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RSVP Management Information Base using SMIV2

Status of this Memo

This document specifies an Internet standards track protocol for the Internet community, and requests discussion and suggestions for improvements. Please refer to the current edition of the "Internet Official Protocol Standards" (STD 1) for the standardization state and status of this protocol. Distribution of this memo is unlimited.

Abstract

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in TCP/IP-based internets. In particular, it defines objects for managing the Resource Reservation Protocol (RSVP) within the interface attributes defined in the Integrated Services Model. Thus, the Integrated Services MIB is directly relevant to and cross-referenced by this MIB. Comments should be made to the RSVP Working Group, rsvp@isi.edu.

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1. The SNMPv2 Network Management Framework

The SNMPv2 Network Management Framework consists of four major components. They are:

- o RFC 1441 which defines the SMI, the mechanisms used for describing and naming objects for the purpose of management.
- o STD 17, RFC 1213 defines MIB-II, the core set of managed objects for the Internet suite of protocols.
- o RFC 1445 which defines the administrative and other architectural aspects of the framework.
- o RFC 1448 which defines the protocol used for network access to managed objects.

The Framework permits new objects to be defined for the purpose of experimentation and evaluation.

1.1. Object Definitions

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. Objects in the MIB are defined using the subset of Abstract Syntax Notation One (ASN.1) defined in the SMI. In particular, each object type is named by an OBJECT IDENTIFIER, an administratively assigned name. The object type together with an object instance serves to uniquely identify a specific instantiation of the object. For human convenience, we often use a textual string, termed the descriptor, to refer to the object type.

2. Overview

2.1. Textual Conventions

Several new data types are introduced as a textual convention in this MIB document. These textual conventions enhance the readability of the specification and can ease comparison with other specifications if appropriate. It should be noted that the introduction of the these textual conventions has no effect on either the syntax nor the semantics of any managed objects. The use of these is merely an artifact of the explanatory method used. Objects defined in terms of one of these methods are always encoded by means of the rules that define the primitive type. Hence, no changes to the SMI or the SNMP are necessary to accommodate these textual conventions which are adopted merely for the convenience of readers and writers in pursuit of the elusive goal of clear, concise, and unambiguous MIB documents.

2.2. Structure of MIB

The MIB is composed of the following sections:

- General Objects
- Session Statistics Table
- Session Sender Table
- Reservation Requests Received Table
- Reservation Requests Forwarded Table
- RSVP Interface Attributes Table
- RSVP Neighbor Table

As a general rule, it is difficult in SNMP to describe arbitrarily long or complex messages; this MIB therefore seeks to describe the Path State Database and the Reservation State Database as though each flow and filter description received in an aggregate message had been received in a separate reservation message.

Thus, if a RESV message is received for session 224.1.2.3+UDP+4455 with two filter/flow spec groups describing a sender 1.2.3.4 and another sender 1.2.7.8, these two will show in the MIB as two separate rows: one for 224.1.2.3+UDP+4455 from 1.2.3.4 and the other for 224.1.2.3+UDP+4455 from 1.2.7.8.

2.3. Semantics of Writing the Path and Reservation State Databases

The path and reservation state tables are writeable. Writing into the Path and Reservation State databases allows one to perform RSVP reservations without authenticating through RSVP mechanisms, but

rather through SNMP mechanisms. State created in this way by SNMP does not time out and cannot be deleted by receiving an RSVP teardown message; it can only be deleted by SNMP. Deletion is accomplished by writing 'destroy' to the associated Row Status object, and this will initiate a teardown message as if the state had timed out.

2.4. Intended use of Flow Notifications

2.4.1. The lostFlow Notification

The Lost Flow notification is an asynchronous event that signifies that a flow is no longer being observed.

2.4.2. The newFlow Notification

The newFlow Notification defined in this MIB can be used to advise a network management system of the state of a flow.

3. Definitions

RSVP-MIB DEFINITIONS ::= BEGIN

IMPORTS

```

MODULE-IDENTITY, OBJECT-TYPE, Gauge32,
NOTIFICATION-TYPE, Integer32, mib-2
                                FROM SNMPv2-SMI
TEXTUAL-CONVENTION, TruthValue, RowStatus,
TimeStamp, TestAndIncr, TimeInterval
                                FROM SNMPv2-TC
MODULE-COMPLIANCE, OBJECT-GROUP,
NOTIFICATION-GROUP                FROM SNMPv2-CONF
Port, SessionNumber, SessionType,
Protocol, QoSService, intSrvFlowStatus,
MessageSize, BitRate, BurstSize
                                FROM INTEGRATED-SERVICES-MIB
ifIndex, InterfaceIndex          FROM IF-MIB;
```

rsvp MODULE-IDENTITY

```

LAST-UPDATED "9511030500Z" -- Thu Aug 28 09:03:53 PDT 1997
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DESCRIPTION

"The MIB module to describe the RSVP Protocol"
 ::= { mib-2 51 }

rsvpObjects	OBJECT IDENTIFIER ::= { rsvp 1 } -- tables
rsvpGenObjects	OBJECT IDENTIFIER ::= { rsvp 2 } -- global objects
rsvpNotificationsPrefix	OBJECT IDENTIFIER ::= { rsvp 3 } -- traps
rsvpConformance	OBJECT IDENTIFIER ::= { rsvp 4 } -- conformance

RsvpEncapsulation ::= TEXTUAL-CONVENTION

STATUS current

DESCRIPTION

"This indicates the encapsulation that an RSVP Neighbor is perceived to be using."

SYNTAX INTEGER {
 ip (1), -- IP Protocol 46
 udp (2), -- UDP Encapsulation
 both (3) -- neighbor is using both encapsulations
 }

RefreshInterval ::= TEXTUAL-CONVENTION

DISPLAY-HINT "d"

STATUS current

DESCRIPTION

"The number of milliseconds that are expected to elapse between refreshes of path or reservation state. Unrefreshed Path or reservation state is removed after a small multiple of this period."

SYNTAX INTEGER (0..'7FFFFFFF'h)

```
-- The RSVP Session Statistics Database displays statistics
-- relating to the number of senders and receivers in each
-- session.
```

rsvpSessionTable OBJECT-TYPE

SYNTAX SEQUENCE OF RsvpSessionEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A table of all sessions seen by a given system."

::= { rsvpObjects 1 }

rsvpSessionEntry OBJECT-TYPE

SYNTAX RsvpSessionEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"A single session seen by a given system."

INDEX { rsvpSessionNumber }

::= { rsvpSessionTable 1 }

RsvpSessionEntry ::=

SEQUENCE {

rsvpSessionNumber SessionNumber,

rsvpSessionType SessionType,

rsvpSessionDestAddr OCTET STRING,

rsvpSessionDestAddrLength INTEGER,

rsvpSessionProtocol Protocol,

rsvpSessionPort Port,

rsvpSessionSenders Gauge32,

rsvpSessionReceivers Gauge32,

rsvpSessionRequests Gauge32

}

rsvpSessionNumber OBJECT-TYPE

SYNTAX SessionNumber

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The number of this session. This is for SNMP

Indexing purposes only and has no relation to
any protocol value."
::= { rsvpSessionEntry 1 }

rsvpSessionType OBJECT-TYPE
SYNTAX SessionType
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The type of session (IP4, IP6, IP6 with flow
information, etc)."
::= { rsvpSessionEntry 2 }

rsvpSessionDestAddr OBJECT-TYPE
SYNTAX OCTET STRING (SIZE(4..16))
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The destination address used by all senders in
this session. This object may not be changed
when the value of the RowStatus object is 'ac-
tive'. "
::= { rsvpSessionEntry 3 }

rsvpSessionDestAddrLength OBJECT-TYPE
SYNTAX INTEGER(0..128)
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The CIDR prefix length of the session address,
which is 32 for IP4 host and multicast ad-
dresses, and 128 for IP6 addresses. This ob-
ject may not be changed when the value of the
RowStatus object is 'active'. "
::= { rsvpSessionEntry 4 }

rsvpSessionProtocol OBJECT-TYPE
SYNTAX Protocol
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The IP Protocol used by this session. This
object may not be changed when the value of the
RowStatus object is 'active'. "

```
::= { rsvpSessionEntry 5 }
```

```
rsvpSessionPort OBJECT-TYPE
```

```
SYNTAX      Port
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

"The UDP or TCP port number used as a destination port for all senders in this session. If the IP protocol in use, specified by rsvpSenderProtocol, is 50 (ESP) or 51 (AH), this represents a virtual destination port number. A value of zero indicates that the IP protocol in use does not have ports. This object may not be changed when the value of the RowStatus object is 'active'."

```
::= { rsvpSessionEntry 6 }
```

```
rsvpSessionSenders OBJECT-TYPE
```

```
SYNTAX      Gauge32
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

"The number of distinct senders currently known to be part of this session."

