

Network Working Group  
Internet-Draft  
Expires: September 30, 2006

S. De Cnodder  
Alcatel  
N. Jonnala  
M. Chiba  
Cisco Systems, Inc.  
March 29, 2006

Dynamic Authorization Client MIB  
draft-ietf-radext-dynauth-client-mib-05.txt

Status of this Memo

By submitting this Internet-Draft, each author represents that any applicable patent or other IPR claims of which he or she is aware have been or will be disclosed, and any of which he or she becomes aware will be disclosed, in accordance with [Section 6 of BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/lid-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on September 30, 2006.

Copyright Notice

Copyright (C) The Internet Society (2006).

Abstract

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. In particular, it describes the Remote Authentication Dial In User Service (RADIUS) [[RFC2865](#)] Dynamic Authorization Client (DAC) functions that support the dynamic authorization extensions as defined in [RFC 3576](#).

Table of Contents

- [1. Introduction . . . . .](#) [3](#)
- [1.1. Requirements notation . . . . .](#) [3](#)
- [1.2. Terminology . . . . .](#) [3](#)
- [2. The Internet-Standard Management Framework . . . . .](#) [4](#)
- [3. Overview . . . . .](#) [5](#)
- [4. RADIUS Dynamic Authorization Client MIB Definitions . . . . .](#) [6](#)
- [5. Security Considerations . . . . .](#) [23](#)
- [6. IANA considerations . . . . .](#) [25](#)
- [7. Acknowledgements . . . . .](#) [26](#)
- [8. References . . . . .](#) [27](#)
- [8.1. Normative References . . . . .](#) [27](#)
- [8.2. Informative References . . . . .](#) [27](#)
- [Authors' Addresses . . . . .](#) [29](#)
- [Intellectual Property and Copyright Statements . . . . .](#) [30](#)

## 1. Introduction

This memo defines a portion of the Management Information Base (MIB) for use with network management protocols in the Internet community. It is becoming increasingly important to support Dynamic Authorization extensions on the network access server (NAS) devices to handle the Disconnect and Change-of-Authorization (CoA) messages as described in [[RFC3576](#)]. As a result, the effective management of RADIUS Dynamic Authorization entities is of considerable importance. This RADIUS Dynamic Authorization Client MIB complements the managed objects used for managing RADIUS authentication and accounting servers as described in [[RFC2619bis](#)] and [[RFC2621bis](#)], respectively.

-- RFC Ed.: references [[DYNSERV](#)], [[RFC2619bis](#)], [[RFC2621bis](#)] should  
-- be replaced by references to the corresponding RFC.

### 1.1. Requirements notation

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](#)].

### 1.2. Terminology

Dynamic Authorization Server (DAS)

The component that resides on the NAS which processes the Disconnect and Change-of-Authorization (CoA) Request packets [[RFC3576](#)] sent by the Dynamic Authorization Client.

Dynamic Authorization Client (DAC)

The component which sends Disconnect and CoA-Request packets to the Dynamic Authorization Server. While often residing on the RADIUS server, it is also possible for this component to be located on a

separate host, such as a Rating Engine.

#### Dynamic Authorization Server Port

The UDP port on which the Dynamic Authorization Server listens for the Disconnect and CoA requests sent by the Dynamic Authorization Client.

## 2. 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 \[RFC3410\]](#).

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, [RFC2578 \[RFC2578\]](#), STD 58, [RFC2579 \[RFC2579\]](#) and STD 58, [RFC2580 \[RFC2580\]](#).

### 3. Overview

"Dynamic Authorization Extensions to RADIUS" [[RFC3576](#)] defines the operation of Disconnect-Request, Disconnect-ACK, Disconnect-NAK, CoA-Request, CoA-ACK and CoA-NAK packets. [[DYNSERV](#)] defines the Dynamic Authorization Server MIB and the relationship with other MIB modules. This MIB module for the Dynamic Authorization Client contains the following:

1. Three scalar objects, and
2. One Dynamic Authorization Server table. This table contains one row for each DAS that the DAC shares a secret with.

