is generated when an monitored event is not achieved with respect to threshold. This applies only towards monitoring a policy traffic profile as an aggregate via an associating slapmPolicyStatsEntry. The value of slapmPolicyMonitorControl can be examined to determine what is being monitored. The first slapmPolicyMonitorStatus value supplies the current monitor status while the 2nd value supplies the previous status.

Note: The corresponding slapmPolicyMonitorControl BITS setting, enableAggregateTraps(3), MUST be selected in order for this notification to potentially be generated."
::= { slapmNotifications 1 }

slapmMonitoredEventOkay NOTIFICATION-TYPE
OBJECTS {
  slapmPolicyMonitorIntTime,
  slapmPolicyMonitorControl,
  slapmPolicyMonitorStatus,
  slapmPolicyMonitorStatus,
  slapmPolicyMonitorCurrentInRate,
  slapmPolicyMonitorCurrentOutRate,
slapmPolicyMonitorCurrentDelayRate
}

STATUS deprecated

DESCRIPTION

"This notification is generated when a monitored event has improved to an acceptable level. This applies only towards monitoring a policy traffic profile as an aggregate via an associating slapmPolicyStatsEntry. The value of slapmPolicyMonitorControl can be examined to determine what is being monitored. The first slapmPolicyMonitorStatus value supplies the current monitor status while the 2nd value supplies the previous status.

Note: The corresponding slapmPolicyMonitorControl BITS setting, enableAggregateTraps(3), MUST be selected in order for this notification to potentially be generated."

::= { slapmNotifications 2 }

slapmPolicyProfileDeleted NOTIFICATION-TYPE

OBJECTS {
  slapmPolicyStatsActiveConns,
  slapmPolicyStatsTotalConns,
  slapmPolicyStatsFirstActivated,
  slapmPolicyStatsLastMapping,
  slapmPolicyStatsInOctets,
  slapmPolicyStatsOutOctets,
  slapmPolicyStatsConnectionLimit,
  slapmPolicyStatsCountAccepts,
  slapmPolicyStatsCountDenies,
  slapmPolicyStatsInDiscards,
  slapmPolicyStatsOutDiscards,
  slapmPolicyStatsInPackets,
  slapmPolicyStatsOutPackets,
  slapmPolicyStatsInProfileOctets,
  slapmPolicyStatsOutProfileOctets,
  slapmPolicyStatsMinRate,
  slapmPolicyStatsMaxRate,
  slapmPolicyStatsMaxDelay
}

STATUS deprecated

DESCRIPTION

"A slapmPolicyDeleted notification is sent when a slapmPolicyStatsEntry is deleted if the value of slapmPolicyTrapEnable is enabled(1)."

::= { slapmNotifications 3 }
slapmPolicyMonitorDeleted NOTIFICATION-TYPE
OBJECTS {
    slapmPolicyMonitorStatus,
    slapmPolicyMonitorInterval,
    slapmPolicyMonitorIntTime,
    slapmPolicyMonitorCurrentInRate,
    slapmPolicyMonitorCurrentOutRate,
    slapmPolicyMonitorCurrentDelayRate,
    slapmPolicyMonitorMinRateLow,
    slapmPolicyMonitorMinRateHigh,
    slapmPolicyMonitorMaxRateHigh,
    slapmPolicyMonitorMaxRateLow,
    slapmPolicyMonitorMaxDelayHigh,
    slapmPolicyMonitorMaxDelayLow,
    slapmPolicyMonitorMinInRateNotAchieves,
    slapmPolicyMonitorMaxInRateExceeds,
    slapmPolicyMonitorMaxDelayExceeds,
    slapmPolicyMonitorMinOutRateNotAchieves,
    slapmPolicyMonitorMaxOutRateExceeds
}
STATUS deprecated
DESCRIPTION
"A slapmPolicyMonitorDeleted notification is sent when a
slapmPolicyMonitorEntry is deleted if the value of
slapmPolicyTrapEnable is enabled(1)."
::= { slapmNotifications 4 }

