

Definitions of Managed Objects for Service Level Agreements Performance Monitoring

Status of this Memo

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

Copyright Notice

Copyright (C) The Internet Society (2000). All Rights Reserved.

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.

Table of Contents

1.0	Introduction	2
2.0	The SNMP Network Management Framework	2
3.0	Structure of the MIB	3
3.1	Scalar objects	4
3.2	slapmPolicyNameTable	5
3.3	slapmPolicyRuleStatsTable	6
3.4	slapmPRMonTable	6
3.5	slapmSubcomponentTable	8
4.0	Definitions	8
5.0	Security Considerations	67
6.0	Intellectual Property	67
7.0	Acknowledgments	68
8.0	References	68
9.0	Author's Address	70
10.0	Full Copyright Statement	71

1.0 Introduction

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119, reference [13].

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

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

2.0 The SNMP Network Management Framework

The SNMP Management Framework presently consists of five major components:

- o An overall architecture, described in RFC 2571 [7].
- o Mechanisms for describing and naming objects and events for the purpose of management. The first version of this Structure of Management Information (SMI) is called SMIV1 and described in STD 16, RFC 1155 [14], STD 16, RFC 1212 [15] and RFC 1215 [16]. The second version, called SMIV2, is described in STD 58, RFC 2578 [3], STD 58, RFC 2579 [4] and STD 58, RFC 2580 [5].
- o Message protocols for transferring management information. The first version of the SNMP message protocol is called SNMPv1 and described in STD 15, RFC 1157 [1]. A second version of the SNMP message protocol, which is not an Internet standards track protocol, is called SNMPv2c and described in RFC 1901 [17] and RFC 1906 [18]. The third version of the message protocol is called SNMPv3 and described in RFC 1906 [18], RFC 2572 [8] and RFC 2574 [10].
- o Protocol operations for accessing management information. The first set of protocol operations and associated PDU formats is described in STD 15, RFC 1157 [1]. A second set of protocol

operations and associated PDU formats is described in RFC 1905 [6].

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

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

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

3.0 Structure of the MIB

The SLAPM-MIB consists of the following components:

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

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

Initially most of the tables defined by the MIB module within this document 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 Scalar 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, slapmPolicyNameIndex, that is assigned by the implementation of this MIB.

3.3 slapmPolicyRuleStatsTable

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

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

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

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

3.4 slapmPRMonTable

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

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

- 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)

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 SNMP VACM security control. The `slapmPRMonTable` is the only table that supports SNMP RowStatus operations.

3.5 `slapmSubcomponentTable`

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

4.0 Definitions

SLAPM-MIB DEFINITIONS ::= BEGIN

IMPORTS

```

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

```

`slapmMIB` MODULE-IDENTITY

```

LAST-UPDATED "200001240000Z"        -- 24 January 2000
ORGANIZATION "International Business Machines Corp."
CONTACT-INFO
    "Kenneth White

```

```

    International Business Machines Corporation
    Network Computing Software Division
    Research Triangle Park, NC, USA

```

```

    E-mail: wkenneth@us.ibm.com"

```

DESCRIPTION

```

"The Service Level Agreement Performance Monitoring MIB
(SLAPM-MIB) provides data collection and monitoring
capabilities for Service Level Agreements (SLAs)
policy definitions."

```

```

-- Revision history

```


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

::= { experimental 88 }

-- Textual Conventions

SlapmNameType ::= TEXTUAL-CONVENTION

STATUS deprecated

DESCRIPTION

"The textual convention for naming entities within this MIB. The actual contents of an object defined using this textual convention should consist of the distinguished name portion of 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 subidentifiers.

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

SYNTAX SnmpAdminString (SIZE(0..32))

SlapmStatus ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"The textual convention for defining the various slapmPRMonTable (or old slapmPolicyMonitorTable) and the slapmSubcomponentTable states for actual policy rule traffic monitoring."

SYNTAX BITS {

slaMinInRateNotAchieved(0),
slaMaxInRateExceeded(1),
slaMaxDelayExceeded(2),
slaMinOutRateNotAchieved(3),
slaMaxOutRateExceeded(4),
monitorMinInRateNotAchieved(5),
monitorMaxInRateExceeded(6),
monitorMaxDelayExceeded(7),
monitorMinOutRateNotAchieved(8),
monitorMaxOutRateExceeded(9)

```

    }

SlapmPolicyRuleName ::= TEXTUAL-CONVENTION
    DISPLAY-HINT "1024t"
    STATUS current
    DESCRIPTION
        "To facilitate internationalization, this TC
        represents information taken from the ISO/IEC IS
        10646-1 character set, encoded as an octet string
        using the UTF-8 character encoding scheme described
        in RFC 2044.  For strings in 7-bit US-ASCII,
        there is no impact since the UTF-8 representation
        is identical to the US-ASCII encoding."
    SYNTAX OCTET STRING (SIZE (0..1024))

-- Top-level structure of the MIB

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

-- All scalar objects

slapmBaseObjects    OBJECT IDENTIFIER ::= { slapmObjects 1 }

-- Scalar Object Definitions

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

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

```

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

::= { slapmBaseObjects 2 }

slapmPolicyCountAccesses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Total number of times that a policy repository was accessed with respect to a policy agent. The value of this object should be less than slapmPolicyCountQueries, since typically policy entries are cached to minimize repository accesses."

::= { slapmBaseObjects 3 }

slapmPolicyCountSuccessAccesses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Total number of successful policy repository accesses with respect to a policy agent."

::= { slapmBaseObjects 4 }

slapmPolicyCountNotFounds OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Total number of policy repository accesses, with respect to a policy agent, that resulted in an entry not being located."

::= { slapmBaseObjects 5 }

slapmPolicyPurgeTime OBJECT-TYPE

SYNTAX Integer32 (0..3600) -- maximum of 1 hour

UNITS "seconds"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

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

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

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

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

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

slapmPolicyTrapEnable OBJECT-TYPE

SYNTAX INTEGER { enabled(1), disabled(2) }

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Indicates whether slapmPolicyRuleDeleted and slapmPolicyRuleMonDeleted (or slapmPolicyProfileDeleted and slapmPolicyMonitorDeleted) notifications should be generated by this system."

DEFVAL { disabled }

::= { slapmBaseObjects 7 }

slapmPolicyTrapFilter OBJECT-TYPE

SYNTAX Integer32 (0..64)

UNITS "intervals"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The purpose of this object is to suppress unnecessary slapmSubcMonitorNotOkay (or slapmSubcomponentMonitoredEventNotAchieved), for example, notifications. Basically, a monitored event has to not meet its SLA requirement for the number of consecutive intervals indicated by the value of this object."

DEFVAL { 3 }

::= { slapmBaseObjects 8 }

slapmTableObjects OBJECT IDENTIFIER ::= { slapmObjects 2 }

-- Sla Performance Monitoring Policy Statistics Table

slapmPolicyStatsTable OBJECT-TYPE

SYNTAX SEQUENCE OF SlapmPolicyStatsEntry

MAX-ACCESS not-accessible

STATUS deprecated

DESCRIPTION

"Provides statistics on all policies known at a system.

This table has been deprecated and replaced with the slapmPolicyRuleStatsTable. Older implementations of this MIB are expected to continue their support of this table."

