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Definitions of Managed Objects for
Service Level Agreements
Performance Monitoring
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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.

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[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 [RFC 1155](#) [14], [RFC 1212](#) [15] and [RFC 1215](#) [16]. The second version, called SMIV2, is described in [RFC 2578](#) [3], [RFC 2579](#) [4] and [RFC 2580](#) [5].
- o Message protocols for transferring management information. The first version of the SNMP message protocol is called SNMPv1 and described in [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 [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 Global simple objects
- o slapmPolicyNameTable

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- 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 were 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](#) Global simple objects

Global objects defined within SLAPM-MIB:

- o 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.

- o slapmPolicyCountQueries, slapmPolicyCountAccesses, slapmPolicyCountSuccessAccesses, and slapmPolicyCountNotFounds

Basic statistics on the amount of policy directory access that has occurred at a system.

- o 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.

- o slapmPolicyTrapEnable

This object enables or suppresses generation of slapmPolicyRuleDeleted or slapmPolicyRuleMonDeleted notifications.

- o 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, slapmPolciNameIndex, that is assigned by the implementation of this MIB.

[3.3](#) slapmPolicyRuleStatsTable

This table is functionally equivalent to the deprecated

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 [20], 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:

- o `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`.

- o `monitorMaxRate(1)`

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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`.

o `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.

o `enableAggregateTraps(3)`

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

o `enableSubcomponentTraps(4)`

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

o `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 SNMPv3 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,

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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
    SntpAdminString
        FROM SNMP-FRAMEWORK-MIB;      -- RFC2571
```

```
slapmMIB MODULE-IDENTITY
```

```
    LAST-UPDATED "9907280000Z"
    ORGANIZATION "Internet Engineering Task Force (IETF)"
    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."
 ::= { 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 a 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

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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 "1024a"
    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 simple objects

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```
slapmBaseObjects OBJECT IDENTIFIER ::= { slapmObjects 1 }
```

-- Simple Object Definitions

```
slapmSpinLock OBJECT-TYPE
    SYNTAX      TestAndIncr
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "An advisory lock used to allow cooperating applications
        to coordinate their use of the contents of this MIB. This
        typically occurs when an application seeks to create an
        new entry or alter an existing entry in
        slapmPRMonTable (or old slapmPolicyMonitorTable). A
        management implementation MAY utilize the slapmSpinLock to
        serialize its changes or additions. This usage is not
```

required. However, slapmSpinLock MUST be supported by agent implementations."
 ::= { slapmBaseObjects 1 }

slapmPolicyCountQueries OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The total number of times that a policy lookup occurred with respect to a policy agent.

This is the number of times that a reference was made to a policy definition at a system and includes the number of times that a policy repository was accessed, slapmPolicyCountAccesses. The object slapmPolicyCountAccesses should be less than slapmPolicyCountQueries when policy definitions are cached at a system."

::= { slapmBaseObjects 2 }

slapmPolicyCountAccesses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Total number of times that a policy repository was accessed with respect to a policy agent.

The value of this object should be less than slapmPolicyCountQueries, since typically policy entries are cached to minimize repository accesses."

::= { slapmBaseObjects 3 }

slapmPolicyCountSuccessAccesses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Total number of successful policy repository accesses with respect to a policy agent."
 ::= { slapmBaseObjects 4 }

slapmPolicyCountNotFounds OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current
DESCRIPTION
"Total number of policy repository accesses,
with respect to a policy agent, that
resulted in an entry not being located."
::= { slapmBaseObjects 5 }

slapmPolicyPurgeTime OBJECT-TYPE

SYNTAX Integer32 (0..3600) -- maximum of 1 hour
UNITS "seconds"
MAX-ACCESS read-write
STATUS current
DESCRIPTION

"The purpose of this object is to define the amount of time (in seconds) to wait before removing an slapmPolicyRuleStatsEntry (or old slapmPolicyStatsEntry) when a system detects that the associated policy definition has been deleted. This gives any polling management applications time to complete their last poll before an entry is removed. An slapmPolicyRuleStatsEntry (or old slapmPolicyStatsEntry) enters the deleteNeeded(3) state via slapmPolicyRuleStatsOperStatus (or old slapmPolicyStatsOperStatus) when a system first detects that the entry needs to be removed.

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

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

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

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

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

slapmPolicyTrapFilter  OBJECT-TYPE
    SYNTAX      Integer32 (0..64)
    UNITS       "intervals"
    MAX-ACCESS  read-create
    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

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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..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

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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 SYSDEF or discovered via
a directory search but has not been

- active(2) activated (not currently being used).
- Policy entry is being used to affect traffic flows.
- deleteNeeded(3) - Either through 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."
 ::= { slappmPolicyStatsEntry 16 }

slappmPolicyStatsOutPackets 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."
 ::= { slappmPolicyStatsEntry 17 }

slappmPolicyStatsInProfileOctets 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."
 ::= { slappmPolicyStatsEntry 18 }

slappmPolicyStatsOutProfileOctets 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."
 ::= { slappmPolicyStatsEntry 19 }

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

slappmPolicyStatsMaxRate OBJECT-TYPE
SYNTAX      Integer32
UNITS       "Kilobits per second"
MAX-ACCESS  read-only
STATUS      deprecated
DESCRIPTION
    "The maximum transfer rate defined for this entry."