```
::= { rsvpSessionEntry 7 }
```

```
rsvpSessionReceivers OBJECT-TYPE
```

```
SYNTAX      Gauge32
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

"The number of reservations being requested of this system for this session."

```
::= { rsvpSessionEntry 8 }
```

```
rsvpSessionRequests OBJECT-TYPE
```

```
SYNTAX      Gauge32
```

```
MAX-ACCESS  read-only
```

```
STATUS      current
```

```
DESCRIPTION
```

"The number of reservation requests this system is sending upstream for this session."

```
::= { rsvpSessionEntry 9 }
```



```
rsvpBadPackets OBJECT-TYPE
    SYNTAX      Gauge32
    MAX-ACCESS   read-only
    STATUS       current
    DESCRIPTION
        "This object keeps a count of the number of bad
        RSVP packets received."
    ::= { rsvpGenObjects 1 }

--      The RSVP Session Sender Database contains the information
--      displayed by senders regarding their potential contribution
--      to session data content. It is in essence a list of the
--      valid PATH messages that the RSVP Router or Host is receiving.

rsvpSenderNewIndex OBJECT-TYPE
    SYNTAX      TestAndIncr
    MAX-ACCESS   read-write
    STATUS       current
    DESCRIPTION
        "This object is used to assign values to
        rsvpSenderNumber as described in 'Textual Con-
        ventions for SNMPv2'. The network manager
        reads the object, and then writes the value
        back in the SET that creates a new instance of
        rsvpSenderEntry. If the SET fails with the
        code 'inconsistentValue', then the process must
        be repeated; If the SET succeeds, then the ob-
        ject is incremented, and the new instance is
        created according to the manager's directions."
    ::= { rsvpGenObjects 2 }

rsvpSenderTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF RsvpSenderEntry
    MAX-ACCESS   not-accessible
    STATUS       current
    DESCRIPTION
        "Information describing the state information
        displayed by senders in PATH messages."
    ::= { rsvpObjects 2 }

rsvpSenderEntry OBJECT-TYPE
    SYNTAX      RsvpSenderEntry
    MAX-ACCESS   not-accessible
    STATUS       current
```

DESCRIPTION

"Information describing the state information displayed by a single sender's PATH message."

INDEX { rsvpSessionNumber, rsvpSenderNumber }
 ::= { rsvpSenderTable 1 }

RsvpSenderEntry ::=

```
SEQUENCE {
    rsvpSenderNumber          SessionNumber,
    rsvpSenderType            SessionType,
    rsvpSenderDestAddr        OCTET STRING,
    rsvpSenderAddr            OCTET STRING,
    rsvpSenderDestAddrLength  INTEGER,
    rsvpSenderAddrLength      INTEGER,
    rsvpSenderProtocol        Protocol,
    rsvpSenderDestPort        Port,
    rsvpSenderPort            Port,
    rsvpSenderFlowId          INTEGER,
    rsvpSenderHopAddr         OCTET STRING,
    rsvpSenderHopLih          Integer32,
    rsvpSenderInterface       InterfaceIndex,
    rsvpSenderTSpecRate       BitRate,
    rsvpSenderTSpecPeakRate   BitRate,
    rsvpSenderTSpecBurst      BurstSize,
    rsvpSenderTSpecMinTU      MessageSize,
    rsvpSenderTSpecMaxTU      MessageSize,
    rsvpSenderInterval        RefreshInterval,
    rsvpSenderRSVPHop         TruthValue,
    rsvpSenderLastChange      TimeStamp,
    rsvpSenderPolicy          OCTET STRING,
    rsvpSenderAdspecBreak     TruthValue,
    rsvpSenderAdspecHopCount  INTEGER,
    rsvpSenderAdspecPathBw    BitRate,
    rsvpSenderAdspecMinLatency Integer32,
    rsvpSenderAdspecMtu       INTEGER,
    rsvpSenderAdspecGuaranteedSvc TruthValue,
    rsvpSenderAdspecGuaranteedBreak TruthValue,
    rsvpSenderAdspecGuaranteedCtot Integer32,
    rsvpSenderAdspecGuaranteedDt看 Integer32,
    rsvpSenderAdspecGuaranteedCsum Integer32,
    rsvpSenderAdspecGuaranteedDsum Integer32,
    rsvpSenderAdspecGuaranteedHopCount INTEGER,
    rsvpSenderAdspecGuaranteedPathBw BitRate,
    rsvpSenderAdspecGuaranteedMinLatency Integer32,
    rsvpSenderAdspecGuaranteedMtu INTEGER,
    rsvpSenderAdspecCtrlLoadSvc TruthValue,
```

```

    rsvpSenderAdspecCtrlLoadBreak      TruthValue,
    rsvpSenderAdspecCtrlLoadHopCount   INTEGER,
    rsvpSenderAdspecCtrlLoadPathBw     BitRate,
    rsvpSenderAdspecCtrlLoadMinLatency Integer32,
    rsvpSenderAdspecCtrlLoadMtu        INTEGER,
    rsvpSenderStatus                    RowStatus,

    rsvpSenderTTL                       INTEGER
}

rsvpSenderNumber OBJECT-TYPE
    SYNTAX      SessionNumber
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The number of this sender. This is for SNMP
        Indexing purposes only and has no relation to
        any protocol value."
    ::= { rsvpSenderEntry 1 }

rsvpSenderType OBJECT-TYPE
    SYNTAX      SessionType
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The type of session (IP4, IP6, IP6 with flow
        information, etc).".
    ::= { rsvpSenderEntry 2 }

rsvpSenderDestAddr OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(4..16))
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The destination address used by all senders in
        this session. This object may not be changed
        when the value of the RowStatus object is 'ac-
        tive'."
    ::= { rsvpSenderEntry 3 }

rsvpSenderAddr OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(4..16))
    MAX-ACCESS  read-create
    STATUS      current

```

DESCRIPTION

"The source address used by this sender in this session. This object may not be changed when the value of the RowStatus object is 'active'."
::= { rsvpSenderEntry 4 }

rsvpSenderDestAddrLength OBJECT-TYPE

SYNTAX INTEGER(0..128)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The length of the destination address in bits. This is the CIDR Prefix Length, which for IP4 hosts and multicast addresses is 32 bits. This object may not be changed when the value of the RowStatus object is 'active'."
::= { rsvpSenderEntry 5 }

rsvpSenderAddrLength OBJECT-TYPE

SYNTAX INTEGER(0..128)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The length of the sender's address in bits. This is the CIDR Prefix Length, which for IP4 hosts and multicast addresses is 32 bits. This object may not be changed when the value of the RowStatus object is 'active'."
::= { rsvpSenderEntry 6 }

rsvpSenderProtocol OBJECT-TYPE

SYNTAX Protocol

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The IP Protocol used by this session. This object may not be changed when the value of the RowStatus object is 'active'."
::= { rsvpSenderEntry 7 }

rsvpSenderDestPort OBJECT-TYPE

SYNTAX Port

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The UDP or TCP port number used as a destination port for all senders in this session. If the IP protocol in use, specified by rsvpSenderProtocol, is 50 (ESP) or 51 (AH), this represents a virtual destination port number. A value of zero indicates that the IP protocol in use does not have ports. This object may not be changed when the value of the RowStatus object is 'active'."

```
::= { rsvpSenderEntry 8 }
```

rsvpSenderPort OBJECT-TYPE

SYNTAX Port
MAX-ACCESS read-create
STATUS current

DESCRIPTION

"The UDP or TCP port number used as a source port for this sender in this session. If the IP protocol in use, specified by rsvpSenderProtocol is 50 (ESP) or 51 (AH), this represents a generalized port identifier (GPI). A value of zero indicates that the IP protocol in use does not have ports. This object may not be changed when the value of the RowStatus object is 'active'."

```
::= { rsvpSenderEntry 9 }
```

rsvpSenderFlowId OBJECT-TYPE

SYNTAX INTEGER (0..16777215)
MAX-ACCESS read-only
STATUS current

DESCRIPTION

"The flow ID that this sender is using, if this is an IPv6 session."

```
::= { rsvpSenderEntry 10 }
```

rsvpSenderHopAddr OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(4..16))
MAX-ACCESS read-create
STATUS current

DESCRIPTION

"The address used by the previous RSVP hop (which may be the original sender)."

```
::= { rsvpSenderEntry 11 }
```

```

rsvpSenderHopLih OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The Logical Interface Handle used by the pre-
        vious RSVP hop (which may be the original
        sender)."
```

::= { rsvpSenderEntry 12 }

```

rsvpSenderInterface OBJECT-TYPE
    SYNTAX      InterfaceIndex
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The ifIndex value of the interface on which
        this PATH message was most recently received."
```

::= { rsvpSenderEntry 13 }

```

rsvpSenderTSpecRate OBJECT-TYPE
    SYNTAX      BitRate
    UNITS       "bits per second"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The Average Bit Rate of the sender's data
        stream. Within a transmission burst, the ar-
        rival rate may be as fast as rsvpSenderTSpec-
        PeakRate (if supported by the service model);
        however, averaged across two or more burst in-
        tervals, the rate should not exceed rsvpSen-
        derTSpecRate."
```

Note that this is a prediction, often based on the general capability of a type of codec or particular encoding; the measured average rate may be significantly lower."

::= { rsvpSenderEntry 14 }

```

rsvpSenderTSpecPeakRate OBJECT-TYPE
    SYNTAX      BitRate
    UNITS       "bits per second"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
```

"The Peak Bit Rate of the sender's data stream. Traffic arrival is not expected to exceed this rate at any time, apart from the effects of jitter in the network. If not specified in the TSpec, this returns zero or noSuchValue."
 ::= { rsvpSenderEntry 15 }

rsvpSenderTSpecBurst OBJECT-TYPE

SYNTAX BurstSize
UNITS "bytes"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The size of the largest burst expected from the sender at a time."
 ::= { rsvpSenderEntry 16 }

rsvpSenderTSpecMinTU OBJECT-TYPE

SYNTAX MessageSize
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The minimum message size for this flow. The policing algorithm will treat smaller messages as though they are this size."
 ::= { rsvpSenderEntry 17 }

rsvpSenderTSpecMaxTU OBJECT-TYPE

SYNTAX MessageSize
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The maximum message size for this flow. The admission algorithm will reject TSspecs whose Maximum Transmission Unit, plus the interface headers, exceed the interface MTU."
 ::= { rsvpSenderEntry 18 }

rsvpSenderInterval OBJECT-TYPE

SYNTAX RefreshInterval
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The interval between refresh messages as ad-

vertised by the Previous Hop."
::= { rsvpSenderEntry 19 }

rsvpSenderRSVPHop OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"If TRUE, the node believes that the previous IP hop is an RSVP hop. If FALSE, the node believes that the previous IP hop may not be an RSVP hop."