#### 4. RADIUS Dynamic Authorization Client MIB Definitions

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

```
IMPORTS
```

```
    MODULE-IDENTITY, OBJECT-TYPE,  
    Counter32, Gauge32, Integer32,  
    mib-2, TimeTicks      FROM SNMPv2-SMI          -- [RFC2578]  
    SnmpAdminString      FROM SNMP-FRAMEWORK-MIB -- [RFC3411]  
    InetAddressType, InetAddress,  
    InetPortNumber      FROM INET-ADDRESS-MIB    -- [RFC4001]  
    MODULE-COMPLIANCE,  
    OBJECT-GROUP        FROM SNMPv2-CONF;        -- [RFC2580]
```

```
radiusDynAuthClientMIB MODULE-IDENTITY
```

LAST-UPDATED "200603220000Z" -- 22 March 2006  
ORGANIZATION "IETF RADEXT Working Group"  
CONTACT-INFO

" Stefaan De Cnodder  
Alcatel  
Francis Wellesplein 1  
B-2018 Antwerp  
Belgium

Phone: +32 3 240 85 15  
EMail: stefaan.de\_cnodder@alcatel.be

Nagi Reddy Jonnala  
Cisco Systems, Inc.  
Divyasree Chambers, B Wing,  
O'Shaughnessy Road,  
Bangalore-560027, India.

Phone: +91 94487 60828  
EMail: njonnala@cisco.com

Murtaza Chiba  
Cisco Systems, Inc.  
170 West Tasman Dr.  
San Jose CA, 95134

Phone: +1 408 525 7198  
EMail: mchiba@cisco.com "

DESCRIPTION

"The MIB module for entities implementing the client side of the Dynamic Authorization Extensions to Remote Authentication Dial In User Service (RADIUS) protocol.

De Cnodder, et al. Expires September 30, 2006

[Page 6]

---

Internet-Draft

Dynamic Authorization Client MIB

March 2006

Copyright (C) The Internet Society (2006). Initial version as published in RFC yyyy; for full legal notices see the RFC itself."

-- RFC Ed.: replace yyyy with actual RFC number & remove this note

REVISION "200603220000Z" -- 22 March 2006

DESCRIPTION "Initial version as published in RFC yyyy"

-- RFC Ed.: replace yyyy with actual RFC number & remove this note

```

 ::= { mib-2 xxx }
-- The value xxx to be assigned by IANA.

radiusDynAuthClientMIBObjects OBJECT IDENTIFIER ::=
    { radiusDynAuthClientMIB 1 }

radiusDynAuthClientScalars    OBJECT IDENTIFIER ::=
    { radiusDynAuthClientMIBObjects 1 }

radiusDynAuthClientDisconInvalidServerAddresses OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of Disconnect-Ack and Disconnect-NAK packets
        received from unknown addresses. This counter may
        experience a discontinuity when the DAC module
        (re)starts as indicated by the value of
        radiusDynAuthClientCounterDiscontinuity."
    ::= { radiusDynAuthClientScalars 1 }

radiusDynAuthClientCoAInvalidServerAddresses OBJECT-TYPE
    SYNTAX Counter32
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION
        "The number of CoA-Ack and CoA-NAK packets received from
        unknown addresses. Disconnect-NAK packets received from
        unknown addresses. This counter may experience a
        discontinuity when the DAC module (re)starts as
        indicated by the value of
        radiusDynAuthClientCounterDiscontinuity."
    ::= { radiusDynAuthClientScalars 2 }

radiusDynAuthClientCounterDiscontinuity OBJECT-TYPE
    SYNTAX TimeTicks
    UNITS "hundredths of a second"
    MAX-ACCESS read-only
    STATUS current
    DESCRIPTION

```

"The time (in hundredths of a second) since the

```
        DAC module was last re-initialized."
 ::= { radiusDynAuthClientScalars 3 }
```

```
radiusDynAuthServerTable OBJECT-TYPE
    SYNTAX SEQUENCE OF RadiusDynAuthServerEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "The (conceptual) table listing the RADIUS Dynamic
        Authorization Servers with which the client shares a
        secret."
    ::= { radiusDynAuthClientMIBObjects 2 }
```

```
radiusDynAuthServerEntry OBJECT-TYPE
    SYNTAX RadiusDynAuthServerEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "An entry (conceptual row) representing one Dynamic
        Authorization Server with which the client shares a
        secret."
    INDEX { radiusDynAuthServerIndex }
    ::= { radiusDynAuthServerTable 1 }
```

```
RadiusDynAuthServerEntry ::= SEQUENCE {
    radiusDynAuthServerIndex Integer32,
    radiusDynAuthServerAddressType InetAddressType,
    radiusDynAuthServerAddress InetAddress,
    radiusDynAuthServerClientPortNumber InetPortNumber,
    radiusDynAuthServerID SnmpAdminString,
    radiusDynAuthClientRoundTripTime TimeTicks,
    radiusDynAuthClientDisconRequests Counter32,
    radiusDynAuthClientDisconAuthOnlyRequests Counter32,
    radiusDynAuthClientDisconRetransmissions Counter32,
    radiusDynAuthClientDisconAcks Counter32,
    radiusDynAuthClientDisconNaks Counter32,
    radiusDynAuthClientDisconNakAuthOnlyRequest Counter32,
    radiusDynAuthClientDisconNakSessNoContext Counter32,
    radiusDynAuthClientMalformedDisconResponses Counter32,
    radiusDynAuthClientDisconBadAuthenticators Counter32,
    radiusDynAuthClientDisconPendingRequests Gauge32,
    radiusDynAuthClientDisconTimeouts Counter32,
    radiusDynAuthClientDisconPacketsDropped Counter32,
    radiusDynAuthClientCoARequests Counter32,
    radiusDynAuthClientCoAAuthOnlyRequest Counter32,
    radiusDynAuthClientCoARetranmissions Counter32,
    radiusDynAuthClientCoAAcks Counter32,
```

