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Reliable Server Pooling MIB Module Definition

Status of This Memo

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

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Abstract

Reliable Server Pooling (RSerPool) is a framework to provide reliable server pooling. The RSerPool framework consists of two protocols: ASAP (Aggregate Server Access Protocol) and ENRP (Endpoint Handlespace Redundancy Protocol). This document defines an SMIv2-compliant (Structure of Management Information Version 2) Management Information Base (MIB) module providing access to managed objects in an RSerPool implementation.

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1. Introduction

This memo defines a Management Information Base (MIB) module that describes managed objects for RSerPool implementations.

2. The Reliable Server Pooling (RSerPool) Framework

For a detailed overview of the documents that describe the current Reliable Server Pooling (RSerPool) framework, please refer to [RFC3237], [RFC5351], [RFC5352], [RFC5353], [RFC5354], [RFC5355], and [RFC5356]. A more informal introduction can be found at [RSerPoolPage] as well as in [Dre2006], [LCN2005], and [IJHIT2008].

3. Conventions

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 [RFC2119].

4. The Internet-Standard Management Framework

For a detailed overview of the documents that describe the current Internet-Standard Management Framework, please refer to section 7 of RFC 3410 [RFC3410].

Managed objects are accessed via a virtual information store, termed the Management Information Base or MIB. MIB objects are generally accessed through the Simple Network Management Protocol (SNMP).

Objects in the MIB are defined using the mechanisms defined in the Structure of Management Information (SMI). This memo specifies a MIB module that is compliant to the SMIv2, which is described in STD 58, RFC 2578 [RFC2578], STD 58, RFC 2579 [RFC2579] and STD 58, RFC 2580 [RFC2580]. The textual conventions are compliant to RFC 4001 [RFC4001].

5. Structure of the MIB

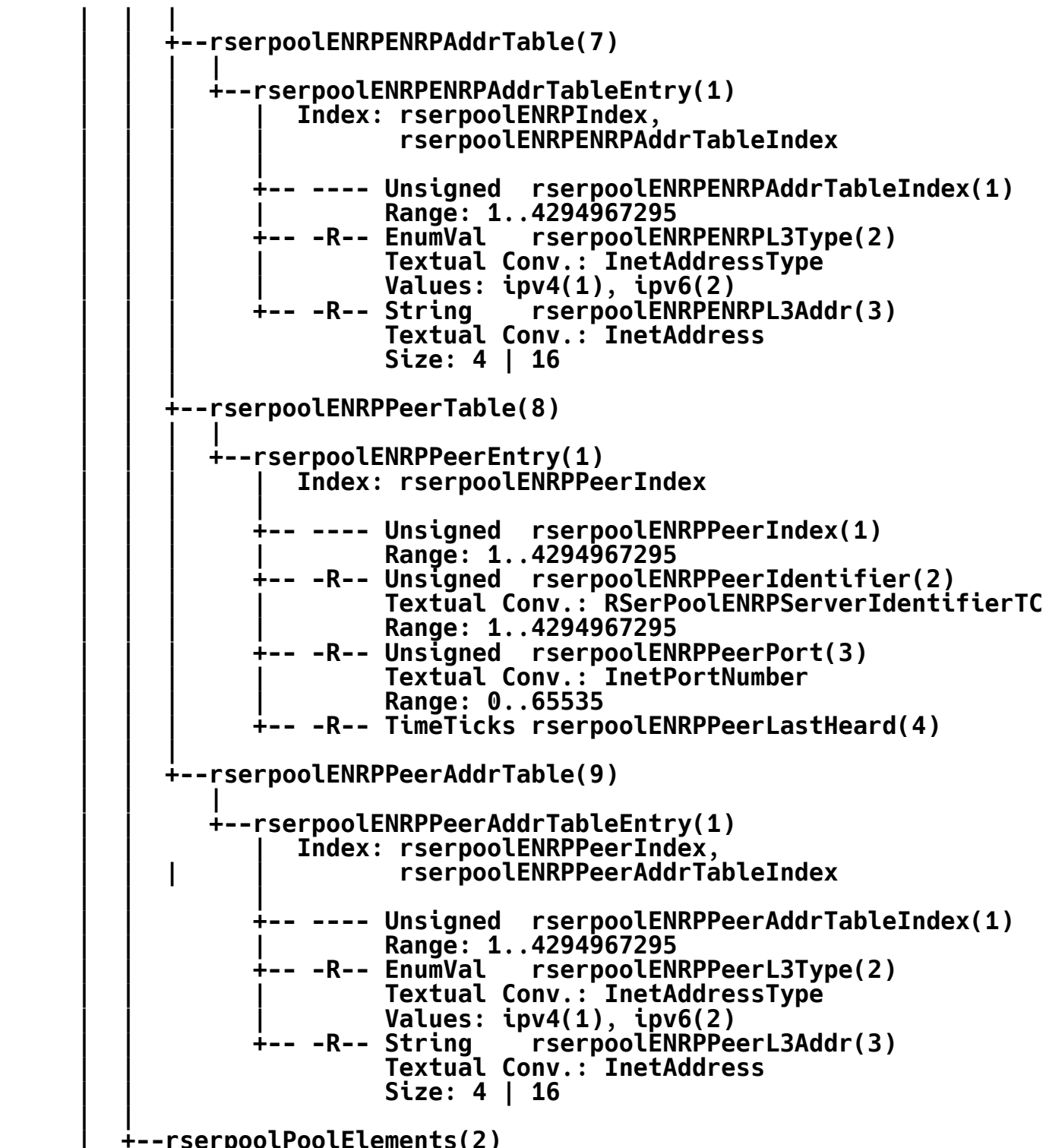
The following diagram illustrates the structure of the MIB.

