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RADIUS Authentication Server MIB for IPv6  
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Abstract

This memo defines a set of extensions, which instrument RADIUS authentication server functions. These extensions represent a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. Using these extensions IP-based management stations can manage RADIUS authentication servers.

This memo obsoletes [RFC 2619](#) by deprecating the MIB table containing

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

IPv4-only address formats and defining a new table to add support for version neutral IP address formats. The remaining MIB objects from [RFC 2619](#) are carried forward into this document. This memo also adds UNITS and Reference clauses to selected objects.

## Table of Contents

|                             |  |                    |
|-----------------------------|--|--------------------|
| <a href="#">1.</a>          | Terminology . . . . .                                    | <a href="#">3</a>  |
| <a href="#">2.</a>          | Introduction . . . . .                                   | <a href="#">3</a>  |
| <a href="#">3.</a>          | The Internet-Standard Management Framework . . . . .     | <a href="#">3</a>  |
| <a href="#">4.</a>          | Scope of Changes . . . . .                               | <a href="#">3</a>  |
| <a href="#">5.</a>          | Structure of the MIB Module . . . . .                    | <a href="#">4</a>  |
| <a href="#">6.</a>          | Deprecated Objects . . . . .                             | <a href="#">5</a>  |
| <a href="#">7.</a>          | Definitions . . . . .                                    | <a href="#">5</a>  |
| <a href="#">8.</a>          | IANA Considerations . . . . .                            | <a href="#">22</a> |
| <a href="#">9.</a>          | Security Considerations . . . . .                        | <a href="#">22</a> |
| <a href="#">10.</a>         | References . . . . .                                     | <a href="#">23</a> |
| <a href="#">10.1.</a>       | Normative References . . . . .                           | <a href="#">23</a> |
| <a href="#">10.2.</a>       | Informative References . . . . .                         | <a href="#">23</a> |
| <a href="#">Appendix A.</a> | Acknowledgments . . . . .                                | <a href="#">24</a> |
|                             | Author's Address . . . . .                               | <a href="#">25</a> |
|                             | Intellectual Property and Copyright Statements . . . . . | <a href="#">26</a> |

## 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](#)].

This document uses the word "malformed" with respect to RADIUS packets, particularly in the context of counters of "malformed packets". While [RFC 2865](#) does not provide an explicit definition of "malformed", malformed generally means that the implementation has determined the packet does not match the format defined in [RFC 2865](#). Some implementations may determine that packets are malformed when the Vendor Specific Attribute (VSA) format does not follow the [RFC 2865](#) recommendations for VSAs. Those implementations are used in deployments today, and thus set the de-facto definition of "malformed".

## 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 Server 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 obsoletes [RFC 2619](#) [[RFC2619](#)], RADIUS Authentication

Nelson

Expires December 28, 2006

[Page 3]

---

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

Server MIB, by deprecating the radiusAuthClientTable table and adding a new table, radiusAuthClientExtTable, containing radiusAuthClientInetAddressType and radiusAuthClientInetAddress. The purpose of these added MIB objects is to support version neutral IP addressing formats. The existing table containing radiusAuthClientAddress is deprecated. The remaining MIB objects from [RFC 2619](#) are carried forward into this document. This memo also adds UNITS and REFERENCE clauses to selected objects.

[RFC 4001](#) [[RFC4001](#)], which defines the SMI Textual Conventions for version neutral IP 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 [[RFC4001](#)] 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 RADIUS authentication protocol, described in [RFC 2865](#) [[RFC2865](#)], distinguishes between the client function and the server function. In RADIUS authentication, clients send Access-Requests, and servers reply with Access-Accepts, Access-Rejects, and Access-Challenges. Typically NAS devices implement the client function, and thus would be expected to implement the RADIUS authentication client MIB, while

RADIUS authentication servers implement the server function, and thus would be expected to implement the RADIUS authentication server MIB.

However, it is possible for a RADIUS authentication entity to perform both client and server functions. For example, a RADIUS proxy may act as a server to one or more RADIUS authentication clients, while simultaneously acting as an authentication client to one or more authentication servers. In such situations, it is expected that RADIUS entities combining client and server functionality will support both the client and server MIBs. The server MIB is defined in this document, and the client MIB is defined in [\[2618bis\]](#).

