

# 如何在ASR9K上为BNG用户处理多操作CoA数据包

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## 简介

本文档介绍如何在ASR9K平台上进行授权更改(CoA)处理，以及在ASR9K上对其进行故障排除。

## 先决条件

### 要求

Cisco 建议您了解以下主题：

- ASR9K上的BNG功能
- Radius属性

提示：有关详细信息，请[参阅Broadband Network Gateway Configuration Guide](#)。

### 使用的组件

本文档中的信息基于以下软件和硬件版本：

- 运行533版本的ASR9001。
- Free-radius服务器。

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

# 背景信息

授权更改(CoA)是RADIUS标准的扩展，允许从RADIUS服务器向RADIUS客户端发送异步消息。CoA的主要原因是允许RADIUS服务器更改已授权用户的授权行为。IETF RFC 3576中定义了RADIUS的CoA扩展。

**Multi-Action CoA(MA-CoA)**功能扩展了当前BNG CoA功能，以支持单个CoA请求中的多个service activate和service deactivate命令：

多动作CoA(MA-CoA)的理念是，它将允许互联网服务提供商以从他们的角度看原子的方式激活/停用多种服务。

## MA-COA使用案例

这是MA-CoA的示例，从非常高的功能级别。

- PTA会话会启动重定向到服务门户 ( HTTP重定向 ) 的Web流量。
- 通过服务门户，客户激活了第一级服务。这会导致具有以下功能的多操作CoA请求：
  - 停用重定向
  - 激活Turbo按钮1
  - 例如，激活带有2个通道的VoIP
- 通过服务门户，客户激活二级服务。这会导致多操作CoA请求：
  - 停用Turbo按钮1
  - 激活Turbo按钮2
  - 停用具有2个通道的VoIP
  - 激活具有4个通道的VoIP

在MA-CoA中，如果CoA请求中的任何服务未能激活/停用，则作为该CoA请求的一部分激活/停用的任何服务都必须回滚回退。实质上，当激活/停用失败时，会话必须恢复到MA-CoA之前的状态。但是，在某些极少数情况下，可能无法完全回滚。例如，考虑在多操作CoA处理过程中放弃资源 ( 例如内存、TCAM条目、IP地址等 ) 的情况。如果随后的CoA发生故障，这些资源可能不再可用，因此可能无法完全回滚操作。如果发生回滚故障，将执行以下操作：

- 如果在控制策略中配置了coa-rollback-failure异常，则将执行为rollback-failure类指定的操作。例如，您可以断开会话。但是，MA-CoA回滚故障的默认操作是保留会话。

```
policy-map type control subscriber WDAAR_NOVA_POLICY
  event exception match-first
  class type control subscriber coa-rollback-failure do-all
    10 disconnect
  !
end-policy-map
```

- 如果未在控制策略中配置coa-rollback-failure异常，则控制台上将生成系统日志错误。

CoA处理的分配方式是，请求可在RP ( 用于基于捆绑的会话 ) 或LC ( 用于基于LC的会话 ) 上处理。

图1.显示较高级别的CoA消息流。

## MA-CoA呼叫流

以下是处理MA-CoA请求时涉及的呼叫流程示例（非常高）：

1. CoA客户端使用以下命令发送MA-CoA请求： 停用服务服务 — 互联网激活服务 — 音频激活服务 — 视频
2. Radiusd将新定义的思科通用VSA转换为标准AAA\_AT属性，并传递到策略平面。
3. 策略平面命令处理程序向SubDB发起服务**Service-Internet**的取消关联请求和服务**Service-Audio & Service-Video**的关联请求，然后向SubDB发起生产 — 完成请求。
4. SubDB执行必要的取消关联/关联，并与其BPI客户端协调以将必要的配置应用到硬件。然后，SubDB将Produce Done(config applied)消息发送到策略平面。
5. 策略平面命令处理程序通过radiusd将CoA ACK发送到CoA客户端。
6. 如果已对服务**Service-Internet**启用服务级别记帐，则策略平面记帐协调器向RADIUS服务器发出记帐停止请求。同样，如果为服务**Service-Audio**或**Service-Video**启用服务级别记帐，则策略平面记帐协调器会为这些服务向RADIUS服务器发出记帐开始请求。