Structure of MIB

```
  +--rserpoolMIB(125)
     |
     +--rserpoolMIBObjects(1)
     |  |
     |  +--rserpoolENRPServers(1)
     |     |
     |     +--rserpoolENRPTable(1)
     |        |
     |        +--rserpoolENRPEntry(1)
     |           |  Index: rserpoolENRPIndex
     |           |
     |           +-- ---- Unsigned  rserpoolENRPIndex(1)
     |           |         Range: 1..4294967295
     |           +-- -R-- String    rserpoolENRPOperationScope(2)
     |           |         Textual Conv.: RSerPoolOperationScopeTC
     |           |         Size: 0..65535
     |           +-- -R-- Unsigned  rserpoolENRPIdentifier(3)
     |           |         Textual Conv.: RSerPoolENRPServerIdentifierTC
     |           |         Range: 1..4294967295
     |           +-- -RW- String    rserpoolENRPDescription(4)
     |           |         Size: 0..255
     |           +-- -R-- TimeTicks rserpoolENRPUptime(5)
     |           +-- -R-- Unsigned  rserpoolENRPPort(6)
     |           |         Textual Conv.: InetPortNumber
     |           |         Range: 0..65535
     |           +-- -R-- Unsigned  rserpoolENRPASAPAnnouncePort(7)
     |           |         Textual Conv.: InetPortNumber
     |           |         Range: 0..65535
     |           +-- -R-- EnumVal   rserpoolENRPASAPAnnounceAddrType(8)
     |           |         Textual Conv.: InetAddressType
     |           |         Values: ipv4(1), ipv6(2)
     |           +-- -R-- String    rserpoolENRPASAPAnnounceAddr(9)
     |           |         Textual Conv.: InetAddress
     |           |         Size: 4 | 16
```

```
      |   |   |      +-- -R-- Unsigned  rserpoolENRPENRPAnnouncePort(10)
      |   |   |      |        Textual Conv.: InetPortNumber
      |   |   |      |        Range: 0..65535
      |   |   |      +-- -R-- EnumVal   rserpoolENRPENRPAnnounceAddrType(11)
      |   |   |      |        Textual Conv.: InetAddressType
      |   |   |      |        Values: ipv4(1), ipv6(2)
      |   |   |      +-- -R-- String    rserpoolENRPENRPAnnounceAddr(12)
      |   |   |               Textual Conv.: InetAddress
      |   |   |               Size: 4 | 16
      |   |   |
      |   |   +--rserpoolENRPPoolTable(3)
      |   |   |   |
      |   |   |   +--rserpoolENRPPoolEntry(1)
      |   |   |      |  Index: rserpoolENRPIndex, rserpoolENRPPoolIndex
      |   |   |      |
      |   |   |      +-- ---- Unsigned  rserpoolENRPPoolIndex(1)
      |   |   |      |        Range: 1..4294967295
      |   |   |      +-- -R-- String    rserpoolENRPPoolHandle(2)
      |   |   |               Textual Conv.: RSerPoolPoolHandleTC
      |   |   |               Size: 0..65535
      |   |   |
      |   |   +--rserpoolENRPPoolElementTable(4)
      |   |   |   |
      |   |   |   +--rserpoolENRPPoolElementEntry(1)
      |   |   |      |  Index: rserpoolENRPIndex, rserpoolENRPPoolIndex,
      |   |   |      |          rserpoolENRPPoolElementIndex
      |   |   |      |
      |   |   |      +-- ---- Unsigned  rserpoolENRPPoolElementIndex(1)
      |   |   |      |        Range: 1..4294967295
      |   |   |      +-- -R-- Unsigned  rserpoolENRPPoolElementID(2)
      |   |   |      |        Textual Conv.: RserpoolPoolElementIdentifierTC
      |   |   |      |        Range: 1..4294967295
      |   |   |      +-- -R-- Unsigned  rserpoolENRPASAPTransportPort(3)
      |   |   |      |        Textual Conv.: InetPortNumber
      |   |   |      |        Range: 0..65535
      |   |   |      +-- -R-- Unsigned  rserpoolENRPUserTransportProto(4)
      |   |   |      |        Range: 0..255
      |   |   |      +-- -R-- Unsigned  rserpoolENRPUserTransportPort(5)
      |   |   |      |        Textual Conv.: InetPortNumber
      |   |   |      |        Range: 0..65535
      |   |   |      +-- -R-- EnumVal   rserpoolENRPUserTransportUse(6)
      |   |   |      |        Textual Conv.: RSerPoolTransportUseTypeTC
      |   |   |      |        Values: dataOnly(0), dataPlusControl(1)
      |   |   |      +-- -R-- Unsigned  rserpoolENRPPolicyID(7)
      |   |   |      |        Textual Conv.: RSerPoolPolicyIdentifierTC
      |   |   |      |        Range: 1..4294967295
      |   |   |      +-- -R-- String    rserpoolENRPPolicyDescription(8)
      |   |   |      |        Size: 0..255
```

```
      |   |   |      +-- -R-- Unsigned  rserpoolENRPPolicyWeight(9)
      |   |   |      |        Textual Conv.: RSerPoolPolicyWeightTC
      |   |   |      |        Range: 0..4294967295
      |   |   |      +-- -R-- Unsigned  rserpoolENRPPolicyLoad(10)
      |   |   |      |        Textual Conv.: RSerPoolPolicyLoadTC
      |   |   |      |        Range: 0..4294967295
      |   |   |      +-- -R-- Unsigned  rserpoolENRPPolicyLoadDeg(11)
      |   |   |      |        Textual Conv.: RSerPoolPolicyLoadTC
      |   |   |      |        Range: 0..4294967295
      |   |   |      +-- -R-- TimeTicks rserpoolENRPRegistrationLife(12)
      |   |   |      +-- -R-- Unsigned  rserpoolENRPHomeENRPServer(13)
      |   |   |               Textual Conv.: RSerPoolENRPServerIdentifierTC
      |   |   |               Range: 1..4294967295
      |   |   |
      |   |   +--rserpoolENRPASAPAddrTable(5)
      |   |   |   |
      |   |   |   +--rserpoolENRPASAPAddrTableEntry(1)
      |   |   |      |  Index: rserpoolENRPIndex, rserpoolENRPPoolIndex,
      |   |   |      |         rserpoolENRPPoolElementIndex,
      |   |   |      |         rserpoolENRPASAPAddrTableIndex
      |   |   |      |
      |   |   |      +-- ---- Unsigned  rserpoolENRPASAPAddrTableIndex(1)
      |   |   |      |        Range: 1..4294967295
      |   |   |      +-- -R-- EnumVal   rserpoolENRPASAPL3Type(2)
      |   |   |      |        Textual Conv.: InetAddressType
      |   |   |      |        Values: ipv4(1), ipv6(2)
      |   |   |      +-- -R-- String    rserpoolENRPASAPL3Addr(3)
      |   |   |               Textual Conv.: InetAddress
      |   |   |               Size: 4 | 16
      |   |   |
      |   |   +--rserpoolENRPUserAddrTable(6)
      |   |   |   |
      |   |   |   +--rserpoolENRPUserAddrTableEntry(1)
      |   |   |      |  Index: rserpoolENRPIndex, rserpoolENRPPoolIndex,
      |   |   |      |         rserpoolENRPPoolElementIndex,
      |   |   |      |         rserpoolENRPUserAddrTableIndex
      |   |   |      |
      |   |   |      +-- ---- Unsigned  rserpoolENRPUserAddrTableIndex(1)
      |   |   |      |        Range: 1..4294967295
      |   |   |      +-- -R-- EnumVal   rserpoolENRPUserL3Type(2)
      |   |   |      |        Textual Conv.: InetAddressType
      |   |   |      |        Values: unknown(0), ipv4(1), ipv6(2)
      |   |   |      +-- -R-- String    rserpoolENRPUserL3Addr(3)
      |   |   |      |        Textual Conv.: InetAddress
      |   |   |      |        Size: 0 | 4 | 16
      |   |   |      +-- -R-- String    rserpoolENRPUserL3Opaque(4)
      |   |   |               Textual Conv.: RSerPoolOpaqueAddressTC
      |   |   |               Size: 0..65535
```


|
+--rserpoolENRPENRPAddrTable(7)
|
+--rserpoolENRPENRPAddrTableEntry(1)
Index: rserpoolENRPIndex,
rserpoolENRPENRPAddrTableIndex
+-- ---- Unsigned rserpoolENRPENRPAddrTableIndex(1)
Range: 1..4294967295
+-- -R-- EnumVal rserpoolENRPENRPL3Type(2)
Textual Conv.: InetAddressType
Values: ipv4(1), ipv6(2)
+-- -R-- String rserpoolENRPENRPL3Addr(3)
Textual Conv.: InetAddress
Size: 4 | 16
+--rserpoolENRPPeerTable(8)
+--rserpoolENRPPeerEntry(1)
Index: rserpoolENRPPeerIndex
+-- ---- Unsigned rserpoolENRPPeerIndex(1)
Range: 1..4294967295
+-- -R-- Unsigned rserpoolENRPPeerIdentifier(2)
Textual Conv.: RSerPoolENRPServerIdentifierTC
Range: 1..4294967295
+-- -R-- Unsigned rserpoolENRPPeerPort(3)
Textual Conv.: InetPortNumber
Range: 0..65535
+-- -R-- TimeTicks rserpoolENRPPeerLastHeard(4)
+--rserpoolENRPPeerAddrTable(9)
+--rserpoolENRPPeerAddrTableEntry(1)
Index: rserpoolENRPPeerIndex,
rserpoolENRPPeerAddrTableIndex
+-- ---- Unsigned rserpoolENRPPeerAddrTableIndex(1)
Range: 1..4294967295
+-- -R-- EnumVal rserpoolENRPPeerL3Type(2)
Textual Conv.: InetAddressType
Values: ipv4(1), ipv6(2)
+-- -R-- String rserpoolENRPPeerL3Addr(3)
Textual Conv.: InetAddress
Size: 4 | 16
+--rserpoolPoolElements(2)

```
      |   |  +--rserpoolPETable(1)
      |   |  |   |
      |   |  |   +--rserpoolPEEntry(1)
      |   |  |       |  Index: rserpoolPEIndex
      |   |  |       |
      |   |  |       +-- ---- Unsigned  rserpoolPEIndex(1)
      |   |  |       |         Range: 1..4294967295
      |   |  |       +-- -R-- String    rserpoolPEOperationScope(2)
      |   |  |       |         Textual Conv.: RSerPoolOperationScopeTC
      |   |  |       |         Size: 0..65535
      |   |  |       +-- -RW- String    rserpoolPEPoolHandle(3)
      |   |  |       |         Textual Conv.: RSerPoolPoolHandleTC
      |   |  |       |         Size: 0..65535
      |   |  |       +-- -R-- Unsigned  rserpoolPEIdentifier(4)
      |   |  |       |         Textual Conv.: RserpoolPoolElementIdentifierTC
      |   |  |       |         Range: 1..4294967295
      |   |  |       +-- -RW- String    rserpoolPEDescription(5)
      |   |  |       |         Size: 0..255
      |   |  |       +-- -R-- TimeTicks rserpoolPEUptime(6)
      |   |  |       +-- -R-- Unsigned  rserpoolPEASAPTransportPort(7)
      |   |  |       |         Textual Conv.: InetPortNumber
      |   |  |       |         Range: 0..65535
      |   |  |       +-- -R-- Unsigned  rserpoolPEUserTransportProto(8)
      |   |  |       |         Range: 0..255
      |   |  |       +-- -R-- Unsigned  rserpoolPEUserTransportPort(9)
      |   |  |       |         Textual Conv.: InetPortNumber
      |   |  |       |         Range: 0..65535
      |   |  |       +-- -R-- EnumVal   rserpoolPEUserTransportUse(10)
      |   |  |       |         Textual Conv.: RSerPoolTransportUseTypeTC
      |   |  |       |         Values: dataOnly(0), dataPlusControl(1)
      |   |  |       +-- -RW- Unsigned  rserpoolPEPolicyID(11)
      |   |  |       |         Textual Conv.: RSerPoolPolicyIdentifierTC
      |   |  |       |         Range: 1..4294967295
      |   |  |       +-- -RW- String    rserpoolPEPolicyDescription(12)
      |   |  |       |         Size: 0..255
      |   |  |       +-- -RW- Unsigned  rserpoolPEPolicyWeight(13)
      |   |  |       |         Textual Conv.: RSerPoolPolicyWeightTC
      |   |  |       |         Range: 0..4294967295
      |   |  |       +-- -R-- Unsigned  rserpoolPEPolicyLoad(14)
      |   |  |       |         Textual Conv.: RSerPoolPolicyLoadTC
      |   |  |       |         Range: 0..4294967295
      |   |  |       +-- -RW- Unsigned  rserpoolPEPolicyLoadDeg(15)
      |   |  |       |         Textual Conv.: RSerPoolPolicyLoadTC
      |   |  |       |         Range: 0..4294967295
      |   |  |       +-- -RW- TimeTicks rserpoolPERegistrationLife(16)
      |   |  |       +-- -R-- Unsigned  rserpoolPEHomeENRPServer(17)
      |   |  |                 Textual Conv.: RSerPoolENRPServerIdentifierTC
      |   |  |                 Range: 1..4294967295
```

```
      |   |   |
      |   |   +--rserpoolPEASAPAddrTable(2)
      |   |   |   |
      |   |   |   +--rserpoolPEASAPAddrTableEntry(1)
      |   |   |      |  Index: rserpoolPEIndex, rserpoolPEASAPAddrTableIndex
      |   |   |      |
      |   |   |      +-- ----  Unsigned  rserpoolPEASAPAddrTableIndex(1)
      |   |   |      |         Range: 1..4294967295
      |   |   |      +-- -R--  EnumVal   rserpoolPEASAPL3Type(2)
      |   |   |      |         Textual Conv.: InetAddressType
      |   |   |      |         Values: ipv4(1), ipv6(2)
      |   |   |      +-- -R--  String    rserpoolPEASAPL3Addr(3)
      |   |   |                Textual Conv.: InetAddress
      |   |   |                Size: 4 | 16
      |   |   |
      |   |   +--rserpoolPEUserAddrTable(6)
      |   |      |
      |   |      +--rserpoolPEUserAddrTableEntry(1)
      |   |         |  Index: rserpoolPEIndex, rserpoolPEUserAddrTableIndex
      |   |         |
      |   |         +-- ----  Unsigned  rserpoolPEUserAddrTableIndex(1)
      |   |         |         Range: 1..4294967295
      |   |         +-- -R--  EnumVal   rserpoolPEUserL3Type(2)
      |   |         |         Textual Conv.: InetAddressType
      |   |         |         Values: unknown(0), ipv4(1), ipv6(2)
      |   |         +-- -R--  String    rserpoolPEUserL3Addr(3)
      |   |         |         Textual Conv.: InetAddress
      |   |         |         Size: 0 | 4 | 16
      |   |         +-- -R--  String    rserpoolPEUserL3Opaque(4)
      |   |                   Textual Conv.: RSerPoolOpaqueAddressTC
      |   |                   Size: 0..65535
      |   |
      |   +--rserpoolPoolUsers(3)
      |      |
      |      +--rserpoolPUTable(1)
      |         |
      |         +--rserpoolPUEntry(1)
      |            |  Index: rserpoolPUIndex
      |            |
      |            +-- ----  Unsigned  rserpoolPUIndex(1)
      |            |         Range: 1..4294967295
      |            +-- -R--  String    rserpoolPUOperationScope(2)
      |            |         Textual Conv.: RSerPoolOperationScopeTC
      |            |         Size: 0..65535
      |            +-- -RW-  String    rserpoolPUPoolHandle(3)
      |            |         Textual Conv.: RSerPoolPoolHandleTC
      |            |         Size: 0..65535
      |            +-- -RW-  String    rserpoolPUDescription(4)
```

```
   |           |        Size: 0..255
   |           +-- -R-- TimeTicks rserpoolPUUptime(5)
   |
   +--rserpoolMIBConformance(2)
      |
      +--rserpoolMIBCompliances(1)
      |  |
      |  +--rserpoolMIBCompliance(1)
      |
      +--rserpoolMIBGroups(2)
         |
         +--rserpoolENRPGroup(1)
         +--rserpoolPEGroup(2)
         +--rserpoolPUGroup(3)
```

