

Network Working Group
Request for Comments: 4673
Category: Informational

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

RADIUS Dynamic Authorization Server 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) (RFC 2865) Dynamic Authorization Server (DAS) 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	2
3. Overview	3
4. RADIUS Dynamic Authorization Server MIB Definitions	5
5. Security Considerations	20
6. IANA Considerations	21
7. Acknowledgements	21
8. References	21
8.1. Normative References	21
8.2. Informative References	22

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 Server (DAS) MIB complements the managed objects used for managing RADIUS authentication and accounting clients as described in [RFC4668] and [RFC4670], 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 it 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. Typically, NAS devices implement the DAS function, and thus would be expected to implement the RADIUS Dynamic Authorization Server MIB, whereas DACs implement the client function and thus would be expected to implement the RADIUS Dynamic Authorization Client MIB.

However, it is possible for a RADIUS Dynamic Authorization entity to perform both client and server functions. For example, a RADIUS proxy may act as a DAS to one or more DACs while simultaneously acting as a DAC to one or more DASs. In such situations, it is expected that RADIUS entities combining client and server functionality will support both the client and server MIBs.

This memo describes the MIB for Dynamic Authorization Servers and relates to the following documents as follows:

[RFC4668] describes the MIB for a RADIUS Auth Client MIB.

[RFC4669] describes the MIB for a RADIUS Auth Server MIB.

[RFC4670] describes the MIB for a RADIUS Acct Client MIB.

[RFC4671] describes the MIB for a RADIUS Acct Server MIB.

[RFC4672] describes the MIB for a RADIUS Dynamic Auth Client.

A NAS typically implements the MIBs for a RADIUS Authentication Client, a RADIUS accounting client, and a RADIUS Dynamic Authorization Server. However, any one MIB can be implemented without implementing any of the other MIBs; i.e., the MIBs have no dependencies on each other. A typical case would be for a device to implement the MIBs RADIUS authentication server, RADIUS accounting server, and RADIUS Dynamic Authorization Client. A RADIUS proxy might implement any, all, or a subset of the MIBs listed above and the MIB as defined in this document.

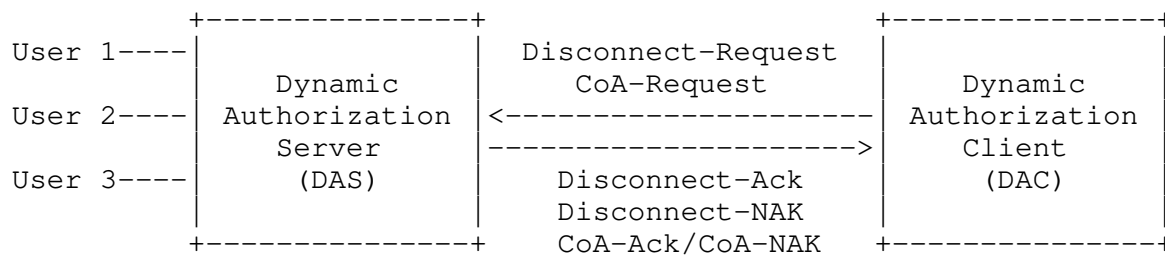


Figure 1. Mapping of clients and servers

This MIB module for the Dynamic Authorization Server contains the following:

1. Three scalar objects.
2. One Dynamic Authorization Client Table. This table contains one row for each DAC with which the DAS shares a secret.

4. RADIUS Dynamic Authorization Server MIB Definitions

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

```
IMPORTS
```

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

```
radiusDynAuthServerMIB MODULE-IDENTITY
```

```
    LAST-UPDATED "200608290000Z" -- 29 August 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'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 "
```

```
DESCRIPTION
```

```
    "The MIB module for entities implementing the server
    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 4673; for full legal notices see the RFC itself."

REVISION "200608290000Z" -- 29 August 2006

DESCRIPTION "Initial version as published in RFC 4673."

::= { mib-2 146 }

radiusDynAuthServerMIBObjects OBJECT IDENTIFIER ::=

{ radiusDynAuthServerMIB 1 }

radiusDynAuthServerScalars OBJECT IDENTIFIER ::=

{ radiusDynAuthServerMIBObjects 1 }

radiusDynAuthServerDisconInvalidClientAddresses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of Disconnect-Request packets received from unknown addresses. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

::= { radiusDynAuthServerScalars 1 }

radiusDynAuthServerCoAInvalidClientAddresses OBJECT-TYPE

SYNTAX Counter32

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of CoA-Request packets received from unknown addresses. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

::= { radiusDynAuthServerScalars 2 }

radiusDynAuthServerIdentifier OBJECT-TYPE

SYNTAX SnmpAdminString

MAX-ACCESS read-only

STATUS current

DESCRIPTION

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

REFERENCE

"RFC 2865, Section 5.32, NAS-Identifier."

::= { radiusDynAuthServerScalars 3 }