slapmSubcomponentMonitoredEventNotAchieved NOTIFICATION-TYPE
OBJECTS {
    slapmSubcomponentSystemAddress,
    slapmSubcomponentPolicyName,
    slapmSubcomponentTrafficProfileName,
    slapmSubcomponentMonitorStatus,
    slapmSubcomponentMonitorStatus,
    slapmSubcomponentMonitorIntTime,
    slapmSubcomponentMonitorCurrentInRate,
    slapmSubcomponentMonitorCurrentOutRate,
    slapmSubcomponentTcpRoundTripTime
}
STATUS deprecated
DESCRIPTION
"This notification is generated when a monitored value
does not achieved a threshold specification.  This
applies only towards monitoring the individual components
of a policy traffic profile.  The value of the
corresponding slapmPolicyMonitorControl can be examined
to determine what is being monitored.  The first
slapmSubcomponentMonitorStatus value supplies the current
monitor status while the 2nd value supplies the previous status.

Note: The corresponding slapmPolicyMonitorControl BITS setting, enableSubcomponentTraps(4), MUST be selected in order for this notification to potentially be generated.

::= { slapmNotifications 5 }

slapmSubcomponentMonitoredEventOkay NOTIFICATION-TYPE OBJECTS {
   slapmSubcomponentSystemAddress,
   slapmSubcomponentPolicyName,
   slapmSubcomponentTrafficProfileName,
   slapmSubcomponentMonitorStatus,
   slapmSubcomponentMonitorStatus,
   slapmSubcomponentMonitorIntTime,
   slapmSubcomponentMonitorCurrentInRate,
   slapmSubcomponentMonitorCurrentOutRate,
   slapmSubcomponentTcpRoundTripTime
}
STATUS deprecated
DESCRIPTION
"This notification is generated when a monitored value has reached an acceptable level.

Note: The corresponding slapmPolicyMonitorControl BITS setting, enableSubcomponentTraps(3), MUST be selected in order for this notification to potentially be generated."
::= { slapmNotifications 6 }

slapmPolicyRuleMonNotOkay NOTIFICATION-TYPE OBJECTS {
   slapmPRMonIntTime,
   slapmPRMonControl,
   slapmPRMonStatus,
   slapmPRMonStatus,
   slapmPRMonCurrentInRate,
   slapmPRMonCurrentOutRate,
   slapmPRMonCurrentDelayRate
}
STATUS current
DESCRIPTION
"This notification is generated when an monitored event is not achieved with respect to a threshold. This applies only towards monitoring a policy rule as an aggregate via an associating slapmPolicyRuleStatsEntry. The value
of slapmPRMonControl can be examined to
determine what is being monitored. The first
slapmPRMonStatus value supplies the current
monitor status while the 2nd value supplies the
previous status.

Note: The corresponding slapmPRMonControl
BITS setting, enableAggregateTraps(3), MUST be
selected in order for this notification to
potentially be generated.

::= { slapmNotifications 7 }

slapmPolicyRuleMonOkay NOTIFICATION-TYPE
OBJECTS {
    slapmPRMonIntTime,
    slapmPRMonControl,
    slapmPRMonStatus,
    slapmPRMonStatus,
    slapmPRMonCurrentInRate,
    slapmPRMonCurrentOutRate,
    slapmPRMonCurrentDelayRate
}

STATUS current
DESCRIPTION
"This notification is generated when a monitored
event has improved to an acceptable level. This
applies only towards monitoring a policy rule
as an aggregate via an associating
slapmPolicyRuleStatsEntry. The value
of slapmPRMonControl can be examined to
determine what is being monitored. The first
slapmPRMonStatus value supplies the current
monitor status while the 2nd value supplies the
previous status.

Note: The corresponding slapmPRMonControl
BITS setting, enableAggregateTraps(3), MUST be
selected in order for this notification to
potentially be generated.

::= { slapmNotifications 8 }

slapmPolicyRuleDeleted NOTIFICATION-TYPE
OBJECTS {
    slapmPolicyRuleStatsActiveConns,
    slapmPolicyRuleStatsTotalConns,
    slapmPolicyRuleStatsLActivated,
    slapmPolicyRuleStatsLastMapping,
    slapmPolicyRuleStatsInOctets,
    slapmPolicyRuleStatsOutOctets,
A slapmPolicyRuleDeleted notification is sent when a slapmPolicyRuleStatsEntry is deleted if the value of slapmPolicyTrapEnable is enabled(1).