::= { rsvpSenderEntry 20 }

rsvpSenderLastChange OBJECT-TYPE

SYNTAX TimeStamp

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The time of the last change in this PATH message; This is either the first time it was received or the time of the most recent change in parameters."

::= { rsvpSenderEntry 21 }

rsvpSenderPolicy OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(4..65536))

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The contents of the policy object, displayed as an uninterpreted string of octets, including the object header. In the absence of such an object, this should be of zero length."

::= { rsvpSenderEntry 22 }

rsvpSenderAdspecBreak OBJECT-TYPE

SYNTAX TruthValue

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The global break bit general characterization parameter from the ADSPEC. If TRUE, at least one non-IS hop was detected in the path. If


```
FALSE, no non-IS hops were detected."  
 ::= { rsvpSenderEntry 23 }
```

rsvpSenderAdspecHopCount OBJECT-TYPE

SYNTAX INTEGER (0..65535)

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The hop count general characterization parameter from the ADSPEC. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set

the parameter was not present"

```
 ::= { rsvpSenderEntry 24 }
```

rsvpSenderAdspecPathBw OBJECT-TYPE

SYNTAX BitRate

UNITS "bits per second"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The path bandwidth estimate general characterization parameter from the ADSPEC. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set

the parameter was not present"

```
 ::= { rsvpSenderEntry 25 }
```

rsvpSenderAdspecMinLatency OBJECT-TYPE

SYNTAX Integer32

UNITS "microseconds"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The minimum path latency general characterization parameter from the ADSPEC. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set

the parameter was not present"

```
::= { rsvpSenderEntry 26 }
```

```
rsvpSenderAdspecMtu OBJECT-TYPE
```

```
SYNTAX      INTEGER (0..65535)
```

```
UNITS       "bytes"
```

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

```
STATUS      current
```

```
DESCRIPTION
```

```
    "The composed Maximum Transmission Unit general
    characterization parameter from the ADSPEC. A
    return of zero or noSuchValue indicates one of
    the following conditions:
```

```
        the invalid bit was set
```

```
        the parameter was not present"
```

```
::= { rsvpSenderEntry 27 }
```

```
rsvpSenderAdspecGuaranteedSvc OBJECT-TYPE
```

```
SYNTAX      TruthValue
```

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

```
STATUS      current
```

```
DESCRIPTION
```

```
    "If TRUE, the ADSPEC contains a Guaranteed Ser-
    vice fragment. If FALSE, the ADSPEC does not
    contain a Guaranteed Service fragment."
```

```
::= { rsvpSenderEntry 28 }
```

```
rsvpSenderAdspecGuaranteedBreak OBJECT-TYPE
```

```
SYNTAX      TruthValue
```

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

```
STATUS      current
```

```
DESCRIPTION
```

```
    "If TRUE, the Guaranteed Service fragment has
    its 'break' bit set, indicating that one or
    more nodes along the path do not support the
    guaranteed service. If FALSE, and rsvpSen-
    derAdspecGuaranteedSvc is TRUE, the 'break' bit
    is not set.
```

```
    If rsvpSenderAdspecGuaranteedSvc is FALSE, this
    returns FALSE or noSuchValue."
```

```
::= { rsvpSenderEntry 29 }
```

```
rsvpSenderAdspecGuaranteedCtot OBJECT-TYPE
```

SYNTAX Integer32
 UNITS "bytes"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

"If rsvpSenderAdspecGuaranteedSvc is TRUE, this is the end-to-end composed value for the guaranteed service 'C' parameter. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set
 the parameter was not present

If rsvpSenderAdspecGuaranteedSvc is FALSE, this returns zero or noSuchValue."

::= { rsvpSenderEntry 30 }

rsvpSenderAdspecGuaranteedDtot OBJECT-TYPE

SYNTAX Integer32
 UNITS "microseconds"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

"If rsvpSenderAdspecGuaranteedSvc is TRUE, this is the end-to-end composed value for the guaranteed service 'D' parameter. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set
 the parameter was not present

If rsvpSenderAdspecGuaranteedSvc is FALSE, this returns zero or noSuchValue."

::= { rsvpSenderEntry 31 }

rsvpSenderAdspecGuaranteedCsum OBJECT-TYPE

SYNTAX Integer32
 UNITS "bytes"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

"If rsvpSenderAdspecGuaranteedSvc is TRUE, this is the composed value for the guaranteed ser-

vice 'C' parameter since the last reshaping point. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set
the parameter was not present

If rsvpSenderAdspecGuaranteedSvc is FALSE, this returns zero or noSuchValue."

::= { rsvpSenderEntry 32 }

rsvpSenderAdspecGuaranteedDsum OBJECT-TYPE

SYNTAX Integer32
UNITS "microseconds"
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"If rsvpSenderAdspecGuaranteedSvc is TRUE, this is the composed value for the guaranteed service 'D' parameter since the last reshaping point. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set
the parameter was not present

If rsvpSenderAdspecGuaranteedSvc is FALSE, this returns zero or noSuchValue."

::= { rsvpSenderEntry 33 }

rsvpSenderAdspecGuaranteedHopCount OBJECT-TYPE

SYNTAX INTEGER (0..65535)
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"If rsvpSenderAdspecGuaranteedSvc is TRUE, this is the service-specific override of the hop count general characterization parameter from the ADSPEC. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set
the parameter was not present

If rsvpSenderAdspecGuaranteedSvc is FALSE, this

```
    returns zero or noSuchValue."  
 ::= { rsvpSenderEntry 34 }
```

rsvpSenderAdspecGuaranteedPathBw OBJECT-TYPE

```
SYNTAX      BitRate  
UNITS       "bits per second"  
MAX-ACCESS  read-create  
STATUS      current  
DESCRIPTION
```

"If rsvpSenderAdspecGuaranteedSvc is TRUE, this is the service-specific override of the path bandwidth estimate general characterization parameter from the ADSPEC. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set
the parameter was not present

If rsvpSenderAdspecGuaranteedSvc is FALSE, this returns zero or noSuchValue."

```
 ::= { rsvpSenderEntry 35 }
```

rsvpSenderAdspecGuaranteedMinLatency OBJECT-TYPE

```
SYNTAX      Integer32  
UNITS       "microseconds"  
MAX-ACCESS  read-create  
STATUS      current  
DESCRIPTION
```

"If rsvpSenderAdspecGuaranteedSvc is TRUE, this is the service-specific override of the minimum path latency general characterization parameter from the ADSPEC. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set
the parameter was not present

If rsvpSenderAdspecGuaranteedSvc is FALSE, this returns zero or noSuchValue."

```
 ::= { rsvpSenderEntry 36 }
```

rsvpSenderAdspecGuaranteedMtu OBJECT-TYPE

```
SYNTAX      INTEGER (0..65535)
```

```

UNITS          "bytes"
MAX-ACCESS     read-create
STATUS         current
DESCRIPTION
    "If rsvpSenderAdspecGuaranteedSvc is TRUE, this
    is the service-specific override of the com-
    posed Maximum Transmission Unit general charac-
    terization parameter from the ADSPEC.  A return
    of zero or noSuchValue indicates one of the
    following conditions:

        the invalid bit was set
        the parameter was not present

    If rsvpSenderAdspecGuaranteedSvc is FALSE, this
    returns zero or noSuchValue."
::= { rsvpSenderEntry 37 }

```

```

rsvpSenderAdspecCtrlLoadSvc OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "If TRUE, the ADSPEC contains a Controlled Load
        Service fragment.  If FALSE, the ADSPEC does
        not contain a Controlled Load Service frag-
        ment."
    ::= { rsvpSenderEntry 38 }

```

```

rsvpSenderAdspecCtrlLoadBreak OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "If TRUE, the Controlled Load Service fragment
        has its 'break' bit set, indicating that one or
        more nodes along the path do not support the
        controlled load service.  If FALSE, and
        rsvpSenderAdspecCtrlLoadSvc is TRUE, the
        'break' bit is not set.

        If rsvpSenderAdspecCtrlLoadSvc is FALSE, this
        returns FALSE or noSuchValue."
    ::= { rsvpSenderEntry 39 }

```

rsvpSenderAdspecCtrlLoadHopCount OBJECT-TYPE

SYNTAX INTEGER (0..65535)
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

"If rsvpSenderAdspecCtrlLoadSvc is TRUE, this is the service-specific override of the hop count general characterization parameter from the ADSPEC. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set
 the parameter was not present

If rsvpSenderAdspecCtrlLoadSvc is FALSE, this returns zero or noSuchValue."

::= { rsvpSenderEntry 40 }

rsvpSenderAdspecCtrlLoadPathBw OBJECT-TYPE

SYNTAX BitRate
 UNITS "bits per second"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

"If rsvpSenderAdspecCtrlLoadSvc is TRUE, this is the service-specific override of the path bandwidth estimate general characterization parameter from the ADSPEC. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set
 the parameter was not present

If rsvpSenderAdspecCtrlLoadSvc is FALSE, this returns zero or noSuchValue."