As the figure shows, the MIB consists of three main branches: "rserpoolENRPServers", "rserpoolPoolElements", and "rserpoolPoolUsers". The first branch, "rserpoolENRPServers", is used to access managed objects in the set of ENRP servers running on a given host. While it is assumed that it does not make much sense to run multiple ENRP servers for the same operation scope on one host, running multiple ENRP servers for different operation scopes is very likely when the ENRP server processes run on routers. Therefore, the MIB has to be able to manage multiple ENRP servers on the same host.

"rserpoolPoolElements" is used to access managed objects in the set of pool elements that are running on a given host.

The third branch, "rserpoolPoolUsers", is used to access managed objects in the set of pool users that are running on a given host.

Note: "rserpoolENRPServers" is filled on hosts running ENRP server instances, "rserpoolPoolElements" is filled on hosts running pool element instances, and "rserpoolPoolUsers" is filled on hosts running pool user instances. Of course, multiple different components may run on the same host, which leads to filling of multiple different branches.

In fact, the structure of the three branches is very similar. Because the other two branches are so similar, we describe only the first branch in detail, and provide a summary description of the second and third branch. We now proceed with a description of the branches.

5.1. Access to Managed Objects on ENRP Servers

The first branch describes managed objects at a set of ENRP servers. Any given ENRP server of this set will, at a certain moment in time, have registration information for a set of active pools. Each of these pools in turn may have a list of pool elements that are registered under that pool. To allow this information to be retrieved via SNMP, the ERNP server branch of the RSerPool MIB uses the table-in-table technique described in [SNMPMIBS].

Specifically, the ENRP servers branch creates four levels of nesting, as indicated in the following diagram:

Nesting of the ENRP Server Branch

Nesting Structure:

```
 Level 1: rserpoolENRPTable

 Level 2:    rserpoolENRPPoolTable
 Level 3:       rserpoolENRPPoolElementTable
 Level 4:          rserpoolENRPASAPAddrTable
                   rserpoolENRPUserAddrTable

 Level 2:    rserpoolENRPENRPAddrTable

 Level 2:    rserpoolENRPPeerTable
 Level 3:       rserpoolENRPPeerAddrTable
```

5.2. Access to Managed Objects on Pool Elements

The construction of the Pool Elements branch is very similar to the pool elements table of the ENRP servers branch. But instead of grouping the pool elements into pools (which does not make sense here), the pool elements table is the top of the hierarchy, and each pool element entry specifies its operation scope and pool handle.

That is, the nesting structure is as follows:

Nesting of the Pool Elements Branch

```
 Level 1:    rserpoolPETable
 Level 2:       rserpoolPEASAPAddrTable
                rserpoolPEUserAddrTable
```

5.3. Access to Managed Objects on Pool Users

For the Pool Users branch, it is only necessary to list the pool user instances, including their operation scope and pool handle.

5.4. Persistency Behavior

Upon changes of writable objects, an implementation SHOULD store the new values in a persistent manner if it has the capability to do this. An implementation SHOULD use these stored values upon reset or reinitialization.

6. Definitions

```
RSERPOOL-MIB DEFINITIONS ::= BEGIN

IMPORTS
   MODULE-IDENTITY, OBJECT-TYPE, experimental,
   TimeTicks, Unsigned32
      FROM SNMPv2-SMI
   TEXTUAL-CONVENTION
      FROM SNMPv2-TC
   MODULE-COMPLIANCE, OBJECT-GROUP
      FROM SNMPv2-CONF
   InetAddressType, InetAddress, InetPortNumber
      FROM INET-ADDRESS-MIB;

-- ## Module definition ############################################
rserpoolMIB MODULE-IDENTITY
   LAST-UPDATED
      "200904070000Z" -- April 07, 2009
   ORGANIZATION
      "IEM-TdR, UNIVERSITY OF DUISBURG-ESSEN"
   CONTACT-INFO
      " THOMAS-DREIBHOLZ

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```

```
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                  Dover, DE
                  USA 19904
         Phone:   +1-302-857-7910
         Fax:     +1-302-857-6552
         Email:   jaiwant@mulik.com"
      DESCRIPTION
         "The MIB module for managing an RSerPool implementation.

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          OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS
          SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH
          DAMAGE.
```

```
          This version of this MIB module is part of RFC 5525;
          see the RFC itself for full legal notices."