## 配置

使用本节中介绍的信息配置本文档中介绍的功能。

## 网络图

以下拓扑用于测试MA-CoA。

**注意：**在此拓扑中，Radius服务器和策略服务器/CoA客户端是同一个框。此设置使用拓扑中的Free Radius并使用radclient发送CoA数据包来模拟MA-CoA场景。

## 配置

### ASR9K

```
interface Bundle-Ether1.200
  ipv4 point-to-point
  ipv4 unnumbered Loopback200
  service-policy type control subscriber WDAAR_NOVA_POLICY
  encapsulation dot1q 200
  ipsubscriber ipv4 l2-connected
  initiator dhcp
  initiator unclassified-source
```

以下控制策略用于启动IPoE会话。

```
policy-map type control subscriber WDAAR_NOVA_POLICY
  event session-start match-first
  class type control subscriber DHCP do-until-failure
```

```

    10 activate dynamic-template DT_NOVA_DHCP
    20 authorize aaa list WDAAR format WDAAR_USERNAME_NOVA password cisco
!
class type control subscriber WDAAR_STATIC do-until-failure
    10 activate dynamic-template DT_NOVA_STATIC
    20 authorize aaa list WDAAR format WDAAR_IP_STATIC password cisco
!
!
event authentication-no-response match-first
class type control subscriber class-default do-all
    10 activate dynamic-template WDAAR_NOVA_ACCT_START
    20 activate dynamic-template WDAAR_NOVA_NET50
!
!
end-policy-map
!

dynamic-template
type ipsubscriber DT_NOVA_DHCP
    ipv4 unnumbered Loopback201
!
!
interface Loopback201
    ipv4 address 199.195.148.1 255.255.255.0
!

dynamic-template
type ipsubscriber WDAAR_NOVA_ACCT_START
accounting aaa list WDAAR type session periodic-interval 5
!
!

dynamic-template
type service WDAAR_NOVA_NET50
    service-policy input WDAAR_10Mbps
    service-policy output WDAAR_Upload
!
!

```

**注：**为了模拟IPoE用户，IXIA客户端用于模拟DHCP客户端。

为了模拟MA-CoA行为，配置了两个QoS策略，限制入站和出站方向的流量。

- WDAAR\_DAY\_PACKAGE
- WDAAR\_NIGHT\_PACKAGE

```

dynamic-template
type service WDAAR_DAY_PACKAGE
    service-policy input WDAAR_Internet_Service_10Mbps_IN
    service-policy output WDAAR_Internet_Service_10Mbps_OUT
    accounting aaa list WDAAR type service periodic-interval 10
!
!

dynamic-template
type service WDAAR_NIGHT_PACKAGE
    service-policy input WDAAR_Internet_Service_5Mbps_IN
    service-policy output WDAAR_Internet_Service_5Mbps_OUT
    accounting aaa list WDAAR type service periodic-interval 10
!
!

```

对于DAY包和NIGHT包，策略配置为在入站和输出方向将流量管制到10Mbps，限制为5Mbps。

```
policy-map WDAAR_Internet_Service_5Mbps_IN
  class class-default
    police rate 5486 kbps
  !
!
policy-map WDAAR_Internet_Service_5Mbps_OUT
  class class-default
    police rate 5486 kbps
  !
!

policy-map WDAAR_Internet_Service_10Mbps_IN
  class class-default
    police rate 10486 kbps
  !
!
policy-map WDAAR_Internet_Service_10Mbps_OUT
  class class-default
    police rate 10486 kbps
  !
!
```

