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RADIUS Dynamic Authorization Client MIB

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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.

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1. Introduction

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.

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 [RFC4669] and [RFC4671], respectively.

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 that processes the Disconnect and Change-of-Authorization (CoA) Request packets [RFC3576] sent by the Dynamic Authorization Client.

Dynamic Authorization Client (DAC)

The component that sends Disconnect and CoA-Request packets to the Dynamic Authorization Server. Although this component often resides 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, RFC 2578 [RFC2578], STD 58, RFC 2579 [RFC2579], and STD 58, RFC 2580 [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. [RFC4673] 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. Two scalar objects
2. One Dynamic Authorization Server table. This table contains one row for each DAS with which the DAC shares a secret.

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 "200608290000Z" -- 29 August 2006
    ORGANIZATION "IETF RADEXT Working Group"
    CONTACT-INFO
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```

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DESCRIPTION

"The MIB module for entities implementing the client side of the Dynamic Authorization Extensions to the Remote Authentication Dial-In User Service (RADIUS) protocol. Copyright (C) The Internet Society (2006). Initial version as published in RFC 4672; for full legal notices see the RFC itself."

REVISION "200609290000Z" -- 29 August 2006

DESCRIPTION "Initial version as published in RFC 4672"
 ::= { mib-2 145 }

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 }

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,
radiusDynAuthClientCoARetransmissions          Counter32,
radiusDynAuthClientCoAAcks                     Counter32,
radiusDynAuthClientCoANaks                     Counter32,
radiusDynAuthClientCoANakAuthOnlyRequest       Counter32,
radiusDynAuthClientCoANakSessNoContext         Counter32,
radiusDynAuthClientMalformedCoAResponses       Counter32,
radiusDynAuthClientCoABadAuthenticators        Counter32,
radiusDynAuthClientCoAPendingRequests          Gauge32,
radiusDynAuthClientCoATimeouts                 Counter32,
radiusDynAuthClientCoAPacketsDropped           Counter32,
radiusDynAuthClientUnknownTypes                Counter32,
radiusDynAuthClientCounterDiscontinuity        TimeTicks
}

```

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 (1..65535)
    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
        receipt of the corresponding Disconnect or CoA reply.
        A value of zero is returned if 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
        "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
```

```
    "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 if 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 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 that 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 a Disconnect-Ack, a Disconnect-NAK, 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 and as a timeout. A send to a different server is counted as a Disconnect-Request and 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
    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 }

radiusDynAuthClientCoARe transmissions 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

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS CoA-Ack and CoA-NAK packets that 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, a 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 and as a timeout. A send to
    a different server is counted as a CoA-Request and
    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
    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
    that 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 }

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 last counter discontinuity. A discontinuity may be the result of a reinitialization of the DAC module within the managed entity."

::= { radiusDynAuthServerEntry 32 }

-- 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 if the Dynamic
    Authorization Server cannot easily determine whether
    a session exists (e.g., in case of a RADIUS
    proxy)."
```

```
::= { radiusDynAuthClientMIBCompliances 1 }
```

```
-- units of conformance
```

```
radiusDynAuthClientMIBGroup OBJECT-GROUP
    OBJECTS { radiusDynAuthClientDisconInvalidServerAddresses,
              radiusDynAuthClientCoAInvalidServerAddresses,
              radiusDynAuthServerAddressType,
              radiusDynAuthServerAddress,
              radiusDynAuthServerClientPortNumber,
              radiusDynAuthServerID,
              radiusDynAuthClientRoundTripTime,
              radiusDynAuthClientDisconRequests,
              radiusDynAuthClientDisconRetransmissions,
              radiusDynAuthClientDisconAcks,
              radiusDynAuthClientDisconNaks,
              radiusDynAuthClientMalformedDisconResponses,
              radiusDynAuthClientDisconBadAuthenticators,
              radiusDynAuthClientDisconPendingRequests,
              radiusDynAuthClientDisconTimeouts,
              radiusDynAuthClientDisconPacketsDropped,
              radiusDynAuthClientCoARequests,
              radiusDynAuthClientCoARetransmissions,
              radiusDynAuthClientCoAAcks,
              radiusDynAuthClientCoANaks,
              radiusDynAuthClientMalformedCoAResponses,
              radiusDynAuthClientCoABadAuthenticators,
              radiusDynAuthClientCoAPendingRequests,
              radiusDynAuthClientCoATimeouts,
              radiusDynAuthClientCoAPacketsDropped,
              radiusDynAuthClientUnknownTypes,
              radiusDynAuthClientCounterDiscontinuity
            }
    STATUS current
```

```

DESCRIPTION
    "The collection of objects providing management of
    a RADIUS Dynamic Authorization Client."
 ::= { radiusDynAuthClientMIBGroups 1 }

radiusDynAuthClientAuthOnlyGroup OBJECT-GROUP
OBJECTS { radiusDynAuthClientDisconAuthOnlyRequests,
           radiusDynAuthClientDisconNakAuthOnlyRequest,
           radiusDynAuthClientCoAAAuthOnlyRequest,
           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

The IANA has assigned OID number 145 under mib-2.

7. Acknowledgements

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