      REVISION
         "200904070000Z" -- April 07, 2009
      DESCRIPTION
         "This version of the MIB module is published as RFC 5525"
      ::= { experimental 125 }

-- ## RSerPool type definitions ###################################
RSerPoolENRPServerIdentifierTC ::= TEXTUAL-CONVENTION
   DISPLAY-HINT "x"
   STATUS       current
   DESCRIPTION  "The ID of an ENRP server"
   SYNTAX       Unsigned32 (1..4294967295)

RSerPoolOperationScopeTC ::= TEXTUAL-CONVENTION
   DISPLAY-HINT "1024t"
   STATUS       current
   DESCRIPTION  "The ID of an operation scope"
   SYNTAX       OCTET STRING (SIZE (0..65535))

RSerPoolPoolHandleTC ::= TEXTUAL-CONVENTION
   DISPLAY-HINT "1024t"
   STATUS       current
   DESCRIPTION  "The pool handle"
   SYNTAX       OCTET STRING (SIZE (0..65535))

RserpoolPoolElementIdentifierTC ::= TEXTUAL-CONVENTION
   DISPLAY-HINT "x"
   STATUS       current
   DESCRIPTION  "The pool element ID"
   SYNTAX       Unsigned32 (1..4294967295)

RSerPoolPolicyIdentifierTC ::= TEXTUAL-CONVENTION
   DISPLAY-HINT "x"
   STATUS       current
   DESCRIPTION  "The ID of the pool policy"
   SYNTAX       Unsigned32 (1..4294967295)

RSerPoolPolicyLoadTC ::= TEXTUAL-CONVENTION
   DISPLAY-HINT "d"
   STATUS       current
   DESCRIPTION  "The load status of a pool element"
   SYNTAX       Unsigned32 (0..4294967295)
```

```
RSerPoolPolicyWeightTC ::= TEXTUAL-CONVENTION
   DISPLAY-HINT "d"
   STATUS       current
   DESCRIPTION  "The weight of a pool element"
   SYNTAX       Unsigned32 (0..4294967295)

RSerPoolTransportUseTypeTC ::= TEXTUAL-CONVENTION
   STATUS       current
   DESCRIPTION "The transport use of a pool element"
   SYNTAX       INTEGER {
      dataOnly(0),
      dataPlusControl(1)
   }

RSerPoolOpaqueAddressTC ::= TEXTUAL-CONVENTION
   DISPLAY-HINT "1024t"
   STATUS       current
   DESCRIPTION  "Opaque address"
   SYNTAX       OCTET STRING  (SIZE (0..65535))

-- ## Top-level definitions ########################################
rserpoolMIBObjects     OBJECT IDENTIFIER ::= { rserpoolMIB 1 }
rserpoolMIBConformance OBJECT IDENTIFIER ::= { rserpoolMIB 2 }

rserpoolENRPServers    OBJECT IDENTIFIER ::= { rserpoolMIBObjects 1 }
rserpoolPoolElements   OBJECT IDENTIFIER ::= { rserpoolMIBObjects 2 }
rserpoolPoolUsers      OBJECT IDENTIFIER ::= { rserpoolMIBObjects 3 }

-- ################################################################
-- #### ENRP Servers Section                                   ####
-- ################################################################

-- ## Definition of the ENRP server table ##########################
rserpoolENRPTable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolENRPEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "The table listing of ENRP servers."
   ::= { rserpoolENRPServers 1 }

rserpoolENRPEntry OBJECT-TYPE
   SYNTAX     RserpoolENRPEntry
   MAX-ACCESS not-accessible
   STATUS     current
```

```
   DESCRIPTION
      "An ENRP server entry in the table listing of ENRP
      servers."
   INDEX { rserpoolENRPIndex }
   ::= { rserpoolENRPTable 1 }

RserpoolENRPEntry ::= SEQUENCE {
rserpoolENRPIndex                Unsigned32,
rserpoolENRPOperationScope       RSerPoolOperationScopeTC,
rserpoolENRPIdentifier           RSerPoolENRPServerIdentifierTC,
rserpoolENRPDescription          OCTET STRING,
rserpoolENRPUptime               TimeTicks,
rserpoolENRPPort                 InetPortNumber,
rserpoolENRPASAPAnnouncePort     InetPortNumber,
rserpoolENRPASAPAnnounceAddrType InetAddressType,
rserpoolENRPASAPAnnounceAddr     InetAddress,
rserpoolENRPENRPAnnouncePort     InetPortNumber,
rserpoolENRPENRPAnnounceAddrType InetAddressType,
rserpoolENRPENRPAnnounceAddr     InetAddress }

rserpoolENRPIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "An integer to uniquely identify an ENRP server."
   ::= { rserpoolENRPEntry 1 }

rserpoolENRPOperationScope OBJECT-TYPE
   SYNTAX     RSerPoolOperationScopeTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The definition of the operation scope of this ENRP server."
   REFERENCE
      "Section 1.2 of RFC 3237 defines the term operation scope."
   ::= { rserpoolENRPEntry 2 }

rserpoolENRPIdentifier OBJECT-TYPE
   SYNTAX     RSerPoolENRPServerIdentifierTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The ENRP server identifier of this ENRP server."
   REFERENCE
      "Section 3.1 of RFC 5351 explains the ENRP server identifier."
   ::= { rserpoolENRPEntry 3 }
```

```
rserpoolENRPDescription OBJECT-TYPE
   SYNTAX     OCTET STRING (SIZE (0..255))
   MAX-ACCESS read-write
   STATUS     current
   DESCRIPTION
      "A textual description of this ENRP server, e.g., its location
      and a contact address of its administrator.

      This object SHOULD be maintained in a persistent manner."
   ::= { rserpoolENRPEntry 4 }

rserpoolENRPUptime OBJECT-TYPE
   SYNTAX     TimeTicks
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The ENRP service uptime of this ENRP server."
   ::= { rserpoolENRPEntry 5 }

rserpoolENRPPort OBJECT-TYPE
   SYNTAX     InetPortNumber
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The Stream Control Transmission Protocol (SCTP) port number of
      the ENRP protocol endpoint of this ENRP server."
   REFERENCE
      "RFC 5353 defines the ENRP protocol."
   ::= { rserpoolENRPEntry 6 }

rserpoolENRPASAPAnnouncePort OBJECT-TYPE
   SYNTAX     InetPortNumber
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The destination UDP port number to which ASAP multicast announce
      messages are sent."
   REFERENCE
      "Section 3.2 of RFC 5351 explains the server-discovery mechanism
      using ASAP announces."
   ::= { rserpoolENRPEntry 7 }

rserpoolENRPASAPAnnounceAddrType OBJECT-TYPE
   SYNTAX     InetAddressType { ipv4(1), ipv6(2) }
   MAX-ACCESS read-only
   STATUS     current
```

```
      DESCRIPTION
         "The network-layer protocol over which ASAP multicast announce
         messages are sent."
      REFERENCE
         "Section 3.2 of RFC 5351 explains the server-discovery mechanism
         using ASAP announces."
      ::= { rserpoolENRPEntry 8 }

   rserpoolENRPASAPAnnounceAddr OBJECT-TYPE
      SYNTAX     InetAddress (SIZE(4|16))
      MAX-ACCESS read-only
      STATUS     current
      DESCRIPTION
         "The destination IP multicast address to which ASAP multicast
         announce messages are sent.  The type of this address is
         given in rserpoolENRPASAPAnnounceAddrType."
      REFERENCE
         "Section 3.2 of RFC 5351 explains the server-discovery mechanism
         using ASAP announces."
      ::= { rserpoolENRPEntry 9 }

   rserpoolENRPENRPAnnouncePort OBJECT-TYPE
      SYNTAX     InetPortNumber
      MAX-ACCESS read-only
      STATUS     current
      DESCRIPTION
         "The destination UDP port number to which ENRP multicast announce
         messages are sent."
      REFERENCE
         "Section 3.1 of RFC 5353 explains the ENRP multicast
         announce mechanism."
      ::= { rserpoolENRPEntry 10 }

   rserpoolENRPENRPAnnounceAddrType OBJECT-TYPE
      SYNTAX     InetAddressType { ipv4(1), ipv6(2) }
      MAX-ACCESS read-only
      STATUS     current
      DESCRIPTION
         "The network-layer protocol over which ENRP multicast announce
         messages are sent."
      REFERENCE
         "Section 3.1 of RFC 5353 explains the ENRP multicast
         announce mechanism."
      ::= { rserpoolENRPEntry 11 }

   rserpoolENRPENRPAnnounceAddr OBJECT-TYPE
      SYNTAX     InetAddress (SIZE(4|16))
      MAX-ACCESS read-only
```

```
   STATUS     current
   DESCRIPTION
      "The destination multicast IP address to which ENRP multicast
      announce messages are sent.  The type of this address
      is given in rserpoolENRPENRPAnnounceAddrType."
   REFERENCE
      "Section 3.1 of RFC 5353 explains the ENRP multicast
      announce mechanism."
   ::= { rserpoolENRPEntry 12 }

-- ## Definition of the pool table ###################################
rserpoolENRPPoolTable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolENRPPoolEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "The table listing of pools."
   ::= { rserpoolENRPServers 3 }

rserpoolENRPPoolEntry OBJECT-TYPE
   SYNTAX     RserpoolENRPPoolEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "The pool entry in the table listing of pools."
   INDEX { rserpoolENRPIndex, rserpoolENRPPoolIndex }
   ::= { rserpoolENRPPoolTable 1 }

RserpoolENRPPoolEntry ::= SEQUENCE {
   rserpoolENRPPoolIndex  Unsigned32,
   rserpoolENRPPoolHandle RSerPoolPoolHandleTC }

rserpoolENRPPoolIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "An integer to uniquely identify a pool."
   ::= { rserpoolENRPPoolEntry 1 }

rserpoolENRPPoolHandle OBJECT-TYPE
   SYNTAX     RSerPoolPoolHandleTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The pool handle of this pool."
   REFERENCE
      "Section 1.2 of RFC 3237 defines the term pool handle."
```

```
   ::= { rserpoolENRPPoolEntry 2 }

-- ## Definition of the pool element table ########################
rserpoolENRPPoolElementTable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolENRPPoolElementEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "The table listing of pool elements."
   ::= { rserpoolENRPServers 4 }

rserpoolENRPPoolElementEntry OBJECT-TYPE
   SYNTAX     RserpoolENRPPoolElementEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A pool element in the table listing of pool elements."
   INDEX {
      rserpoolENRPIndex,
      rserpoolENRPPoolIndex,
      rserpoolENRPPoolElementIndex }
   ::= { rserpoolENRPPoolElementTable 1 }