::= { rsvpSenderEntry 41 }

rsvpSenderAdspecCtrlLoadMinLatency OBJECT-TYPE

SYNTAX Integer32
 UNITS "microseconds"
 MAX-ACCESS read-create
 STATUS current
 DESCRIPTION

"If rsvpSenderAdspecCtrlLoadSvc is TRUE, this

is the service-specific override of the minimum path latency general characterization parameter from the ADSPEC. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set
the parameter was not present

If rsvpSenderAdspecCtrlLoadSvc is FALSE, this returns zero or noSuchValue."

::= { rsvpSenderEntry 42 }

rsvpSenderAdspecCtrlLoadMtu OBJECT-TYPE

SYNTAX INTEGER (0..65535)

UNITS "bytes"

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"If rsvpSenderAdspecCtrlLoadSvc is TRUE, this is the service-specific override of the composed Maximum Transmission Unit general characterization parameter from the ADSPEC. A return of zero or noSuchValue indicates one of the following conditions:

the invalid bit was set
the parameter was not present

If rsvpSenderAdspecCtrlLoadSvc is FALSE, this returns zero or noSuchValue."

::= { rsvpSenderEntry 43 }

rsvpSenderStatus OBJECT-TYPE

SYNTAX RowStatus

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"'active' for all active PATH messages. This object may be used to install static PATH information or delete PATH information."

::= { rsvpSenderEntry 44 }

rsvpSenderTTL OBJECT-TYPE

SYNTAX INTEGER (0..255)


```

MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "The TTL value in the RSVP header that was last
    received."
::= { rsvpSenderEntry 45 }

```

```

rsvpSenderOutInterfaceTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF RsvpSenderOutInterfaceEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "List of outgoing interfaces that PATH messages
        use. The ifIndex is the ifIndex value of the
        egress interface."
    ::= { rsvpObjects 3 }

```

```

rsvpSenderOutInterfaceEntry OBJECT-TYPE
    SYNTAX      RsvpSenderOutInterfaceEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "List of outgoing interfaces that a particular
        PATH message has."
    INDEX { rsvpSessionNumber, rsvpSenderNumber, ifIndex }
    ::= { rsvpSenderOutInterfaceTable 1 }

```

```

RsvpSenderOutInterfaceEntry ::=
    SEQUENCE {
        rsvpSenderOutInterfaceStatus      RowStatus
    }

```

```

rsvpSenderOutInterfaceStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "'active' for all active PATH messages."
    ::= { rsvpSenderOutInterfaceEntry 1 }

```

```

--      The RSVP Reservation Requests Received Table contains the
--      information displayed by receivers regarding their needs with
--      respect to sessions and senders. It is in essence a list of the
--      valid RESV messages that the RSVP Router or Host is receiving.

```

rsvpResvNewIndex OBJECT-TYPE

SYNTAX TestAndIncr

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This object is used to assign values to rsvpResvNumber as described in 'Textual Conventions for SNMPv2'. The network manager reads the object, and then writes the value back in the SET that creates a new instance of rsvpResvEntry. If the SET fails with the code 'inconsistentValue', then the process must be repeated; If the SET succeeds, then the object is incremented, and the new instance is created according to the manager's directions."

::= { rsvpGenObjects 3 }

rsvpResvTable OBJECT-TYPE

SYNTAX SEQUENCE OF RsvpResvEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Information describing the state information displayed by receivers in RESV messages."

::= { rsvpObjects 4 }

rsvpResvEntry OBJECT-TYPE

SYNTAX RsvpResvEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Information describing the state information displayed by a single receiver's RESV message concerning a single sender."

INDEX { rsvpSessionNumber, rsvpResvNumber }

::= { rsvpResvTable 1 }

RsvpResvEntry ::=

SEQUENCE {

rsvpResvNumber

SessionNumber,

rsvpResvType

SessionType,

rsvpResvDestAddr

OCTET STRING,

rsvpResvSenderAddr

OCTET STRING,

rsvpResvDestAddrLength

INTEGER,

```

    rsvpResvSenderAddrLength    INTEGER,
    rsvpResvProtocol            Protocol,
    rsvpResvDestPort            Port,
    rsvpResvPort                Port,
    rsvpResvHopAddr             OCTET STRING,
    rsvpResvHopLih              Integer32,
    rsvpResvInterface           InterfaceIndex,
    rsvpResvService             QosService,
    rsvpResvTSpecRate           BitRate,
    rsvpResvTSpecPeakRate       BitRate,
    rsvpResvTSpecBurst          BurstSize,
    rsvpResvTSpecMinTU          MessageSize,
    rsvpResvTSpecMaxTU          MessageSize,
    rsvpResvRSpecRate           BitRate,
    rsvpResvRSpecSlack          Integer32,
    rsvpResvInterval            RefreshInterval,
    rsvpResvScope               OCTET STRING,
    rsvpResvShared              TruthValue,
    rsvpResvExplicit            TruthValue,
    rsvpResvRSVPHop             TruthValue,
    rsvpResvLastChange          TimeStamp,
    rsvpResvPolicy              OCTET STRING,
    rsvpResvStatus              RowStatus,
    rsvpResvTTL                 INTEGER,
    rsvpResvFlowId              INTEGER
}

```

```

rsvpResvNumber OBJECT-TYPE
    SYNTAX      SessionNumber
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The number of this reservation request.  This
         is for SNMP Indexing purposes only and has no
         relation to any protocol value."
    ::= { rsvpResvEntry 1 }

```

```

rsvpResvType OBJECT-TYPE
    SYNTAX      SessionType
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The type of session (IP4, IP6, IP6  with  flow
         information, etc). "
    ::= { rsvpResvEntry 2 }

```

```
rsvpResvDestAddr OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(4..16))
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "The destination address used by all senders in
         this session.  This object may not be changed
         when the value of the RowStatus object is 'ac-
         tive'."
    ::= { rsvpResvEntry 3 }

rsvpResvSenderAddr OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(4..16))
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "The source address of the sender selected by
         this reservation.  The value of all zeroes in-
         dicates 'all senders'.  This object may not be
         changed when the value of the RowStatus object
         is 'active'."
    ::= { rsvpResvEntry 4 }

rsvpResvDestAddrLength OBJECT-TYPE
    SYNTAX      INTEGER(0..128)
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "The length of the destination address in bits.
         This is the CIDR Prefix Length, which for IP4
         hosts and multicast addresses is 32 bits.  This
         object may not be changed when the value of the
         RowStatus object is 'active'."
    ::= { rsvpResvEntry 5 }

rsvpResvSenderAddrLength OBJECT-TYPE
    SYNTAX      INTEGER(0..128)
    MAX-ACCESS   read-create
    STATUS       current
    DESCRIPTION
        "The length of the sender's address in bits.
         This is the CIDR Prefix Length, which for IP4
         hosts and multicast addresses is 32 bits.  This
         object may not be changed when the value of the
         RowStatus object is 'active'."
```

```
::= { rsvpResvEntry 6 }
```

rsvpResvProtocol OBJECT-TYPE

SYNTAX Protocol

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The IP Protocol used by this session. This object may not be changed when the value of the RowStatus object is 'active'."

```
::= { rsvpResvEntry 7 }
```

rsvpResvDestPort OBJECT-TYPE

SYNTAX Port

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The UDP or TCP port number used as a destination port for all senders in this session. If the IP protocol in use, specified by rsvpResvProtocol, is 50 (ESP) or 51 (AH), this represents a virtual destination port number. A value of zero indicates that the IP protocol in use does not have ports. This object may not be changed when the value of the RowStatus object is 'active'."

```
::= { rsvpResvEntry 8 }
```

rsvpResvPort OBJECT-TYPE

SYNTAX Port

MAX-ACCESS read-create

STATUS current

DESCRIPTION

"The UDP or TCP port number used as a source port for this sender in this session. If the IP protocol in use, specified by rsvpResvProtocol is 50 (ESP) or 51 (AH), this represents a generalized port identifier (GPI). A value of zero indicates that the IP protocol in use does not have ports. This object may not be changed when the value of the RowStatus object is 'active'."

```
::= { rsvpResvEntry 9 }
```

```
rsvpResvHopAddr OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(4..16))
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The address used by the next RSVP hop (which
         may be the ultimate receiver)."
```

```
 ::= { rsvpResvEntry 10 }
```



```
rsvpResvHopLih OBJECT-TYPE
    SYNTAX      Integer32
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The Logical Interface Handle received from the
         previous RSVP hop (which may be the ultimate
         receiver)."
```

```
 ::= { rsvpResvEntry 11 }
```



```
rsvpResvInterface OBJECT-TYPE
    SYNTAX      InterfaceIndex
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The ifIndex value of the interface on which
         this RESV message was most recently received."
```

```
 ::= { rsvpResvEntry 12 }
```



```
rsvpResvService OBJECT-TYPE
    SYNTAX      QoSService
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The QoS Service classification requested by
         the receiver."
```

```
 ::= { rsvpResvEntry 13 }
```



```
rsvpResvTSpecRate OBJECT-TYPE
    SYNTAX      BitRate
    UNITS       "bits per second"
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The Average Bit Rate of the sender's data
```

stream. Within a transmission burst, the arrival rate may be as fast as rsvpResvTSpecPeakRate (if supported by the service model); however, averaged across two or more burst intervals, the rate should not exceed rsvpResvTSpecRate.

