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RADIUS Auth Client MIB (IPv6)
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Status of this Memo

Copyright Notice

Abstract

This memo updates RFC 2618 by deprecating the MIB table containing IPv4-only address formats and defining a new table to add support for version neutral IP address formats.

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1. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in RFC 2119 [RFC2119].

This document uses terminology from RFC 2865 [RFC2865].

2. Introduction

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. The objects defined within this memo relate to the Remote Authentication Dial-In User Service (RADIUS) Authentication Client as defined in RFC 2865 [RFC2865].

3. 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].

4. Scope of Changes

This document updates RFC 2618 [RFC2618], RADIUS Authentication Client MIB, by deprecating the radiusAuthServerTable table and adding a new table, radiusAuthServerExtTable, containing radiusAuthServerInetAddressType, radiusAuthServerInetAddress, and radiusAuthClientServerInetPortNumber. The purpose of these added MIB objects is to support version neutral IP addressing formats. The existing table containing radiusAuthServerAddress and radiusAuthClientServerPortNumber is deprecated.

RFC 4001 [RFC4001], which defines the SMI Textual Conventions for IPv6 addresses, contains the following recommendation.

'In particular, when revising a MIB module that contains IPv4 specific tables, it is suggested to define new tables using the textual conventions defined in this memo [RFC 4001] that support all versions of IP. The status of the new tables SHOULD be "current", whereas the status of the old IP version specific tables SHOULD be changed to "deprecated". The other approach, of having multiple similar tables for different IP versions, is strongly discouraged.'

5. Structure of the MIB Module

The structure of the MIB Module defined in this memo corresponds to the structure of the MIB Module defined in RADIUS Authentication Client MIB, RFC 2618 [RFC2618]. This MIB module contains two scalars as well as a single table, the RADIUS Authentication Server Table, which contains one row for each RADIUS authentication server with which the client shares a secret.

Each entry in the RADIUS Authentication Server Table includes sixteen columns presenting a view of the activity of the RADIUS authentication client.

6. Deprecated Objects

The deprecated table in this MIB is carried forward from RFC 2618 [RFC2618]. There are two conditions under which it MAY be desirable for managed entities to continue to support the deprecated table:

1. The managed entity only supports IPv4 address formats.
2. The managed entity supports both IPv4 and IPv6 address formats, and the deprecated table is supported for backwards compatibility with older management stations. This option SHOULD only be used when the IP addresses in the new table are in IPv4 format and can accurately be represented in both the new table and the deprecated table.

Managed entities SHOULD NOT instantiate the deprecated table containing IPv4-only address objects when the RADIUS server address represented in the table row is not an IPv4 address. Managed entities SHOULD NOT return inaccurate values of IP address or SNMP object access errors for IPv4-only address objects in otherwise populated tables.