```

radiusDynAuthClientTable OBJECT-TYPE
    SYNTAX SEQUENCE OF RadiusDynAuthClientEntry
    MAX-ACCESS not-accessible
    STATUS current
    DESCRIPTION
        "The (conceptual) table listing the RADIUS Dynamic
        Authorization Clients with which the server shares a
        secret."
    ::= { radiusDynAuthServerMIBObjects 2 }

radiusDynAuthClientEntry OBJECT-TYPE
    SYNTAX      RadiusDynAuthClientEntry
    MAX-ACCESS not-accessible
    STATUS      current
    DESCRIPTION
        "An entry (conceptual row) representing one Dynamic
        Authorization Client with which the server shares a
        secret."
    INDEX       { radiusDynAuthClientIndex }
    ::= { radiusDynAuthClientTable 1 }

RadiusDynAuthClientEntry ::= SEQUENCE {
    radiusDynAuthClientIndex          Integer32,
    radiusDynAuthClientAddressType    InetAddressType,
    radiusDynAuthClientAddress        InetAddress,
    radiusDynAuthServDisconRequests   Counter32,
    radiusDynAuthServDisconAuthOnlyRequests Counter32,
    radiusDynAuthServDupDisconRequests Counter32,
    radiusDynAuthServDisconAcks       Counter32,
    radiusDynAuthServDisconNaks       Counter32,
    radiusDynAuthServDisconNakAuthOnlyRequests Counter32,
    radiusDynAuthServDisconNakSessNoContext Counter32,
    radiusDynAuthServDisconUserSessRemoved Counter32,
    radiusDynAuthServMalformedDisconRequests Counter32,
    radiusDynAuthServDisconBadAuthenticators Counter32,
    radiusDynAuthServDisconPacketsDropped Counter32,
    radiusDynAuthServCoARequests       Counter32,
    radiusDynAuthServCoAAuthOnlyRequests Counter32,
    radiusDynAuthServDupCoARequests    Counter32,
    radiusDynAuthServCoAAcks           Counter32,
    radiusDynAuthServCoANaks           Counter32,
    radiusDynAuthServCoANakAuthOnlyRequests Counter32,
    radiusDynAuthServCoANakSessNoContext Counter32,
    radiusDynAuthServCoAUserSessChanged Counter32,
    radiusDynAuthServMalformedCoARequests Counter32,
    radiusDynAuthServCoABadAuthenticators Counter32,
    radiusDynAuthServCoAPacketsDropped Counter32,
    radiusDynAuthServUnknownTypes      Counter32,

```

```
        radiusDynAuthServerCounterDiscontinuity      TimeTicks
    }

radiusDynAuthClientIndex OBJECT-TYPE
    SYNTAX      Integer32 (1..2147483647)
    MAX-ACCESS  not-accessible
    STATUS      current
    DESCRIPTION
        "A number uniquely identifying each RADIUS Dynamic
        Authorization Client with which this Dynamic
        Authorization Server communicates. This number is
        allocated by the agent implementing this MIB module
        and is unique in this context."
    ::= { radiusDynAuthClientEntry 1 }

radiusDynAuthClientAddressType OBJECT-TYPE
    SYNTAX      InetAddressType
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The type of IP address of the RADIUS Dynamic
        Authorization Client referred to in this table entry."
    ::= { radiusDynAuthClientEntry 2 }

radiusDynAuthClientAddress OBJECT-TYPE
    SYNTAX      InetAddress
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The IP address value of the RADIUS Dynamic
        Authorization Client 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 radiusDynAuthClientAddressType object."
    ::= { radiusDynAuthClientEntry 3 }