RFC Editor: Replace the above I-D reference with the assigned RFC number at the time of publication and delete this note.

This MIB module contains fourteen scalars as well as a single table, the RADIUS Authentication Client Table, which contains one row for each RADIUS authentication client with which the server shares a secret. Each entry in the RADIUS Authentication Client Table

Nelson

Expires December 28, 2006

[Page 4]

---

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

includes thirteen columns presenting a view of the activity of the RADIUS authentication server.

## [6.](#) Deprecated Objects

The deprecated table in this MIB is carried forward from [RFC 2619](#) [\[RFC2619\]](#). 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 row entries in the deprecated table, containing IPv4-only address objects, when the RADIUS client address represented in such a 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. When row entries exist in both the deprecated IPv4-only table and the new IP version neutral table that describe the same RADIUS client, the row indexes SHOULD be the same for the corresponding rows in each table, to facilitate correlation of these related rows by management applications.

## 7. Definitions

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

```
IMPORTS
```

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

```
radiusAuthServMIB MODULE-IDENTITY
```

```
    LAST-UPDATED "200605100000Z" -- 10 May 2006
    ORGANIZATION "IETF RADIUS Extensions Working Group."
    CONTACT-INFO
        " Bernard Aboba
        Microsoft
```

Nelson

Expires December 28, 2006

[Page 5]

---

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

```
    One Microsoft Way
    Redmond, WA 98052
    US
    Phone: +1 425 936 6605
    EMail: bernarda@microsoft.com"
```

```
DESCRIPTION
```

```
    "The MIB module for entities implementing the server
    side of the Remote Authentication Dial-In User
    Service (RADIUS) authentication protocol. Copyright
    (C) The Internet Society (2006). This version of this
    MIB module is part of RFC xxxx; see the RFC itself for
    full legal notices."
```

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

REVISION "200605100000Z" -- 10 May 2006

DESCRIPTION

"Revised version as published in RFC xxxx. This version obsoletes that of [RFC 2619](#) by deprecating the MIB table containing IPv4-only address formats and defining a new table to add support for version neutral IP address formats. The remaining MIB objects from [RFC 2619](#) are carried forward into this version."

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

REVISION "199906110000Z" -- 11 Jun 1999

DESCRIPTION "Initial version as published in [RFC 2619](#)."

::= { radiusAuthentication 1 }

radiusMIB OBJECT-IDENTITY

STATUS current

DESCRIPTION

"The OID assigned to RADIUS MIB work by the IANA."

::= { mib-2 67 }

radiusAuthentication OBJECT IDENTIFIER ::= {radiusMIB 1}

radiusAuthServMIBObjects OBJECT IDENTIFIER

::= { radiusAuthServMIB 1 }

radiusAuthServ OBJECT IDENTIFIER

::= { radiusAuthServMIBObjects 1 }

radiusAuthServIdent OBJECT-TYPE

Nelson

Expires December 28, 2006

[Page 6]

---

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

SYNTAX SnmpAdminString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The implementation identification string for the RADIUS authentication server software in use on the system, for example; `FNS-2.1'"

::= {radiusAuthServ 1}

radiusAuthServUpTime OBJECT-TYPE

SYNTAX TimeTicks

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If the server has a persistent state (e.g., a process), this value will be the time elapsed (in hundredths of a second) since the server process was started. For software without persistent state, this value will be zero."

::= {radiusAuthServ 2}

radiusAuthServResetTime OBJECT-TYPE

SYNTAX TimeTicks

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"If the server has a persistent state (e.g., a process) and supports a 'reset' operation (e.g., can be told to re-read configuration files), this value will be the time elapsed (in hundredths of a second) since the server was 'reset.' For software that does not have persistence or does not support a 'reset' operation, this value will be zero."