7. Definitions

```
RADIUS-AUTH-CLIENT-MIB DEFINITIONS ::= BEGIN
```

```
   IMPORTS
          MODULE-IDENTITY, OBJECT-TYPE, OBJECT-IDENTITY,
          Counter32, Integer32, Gauge32,
          IpAddress, TimeTicks, mib-2      FROM SNMPv2-SMI
          SnmpAdminString                  FROM SNMP-FRAMEWORK-MIB
          InetAddressType, InetAddress,
          InetPortNumber                   FROM INET-ADDRESS-MIB
          MODULE-COMPLIANCE, OBJECT-GROUP  FROM SNMPv2-CONF;


   radiusAuthClientMIB MODULE-IDENTITY
          LAST-UPDATED "200508300000Z" -- 30 Aug 2005
          ORGANIZATION "IETF RADIUS Extensions Working Group."
          CONTACT-INFO
                " Bernard Aboba
                  Microsoft
                  One Microsoft Way
                  Redmond, WA  98052
                  US
                  Phone: +1 425 936 6605
                  EMail: bernarda@microsoft.com"
          DESCRIPTION
                "The MIB module for entities implementing the client
                 side of the Remote Authentication Dial-In User Service
                 (RADIUS) authentication protocol."
          REVISION "9906110000Z"    -- 11 Jun 1999
          DESCRIPTION "Initial version as published in RFC 2618"
          REVISION "200508300000Z"  -- 30 Aug 2005
          DESCRIPTION "Revised version as published in RFC xxxx"

   -- RFC Editor: replace xxxx with actual RFC number at the time of
   -- publication, and remove this note.

          ::= { radiusAuthentication 2 }

   radiusMIB OBJECT-IDENTITY
          STATUS  current
          DESCRIPTION
                "The OID assigned to RADIUS MIB work by the IANA."
           ::= { mib-2 67 }

   radiusAuthClientExtMIB OBJECT-IDENTITY
          STATUS  current
          DESCRIPTION
                "The OID assigned to RADIUS Extensions MIB work by
                 the IANA."
           ::= { mib-2 TBA }
```

```
   -- RFC Editor: replace TBA with IANA assigned OID value, and
   -- remove this note.

   radiusAuthentication  OBJECT IDENTIFIER ::= {radiusMIB 1}

   radiusAuthClientMIBObjects  OBJECT IDENTIFIER
           ::= { radiusAuthClientMIB 1 }

   radiusAuthClient  OBJECT IDENTIFIER
           ::= { radiusAuthClientMIBObjects 1 }

   radiusAuthClientInvalidServerAddresses OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
               "The number of RADIUS Access-Response packets
                received from unknown addresses."
         ::= { radiusAuthClient 1 }

   radiusAuthClientIdentifier OBJECT-TYPE
         SYNTAX SnmpAdminString
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
                "The NAS-Identifier of the RADIUS authentication client.
                 This is not necessarily the same as sysName in MIB II."
         ::= { radiusAuthClient 2 }

   radiusAuthServerTable OBJECT-TYPE
         SYNTAX     SEQUENCE OF RadiusAuthServerEntry
         MAX-ACCESS not-accessible
         STATUS     deprecated
         DESCRIPTION
               "The (conceptual) table listing the RADIUS authentication
                servers with which the client shares a secret."
         ::= { radiusAuthClient 3 }

   radiusAuthServerEntry OBJECT-TYPE
         SYNTAX     RadiusAuthServerEntry
         MAX-ACCESS not-accessible
         STATUS     deprecated
         DESCRIPTION
               "An entry (conceptual row) representing a RADIUS
                authentication server with which the client shares
                a secret."
         INDEX      { radiusAuthServerIndex }
         ::= { radiusAuthServerTable 1 }
```

```
   RadiusAuthServerEntry ::= SEQUENCE {
         radiusAuthServerIndex                          Integer32,
         radiusAuthServerAddress                        IpAddress,
         radiusAuthClientServerPortNumber               Integer32,
         radiusAuthClientRoundTripTime                  TimeTicks,
         radiusAuthClientAccessRequests                 Counter32,
         radiusAuthClientAccessRetransmissions          Counter32,
         radiusAuthClientAccessAccepts                  Counter32,
         radiusAuthClientAccessRejects                  Counter32,
         radiusAuthClientAccessChallenges               Counter32,
         radiusAuthClientMalformedAccessResponses       Counter32,
         radiusAuthClientBadAuthenticators              Counter32,
         radiusAuthClientPendingRequests                  Gauge32,
         radiusAuthClientTimeouts                       Counter32,
         radiusAuthClientUnknownTypes                   Counter32,
         radiusAuthClientPacketsDropped                 Counter32
   }

   radiusAuthServerIndex OBJECT-TYPE
         SYNTAX     Integer32 (1..2147483647)
         MAX-ACCESS not-accessible
         STATUS     deprecated
         DESCRIPTION
                "A number uniquely identifying each RADIUS
                Authentication server with which this client
                communicates."
         ::= { radiusAuthServerEntry 1 }

   radiusAuthServerAddress OBJECT-TYPE
         SYNTAX     IpAddress
         MAX-ACCESS read-only
         STATUS     deprecated
         DESCRIPTION
               "The IP address of the RADIUS authentication server
                referred to in this table entry."
         ::= { radiusAuthServerEntry 2 }

   radiusAuthClientServerPortNumber  OBJECT-TYPE
         SYNTAX Integer32 (0..65535)
         MAX-ACCESS read-only
         STATUS deprecated
         DESCRIPTION
               "The UDP port the client is using to send requests to
                this server."
         ::= { radiusAuthServerEntry 3 }

   radiusAuthClientRoundTripTime  OBJECT-TYPE
         SYNTAX TimeTicks
```

```
        MAX-ACCESS read-only
        STATUS deprecated
        DESCRIPTION