Note that this is a prediction, often based on the general capability of a type of codec or particular encoding; the measured average rate may be significantly lower."

```
::= { rsvpResvEntry 14 }
```

rsvpResvTSpecPeakRate OBJECT-TYPE

```
SYNTAX      BitRate
UNITS       "bits per second"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
```

"The Peak Bit Rate of the sender's data stream. Traffic arrival is not expected to exceed this rate at any time, apart from the effects of jitter in the network. If not specified in the TSpec, this returns zero or noSuchValue."

```
::= { rsvpResvEntry 15 }
```

rsvpResvTSpecBurst OBJECT-TYPE

```
SYNTAX      BurstSize
UNITS       "bytes"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
```

"The size of the largest burst expected from the sender at a time.

If this is less than the sender's advertised burst size, the receiver is asking the network to provide flow pacing beyond what would be provided under normal circumstances. Such pacing is at the network's option."

```
::= { rsvpResvEntry 16 }
```

rsvpResvTSpecMinTU OBJECT-TYPE

```
SYNTAX      MessageSize
MAX-ACCESS  read-create
```

STATUS current
DESCRIPTION
"The minimum message size for this flow. The
policing algorithm will treat smaller messages
as though they are this size."
::= { rsvpResvEntry 17 }

rsvpResvTSpecMaxTU OBJECT-TYPE
SYNTAX MessageSize
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The maximum message size for this flow. The
admission algorithm will reject TSspecs whose
Maximum Transmission Unit, plus the interface
headers, exceed the interface MTU."
::= { rsvpResvEntry 18 }

rsvpResvRSpecRate OBJECT-TYPE
SYNTAX BitRate
UNITS "bits per second"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"If the requested service is Guaranteed, as
specified by rsvpResvService, this is the
clearing rate that is being requested. Other-
wise, it is zero, or the agent may return
noSuchValue."
::= { rsvpResvEntry 19 }

rsvpResvRSpecSlack OBJECT-TYPE
SYNTAX Integer32
UNITS "microseconds"
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"If the requested service is Guaranteed, as
specified by rsvpResvService, this is the delay
slack. Otherwise, it is zero, or the agent may
return noSuchValue."
::= { rsvpResvEntry 20 }

rsvpResvInterval OBJECT-TYPE

SYNTAX RefreshInterval
MAX-ACCESS read-create
STATUS current
DESCRIPTION
"The interval between refresh messages as advertised by the Next Hop."
::= { rsvpResvEntry 21 }

rsvpResvScope OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0..65536))
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"The contents of the scope object, displayed as an uninterpreted string of octets, including the object header. In the absence of such an object, this should be of zero length.

If the length is non-zero, this contains a series of IP4 or IP6 addresses."

::= { rsvpResvEntry 22 }

rsvpResvShared OBJECT-TYPE

SYNTAX TruthValue
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"If TRUE, a reservation shared among senders is requested. If FALSE, a reservation specific to this sender is requested."

::= { rsvpResvEntry 23 }

rsvpResvExplicit OBJECT-TYPE

SYNTAX TruthValue
MAX-ACCESS read-create
STATUS current
DESCRIPTION

"If TRUE, individual senders are listed using Filter Specifications. If FALSE, all senders are implicitly selected. The Scope Object will contain a list of senders that need to receive this reservation request for the purpose of routing the RESV message."

::= { rsvpResvEntry 24 }

```
rsvpResvRSVPHop OBJECT-TYPE
    SYNTAX      TruthValue
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "If TRUE, the node believes that the previous
         IP hop is an RSVP hop.  If FALSE, the node be-
         lieves that the previous IP hop may not be an
         RSVP hop."
    ::= { rsvpResvEntry 25 }
```

```
rsvpResvLastChange OBJECT-TYPE
    SYNTAX      TimeStamp
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The time of the last change in this reserva-
         tion request; This is either the first time it
         was received or the time of the most recent
         change in parameters."
    ::= { rsvpResvEntry 26 }
```

```
rsvpResvPolicy OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(0..65536))
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The contents of the policy object, displayed
         as an uninterpreted string of octets, including
         the object header.  In the absence of such an
         object, this should be of zero length."
    ::= { rsvpResvEntry 27 }
```

```
rsvpResvStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "'active' for all active RESV messages.  This
         object may be used to install static RESV in-
         formation or delete RESV information."
    ::= { rsvpResvEntry 28 }
```

```
rsvpResvTTL OBJECT-TYPE
```

```
SYNTAX      INTEGER (0..255)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The TTL value in the RSVP header that was last
    received."
::= { rsvpResvEntry 29 }
```

```
rsvpResvFlowId OBJECT-TYPE
SYNTAX      INTEGER (0..16777215)
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The flow ID that this receiver is using, if
    this is an IPv6 session."
::= { rsvpResvEntry 30 }
```

```
-- The RSVP Reservation Requests Forwarded Table contains the
-- information displayed by receivers regarding their needs with
-- respect to sessions and senders. It is in essence a list of the
-- valid RESV messages that the RSVP Router or Host is sending
-- to its upstream neighbors.
```

```
rsvpResvFwdNewIndex OBJECT-TYPE
SYNTAX      TestAndIncr
MAX-ACCESS  read-write
STATUS      current
DESCRIPTION
    "This object is used to assign values to
    rsvpResvFwdNumber as described in 'Textual Con-
    vention for SNMPv2'. The network manager
    reads the object, and then writes the value
    back in the SET that creates a new instance of
    rsvpResvFwdEntry. If the SET fails with the
    code 'inconsistentValue', then the process must
    be repeated; If the SET succeeds, then the ob-
    ject is incremented, and the new instance is
    created according to the manager's directions."
::= { rsvpGenObjects 4 }
```

```
rsvpResvFwdTable OBJECT-TYPE
SYNTAX      SEQUENCE OF RsvpResvFwdEntry
MAX-ACCESS  not-accessible
STATUS      current
```

DESCRIPTION

"Information describing the state information displayed upstream in RESV messages."

::= { rsvpObjects 5 }

rsvpResvFwdEntry OBJECT-TYPE

SYNTAX RsvpResvFwdEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"Information describing the state information displayed upstream in an RESV message concerning a single sender."

INDEX { rsvpSessionNumber, rsvpResvFwdNumber }

::= { rsvpResvFwdTable 1 }

RsvpResvFwdEntry ::=

SEQUENCE {

rsvpResvFwdNumber	SessionNumber,
rsvpResvFwdType	SessionType,
rsvpResvFwdDestAddr	OCTET STRING,
rsvpResvFwdSenderAddr	OCTET STRING,
rsvpResvFwdDestAddrLength	INTEGER,
rsvpResvFwdSenderAddrLength	INTEGER,
rsvpResvFwdProtocol	Protocol,
rsvpResvFwdDestPort	Port,
rsvpResvFwdPort	Port,
rsvpResvFwdHopAddr	OCTET STRING,
rsvpResvFwdHopLih	Integer32,
rsvpResvFwdInterface	InterfaceIndex,
rsvpResvFwdService	QosService,
rsvpResvFwdTSpecRate	BitRate,
rsvpResvFwdTSpecPeakRate	BitRate,
rsvpResvFwdTSpecBurst	BurstSize,
rsvpResvFwdTSpecMinTU	MessageSize,
rsvpResvFwdTSpecMaxTU	MessageSize,
rsvpResvFwdRSpecRate	BitRate,
rsvpResvFwdRSpecSlack	Integer32,
rsvpResvFwdInterval	RefreshInterval,
rsvpResvFwdScope	OCTET STRING,
rsvpResvFwdShared	TruthValue,
rsvpResvFwdExplicit	TruthValue,
rsvpResvFwdRSVPHop	TruthValue,
rsvpResvFwdLastChange	TimeStamp,
rsvpResvFwdPolicy	OCTET STRING,
rsvpResvFwdStatus	RowStatus,

```
        rsvpResvFwdTTL                INTEGER,
        rsvpResvFwdFlowId             INTEGER
    }
```

```
rsvpResvFwdNumber OBJECT-TYPE
    SYNTAX      SessionNumber
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The number of this reservation request.  This
         is for SNMP Indexing purposes only and has no
         relation to any protocol value."
    ::= { rsvpResvFwdEntry 1 }
```

```
rsvpResvFwdType OBJECT-TYPE
    SYNTAX      SessionType
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The type of session (IP4, IP6, IP6  with  flow
         information, etc)."
```

```
 ::= { rsvpResvFwdEntry 2 }
```

```
rsvpResvFwdDestAddr OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(4..16))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The destination address used by all senders in
         this session.  This object may not be changed
         when the value of the RowStatus object is 'ac-
         tive'."
```

```
 ::= { rsvpResvFwdEntry 3 }
```

```
rsvpResvFwdSenderAddr OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(4..16))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The source address of the sender  selected  by
         this reservation.  The value of all zeroes in-
         dicates 'all senders'.  This object may not  be
         changed  when the value of the RowStatus object
         is 'active'."
```

```
::= { rsvpResvFwdEntry 4 }
```

rsvpResvFwdDestAddrLength OBJECT-TYPE

SYNTAX INTEGER(0..128)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The length of the destination address in bits. This is the CIDR Prefix Length, which for IP4 hosts and multicast addresses is 32 bits. This object may not be changed when the value of the RowStatus object is 'active'."

```
::= { rsvpResvFwdEntry 5 }
```

rsvpResvFwdSenderAddrLength OBJECT-TYPE

SYNTAX INTEGER(0..128)