::= { slapmTableObjects 1 }

slapmPolicyStatsEntry OBJECT-TYPE

SYNTAX SlapmPolicyStatsEntry

MAX-ACCESS not-accessible

STATUS deprecated

DESCRIPTION

"Defines an entry in the slapmPolicyStatsTable. This table defines a set of statistics that is kept on a per system, policy and traffic profile basis. A policy can be defined to contain multiple traffic profiles that map to a single action.

Entries in this table are not created or deleted via SNMP but reflect the set of policy definitions known at a system."

INDEX {

slapmPolicyStatsSystemAddress,
slapmPolicyStatsPolicyName,
slapmPolicyStatsTrafficProfileName

```

    }
    ::= { slapmPolicyStatsTable 1 }

slapmPolicyStatsEntry ::=
    SEQUENCE {
        slapmPolicyStatsSystemAddress      OCTET STRING,
        slapmPolicyStatsPolicyName         SlapmNameType,
        slapmPolicyStatsTrafficProfileName SlapmNameType,
        slapmPolicyStatsOperStatus         INTEGER,
        slapmPolicyStatsActiveConns        Gauge32,
        slapmPolicyStatsTotalConns         Counter32,
        slapmPolicyStatsFirstActivated      DateAndTime,
        slapmPolicyStatsLastMapping         DateAndTime,
        slapmPolicyStatsInOctets            Counter32,
        slapmPolicyStatsOutOctets           Counter32,
        slapmPolicyStatsConnectionLimit     Integer32,
        slapmPolicyStatsCountAccepts        Counter32,
        slapmPolicyStatsCountDenies         Counter32,
        slapmPolicyStatsInDiscards          Counter32,
        slapmPolicyStatsOutDiscards         Counter32,
        slapmPolicyStatsInPackets           Counter32,
        slapmPolicyStatsOutPackets          Counter32,
        slapmPolicyStatsInProfileOctets     Counter32,
        slapmPolicyStatsOutProfileOctets    Counter32,
        slapmPolicyStatsMinRate              Integer32,
        slapmPolicyStatsMaxRate              Integer32,
        slapmPolicyStatsMaxDelay             Integer32
    }

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

slapmPolicyStatsPolicyName OBJECT-TYPE
    SYNTAX      SlapmNameType
    MAX-ACCESS   not-accessible
    STATUS       deprecated
    DESCRIPTION
        "Policy name that this entry relates to."
    ::= { slapmPolicyStatsEntry 2 }

```

slapmPolicyStatsTrafficProfileName OBJECT-TYPE

SYNTAX SlapmNameType
 MAX-ACCESS not-accessible
 STATUS deprecated

DESCRIPTION

"The name of a traffic profile that is associated with a policy."

::= { slapmPolicyStatsEntry 3 }

slapmPolicyStatsOperStatus OBJECT-TYPE

SYNTAX INTEGER {
 inactive(1),
 active(2),
 deleteNeeded(3)
 }

MAX-ACCESS read-only
 STATUS deprecated

DESCRIPTION

"The state of a policy entry:

- inactive(1) - An policy entry was either defined by local system definition or discovered via a directory search but has not been activated (not currently being used).
- active(2) - Policy entry is being used to affect traffic flows.
- deleteNeeded(3) - Either 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."
 ::= { slapmPolicyStatsEntry 16 }

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

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

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

slapmPolicyStatsMinRate OBJECT-TYPE
SYNTAX      Integer32
UNITS       "Kilobits per second"
```

```

MAX-ACCESS    read-only
STATUS        deprecated
DESCRIPTION
    "The minimum transfer rate defined for this entry."
 ::= { slapmPolicyStatsEntry 20 }

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

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

-- SLA Performance Monitoring Policy Monitor Table

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

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

slapmPolicyMonitorEntry OBJECT-TYPE
SYNTAX        SlapmPolicyMonitorEntry
MAX-ACCESS    not-accessible
STATUS        deprecated
DESCRIPTION
    "Defines an entry in the slapmPolicyMonitorTable. This
    table defines which policies should be monitored on a
    per policy traffic profile basis."

```

```

INDEX {
    slapmPolicyMonitorOwnerIndex,
    slapmPolicyMonitorSystemAddress,
    slapmPolicyMonitorPolicyName,
    slapmPolicyMonitorTrafficProfileName
}
 ::= { slapmPolicyMonitorTable 1 }

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

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

```

security policy.

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

::= { slapmPolicyMonitorEntry 1 }

slapmPolicyMonitorSystemAddress OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0 | 4 | 16))

MAX-ACCESS not-accessible

STATUS deprecated

DESCRIPTION

"Address of a system that an Policy definition relates to. A zero length octet string can be used to indicate that only a single system is being represented.

Otherwise, the length of the octet string should be 4 for an ipv4 address and 16 for an ipv6 address."

::= { slapmPolicyMonitorEntry 2 }

slapmPolicyMonitorPolicyName OBJECT-TYPE

SYNTAX SlapmNameType

MAX-ACCESS not-accessible

STATUS deprecated

DESCRIPTION

"Policy name that this entry relates to."

::= { slapmPolicyMonitorEntry 3 }

slapmPolicyMonitorTrafficProfileName OBJECT-TYPE

SYNTAX SlapmNameType

MAX-ACCESS not-accessible

STATUS deprecated

DESCRIPTION

"The corresponding Traffic Profile name."

::= { slapmPolicyMonitorEntry 4 }

slapmPolicyMonitorControl OBJECT-TYPE

SYNTAX BITS {
monitorMinRate(0),
monitorMaxRate(1),

```

        monitorMaxDelay(2),
        enableAggregateTraps(3),
        enableSubcomponentTraps(4),
        monitorSubcomponents(5)
    }
MAX-ACCESS    read-create
STATUS        deprecated
DESCRIPTION
    "The value of this object determines the type and level
    of monitoring that is applied to a policy/profile.  The
    value of this object can't be changed once the table
    entry that it is a part of is activated via a
    slapmPolicyMonitorRowStatus transition to active state.

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

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

        slaMinInRateNotAchieved(0),
        slaMaxInRateExceeded(1),
        slaMaxDelayExceeded(2),

```

```
slaMinOutRateNotAchieved(3),
slaMaxOutRateExceeded(4)
```

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

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

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

```
::= { slapmPolicyMonitorEntry 6 }
```

slapmPolicyMonitorInterval OBJECT-TYPE

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

slapmPolicyMonitorIntTime OBJECT-TYPE

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

slapmPolicyMonitorCurrentInRate OBJECT-TYPE

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

slapmPolicyMonitorCurrentOutRate OBJECT-TYPE

```

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

```

slapmPolicyMonitorMinRateLow OBJECT-TYPE

```

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

```

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

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

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

```
 ::= { slapmPolicyMonitorEntry 11 }

```

slapmPolicyMonitorMinRateHigh OBJECT-TYPE