::= { slapmNotifications 9 }

slapmPolicyRuleMonDeleted NOTIFICATION-TYPE

OBJECTS {
  slapmPRMonControl,
  slapmPRMonStatus,
  slapmPRMonInterval,
  slapmPRMonIntTime,
  slapmPRMonCurrentInRate,
  slapmPRMonCurrentOutRate,
  slapmPRMonCurrentDelayRate,
  slapmPRMonMinRateLow,
  slapmPRMonMinRateHigh,
  slapmPRMonMaxRateHigh,
  slapmPRMonMaxRateLow,
  slapmPRMonMaxDelayHigh,
  slapmPRMonMaxDelayLow,
  slapmPRMonMinInRateNotAchieves,
  slapmPRMonMaxInRateExceeds,
  slapmPRMonMaxDelayExceeds,
  slapmPRMonMinOutRateNotAchieves,
  slapmPRMonMaxOutRateExceeds
}

STATUS current

DESCRIPTION
  "A slapmPolicyRuleMonDeleted notification is sent when a
  slapmPRMonEntry is deleted if the value of
  slapmPRMonTrapEnable is enabled(1)."

::= { slapmNotifications 9 }

slapmPolicyRuleMonDeleted NOTIFICATION-TYPE

OBJECTS {
  slapmPRMonControl,
  slapmPRMonStatus,
  slapmPRMonInterval,
  slapmPRMonIntTime,
  slapmPRMonCurrentInRate,
  slapmPRMonCurrentOutRate,
  slapmPRMonCurrentDelayRate,
  slapmPRMonMinRateLow,
  slapmPRMonMinRateHigh,
  slapmPRMonMaxRateHigh,
  slapmPRMonMaxRateLow,
  slapmPRMonMaxDelayHigh,
  slapmPRMonMaxDelayLow,
  slapmPRMonMinInRateNotAchieves,
  slapmPRMonMaxInRateExceeds,
  slapmPRMonMaxDelayExceeds,
  slapmPRMonMinOutRateNotAchieves,
  slapmPRMonMaxOutRateExceeds
}

STATUS current

DESCRIPTION
  "A slapmPolicyRuleMonDeleted notification is sent when a
  slapmPRMonEntry is deleted if the value of
slapmPolicyTrapEnable is enabled(1).
::= { slapmNotifications 10 }

slapmSubcMonitorNotOkay NOTIFICATION-TYPE
OBJECTS {
   slapmSubcomponentSystemAddress,
   slapmSubcomponentPolicyRuleIndex,
   slapmPRMonControl,
   slapmSubcomponentMonitorStatus,
   slapmSubcomponentMonitorStatus,
   slapmSubcomponentMonitorIntTime,
   slapmSubcomponentMonitorCurrentInRate,
   slapmSubcomponentMonitorCurrentOutRate,
   slapmSubcomponentTcpRoundTripTime
}
STATUS current
DESCRIPTION
"This notification is generated when a monitored value does not achieved a threshold specification. This applies only towards monitoring the individual components of a policy rule. The value of the corresponding slapmPRMonControl can be examined to determine what is being monitored. The first slapmSubcomponentMonitorStatus value supplies the current monitor status while the 2nd value supplies the previous status.

Note: The corresponding slapmPRMonControl BITS setting, enableSubcomponentTraps(4), MUST be selected in order for this notification to potentially be generated."
::= { slapmNotifications 11 }

slapmSubcMonitorOkay NOTIFICATION-TYPE
OBJECTS {
   slapmSubcomponentSystemAddress,
   slapmSubcomponentPolicyRuleIndex,
   slapmPRMonControl,
   slapmSubcomponentMonitorStatus,
   slapmSubcomponentMonitorStatus,
   slapmSubcomponentMonitorIntTime,
   slapmSubcomponentMonitorCurrentInRate,
   slapmSubcomponentMonitorCurrentOutRate,
   slapmSubcomponentTcpRoundTripTime
}
STATUS current
DESCRIPTION
"This notification is generated when a monitored value
has reached an acceptable level.