---

```
radiusDynAuthClientCoANaks           Counter32,  
radiusDynAuthClientCoANakAuthOnlyRequest Counter32,  
radiusDynAuthClientCoANakSessNoContext Counter32,  
radiusDynAuthClientMalformedCoAResponses Counter32,  
radiusDynAuthClientCoABadAuthenticators Counter32,  
radiusDynAuthClientCoAPendingRequests Gauge32,  
radiusDynAuthClientCoATimeouts       Counter32,  
radiusDynAuthClientCoAPacketsDropped Counter32,  
radiusDynAuthClientUnknownTypes     Counter32  
}
```

```
radiusDynAuthServerIndex OBJECT-TYPE
```

```
SYNTAX      Integer32 (1..2147483647)
```

```
MAX-ACCESS  not-accessible
```

```
STATUS      current
```

```
DESCRIPTION
```

```
    "A number uniquely identifying each RADIUS Dynamic  
    Authorization Server with which this Dynamic  
    Authorization Client communicates. This number is  
    allocated by the agent implementing this MIB module,  
    and is unique in this context."
```

```
::= { radiusDynAuthServerEntry 1 }
```

```
radiusDynAuthServerAddressType OBJECT-TYPE
```

```
SYNTAX      InetAddressType
```

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

```
STATUS      current
```

```
DESCRIPTION
```

```
    "The type of IP address of the RADIUS Dynamic  
    Authorization Server referred to in this table entry."
```

```
::= { radiusDynAuthServerEntry 2 }
```

```
radiusDynAuthServerAddress OBJECT-TYPE
```

```
SYNTAX      InetAddress
```

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

```
STATUS      current
```

```
DESCRIPTION
```

```
    "The IP address value of the RADIUS Dynamic  
    Authorization Server referred to in this table entry  
    using the version neutral IP address format. The type  
    of this address is determined by the value of the  
    radiusDynAuthServerAddressType object."
```

```
::= { radiusDynAuthServerEntry 3 }
```

```
radiusDynAuthServerClientPortNumber OBJECT-TYPE
```

SYNTAX InetPortNumber  
MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The UDP destination port that the RADIUS Dynamic Authorization Client is using to send requests to this server. The value zero is invalid."

::= { radiusDynAuthServerEntry 4 }

radiusDynAuthServerID OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The NAS-Identifier of the RADIUS Dynamic Authorization Server referred to in this table entry. This is not necessarily the same as sysName in MIB II."

REFERENCE

"[RFC 2865, Section 5.32](#), NAS-Identifier."

::= { radiusDynAuthServerEntry 5 }

radiusDynAuthClientRoundTripTime OBJECT-TYPE

SYNTAX TimeTicks

UNITS "hundredths of a second"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The time interval (in hundredths of a second) between the most recent Disconnect or CoA request and the reception of the corresponding Disconnect or CoA reply. A value of zero is returned in case no reply has been received yet from this server."

::= { radiusDynAuthServerEntry 6 }

radiusDynAuthClientDisconRequests OBJECT-TYPE

SYNTAX Counter32

UNITS "requests"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Disconnect-Requests sent to this Dynamic Authorization Server. This also includes the RADIUS Disconnect-Requests that have a Service-Type attribute with value 'Authorize Only'. Disconnect-NAK packets received from unknown addresses. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

REFERENCE

De Cnodder, et al.