```

SYNTAX      Integer32

```


UNITS "kilobits per second"

MAX-ACCESS read-create

STATUS deprecated

DESCRIPTION

"The threshold for generating a slapmMonitoredEventOkay notification, signalling that a monitored minimum transfer rate has increased to an acceptable level.

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

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

::= { slapmPolicyMonitorEntry 12 }

slapmPolicyMonitorMaxRateHigh OBJECT-TYPE

SYNTAX Integer32

UNITS "kilobits per second"

MAX-ACCESS read-create

STATUS deprecated

DESCRIPTION

"The threshold for generating a slapmMonitoredEventNotAchieved notification, signalling that a monitored maximum transfer rate has been exceeded.

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

A value of zero for this object is returned when the slapmPolicyMonitorControl monitorMaxRate(1) is not enabled. When enabled the default value for this object is the max rate value specified in the associated action definition plus 10%. If the action definition

doesn't have a max rate defined then there is no default for this object and a value MUST be specified prior to activating this entry when monitorMaxRate(1) is selected.

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

::= { slapmPolicyMonitorEntry 13 }

slapmPolicyMonitorMaxRateLow OBJECT-TYPE

SYNTAX Integer32
UNITS "kilobits per second"
MAX-ACCESS read-create
STATUS deprecated
DESCRIPTION

"The threshold for generating a slapmMonitoredEventOkay notification, signalling that a monitored maximum transfer rate has fallen to an acceptable level.

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

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

::= { slapmPolicyMonitorEntry 14 }

slapmPolicyMonitorMaxDelayHigh OBJECT-TYPE

SYNTAX Integer32
UNITS "milliseconds"
MAX-ACCESS read-create
STATUS deprecated
DESCRIPTION

"The threshold for generating a slapmMonitoredEventNotAchieved notification, signalling that a monitored maximum delay rate has been exceeded.

A slapmMonitoredEventNotAchieved notification is not

generated again for an `slapmPolicyMonitorEntry` until the maximum delay rate falls below `slapmPolicyMonitorMaxDelayLow` (a `slapmMonitoredEventOkay` notification is then transmitted) and raises above `slapmPolicyMonitorMaxDelayHigh`. This behavior reduces the `slapmMonitoredEventNotAchieved` notifications that are transmitted.

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

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

```
::= { slapmPolicyMonitorEntry 15 }
```

`slapmPolicyMonitorMaxDelayLow` OBJECT-TYPE

```
SYNTAX      Integer32
UNITS       "milliseconds"
MAX-ACCESS  read-create
STATUS      deprecated
DESCRIPTION
```

"The threshold for generating a `slapmMonitoredEventOkay` notification, signalling that a monitored maximum delay rate has fallen to an acceptable level.

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

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

```
 ::= { slapmPolicyMonitorEntry 16 }

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

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

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

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

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

slapmPolicyMonitorCurrentDelayRate OBJECT-TYPE
```

```

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

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

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

-- Subcomponent Table

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

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

slapmSubcomponentEntry OBJECT-TYPE
SYNTAX      SlapmSubcomponentEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION

```

"Describes a particular subcomponent entry. This table does not have an OwnerIndex as part of its indexing since this table's contents is intended to span multiple users."

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

SlapmSubcomponentEntry ::=

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

slapmSubcomponentRemAddress OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0 | 4 | 16))

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Indicate the remote address of a subcomponent.
A remote address can be either an ipv4 address in which case 4 octets are required or as an ipv6 address that

requires 16 octets. The value of this subidentifier is a zero length octet string when this entry relates to a UDP listener."

::= { slapmSubcomponentEntry 1 }

slapmSubcomponentRemPort OBJECT-TYPE

SYNTAX Integer32(0..65535)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Indicate the remote port of a subcomponent.

The value of this subidentifier

is 0 when this entry relates to a UDP listener."

::= { slapmSubcomponentEntry 2 }

slapmSubcomponentLocalAddress OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(4 | 16))

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Indicate the local address of a subcomponent.

A local address can be either an ipv4 address in which case 4 octets are required or as an ipv6 address that requires 16 octets."

::= { slapmSubcomponentEntry 3 }

slapmSubcomponentLocalPort OBJECT-TYPE

SYNTAX Integer32(0..65535)

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Indicate the local port of a subcomponent."

::= { slapmSubcomponentEntry 4 }

slapmSubcomponentProtocol OBJECT-TYPE

SYNTAX INTEGER {
 udpListener(1),
 tcpConnection(2)
 }

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Indicate the protocol in use that identifies the type of subcomponent."

::= { slapmSubcomponentEntry 5 }

slapmSubcomponentSystemAddress OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0 | 4 | 16))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

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

A zero length octet string can be used to indicate that only a single system is being represented.

Otherwise, the length of the octet string should be 4 for an ipv4 address and 16 for an ipv6 address."

::= { slapmSubcomponentEntry 6 }

slapmSubcomponentPolicyName OBJECT-TYPE

SYNTAX SlapmNameType

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"Policy name that this entry relates to.

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

::= { slapmSubcomponentEntry 7 }

slapmSubcomponentTrafficProfileName OBJECT-TYPE

SYNTAX SlapmNameType

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The corresponding traffic profile name.

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

::= { slapmSubcomponentEntry 8 }

slapmSubcomponentLastActivity OBJECT-TYPE

SYNTAX DateAndTime

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The date and timestamp of when this entry was last used."

DEFVAL { '0000000000000000'H }

::= { slapmSubcomponentEntry 9 }

slapmSubcomponentInOctets OBJECT-TYPE

SYNTAX Counter32

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

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

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

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

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

slapmSubcomponentTcpRoundTripTime OBJECT-TYPE
SYNTAX Integer32
UNITS "milliseconds"

MAX-ACCESS read-only
 STATUS current
 DESCRIPTION

"The amount of time that has elapsed, measured in milliseconds, from when the last TCP segment was transmitted by the TCP Stack until the ACK was received.

The value of this object is zero when the entry is not for a TCP connection."

::= { slpmSubcomponentEntry 15 }

slpmSubcomponentTcpRoundTripVariance 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."

::= { slpmSubcomponentEntry 16 }

slpmSubcomponentInPdus OBJECT-TYPE

SYNTAX Counter32
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION

"The number of protocol related data units transferred inbound:

slpmSubcomponentProtocol	PDU Type
--------------------------	----------

udpListener(1)	
----------------	--

UDP datagrams

tcpConnection(2)	
------------------	--

TCP segments"

::= { slpmSubcomponentEntry 17 }

slpmSubcomponentOutPdus OBJECT-TYPE

SYNTAX Counter32
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION

"The number of protocol related data units transferred outbound:

slpmSubcomponentProtocol	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
    MAX-ACCESS   read-only
    STATUS      current
    DESCRIPTION
        "The timestamp for when the last interval ended.

        This object only has meaning when an corresponding
        slapmPRMonEntry (or old slapmPolicyMonitorEntry)
        exists with the slapmPRMonControl (or
        slapmPolicyMonitorControl) BITS setting
        monitorSubcomponents(5) enabled. All of the
        octets returned when monitoring is not in effect

```

```

        must be zero."
    DEFVAL { '0000000000000000'H }
    ::= { slapmSubcomponentEntry 21 }

```

slapmSubcomponentMonitorCurrentInRate OBJECT-TYPE

```

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

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

```

slapmSubcomponentMonitorCurrentOutRate OBJECT-TYPE

```

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

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

```

slapmSubcomponentPolicyRuleIndex OBJECT-TYPE

```

SYNTAX      Unsigned32 (0..4294967295)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION

```

"Points to an slapmPolicyNameEntry when combined with slapmSubcomponentSystemAddress to indicate the policy naming that relates to this entry.