Note: The corresponding slapmPRMonControl
BITS setting, enableSubcomponentTraps(3), MUST be
selected in order for this notification to potentially
be generated."
::= { slapmNotifications 12 }

-- Conformance information
-- Compliance statements

slapmCompliances OBJECT IDENTIFIER ::= { slapmConformance 1 }
slapmGroups      OBJECT IDENTIFIER ::= { slapmConformance 2 }

-- Compliance statements

slapmCompliance MODULE-COMPLIANCE
STATUS  current
DESCRIPTION
"The compliance statement for the SLAPM-MIB."
MODULE  -- this module
MANDATORY-GROUPS {
  slapmBaseGroup2,
  slapmNotGroup2
}
GROUP slapmEndSystemGroup2
DESCRIPTION
"The contents of this group is required by end-system
implementations."
GROUP slapmEndSystemNotGroup2
DESCRIPTION
"The contents of this group is required by end-system
implementations."
GROUP slapmBaseGroup
DESCRIPTION
"The contents of this group has been deprecated in favor
of the new slapmBaseGroup2. Older implementations of this
MIB would continue its support of the contents of this
group."
GROUP slapmNotGroup
DESCRIPTION
"The contents of this group has been deprecated in favor
of the new slapmNotGroup2. Older implementations of this
MIB would continue its support of the contents of this
group."
GROUP slapmOptionalGroup
DESCRIPTION
"The contents of this group has been deprecated."
GROUP slapmEndSystemGroup
DESCRIPTION
"The contents of this group has been deprecated in favor of the new slapmEndSystemGroup2. Older implementations of this MIB would continue its support of the contents of this group."

GROUP slapmEndSystemNotGroup
DESCRIPTION
"The contents of this group has been deprecated in favor of the new slapmEndSystemNotGroup2. Older implementations of this MIB would continue its support of the contents of this group."

::= { slapmCompliances 1 }

-- MIB groupings

slapmBaseGroup OBJECT-GROUP
OBJECTS {
    slapmSpinLock,
    slapmPolicyCountQueries,
    slapmPolicyCountAccesses,
    slapmPolicyCountSuccessAccesses,
    slapmPolicyCountNotFounds,
    slapmPolicyPurgeTime,
    slapmPolicyTrapEnable,
    slapmPolicyStatsOperStatus,
    slapmPolicyStatsActiveConns,
    slapmPolicyStatsFirstActivated,
    slapmPolicyStatsLastMapping,
    slapmPolicyStatsInOctets,
    slapmPolicyStatsOutOctets,
    slapmPolicyStatsConnectionLimit,
    slapmPolicyStatsTotalConns,
    slapmPolicyStatsCountAccepts,
    slapmPolicyStatsCountDenies,
    slapmPolicyStatsInDiscards,
    slapmPolicyStatsOutDiscards,
    slapmPolicyStatsInPackets,
    slapmPolicyStatsOutPackets,
    slapmPolicyStatsMinRate,
    slapmPolicyStatsMaxRate,
    slapmPolicyStatsMaxDelay,
    slapmPolicyMonitorControl,
    slapmPolicyMonitorStatus,
    slapmPolicyMonitorInterval,
    slapmPolicyMonitorIntTime,
    slapmPolicyMonitorCurrentInRate,
    slapmPolicyMonitorCurrentOutRate,
slapmPolicyMonitorMinRateLow,
slapmPolicyMonitorMinRateHigh,
slapmPolicyMonitorMaxRateHigh,
slapmPolicyMonitorMaxRateLow,
slapmPolicyMonitorMaxDelayHigh,
slapmPolicyMonitorMaxDelayLow,
slapmPolicyMonitorMinInRateNotAchieves,
slapmPolicyMonitorMaxInRateExceeds,
slapmPolicyMonitorMaxDelayExceeds,
slapmPolicyMonitorMinOutRateNotAchieves,
slapmPolicyMonitorMaxOutRateExceeds,
slapmPolicyMonitorCurrentDelayRate,
slapmPolicyMonitorRowStatus