radiusDynAuthServDisconRequests OBJECT-TYPE
    SYNTAX      Counter32
    UNITS       "requests"
    MAX-ACCESS  read-only
    STATUS      current
    DESCRIPTION
        "The number of RADIUS Disconnect-Requests received
        from this Dynamic Authorization Client. This also
        includes the RADIUS Disconnect-Requests that have a
        Service-Type attribute with value 'Authorize Only'.
        This counter may experience a discontinuity when the
```


DAS module (re)starts as indicated by the value of
radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 4 }

radiusDynAuthServDisconAuthOnlyRequests 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'
received from this Dynamic Authorization Client. This
counter may experience a discontinuity when the DAS
module (re)starts, as indicated by the value of
radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 5 }

radiusDynAuthServDupDisconRequests OBJECT-TYPE

SYNTAX Counter32

UNITS "requests"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of duplicate RADIUS Disconnect-Request
packets received from this Dynamic Authorization
Client. This counter may experience a discontinuity
when the DAS module (re)starts, as indicated by the
value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 6 }

radiusDynAuthServDisconAcks OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Disconnect-ACK packets sent to
this Dynamic Authorization Client. This counter may
experience a discontinuity when the DAS module
(re)starts, as indicated by the value of
radiusDynAuthServerCounterDiscontinuity."

REFERENCE

"RFC 3576, Section 2.1, Disconnect Messages (DM)."
 ::= { radiusDynAuthClientEntry 7 }

radiusDynAuthServDisconNaks OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Disconnect-NAK packets sent to this Dynamic Authorization Client. This includes the RADIUS Disconnect-NAK packets sent with a Service-Type attribute with value 'Authorize Only' and the RADIUS Disconnect-NAK packets sent because no session context was found. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

"RFC 3576, Section 2.1, Disconnect Messages (DM)."
 ::= { radiusDynAuthClientEntry 8 }

radiusDynAuthServDisconNakAuthOnlyRequests 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' sent to this Dynamic Authorization Client. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

"RFC 3576, Section 2.1, Disconnect Messages (DM)."
 ::= { radiusDynAuthClientEntry 9 }

radiusDynAuthServDisconNakSessNoContext OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS Disconnect-NAK packets sent to this Dynamic Authorization Client because no session context was found. This counter may

experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 10 }

radiusDynAuthServDisconUserSessRemoved OBJECT-TYPE

SYNTAX Counter32

UNITS "sessions"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of user sessions removed for the Disconnect-Requests received from this Dynamic Authorization Client. Depending on site-specific policies, a single Disconnect request can remove multiple user sessions. In cases where this Dynamic Authorization Server has no knowledge of the number of user sessions that are affected by a single request, each such Disconnect-Request will count as a single affected user session only. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 11 }

radiusDynAuthServMalformedDisconRequests OBJECT-TYPE

SYNTAX Counter32

UNITS "requests"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of malformed RADIUS Disconnect-Request packets received from this Dynamic Authorization Client. Bad authenticators and unknown types are not included as malformed Disconnect-Requests. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 12 }

radiusDynAuthServDisconBadAuthenticators OBJECT-TYPE

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

"The number of RADIUS Disconnect-Request packets that contained an invalid Authenticator field received from this Dynamic Authorization Client. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 13 }

radiusDynAuthServDisconPacketsDropped OBJECT-TYPE

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

"The number of incoming Disconnect-Requests from this Dynamic Authorization Client silently discarded by the server application for some reason other than malformed, bad authenticators, or unknown types. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 14 }

radiusDynAuthServCoARequests OBJECT-TYPE