::= {radiusAuthServ 3}

radiusAuthServConfigReset OBJECT-TYPE

SYNTAX INTEGER { other(1),  
reset(2),  
initializing(3),  
running(4) }

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"Status/action object to reinitialize any persistent server state. When set to reset(2), any persistent server state (such as a process) is reinitialized as if the server had just been started. This value will never be returned by a read operation. When read,



```
        other(1) - server in some unknown state;
        initializing(3) - server (re)initializing;
        running(4) - server currently running."
 ::= {radiusAuthServ 4}
```

```
radiusAuthServTotalAccessRequests OBJECT-TYPE
    SYNTAX Counter32
    UNITS "packets"
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of packets received on the
        authentication port."
    REFERENCE "RFC 2865 section 4.1"
    ::= { radiusAuthServ 5}
```

```
radiusAuthServTotalInvalidRequests OBJECT-TYPE
    SYNTAX Counter32
    UNITS "packets"
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of RADIUS Access-Request packets
        received from unknown addresses."
    REFERENCE "RFC 2865 section 4.1"
    ::= { radiusAuthServ 6 }
```

```
radiusAuthServTotalDupAccessRequests OBJECT-TYPE
    SYNTAX Counter32
    UNITS "packets"
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of duplicate RADIUS Access-Request
        packets received."
    REFERENCE "RFC 2865 section 4.1"
    ::= { radiusAuthServ 7 }
```

```
radiusAuthServTotalAccessAccepts OBJECT-TYPE
    SYNTAX Counter32
    UNITS "packets"
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of RADIUS Access-Accept packets sent."
    REFERENCE "RFC 2865 section 4.2"
    ::= { radiusAuthServ 8 }
```

radiusAuthServTotalAccessRejects OBJECT-TYPE

SYNTAX Counter32

UNITS "packets"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Access-Reject packets sent."

REFERENCE "[RFC 2865 section 4.3](#)"

::= { radiusAuthServ 9 }

radiusAuthServTotalAccessChallenges OBJECT-TYPE

SYNTAX Counter32

UNITS "packets"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Access-Challenge packets sent."

REFERENCE "[RFC 2865 section 4.4](#)"

::= { radiusAuthServ 10 }

radiusAuthServTotalMalformedAccessRequests OBJECT-TYPE

SYNTAX Counter32

UNITS "packets"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of malformed RADIUS Access-Request packets received. Bad authenticators and unknown types are not included as malformed Access-Requests."

REFERENCE "[RFC 2865 section 4.1](#)"

::= { radiusAuthServ 11 }

radiusAuthServTotalBadAuthenticators OBJECT-TYPE

SYNTAX Counter32

UNITS "packets"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Authentication-Request packets which contained invalid Message Authenticator attributes received."

REFERENCE "[RFC 2865 section 3](#)"

::= { radiusAuthServ 12 }

radiusAuthServTotalPacketsDropped OBJECT-TYPE

SYNTAX Counter32  
UNITS "packets"

Nelson

Expires December 28, 2006

[Page 9]

---

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of incoming packets  
        silently discarded for some reason other  
        than malformed, bad authenticators or  
        unknown types."  
REFERENCE ["RFC 2865 section 3"](#)  
::= { radiusAuthServ 13 }

radiusAuthServTotalUnknownTypes OBJECT-TYPE  
    SYNTAX Counter32  
    UNITS "packets"  
    MAX-ACCESS read-only  
    STATUS current  
    DESCRIPTION  
        "The number of RADIUS packets of unknown type which  
            were received."  
    REFERENCE ["RFC 2865 section 4"](#)  
    ::= { radiusAuthServ 14 }

radiusAuthClientTable OBJECT-TYPE  
    SYNTAX SEQUENCE OF RadiusAuthClientEntry  
    MAX-ACCESS not-accessible  
    STATUS deprecated  
    DESCRIPTION  
        "The (conceptual) table listing the RADIUS  
            authentication clients with which the server shares  
            a secret."  
    ::= { radiusAuthServ 15 }

radiusAuthClientEntry OBJECT-TYPE  
    SYNTAX RadiusAuthClientEntry  
    MAX-ACCESS not-accessible  
    STATUS deprecated  
    DESCRIPTION  
        "An entry (conceptual row) representing a RADIUS

authentication client with which the server shares a secret."