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

```
::= { slapmSubcomponentEntry 24 }
```

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

```
slapmPolicyNameTable OBJECT-TYPE
```

```
SYNTAX SEQUENCE OF SlapmPolicyNameEntry
```

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

```
STATUS current
```

```
DESCRIPTION
```

"Provides the mapping between a policy index as a unsigned 32 bit integer and the unique name associated with a policy rule."

```
::= { slapmTableObjects 4 }
```

```
slapmPolicyNameEntry OBJECT-TYPE
```

```
SYNTAX SlapmPolicyNameEntry
```

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

```
STATUS current
```

```
DESCRIPTION
```

"Defines an entry in the slapmPolicyNameTable."

```
INDEX {
    slapmPolicyNameSystemAddress,
    slapmPolicyNameIndex
}
```

```
::= { slapmPolicyNameTable 1 }
```

```
SlapmPolicyNameEntry ::=
```

```
SEQUENCE {
    slapmPolicyNameSystemAddress    OCTET STRING,
    slapmPolicyNameIndex            Unsigned32,
    slapmPolicyNameOfRule           SlapmPolicyRuleName
}
```

```
slapmPolicyNameSystemAddress OBJECT-TYPE
```

```
SYNTAX OCTET STRING (SIZE(0 | 4 | 16))
```

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

```
STATUS current
```

```
DESCRIPTION
```

"Address of a system that an Policy rule definition relates to. A zero length octet string must be used to indicate

that only a single system is being represented.
 Otherwise, the length of the octet string must be
 4 for an ipv4 address or 16 for an ipv6 address."
 ::= { slapmPolicyNameEntry 1 }

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

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

-- Sla Performance Monitoring Policy Rule Statistics Table

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

slapmPolicyRuleStatsEntry OBJECT-TYPE
 SYNTAX SlapmPolicyRuleStatsEntry
 MAX-ACCESS not-accessible
 STATUS current
 DESCRIPTION
 "Defines an entry in the slapmPolicyRuleStatsTable.
 This table defines a set of statistics that is kept
 on a per system and per policy rule basis.
 Entries in this table are not created or deleted via SNMP
 but reflect the set of policy rule definitions known
 at a system."
 INDEX {
 slapmPolicyNameSystemAddress,

```

        slapmPolicyNameIndex
    }
 ::= { slapmPolicyRuleStatsTable 1 }

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

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

        inactive(1)      - An policy entry was either defined
                           by local system definition or
                           discovered via
                           a directory search but has not been
                           activated (not currently being used).
        active(2)        - Policy entry is being used to affect
                           traffic flows.
        deleteNeeded(3) - Either though local implementation

```

dependent methods or by discovering that the directory entry corresponding to this table entry no longer exists and slapmPolicyPurgeTime needs to expire before attempting to remove the corresponding slapmPolicyStatsEntry and any dependent slapmPolicyMonitor table entries.

Note: a policy rule in a state other than active(2) is not being used to affect traffic flows."
 ::= { slapmPolicyRuleStatsEntry 1 }

slapmPolicyRuleStatsActiveConns OBJECT-TYPE

SYNTAX Gauge32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of active TCP connections that are affected by the corresponding policy entry."

::= { slapmPolicyRuleStatsEntry 2 }

slapmPolicyRuleStatsTotalConns OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of total TCP connections that are affected by the corresponding policy entry."

::= { slapmPolicyRuleStatsEntry 3 }

slapmPolicyRuleStatsLActivated OBJECT-TYPE

SYNTAX DateAndTime

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The timestamp for when the corresponding policy entry was last activated. The value of this object serves as the discontinuity event indicator when polling entries in this table. The value of this object is updated on transition of slapmPolicyRuleStatsOperStatus into the active(2) state."

DEFVAL { '0000000000000000'H }

::= { slapmPolicyRuleStatsEntry 4 }

slapmPolicyRuleStatsLastMapping OBJECT-TYPE

SYNTAX DateAndTime

MAX-ACCESS read-only

STATUS current

DESCRIPTION
 "The timestamp for when the last time
 that the associated policy entry was used."
DEFVAL { '0000000000000000'H }
::= { slapmPolicyRuleStatsEntry 5 }

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

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

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

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

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

```

STATUS      current
DESCRIPTION
    "This counter is incremented when a policy action's
    Permission value is set to Deny and a session is denied,
    or when a session (TCP connection) is rejected due to a
    policy's connection limit (slapmPolicyRuleStatsConnectLimit)
    being reached."
 ::= { slapmPolicyRuleStatsEntry 10 }

```

```

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

```

```

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

```

```

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

```

```

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

```

```
slapmPolicyRuleStatsInProOctets OBJECT-TYPE
    SYNTAX      Counter32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "This counter counts the number of in octets that are
        determined to be within profile."
    ::= { slapmPolicyRuleStatsEntry 15 }

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

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

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

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

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

```

    STATUS      current
    DESCRIPTION
        "Total number of RSVP flows that have be activated."
    ::= { slapmPolicyRuleStatsEntry 20 }

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

-- SLA Performance Monitoring Policy Rule Monitor Table

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

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

        An attempt to set any read-create object defined within an
        slapmPRMonEntry while the value of slapmPRMonRowStatus is
        active(1) will result in an inconsistentValue error."
    INDEX {
        slapmPRMonOwnerIndex,
        slapmPRMonSystemAddress,
        slapmPRMonIndex
    }
    ::= { slapmPRMonTable 1 }

SlapmPRMonEntry ::=
    SEQUENCE {
        slapmPRMonOwnerIndex          SnmpAdminString,
        slapmPRMonSystemAddress       OCTET STRING,
        slapmPRMonIndex               Unsigned32,

```

slapmPRMonControl	BITS,
slapmPRMonStatus	SlapmStatus,
slapmPRMonInterval	Unsigned32,
slapmPRMonIntTime	DateAndTime,
slapmPRMonCurrentInRate	Gauge32,
slapmPRMonCurrentOutRate	Gauge32,
slapmPRMonMinRateLow	Unsigned32,
slapmPRMonMinRateHigh	Unsigned32,
slapmPRMonMaxRateHigh	Unsigned32,
slapmPRMonMaxRateLow	Unsigned32,
slapmPRMonMaxDelayHigh	Unsigned32,
slapmPRMonMaxDelayLow	Unsigned32,
slapmPRMonMinInRateNotAchieves	Counter32,
slapmPRMonMaxInRateExceeds	Counter32,
slapmPRMonMaxDelayExceeds	Counter32,
slapmPRMonMinOutRateNotAchieves	Counter32,
slapmPRMonMaxOutRateExceeds	Counter32,
slapmPRMonCurrentDelayRate	Gauge32,
slapmPRMonRowStatus	RowStatus

}

slapmPRMonOwnerIndex OBJECT-TYPE

SYNTAX SnmpAdminString (SIZE(0..16))

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

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

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

```
::= { slapmPRMonEntry 1 }
```

slapmPRMonSystemAddress OBJECT-TYPE

```
SYNTAX      OCTET STRING (SIZE(0 | 4 | 16))
```

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

```
STATUS      current
```

DESCRIPTION

"Address of a system that an Policy definition relates to.
A zero length octet string can be used to indicate that
only a single system is being represented.
Otherwise, the length of the octet string should be
4 for an ipv4 address and 16 for an ipv6 address."

```
::= { slapmPRMonEntry 2 }
```

slapmPRMonIndex OBJECT-TYPE

```
SYNTAX      Unsigned32
```

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

```
STATUS      current
```

DESCRIPTION

"An slapmPolicyNameTable index, slapmPolicyNameIndex,
that points to the unique name associated with a
policy rule definition."