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

"The number of RADIUS CoA-requests received from this Dynamic Authorization Client. This also includes the CoA requests that have a Service-Type attribute with value 'Authorize Only'. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 15 }

radiusDynAuthServCoAAuthOnlyRequests 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' received from this Dynamic Authorization Client. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 16 }

radiusDynAuthServDupCoARequests OBJECT-TYPE

SYNTAX Counter32

UNITS "requests"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of duplicate RADIUS CoA-Request packets received from this Dynamic Authorization Client. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 17 }

radiusDynAuthServCoAAcks OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS CoA-ACK packets sent to this Dynamic Authorization Client. This counter may experience a discontinuity when the DAS module

(re)starts, as indicated by the value of
radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 18 }

radiusDynAuthServCoANaks OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

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

REFERENCE

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

::= { radiusDynAuthClientEntry 19 }

radiusDynAuthServCoANakAuthOnlyRequests 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'
sent to this Dynamic Authorization Client. This counter
may experience a discontinuity when the DAS module
(re)starts, as indicated by the value of
radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 20 }

radiusDynAuthServCoANakSessNoContext OBJECT-TYPE

SYNTAX Counter32

UNITS "replies"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of RADIUS CoA-NAK packets sent to this Dynamic Authorization Client because no session context was found. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 21 }

radiusDynAuthServCoAUserSessChanged OBJECT-TYPE

SYNTAX Counter32

UNITS "sessions"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"The number of user sessions authorization changed for the CoA-Requests received from this Dynamic Authorization Client. Depending on site-specific policies, a single CoA request can change multiple user sessions' authorization. In cases where this Dynamic Authorization Server has no knowledge of the number of user sessions that are affected by a single request, each such CoA-Request will count as a single affected user session only. This counter may experience a discontinuity when the DAS module (re)starts, as indicated by the value of radiusDynAuthServerCounterDiscontinuity."

REFERENCE

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

::= { radiusDynAuthClientEntry 22 }

radiusDynAuthServMalformedCoARequests OBJECT-TYPE

SYNTAX Counter32

UNITS "requests"

MAX-ACCESS read-only

STATUS current

DESCRIPTION

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

REFERENCE

"RFC 3576, Section 2.2, Change-of-Authorization
Messages (CoA), and Section 2.3, Packet Format."
 ::= { radiusDynAuthClientEntry 23 }

radiusDynAuthServCoABadAuthenticators OBJECT-TYPE

SYNTAX Counter32
UNITS "requests"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of RADIUS CoA-Request packets that
contained an invalid Authenticator field received
from this Dynamic Authorization Client. This counter
may experience a discontinuity when the DAS module
(re)starts, as indicated by the value of
radiusDynAuthServerCounterDiscontinuity."
REFERENCE
"RFC 3576, Section 2.2, Change-of-Authorization
Messages (CoA), and Section 2.3, Packet Format."
 ::= { radiusDynAuthClientEntry 24 }

radiusDynAuthServCoAPacketsDropped OBJECT-TYPE

SYNTAX Counter32
UNITS "requests"
MAX-ACCESS read-only
STATUS current
DESCRIPTION
"The number of incoming CoA packets from this
Dynamic Authorization Client silently discarded
by the server application for some reason other than
malformed, bad authenticators, or unknown types. This
counter may experience a discontinuity when the DAS
module (re)starts, as indicated by the value of
radiusDynAuthServerCounterDiscontinuity."
REFERENCE
"RFC 3576, Section 2.2, Change-of-Authorization
Messages (CoA), and Section 2.3, Packet Format."
 ::= { radiusDynAuthClientEntry 25 }

radiusDynAuthServUnknownTypes OBJECT-TYPE

SYNTAX Counter32
UNITS "requests"
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 DAS