INDEX { radiusAuthClientIndex }  
 ::= { radiusAuthClientTable 1 }

RadiusAuthClientEntry ::= SEQUENCE {  
 radiusAuthClientIndex Integer32,  
 radiusAuthClientAddress IpAddress,  
 radiusAuthClientID SnmpAdminString,

Nelson

Expires December 28, 2006

[Page 10]

---

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

radiusAuthServAccessRequests Counter32,  
 radiusAuthServDupAccessRequests Counter32,  
 radiusAuthServAccessAccepts Counter32,  
 radiusAuthServAccessRejects Counter32,  
 radiusAuthServAccessChallenges Counter32,  
 radiusAuthServMalformedAccessRequests Counter32,  
 radiusAuthServBadAuthenticators Counter32,  
 radiusAuthServPacketsDropped Counter32,  
 radiusAuthServUnknownTypes Counter32  
 }

radiusAuthClientIndex OBJECT-TYPE

SYNTAX Integer32 (1..2147483647)

MAX-ACCESS not-accessible

STATUS deprecated

DESCRIPTION

"A number uniquely identifying each RADIUS authentication client with which this server communicates."

::= { radiusAuthClientEntry 1 }

radiusAuthClientAddress OBJECT-TYPE

SYNTAX IpAddress

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The NAS-IP-Address of the RADIUS authentication client referred to in this table entry."

REFERENCE "[RFC 2865 section 2](#)"

::= { radiusAuthClientEntry 2 }

radiusAuthClientID OBJECT-TYPE

```

SYNTAX      SnmpAdminString
MAX-ACCESS  read-only
STATUS      deprecated
DESCRIPTION
    "The NAS-Identifier of the RADIUS authentication client
    referred to in this table entry. This is not
    necessarily the same as sysName in MIB II."
REFERENCE "RFC 2865 section 5.32"
::= { radiusAuthClientEntry 3 }

```

```
-- Server Counters
```

```
--
```

```
-- Responses = AccessAccepts + AccessRejects + AccessChallenges
```

```
--
```

```
-- Requests - DupRequests - BadAuthenticators - MalformedRequests -
```

Nelson

Expires December 28, 2006

[Page 11]

---

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

```
-- UnknownTypes - PacketsDropped - Responses = Pending
```

```
--
```

```
-- Requests - DupRequests - BadAuthenticators - MalformedRequests -
```

```
-- UnknownTypes - PacketsDropped = entries logged
```

```
radiusAuthServAccessRequests OBJECT-TYPE
```

```
    SYNTAX Counter32
```

```
    UNITS "packets"
```

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

```
    STATUS deprecated
```

```
    DESCRIPTION
```

```
        "The number of packets received on the authentication
        port from this client."
```

```
    REFERENCE "RFC 2865 section 4.1"
```

```
    ::= { radiusAuthClientEntry 4 }
```

```
radiusAuthServDupAccessRequests OBJECT-TYPE
```

```
    SYNTAX Counter32
```

```
    UNITS "packets"
```

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

```
    STATUS deprecated
```

```
    DESCRIPTION
```

```
        "The number of duplicate RADIUS Access-Request
        packets received from this client."
```

```
    REFERENCE "RFC 2865 section 4.1"
```

::= { radiusAuthClientEntry 5 }

radiusAuthServAccessAccepts OBJECT-TYPE

SYNTAX Counter32

UNITS "packets"

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The number of RADIUS Access-Accept packets  
sent to this client."

REFERENCE "[RFC 2865 section 4.2](#)"

::= { radiusAuthClientEntry 6 }

radiusAuthServAccessRejects OBJECT-TYPE

SYNTAX Counter32

UNITS "packets"

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The number of RADIUS Access-Reject packets  
sent to this client."

REFERENCE "[RFC 2865 section 4.3](#)"

::= { radiusAuthClientEntry 7 }

Nelson

Expires December 28, 2006

[Page 12]

---

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

radiusAuthServAccessChallenges OBJECT-TYPE

SYNTAX Counter32

UNITS "packets"

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The number of RADIUS Access-Challenge packets  
sent to this client."