```
::= { slapmPRMonEntry 3 }
```

slapmPRMonControl OBJECT-TYPE

```
SYNTAX      BITS {
                                monitorMinRate(0),
                                monitorMaxRate(1),
                                monitorMaxDelay(2),
                                enableAggregateTraps(3),
                                enableSubcomponentTraps(4),
                                monitorSubcomponents(5)
                                }
```

```
MAX-ACCESS  read-create
```

```
STATUS      current
```

DESCRIPTION

"The value of this object determines the type and level
of monitoring that is applied to a policy rule. The
value of this object can't be changed once the table
entry that it is a part of is activated via a
slapmPRMonRowStatus transition to active state.

monitorMinRate(0) - Monitor minimum transfer rate.
monitorMaxRate(1) - Monitor maximum transfer rate.
monitorMaxDelay(2) - Monitor maximum delay.
enableAggregateTraps(3) - The enableAggregateTraps(3)
BITS setting enables notification generation
when monitoring a policy rule as an

```

        aggregate using the values in the corresponding
        slapmPRMonStatsEntry. By default this function
        is not enabled.
    enableSubcomponentTraps(4) - This BITS setting enables
        notification generation when monitoring all
        subcomponents that are mapped to an corresponding
        slapmPRMonStatsEntry. By default this
        function is not enabled.
    monitorSubcomponents(5) - This BITS setting enables
        monitoring of each subcomponent (typically a
        TCP connection or UDP listener) individually."
DEFVAL    { { monitorMinRate, monitorMaxRate,
              monitorMaxDelay } }
 ::= { slapmPRMonEntry 4 }

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

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

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

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

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

slapmPRMonInterval OBJECT-TYPE
SYNTAX      Unsigned32 (15..86400) -- 15 second min, 24 hour max
UNITS       "seconds"
MAX-ACCESS  read-create

```

```

STATUS      current
DESCRIPTION
    "The number of seconds that defines the sample period."
DEFVAL      {20}      -- 20 seconds
::= { slapmPRMonEntry 6 }

```

slapmPRMonIntTime OBJECT-TYPE

```

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

```

slapmPRMonCurrentInRate OBJECT-TYPE

```

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

```

slapmPRMonCurrentOutRate OBJECT-TYPE

```

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

```

slapmPRMonMinRateLow OBJECT-TYPE

```

SYNTAX      Unsigned32
UNITS       "kilobits per second"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The threshold for generating a
    slapmPolicyRuleMonNotOkay notification, signalling
    that a monitored minimum transfer rate has not been meet."

```


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

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

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

slapmPRMonMaxRateLow OBJECT-TYPE

SYNTAX Unsigned32
 UNITS "kilobits per second"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

"The threshold for generating a slapmPolicyRuleMonOkay notification, signalling that a monitored maximum transfer rate has fallen to an acceptable level.

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

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

::= { slapmPRMonEntry 13 }

slapmPRMonMaxDelayHigh OBJECT-TYPE

SYNTAX Unsigned32
UNITS "milliseconds"
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"The threshold for generating a slapmPolicyRuleMonNotOkay notification, signalling that a monitored maximum delay rate has been exceeded.

A slapmPolicyRuleMonNotOkay notification is not generated again for an slapmPRMonEntry until the maximum delay rate falls below slapmPRMonMaxDelayLow (a slapmPolicyRuleMonOkay notification is then transmitted) and raises above slapmPRMonMaxDelayHigh. This behavior reduces the slapmPolicyRuleMonNotOkay notifications that are transmitted.

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

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

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

slapmPRMonMaxDelayLow OBJECT-TYPE

SYNTAX Unsigned32
 UNITS "milliseconds"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

"The threshold for generating a slapmPolicyRuleMonOkay notification, signalling that a monitored maximum delay rate has fallen to an acceptable level.

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

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

::= { slapmPRMonEntry 15 }

slapmPRMonMinInRateNotAchieves OBJECT-TYPE

SYNTAX Counter32
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION

"The number of times that a minimum transfer in rate was not achieved."

::= { slapmPRMonEntry 16 }

slapmPRMonMaxInRateExceeds OBJECT-TYPE

SYNTAX Counter32
 MAX-ACCESS read-only
 STATUS current
 DESCRIPTION

"The number of times that a maximum transfer in rate was exceeded."

::= { slapmPRMonEntry 17 }

slapmPRMonMaxDelayExceeds OBJECT-TYPE

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

slapmPRMonMinOutRateNotAchieves OBJECT-TYPE

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

slapmPRMonMaxOutRateExceeds OBJECT-TYPE

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

slapmPRMonCurrentDelayRate OBJECT-TYPE

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

slapmPRMonRowStatus OBJECT-TYPE

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

    Removal of an corresponding (same policy index)
```

slapmPolicyRuleStatsEntry has the side effect of the automatic deletion an entry in this table.

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

```
::= { slapmPRMonEntry 22 }
```

-- Notifications

slapmMonitoredEventNotAchieved NOTIFICATION-TYPE

```
OBJECTS {
    slapmPolicyMonitorIntTime,
    slapmPolicyMonitorControl,
    slapmPolicyMonitorStatus,
    slapmPolicyMonitorStatus,
    slapmPolicyMonitorCurrentInRate,
    slapmPolicyMonitorCurrentOutRate,
    slapmPolicyMonitorCurrentDelayRate
}
```

STATUS deprecated

DESCRIPTION

"This notification is generated when an monitored event is not achieved with respect to threshold. This applies only towards monitoring a policy traffic profile as an aggregate via an associating slapmPolicyStatsEntry. The value of slapmPolicyMonitorControl can be examined to determine what is being monitored. The first slapmPolicyMonitorStatus value supplies the current monitor status while the 2nd value supplies the previous status.

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

```
::= { slapmNotifications 1 }
```

slapmMonitoredEventOkay NOTIFICATION-TYPE

```
OBJECTS {
    slapmPolicyMonitorIntTime,
    slapmPolicyMonitorControl,
    slapmPolicyMonitorStatus,
    slapmPolicyMonitorStatus,
    slapmPolicyMonitorCurrentInRate,
    slapmPolicyMonitorCurrentOutRate,
```

```

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

    Note: The corresponding slapmPolicyMonitorControl
    BITS setting, enableAggregateTraps(3), MUST be
    selected in order for this notification to
    potentially be generated."
 ::= { slapmNotifications 2 }

slapmPolicyProfileDeleted NOTIFICATION-TYPE
OBJECTS {
    slapmPolicyStatsActiveConns,
    slapmPolicyStatsTotalConns,
    slapmPolicyStatsFirstActivated,
    slapmPolicyStatsLastMapping,
    slapmPolicyStatsInOctets,
    slapmPolicyStatsOutOctets,
    slapmPolicyStatsConnectionLimit,
    slapmPolicyStatsCountAccepts,
    slapmPolicyStatsCountDenies,
    slapmPolicyStatsInDiscards,
    slapmPolicyStatsOutDiscards,
    slapmPolicyStatsInPackets,
    slapmPolicyStatsOutPackets,
    slapmPolicyStatsInProfileOctets,
    slapmPolicyStatsOutProfileOctets,
    slapmPolicyStatsMinRate,
    slapmPolicyStatsMaxRate,
    slapmPolicyStatsMaxDelay
}
STATUS deprecated
DESCRIPTION
    "A slapmPolicyDeleted notification is sent when a
    slapmPolicyStatsEntry is deleted if the value of
    slapmPolicyTrapEnable is enabled(1)."
 ::= { slapmNotifications 3 }

