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Definitions of Managed Objects for
Service Level Agreements
Performance Monitoring
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Abstract

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

system and to defined a method of monitoring this data.

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

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

The MIB module defined within this memo has been modeled using the various versions of the schema definitions being developed within the

Policy Framework Working Group in the IETF. The content of the MIB defined within this memo has evolved along with the Policy Framework Working Group schema definitions.

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[2.0](#) The SNMP Network Management Framework

The SNMP Management Framework presently consists of five major components:

- o An overall architecture, described in [RFC 2571](#) [7].
- o Mechanisms for describing and naming objects and events for the purpose of management. The first version of this Structure of Management Information (SMI) is called SMIV1 and described in [RFC 1155](#) [14], [RFC 1212](#) [15] and [RFC 1215](#) [16]. The second version, called SMIV2, is described in [RFC 2578](#) [3], [RFC 2579](#) [4] and [RFC 2580](#) [5].
- o Message protocols for transferring management information. The first version of the SNMP message protocol is called SNMPv1 and described in [RFC 1157](#) [1]. A second version of the SNMP message protocol, which is not an Internet standards track protocol, is called SNMPv2c and described in [RFC 1901](#) [17] and [RFC 1906](#) [18]. The third version of the message protocol is called SNMPv3 and described in [RFC 1906](#) [18], [RFC 2572](#) [8] and [RFC 2574](#) [10].
- o Protocol operations for accessing management information. The first set of protocol operations and associated PDU formats is described in [RFC 1157](#) [1]. A second set of protocol operations and associated PDU formats is described in [RFC 1905](#) [6].
- o A set of fundamental applications described in [RFC 2573](#) [9] and the view-based access control mechanism described in [RFC 2575](#) [11].

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

This memo specifies a MIB module that is compliant to the SMIV2. A MIB conforming to the SMIV1 can be produced through the appropriate translations. The resulting translated MIB must be semantically equivalent, except where objects or events are omitted because no translation is possible (use of Counter64). Some machine readable information in SMIV2 will be converted into textual descriptions in SMIV1 during the translation process. However, this loss of machine

readable information is not considered to change the semantics of the MIB.

[3.0](#) Structure of the MIB

The SLAPM-MIB consists of the following components:

- o scalar objects
- o slapmPolicyNameTable

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

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

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

[3.1](#) 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.

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- 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.

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[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`.

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- 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, DateAndTime
FROM SNMPv2-TC -- [RFC2579](#)
MODULE-COMPLIANCE, OBJECT-GROUP,
NOTIFICATION-GROUP
FROM SNMPv2-CONF -- [RFC2580](#)
SnmAdminString
FROM SNMP-FRAMEWORK-MIB; -- [RFC2571](#)

slapmMIB MODULE-IDENTITY

LAST-UPDATED "9910130000Z"
ORGANIZATION "Internet Engineering Task Force (IETF)"
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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 "9910130000Z" -- 13 Oct. 1999

DESCRIPTION

"This version published as RFC xxxx."
-- RFC-editor assigns xxxx

::= { experimental 88 }

-- Textual Conventions

SlapmNameType ::= TEXTUAL-CONVENTION
STATUS deprecated

DESCRIPTION

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

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

SYNTAX SnmpAdminString (SIZE(0..32))

SlapmStatus ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

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

SYNTAX BITS {

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

SlapmPolicyRuleName ::= TEXTUAL-CONVENTION

DISPLAY-HINT "1024t"

STATUS current

DESCRIPTION

"To facilitate internationalization, this TC represents information taken from the ISO/IEC IS 10646-1 character set, encoded as an octet string using the UTF-8 character encoding scheme described

in [RFC 2044](#). For strings in 7-bit US-ASCII,
there is no impact since the UTF-8 representation
is identical to the US-ASCII encoding."
SYNTAX OCTET STRING (SIZE (0..1024))

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-- 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 a 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