REFERENCE "[RFC 2865 section 4.4](#)"

::= { radiusAuthClientEntry 8 }

radiusAuthServMalformedAccessRequests OBJECT-TYPE

SYNTAX Counter32

UNITS "packets"

MAX-ACCESS read-only

STATUS deprecated

DESCRIPTION

"The number of malformed RADIUS Access-Request

packets received from this client.  
Bad authenticators and unknown types are not included  
as malformed Access-Requests."

REFERENCE "[RFC 2865 section 3](#)"  
::= { radiusAuthClientEntry 9 }

radiusAuthServBadAuthenticators OBJECT-TYPE

SYNTAX Counter32  
UNITS "packets"  
MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"The number of RADIUS Authentication-Request packets  
which contained invalid Message Authenticator  
attributes received from this client."

REFERENCE "[RFC 2865 section 3](#)"  
::= { radiusAuthClientEntry 10 }

radiusAuthServPacketsDropped OBJECT-TYPE

SYNTAX Counter32  
UNITS "packets"  
MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"The number of incoming packets from this  
client silently discarded for some reason other  
than malformed, bad authenticators or  
unknown types."

REFERENCE "[RFC 2865 section 3](#)"  
::= { radiusAuthClientEntry 11 }

radiusAuthServUnknownTypes OBJECT-TYPE

SYNTAX Counter32  
UNITS "packets"  
MAX-ACCESS read-only  
STATUS deprecated  
DESCRIPTION

"The number of RADIUS packets of unknown type which  
were received from this client."

REFERENCE "[RFC 2865 section 4](#)"  
::= { radiusAuthClientEntry 12 }

-- New MIB objects added in this revision

radiusAuthClientExtTable OBJECT-TYPE

SYNTAX SEQUENCE OF RadiusAuthClientExtEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"The (conceptual) table listing the RADIUS authentication clients with which the server shares a secret."

::= { radiusAuthServ 16 }

radiusAuthClientExtEntry OBJECT-TYPE

SYNTAX RadiusAuthClientExtEntry

MAX-ACCESS not-accessible

STATUS current

DESCRIPTION

"An entry (conceptual row) representing a RADIUS authentication client with which the server shares a secret."

INDEX { radiusAuthClientExtIndex }

::= { radiusAuthClientExtTable 1 }

RadiusAuthClientExtEntry ::= SEQUENCE {

|  |                  |
|--|------------------|
| radiusAuthClientExtIndex                 | Integer32,       |
| radiusAuthClientInetAddressType          | InetAddressType, |
| radiusAuthClientInetAddress              | InetAddress,     |
| radiusAuthClientExtID                    | SnmpAdminString, |
| radiusAuthServExtAccessRequests          | Counter32,       |
| radiusAuthServExtDupAccessRequests       | Counter32,       |
| radiusAuthServExtAccessAccepts           | Counter32,       |
| radiusAuthServExtAccessRejects           | Counter32,       |
| radiusAuthServExtAccessChallenges        | Counter32,       |
| radiusAuthServExtMalformedAccessRequests | Counter32,       |
| radiusAuthServExtBadAuthenticators       | Counter32,       |
| radiusAuthServExtPacketsDropped          | Counter32,       |
| radiusAuthServExtUnknownTypes            | Counter32,       |

Nelson

Expires December 28, 2006

[Page 14]

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

radiusAuthServCounterDiscontinuity TimeTicks  
}

radiusAuthClientExtIndex OBJECT-TYPE



```

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

```

```

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

```

```

radiusAuthClientInetAddress OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The IP address of the RADIUS authentication
        client referred to in this table entry, using
        the version neutral IP address format."
    ::= { radiusAuthClientExtEntry 3 }

```

```

radiusAuthClientExtID OBJECT-TYPE
    SYNTAX      SnmpAdminString
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The NAS-Identifier of the RADIUS authentication client
        referred to in this table entry. This is not
        necessarily the same as sysName in MIB II."
    REFERENCE  "RFC 2865 section 5.32"
    ::= { radiusAuthClientExtEntry 4 }