} STATUS deprecated
DESCRIPTION
"The group of objects defined by this MIB that are
required for all implementations to be compliant."
::= { slapmGroups 1 }

slapmOptionalGroup OBJECT-GROUP
OBJECTS {
  slapmPolicyStatsInProfileOctets,
  slapmPolicyStatsOutProfileOctets
}
STATUS deprecated
DESCRIPTION
"The group of objects defined by this MIB that are
optional."
::= { slapmGroups 2 }

slapmEndSystemGroup OBJECT-GROUP
OBJECTS {
  slapmPolicyTrapFilter,
  slapmSubcomponentProtocol,
  slapmSubcomponentSystemAddress,
  slapmSubcomponentPolicyName,
  slapmSubcomponentTrafficProfileName,
  slapmSubcomponentLastActivity,
  slapmSubcomponentInOctets,
  slapmSubcomponentOutOctets,
  slapmSubcomponentTcpOutBufferedOctets,
  slapmSubcomponentTcpInBufferedOctets,
  slapmSubcomponentTcpReXmts,
  slapmSubcomponentTcpRoundTripTime,
  slapmSubcomponentTcpRoundTripVariance,
  slapmSubcomponentInPdus,
  slapmSubcomponentOutPdus,
slapmSubcomponentApplName,
slapmSubcomponentMonitorStatus,
slapmSubcomponentMonitorIntTime,
slapmSubcomponentMonitorCurrentOutRate,
slapmSubcomponentMonitorCurrentInRate
}
STATUS deprecated
DESCRIPTION
"The group of objects defined by this MIB that are
required for end system implementations."
::= { slapmGroups 3 }

slapmNotGroup NOTIFICATION-GROUP
NOTIFICATIONS {
  slapmMonitoredEventNotAchieved,
  slapmMonitoredEventOkay,
  slapmPolicyProfileDeleted,
  slapmPolicyMonitorDeleted
}
STATUS deprecated
DESCRIPTION
"The group of notifications defined by this MIB that MUST
be implemented."
::= { slapmGroups 4 }

slapmEndSystemNotGroup NOTIFICATION-GROUP
NOTIFICATIONS {
  slapmSubcomponentMonitoredEventNotAchieved,
  slapmSubcomponentMonitoredEventOkay
}
STATUS deprecated
DESCRIPTION
"The group of objects defined by this MIB that are
required for end system implementations."
::= { slapmGroups 5 }

slapmBaseGroup2 OBJECT-GROUP
OBJECTS {
  slapmSpinLock,
  slapmPolicyCountQueries,
  slapmPolicyCountAccesses,
  slapmPolicyCountSuccessAccesses,
  slapmPolicyCountNotFounds,
  slapmPolicyPurgeTime,
  slapmPolicyTrapEnable,
  slapmPolicyNameOfRule,
  slapmPolicyRuleStatsOperStatus,
  slapmPolicyRuleStatsActiveConns,
slapmPolicyRuleStatsTotalConns,
slapmPolicyRuleStatsLActivated,
slapmPolicyRuleStatsLastMapping,
slapmPolicyRuleStatsInOctets,
slapmPolicyRuleStatsOutOctets,
slapmPolicyRuleStatsConnLimit,
slapmPolicyRuleStatsCountAccepts,
slapmPolicyRuleStatsCountDenies,
slapmPolicyRuleStatsInDiscards,
slapmPolicyRuleStatsOutDiscards,
slapmPolicyRuleStatsInPackets,
slapmPolicyRuleStatsOutPackets,
slapmPolicyRuleStatsInProOctets,
slapmPolicyRuleStatsOutProOctets,
slapmPolicyRuleStatsMinRate,
slapmPolicyRuleStatsMaxRate,
slapmPolicyRuleStatsMaxDelay,
slapmPolicyRuleStatsTotalRsvpFlows,
slapmPolicyRuleStatsActRsvpFlows,
slapmPRMonControl,
slapmPRMonStatus,
slapmPRMonInterval,
slapmPRMonIntTime,
slapmPRMonCurrentInRate,
slapmPRMonCurrentOutRate,
slapmPRMonMinRateLow,
slapmPRMonMinRateHigh,
slapmPRMonMaxRateHigh,
slapmPRMonMaxRateLow,
slapmPRMonMaxDelayHigh,
slapmPRMonMaxDelayLow,
slapmPRMonMinRateNotAchieves,
slapmPRMonMaxRateExceeds,
slapmPRMonMaxDelayExceeds,
slapmPRMonMinOutRateNotAchieves,
slapmPRMonMaxOutRateExceeds,
slapmPRMonCurrentDelayRate,
slapmPRMonRowStatus