              "The time interval (in hundredths of a second) between
               the most recent Access-Reply/Access-Challenge and the
               Access-Request that matched it from this RADIUS
               authentication server."
        ::= { radiusAuthServerEntry 4 }

   -- Request/Response statistics
   --
   -- TotalIncomingPackets = Accepts + Rejects + Challenges +
   -- UnknownTypes
   --
   -- TotalIncomingPackets - MalformedResponses -
   -- BadAuthenticators - UnknownTypes - PacketsDropped =
   -- Successfully received
   --
   -- AccessRequests + PendingRequests + ClientTimeouts =
   -- Successfully received
   --
   --

   radiusAuthClientAccessRequests OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS deprecated
         DESCRIPTION
               "The number of RADIUS Access-Request packets sent
                to this server. This does not include retransmissions."
         ::= { radiusAuthServerEntry 5 }

   radiusAuthClientAccessRetransmissions OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS deprecated
         DESCRIPTION
               "The number of RADIUS Access-Request packets
                retransmitted to this RADIUS authentication server."
         ::= { radiusAuthServerEntry 6 }

   radiusAuthClientAccessAccepts OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS deprecated
         DESCRIPTION
               "The number of RADIUS Access-Accept packets
                (valid or invalid) received from this server."
```

```
        ::= { radiusAuthServerEntry 7 }

    radiusAuthClientAccessRejects OBJECT-TYPE
          SYNTAX Counter32
          MAX-ACCESS read-only
          STATUS deprecated
          DESCRIPTION
                "The number of RADIUS Access-Reject packets
                 (valid or invalid) received from this server."
          ::= { radiusAuthServerEntry  8 }

    radiusAuthClientAccessChallenges OBJECT-TYPE
          SYNTAX Counter32
          MAX-ACCESS read-only
          STATUS deprecated
          DESCRIPTION
                "The number of RADIUS Access-Challenge packets
                 (valid or invalid) received from this server."
          ::= { radiusAuthServerEntry 9 }

    -- "Access-Response" includes an Access-Accept, Access-Challenge
    -- or Access-Reject

    radiusAuthClientMalformedAccessResponses OBJECT-TYPE
          SYNTAX Counter32
          MAX-ACCESS read-only
          STATUS deprecated
          DESCRIPTION
                "The number of malformed RADIUS Access-Response
                 packets received from this server.
                 Malformed packets include packets with
                 an invalid length. Bad authenticators or
                 Message Authenticator attributes or unknown types
                 are not included as malformed access responses."
          ::= { radiusAuthServerEntry 10 }

    radiusAuthClientBadAuthenticators OBJECT-TYPE
          SYNTAX Counter32
          MAX-ACCESS read-only
          STATUS deprecated
          DESCRIPTION
                "The number of RADIUS Access-Response packets
                 containing invalid authenticators or Message
                 Authenticator attributes received from this server."
          ::= { radiusAuthServerEntry 11 }

    radiusAuthClientPendingRequests OBJECT-TYPE
          SYNTAX Gauge32
```

```
        MAX-ACCESS read-only
        STATUS deprecated
        DESCRIPTION
              "The number of RADIUS Access-Request packets
               destined for this server that have not yet timed out
               or received a response. This variable is incremented
               when an Access-Request is sent and decremented due to
               receipt of an Acess-Accept, Access-Reject or
               Access-Challenge, a timeout or retransmission."
        ::= { radiusAuthServerEntry 12 }

   radiusAuthClientTimeouts OBJECT-TYPE
        SYNTAX Counter32
        MAX-ACCESS read-only
        STATUS deprecated
        DESCRIPTION
              "The number of authentication timeouts to this server.
               After a timeout the client may retry to the same
               server, send to a different server, or
               give up. A retry to the same server is counted as a
               retransmit as well as a timeout. A send to a different
               server is counted as a Request as well as a timeout."
        ::= { radiusAuthServerEntry  13 }

   radiusAuthClientUnknownTypes OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS deprecated
         DESCRIPTION
               "The number of RADIUS packets of unknown type which
                were received from this server on the authentication
                port."
         ::= { radiusAuthServerEntry  14 }

   radiusAuthClientPacketsDropped OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS deprecated
         DESCRIPTION
               "The number of RADIUS packets of which were
                received from this server on the authentication port
                and dropped for some other reason."
         ::= { radiusAuthServerEntry  15 }


   -- Extended MIB Objects

   radiusAuthClientExtMIBNotifications  OBJECT IDENTIFIER
```

```
            ::= { radiusAuthClientExtMIB 0 }

   radiusAuthClientExtMIBObjects       OBJECT IDENTIFIER
            ::= { radiusAuthClientExtMIB 1 }

   radiusAuthClientExtMIBConformance   OBJECT IDENTIFIER
            ::= { radiusAuthClientExtMIB 2 }

   radiusAuthServerExtTable OBJECT-TYPE
         SYNTAX     SEQUENCE OF RadiusAuthServerExtEntry
         MAX-ACCESS not-accessible
         STATUS     current
         DESCRIPTION
               "The (conceptual) table listing the RADIUS authentication
                servers with which the client shares a secret."