## 确认

本节提供可用于验证MA-CoA是否正常工作的信息。

ASR9K上的IPoE用户会话。

```
RP/0/RSP0/CPU0:acdc-asr9000-4#show subscriber session all detail
Mon Jul 27 11:24:46.467 UTC
Interface:                Bundle-Ether1.200.ip18010
Circuit ID:               Unknown
Remote ID:                Unknown
Type:                    IP: DHCP-trigger
IPv4 State:              Up, Mon Jul 27 11:23:10 2015
IPv4 Address:            172.188.243.147, VRF: default
Mac Address:             0000.6602.0102
Account-Session Id:     00004729
Nas-Port:                Unknown
User name:               0000.6602.0102
Formatted User name:    0000.6602.0102
Client User name:       unknown
Outer VLAN ID:          200
Subscriber Label:       0x00000048
Created:                 Mon Jul 27 11:23:08 2015
State:                   Activated
Authentication:         unauthenticated
Authorization:           authorized
Access-interface:       Bundle-Ether1.200
Policy Executed:
policy-map type control subscriber WDAAR_NOVA_POLICY
  event Session-Start match-first [at Mon Jul 27 11:23:08 2015]
  class type control subscriber DHCP do-until-failure [Succeeded]
    10 activate dynamic-template DT_NOVA_DHCP [Succeeded]
    20 authorize aaa list WDAAR [Succeeded]
Session Accounting:
  Acct-Session-Id:      00004729
```

```

Method-list:          WDAAR
Accounting started:   Mon Jul 27 11:23:10 2015
Interim accounting:   On, interval 2 mins
  Last successful update: Never
  Next update in:     00:00:24 (dhms)
Service Accounting:   WDAAR_DAY_PACKAGE
Acct-Session-Id:     0000472a
Method-list:          WDAAR
Accounting started:   Mon Jul 27 11:23:10 2015
Interim accounting:   On, interval 10 mins
  Last successful update: Never
  Next update in:     00:08:24 (dhms)
Last COA request received: unavailable

```

现在，如果您使用隐藏关键字**internal**检查会话的详细信息，您可以看到您从radius收到的AVP。如果在启动会话时在ASR9K上启用调试，也可以看到这一点。从会话输出中，您可以看到，当订户联机时，您应用了**WDAAR\_DAY\_PACKAGE**，并且还启用了会话记账和服务记账。

```

RP/0/RSP0/CPU0:acdc-asr9000-4#show subscriber session all detail internal
Mon Jul 27 11:27:10.554 UTC

```

```

Interface:           Bundle-Ether1.200.ip18010
Circuit ID:          Unknown
Remote ID:           Unknown
Type:                IP: DHCP-trigger
IPv4 State:          Up, Mon Jul 27 11:23:10 2015
IPv4 Address:        172.188.243.147, VRF: default
IPv4 Up helpers:     0x00000040 {IPSUB}
IPv4 Up requestors:  0x00000040 {IPSUB}
Mac Address:         0000.6602.0102
Account-Session Id: 00004729 Nas-Port:          Unknown
User name:           0000.6602.0102
Formatted User name: 0000.6602.0102
Client User name:    unknown
Outer VLAN ID: 200
Subscriber Label: 0x00000048
Created:             Mon Jul 27 11:23:08 2015
State:               Activated
Authentication:     unauthenticated
Authorization:       authorized
Ifhandle: 0x000abc20 Session History ID:      1
Access-interface:   Bundle-Ether1.200
SRG Flags:          0x00000000
Policy Executed:

```

```

  event Session-Start match-first [at Mon Jul 27 11:23:08 2015]
  class type control subscriber DHCP do-until-failure [Succeeded]
    10 activate dynamic-template DT_NOVA_DHCP [cerr: No error][aaa: Success]
    20 authorize aaa list WDAAR [cerr: No error][aaa: Success]

```

```

Session Accounting:
Acct-Session-Id:     00004729
Method-list:         WDAAR
Accounting started:   Mon Jul 27 11:23:10 2015
Interim accounting:   On, interval 2 mins
  Last successful update: Mon Jul 27 11:25:10 2015
  Next update in:     00:02:00 (dhms)
  Last update sent:   Mon Jul 27 11:25:10 2015
  Updates sent:       1
  Updates accepted:   1
  Updates rejected:   0
  Update send failures: 0
Service Accounting:   WDAAR_DAY_PACKAGE

```

```

Acct-Session-Id:      0000472a
Method-list:          WDAAR
Accounting started:   Mon Jul 27 11:23:10 2015
Interim accounting:   On, interval 10 mins
  Last successful update: Never
  Next update in:     00:06:00 (dhms)
  Last update sent:   Never
  Updates sent:       0
  Updates accepted:   0
  Updates rejected:   0
  Update send failures: 0
Accounting stop state: Final stats available