RserpoolENRPPoolElementEntry ::= SEQUENCE {
   rserpoolENRPPoolElementIndex   Unsigned32,
   rserpoolENRPPoolElementID      RserpoolPoolElementIdentifierTC,
   rserpoolENRPASAPTransportPort  InetPortNumber,
   rserpoolENRPUserTransportProto Unsigned32,
   rserpoolENRPUserTransportPort  InetPortNumber,
   rserpoolENRPUserTransportUse   RSerPoolTransportUseTypeTC,
   rserpoolENRPPolicyID           RSerPoolPolicyIdentifierTC,
   rserpoolENRPPolicyDescription  OCTET STRING,
   rserpoolENRPPolicyWeight       RSerPoolPolicyWeightTC,
   rserpoolENRPPolicyLoad         RSerPoolPolicyLoadTC,
   rserpoolENRPPolicyLoadDeg      RSerPoolPolicyLoadTC,
   rserpoolENRPRegistrationLife   TimeTicks,
   rserpoolENRPHomeENRPServer     RSerPoolENRPServerIdentifierTC }


rserpoolENRPPoolElementIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
   STATUS     current
```

```
   DESCRIPTION
      "An integer to uniquely identify a pool element.  Note,
      that uniqueness of a pool element identifier in the pool
      is not enforced; therefore, this index is required here!"
   ::={ rserpoolENRPPoolElementEntry 1 }

rserpoolENRPPoolElementID OBJECT-TYPE
   SYNTAX     RserpoolPoolElementIdentifierTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The pool element identifier of this pool element."
   REFERENCE
      "Section 2.2 of RFC 5351 explains the pool element identifier
      usage."
   ::={ rserpoolENRPPoolElementEntry 2 }

rserpoolENRPASAPTransportPort OBJECT-TYPE
   SYNTAX     InetPortNumber
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The SCTP port number of the ASAP endpoint of this pool
      element."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the ASAP Transport Parameter of
      which the port number is given here."
   ::= { rserpoolENRPPoolElementEntry 3 }

rserpoolENRPUserTransportProto OBJECT-TYPE
   SYNTAX     Unsigned32 (0..255)
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The transport protocol number of the service endpoint
      of this pool element."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the transport protocol number is given here."
   ::= { rserpoolENRPPoolElementEntry 4 }

rserpoolENRPUserTransportPort OBJECT-TYPE
   SYNTAX     InetPortNumber
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The transport protocol's port number of the service
      endpoint of this pool element."
```

```
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the port number is given here."
   ::= { rserpoolENRPPoolElementEntry 5 }

rserpoolENRPUserTransportUse OBJECT-TYPE
   SYNTAX     RSerPoolTransportUseTypeTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The transport use of the service endpoint of this pool
      element."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the transport use is given here."
   ::= { rserpoolENRPPoolElementEntry 6 }

rserpoolENRPPolicyID OBJECT-TYPE
   SYNTAX     RSerPoolPolicyIdentifierTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The pool policy of this pool element."
   REFERENCE
      "Section 3.8 of RFC 5354 defines the Member Selection Policy
      Parameter of which the policy identifier is given here."
   ::= { rserpoolENRPPoolElementEntry 7 }

rserpoolENRPPolicyDescription OBJECT-TYPE
   SYNTAX     OCTET STRING (SIZE (0..255))
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The textual description of the pool policy of this pool
      element."
   ::= { rserpoolENRPPoolElementEntry 8 }

rserpoolENRPPolicyWeight OBJECT-TYPE
   SYNTAX     RSerPoolPolicyWeightTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The pool policy's weight parameter for this pool element."
   REFERENCE
      "Section 3.8 of RFC 5354 defines the Member Selection Policy
      Parameter of which the policy's weight parameter is given here."
   ::= { rserpoolENRPPoolElementEntry 9 }
```

```
rserpoolENRPPolicyLoad OBJECT-TYPE
   SYNTAX     RSerPoolPolicyLoadTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The pool policy's load status for this pool element."
   REFERENCE
      "Section 3.8 of RFC 5354 defines the Member Selection Policy
      Parameter of which the policy's load parameter is given here."
   ::= { rserpoolENRPPoolElementEntry 10 }

rserpoolENRPPolicyLoadDeg OBJECT-TYPE
   SYNTAX     RSerPoolPolicyLoadTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The pool policy's load degradation parameter for this pool
      element."
   REFERENCE
      "Section 3.8 of RFC 5354 defines the Member Selection Policy
      Parameter of which the policy's load degradation parameter is
      given here."
   ::= { rserpoolENRPPoolElementEntry 11 }

rserpoolENRPRegistrationLife OBJECT-TYPE
   SYNTAX     TimeTicks
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The registration life of this pool element."
  REFERENCE
      "Section 3.10 of RFC 5354 defines the Registration Life."
   ::= { rserpoolENRPPoolElementEntry 12 }

rserpoolENRPHomeENRPServer OBJECT-TYPE
   SYNTAX     RSerPoolENRPServerIdentifierTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The ID of the Home ENRP server of this pool element."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the Home ENRP Server
      Identifier."
   ::= { rserpoolENRPPoolElementEntry 13 }

-- ## Definition of the ASAP transport address list table #########
rserpoolENRPASAPAddrTable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolENRPASAPAddrTableEntry
```

```
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A table listing of all IP addresses of the ASAP transport
      endpoint."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the ASAP Transport Parameter of
      which the addresses are listed in this table."
   ::= { rserpoolENRPServers 5 }

rserpoolENRPASAPAddrTableEntry  OBJECT-TYPE
   SYNTAX     RserpoolENRPASAPAddrTableEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "An IP address of the ASAP transport endpoint."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the ASAP Transport Parameter of
      which an address is contained by this entry."
   INDEX {
      rserpoolENRPIndex,
      rserpoolENRPPoolIndex,
      rserpoolENRPPoolElementIndex,
      rserpoolENRPASAPAddrTableIndex }
   ::= { rserpoolENRPASAPAddrTable 1 }

RserpoolENRPASAPAddrTableEntry ::= SEQUENCE {
   rserpoolENRPASAPAddrTableIndex Unsigned32,
   rserpoolENRPASAPL3Type         InetAddressType,
   rserpoolENRPASAPL3Addr         InetAddress }

rserpoolENRPASAPAddrTableIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A unique identifier for the IP address of an ASAP transport
      endpoint."
   ::= { rserpoolENRPASAPAddrTableEntry 1 }

rserpoolENRPASAPL3Type OBJECT-TYPE
   SYNTAX     InetAddressType { ipv4(1), ipv6(2) }
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The network-layer protocol (IPv4 or IPv6) of an IP address of
      an ASAP transport endpoint."
   REFERENCE
```

```
      "Section 3.10 of RFC 5354 defines the ASAP Transport Parameter of
      which the network-layer protocol number is given here."
   ::= { rserpoolENRPASAPAddrTableEntry 2 }

rserpoolENRPASAPL3Addr OBJECT-TYPE
   SYNTAX     InetAddress (SIZE(4|16))
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The IP address of an ASAP transport endpoint.  The type of
      this address is given in rserpoolENRPASAPL3Type."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the ASAP Transport Parameter of
      which the network-layer address (IPv4 or IPv6) is given here."
   ::= { rserpoolENRPASAPAddrTableEntry 3 }

-- ## Definition of the user transport address list table #########
rserpoolENRPUserAddrTable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolENRPUserAddrTableEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A table listing of all IP addresses of the user
      transport endpoint."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the addresses are listed in this table."
   ::= { rserpoolENRPServers 6 }

rserpoolENRPUserAddrTableEntry  OBJECT-TYPE
   SYNTAX     RserpoolENRPUserAddrTableEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "An IP address of the user transport endpoint."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which an address is contained by this entry."
   INDEX {
      rserpoolENRPIndex,
      rserpoolENRPPoolIndex,
      rserpoolENRPPoolElementIndex,
      rserpoolENRPUserAddrTableIndex }
   ::= { rserpoolENRPUserAddrTable 1 }

RserpoolENRPUserAddrTableEntry ::= SEQUENCE {
   rserpoolENRPUserAddrTableIndex Unsigned32,
   rserpoolENRPUserL3Type         InetAddressType,
```

```
   rserpoolENRPUserL3Addr         InetAddress,
   rserpoolENRPUserL3Opaque       RSerPoolOpaqueAddressTC }

rserpoolENRPUserAddrTableIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A unique identifier for the IP address of a user transport
      endpoint."
   ::= { rserpoolENRPUserAddrTableEntry 1 }

rserpoolENRPUserL3Type OBJECT-TYPE
   SYNTAX     InetAddressType { unknown(0), ipv4(1), ipv6(2) }
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The network-layer protocol (IPv4 or IPv6) of an IP address
      of a user transport endpoint.  Set to unknown for an opaque
      address."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the network-layer protocol number is given here."
   ::= { rserpoolENRPUserAddrTableEntry 2 }

rserpoolENRPUserL3Addr OBJECT-TYPE
   SYNTAX     InetAddress (SIZE(0|4|16))
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The IP address of a user transport endpoint.  The type of
      this address is given in rserpoolENRPUserL3Type."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the network-layer address (IPv4 or IPv6) is given here."
   ::= { rserpoolENRPUserAddrTableEntry 3 }

rserpoolENRPUserL3Opaque OBJECT-TYPE
   SYNTAX     RSerPoolOpaqueAddressTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The opaque address of a user transport endpoint."
   REFERENCE
      "Section 3.16 of RFC 5354 defines the opaque transport address."
   ::= { rserpoolENRPUserAddrTableEntry 4 }
```