Expires September 30, 2006

[Page 10]

---

Internet-Draft

Dynamic Authorization Client MIB

March 2006

"[RFC 3576, Section 2.1](#), Disconnect Messages (DM)."  
 ::= { radiusDynAuthServerEntry 7 }

radiusDynAuthClientDisconAuthOnlyRequests OBJECT-TYPE

SYNTAX Counter32  
UNITS "requests"  
MAX-ACCESS read-only  
STATUS current

DESCRIPTION

"The number of RADIUS Disconnect-Requests that include a Service-Type attribute with value 'Authorize Only' sent to this Dynamic Authorization Server. Disconnect-NAK packets received from unknown addresses. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

REFERENCE

"[RFC 3576, Section 2.1](#), Disconnect Messages (DM)."  
 ::= { radiusDynAuthServerEntry 8 }

radiusDynAuthClientDisconRetransmissions OBJECT-TYPE

SYNTAX Counter32  
UNITS "retransmissions"  
MAX-ACCESS read-only  
STATUS current

DESCRIPTION

"The number of RADIUS Disconnect-request packets retransmitted to this RADIUS Dynamic Authorization Server. Disconnect-NAK packets received from unknown addresses. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

REFERENCE

"[RFC 3576, Section 2.1](#), Disconnect Messages (DM)."  
 ::= { radiusDynAuthServerEntry 9 }

radiusDynAuthClientDisconAcks OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Disconnect-ACK packets received from this Dynamic Authorization Server. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

REFERENCE

De Cnodder, et al.

Expires September 30, 2006

[Page 11]

---

Internet-Draft

Dynamic Authorization Client MIB

March 2006

"[RFC 3576, Section 2.1](#), Disconnect Messages (DM)."  
 ::= { radiusDynAuthServerEntry 10 }

radiusDynAuthClientDisconNaks OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Disconnect-NAK packets received from this Dynamic Authorization Server. This includes the RADIUS Disconnect-NAK packets received with a Service-Type attribute with value 'Authorize Only' and the RADIUS Disconnect-NAK packets received no session context was found. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

REFERENCE

"[RFC 3576, Section 2.1](#), Disconnect Messages (DM)."  
 ::= { radiusDynAuthServerEntry 11 }

radiusDynAuthClientDisconNakAuthOnlyRequest OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of RADIUS Disconnect-NAK packets that include a Service-Type attribute with value 'Authorize Only' received from this Dynamic Authorization Server. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."  
REFERENCE  
    "[RFC 3576, Section 2.1](#), Disconnect Messages (DM)."  
 ::= { radiusDynAuthServerEntry 12 }

radiusDynAuthClientDisconNakSessNoContext OBJECT-TYPE  
SYNTAX Counter32  
UNITS "replies"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of RADIUS Disconnect-NAK packets received from this Dynamic Authorization Server because no session context was found, i.e. it

De Cnodder, et al. Expires September 30, 2006 [Page 12]

---

Internet-Draft Dynamic Authorization Client MIB March 2006

includes an Error-Cause attribute with value 503 ('Session Context Not Found'). This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

REFERENCE  
    "[RFC 3576, Section 2.1](#), Disconnect Messages (DM)."  
 ::= { radiusDynAuthServerEntry 13 }

radiusDynAuthClientMalformedDisconResponses OBJECT-TYPE  
SYNTAX Counter32  
UNITS "replies"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of malformed RADIUS Disconnect-Ack and Disconnect-NAK packets received from this Dynamic Authorization Server. Bad authenticators and unknown

types are not included as malformed Disconnect-Ack and Disconnect-NAK packets. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

REFERENCE

"[RFC 3576, Section 2.1](#), Disconnect Messages (DM), and [Section 2.3](#), Packet Format."

::= { radiusDynAuthServerEntry 14 }

radiusDynAuthClientDisconBadAuthenticators OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Disconnect-Ack and Disconnect-NAK packets which contained invalid Authenticator field received from this Dynamic Authorization Server. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

REFERENCE

"[RFC 3576, Section 2.1](#), Disconnect Messages (DM), and [Section 2.3](#), Packet Format."

::= { radiusDynAuthServerEntry 15 }

radiusDynAuthClientDisconPendingRequests OBJECT-TYPE

SYNTAX Gauge32

UNITS "requests"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Disconnect-request packets destined for this server that have not yet timed out or received a response. This variable is incremented when an Disconnect-Request is sent and decremented due to receipt of an Disconnect-Ack, Disconnect-NAK or a timeout or a retransmission."