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```
        slapmPolicyCountQueries, since typically policy entries
        are cached to minimize repository accesses."
 ::= { slapmBaseObjects 3 }
```

slapmPolicyCountSuccessAccesses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

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

```
 ::= { slapmBaseObjects 4 }
```

slapmPolicyCountNotFounds OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

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

```
 ::= { slapmBaseObjects 5 }
```

slapmPolicyPurgeTime OBJECT-TYPE

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

UNITS "seconds"

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"The purpose of this object is to define the amount
of time (in seconds) to wait before removing an
slapmPolicyRuleStatsEntry (or old slapmPolicyStatsEntry)

when a system detects that the associated policy definition has been deleted. This gives any polling management applications time to complete their last poll before an entry is removed. An `slapmPolicyRuleStatsEntry` (or old `slapmPolicyStatsEntry`) enters the `deleteNeeded(3)` state via `slapmPolicyRuleStatsOperStatus` (or old `slapmPolicyStatsOperStatus`) when a system first detects that the entry needs to be removed.

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

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

A `slapmPolicyRuleDeleted` (or `slapmPolicyProfileDeleted`) notification is sent when an `slapmPolicyRuleStatsEntry` (or

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

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

`slapmPolicyTrapEnable` OBJECT-TYPE

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

MAX-ACCESS read-write

STATUS current

DESCRIPTION

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

DEFVAL { disabled }

::= { slapmBaseObjects 7 }

`slapmPolicyTrapFilter` OBJECT-TYPE

SYNTAX Integer32 (0..64)

```

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

```

```

slapmTableObjects    OBJECT IDENTIFIER ::= { slapmObjects 2 }

```

```

-- Sla Performance Monitoring Policy Statistics Table

```

```

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

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

```

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```

        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 }

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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 }

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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

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"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

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'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

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"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

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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 falls 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

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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

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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

```

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```

    MAX-ACCESS    read-only
    STATUS        deprecated
    DESCRIPTION
        "Policy name that this entry relates to.