```
-- ## Definition of ENRP address list table ########################
rserpoolENRPENRPAddrTable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolENRPENRPAddrTableEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A table listing of all IP addresses of the ENRP
      transport endpoint."
   ::= { rserpoolENRPServers 7 }

rserpoolENRPENRPAddrTableEntry  OBJECT-TYPE
   SYNTAX     RserpoolENRPENRPAddrTableEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "An IP address of the ENRP transport endpoint."
   INDEX {
      rserpoolENRPIndex,
      rserpoolENRPENRPAddrTableIndex }
   ::= { rserpoolENRPENRPAddrTable 1 }

RserpoolENRPENRPAddrTableEntry ::= SEQUENCE {
   rserpoolENRPENRPAddrTableIndex Unsigned32,
   rserpoolENRPENRPL3Type         InetAddressType,
   rserpoolENRPENRPL3Addr         InetAddress }

rserpoolENRPENRPAddrTableIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A unique identifier for the IP address of an ENRP transport
      endpoint."
   ::= { rserpoolENRPENRPAddrTableEntry 1 }

rserpoolENRPENRPL3Type OBJECT-TYPE
   SYNTAX     InetAddressType { ipv4(1), ipv6(2) }
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The network-layer protocol (IPv4 or IPv6) of an IP address of
      an ENRP transport endpoint."
   REFERENCE
      "RFC 5353 defines the ENRP protocol."
   ::= { rserpoolENRPENRPAddrTableEntry 2 }
```

```
rserpoolENRPENRPL3Addr OBJECT-TYPE
   SYNTAX     InetAddress (SIZE(4|16))
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The IP address of an ENRP transport endpoint.  The type of
      this address is given in rserpoolENRPENRPL3Type."
   REFERENCE
      "RFC 5353 defines the ENRP protocol."
   ::= { rserpoolENRPENRPAddrTableEntry 3 }

-- ## Definition of peer table ###################################
rserpoolENRPPeerTable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolENRPPeerEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "The table listing of a peer table."
   ::= { rserpoolENRPServers 8 }

rserpoolENRPPeerEntry OBJECT-TYPE
   SYNTAX     RserpoolENRPPeerEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A peer entry in the table listing of a peer table."
   INDEX { rserpoolENRPPeerIndex }
   ::= { rserpoolENRPPeerTable 1 }

RserpoolENRPPeerEntry ::= SEQUENCE {
   rserpoolENRPPeerIndex      Unsigned32,
   rserpoolENRPPeerIdentifier RSerPoolENRPServerIdentifierTC,
   rserpoolENRPPeerPort       InetPortNumber,
   rserpoolENRPPeerLastHeard  TimeTicks }

rserpoolENRPPeerIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A unique identifier for a peer entry in the table
      listing of a peer table."
   ::= { rserpoolENRPPeerEntry 1 }

rserpoolENRPPeerIdentifier OBJECT-TYPE
   SYNTAX     RSerPoolENRPServerIdentifierTC
   MAX-ACCESS read-only
   STATUS     current
```

```
   DESCRIPTION
      "The ENRP identifier of this peer."
   REFERENCE
      "RFC 5353 explains the usage of the ENRP server identifier."
   ::= { rserpoolENRPPeerEntry 2 }

rserpoolENRPPeerPort OBJECT-TYPE
   SYNTAX     InetPortNumber
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The SCTP port number of the ENRP transport endpoint of
      this peer."
   REFERENCE
      "RFC 5353 defines the ENRP protocol."
   ::= { rserpoolENRPPeerEntry 3 }

rserpoolENRPPeerLastHeard OBJECT-TYPE
   SYNTAX     TimeTicks
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The time since the reception of the last ENRP Presence
      message of this peer."
   REFERENCE
      "Section 4.1 of RFC 5353 defines the last heard value."
   ::= { rserpoolENRPPeerEntry 4 }

-- ## Definition of peer address list table ########################
rserpoolENRPPeerAddrTable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolENRPPeerAddrTableEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A table listing of the peer endpoint addresses."
   ::= { rserpoolENRPServers 9 }

rserpoolENRPPeerAddrTableEntry  OBJECT-TYPE
   SYNTAX     RserpoolENRPPeerAddrTableEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A table listing of all IP addresses of the ENRP
      transport endpoint of a peer referenced by rserpoolENRPPeerIndex."
   INDEX {
      rserpoolENRPPeerIndex,
      rserpoolENRPPeerAddrTableIndex }
   ::= { rserpoolENRPPeerAddrTable 1 }
```

```
RserpoolENRPPeerAddrTableEntry ::= SEQUENCE {
   rserpoolENRPPeerAddrTableIndex Unsigned32,
   rserpoolENRPPeerL3Type         InetAddressType,
   rserpoolENRPPeerL3Addr         InetAddress }

rserpoolENRPPeerAddrTableIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A unique identifier for the IP address of a peer ENRP
      transport endpoint."
   ::= { rserpoolENRPPeerAddrTableEntry 1 }

rserpoolENRPPeerL3Type OBJECT-TYPE
   SYNTAX     InetAddressType { ipv4(1), ipv6(2) }
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The network-layer protocol (IPv4 or IPv6) of an IP address
      of a peer ENRP transport endpoint."
   REFERENCE
      "RFC 5353 defines the ENRP protocol."
   ::= { rserpoolENRPPeerAddrTableEntry 2 }

rserpoolENRPPeerL3Addr OBJECT-TYPE
   SYNTAX     InetAddress (SIZE(4|16))
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The IP address of a peer ENRP transport endpoint.  The type
      of this address is given in rserpoolENRPPeerL3Type."
   REFERENCE
      "RFC 5353 defines the ENRP protocol."
   ::= { rserpoolENRPPeerAddrTableEntry 3 }

-- ##################################################################
-- #### Pool Elements Section                                    ####
-- ##################################################################

-- ## Definition of the pool element table ########################
rserpoolPETable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolPEEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "The table listing of pool elements."
   ::= { rserpoolPoolElements 1 }
```

```
rserpoolPEEntry OBJECT-TYPE
   SYNTAX     RserpoolPEEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A pool element in the table listing of pool elements."
   INDEX { rserpoolPEIndex }
   ::= { rserpoolPETable 1 }

RserpoolPEEntry ::= SEQUENCE {
   rserpoolPEIndex              Unsigned32,
   rserpoolPEOperationScope     RSerPoolOperationScopeTC,
   rserpoolPEPoolHandle         RSerPoolPoolHandleTC,
   rserpoolPEIdentifier         RserpoolPoolElementIdentifierTC,
   rserpoolPEDescription        OCTET STRING,
   rserpoolPEUptime             TimeTicks,
   rserpoolPEASAPTransportPort  InetPortNumber,
   rserpoolPEUserTransportProto Unsigned32,
   rserpoolPEUserTransportPort  InetPortNumber,
   rserpoolPEUserTransportUse   RSerPoolTransportUseTypeTC,
   rserpoolPEPolicyID           RSerPoolPolicyIdentifierTC,
   rserpoolPEPolicyDescription  OCTET STRING,
   rserpoolPEPolicyWeight       RSerPoolPolicyWeightTC,
   rserpoolPEPolicyLoad         RSerPoolPolicyLoadTC,
   rserpoolPEPolicyLoadDeg      RSerPoolPolicyLoadTC,
   rserpoolPERegistrationLife   TimeTicks,
   rserpoolPEHomeENRPServer     RSerPoolENRPServerIdentifierTC }


rserpoolPEIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "An integer to uniquely identify a pool element.  Note,
      that uniqueness of a pool element identifier in the pool
      is not enforced; therefore, this index is required here!"
   ::={ rserpoolPEEntry 1 }

rserpoolPEOperationScope OBJECT-TYPE
   SYNTAX     RSerPoolOperationScopeTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The operation scope of this pool element."
   REFERENCE
      "Section 1.2 of RFC 3237 defines the term operation scope."
   ::= { rserpoolPEEntry 2 }
```

```
rserpoolPEPoolHandle OBJECT-TYPE
   SYNTAX     RSerPoolPoolHandleTC
   MAX-ACCESS read-write
   STATUS     current
   DESCRIPTION
      "The pool handle of this pool element.  Changing this object
      will update the pool element's pool handle and result in a
      re-registration.

      This object SHOULD be maintained in a persistent manner."
   REFERENCE
      "Section 1.2 of RFC 3237 defines the term pool handle."
   ::={ rserpoolPEEntry 3 }

rserpoolPEIdentifier OBJECT-TYPE
   SYNTAX     RserpoolPoolElementIdentifierTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The pool element identifier of this pool element."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the pool element identifier."
   ::={ rserpoolPEEntry 4 }

rserpoolPEDescription OBJECT-TYPE
   SYNTAX     OCTET STRING (SIZE (0..255))
   MAX-ACCESS read-write
   STATUS     current
   DESCRIPTION
      "A textual description of this pool element, e.g., its location
      and a contact address of its administrator.