```

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```
::= { 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,

```

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```

    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..16))

MAX-ACCESS not-accessible

STATUS deprecated

DESCRIPTION

"Address of a system that an Policy definition relates to.

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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.
```

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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
```

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```
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 ::=
```

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```
SEQUENCE {
```

```
slapmSubcomponentRemAddress
```

```
slapmSubcomponentRemPort
```

```
slapmSubcomponentLocalAddress
```

```
slapmSubcomponentLocalPort
```

```
OCTET STRING,
```

```
Integer32,
```

```
OCTET STRING,
```

```
Integer32,
```


slapmSubcomponentProtocol	INTEGER,
slapmSubcomponentSystemAddress	OCTET STRING,
slapmSubcomponentPolicyName	SlapmNameType,
slapmSubcomponentTrafficProfileName	SlapmNameType,
slapmSubcomponentLastActivity	DateAndTime,
slapmSubcomponentInOoctets	Counter32,
slapmSubcomponentOutOoctets	Counter32,
slapmSubcomponentTcpOutBufferedOoctets	Counter32,
slapmSubcomponentTcpInBufferedOoctets	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..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..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 number of 100ths of seconds since 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

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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
---------------------------	----------

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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 }

slapmSubcomponentAppName 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

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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), slapmSubcomponentStatsIn0ctets is divided by slapmSubcomponentMonitorInterval to determine the current in transfer rate.

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

```
 ::= { slapmSubcomponentEntry 22 }
```

slapmSubcomponentMonitorCurrentOutRate OBJECT-TYPE

```
SYNTAX      Gauge32
UNITS       "kilobits per second"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
```

"Using the value of the corresponding slapmPRMonInterval (or slapmPolicyMonitorInterval), slapmSubcomponentStatsOut0ctets 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 (1..4294967295)
```

```

MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "Points to an slapmPolicyNameEntry to indicate the
    policy naming that relates to this entry."
 ::= { 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..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."

```


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```
::= { 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."
```


- active(2) - a directory search but has not been activated (not currently being used). - Policy entry is being used to affect traffic flows.
- deleteNeeded(3) - Either through 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."
 ::= { slapmPolicyRuleStatsEntry 1 }

slapmPolicyRuleStatsActiveConns OBJECT-TYPE

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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."
 ::= { slappmPolicyRuleStatsEntry 13 }

slappmPolicyRuleStatsOutPackets 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."
 ::= { slappmPolicyRuleStatsEntry 14 }

slappmPolicyRuleStatsInProOctets 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."
 ::= { slappmPolicyRuleStatsEntry 15 }

slappmPolicyRuleStatsOutProOctets 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."
 ::= { slappmPolicyRuleStatsEntry 16 }

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

slappmPolicyRuleStatsMaxRate OBJECT-TYPE

```

```

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

slampPolicyRuleStatsMaxDelay OBJECT-TYPE
SYNTAX      Unsigned32
UNITS       "milliseconds"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The maximum delay defined for this entry."
 ::= { slampPolicyRuleStatsEntry 19 }

slampPolicyRuleStatsTotalRsvpFlows OBJECT-TYPE
SYNTAX      Counter32
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "Total number of RSVP flows that have be activated."
 ::= { slampPolicyRuleStatsEntry 20 }

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

-- SLA Performance Monitoring Policy Rule Monitor Table

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

slampPRMonEntry OBJECT-TYPE
SYNTAX SlampPRMonEntry
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."

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```
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..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)

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BITS setting enables notification generation when monitoring a policy traffic profile 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."
```

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```
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

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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.