REFERENCE

"[RFC 3576, Section 2.1](#), Disconnect Messages (DM)."

```
::= { radiusDynAuthServerEntry 16 }
```

```
radiusDynAuthClientDisconTimeouts OBJECT-TYPE
```

```
SYNTAX      Counter32  
UNITS       "timeouts"  
MAX-ACCESS  read-only  
STATUS      current  
DESCRIPTION
```

```
"The number of Disconnect request timeouts to this  
server. After a timeout the client may retry to the  
same 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  
Disconnect-Request as well as a timeout. This counter  
may experience a discontinuity when the DAC module  
(re)starts as indicated by the value of  
radiusDynAuthClientCounterDiscontinuity."
```

```
REFERENCE
```

```
"RFC 3576, Section 2.1, Disconnect Messages (DM)."
```

```
::= { radiusDynAuthServerEntry 17 }
```

```
radiusDynAuthClientDisconPacketsDropped OBJECT-TYPE
```

```
SYNTAX      Counter32  
UNITS       "replies"  
MAX-ACCESS  read-only  
STATUS      current  
DESCRIPTION
```

```
"The number of incoming Disconnect-Ack and  
Disconnect-NAK packets from this Dynamic Authorization  
Server silently discarded by the client application for  
some reason other than malformed, bad authenticators or  
unknown types. This counter may experience a  
discontinuity when the DAC module (re)starts as  
indicated by the value of  
radiusDynAuthClientCounterDiscontinuity."
```

```
REFERENCE
```

```
"RFC 3576, Section 2.1, Disconnect Messages (DM), and
```

```
    Section 2.3, Packet Format."
```

```
::= { radiusDynAuthServerEntry 18 }
```

```
radiusDynAuthClientCoARequests OBJECT-TYPE
```

SYNTAX Counter32  
UNITS "requests"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of RADIUS CoA-Requests sent to this Dynamic Authorization Server. This also includes the CoA requests that have a Service-Type attribute with value 'Authorize Only'. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."  
REFERENCE  
    "[RFC 3576, Section 2.2](#), Change-of-Authorization Messages (CoA)."  
::= { radiusDynAuthServerEntry 19 }

radiusDynAuthClientCoAAuthOnlyRequest OBJECT-TYPE

SYNTAX Counter32  
UNITS "requests"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of RADIUS CoA-requests that include a Service-Type attribute with value 'Authorize Only' sent to this Dynamic Authorization Client. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."  
REFERENCE  
    "[RFC 3576, Section 2.2](#), Change-of-Authorization Messages (CoA)."  
::= { radiusDynAuthServerEntry 20 }

radiusDynAuthClientCoARetransmissions OBJECT-TYPE

SYNTAX Counter32  
UNITS "retransmissions"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
    "The number of RADIUS CoA-request packets retransmitted to this RADIUS Dynamic Authorization Server. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the

value of radiusDynAuthClientCounterDiscontinuity."

## REFERENCE

["RFC 3576, Section 2.2](#), Change-of-Authorization Messages (CoA)."

::= { radiusDynAuthServerEntry 21 }

## radiusDynAuthClientCoAAcks OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"The number of RADIUS CoA-ACK packets received from this Dynamic Authorization Server. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

## REFERENCE

["RFC 3576, Section 2.2](#), Change-of-Authorization Messages (CoA)."

::= { radiusDynAuthServerEntry 22 }

## radiusDynAuthClientCoANaks OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"The number of RADIUS CoA-NAK packets received from this Dynamic Authorization Server. This includes the RADIUS CoA-NAK packets received with a Service-Type attribute with value 'Authorize Only' and the RADIUS CoA-NAK packets received because no session context was found. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

## REFERENCE

["RFC 3576, Section 2.2](#), Change-of-Authorization Messages (CoA)."

::= { radiusDynAuthServerEntry 23 }

## radiusDynAuthClientCoANakAuthOnlyRequest OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

## DESCRIPTION

"The number of RADIUS CoA-NAK packets that include a

Service-Type attribute with value 'Authorize Only' received from this Dynamic Authorization Server. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

REFERENCE

"[RFC 3576, Section 2.2](#), Change-of-Authorization Messages (CoA)."

::= { radiusDynAuthServerEntry 24 }

radiusDynAuthClientCoANakSessNoContext OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS CoA-NAK packets received from this Dynamic Authorization Server because no session context was found, i.e. it includes an Error-Cause attribute with value 503 ('Session Context Not Found'). This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

REFERENCE

"[RFC 3576, Section 2.2](#), Change-of-Authorization Messages (CoA)."