         ::= { radiusAuthClientExtMIBObjects 1 }

   radiusAuthServerExtEntry OBJECT-TYPE
         SYNTAX     RadiusAuthServerExtEntry
         MAX-ACCESS not-accessible
         STATUS     current
         DESCRIPTION
               "An entry (conceptual row) representing a RADIUS
                authentication server with which the client shares
                a secret."
         INDEX      { radiusAuthServerExtIndex }
         ::= { radiusAuthServerExtTable 1 }

   RadiusAuthServerExtEntry ::= SEQUENCE {
         radiusAuthServerExtIndex                    Integer32,
         radiusAuthServerInetAddressType             InetAddressType,
         radiusAuthServerInetAddress                 InetAddress,
         radiusAuthClientServerInetPortNumber        InetPortNumber,
         radiusAuthClientExtRoundTripTime            TimeTicks,
         radiusAuthClientExtAccessRequests           Counter32,
         radiusAuthClientExtAccessRetransmissions    Counter32,
         radiusAuthClientExtAccessAccepts            Counter32,
         radiusAuthClientExtAccessRejects            Counter32,
         radiusAuthClientExtAccessChallenges         Counter32,
         radiusAuthClientExtMalformedAccessResponses Counter32,
         radiusAuthClientExtBadAuthenticators        Counter32,
         radiusAuthClientExtPendingRequests          Gauge32,
         radiusAuthClientExtTimeouts                 Counter32,
         radiusAuthClientExtUnknownTypes             Counter32,
         radiusAuthClientExtPacketsDropped           Counter32
   }

   radiusAuthServerExtIndex OBJECT-TYPE
```

```
        SYNTAX     Integer32 (1..2147483647)
        MAX-ACCESS not-accessible
        STATUS     current
        DESCRIPTION
               "A number uniquely identifying each RADIUS
               Authentication server with which this client
               communicates."
        ::= { radiusAuthServerExtEntry 1 }


   radiusAuthServerInetAddressType OBJECT-TYPE
        SYNTAX     InetAddressType
        MAX-ACCESS read-only
        STATUS     current
        DESCRIPTION
              "The type of address format used for the
               radiusAuthServerInetAddress object."
        ::= { radiusAuthServerExtEntry 2 }

   radiusAuthServerInetAddress OBJECT-TYPE
        SYNTAX     InetAddress
        MAX-ACCESS read-only
        STATUS     current
        DESCRIPTION
              "The IP address of the RADIUS authentication
               server referred to in this table entry, using
               the IPv6 adddess format."
        ::= { radiusAuthServerExtEntry 3 }

   radiusAuthClientServerInetPortNumber  OBJECT-TYPE
        SYNTAX InetPortNumber
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
              "The UDP port the client is using to send requests
               to this server."
        ::= { radiusAuthServerExtEntry 4 }

   radiusAuthClientExtRoundTripTime  OBJECT-TYPE
        SYNTAX TimeTicks
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
              "The time interval (in hundredths of a second) between
               the most recent Access-Reply/Access-Challenge and the
               Access-Request that matched it from this RADIUS
               authentication server."
        ::= { radiusAuthServerExtEntry 5 }
```

```
   -- Request/Response statistics
   --
   -- TotalIncomingPackets = Accepts + Rejects + Challenges +
   -- UnknownTypes
   --
   -- TotalIncomingPackets - MalformedResponses -
   -- BadAuthenticators - UnknownTypes - PacketsDropped =
   -- Successfully received
   --
   -- AccessRequests + PendingRequests + ClientTimeouts =
   -- Successfully received
   --
   --

   radiusAuthClientExtAccessRequests OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
               "The number of RADIUS Access-Request packets sent
                to this server. This does not include retransmissions."
         ::= { radiusAuthServerExtEntry 6 }

   radiusAuthClientExtAccessRetransmissions OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
               "The number of RADIUS Access-Request packets
                retransmitted to this RADIUS authentication server."
         ::= { radiusAuthServerExtEntry 7 }

   radiusAuthClientExtAccessAccepts OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
               "The number of RADIUS Access-Accept packets
                (valid or invalid) received from this server."
         ::= { radiusAuthServerExtEntry 8 }

   radiusAuthClientExtAccessRejects OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
               "The number of RADIUS Access-Reject packets
                (valid or invalid) received from this server."
```

```
        ::= { radiusAuthServerExtEntry  9 }

   radiusAuthClientExtAccessChallenges OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
               "The number of RADIUS Access-Challenge packets
                (valid or invalid) received from this server."
         ::= { radiusAuthServerExtEntry 10 }

   -- "Access-Response" includes an Access-Accept, Access-Challenge
   -- or Access-Reject

   radiusAuthClientExtMalformedAccessResponses OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
               "The number of malformed RADIUS Access-Response
                packets received from this server.
                Malformed packets include packets with
                an invalid length. Bad authenticators or
                Message Authenticator attributes or unknown types
                are not included as malformed access responses."
         ::= { radiusAuthServerExtEntry 11 }

   radiusAuthClientExtBadAuthenticators OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
               "The number of RADIUS Access-Response packets