      This object SHOULD be maintained in a persistent manner."
   ::= { rserpoolPEEntry 5 }

rserpoolPEUptime OBJECT-TYPE
   SYNTAX     TimeTicks
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The ENRP service uptime of this pool element."
   ::= { rserpoolPEEntry 6 }

rserpoolPEASAPTransportPort OBJECT-TYPE
   SYNTAX     InetPortNumber
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
```

```
      "The SCTP port number of the ASAP endpoint of this pool element."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the ASAP Transport Parameter of
      which the port number is given here."
   ::= { rserpoolPEEntry 7 }

rserpoolPEUserTransportProto OBJECT-TYPE
   SYNTAX     Unsigned32 (0..255)
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The transport protocol number of the service endpoint
      of this pool element."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the transport protocol number is given here."
   ::= { rserpoolPEEntry 8 }

rserpoolPEUserTransportPort OBJECT-TYPE
   SYNTAX     InetPortNumber
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The transport protocol's port number of the service
      endpoint of this pool element."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the port number is given here."
   ::= { rserpoolPEEntry 9 }

rserpoolPEUserTransportUse OBJECT-TYPE
   SYNTAX     RSerPoolTransportUseTypeTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The transport use of the service endpoint of this pool element."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the transport use is given here."
   ::= { rserpoolPEEntry 10 }

rserpoolPEPolicyID OBJECT-TYPE
   SYNTAX     RSerPoolPolicyIdentifierTC
   MAX-ACCESS read-write
   STATUS     current
   DESCRIPTION
      "The pool policy of this pool element.  Changing this object
      will update the pool element's policy and result in a
```

```
      re-registration.

      This object SHOULD be maintained in a persistent manner."
   REFERENCE
      "Section 3.8 of RFC 5354 defines the Member Selection Policy
      Parameter of which the policy identifier is given here."
   ::= { rserpoolPEEntry 11 }

rserpoolPEPolicyDescription OBJECT-TYPE
   SYNTAX     OCTET STRING (SIZE (0..255))
   MAX-ACCESS read-write
   STATUS     current
   DESCRIPTION
      "The textual description of the pool policy of this pool element.

      This object SHOULD be maintained in a persistent manner."
   ::= { rserpoolPEEntry 12 }

rserpoolPEPolicyWeight OBJECT-TYPE
   SYNTAX     RSerPoolPolicyWeightTC
   MAX-ACCESS read-write
   STATUS     current
   DESCRIPTION
      "The pool policy's weight parameter for this pool element.
      Changing this object will update the pool element's policy
      weight setting and result in a re-registration.

      This object SHOULD be maintained in a persistent manner."
   REFERENCE
      "Section 3.8 of RFC 5354 defines the Member Selection Policy
      Parameter of which the policy's weight parameter is given here."
   ::= { rserpoolPEEntry 13 }

rserpoolPEPolicyLoad OBJECT-TYPE
   SYNTAX     RSerPoolPolicyLoadTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The pool policy's load status for this pool element."
   REFERENCE
      "Section 3.8 of RFC 5354 defines the Member Selection Policy
      Parameter of which the policy's load parameter is given here."
   ::= { rserpoolPEEntry 14 }
```

```
rserpoolPEPolicyLoadDeg OBJECT-TYPE
   SYNTAX     RSerPoolPolicyLoadTC
   MAX-ACCESS read-write
   STATUS     current
   DESCRIPTION
      "The pool policy's load degradation parameter for this pool
      element.  Changing this object will update the pool element's
      load degradation setting and result in a re-registration.

      This object SHOULD be maintained in a persistent manner."
   REFERENCE
      "Section 3.8 of RFC 5354 defines the Member Selection Policy
      Parameter of which the policy's load degradation parameter is
      given here."
   ::= { rserpoolPEEntry 15 }

rserpoolPERegistrationLife OBJECT-TYPE
   SYNTAX     TimeTicks
   MAX-ACCESS read-write
   STATUS     current
   DESCRIPTION
      "The registration life of this pool element.  Changing this
      object will update the pool element's lifetime setting and
      result in a re-registration.

      This object SHOULD be maintained in a persistent manner."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the Registration Life."
   ::= { rserpoolPEEntry 16 }

rserpoolPEHomeENRPServer OBJECT-TYPE
   SYNTAX     RSerPoolENRPServerIdentifierTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The ID of the Home ENRP server of this pool element."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the Home ENRP Server
      Identifier."
   ::= { rserpoolPEEntry 17 }

-- ## Definition of the ASAP transport address list table #########
rserpoolPEASAPAddrTable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolPEASAPAddrTableEntry
   MAX-ACCESS not-accessible
   STATUS     current
```

```
   DESCRIPTION
      "A table listing of all IP addresses of the ASAP transport
      endpoint."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the ASAP Transport Parameter of
      which the addresses are listed in this table."
   ::= { rserpoolPoolElements 2 }

rserpoolPEASAPAddrTableEntry  OBJECT-TYPE
   SYNTAX     RserpoolPEASAPAddrTableEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "An IP address of the ASAP transport endpoint."
  REFERENCE
      "Section 3.10 of RFC 5354 defines the ASAP Transport Parameter of
      which an address is contained by this entry."
  INDEX {
      rserpoolPEIndex,
      rserpoolPEASAPAddrTableIndex }
   ::= { rserpoolPEASAPAddrTable 1 }

RserpoolPEASAPAddrTableEntry ::= SEQUENCE {
   rserpoolPEASAPAddrTableIndex Unsigned32,
   rserpoolPEASAPL3Type         InetAddressType,
   rserpoolPEASAPL3Addr         InetAddress }

rserpoolPEASAPAddrTableIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A unique identifier for the IP address of an ASAP transport
      endpoint."
   ::= { rserpoolPEASAPAddrTableEntry 1 }

rserpoolPEASAPL3Type OBJECT-TYPE
   SYNTAX     InetAddressType { ipv4(1), ipv6(2) }
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The network-layer protocol (IPv4 or IPv6) of an IP address of
      an ASAP transport endpoint."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the ASAP Transport Parameter of
      which the network-layer protocol number is given here."
   ::= { rserpoolPEASAPAddrTableEntry 2 }
```

```
rserpoolPEASAPL3Addr OBJECT-TYPE
   SYNTAX     InetAddress (SIZE(4|16))
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The IP address of an ASAP transport endpoint.  The type of
      this address is given in rserpoolPEASAPL3Type."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the ASAP Transport Parameter of
      which the network-layer address (IPv4 or IPv6) is given here."
   ::= { rserpoolPEASAPAddrTableEntry 3 }

-- ## Definition of the user transport address list table #########
rserpoolPEUserAddrTable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolPEUserAddrTableEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A table listing of all IP addresses of the user
      transport endpoint."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the addresses are listed in this table."
   ::= { rserpoolPoolElements 6 }

rserpoolPEUserAddrTableEntry  OBJECT-TYPE
   SYNTAX     RserpoolPEUserAddrTableEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "An IP address of the user transport endpoint."
  REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which an address is contained by this entry."
   INDEX {
      rserpoolPEIndex,
      rserpoolPEUserAddrTableIndex }
   ::= { rserpoolPEUserAddrTable 1 }

RserpoolPEUserAddrTableEntry ::= SEQUENCE {
   rserpoolPEUserAddrTableIndex Unsigned32,
   rserpoolPEUserL3Type         InetAddressType,
   rserpoolPEUserL3Addr         InetAddress,
   rserpoolPEUserL3Opaque       RSerPoolOpaqueAddressTC }

rserpoolPEUserAddrTableIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
```

```
   STATUS     current
   DESCRIPTION
      "A unique identifier for the IP address of a user transport
      endpoint."
   ::= { rserpoolPEUserAddrTableEntry 1 }

rserpoolPEUserL3Type OBJECT-TYPE
   SYNTAX     InetAddressType { unknown(0), ipv4(1), ipv6(2) }
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The network-layer protocol of an IP address of a user transport
      endpoint.  Set to unknown for opaque address."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the network-layer protocol number is given here."
   ::= { rserpoolPEUserAddrTableEntry 2 }

rserpoolPEUserL3Addr OBJECT-TYPE
   SYNTAX     InetAddress (SIZE(0|4|16))
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The IP address of a user transport endpoint.  The type of
      this address is given in rserpoolPEUserL3Addr."
   REFERENCE
      "Section 3.10 of RFC 5354 defines the User Transport Parameter of
      which the network-layer address (IPv4 or IPv6) is given here."
   ::= { rserpoolPEUserAddrTableEntry 3 }

rserpoolPEUserL3Opaque OBJECT-TYPE
   SYNTAX     RSerPoolOpaqueAddressTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The opaque address of a user transport endpoint."
   REFERENCE
      "Section 3.16 of RFC 5354 defines the opaque transport address."
   ::= { rserpoolPEUserAddrTableEntry 4 }

-- ################################################################
-- #### Pool Users Section                                     ####
-- ################################################################

-- ## Definition of the pool user table ############################
rserpoolPUTable OBJECT-TYPE
   SYNTAX     SEQUENCE OF RserpoolPUEntry
   MAX-ACCESS not-accessible
```