::= { radiusDynAuthServerEntry 25 }

radiusDynAuthClientMalformedCoAResponses OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of malformed RADIUS CoA-Ack and CoA-NAK packets received from this Dynamic Authorization Server. Bad authenticators and unknown types are not included as malformed CoA-Ack and CoA-NAK packets. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of

radiusDynAuthClientCounterDiscontinuity."  
REFERENCE  
"RFC 3576, Section 2.2, Change-of-Authorization  
Messages (CoA), and Section 2.3, Packet Format."  
 ::= { radiusDynAuthServerEntry 26 }

radiusDynAuthClientCoABadAuthenticators OBJECT-TYPE  
SYNTAX Counter32

De Cnodder, et al. Expires September 30, 2006 [Page 17]

---

Internet-Draft Dynamic Authorization Client MIB March 2006

UNITS "replies"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"The number of RADIUS CoA-Ack and CoA-NAK packets  
which contained invalid Authenticator field  
received from this Dynamic Authorization Server.  
This counter may experience a discontinuity when the  
DAC module (re)starts as indicated by the value of  
radiusDynAuthClientCounterDiscontinuity."

REFERENCE  
"RFC 3576, Section 2.2, Change-of-Authorization  
Messages (CoA), and Section 2.3, Packet Format."  
 ::= { radiusDynAuthServerEntry 27 }

radiusDynAuthClientCoAPendingRequests OBJECT-TYPE

SYNTAX Gauge32  
UNITS "requests"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION

"The number of RADIUS CoA-request packets destined for  
this server that have not yet timed out or received a  
response. This variable is incremented when an  
CoA-Request is sent and decremented due to receipt of  
a CoA-Ack, CoA-NAK or a timeout or a retransmission."

REFERENCE  
"RFC 3576, Section 2.2, Change-of-Authorization  
Messages (CoA)."  
 ::= { radiusDynAuthServerEntry 28 }

radiusDynAuthClientCoATimeouts OBJECT-TYPE  
SYNTAX Counter32

UNITS "timeouts"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION  
"The number of CoA request timeouts to this server.  
After a timeout the client may retry to the same  
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 CoA-Request as well  
as a timeout. This counter may experience a  
discontinuity when the DAC module (re)starts as  
indicated by the value of  
radiusDynAuthClientCounterDiscontinuity."  
REFERENCE  
"[RFC 3576, Section 2.2](#), Change-of-Authorization

De Cnodder, et al. Expires September 30, 2006 [Page 18]

---

Internet-Draft Dynamic Authorization Client MIB March 2006

Messages (CoA)."  
 ::= { radiusDynAuthServerEntry 29 }

radiusDynAuthClientCoAPacketsDropped OBJECT-TYPE

SYNTAX Counter32  
UNITS "replies"  
MAX-ACCESS read-only  
STATUS current  
DESCRIPTION

"The number of incoming CoA-Ack and CoA-NAK from this  
Dynamic Authorization Server silently discarded by the  
client application for some reason other than  
malformed, bad authenticators or unknown types. This  
counter may experience a discontinuity when the DAC  
module (re)starts as indicated by the value of  
radiusDynAuthClientCounterDiscontinuity."

REFERENCE

"[RFC 3576, Section 2.2](#), Change-of-Authorization  
Messages (CoA), and [Section 2.3](#), Packet Format."

::= { radiusDynAuthServerEntry 30 }

radiusDynAuthClientUnknownTypes OBJECT-TYPE

SYNTAX Counter32  
UNITS "replies"  
MAX-ACCESS read-only  
STATUS current

DESCRIPTION

"The number of incoming packets of unknown types which were received on the Dynamic Authorization port. This counter may experience a discontinuity when the DAC module (re)starts as indicated by the value of radiusDynAuthClientCounterDiscontinuity."

REFERENCE

"[RFC 3576, Section 2.3](#), Packet Format."

::= { radiusDynAuthServerEntry 31 }

-- conformance information

radiusDynAuthClientMIBConformance

OBJECT IDENTIFIER ::= { radiusDynAuthClientMIB 2 }

radiusDynAuthClientMIBCompliances

OBJECT IDENTIFIER ::= { radiusDynAuthClientMIBConformance 1 }

radiusDynAuthClientMIBGroups

OBJECT IDENTIFIER ::= { radiusDynAuthClientMIBConformance 2 }

-- compliance statements

radiusDynAuthClientMIBCompliance MODULE-COMPLIANCE

STATUS current

DESCRIPTION

"The compliance statement for entities implementing the RADIUS Dynamic Authorization Client. Implementation of this module is for entities that support IPv4 and/or IPv6."