```

```
-- Server Counters
```

```
--
```

```
-- Responses = AccessAccepts + AccessRejects + AccessChallenges
--
-- Requests - DupRequests - BadAuthenticators - MalformedRequests -
-- UnknownTypes - PacketsDropped - Responses = Pending
--
-- Requests - DupRequests - BadAuthenticators - MalformedRequests -
-- UnknownTypes - PacketsDropped = entries logged

radiusAuthServExtAccessRequests OBJECT-TYPE
    SYNTAX Counter32
    UNITS "packets"
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of packets received on the authentication
        port from this client. This counter may experience a
        discontinuity when the RADIUS Server module within the
        managed entity is reinitialized, as indicated by the
        current value of radiusAuthServCounterDiscontinuity."
    REFERENCE "RFC 2865 section 4.1"
    ::= { radiusAuthClientExtEntry 5 }

radiusAuthServExtDupAccessRequests OBJECT-TYPE
    SYNTAX Counter32
    UNITS "packets"
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of duplicate RADIUS Access-Request
        packets received from this client. This counter may
        experience a discontinuity when the RADIUS Server
        module within the managed entity is reinitialized, as
        indicated by the current value of
        radiusAuthServCounterDiscontinuity."
    REFERENCE "RFC 2865 section 4.1"
    ::= { radiusAuthClientExtEntry 6 }

radiusAuthServExtAccessAccepts OBJECT-TYPE
    SYNTAX Counter32
    UNITS "packets"
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of RADIUS Access-Accept packets
        sent to this client. This counter may experience a
        discontinuity when the RADIUS Server module within the
        managed entity is reinitialized, as indicated by the
```

current value of radiusAuthServCounterDiscontinuity."

Nelson

Expires December 28, 2006

[Page 16]

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

REFERENCE "[RFC 2865 section 4.2](#)"

::= { radiusAuthClientExtEntry 7 }

radiusAuthServExtAccessRejects OBJECT-TYPE

SYNTAX Counter32

UNITS "packets"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Access-Reject packets sent to this client. This counter may experience a discontinuity when the RADIUS Server module within the managed entity is reinitialized, as indicated by the current value of radiusAuthServCounterDiscontinuity."

REFERENCE "[RFC 2865 section 4.3](#)"

::= { radiusAuthClientExtEntry 8 }

radiusAuthServExtAccessChallenges OBJECT-TYPE

SYNTAX Counter32

UNITS "packets"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Access-Challenge packets sent to this client. This counter may experience a discontinuity when the RADIUS Server module within the managed entity is reinitialized, as indicated by the current value of radiusAuthServCounterDiscontinuity."

REFERENCE "[RFC 2865 section 4.4](#)"

::= { radiusAuthClientExtEntry 9 }

radiusAuthServExtMalformedAccessRequests OBJECT-TYPE

SYNTAX Counter32

UNITS "packets"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of malformed RADIUS Access-Request packets received from this client. Bad authenticators and unknown types are not included as malformed

Access-Requests. This counter may experience a discontinuity when the RADIUS Server module within the managed entity is reinitialized, as indicated by the current value of radiusAuthServCounterDiscontinuity."  
REFERENCE "[RFC 2865](#) sections [3](#), [4.1](#)"  
::= { radiusAuthClientExtEntry 10 }

radiusAuthServExtBadAuthenticators OBJECT-TYPE

Nelson

Expires December 28, 2006

[Page 17]

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

SYNTAX Counter32  
UNITS "packets"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of RADIUS Authentication-Request packets which contained invalid Message Authenticator attributes received from this client. This counter may experience a discontinuity when the RADIUS Server module within the managed entity is reinitialized, as indicated by the current value of radiusAuthServCounterDiscontinuity."  
REFERENCE "[RFC 2865 section 3](#)"  
::= { radiusAuthClientExtEntry 11 }

radiusAuthServExtPacketsDropped OBJECT-TYPE

SYNTAX Counter32  
UNITS "packets"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of incoming packets from this client silently discarded for some reason other than malformed, bad authenticators or unknown types. This counter may experience a discontinuity when the RADIUS Server module within the managed entity is reinitialized, as indicated by the current value of radiusAuthServCounterDiscontinuity."  
REFERENCE "[RFC 2865 section 3](#)"  
::= { radiusAuthClientExtEntry 12 }

radiusAuthServExtUnknownTypes OBJECT-TYPE

SYNTAX Counter32

```

UNITS "packets"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The number of RADIUS packets of unknown type which
    were received from this client. This counter may
    experience a discontinuity when the RADIUS Server
    module within the managed entity is reinitialized, as
    indicated by the current value of
    radiusAuthServCounterDiscontinuity."
REFERENCE "RFC 2865 section 4"
 ::= { radiusAuthClientExtEntry 13 }

