RADIUS Dynamic Authorization Client MIB

Status of This Memo

This memo provides information for the Internet community. It does not specify an Internet standard of any kind. Distribution of this memo is unlimited.

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 ....................................................2
   1.1. Requirements Notation ....................................2
   1.2. Terminology ...............................................2
2. The Internet-Standard Management Framework ....................3
3. Overview ................................................................3
4. RADIUS Dynamic Authorization Client MIB Definitions ..........3
5. Security Considerations .........................................19
6. IANA Considerations .............................................20
7. Acknowledgements ................................................20
8. References .......................................................21
   8.1. Normative References ......................................21
   8.2. Informative References ....................................21
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
    " Stefaan De Cnodder"
DESCRIPTION

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,
radiusDynAuthClientCoAuthOnlyRequest  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 }

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
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
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

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


8.2. Informative References


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'Shaugnessy 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
Full 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.

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.

Intellectual Property

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.

Acknowledgement

Funding for the RFC Editor function is provided by the IETF Administrative Support Activity (IASA).