```

        module (re)starts, as indicated by the value of
        radiusDynAuthServerCounterDiscontinuity."
REFERENCE
    "RFC 3576, Section 2.3, Packet Format."
 ::= { radiusDynAuthClientEntry 26 }

radiusDynAuthServerCounterDiscontinuity 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 DAS
        module within the managed entity."
    ::= { radiusDynAuthClientEntry 27 }

-- conformance information

radiusDynAuthServerMIBConformance
    OBJECT IDENTIFIER ::= { radiusDynAuthServerMIB 2 }
radiusDynAuthServerMIBCompliances
    OBJECT IDENTIFIER ::= { radiusDynAuthServerMIBConformance 1 }
radiusDynAuthServerMIBGroups
    OBJECT IDENTIFIER ::= { radiusDynAuthServerMIBConformance 2 }

-- compliance statements

radiusAuthServerMIBCompliance MODULE-COMPLIANCE
    STATUS current
    DESCRIPTION
        "The compliance statement for entities implementing
        the RADIUS Dynamic Authorization Server. Implementation
        of this module is for entities that support IPv4 and/or
        IPv6."
    MODULE -- this module
    MANDATORY-GROUPS { radiusDynAuthServerMIBGroup }

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

    OBJECT radiusDynAuthClientAddress
    SYNTAX InetAddress (SIZE(4|16))

```

DESCRIPTION

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

GROUP

radiusDynAuthServerAuthOnlyGroup

DESCRIPTION

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

GROUP

radiusDynAuthServerNoSessGroup

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)."

::= { radiusDynAuthServerMIBCompliances 1 }

-- units of conformance

radiusDynAuthServerMIBGroup OBJECT-GROUP

OBJECTS { radiusDynAuthServerDisconInvalidClientAddresses,
radiusDynAuthServerCoAInvalidClientAddresses,
radiusDynAuthServerIdentifier,
radiusDynAuthClientAddressType,
radiusDynAuthClientAddress,
radiusDynAuthServDisconRequests,
radiusDynAuthServDupDisconRequests,
radiusDynAuthServDisconAcks,
radiusDynAuthServDisconNaks,
radiusDynAuthServDisconUserSessRemoved,
radiusDynAuthServMalformedDisconRequests,
radiusDynAuthServDisconBadAuthenticators,
radiusDynAuthServDisconPacketsDropped,
radiusDynAuthServCoARequests,
radiusDynAuthServDupCoARequests,
radiusDynAuthServCoAAcks,
radiusDynAuthServCoANaks,
radiusDynAuthServCoAUserSessChanged,
radiusDynAuthServMalformedCoARequests,
radiusDynAuthServCoABadAuthenticators,
radiusDynAuthServCoAPacketsDropped,
radiusDynAuthServUnknownTypes,
radiusDynAuthServerCounterDiscontinuity
}

STATUS current

DESCRIPTION

"The collection of objects providing management of
a RADIUS Dynamic Authorization Server."

::= { radiusDynAuthServerMIBGroups 1 }

radiusDynAuthServerAuthOnlyGroup OBJECT-GROUP

OBJECTS { radiusDynAuthServDisconAuthOnlyRequests,
radiusDynAuthServDisconNakAuthOnlyRequests,
radiusDynAuthServCoAAuthOnlyRequests,
radiusDynAuthServCoANakAuthOnlyRequests
}

STATUS current

DESCRIPTION

"The collection of objects supporting the RADIUS
messages including Service-Type attribute with
value 'Authorize Only'."

::= { radiusDynAuthServerMIBGroups 2 }

radiusDynAuthServerNoSessGroup OBJECT-GROUP

OBJECTS { radiusDynAuthServDisconNakSessNoContext,
radiusDynAuthServCoANakSessNoContext
}

STATUS current

DESCRIPTION

"The collection of objects supporting the RADIUS
messages that are referring to non-existing sessions."

::= { radiusDynAuthServerMIBGroups 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:

radiusDynAuthClientAddress and radiusDynAuthClientAddressType

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

radiusDynAuthServerIdentifier

This can be used to determine the Identifier of the DAS. This information could be useful in impersonating 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 146 under mib-2.

7. Acknowledgements

The authors would 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", BCP 14, RFC 2119, March 1997.
- [RFC2578] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Structure of Management Information Version 2 (SMIv2)", STD 58, RFC 2578, April 1999.
- [RFC2579] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "Textual Conventions for SMIv2", STD 58, RFC 2579, April 1999.
- [RFC2580] McCloghrie, K., Perkins, D., and J. Schoenwaelder, "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., Dommety, 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., Haberman, B., Routhier, S., and J. Schoenwaelder, "Textual Conventions for Internet Network Addresses", RFC 4001, February 2005.

8.2. Informative References

- [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.
- [RFC4668] Nelson, D., "RADIUS Authentication Client MIB for IPv6", RFC 4668, August 2006.
- [RFC4669] Nelson, D., "RADIUS Authentication Server MIB for IPv6", RFC 4669, August 2006.
- [RFC4670] Nelson, D., "RADIUS Accounting Client MIB for IPv6", RFC 4670, August 2006.
- [RFC4671] Nelson, D., "RADIUS Accounting Server MIB for IPv6", RFC 4671, August 2006.
- [RFC4672] De Cnodder, S., Jonnala, N., and M. Chiba, "RADIUS Dynamic Authorization Client MIB", RFC 4672, September 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'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).