```

**Last COA request received: unavailable**

User Profile received from AAA:

Attribute List: 0x50105e7c

**1: acct-interval len= 4 value= 120(78) 2: accounting-list len= 5 value= WDAAR** Pending Callbacks:

InterimAcct>StatsD,

Services:

```

Name       : DT_NOVA_DHCP
Service-ID : 0x4000016
Type       : Template
Status     : Applied

```

```

-----
Name       : WDAAR_DAY_PACKAGE
Service-ID : 0x400001a
Type       : Multi Template
Status     : Applied

```

[Event History]

```

Jul 27 11:23:08.672 IPv4 Start
Jul 27 11:23:10.080 SUBDB produce done
Jul 27 11:23:10.080 IPv4 Up

```

如果要查看用户会话的CoA和radius数据包，可以启用这些调试。

- debug radius
- debug radius dynamic-author

**注意：**您可以启用**debug radius filter mac-address**，以仅过滤特定的mac-address radius流量

o

```

RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: Send Access-Request to
10.48.88.121:56777 id 229, len 218
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: authenticator D0 EF B5 50 DD 9A 1A
84 - FB 36 5C FB 5C DB 96 FE
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 41
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: Cisco AVpair [1] 35 client-mac-
address=0000.6602.0102
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: Acct-Session-Id [44] 10 00004729
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: NAS-Port-Id [87] 11 0/0/1/200
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 17
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: cisco-nas-port [2] 11 0/0/1/200
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: User-Name [1] 16 0000.6602.0102
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: Service-Type [6] 6 Outbound[0]
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: User-Password [2] 18 *
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: NAS-Port-Type [61] 6
VIRTUAL_IPOEOVLAN[0]
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: Event-Timestamp [55] 6 1437996188
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 23
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: Cisco AVpair [1] 17 dhcp-client-id=
RP/0/RSP0/CPU0:Jul 27 11:23:08.706 : radiusd[1133]: RADIUS: Nas-Identifier [32] 16 acdc-asr9000-

```

```

RP/0/RSP0/CPU0:Jul 27 11:23:08.707 : radiusd[1133]: RADIUS: NAS-IP-Address [4] 6 10.48.88.54
RP/0/RSP0/CPU0:Jul 27 11:23:08.707 : radiusd[1133]: RADIUS: NAS-IPv6-Address [95] 22 1a 10 00 00
00 00 00 00 00 00 00 00 00 00 00 00
RP/0/RSP0/CPU0:Jul 27 11:23:08.707 : radiusd[1133]: RADIUS: 00 00 00 00
RP/0/RSP0/CPU0:Jul 27 11:23:08.707 : radiusd[1133]: Got global deadtime 0
RP/0/RSP0/CPU0:Jul 27 11:23:08.707 : radiusd[1133]: Using global deadtime = 0 sec
RP/0/RSP0/CPU0:Jul 27 11:23:08.707 : radiusd[1133]: Start timer thread rad_ident 229 remote_port
56777 remote_addr 10.48.88.121, socket 1342510940 rctx 0x50258020
RP/0/RSP0/CPU0:Jul 27 11:23:08.707 : radiusd[1133]: Successfully sent packet and started timeout
handler for rctx 0x50258020
RP/0/RSP0/CPU0:Jul 27 11:23:08.710 : radiusd[1133]: Radius packet decryption complete with rc =
0
RP/0/RSP0/CPU0:Jul 27 11:23:08.710 : radiusd[1133]: RADIUS: Received from id 229
10.48.88.121:56777, Access-Accept, len 105
RP/0/RSP0/CPU0:Jul 27 11:23:08.710 : radiusd[1133]: RADIUS: authenticator 9D 27 8C A5 28 C8 AE
2B - 58 56 08 DF C2 BA 06 28
RP/0/RSP0/CPU0:Jul 27 11:23:08.710 : radiusd[1133]: RADIUS: Acct-Interim-Interval[85] 6 120
RP/0/RSP0/CPU0:Jul 27 11:23:08.710 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 40
RP/0/RSP0/CPU0:Jul 27 11:23:08.710 : radiusd[1133]: RADIUS: Cisco AVpair [1] 34
subscriber:accounting-list=WDAAR
RP/0/RSP0/CPU0:Jul 27 11:23:08.710 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 39
RP/0/RSP0/CPU0:Jul 27 11:23:08.710 : radiusd[1133]: RADIUS: Cisco AVpair [1] 33
subscriber:sa=WDAAR_DAY_PACKAGE
RP/0/RSP0/CPU0:Jul 27 11:23:08.710 : radiusd[1133]: Freeing server group transaction_id
(3D000000)