```

slapmPolicyMonitorDeleted NOTIFICATION-TYPE

OBJECTS {

slapmPolicyMonitorStatus,
 slapmPolicyMonitorInterval,
 slapmPolicyMonitorIntTime,
 slapmPolicyMonitorCurrentInRate,
 slapmPolicyMonitorCurrentOutRate,
 slapmPolicyMonitorCurrentDelayRate,
 slapmPolicyMonitorMinRateLow,
 slapmPolicyMonitorMinRateHigh,
 slapmPolicyMonitorMaxRateHigh,
 slapmPolicyMonitorMaxRateLow,
 slapmPolicyMonitorMaxDelayHigh,
 slapmPolicyMonitorMaxDelayLow,
 slapmPolicyMonitorMinInRateNotAchieves,
 slapmPolicyMonitorMaxInRateExceeds,
 slapmPolicyMonitorMaxDelayExceeds,
 slapmPolicyMonitorMinOutRateNotAchieves,
 slapmPolicyMonitorMaxOutRateExceeds

}

STATUS deprecated

DESCRIPTION

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

::= { slapmNotifications 4 }

slapmSubcomponentMonitoredEventNotAchieved NOTIFICATION-TYPE

OBJECTS {

slapmSubcomponentSystemAddress,
 slapmSubcomponentPolicyName,
 slapmSubcomponentTrafficProfileName,
 slapmSubcomponentMonitorStatus,
 slapmSubcomponentMonitorStatus,
 slapmSubcomponentMonitorIntTime,
 slapmSubcomponentMonitorCurrentInRate,
 slapmSubcomponentMonitorCurrentOutRate,
 slapmSubcomponentTcpRoundTripTime

}

STATUS deprecated

DESCRIPTION

"This notification is generated when a monitored value does not achieved a threshold specification. This applies only towards monitoring the individual components of a policy traffic profile. The value of the corresponding slapmPolicyMonitorControl can be examined to determine what is being monitored. The first slapmSubcomponentMonitorStatus value supplies the current

monitor status while the 2nd value supplies the previous status.

Note: The corresponding slapmPolicyMonitorControl BITS setting, enableSubcomponentTraps(4), MUST be selected in order for this notification to potentially be generated."
 ::= { slapmNotifications 5 }

slapmSubcomponentMonitoredEventOkay NOTIFICATION-TYPE

```
OBJECTS {
    slapmSubcomponentSystemAddress,
    slapmSubcomponentPolicyName,
    slapmSubcomponentTrafficProfileName,
    slapmSubcomponentMonitorStatus,
    slapmSubcomponentMonitorStatus,
    slapmSubcomponentMonitorIntTime,
    slapmSubcomponentMonitorCurrentInRate,
    slapmSubcomponentMonitorCurrentOutRate,
    slapmSubcomponentTcpRoundTripTime
}
```

STATUS deprecated

DESCRIPTION

"This notification is generated when a monitored value has reached an acceptable level.

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

slapmPolicyRuleMonNotOkay NOTIFICATION-TYPE

```
OBJECTS {
    slapmPRMonIntTime,
    slapmPRMonControl,
    slapmPRMonStatus,
    slapmPRMonStatus,
    slapmPRMonCurrentInRate,
    slapmPRMonCurrentOutRate,
    slapmPRMonCurrentDelayRate
}
```

STATUS current

DESCRIPTION

"This notification is generated when an monitored event is not achieved with respect to a threshold. This applies only towards monitoring a policy rule as an aggregate via an associating slapmPolicyRuleStatsEntry. The value

of slapmPRMonControl can be examined to determine what is being monitored. The first slapmPRMonStatus value supplies the current monitor status while the 2nd value supplies the previous status.

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

::= { slapmNotifications 7 }

slapmPolicyRuleMonOkay NOTIFICATION-TYPE

```
OBJECTS {
    slapmPRMonIntTime,
    slapmPRMonControl,
    slapmPRMonStatus,
    slapmPRMonStatus,
    slapmPRMonCurrentInRate,
    slapmPRMonCurrentOutRate,
    slapmPRMonCurrentDelayRate
}
```

STATUS current

DESCRIPTION

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

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

::= { slapmNotifications 8 }

slapmPolicyRuleDeleted NOTIFICATION-TYPE

```
OBJECTS {
    slapmPolicyRuleStatsActiveConns,
    slapmPolicyRuleStatsTotalConns,
    slapmPolicyRuleStatsLActivated,
    slapmPolicyRuleStatsLastMapping,
    slapmPolicyRuleStatsInOctets,
```

```

        slapmPolicyRuleStatsOutOctets,
        slapmPolicyRuleStatsConnLimit,
        slapmPolicyRuleStatsCountAccepts,
        slapmPolicyRuleStatsCountDenies,
        slapmPolicyRuleStatsInDiscards,
        slapmPolicyRuleStatsOutDiscards,
        slapmPolicyRuleStatsInPackets,
        slapmPolicyRuleStatsOutPackets,
        slapmPolicyRuleStatsInProOctets,
        slapmPolicyRuleStatsOutProOctets,
        slapmPolicyRuleStatsMinRate,
        slapmPolicyRuleStatsMaxRate,
        slapmPolicyRuleStatsMaxDelay,
        slapmPolicyRuleStatsTotalRsvpFlows,
        slapmPolicyRuleStatsActRsvpFlows
    }
    STATUS    current
    DESCRIPTION
        "A slapmPolicyRuleDeleted notification is sent when a
        slapmPolicyRuleStatsEntry is deleted if the value of
        slapmPolicyTrapEnable is enabled(1)."
    ::= { slapmNotifications 9 }

slapmPolicyRuleMonDeleted NOTIFICATION-TYPE
    OBJECTS {
        slapmPRMonControl,
        slapmPRMonStatus,
        slapmPRMonInterval,
        slapmPRMonIntTime,
        slapmPRMonCurrentInRate,
        slapmPRMonCurrentOutRate,
        slapmPRMonCurrentDelayRate,
        slapmPRMonMinRateLow,
        slapmPRMonMinRateHigh,
        slapmPRMonMaxRateHigh,
        slapmPRMonMaxRateLow,
        slapmPRMonMaxDelayHigh,
        slapmPRMonMaxDelayLow,
        slapmPRMonMinInRateNotAchieves,
        slapmPRMonMaxInRateExceeds,
        slapmPRMonMaxDelayExceeds,
        slapmPRMonMinOutRateNotAchieves,
        slapmPRMonMaxOutRateExceeds
    }
    STATUS    current
    DESCRIPTION
        "A slapmPolicyRuleMonDeleted notification is sent when a
        slapmPRMonEntry is deleted if the value of

```

```
    slapmPolicyTrapEnable is enabled(1)."
 ::= { slapmNotifications 10 }
```

slapmSubcMonitorNotOkay NOTIFICATION-TYPE

```
OBJECTS {
    slapmSubcomponentSystemAddress,
    slapmSubcomponentPolicyRuleIndex,
    slapmPRMonControl,
    slapmSubcomponentMonitorStatus,
    slapmSubcomponentMonitorStatus,
    slapmSubcomponentMonitorIntTime,
    slapmSubcomponentMonitorCurrentInRate,
    slapmSubcomponentMonitorCurrentOutRate,
    slapmSubcomponentTcpRoundTripTime
}
```

STATUS current

DESCRIPTION

"This notification is generated when a monitored value does not achieved a threshold specification. This applies only towards monitoring the individual components of a policy rule. The value of the corresponding slapmPRMonControl can be examined to determine what is being monitored. The first slapmSubcomponentMonitorStatus value supplies the current monitor status while the 2nd value supplies the previous status.