```

```

radiusAuthServCounterDiscontinuity OBJECT-TYPE
    SYNTAX TimeTicks

```

|        |                           |           |
|--------|---------------------------|-----------|
| Nelson | Expires December 28, 2006 | [Page 18] |
|--------|---------------------------|-----------|

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|                |                               |           |
|----------------|-------------------------------|-----------|
| Internet-Draft | RADIUS Auth Server MIB (IPv6) | June 2006 |
|----------------|-------------------------------|-----------|

```

UNITS "centiseconds"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
    "The number of centiseconds since the last
    discontinuity in the RADIUS Server counters.
    A discontinuity may be the result of a
    reinitialization of the RADIUS Server module
    within the managed entity."
 ::= { radiusAuthClientExtEntry 14 }

```

```
-- conformance information
```

```

radiusAuthServMIBConformance OBJECT IDENTIFIER
 ::= { radiusAuthServMIB 2 }

```

```

radiusAuthServMIBCompliances OBJECT IDENTIFIER
 ::= { radiusAuthServMIBConformance 1 }

```

```

radiusAuthServMIBGroups OBJECT IDENTIFIER
 ::= { radiusAuthServMIBConformance 2 }

```

```
-- compliance statements
```

```
radiusAuthServMIBCompliance MODULE-COMPLIANCE
```

```

STATUS deprecated
DESCRIPTION
    "The compliance statement for authentication
    servers implementing the RADIUS Authentication
    Server MIB. Implementation of this module is for
    IPv4-only entities, or for backwards compatibility
    use with entities that support both IPv4 and
    IPv6."
MODULE -- this module
MANDATORY-GROUPS { radiusAuthServMIBGroup }

OBJECT      radiusAuthServConfigReset
WRITE-SYNTAX INTEGER { reset(2) }
DESCRIPTION "The only SETable value is 'reset' (2)."
```

```

 ::= { radiusAuthServMIBCompliances 1 }
```

```

radiusAuthServMIBExtCompliance MODULE-COMPLIANCE
STATUS current
DESCRIPTION
    "The compliance statement for authentication
```

|        |                           |           |
|--------|---------------------------|-----------|
| Nelson | Expires December 28, 2006 | [Page 19] |
|--------|---------------------------|-----------|

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|                |                               |           |
|----------------|-------------------------------|-----------|
| Internet-Draft | RADIUS Auth Server MIB (IPv6) | June 2006 |
|----------------|-------------------------------|-----------|

```

    servers implementing the RADIUS Authentication
    Server IPv6 Extensions MIB. Implementation of
    this module is for entities that support IPv6,
    or support IPv4 and IPv6."
MODULE -- this module
MANDATORY-GROUPS { radiusAuthServExtMIBGroup }

OBJECT      radiusAuthServConfigReset
WRITE-SYNTAX INTEGER { reset(2) }
DESCRIPTION "The only SETable value is 'reset' (2)."
```

```

OBJECT radiusAuthClientInetAddressType
SYNTAX InetAddressType { ipv4(1), ipv6(2) }
DESCRIPTION
    "An implementation is only required to support
    IPv4 and globally unique IPv6 addresses."

OBJECT radiusAuthClientInetAddress
SYNTAX InetAddress ( SIZE (4|16) )
```

DESCRIPTION

"An implementation is only required to support IPv4 and globally unique IPv6 addresses."