```

不同组件的用户身份和凭证AAA属性存储在SADB(用户属性数据库)中。SADB不保存用户配置。您可以使用以下show命令查看该会话的所有属性。

- show subscriber manager sadb

```

RP/0/RSP0/CPU0:acdc-asr9000-4#show subscriber manager sadb
Mon Jul 27 12:13:36.273 UTC
Sublabel: 0x00000048 Node_ID: 00000001 Signature: 0xabcd12 Version: 1 Rev: 21
Length: 297
Attribute list: 1343184692
1: protocol-type len= 4 dhcp
2: dhcp-client-id len= 15
3: port-type len= 4 Virtual IP over VLAN
4: outer-vlan-id len= 4 200(c8)
5: client-mac-address len= 14 0000.6602.0102
6: parent-if-handle len= 4 1568(620)
7: string-session-id len= 8 00004729
8: interface len= 9 0/0/1/200
9: formatted-username len= 14 0000.6602.0102
10: username len= 14 0000.6602.0102
11: author_status len= 1 true
12: addr len= 4 172.188.243.147
13: if-handle len= 4 703520(abc20)
14: vrf-id len= 4 1610612736(60000000)
15: ipv4-session-state len= 1 true
16: accounting-list len= 5 WDAAR
17: start_time len= 4 Mon Jul 27 11:23:10 2015

```

还有另一个名为Subscriber Database(SubDB)的数据库存储配置以及配置与会话的关联。SubDB(用户数据库)用于管理BNG用户的动态配置。用户配置是一组预定义功能及其特定值。

```

RP/0/RSP0/CPU0:acdc-asr9000-4#show subscriber database association
Mon Jul 27 12:26:38.186 UTC

```



Location 0/RSP0/CPU0

Bundle-Ether1.200.ip18010, subscriber label 0x48

Name	Template Type
-----	-----
U00000048	User profile
<b>WDAAR_DAY_PACKAGE Service DT_NOVA_DHCP</b>	<b>IP subscriber</b>

您还可以使用过滤器**subscriber-label**来查看一个用户的信息。

- show subscriber database association subscriber-label <SUBSCRIBER-LABEL>

## MA-CoA测试

因为您已经应用了服务 **WDAAR\_DAY\_PACKAGE**在会话中，作为测试，您首先要从会话中删除 **WDAAR\_DAY\_PACKAGE**服务。现在您可以看到没有服务**WDAAR\_DAY\_PACKAGE** 在会话中处于活动状态。

```
RP/0/RSP0/CPU0:acdc-asr9000-4#show subscriber session all detail internal
Mon Jul 27 13:47:55.881 UTC
```

```
Interface:          Bundle-Ether1.200.ip18012
Circuit ID:         Unknown
Remote ID:          Unknown
Type:               IP: DHCP-trigger
IPv4 State:         Up, Mon Jul 27 13:33:22 2015
IPv4 Address:       172.188.243.147, VRF: default
IPv4 Up helpers:   0x00000040 {IPSUB}
IPv4 Up requestors: 0x00000040 {IPSUB}
Mac Address:        0000.6602.0102
Account-Session Id: 0000472d
Nas-Port:           Unknown
User name:          0000.6602.0102
Formatted User name: 0000.6602.0102
Client User name:   unknown
Outer VLAN ID:     200
Subscriber Label:   0x0000004a
Created:            Mon Jul 27 13:33:21 2015
State:              Activated
Authentication:     unauthenticated
Authorization:       authorized
Ifhandle:           0x000abca0
Session History ID: 1
Access-interface:   Bundle-Ether1.200
SRG Flags:          0x00000000
Policy Executed:
```

```
event Session-Start match-first [at Mon Jul 27 13:33:21 2015]
class type control subscriber DHCP do-until-failure [Succeeded]
  10 activate dynamic-template DT_NOVA_DHCP [cerr: No error][aaa: Success]
  20 authorize aaa list WDAAR [cerr: No error][aaa: Success]
```