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The length of the sender's address in bits. This is the CIDR Prefix Length, which for IP4 hosts and multicast addresses is 32 bits. This object may not be changed when the value of the RowStatus object is 'active'."

```
::= { rsvpResvFwdEntry 6 }
```

rsvpResvFwdProtocol OBJECT-TYPE

SYNTAX Protocol

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The IP Protocol used by a session. for secure sessions, this indicates IP Security. This object may not be changed when the value of the RowStatus object is 'active'."

```
::= { rsvpResvFwdEntry 7 }
```

rsvpResvFwdDestPort OBJECT-TYPE

SYNTAX Port

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The UDP or TCP port number used as a destination port for all senders in this session. If

the IP protocol in use, specified by rsvpResvFwdProtocol, is 50 (ESP) or 51 (AH), this represents a virtual destination port number. A value of zero indicates that the IP protocol in use does not have ports. This object may not be changed when the value of the RowStatus object is 'active'."

```
::= { rsvpResvFwdEntry 8 }
```

rsvpResvFwdPort OBJECT-TYPE

SYNTAX Port

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The UDP or TCP port number used as a source port for this sender in this session. If the IP protocol in use, specified by rsvpResvFwdProtocol is 50 (ESP) or 51 (AH), this represents a generalized port identifier (GPI). A value of zero indicates that the IP protocol in use does not have ports. This object may not be changed when the value of the RowStatus object is 'active'."

```
::= { rsvpResvFwdEntry 9 }
```

rsvpResvFwdHopAddr OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(4..16))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The address of the (previous) RSVP that will receive this message."

```
::= { rsvpResvFwdEntry 10 }
```

rsvpResvFwdHopLih OBJECT-TYPE

SYNTAX Integer32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The Logical Interface Handle sent to the (previous) RSVP that will receive this message."

```
::= { rsvpResvFwdEntry 11 }
```

rsvpResvFwdInterface OBJECT-TYPE

```

SYNTAX      InterfaceIndex
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The ifIndex value of the interface on which
    this RESV message was most recently sent."
::= { rsvpResvFwdEntry 12 }

```

rsvpResvFwdService OBJECT-TYPE

```

SYNTAX      QoSService
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The QoS Service classification requested."
::= { rsvpResvFwdEntry 13 }

```

rsvpResvFwdTSpecRate OBJECT-TYPE

```

SYNTAX      BitRate
UNITS       "bits per second"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The Average Bit Rate of the sender's data
    stream. Within a transmission burst, the ar-
    rival rate may be as fast as rsvpResvFwdTSpec-
    PeakRate (if supported by the service model);
    however, averaged across two or more burst in-
    tervals, the rate should not exceed
    rsvpResvFwdTSpecRate.

```

Note that this is a prediction, often based on the general capability of a type of codec or particular encoding; the measured average rate may be significantly lower."

```

::= { rsvpResvFwdEntry 14 }

```

rsvpResvFwdTSpecPeakRate OBJECT-TYPE

```

SYNTAX      BitRate
UNITS       "bits per second"
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The Peak Bit Rate of the sender's data stream
    Traffic arrival is not expected to exceed this
    rate at any time, apart from the effects of

```


jitter in the network. If not specified in the TSpec, this returns zero or noSuchValue."
::= { rsvpResvFwdEntry 15 }

rsvpResvFwdTSpecBurst OBJECT-TYPE

SYNTAX BurstSize

UNITS "bytes"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The size of the largest burst expected from the sender at a time.

If this is less than the sender's advertised burst size, the receiver is asking the network to provide flow pacing beyond what would be provided under normal circumstances. Such pacing is at the network's option."

::= { rsvpResvFwdEntry 16 }

rsvpResvFwdTSpecMinTU OBJECT-TYPE

SYNTAX MessageSize

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The minimum message size for this flow. The policing algorithm will treat smaller messages as though they are this size."

::= { rsvpResvFwdEntry 17 }

rsvpResvFwdTSpecMaxTU OBJECT-TYPE

SYNTAX MessageSize

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The maximum message size for this flow. The admission algorithm will reject TSpecs whose Maximum Transmission Unit, plus the interface headers, exceed the interface MTU."

::= { rsvpResvFwdEntry 18 }

rsvpResvFwdRSpecRate OBJECT-TYPE

SYNTAX BitRate

UNITS "bytes per second"

```

MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "If the requested service is Guaranteed, as
    specified by rsvpResvService, this is the
    clearing rate that is being requested. Other-
    wise, it is zero, or the agent may return
    noSuchValue."
::= { rsvpResvFwdEntry 19 }

```

```

rsvpResvFwdRSpecSlack OBJECT-TYPE
    SYNTAX      Integer32
    UNITS       "microseconds"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "If the requested service is Guaranteed, as
        specified by rsvpResvService, this is the delay
        slack. Otherwise, it is zero, or the agent may
        return noSuchValue."
    ::= { rsvpResvFwdEntry 20 }

```

```

rsvpResvFwdInterval OBJECT-TYPE
    SYNTAX      RefreshInterval
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The interval between refresh messages adver-
        tised to the Previous Hop."
    ::= { rsvpResvFwdEntry 21 }

```

```

rsvpResvFwdScope OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(0..65536))
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The contents of the scope object, displayed as
        an uninterpreted string of octets, including
        the object header. In the absence of such an
        object, this should be of zero length."
    ::= { rsvpResvFwdEntry 22 }

```

```

rsvpResvFwdShared OBJECT-TYPE
    SYNTAX      TruthValue

```

```
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "If TRUE, a reservation shared among senders is
    requested.  If FALSE, a reservation specific to
    this sender is requested."
::= { rsvpResvFwdEntry 23 }
```

```
rsvpResvFwdExplicit OBJECT-TYPE
SYNTAX        TruthValue
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "If TRUE, individual senders are listed using
    Filter Specifications.  If FALSE, all senders
    are implicitly selected.  The Scope Object will
    contain a list of senders that need to receive
    this reservation request for the purpose of
    routing the RESV message."
::= { rsvpResvFwdEntry 24 }
```

```
rsvpResvFwdRSVPHop OBJECT-TYPE
SYNTAX        TruthValue
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "If TRUE, the node believes that the next IP
    hop is an RSVP hop.  If FALSE, the node be-
    lieves that the next IP hop may not be an RSVP
    hop."
::= { rsvpResvFwdEntry 25 }
```

```
rsvpResvFwdLastChange OBJECT-TYPE
SYNTAX        TimeStamp
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "The time of the last change in this request;
    This is either the first time it was sent or
    the time of the most recent change in parame-
    ters."
::= { rsvpResvFwdEntry 26 }
```

```
rsvpResvFwdPolicy OBJECT-TYPE
```

```

SYNTAX      OCTET STRING (SIZE(0..65536))
MAX-ACCESS  read-only
STATUS      current
DESCRIPTION
    "The contents of the policy object, displayed
    as an uninterpreted string of octets, including
    the object header. In the absence of such an
    object, this should be of zero length."
::= { rsvpResvFwdEntry 27 }

```

```

rsvpResvFwdStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-write
    STATUS      current
    DESCRIPTION
        "'active' for all active RESV messages. This
        object may be used to delete RESV information."
    ::= { rsvpResvFwdEntry 28 }

```

```

rsvpResvFwdTTL OBJECT-TYPE
    SYNTAX      INTEGER (0..255)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The TTL value in the RSVP header that was last
        received."
    ::= { rsvpResvFwdEntry 29 }

```

```

rsvpResvFwdFlowId OBJECT-TYPE
    SYNTAX      INTEGER (0..16777215)
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The flow ID that this receiver is using, if
        this is an IPv6 session."
    ::= { rsvpResvFwdEntry 30 }

```

```

--      The RSVP Interface Attributes Database contains the
--      RSVP-specific information for an interface. Information
--      that is shared with other reservation procedures such
--      as ST-II is in the Integrated Interface Attributes
--      Database.

```

```

rsvpIfTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF RsvpIfEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The RSVP-specific attributes of the system's
        interfaces."
    ::= { rsvpObjects 6 }

```

```

rsvpIfEntry OBJECT-TYPE
    SYNTAX      RsvpIfEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The RSVP-specific attributes of the a given
        interface."
    INDEX { ifIndex }
    ::= { rsvpIfTable 1 }

```

```

RsvpIfEntry ::=
    SEQUENCE {
        rsvpIfUdpNbrs                Gauge32,
        rsvpIfIpNbrs                 Gauge32,
        rsvpIfNbrs                   Gauge32,
        rsvpIfEnabled                 TruthValue,
        rsvpIfUdpRequired              TruthValue,
        rsvpIfRefreshBlockadeMultiple INTEGER,
        rsvpIfRefreshMultiple          INTEGER,
        rsvpIfTTL                     INTEGER,
        rsvpIfRefreshInterval          TimeInterval,
        rsvpIfRouteDelay               TimeInterval,
        rsvpIfStatus                  RowStatus
    }

```

```

rsvpIfUdpNbrs OBJECT-TYPE
    SYNTAX      Gauge32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of neighbors perceived to be using
        only the RSVP UDP Encapsulation."
    ::= { rsvpIfEntry 1 }