```
   STATUS     current
   DESCRIPTION
      "The table listing of pool users."
   ::= { rserpoolPoolUsers 1 }

rserpoolPUEntry OBJECT-TYPE
   SYNTAX     RserpoolPUEntry
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "A pool user in the table listing of pool users."
   INDEX { rserpoolPUIndex }
   ::= { rserpoolPUTable 1 }

RserpoolPUEntry ::= SEQUENCE {
   rserpoolPUIndex          Unsigned32,
   rserpoolPUOperationScope RSerPoolOperationScopeTC,
   rserpoolPUPoolHandle     RSerPoolPoolHandleTC,
   rserpoolPUDescription    OCTET STRING,
   rserpoolPUUptime         TimeTicks }

rserpoolPUIndex OBJECT-TYPE
   SYNTAX     Unsigned32 (1..4294967295)
   MAX-ACCESS not-accessible
   STATUS     current
   DESCRIPTION
      "An integer to uniquely identify a pool user."
   ::= { rserpoolPUEntry 1 }

rserpoolPUOperationScope OBJECT-TYPE
   SYNTAX     RSerPoolOperationScopeTC
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The operation scope of this pool user."
   REFERENCE
      "Section 1.2 of RFC 3237 defines the term operation scope."
   ::= { rserpoolPUEntry 2 }

rserpoolPUPoolHandle OBJECT-TYPE
   SYNTAX     RSerPoolPoolHandleTC
   MAX-ACCESS read-write
   STATUS     current
```

```
   DESCRIPTION
      "The pool handle of this pool user.  Changing this object
      will update the pool user's pool handle for all future
      sessions.

      This object SHOULD be maintained in a persistent manner."
   REFERENCE
      "Section 1.2 of RFC 3237 defines the term pool handle."
   ::={ rserpoolPUEntry 3 }

rserpoolPUDescription OBJECT-TYPE
   SYNTAX     OCTET STRING (SIZE (0..255))
   MAX-ACCESS read-write
   STATUS     current
   DESCRIPTION
      "A textual description of this pool user, e.g., its location
      and a contact address of its administrator.

      This object SHOULD be maintained in a persistent manner."
   ::= { rserpoolPUEntry 4 }

rserpoolPUUptime OBJECT-TYPE
   SYNTAX     TimeTicks
   MAX-ACCESS read-only
   STATUS     current
   DESCRIPTION
      "The ENRP service uptime of this pool user."
   ::= { rserpoolPUEntry 5 }

-- ## MIB conformance and compliance ################################
rserpoolMIBCompliances OBJECT IDENTIFIER ::= {
   rserpoolMIBConformance 1
}

rserpoolMIBGroups OBJECT IDENTIFIER ::= {
   rserpoolMIBConformance 2
}

rserpoolMIBCompliance MODULE-COMPLIANCE
   STATUS  current
   DESCRIPTION
      "The compliance statement for SNMP entities that implement
      RSerPool."
   MODULE
   MANDATORY-GROUPS {
      rserpoolENRPGroup,
      rserpoolPEGroup,
      rserpoolPUGroup }
```

```
   ::= { rserpoolMIBCompliances 1 }

rserpoolENRPGroup OBJECT-GROUP
   OBJECTS {
      rserpoolENRPOperationScope,
      rserpoolENRPIdentifier,
      rserpoolENRPDescription,
      rserpoolENRPUptime,
      rserpoolENRPPort,
      rserpoolENRPASAPAnnouncePort,
      rserpoolENRPASAPAnnounceAddr,
      rserpoolENRPASAPAnnounceAddrType,
      rserpoolENRPENRPAnnounceAddrType,
      rserpoolENRPENRPAnnouncePort,
      rserpoolENRPENRPAnnounceAddr,

      rserpoolENRPPoolHandle,
      rserpoolENRPPoolElementID,

      rserpoolENRPASAPTransportPort,
      rserpoolENRPUserTransportProto,
      rserpoolENRPUserTransportUse,
      rserpoolENRPUserTransportPort,
      rserpoolENRPPolicyID,
      rserpoolENRPPolicyDescription,
      rserpoolENRPPolicyWeight,
      rserpoolENRPPolicyLoad,
      rserpoolENRPPolicyLoadDeg,
      rserpoolENRPRegistrationLife,
      rserpoolENRPHomeENRPServer,

      rserpoolENRPASAPL3Type,
      rserpoolENRPASAPL3Addr,

      rserpoolENRPUserL3Type,
      rserpoolENRPUserL3Addr,
      rserpoolENRPUserL3Opaque,

      rserpoolENRPENRPL3Type,
      rserpoolENRPENRPL3Addr,

      rserpoolENRPPeerIdentifier,
      rserpoolENRPPeerPort,
      rserpoolENRPPeerLastHeard,
      rserpoolENRPPeerL3Type,
      rserpoolENRPPeerL3Addr }
   STATUS current
   DESCRIPTION
```

```
      "The group contains all ENRP server instances
      running on the system"
   ::= { rserpoolMIBGroups 1 }

rserpoolPEGroup OBJECT-GROUP
   OBJECTS {
      rserpoolPEOperationScope,
      rserpoolPEPoolHandle,
      rserpoolPEIdentifier,
      rserpoolPEDescription,
      rserpoolPEUptime,
      rserpoolPEASAPTransportPort,
      rserpoolPEUserTransportProto,
      rserpoolPEUserTransportPort,
      rserpoolPEUserTransportUse,
      rserpoolPEPolicyID,
      rserpoolPEPolicyDescription,
      rserpoolPEPolicyWeight,
      rserpoolPEPolicyLoad,
      rserpoolPEPolicyLoadDeg,
      rserpoolPERegistrationLife,
      rserpoolPEHomeENRPServer,

      rserpoolPEASAPL3Type,
      rserpoolPEASAPL3Addr,

      rserpoolPEUserL3Type,
      rserpoolPEUserL3Addr,
      rserpoolPEUserL3Opaque }
   STATUS current
   DESCRIPTION
      "The group contains all pool element instances
      running on the system"
   ::= { rserpoolMIBGroups 2 }

rserpoolPUGroup OBJECT-GROUP
   OBJECTS { rserpoolPUOperationScope,
      rserpoolPUPoolHandle,
      rserpoolPUDescription,
      rserpoolPUUptime }
   STATUS current
   DESCRIPTION
      "The group contains all pool user instances
      running on the system"
   ::= { rserpoolMIBGroups 3 }

END
```

7. Operational Considerations

The RSerPool MIB is an Experimental track MIB module, since the RSerPool documents are Experimental RFCs.

8. Security Considerations

There are a number of management objects defined in this MIB module with a MAX-ACCESS clause of read-write and/or read-create. Such objects may be considered sensitive or vulnerable in some network environments. The support for SET operations in a non-secure environment without proper protection can have a negative effect on network operations. These are the tables and objects and their sensitivity/vulnerability:

- rserpoolENRPDescription (textual description change)
- rserpoolPEPoolHandle (pool handle of pool element change, similar to ASAP)
- rserpoolPEDescription (textual description change)
- rserpoolPEPolicyID (pool element ID change, similar to ASAP)
- rserpoolPEPolicyDescription (textual description change)
- rserpoolPEPolicyWeight (policy weight change, similar to ASAP)
- rserpoolPEPolicyLoadDeg (policy load degradation change, similar to ASAP)
- rserpoolPERegistrationLife (registration lifetime change, similar to ASAP)
- rserpoolPUPoolHandle (pool handle of accessed pool change, similar to ASAP)
- rserpoolPUDescription (textual description change)

The security implications of changing these items are similar to changes via ASAP; the corresponding security implications are described in the threats document [RFC5355]. Modifying the textual descriptions of components may result in wrong administrator decisions upon malicious information.

Some of the readable objects in this MIB module (i.e., objects with a MAX-ACCESS other than not-accessible) may be considered sensitive or vulnerable in some network environments. It is thus important to control even GET and/or NOTIFY access to these objects and possibly to even encrypt the values of these objects when sending them over the network via SNMP. Read access reveals the same information which is also available by ASAP and ENRP access. The security implications of these two protocols are explained in detail by the threats document [RFC5355].

SNMP versions prior to SNMPv3 did not include adequate security. Even if the network itself is secure (for example by using IPsec), even then, there is no control as to who on the secure network is allowed to access and GET/SET (read/change/create/delete) the objects in this MIB module.

It is RECOMMENDED that implementers consider the security features as provided by the SNMPv3 framework (see [RFC3410], section 8), including full support for the SNMPv3 cryptographic mechanisms (for authentication and privacy).

Further, deployment of SNMP versions prior to SNMPv3 is NOT RECOMMENDED. Instead, it is RECOMMENDED to deploy SNMPv3 and to enable cryptographic security. It is then a customer/operator responsibility to ensure that the SNMP entity giving access to an instance of this MIB module is properly configured to give access to the objects only to those principals (users) that have legitimate rights to indeed GET or SET (change/create/delete) them.

9. IANA Considerations

The MIB module in this document uses the following IANA-assigned OBJECT IDENTIFIER values recorded in the SMI Numbers registry:

Descriptor	OBJECT IDENTIFIER Value
rserpoolMIB	{ experimental 125 }

10. Acknowledgments

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