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

```
 ::= { slapmNotifications 11 }
```

slapmSubcMonitorOkay NOTIFICATION-TYPE

```
OBJECTS {
    slapmSubcomponentSystemAddress,
    slapmSubcomponentPolicyRuleIndex,
    slapmPRMonControl,
    slapmSubcomponentMonitorStatus,
    slapmSubcomponentMonitorStatus,
    slapmSubcomponentMonitorIntTime,
    slapmSubcomponentMonitorCurrentInRate,
    slapmSubcomponentMonitorCurrentOutRate,
    slapmSubcomponentTcpRoundTripTime
}
```

STATUS current

DESCRIPTION

"This notification is generated when a monitored value

has reached an acceptable level.

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

```
::= { slapmNotifications 12 }
```

```
-- Conformance information
-- Compliance statements
```

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

```
-- Compliance statements
```

```
slapmCompliance MODULE-COMPLIANCE
```

```
STATUS current
```

```
DESCRIPTION
```

```
"The compliance statement for the SLAPM-MIB."
```

```
MODULE -- this module
```

```
MANDATORY-GROUPS {
```

```
    slapmBaseGroup2,
    slapmNotGroup2
```

```
}
```

```
GROUP slapmEndSystemGroup2
```

```
DESCRIPTION
```

```
"The contents of this group is required by end-system implementations."
```

```
GROUP slapmEndSystemNotGroup2
```

```
DESCRIPTION
```

```
"The contents of this group is required by end-system implementations."
```

```
GROUP slapmBaseGroup
```

```
DESCRIPTION
```

```
"The contents of this group has been deprecated in favor of the new slapmBaseGroup2. Older implementations of this MIB would continue its support of the contents of this group."
```

```
GROUP slapmNotGroup
```

```
DESCRIPTION
```

```
"The contents of this group has been deprecated in favor of the new slapmNotGroup2. Older implementations of this MIB would continue its support of the contents of this group."
```

```
GROUP slapmOptionalGroup
```

```
DESCRIPTION
```

```
"The contents of this group has been deprecated."
```

```
GROUP slapmEndSystemGroup
DESCRIPTION
    "The contents of this group has been deprecated in favor
    of the new slapmEndSystemGroup2. Older implementations
    of this MIB would continue its support of the
    contents of this group."
GROUP slapmEndSystemNotGroup
DESCRIPTION
    "The contents of this group has been deprecated in favor
    of the new slapmEndSystemNotGroup2. Older
    implementations of this MIB would continue its support
    of the contents of this group."
 ::= { slapmCompliances 1 }

-- MIB groupings

slapmBaseGroup OBJECT-GROUP
    OBJECTS {
        slapmSpinLock,
        slapmPolicyCountQueries,
        slapmPolicyCountAccesses,
        slapmPolicyCountSuccessAccesses,
        slapmPolicyCountNotFounds,
        slapmPolicyPurgeTime,
        slapmPolicyTrapEnable,
        slapmPolicyStatsOperStatus,
        slapmPolicyStatsActiveConns,
        slapmPolicyStatsFirstActivated,
        slapmPolicyStatsLastMapping,
        slapmPolicyStatsInOctets,
        slapmPolicyStatsOutOctets,
        slapmPolicyStatsConnectionLimit,
        slapmPolicyStatsTotalConns,
        slapmPolicyStatsCountAccepts,
        slapmPolicyStatsCountDenies,
        slapmPolicyStatsInDiscards,
        slapmPolicyStatsOutDiscards,
        slapmPolicyStatsInPackets,
        slapmPolicyStatsOutPackets,
        slapmPolicyStatsMinRate,
        slapmPolicyStatsMaxRate,
        slapmPolicyStatsMaxDelay,
        slapmPolicyMonitorControl,
        slapmPolicyMonitorStatus,
        slapmPolicyMonitorInterval,
        slapmPolicyMonitorIntTime,
        slapmPolicyMonitorCurrentInRate,
        slapmPolicyMonitorCurrentOutRate,
```

```

        slapmPolicyMonitorMinRateLow,
        slapmPolicyMonitorMinRateHigh,
        slapmPolicyMonitorMaxRateHigh,
        slapmPolicyMonitorMaxRateLow,
        slapmPolicyMonitorMaxDelayHigh,
        slapmPolicyMonitorMaxDelayLow,
        slapmPolicyMonitorMinInRateNotAchieves,
        slapmPolicyMonitorMaxInRateExceeds,
        slapmPolicyMonitorMaxDelayExceeds,
        slapmPolicyMonitorMinOutRateNotAchieves,
        slapmPolicyMonitorMaxOutRateExceeds,
        slapmPolicyMonitorCurrentDelayRate,
        slapmPolicyMonitorRowStatus
    }
STATUS deprecated
DESCRIPTION
    "The group of objects defined by this MIB that are
    required for all implementations to be compliant."
 ::= { slapmGroups 1 }

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

slapmEndSystemGroup OBJECT-GROUP
    OBJECTS {
        slapmPolicyTrapFilter,
        slapmSubcomponentProtocol,
        slapmSubcomponentSystemAddress,
        slapmSubcomponentPolicyName,
        slapmSubcomponentTrafficProfileName,
        slapmSubcomponentLastActivity,
        slapmSubcomponentInOctets,
        slapmSubcomponentOutOctets,
        slapmSubcomponentTcpOutBufferedOctets,
        slapmSubcomponentTcpInBufferedOctets,
        slapmSubcomponentTcpReXmts,
        slapmSubcomponentTcpRoundTripTime,
        slapmSubcomponentTcpRoundTripVariance,
        slapmSubcomponentInPdus,
        slapmSubcomponentOutPdus,
    }

```

```

        slapmSubcomponentApplName,
        slapmSubcomponentMonitorStatus,
        slapmSubcomponentMonitorIntTime,
        slapmSubcomponentMonitorCurrentOutRate,
        slapmSubcomponentMonitorCurrentInRate
    }
STATUS deprecated
DESCRIPTION
    "The group of objects defined by this MIB that are
    required for end system implementations."
 ::= { slapmGroups 3 }

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

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

slapmBaseGroup2 OBJECT-GROUP
OBJECTS {
    slapmSpinLock,
    slapmPolicyCountQueries,
    slapmPolicyCountAccesses,
    slapmPolicyCountSuccessAccesses,
    slapmPolicyCountNotFounds,
    slapmPolicyPurgeTime,
    slapmPolicyTrapEnable,
    slapmPolicyNameOfRule,
    slapmPolicyRuleStatsOperStatus,
    slapmPolicyRuleStatsActiveConns,