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

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

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

```

::= { slapmSubcomponentEntry 8 }

slapmSubcomponentLastActivity OBJECT-TYPE

SYNTAX DateAndTime

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of 100ths of seconds since this entry
was last used."

DEFVAL { '0000000000000000'H }

::= { slapmSubcomponentEntry 9 }

slapmSubcomponentInOctets OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of octets received from IP for this
connection."

::= { slapmSubcomponentEntry 10 }

slapmSubcomponentOutOctets OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of octets sent to IP for this connection."

::= { slapmSubcomponentEntry 11 }

slapmSubcomponentTcpOutBufferedOctets OBJECT-TYPE

SYNTAX Counter32

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MAX-ACCESS read-only

STATUS current

DESCRIPTION

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

::= { slapmSubcomponentEntry 12 }

slapmSubcomponentTcpInBufferedOctets OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Number of incoming octets buffered. The value of this object is zero when the entry is not for a TCP connection."
 ::= { slapmSubcomponentEntry 13 }

slapmSubcomponentTcpReXmts OBJECT-TYPE

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

slapmSubcomponentTcpRoundTripTime OBJECT-TYPE

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

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

slapmSubcomponentTcpRoundTripVariance OBJECT-TYPE

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

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

slapmSubcomponentInPdus OBJECT-TYPE

SYNTAX Counter32
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"The number of protocol related data units transferred inbound:

slapmSubcomponentProtocol	PDU Type
udpListener(1)	UDP datagrams
tcpConnection(2)	TCP segments"

::= { slapmSubcomponentEntry 17 }

slapmSubcomponentOutPdus OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of protocol related data units transferred outbound:

slapmSubcomponentProtocol	PDU Type
udpListener(1)	UDP datagrams
tcpConnection(2)	TCP segments"

::= { slapmSubcomponentEntry 18 }

slapmSubcomponentApplName OBJECT-TYPE

SYNTAX SnmpAdminString (SIZE(0..32))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The application name associated with this entry if known, otherwise a zero-length octet string is returned as the value of this object."

::= { slapmSubcomponentEntry 19 }

slapmSubcomponentMonitorStatus OBJECT-TYPE

SYNTAX SlapmStatus

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of this object indicates when a monitored value has exceeded a threshold or isn't meeting the defined service level. Only the following SlapmStatus BITS setting can be reported here:

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

monitorMaxOutRateExceeded(9)

This object only has meaning when an corresponding
slapmPolicyMonitorEntry exists with the
slapmPolicyMonitorControl BITS setting
monitorSubcomponents(5) enabled."

::= { slapmSubcomponentEntry 20 }

slapmSubcomponentMonitorIntTime OBJECT-TYPE

SYNTAX DateAndTime

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The timestamp for when the last interval ended.

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

DEFVAL { '0000000000000000'H }

::= { slapmSubcomponentEntry 21 }

slapmSubcomponentMonitorCurrentInRate OBJECT-TYPE

SYNTAX Gauge32

UNITS "kilobits per second"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Using the value of the corresponding
slapmPRMonInterval (or slapmPolicyMonitorInterval),
slapmSubcomponentStatsInOctets
is divided by slapmSubcomponentMonitorInterval to determine
the current in transfer rate.

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

::= { slapmSubcomponentEntry 22 }

slapmSubcomponentMonitorCurrentOutRate OBJECT-TYPE

SYNTAX Gauge32

UNITS "kilobits per second"

MAX-ACCESS read-only
STATUS current
DESCRIPTION

"Using the value of the corresponding slapmPRMonInterval (or
slapmPolicyMonitorInterval), slapmSubcomponentStatsOutOctets

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is divided by slapmPRMonInterval (or
slapmPolicyMonitorInterval) to determine the
current out transfer rate.

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

slapmSubcomponentPolicyRuleIndex OBJECT-TYPE

SYNTAX Unsigned32 (1..4294967295)
MAX-ACCESS read-only
STATUS current
DESCRIPTION

"Points to an slapmPolicyNameEntry when combined with
slapmSubcomponentSystemAddress to indicate the
policy naming that relates to this entry."
::= { slapmSubcomponentEntry 24 }

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

slapmPolicyNameTable OBJECT-TYPE

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

"Provides the mapping between a policy index as a
unsigned 32 bit integer and the unique name associated
with a policy rule."
::= { slapmTableObjects 4 }

slapmPolicyNameEntry OBJECT-TYPE

SYNTAX SlapmPolicyNameEntry
MAX-ACCESS not-accessible
STATUS current
DESCRIPTION

```

        "Defines an entry in the slapmPolicyNameTable."
INDEX {
    slapmPolicyNameSystemAddress,
    slapmPolicyNameIndex
}
 ::= { slapmPolicyNameTable 1 }

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

```

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```

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

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```

        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

```

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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."

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::= { slappmPolicyRuleStatsEntry 16 }

slappmPolicyRuleStatsMinRate OBJECT-TYPE

SYNTAX Unsigned32

UNITS "Kilobits per second"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The minimum transfer rate defined for this entry."

::= { slappmPolicyRuleStatsEntry 17 }

slappmPolicyRuleStatsMaxRate OBJECT-TYPE

SYNTAX Unsigned32

UNITS "Kilobits per second"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The maximum transfer rate defined for this entry."

::= { slappmPolicyRuleStatsEntry 18 }

slappmPolicyRuleStatsMaxDelay OBJECT-TYPE

SYNTAX Unsigned32

UNITS "milliseconds"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The maximum delay defined for this entry."

::= { slappmPolicyRuleStatsEntry 19 }

slappmPolicyRuleStatsTotalRsvpFlows OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"Total number of RSVP flows that have be activated."

