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Definitions of Managed Objects for Service Level Agreements Performance Monitoring

Status of this Memo

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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:

- o An overall architecture, described in RFC 2571 [7].
- o 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].
- o 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].
- o 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].

- o A set of fundamental applications described in RFC 2573 [9] and the view-based access control mechanism described in RFC 2575 [11].

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:

- o scalar objects
- o slapmPolicyNameTable
- o slapmPolicyRuleStatsTable (equivalent to the deprecated slapmPolicyStatsTable)
- o slapmPRMonTable (equivalent to the deprecated slapmPolicyMonitorTable)
- o 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 slapmPRMonControl BITS setting MUST be set in order for any notifications relating to slapmSubcomponetTable monitoring to be generated. The slapmPRMonControl 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
```

```
      REVISION     "200001240000Z"         -- 24 January 2000
      DESCRIPTION
          "This version published as RFC 2758."

      ::= { 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 a long 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
```

```
          }
      ::= { slapmPolicyStatsTable 1 }

   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 a 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,
             slapmSubcomponentApplName              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),
                     monitorMaxInRateExceeded(6),
                     monitorMaxDelayExceeded(7),
                     monitorMinOutRateNotAchieved(8),
                     monitorMaxOutRateExceeded(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
         slapmPolicyMonitorInterva)l, 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,
          slapmPolicyRuleStatsLActivated     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,
          slapmPolicyRuleStatsMinRate        Unsigned32,
          slapmPolicyRuleStatsMaxRate        Unsigned32,
          slapmPolicyRuleStatsMaxDelay       Unsigned32,
          slapmPolicyRuleStatsTotalRsvpFlows 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 OBJECT-TYPE
       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 }

   slapmPolicyRuleStatsTotalRsvpFlows OBJECT-TYPE
      SYNTAX      Counter32
      MAX-ACCESS  read-only
```

```
      STATUS      current
      DESCRIPTION
         "Total number of RSVP flows that have be 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."
```

```
      ::= { 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
```

```
         potentially be generated."
      ::= { slapmPRMonEntry 11 }

   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 12 }

   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
```

```
         potentially be generated."
      ::= { slapmPRMonEntry 14 }

   slapmPRMonMaxDelayLow OBJECT-TYPE
      SYNTAX      Unsigned32
      UNITS       "milliseconds"
      MAX-ACCESS  read-create
      STATUS      current
      DESCRIPTION
         "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."
      ::= { slapmPRMonEntry 15 }

   slapmPRMonMinInRateNotAchieves OBJECT-TYPE
      SYNTAX      Counter32
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
          "The number of times that a minimum transfer in rate
          was not achieved."
      ::= { slapmPRMonEntry 16 }

   slapmPRMonMaxInRateExceeds OBJECT-TYPE
      SYNTAX      Counter32
      MAX-ACCESS  read-only
      STATUS      current
      DESCRIPTION
          "The number of times that a maximum transfer in rate
          was exceeded."
      ::= { slapmPRMonEntry 17 }

   slapmPRMonMaxDelayExceeds OBJECT-TYPE
```

```
      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,
            slapmPolicyRuleStatsConnLimit,
            slapmPolicyRuleStatsCountAccepts,
            slapmPolicyRuleStatsCountDenies,
            slapmPolicyRuleStatsInDiscards,
            slapmPolicyRuleStatsOutDiscards,
            slapmPolicyRuleStatsInPackets,
            slapmPolicyRuleStatsOutPackets,
            slapmPolicyRuleStatsInProOctets,
            slapmPolicyRuleStatsOutProOctets,
            slapmPolicyRuleStatsMinRate,
            slapmPolicyRuleStatsMaxRate,
            slapmPolicyRuleStatsMaxDelay,
            slapmPolicyRuleStatsTotalRsvpFlows,
            slapmPolicyRuleStatsActRsvpFlows
        }
        STATUS  current
        DESCRIPTION
           "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
```

```
         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,
                slapmPRMonMinInRateNotAchieves,
                slapmPRMonMaxInRateExceeds,
                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 }
```

```
END
```

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 [11] 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.

6.0 Intellectual Property

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7.0 Acknowledgments

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