```



```

        slapmPolicyRuleStatsTotalConns,
        slapmPolicyRuleStatsLActivated,
        slapmPolicyRuleStatsLastMapping,
        slapmPolicyRuleStatsInOctets,
        slapmPolicyRuleStatsOutOctets,
        slapmPolicyRuleStatsConnLimit,
        slapmPolicyRuleStatsCountAccepts,
        slapmPolicyRuleStatsCountDenies,
        slapmPolicyRuleStatsInDiscards,
        slapmPolicyRuleStatsOutDiscards,
        slapmPolicyRuleStatsInPackets,
        slapmPolicyRuleStatsOutPackets,
        slapmPolicyRuleStatsInProOctets,
        slapmPolicyRuleStatsOutProOctets,
        slapmPolicyRuleStatsMinRate,
        slapmPolicyRuleStatsMaxRate,
        slapmPolicyRuleStatsMaxDelay,
        slapmPolicyRuleStatsTotalRsvpFlows,
        slapmPolicyRuleStatsActRsvpFlows,
        slapmPRMonControl,
        slapmPRMonStatus,
        slapmPRMonInterval,
        slapmPRMonIntTime,
        slapmPRMonCurrentInRate,
        slapmPRMonCurrentOutRate,
        slapmPRMonMinRateLow,
        slapmPRMonMinRateHigh,
        slapmPRMonMaxRateHigh,
        slapmPRMonMaxRateLow,
        slapmPRMonMaxDelayHigh,
        slapmPRMonMaxDelayLow,
        slapmPRMonMinInRateNotAchieves,
        slapmPRMonMaxInRateExceeds,
        slapmPRMonMaxDelayExceeds,
        slapmPRMonMinOutRateNotAchieves,
        slapmPRMonMaxOutRateExceeds,
        slapmPRMonCurrentDelayRate,
        slapmPRMonRowStatus
    }
STATUS current
DESCRIPTION
    "The group of objects defined by this MIB that are
    required for all implementations to be compliant."
 ::= { slapmGroups 6 }

slapmEndSystemGroup2 OBJECT-GROUP
    OBJECTS {
        slapmPolicyTrapFilter,

```

```

        slapmSubcomponentProtocol,
        slapmSubcomponentSystemAddress,
        slapmSubcomponentLastActivity,
        slapmSubcomponentInOctets,
        slapmSubcomponentOutOctets,
        slapmSubcomponentTcpOutBufferedOctets,
        slapmSubcomponentTcpInBufferedOctets,
        slapmSubcomponentTcpReXmts,
        slapmSubcomponentTcpRoundTripTime,
        slapmSubcomponentTcpRoundTripVariance,
        slapmSubcomponentInPdus,
        slapmSubcomponentOutPdus,
        slapmSubcomponentApplName,
        slapmSubcomponentMonitorStatus,
        slapmSubcomponentMonitorIntTime,
        slapmSubcomponentMonitorCurrentOutRate,
        slapmSubcomponentMonitorCurrentInRate,
        slapmSubcomponentPolicyRuleIndex
    }
STATUS    current
DESCRIPTION
    "The group of objects defined by this MIB that are
    required for end system implementations."
 ::= { slapmGroups 7 }

slapmNotGroup2 NOTIFICATION-GROUP
NOTIFICATIONS {
    slapmPolicyRuleMonNotOkay,
    slapmPolicyRuleMonOkay,
    slapmPolicyRuleDeleted,
    slapmPolicyRuleMonDeleted
}
STATUS    current
DESCRIPTION
    "The group of notifications defined by this MIB that MUST
    be implemented."
 ::= { slapmGroups 8 }

slapmEndSystemNotGroup2 NOTIFICATION-GROUP
NOTIFICATIONS {
    slapmSubcMonitorNotOkay,
    slapmSubcMonitorOkay
}
STATUS    current
DESCRIPTION
    "The group of objects defined by this MIB that are
    required for end system implementations."
 ::= { slapmGroups 9 }

```

END

5.0 Security Considerations

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

To facilitate the provisioning of access control by a security administrator using the View-Based Access Control Model (VACM) defined in RFC 2575 [11] for tables in which multiple users may need to independently create or modify entries, the initial index is used as an "owner index" (refer to `slapmPRMonOwnerIndex` in an `slapmPRMonEntry`). Such an initial index has a syntax of `SnmpAdminString`, and can thus be trivially mapped to a `securityName` or `groupName` as defined in VACM, in accordance with a security policy.

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

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

6.0 Intellectual Property

The IETF takes no position regarding the validity or scope of any intellectual property or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; neither does it represent that it has made any effort to identify any such rights. Information on the IETF's procedures with respect to rights in standards-track and standards-related documentation can be found in BCP-11. Copies of claims of rights made available for publication and any assurances of

licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF Secretariat.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights which may cover technology that may be required to practice this standard. Please address the information to the IETF Executive Director.

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.

8.0 References

- [1] Case, J., Fedor, M., Schoffstall, M. and J. Davin, "Simple Network Management Protocol", STD 15, RFC 1157, 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, March 1991.
- [3] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Structure of Management Information Version 2 (SMIV2)", STD 58, RFC 2578, April 1999.
- [4] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Textual Conventions for SMIV2", STD 58, RFC 2579, April 1999.
- [5] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M. and S. Waldbusser, "Conformance Statements for SMIV2", STD 58, RFC 2580, 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. and B. Wijnen, "An Architecture for Describing SNMP Management Frameworks", RFC 2571, April 1999.
- [8] Case, J., Harrington D., Presuhn, R. and B. Wijnen, "Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)", RFC 2572, April 1999.

- [9] Levi D., Meyer P. and B. Stewart, "SNMPv3 Applications", RFC 2573, April 1999.
- [10] Blumenthal, U. and B. Wijnen, "User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)", RFC 2574, April 1999.
- [11] Wijnen, B., Presuhn, R. and K. McCloghrie, "View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)", RFC 2575, 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", STD 16, RFC 1155, May 1990.
- [15] Rose, M. and K. McCloghrie, "Concise MIB Definitions", STD 16, RFC 1212, March 1991.
- [16] Rose, M., "A Convention for Defining Traps for use with the SNMP", RFC 1215, March 1991.
- [17] Case, J., McCloghrie, K., Rose, M. and S. Waldbusser, "Introduction to Community-based SNMPv2", RFC 1901, 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, January 1996.
- [19] McCloghrie, K. and A. Bierman, "Entity MIB using SMIV2", RFC 2037, October 1996.
- [20] Bradner, S., "The Internet Standards Process -- Revision 3", BCP 9, RFC 2026, October 1996.

9.0 Author's Address

Kenneth D. White
Dept. BRQA/Bldg. 501/G114
IBM Corporation
P.O.Box 12195
3039 Cornwallis
Research Triangle Park, NC 27709, USA

EMail: wkenneth@us.ibm.com

10.0 Full Copyright Statement

Copyright (C) The Internet Society (2000). All Rights Reserved.

This document and translations of it may be copied and furnished to others, and derivative works that comment on or otherwise explain it or assist in its implementation may be prepared, copied, published and distributed, in whole or in part, without restriction of any kind, provided that the above copyright notice and this paragraph are included on all such copies and derivative works. However, this document itself may not be modified in any way, such as by removing the copyright notice or references to the Internet Society or other Internet organizations, except as needed for the purpose of developing Internet standards in which case the procedures for copyrights defined in the Internet Standards process must be followed, or as required to translate it into languages other than English.

The limited permissions granted above are perpetual and will not be revoked by the Internet Society or its successors or assigns.

This document and the information contained herein is provided on an "AS IS" basis and THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Acknowledgement

Funding for the RFC Editor function is currently provided by the Internet Society.