::= { slappmPolicyRuleStatsEntry 20 }

slappmPolicyRuleStatsActRsvpFlows OBJECT-TYPE

SYNTAX Gauge32

```

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

-- SLA Performance Monitoring Policy Rule Monitor Table

slampPRMonTable OBJECT-TYPE
    SYNTAX SEQUENCE OF SlampPRMonEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION

```

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```

    "Provides a method of monitoring policies and their
    effect at a system."
 ::= { slampTableObjects 6 }

slampPRMonEntry OBJECT-TYPE
    SYNTAX SlampPRMonEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "Defines an entry in the slampPRMonTable. This
        table defines which policies should be monitored on a
        per policy rule basis."
    INDEX {
        slampPRMonOwnerIndex,
        slampPRMonSystemAddress,
        slampPRMonIndex
    }
 ::= { slampPRMonTable 1 }

SlampPRMonEntry ::=
    SEQUENCE {
        slampPRMonOwnerIndex          SnmpAdminString,
        slampPRMonSystemAddress       OCTET STRING,
        slampPRMonIndex               Unsigned32,
        slampPRMonControl             BITS,
        slampPRMonStatus              SlampStatus,
        slampPRMonInterval            Unsigned32,
        slampPRMonIntTime             DateAndTime,
        slampPRMonCurrentInRate       Gauge32,
        slampPRMonCurrentOutRate      Gauge32,
        slampPRMonMinRateLow          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

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multiple users may need to independently create or modify entries, the initial index is used as an 'owner index'. Such an initial index has a syntax of SnmpAdminString, and can thus be trivially mapped to a securityName or groupName as defined in VACM, in accordance with a security policy.

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

::= { slapmPRMonEntry 1 }

slapmPRMonSystemAddress OBJECT-TYPE

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

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

slapmPRMonControl OBJECT-TYPE
 SYNTAX BITS {
 monitorMinRate(0),
 monitorMaxRate(1),
 monitorMaxDelay(2),
 enableAggregateTraps(3),
 enableSubcomponentTraps(4),
 monitorSubcomponents(5)
 }
 MAX-ACCESS read-create

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

monitorMinRate(0) - Monitor minimum transfer rate.
 monitorMaxRate(1) - Monitor maximum transfer rate.
 monitorMaxDelay(2) - Monitor maximum delay.
 enableAggregateTraps(3) - The enableAggregateTraps(3)
 BITS setting enables notification generation

when monitoring a policy rule as an aggregate using the values in the corresponding slapmPRMonStatsEntry. By default this function is not enabled.

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

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

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

slapmPRMonStatus OBJECT-TYPE

SYNTAX SlapmStatus

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The value of this object indicates when a monitored value has not meet a threshold or isn't meeting the defined service level. The SlapmStatus TEXTUAL-CONVENTION defines two levels of not meeting a threshold. The first set:

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

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

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

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

```
::= { slapmPRMonEntry 5 }
```

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

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

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

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

slapmPRMonMinRateLow OBJECT-TYPE
 SYNTAX Unsigned32
 UNITS "kilobits per second"
 MAX-ACCESS read-create
 STATUS current

DESCRIPTION

"The threshold for generating a slapmPolicyRuleMonNotOkay notification, signalling that a monitored minimum transfer rate has not been meet.

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

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

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

::= { slapmPRMonEntry 10 }

slapmPRMonMinRateHigh OBJECT-TYPE

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

DESCRIPTION

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

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

is selected.

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

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

slapmPRMonMaxRateHigh OBJECT-TYPE

SYNTAX Unsigned32

UNITS "kilobits per second"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

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

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

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

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

::= { slapmPRMonEntry 12 }

slapmPRMonMaxRateLow OBJECT-TYPE

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

DESCRIPTION

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

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

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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

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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."
 ::= { 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,

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 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,

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 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 {

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```
    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

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```
        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
```

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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

```

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```

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

in insecure environments.