::= { radiusAuthServMIBCompliances 2 }

-- units of conformance

radiusAuthServMIBGroup OBJECT-GROUP

OBJECTS {radiusAuthServIdent,  
radiusAuthServUpTime,  
radiusAuthServResetTime,  
radiusAuthServConfigReset,  
radiusAuthServTotalAccessRequests,  
radiusAuthServTotalInvalidRequests,  
radiusAuthServTotalDupAccessRequests,  
radiusAuthServTotalAccessAccepts,  
radiusAuthServTotalAccessRejects,  
radiusAuthServTotalAccessChallenges,  
radiusAuthServTotalMalformedAccessRequests,  
radiusAuthServTotalBadAuthenticators,  
radiusAuthServTotalPacketsDropped,  
radiusAuthServTotalUnknownTypes,  
radiusAuthClientAddress,  
radiusAuthClientID,  
radiusAuthServAccessRequests,  
radiusAuthServDupAccessRequests,  
radiusAuthServAccessAccepts,

Nelson

Expires December 28, 2006

[Page 20]

---

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

radiusAuthServAccessRejects,  
radiusAuthServAccessChallenges,  
radiusAuthServMalformedAccessRequests,  
radiusAuthServBadAuthenticators,  
radiusAuthServPacketsDropped,  
radiusAuthServUnknownTypes  
}

STATUS deprecated

DESCRIPTION

"The collection of objects providing management of a RADIUS Authentication Server."

::= { radiusAuthServMIBGroups 1 }

```

radiusAuthServExtMIBGroup OBJECT-GROUP
    OBJECTS {radiusAuthServIdent,
        radiusAuthServUpTime,
        radiusAuthServResetTime,
        radiusAuthServConfigReset,
        radiusAuthServTotalAccessRequests,
        radiusAuthServTotalInvalidRequests,
        radiusAuthServTotalDupAccessRequests,
        radiusAuthServTotalAccessAccepts,
        radiusAuthServTotalAccessRejects,
        radiusAuthServTotalAccessChallenges,
        radiusAuthServTotalMalformedAccessRequests,
        radiusAuthServTotalBadAuthenticators,
        radiusAuthServTotalPacketsDropped,
        radiusAuthServTotalUnknownTypes,
        radiusAuthClientInetAddressType,
        radiusAuthClientInetAddress,
        radiusAuthClientExtID,
        radiusAuthServExtAccessRequests,
        radiusAuthServExtDupAccessRequests,
        radiusAuthServExtAccessAccepts,
        radiusAuthServExtAccessRejects,
        radiusAuthServExtAccessChallenges,
        radiusAuthServExtMalformedAccessRequests,
        radiusAuthServExtBadAuthenticators,
        radiusAuthServExtPacketsDropped,
        radiusAuthServExtUnknownTypes,
        radiusAuthServCounterDiscontinuity
    }
    STATUS current
    DESCRIPTION
        "The collection of objects providing management of
        a RADIUS Authentication Server."
    ::= { radiusAuthServMIBGroups 2 }

```

END



This document requires no new IANA assignments.

## 9. Security Considerations

There are a number of management objects defined in this MIB that have 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:

radiusAuthServConfigReset This object can be used to reinitialize the persistent state of any server. When set to reset(2), any persistent server state (such as a process) is reinitialized as if the server had just been started. Depending on the server implementation details, this action may or may not interrupt the processing of pending request in the server. Abuse of this object may lead to a Denial of Service attack on the server.

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

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

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

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 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

## [10.](#) References

### [10.1.](#) Normative References

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- [RFC2578] McCloghrie, K., Ed., Perkins, D., Ed., and J. Schoenwaelder, Ed., "Structure of Management Information Version 2 (SMIv2)", STD 58, [RFC 2578](#), April 1999.
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### [10.2.](#) Informative References

- [2618bis] Nelson, D., "RADIUS Authentication Client MIB for IPv6", [draft-ietf-radext-rfc2618bis-04.txt](#) (work in progress), June 2006.
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[RFC 2619](#), June 1999.

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"Introduction and Applicability Statements for Internet-  
Standard Management Framework", [RFC 3410](#), December 2002.

#### [Appendix A](#). Acknowledgments

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Nelson

Expires December 28, 2006

[Page 24]

---

Internet-Draft

RADIUS Auth Server MIB (IPv6)

June 2006

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