MODULE -- this module

MANDATORY-GROUPS { radiusDynAuthClientMIBGroup }

OBJECT radiusDynAuthServerAddressType

SYNTAX InetAddressType { ipv4(1), ipv6(2) }

DESCRIPTION

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

OBJECT radiusDynAuthServerAddress

SYNTAX InetAddress (SIZE(4|16))

DESCRIPTION

"An implementation is only required to support IPv4 and

globally unique IPv6 addresses."

GROUP                    radiusDynAuthClientAuthOnlyGroup  
DESCRIPTION  
    "Only required for Dynamic Authorization Clients that  
    are supporting Service-Type attributes with value  
    'Authorize-Only'."

GROUP                    radiusDynAuthClientNoSessGroup  
DESCRIPTION  
    "This group is not required in case the Dynamic  
    Authorization Server can not easily determine whether  
    a session exists or not (e.g., in case of a RADIUS  
    proxy)."

::= { radiusDynAuthClientMIBCompliances 1 }

-- units of conformance

radiusDynAuthClientMIBGroup OBJECT-GROUP  
    OBJECTS { radiusDynAuthClientDisconInvalidServerAddresses,  
              radiusDynAuthClientCoAInvalidServerAddresses,  
              radiusDynAuthClientCounterDiscontinuity,  
              radiusDynAuthServerAddressType,  
              radiusDynAuthServerAddress,  
              radiusDynAuthServerClientPortNumber,  
              radiusDynAuthServerID,

radiusDynAuthClientRoundTripTime,  
radiusDynAuthClientDisconRequests,  
radiusDynAuthClientDisconRetransmissions,  
radiusDynAuthClientDisconAcks,  
radiusDynAuthClientDisconNaks,  
radiusDynAuthClientMalformedDisconResponses,  
radiusDynAuthClientDisconBadAuthenticators,  
radiusDynAuthClientDisconPendingRequests,  
radiusDynAuthClientDisconTimeouts,  
radiusDynAuthClientDisconPacketsDropped,  
radiusDynAuthClientCoARequests,  
radiusDynAuthClientCoARetransmissions,

```

        radiusDynAuthClientCoAAcks,
        radiusDynAuthClientCoANaks,
        radiusDynAuthClientMalformedCoAResponses,
        radiusDynAuthClientCoABadAuthenticators,
        radiusDynAuthClientCoAPendingRequests,
        radiusDynAuthClientCoATimeouts,
        radiusDynAuthClientCoAPacketsDropped,
        radiusDynAuthClientUnknownTypes
    }
STATUS current
DESCRIPTION
    "The collection of objects providing management of
    a RADIUS Dynamic Authorization Client."
 ::= { radiusDynAuthClientMIBGroups 1 }

radiusDynAuthClientAuthOnlyGroup OBJECT-GROUP
OBJECTS { radiusDynAuthClientDisconAuthOnlyRequests,
          radiusDynAuthClientDisconNakAuthOnlyRequest,
          radiusDynAuthClientCoAAuthOnlyRequest,
          radiusDynAuthClientCoANakAuthOnlyRequest
        }
STATUS current
DESCRIPTION
    "The collection of objects supporting the RADIUS
    messages including Service-Type attribute with
    value 'Authorize Only'."
 ::= { radiusDynAuthClientMIBGroups 2 }

radiusDynAuthClientNoSessGroup OBJECT-GROUP
OBJECTS { radiusDynAuthClientDisconNakSessNoContext,
          radiusDynAuthClientCoANakSessNoContext
        }
STATUS current
DESCRIPTION
    "The collection of objects supporting the RADIUS
    messages that are referring to non existing sessions."

```

```
 ::= { radiusDynAuthClientMIBGroups 3 }
```

END



## 5. Security Considerations

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

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. These are the tables and objects and their sensitivity/vulnerability:

radiusDynAuthServerAddress and radiusDynAuthServerAddressType

These can be used to determine the address of the DAS with which the DAC is communicating. This information could be useful in mounting an attack on the DAS.

radiusDynAuthServerID

This can be used to determine the Identifier of the DAS. This information could be useful in impersonating the DAS.

radiusDynAuthServerClientPortNumber

This can be used to determine the destination port number to which the DAC is sending. This information could be useful in mounting an attack on the DAS.