                containing invalid authenticators or Message
                Authenticator attributes received from this server."
         ::= { radiusAuthServerExtEntry 12 }

   radiusAuthClientExtPendingRequests OBJECT-TYPE
         SYNTAX Gauge32
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
               "The number of RADIUS Access-Request packets
                destined for this server that have not yet timed out
                or received a response. This variable is incremented
                when an Access-Request is sent and decremented due to
                receipt of an Acess-Accept, Access-Reject or
                Access-Challenge, a timeout or retransmission."
```

```
        ::= { radiusAuthServerExtEntry 13 }

   radiusAuthClientExtTimeouts OBJECT-TYPE
        SYNTAX Counter32
        MAX-ACCESS read-only
        STATUS current
        DESCRIPTION
               "The number of authentication timeouts to this server.
                After a timeout the client may retry to the same
                server, send to a different server, or
                give up. A retry to the same server is counted as a
                retransmit as well as a timeout. A send to a different
                server is counted as a Request as well as a timeout."
        ::= { radiusAuthServerExtEntry  14 }

   radiusAuthClientExtUnknownTypes OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
               "The number of RADIUS packets of unknown type which
                were received from this server on the authentication
                port."
         ::= { radiusAuthServerExtEntry  15 }

   radiusAuthClientExtPacketsDropped OBJECT-TYPE
         SYNTAX Counter32
         MAX-ACCESS read-only
         STATUS current
         DESCRIPTION
               "The number of RADIUS packets of which were
                received from this server on the authentication port
                and dropped for some other reason."
         ::= { radiusAuthServerExtEntry  16 }

   -- conformance information

   radiusAuthClientMIBConformance OBJECT IDENTIFIER
           ::= { radiusAuthClientMIB 2 }

   radiusAuthClientMIBCompliances OBJECT IDENTIFIER
           ::= { radiusAuthClientMIBConformance 1 }

   radiusAuthClientMIBGroups OBJECT IDENTIFIER
           ::= { radiusAuthClientMIBConformance 2 }

   radiusAuthClientExtMIBCompliances OBJECT IDENTIFIER
           ::= { radiusAuthClientExtMIBConformance 1 }
```

```
   radiusAuthClientExtMIBGroups OBJECT IDENTIFIER
           ::= { radiusAuthClientExtMIBConformance 2 }

   -- compliance statements

   radiusAuthClientMIBCompliance MODULE-COMPLIANCE
        STATUS  deprecated
        DESCRIPTION
              "The compliance statement for authentication clients
               implementing the RADIUS Authentication Client MIB."
        MODULE  -- this module
               MANDATORY-GROUPS { radiusAuthClientMIBGroup }

        ::= { radiusAuthClientMIBCompliances 1 }

   radiusAuthClientExtMIBCompliance MODULE-COMPLIANCE
        STATUS  current
        DESCRIPTION
              "The compliance statement for authentication
               clients implementing the RADIUS Authentication
               Client IPv6 Extensions MIB."
        MODULE  -- this module
               MANDATORY-GROUPS { radiusAuthClientExtMIBGroup }

        ::= { radiusAuthClientExtMIBCompliances 1 }


   -- units of conformance

   radiusAuthClientMIBGroup OBJECT-GROUP
        OBJECTS { radiusAuthClientIdentifier,
                  radiusAuthClientInvalidServerAddresses,
                  radiusAuthServerAddress,
                  radiusAuthClientServerPortNumber,
                  radiusAuthClientRoundTripTime,
                  radiusAuthClientAccessRequests,
                  radiusAuthClientAccessRetransmissions,
                  radiusAuthClientAccessAccepts,
                  radiusAuthClientAccessRejects,
                  radiusAuthClientAccessChallenges,
                  radiusAuthClientMalformedAccessResponses,
                  radiusAuthClientBadAuthenticators,
                  radiusAuthClientPendingRequests,
                  radiusAuthClientTimeouts,
                  radiusAuthClientUnknownTypes,
                  radiusAuthClientPacketsDropped
               }
        STATUS  deprecated
```

```
        DESCRIPTION
              "The basic collection of objects providing management of
               RADIUS Authentication Clients."
        ::= { radiusAuthClientMIBGroups 1 }


   radiusAuthClientExtMIBGroup OBJECT-GROUP
        OBJECTS { radiusAuthClientIdentifier,
                  radiusAuthClientInvalidServerAddresses,
                  radiusAuthServerInetAddressType,
                  radiusAuthServerInetAddress,
                  radiusAuthClientServerInetPortNumber,
                  radiusAuthClientExtRoundTripTime,
                  radiusAuthClientExtAccessRequests,
                  radiusAuthClientExtAccessRetransmissions,
                  radiusAuthClientExtAccessAccepts,
                  radiusAuthClientExtAccessRejects,
                  radiusAuthClientExtAccessChallenges,
                  radiusAuthClientExtMalformedAccessResponses,
                  radiusAuthClientExtBadAuthenticators,
                  radiusAuthClientExtPendingRequests,
                  radiusAuthClientExtTimeouts,
                  radiusAuthClientExtUnknownTypes,
                  radiusAuthClientExtPacketsDropped
                }
        STATUS  current
        DESCRIPTION
              "The collection of extended objects providing
               management of RADIUS Authentication Clients
               using version neutral IP address format."
        ::= { radiusAuthClientExtMIBGroups 1 }

   END
```

