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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.: RSerPoolENRPIdentifierTC
|   |   |   |   |   |   |   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  rserpoolENRPHomeENRPSTServer(13)
|         Textual Conv.: RSerPoolENRPSTServerIdentifierTC
|         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

```

```

+--rserpoolENRPENRPAAddrTable(7)
|
|  +--rserpoolENRPENRPAAddrTableEntry(1)
|  |
|  |   Index: rserpoolENRPIndex,
|  |         rserpoolENRPENRPAAddrTableIndex
|  |
|  |  +-- ---- Unsigned   rserpoolENRPENRPAAddrTableIndex(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   rserpoolPEHomeENRPSTServer(17)
|   Textual Conv.: RSerPoolENRPSTServerIdentifierTC
|   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 ENRP 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
```

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                   D-45326 Essen
                   Germany
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DESCRIPTION

"The MIB module for managing an RSerPool implementation.

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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 #####

RSerPoolENRPIdentifierTC ::= 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     RSerPoolENRPIdentifierTC,
rserpoolENRPDescription    OCTET STRING,
rserpoolENRPUptime         TimeTicks,
rserpoolENRPPort           InetPortNumber,
rserpoolENRPASAPAnnouncePort InetPortNumber,
rserpoolENRPASAPAnnounceAddr InetAddressType,
rserpoolENRPASAPAnnounceAddr InetAddress,
rserpoolENRPENRPAnnouncePort InetPortNumber,
rserpoolENRPENRPAnnounceAddr 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      RSerPoolENRPIdentifierTC
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,
    rserpoolENRPHomeENRPSEServer  RSerPoolENRPSEServerIdentifierTC }

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      RSerPoolENRPIdentifierTC
    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 #####
rserpoolENRPENRPAAddrTable OBJECT-TYPE
    SYNTAX      SEQUENCE OF RserpoolENRPENRPAAddrTableEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A table listing of all IP addresses of the ENRP
        transport endpoint."
    ::= { rserpoolENRPServers 7 }

rserpoolENRPENRPAAddrTableEntry OBJECT-TYPE
    SYNTAX      RserpoolENRPENRPAAddrTableEntry
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "An IP address of the ENRP transport endpoint."
    INDEX {
        rserpoolENRPIndex,
        rserpoolENRPENRPAAddrTableIndex }
    ::= { rserpoolENRPENRPAAddrTable 1 }

RserpoolENRPENRPAAddrTableEntry ::= SEQUENCE {
    rserpoolENRPENRPAAddrTableIndex Unsigned32,
    rserpoolENRPENRPL3Type           InetAddressType,
    rserpoolENRPENRPL3Addr           InetAddress }

rserpoolENRPENRPAAddrTableIndex 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."
    ::= { rserpoolENRPENRPAAddrTableEntry 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."
    ::= { rserpoolENRPENRPAAddrTableEntry 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,  
    rserpoolENRPHomeENRP_Server,
```

```
    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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