```

```

rsvpIfIpNbrs OBJECT-TYPE
    SYNTAX      Gauge32

```

```
MAX-ACCESS    read-only
STATUS        current
DESCRIPTION
    "The number of neighbors perceived to be using
    only the RSVP IP Encapsulation."
::= { rsvpIfEntry 2 }
```

```
rsvpIfNbrs OBJECT-TYPE
    SYNTAX      Gauge32
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of neighbors currently perceived;
        this will exceed rsvpIfIpNbrs + rsvpIfUdpNbrs
        by the number of neighbors using both encapsu-
        lations."
    ::= { rsvpIfEntry 3 }
```

```
rsvpIfRefreshBlockadeMultiple OBJECT-TYPE
    SYNTAX      INTEGER (1..65536)
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The value of the RSVP value 'Kb', which is the
        minimum number of refresh intervals that
        blockade state will last once entered."
    DEFVAL      { 4 }
    ::= { rsvpIfEntry 4 }
```

```
rsvpIfRefreshMultiple OBJECT-TYPE
    SYNTAX      INTEGER (1..65536)
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The value of the RSVP value 'K', which is the
        number of refresh intervals which must elapse
        (minimum) before a PATH or RESV message which
        is not being refreshed will be aged out."
    DEFVAL      { 3 }
    ::= { rsvpIfEntry 5 }
```

```
rsvpIfTTL OBJECT-TYPE
    SYNTAX      INTEGER (0..255)
    MAX-ACCESS  read-create
```

```

STATUS      current
DESCRIPTION
    "The value of SEND_TTL used on this interface
    for messages this node originates. If set to
    zero, the node determines the TTL via other
    means."
DEFVAL { 0 } -- which is to say, no override
::= { rsvpIfEntry 6 }

```

rsvpIfRefreshInterval OBJECT-TYPE

```

SYNTAX      TimeInterval
UNITS       "milliseconds"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The value of the RSVP value 'R', which is the
    minimum period between refresh transmissions of
    a given PATH or RESV message on an interface."
DEFVAL      { 3000 } -- 30 seconds
::= { rsvpIfEntry 7 }

```

rsvpIfRouteDelay OBJECT-TYPE

```

SYNTAX      TimeInterval
UNITS       "hundredths of a second"
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "The approximate period from the time a route
    is changed to the time a resulting message ap-
    pears on the interface."
DEFVAL      { 200 } -- 2 seconds
::= { rsvpIfEntry 8 }

```

rsvpIfEnabled OBJECT-TYPE

```

SYNTAX      TruthValue
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "If TRUE, RSVP is enabled on this Interface.
    If FALSE, RSVP is not enabled on this inter-
    face."
::= { rsvpIfEntry 9 }

```

rsvpIfUdpRequired OBJECT-TYPE

```

SYNTAX      TruthValue
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "If TRUE, manual configuration forces the use
    of UDP encapsulation on the interface. If
    FALSE, UDP encapsulation is only used if rsvpI-
    fUdpNbrs is not zero."

```

```
 ::= { rsvpIfEntry 10 }
```

```
rsvpIfStatus OBJECT-TYPE
```

```

SYNTAX      RowStatus
MAX-ACCESS  read-create
STATUS      current
DESCRIPTION
    "'active' on interfaces that are configured for
    RSVP."

```

```
 ::= { rsvpIfEntry 11 }
```

```

--      The RSVP Neighbor Database lists the neighbors the RSVP
--      process currently is receiving messages from.

```

```
rsvpNbrTable OBJECT-TYPE
```

```

SYNTAX      SEQUENCE OF RsvpNbrEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "Information describing the Neighbors of an
    RSVP system."

```

```
 ::= { rsvpObjects 7 }
```

```
rsvpNbrEntry OBJECT-TYPE
```

```

SYNTAX      RsvpNbrEntry
MAX-ACCESS  not-accessible
STATUS      current
DESCRIPTION
    "Information describing a single RSVP Neigh-
    bor."

```

```
INDEX { ifIndex, rsvpNbrAddress }
```

```
 ::= { rsvpNbrTable 1 }
```

```

RsvpNbrEntry ::=
    SEQUENCE {

```



```

rsvpNbrAddress      OCTET STRING,
rsvpNbrProtocol     RsvpEncapsulation,
rsvpNbrStatus       RowStatus
}

```

```

rsvpNbrAddress OBJECT-TYPE
    SYNTAX      OCTET STRING (SIZE(4..16))
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "The IP4 or IP6 Address used by this neighbor.
        This object may not be changed when the value
        of the RowStatus object is 'active'."
    ::= { rsvpNbrEntry 1 }

```

```

rsvpNbrProtocol OBJECT-TYPE
    SYNTAX      RsvpEncapsulation
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "The encapsulation being used by this neighbor."
    ::= { rsvpNbrEntry 2 }

```

```

rsvpNbrStatus OBJECT-TYPE
    SYNTAX      RowStatus
    MAX-ACCESS  read-create
    STATUS      current
    DESCRIPTION
        "'active' for all neighbors. This object may
        be used to configure neighbors. In the presence
        of configured neighbors, the implementation may
        (but is not required to) limit the set of valid
        neighbors to those configured."
    ::= { rsvpNbrEntry 3 }

```

```

--
--      Notifications used to signal events
--

```

```

rsvpNotifications OBJECT IDENTIFIER
    ::= { rsvpNotificationsPrefix 0 }

```

```

newFlow NOTIFICATION-TYPE

```

```
OBJECTS {
    intSrvFlowStatus, rsvpSessionDestAddr,
    rsvpResvFwdStatus, rsvpResvStatus, rsvpSenderStatus
}
STATUS current
DESCRIPTION
    "The newFlow trap indicates that the originat-
    ing system has installed a new flow in its
    classifier, or (when reservation authorization
    is in view) is prepared to install such a flow
    in the classifier and is requesting authoriza-
    tion. The objects included with the Notifica-
    tion may be used to read further information
    using the Integrated Services and RSVP MIBs.
    Authorization or non-authorization may be
    enacted by a write to the variable intSrvFlowS-
    tatus."
::= { rsvpNotifications 1 }
```

lostFlow NOTIFICATION-TYPE

```
OBJECTS {
    intSrvFlowStatus, rsvpSessionDestAddr,
    rsvpResvFwdStatus, rsvpResvStatus, rsvpSenderStatus
}
STATUS current
DESCRIPTION
    "The lostFlow trap indicates that the originat-
    ing system has removed a flow from its classif-
    ier."
::= { rsvpNotifications 2 }
```

-- conformance information

```
rsvpGroups      OBJECT IDENTIFIER ::= { rsvpConformance 1 }
rsvpCompliances OBJECT IDENTIFIER ::= { rsvpConformance 2 }
```

-- compliance statements

rsvpCompliance MODULE-COMPLIANCE

```
STATUS current
DESCRIPTION
    "The compliance statement. Note that the im-
    plementation of this module requires implemen-
    tation of the Integrated Services MIB as well."
```

```
MODULE -- this module
MANDATORY-GROUPS {
    rsvpSessionGroup, rsvpSenderGroup, rsvpResvGroup,
    rsvpIfGroup, rsvpNbrGroup
}

GROUP rsvpResvFwdGroup
DESCRIPTION
    "The Reservation Requests table is appropriate
    in implementations that store upstream reservation
    messages, but not appropriate in implementations
    which calculate them on each transmission."

GROUP rsvpNotificationGroup
DESCRIPTION
    "The notifications in this module may be used to
    advise a network management station of changes in
    flow status, and are required when this use is in
    view."

OBJECT      rsvpSessionRequests
MIN-ACCESS  not-accessible
DESCRIPTION
    "This object is optional."

OBJECT      rsvpSenderType
MIN-ACCESS  read-only
DESCRIPTION
    "read-create access is not required. This may be
    read-only."

OBJECT      rsvpSenderDestAddr
MIN-ACCESS  read-only
DESCRIPTION
    "read-create access is not required. This may be
    read-only."

OBJECT      rsvpSenderAddr
MIN-ACCESS  read-only
DESCRIPTION
    "read-create access is not required. This may be
    read-only."

OBJECT      rsvpSenderDestAddrLength
MIN-ACCESS  read-only
DESCRIPTION
    "read-create access is not required. This may be
```

read-only."

OBJECT rsvpSenderAddrLength
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderProtocol
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderDestPort
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderPort
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderHopAddr
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderHopLih
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderInterface
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderTSpecRate
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be

read-only."

OBJECT rsvpSenderTSpecPeakRate
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderTSpecBurst
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderTSpecMinTU
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderTSpecMaxTU
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderInterval
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderRSVPHop
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderPolicy
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderAdspecBreak
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be

read-only."

OBJECT rsvpSenderAdspecHopCount
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderAdspecPathBw
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderAdspecMinLatency
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderAdspecMtu
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderAdspecGuaranteedSvc
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Guaranteed Service."

OBJECT rsvpSenderAdspecGuaranteedBreak
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Guaranteed Service."

OBJECT rsvpSenderAdspecGuaranteedCtot
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Guaranteed Service."

OBJECT rsvpSenderAdspecGuaranteedDt看
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not

support Guaranteed Service."

OBJECT rsvpSenderAdspecGuaranteedCsum
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Guaranteed Service."

OBJECT rsvpSenderAdspecGuaranteedDsum
MIN-ACCESS read-only
DESCRIPTION
"This may be not-accessible if the system does not
support Guaranteed Service."

OBJECT rsvpSenderAdspecGuaranteedHopCount
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Guaranteed Service."

OBJECT rsvpSenderAdspecGuaranteedPathBw
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Guaranteed Service."

OBJECT rsvpSenderAdspecGuaranteedMinLatency
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Guaranteed Service."

OBJECT rsvpSenderAdspecGuaranteedMtu
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Guaranteed Service."