Session Accounting:

```
Acct-Session-Id:    0000472d
Method-list:        WDAAR
Accounting started: Mon Jul 27 13:33:22 2015
Interim accounting: On, interval 2 mins
  Last successful update: Mon Jul 27 13:47:24 2015
  Next update in:     00:01:27 (dhms)
  Last update sent:   Mon Jul 27 13:47:24 2015
  Updates sent:       7
  Updates accepted:   7
```

```

Updates rejected:      0
Update send failures:  0
Accounting stop state: Final stats available
Last COA request: Mon Jul 27 13:47:50 2015
COA Request Attribute List: 0x50105f70
1: sd len= 17 value= WDAAR_DAY_PACKAGE 2: command len= 18 value= deactivate-service 3: service-
info len= 17 value= WDAAR_DAY_PACKAGE 4: service-name len= 17 value= WDAAR_DAY_PACKAGE Last COA
response: Result ACK
COA Response Attribute List: 0x50106180
1: sd len= 17 value= WDAAR_DAY_PACKAGE
User Profile received from AAA:
Attribute List: 0x50106390
1: acct-interval len= 4 value= 120(78)
2: accounting-list len= 5 value= WDAAR
Services:
Name      : DT_NOVA_DHCP
Service-ID : 0x4000016
Type      : Template
Status    : Applied

```

-----  
[Event History]

```

Jul 27 13:33:21.152 IPv4 Start
Jul 27 13:33:22.560 IPv4 Up
Jul 27 13:47:50.528 CoA request
Jul 27 13:47:50.784 SUBDB produce done [many]

```

如前所述，当服务取消关联时，ASR9K上的radiusd进程将记账停止发送到radius服务器。在调试中，此行为也得到了证实。

```

RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Send Accounting-Request to
10.48.88.121:56778 id 48, len 391
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: authenticator 6C E1 D2 2B 49 1A EE
E4 - 6D 36 FD FA 7A 84 26 50
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Acct-Interim-Interval[85] 6
10
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Acct-Session-Time [46] 6
868
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Acct-Terminate-Cause[49] 6
admin-reset[0]
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Acct-Status-Type [40] 6
Stop[0]
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Event-Timestamp [55] 6
1438004870
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 23
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Cisco AVpair [1] 17
dhcp-client-id=
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: NAS-Port-Type [61] 6
VIRTUAL_IPOEOVLAN[0]
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 41
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Cisco AVpair [1] 35
client-mac-address=0000.6602.0102
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: NAS-Port-Id [87] 11
0/0/1/200
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 17
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: cisco-nas-port [2] 11
0/0/1/200
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: User-Name [1] 16
0000.6602.0102
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Framed-IP-Address [8] 6
172.188.243.147
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 22
RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Cisco AVpair [1] 16
vrf-id=default

```

```

RP/0/RSP0/CPU0:Jul 27 13:47:50.687 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 29
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: Cisco AVpair [1] 23
accounting-list=WDAAR
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: AAA Unsupported Attr: user-
maxlinks [196] 6
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 32
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: Cisco AVpair [1] 26
connect-progress=Call Up
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 34
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: Cisco AVpair [1] 28
parent-session-id=0000472d
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 38
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: Cisco AVpair [1] 32
service-name=WDAAR_DAY_PACKAGE
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: Acct-Session-Id [44] 10
0000472e
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: Nas-Identifier [32] 16
acdc-asr9000-4
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: NAS-IP-Address [4] 6
10.48.88.54
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: NAS-IPv6-Address [95] 22
1a 10 00 00 00 00 00 00 00 00 00 00 00 00 00 00
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS:
00 00 00 00
RP/0/RSP0/CPU0:Jul 27 13:47:50.688 : radiusd[1133]: RADIUS: Acct-Delay-Time [41] 6
0

```

此show命令还显示成功的CoA的统计信息。

```

RP/0/RSP0/CPU0:acdc-asr9000-4#show subscriber manager statistics AAA COA
Mon Jul 27 13:53:49.627 UTC