STATUS current
DESCRIPTION
"The group of objects defined by this MIB that are
required for all implementations to be compliant."
::= { slapmGroups 6 }

slapmEndSystemGroup2 OBJECT-GROUP
OBJECTS {
  slapmPolicyTrapFilter,
slapmSubcomponentProtocol,
slapmSubcomponentSystemAddress,
slapmSubcomponentLastActivity,
slapmSubcomponentInOctets,
slapmSubcomponentOutOctets,
slapmSubcomponentTcpOutBufferedOctets,
slapmSubcomponentTcpInBufferedOctets,
slapmSubcomponentTcpReXmts,
slapmSubcomponentTcpRoundTripTime,
slapmSubcomponentTcpRoundTripVariance,
slapmSubcomponentInPdus,
slapmSubcomponentOutPdus,
slapmSubcomponentApplName,
slapmSubcomponentMonitorStatus,
slapmSubcomponentMonitorIntTime,
slapmSubcomponentMonitorCurrentOutRate,
slapmSubcomponentMonitorCurrentInRate,
slapmSubcomponentPolicyRuleIndex

status current

description
"The group of objects defined by this MIB that are
required for end system implementations."
 ::= { slapmGroups 7 }

slapmNotGroup2 NOTIFICATION-GROUP

NOTIFICATIONS {
  slapmPolicyRuleMonNotOkay,
  slapmPolicyRuleMonOkay,
  slapmPolicyRuleDeleted,
  slapmPolicyRuleMonDeleted

status current

description
"The group of notifications defined by this MIB that MUST
be implemented."
 ::= { slapmGroups 8 }

slapmEndSystemNotGroup2 NOTIFICATION-GROUP

NOTIFICATIONS {
  slapmSubcMonitorNotOkay,
  slapmSubcMonitorOkay

status current

description
"The group of objects defined by this MIB that are
required for end system implementations."
 ::= { slapmGroups 9 }
5.0 Security Considerations

Certain management information in the MIB defined by this document may be considered sensitive in some network environments. Therefore, authentication of received SNMP requests and controlled access to management information SHOULD be employed in such environments. The method for this authentication is a function of the SNMP Administrative Framework, and has not been expanded by this MIB.

To facilitate the provisioning of access control by a security administrator using the View-Based Access Control Model (VACM) defined in RFC 2575 for tables in which multiple users may need to independently create or modify entries, the initial index is used as an "owner index" (refer to slapmPRMonOwnerIndex in an slapmPRMonEntry). Such an initial index has a syntax of SnmpAdminString, and can thus be trivially mapped to a securityName or groupName as defined in VACM, in accordance with a security policy.

All entries in related tables belonging to a particular user will have the same value for this initial index. For a given user’s entries in a particular table, the object identifiers for the information in these entries will have the same subidentifiers (except for the "column" subidentifier) up to the end of the encoded owner index. To configure VACM to permit access to this portion of the table, one would create vacmViewTreeFamilyTable entries with the value of vacmViewTreeFamilySubtree including the owner index portion, and vacmViewTreeFamilyMask "wildcarding" the column subidentifier. More elaborate configurations are possible. The VACM access control mechanism described above provides control.

It is RECOMMENDED that the slapmPRMonTable (equivalent to the deprecated slapmPolicyMonitorTable) and the slapmSubcomponentTable not be supported in insecure environments.

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7.0 Acknowledgments

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8.0 References


Base for Network Management of TCP/IP-based internets: MIB-II",

M. and S. Waldbusser, "Structure of Management Information
Version 2 (SMIv2)", STD 58, RFC 2578, April 1999.

M. and S. Waldbusser, "Textual Conventions for SMIv2", STD 58,
RFC 2579, April 1999.

M. and S. Waldbusser, "Conformance Statements for SMIv2", STD 58,
RFC 2580, April 1999.

Operations for Version 2 of the Simple Network Management

Describing SNMP Management Frameworks", RFC 2571, April 1999.

Processing and Dispatching for the Simple Network Management
Protocol (SNMP)", RFC 2572, April 1999.


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