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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

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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."
 ::= { 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

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```
    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
```

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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

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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,
```

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```
    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 }

```

```

slapmSubcomponentMonitorNotOkay 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
```

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```
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
```

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```
    "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

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"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,

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```
        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
}

```

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```

    }
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 defined in this MIB 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.

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

This document is an individual submission and not the product of any IETF working group. Special thanks should be given to Robert Moore of IBM for his numerous reviews.

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8.0 References

- [1] Case, J., M. Fedor, M. Schoffstall, J. Davin, "Simple Network Management Protocol", [RFC 1157](#), SNMP Research, Performance Systems International, MIT Laboratory for Computer Science, May 1990.

- [2] McCloghrie, K., and M. Rose, Editors, "Management Information Base for Network Management of TCP/IP-based internets: MIB-II", STD 17, [RFC 1213](#), Hughes LAN Systems, Performance Systems International, March 1991.
- [3] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M., and S. Waldbusser, "Structure of Management Information Version 2 (SMIV2)", [RFC 2578](#), STD 58, Cisco Systems, SNMPinfo, TU Braunschweig, SNMP Research, First Virtual Holdings, International Network Services, April 1999.
- [4] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M., and S. Waldbusser, "Textual Conventions for SMIV2", [RFC 2579](#), STD 58, Cisco Systems, SNMPinfo, TU Braunschweig, SNMP Research, First Virtual Holdings, International Network Services, April 1999.
- [5] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M., and S. Waldbusser, "Conformance Statements for SMIV2", [RFC 2580](#), STD 58, Cisco Systems, SNMPinfo, TU Braunschweig, SNMP Research, First Virtual Holdings, International Network Services, April 1999.
- [6] Case, J., McCloghrie, K., Rose, M., and Waldbusser, S., "Protocol Operations for Version 2 of the Simple Network Management Protocol (SNMPv2)", [RFC 1905](#), January 1996.
- [7] Harrington D., Presuhn, R., Wijnen, B., "An Architecture for Describing SNMP Management Frameworks", [RFC 2571](#), Cabletron Systems, BMC Software, Inc., IBM T.J. Watson Research, April 1999.
- [8] Case, J., Harrington D., Presuhn, R., Wijnen, B., "Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)", [RFC 2572](#), SNMP Research Inc., Cabletron Systems, BMC Software, Inc., IBM T.J. Watson Research, April 1999.
- [9] Levi D., Meyer P., Stewart, B., "SNMPv3 Applications", [RFC 2573](#), SNMP Research, Inc., Secure Computing Corporation, Cisco Systems, April 1999.
- [10] Blumenthal, U., Wijnen, B., "User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)", [RFC 2574](#), IBM T. J. Watson Research, April 1999.
- [11] Wijnen, B., Presuhn, R., McCloghrie, K., "View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)", [RFC 2575](#), IBM T.J. Watson Research, BMC Software, Inc., Cisco Systems, Inc., April 1999.

- [12] Hovey, R., and S. Bradner, "The Organizations Involved in the IETF Standards Process", [BCP 11](#), [RFC 2028](#), October 1996.
- [13] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [14] Rose, M., and K. McCloghrie, "Structure and Identification of Management Information for TCP/IP-based Internets", [RFC 1155](#), Performance Systems International, Hughes LAN Systems, May 1990.
- [15] Rose, M., and K. McCloghrie, "Concise MIB Definitions", [RFC 1212](#), Performance Systems International, Hughes LAN Systems, March 1991.
- [16] M. Rose, "A Convention for Defining Traps for use with the SNMP", [RFC 1215](#), Performance Systems International, March 1991.
- [17] Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Introduction to Community-based SNMPv2", [RFC 1901](#), SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.
- [18] Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Transport Mappings for Version 2 of the Simple Network Management Protocol (SNMPv2)", [RFC 1906](#), SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.
- [19] "Schema for Service Level Administration of Differentiated Services and Integrated Services in Networks", [<draft-ellesson-sla-schema-02.txt>](#), June 1, 1998.
- [20] McCloghrie, K. and Bierman, A., "Entity MIB using SMIV2", [RFC 2037](#), October 1996.
- [21] Bradner, S., "The Internet Standards Process -- Revision 3", [RFC 2026](#), [BCP 9](#), Harvard University, October 1996.

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