[6.0](#) Intellectual Property

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[7.0](#) Acknowledgments

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[8.0](#) References

- [1] Case, J., M. Fedor, M. Schoffstall, J. Davin, "Simple Network Management Protocol", [RFC 1157](#), SNMP Research, Performance Systems International, MIT Laboratory for Computer Science, May 1990.
- [2] McCloghrie, K., and M. Rose, Editors, "Management Information Base for Network Management of TCP/IP-based internets: MIB-II", STD 17, [RFC 1213](#), Hughes LAN Systems, Performance Systems International, March 1991.
- [3] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M., and S. Waldbusser, "Structure of Management Information Version 2 (SMIv2)", [RFC 2578](#), STD 58, Cisco Systems, SNMPinfo, TU Braunschweig, SNMP Research, First Virtual Holdings, International Network Services, April 1999.

- [4] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M., and S. Waldbusser, "Textual Conventions for SMIV2", [RFC 2579](#), STD 58, Cisco Systems, SNMPinfo, TU Braunschweig, SNMP Research, First Virtual Holdings, International Network Services, April 1999.
- [5] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M., and S. Waldbusser, "Conformance Statements for SMIV2", [RFC 2580](#), STD 58, Cisco Systems, SNMPinfo, TU Braunschweig, SNMP Research, First Virtual Holdings, International Network Services, April 1999.
- [6] Case, J., McCloghrie, K., Rose, M., and Waldbusser, S., "Protocol Operations for Version 2 of the Simple Network Management Protocol (SNMPv2)", [RFC 1905](#), January 1996.
- [7] Harrington D., Presuhn, R., Wijnen, B., "An Architecture for Describing SNMP Management Frameworks", [RFC 2571](#), Cabletron Systems, BMC Software, Inc., IBM T.J. Watson Research, April 1999.
- [8] Case, J., Harrington D., Presuhn, R., Wijnen, B., "Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)", [RFC 2572](#), SNMP Research Inc., Cabletron Systems, BMC Software, Inc., IBM T.J. Watson Research, April 1999.
- [9] Levi D., Meyer P., Stewart, B., "SNMPv3 Applications", [RFC 2573](#), SNMP Research, Inc., Secure Computing Corporation, Cisco Systems, April 1999.
- [10] Blumenthal, U., Wijnen, B., "User-based Security Model (USM) for version 3 of the Simple Network Management Protocol (SNMPv3)", [RFC 2574](#), IBM T. J. Watson Research, April 1999.
- [11] Wijnen, B., Presuhn, R., McCloghrie, K., "View-based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)", [RFC 2575](#), IBM T.J. Watson Research, BMC Software, Inc., Cisco Systems, Inc., April 1999.
- [12] Hovey, R., and S. Bradner, "The Organizations Involved in the IETF Standards Process", [BCP 11](#), [RFC 2028](#), October 1996.
- [13] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [14] Rose, M., and K. McCloghrie, "Structure and Identification of Management Information for TCP/IP-based Internets", [RFC 1155](#), Performance Systems International, Hughes LAN Systems, May 1990.
- [15] Rose, M., and K. McCloghrie, "Concise MIB Definitions", [RFC 1212](#), Performance Systems International, Hughes LAN Systems, March 1991.

- [16] M. Rose, "A Convention for Defining Traps for use with the SNMP", [RFC 1215](#), Performance Systems International, March 1991.

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- [17] Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Introduction to Community-based SNMPv2", [RFC 1901](#), SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.
- [18] Case, J., McCloghrie, K., Rose, M., and S. Waldbusser, "Transport Mappings for Version 2 of the Simple Network Management Protocol (SNMPv2)", [RFC 1906](#), SNMP Research, Inc., Cisco Systems, Inc., Dover Beach Consulting, Inc., International Network Services, January 1996.
- [19] McCloghrie, K. and Bierman, A., "Entity MIB using SMIV2", [RFC 2037](#), October 1996.
- [20] Bradner, S., "The Internet Standards Process -- Revision 3", [RFC 2026](#), [BCP 9](#), Harvard University, October 1996.

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