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.

## [6.](#) IANA considerations

IANA is requested to assign an OID under mib-2.

## [7.](#) Acknowledgements

The authors would also like to acknowledge the following people for their comments on this document: Bernard Aboba, Alan DeKok, David Nelson, Anjaneyulu Pata, Dan Romascanu, Juergen Schoenwaelder, Greg Weber, Bert Wijnen and Glen Zorn.

## [8.](#) References

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

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [RFC 2119](#), March 1997.
- [RFC2578] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M., and S. Waldbusser, "Structure of Management Information Version 2 (SMIV2)", STD 58, [RFC 2578](#), April 1999.
- [RFC2579] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M., and S. Waldbusser, "Textual Conventions for SMIV2", STD 58, [RFC 2579](#), April 1999.
- [RFC2580] McCloghrie, K., Perkins, D., Schoenwaelder, J., Case, J., Rose, M., and S. Waldbusser, "Conformance Statements for SMIV2", STD 58, [RFC 2580](#), April 1999.
- [RFC3411] Harrington, D., Presuhn, R., and B. Wijnen, "An

Architecture for Describing Simple Network Management Protocol (SNMP) Management Frameworks", STD 62, [RFC 3411](#), December 2002.

[RFC3576] Chiba, M., Dommetry, G., Eklund, M., Mitton, D., and B. Aboba, "Dynamic Authorization Extensions to Remote Authentication Dial In User Service (RADIUS)", [RFC 3576](#), July 2003.

[RFC4001] Daniele, M. and et al., "Textual Conventions for Internet Network Addresses", [RFC 4001](#), February 2005.

## [8.2](#). Informative References

[DYN SERV] De Cnodder, S., Jonnala, N., and M. Chiba, "RADIUS Dynamic Authorization Server MIB", [draft-ietf-radext-dynauth-server-mib-05.txt](#), work in progress, December 2005.

[RFC2619bis] Nelson, D., "RADIUS Auth Server MIB (IPv6)", [draft-ietf-radext-rfc2619bis-01.txt](#) work in progress, October 2005.

[RFC2621bis] Nelson, D., "RADIUS Acct Server MIB (IPv6)", [draft-ietf-radext-rfc2621bis-01.txt](#) work in progress,

De Cnodder, et al. Expires September 30, 2006 [Page 27]

---

Internet-Draft Dynamic Authorization Client MIB March 2006

October 2005.

[RFC2865] Rigney, C., Willens, S., Rubens, A., and W. Simpson, "Remote Authentication Dial In User Service (RADIUS)", [RFC 2865](#), June 2000.

[RFC3410] Case, J., Mundy, R., Partain, D., and B. Stewart, "Introduction and Applicability Statements for Internet-Standard Management Framework", [RFC 3410](#), December 2002.

De Cnodder, et al.

Expires September 30, 2006

[Page 28]

---

Internet-Draft

Dynamic Authorization Client MIB

March 2006

#### Authors' Addresses

Stefaan De Cnodder  
Alcatel  
Francis Wellesplein 1  
B-2018 Antwerp  
Belgium

Phone: +32 3 240 85 15  
Email: stefaan.de\_cnodder@alcatel.be

Nagi Reddy Jonnala  
Cisco Systems, Inc.  
Divyasree Chambers, B Wing, O'Shaughnessy Road  
Bangalore-560027, India

Phone: +91 94487 60828  
Email: njonnala@cisco.com

Murtaza Chiba  
Cisco Systems, Inc.  
170 West Tasman Dr.  
San Jose CA, 95134

Phone: +1 408 525 7198  
Email: mchiba@cisco.com

## Intellectual Property Statement

The IETF takes no position regarding the validity or scope of any Intellectual Property Rights or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights. Information on the procedures with respect to rights in RFC documents can be found in [BCP 78](#) and [BCP 79](#).

Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF on-line IPR repository at <http://www.ietf.org/ipr>.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at [ietf-ipr@ietf.org](mailto:ietf-ipr@ietf.org).

## Disclaimer of Validity

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

## Copyright Statement

Copyright (C) The Internet Society (2006). This document is subject to the rights, licenses and restrictions contained in [BCP 78](#), and except as set forth therein, the authors retain all their rights.

## Acknowledgment

Funding for the RFC Editor function is currently provided by the Internet Society.