OBJECT rsvpSenderAdspecCtrlLoadSvc
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Controlled Load."

OBJECT rsvpSenderAdspecCtrlLoadBreak
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not

support Controlled Load."

OBJECT rsvpSenderAdspecCtrlLoadHopCount
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Controlled Load."

OBJECT rsvpSenderAdspecCtrlLoadPathBw
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Controlled Load."

OBJECT rsvpSenderAdspecCtrlLoadMinLatency
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Controlled Load."

OBJECT rsvpSenderAdspecCtrlLoadMtu
MIN-ACCESS not-accessible
DESCRIPTION
"This may be not-accessible if the system does not
support Controlled Load."

OBJECT rsvpSenderStatus
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpSenderFlowId
MIN-ACCESS not-accessible
DESCRIPTION
"This object is needed only in a system that imple-
ments IPv6."

OBJECT rsvpResvType
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be
read-only."

OBJECT rsvpResvDestAddr
MIN-ACCESS read-only
DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvSenderAddr
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be read-only."

OBJECT rsvpResvDestAddrLength
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be read-only."

OBJECT rsvpResvSenderAddrLength
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be read-only."

OBJECT rsvpResvProtocol
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be read-only."

OBJECT rsvpResvDestPort
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be read-only."

OBJECT rsvpResvPort
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be read-only."

OBJECT rsvpResvHopAddr
MIN-ACCESS read-only
DESCRIPTION
"read-create access is not required. This may be read-only."

OBJECT rsvpResvHopLih
MIN-ACCESS read-only
DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvInterface

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvService

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvTSpecRate

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvTSpecPeakRate

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvTSpecBurst

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvTSpecMinTU

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvTSpecMaxTU

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvRSpecRate

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvRSpecSlack

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvInterval

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvScope

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvShared

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvExplicit

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvRSVPHop

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvPolicy

MIN-ACCESS read-only

DESCRIPTION

"read-create access is not required. This may be read-only."

OBJECT rsvpResvStatus

MIN-ACCESS read-only

DESCRIPTION

```

        "read-create access is not required.  This may be
        read-only."
OBJECT      rsvpResvFlowId
MIN-ACCESS  not-accessible
DESCRIPTION
    "This object is needed only in a system that imple-
    ments IPv6."

OBJECT      rsvpResvFwdStatus
MIN-ACCESS  read-only
DESCRIPTION
    "read-create access is not required.  This may be
    read-only."

OBJECT      rsvpResvFwdFlowId
MIN-ACCESS  not-accessible
DESCRIPTION
    "This object is needed only in a system that imple-
    ments IPv6."

 ::= { rsvpCompliances 1 }

rsvpSessionGroup OBJECT-GROUP
    OBJECTS {
        rsvpSessionType, rsvpSessionDestAddr,
        rsvpSessionDestAddrLength, rsvpSessionProtocol,
        rsvpSessionPort, rsvpSessionSenders, rsvpSessionReceivers,
        rsvpSessionRequests
    }
    STATUS   current
    DESCRIPTION
        "These objects are required for RSVP Systems."
    ::= { rsvpGroups 1 }

rsvpSenderGroup OBJECT-GROUP
    OBJECTS {
        rsvpSenderType, rsvpSenderDestAddr, rsvpSenderAddr,
        rsvpSenderDestAddrLength, rsvpSenderAddrLength,
        rsvpSenderProtocol, rsvpSenderDestPort, rsvpSenderPort,
        rsvpSenderHopAddr, rsvpSenderHopLih, rsvpSenderInterface,
        rsvpSenderTSpecRate, rsvpSenderTSpecPeakRate,
        rsvpSenderTSpecBurst, rsvpSenderTSpecMinTU,
        rsvpSenderTSpecMaxTU, rsvpSenderInterval,
        rsvpSenderLastChange, rsvpSenderStatus,
        rsvpSenderRSVPHop, rsvpSenderPolicy,
        rsvpSenderAdspecBreak, rsvpSenderAdspecHopCount,
        rsvpSenderAdspecPathBw, rsvpSenderAdspecMinLatency,

```

```

    rsvpSenderAdspecMtu, rsvpSenderAdspecGuaranteedSvc,
    rsvpSenderAdspecGuaranteedBreak,
    rsvpSenderAdspecGuaranteedCtot,
    rsvpSenderAdspecGuaranteedDtot,
    rsvpSenderAdspecGuaranteedCsum,
    rsvpSenderAdspecGuaranteedDsum,
    rsvpSenderAdspecGuaranteedHopCount,
    rsvpSenderAdspecGuaranteedPathBw,
    rsvpSenderAdspecGuaranteedMinLatency,
    rsvpSenderAdspecGuaranteedMtu, rsvpSenderAdspecCtrlLoadSvc,
    rsvpSenderAdspecCtrlLoadBreak,
    rsvpSenderAdspecCtrlLoadHopCount,
    rsvpSenderAdspecCtrlLoadPathBw,
    rsvpSenderAdspecCtrlLoadMinLatency,
    rsvpSenderAdspecCtrlLoadMtu, rsvpSenderNewIndex
}
STATUS    current
DESCRIPTION
    "These objects are required for RSVP Systems."
::= { rsvpGroups 2 }

```

rsvpResvGroup OBJECT-GROUP

```

    OBJECTS {
        rsvpResvType, rsvpResvDestAddr, rsvpResvSenderAddr,
        rsvpResvDestAddrLength, rsvpResvSenderAddrLength,
        rsvpResvProtocol, rsvpResvDestPort, rsvpResvPort,
        rsvpResvHopAddr, rsvpResvHopLih, rsvpResvInterface,
        rsvpResvService, rsvpResvTSpecRate, rsvpResvTSpecBurst,
        rsvpResvTSpecPeakRate, rsvpResvTSpecMinTU,
        rsvpResvTSpecMaxTU, rsvpResvRSpecRate,
        rsvpResvRSpecSlack, rsvpResvInterval,
        rsvpResvScope, rsvpResvShared, rsvpResvExplicit,
        rsvpResvRSVPHop, rsvpResvLastChange, rsvpResvPolicy,
        rsvpResvStatus, rsvpResvNewIndex
    }
STATUS    current
DESCRIPTION
    "These objects are required for RSVP Systems."
::= { rsvpGroups 3 }

```

rsvpResvFwdGroup OBJECT-GROUP

```

    OBJECTS {
        rsvpResvFwdType, rsvpResvFwdDestAddr, rsvpResvFwdSenderAddr,
        rsvpResvFwdDestAddrLength, rsvpResvFwdSenderAddrLength,
        rsvpResvFwdProtocol, rsvpResvFwdDestPort, rsvpResvFwdPort,
        rsvpResvFwdHopAddr, rsvpResvFwdHopLih, rsvpResvFwdInterface,

```

```

        rsvpResvFwdNewIndex, rsvpResvFwdService,
        rsvpResvFwdTSpecPeakRate, rsvpResvFwdTSpecMinTU,
        rsvpResvFwdTSpecMaxTU, rsvpResvFwdTSpecRate,
        rsvpResvFwdTSpecBurst, rsvpResvFwdRSpecRate,
        rsvpResvFwdRSpecSlack, rsvpResvFwdInterval,
        rsvpResvFwdScope, rsvpResvFwdShared, rsvpResvFwdExplicit,
        rsvpResvFwdRSVPHop, rsvpResvFwdLastChange,
        rsvpResvFwdPolicy, rsvpResvFwdStatus
    }
    STATUS current
    DESCRIPTION
        "These objects are optional, used for some RSVP
        Systems."
    ::= { rsvpGroups 4 }

rsvpIfGroup OBJECT-GROUP
    OBJECTS {
        rsvpIfUdpNbrs, rsvpIfIpNbrs, rsvpIfNbrs, rsvpIfEnabled,
        rsvpIfUdpRequired, rsvpIfRefreshBlockadeMultiple,
        rsvpIfRefreshMultiple, rsvpIfRefreshInterval, rsvpIfTTL,
        rsvpIfRouteDelay, rsvpIfStatus
    }
    STATUS current
    DESCRIPTION
        "These objects are required for RSVP Systems."
    ::= { rsvpGroups 6 }

rsvpNbrGroup OBJECT-GROUP
    OBJECTS {
        rsvpNbrProtocol, rsvpNbrStatus
    }
    STATUS current
    DESCRIPTION
        "These objects are required for RSVP Systems."
    ::= { rsvpGroups 7 }

rsvpNotificationGroup NOTIFICATION-GROUP
    NOTIFICATIONS { newFlow, lostFlow }
    STATUS current
    DESCRIPTION
        "This notification is required for Systems sup-
        porting the RSVP Policy Module using an SNMP
        interface to the Policy Manager."
    ::= { rsvpGroups 8 }

```

END

4. Security Considerations

The use of an SNMP SET results in an RSVP or Integrated Services reservation under rules that are different compared to if the reservation was negotiated using RSVP. However, no other security considerations exist other than those imposed by SNMP itself.

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6. Acknowledgements

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7. References

- [1] Rose, M., Editor, "Management Information Base for Network Management of TCP/IP-based internets", STD 17, RFC 1213, May 1990.
- [2] Information processing systems - Open Systems Interconnection - Specification of Abstract Syntax Notation One (ASN.1), International Organization for Standardization. International Standard 8824, (December, 1987).
- [3] Information processing systems - Open Systems Interconnection - Specification of Basic Encoding Rules for Abstract Notation One (ASN.1), International Organization for Standardization. International Standard 8825, (December, 1987).