8. IANA Considerations

This document requires IANA assignment of a number in the MIB-2 OID number space.

9. Security Considerations

There are no management objects defined in this MIB that have a MAX-ACCESS clause of read-write and/or read-create. So, if this MIB is implemented correctly, then there is no risk that an intruder can alter or create any management objects of this MIB via direct SNMP SET operations.

There are a number of managed objects in this MIB that may contain sensitive information. These are:

radiusAuthServerIPAddress This can be used to determine the address of the RADIUS authentication server with which the client is communicating. This information could be useful in mounting an attack on the authentication server.

radiusAuthServerInetAddress This can be used to determine the address of the RADIUS authentication server with which the client is communicating. This information could be useful in mounting an attack on the authentication server.

radiusAuthClientServerInetPortNumber This can be used to determine the port number on which the RADIUS authentication client is sending. This information could be useful in impersonating the client in order to send data to the authentication server.

It is thus important to control even GET access to these objects and possibly to even encrypt the values of these object when sending them over the network via SNMP. Not all versions of SNMP provide features for such a secure environment.

SNMP versions prior to SNMPv3 do not provide a secure environment. Even if the network itself is secure (for example by using IPSec), 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.

It is recommended that the implementers consider the security features as provided by the SNMPv3 framework. Specifically, the use of the User-based Security Model [RFC2574] and the View-based Access Control Model [RFC2575] is recommended. Using these security features, customer/users can give access to the objects only to those principals (users) that have legitimate rights to GET or SET (change/ create/delete) them.

10. References

10.1. Normative References

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10.2. Informative References

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Appendix A. Acknowledgments

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Acknowledgment

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