```

[ CHANGE OF AUTHORIZATION STATISTICS ]

Location: 0/RSP0/CPU0

CoA Requests:

Type	Received	Acked	NAKed
====	=====	=====	=====
Account Logon	0	0	0
Account Logoff	0	0	0
Account Update	0	0	0
Account-Query	0	0	0
Disconnect	0	0	0
Single Service Logon	0	0	0
<b>Single Service Logoff</b>	<b>1 1 0</b>	Single Service Modify	0 0 0
Multiple Service	0	0	0

Errors:

Responses to COA with unknown session identifier = 3

[ CHANGE OF AUTHORIZATION STATISTICS ]

Location: 0/0/CPU0

CoA Requests:

Type	Received	Acked	NAKed
====	=====	=====	=====
Account Logon	0	0	0
Account Logoff	0	0	0
Account Update	0	0	0
Account-Query	0	0	0
Disconnect	0	0	0

```

Single Service Logon           0           0           0
Single Service Logoff         0           0           0
Single Service Modify         0           0           0
    Multiple Service           0           0           0

```

Errors:

None

现在，您在订户会话上应用了服务WDAAR\_NIGHT\_PACKAGE,并再次查看统计信息。

```

Last COA request: Mon Jul 27 13:57:48 2015
COA Request Attribute List: 0x501060c8
1: sa len= 19 value= WDAAR_NIGHT_PACKAGE
2: command len= 16 value= activate-service
3: service-info len= 19 value= WDAAR_NIGHT_PACKAGE
4: service-name len= 19 value= WDAAR_NIGHT_PACKAGE
Last COA response: Result ACK
COA Response Attribute List: 0x501062d8
1: sa len= 19 value= WDAAR_NIGHT_PACKAGE
User Profile received from AAA:
Attribute List: 0x501064e8
1: acct-interval len= 4 value= 120(78)
2: accounting-list len= 5 value= WDAAR

```

Services:

```

Name      : DT_NOVA_DHCP
Service-ID : 0x4000016
Type      : Template
Status    : Applied

```

```

-----
Name      : WDAAR_NIGHT_PACKAGE
Service-ID : 0x4000019
Type      : Multi Template
Status    : Applied

```

[Event History]

```

Jul 27 13:33:21.152 IPv4 Start
Jul 27 13:33:22.560 IPv4 Up
Jul 27 13:57:48.800 CoA request [many]
Jul 27 13:57:48.928 SUBDB produce done [many]

```

应用服务，这样您会看到Service Logon计数器已增加，并且您也可以在上述用户输出中看到它已被应用。

```

RP/0/RSP0/CPU0:acdc-asr9000-4#show subscriber manager statistics AAA COA
Mon Jul 27 13:58:00.410 UTC

```

[ CHANGE OF AUTHORIZATION STATISTICS ]

Location: 0/RSP0/CPU0

CoA Requests:

Type	Received	Acked	NAKed
====	=====	=====	=====
Account Logon	0	0	0
Account Logoff	0	0	0
Account Update	0	0	0
Account-Query	0	0	0
Disconnect	0	0	0
<b>Single Service Logon</b>	<b>1</b>	<b>1</b>	<b>0</b>
Single Service Logoff	1	1	0
Single Service Modify	0	0	0
Multiple Service	0	0	0

Errors:

Responses to COA with unknown session identifier = 3

[ CHANGE OF AUTHORIZATION STATISTICS ]

Location: 0/0/CPU0

CoA Requests:

Type	Received	Acked	NAKed
====	===== =====	===== =====	===== =====
Account Logon	0	0	0
Account Logoff	0	0	0
Account Update	0	0	0
Account-Query	0	0	0
Disconnect	0	0	0
Single Service Logon	0	0	0
Single Service Logoff	0	0	0
Single Service Modify	0	0	0
Multiple Service	0	0	0

Errors:

None

到目前为止，您一次只对单个CoA数据包应用一个服务，对单个CoA数据包删除一个服务，现在您将发送CoA数据包，该数据包将删除服务，并将服务应用于单个CoA数据包。

RP/0/RSP0/CPU0:acdc-asr9000-4#show subscriber session all detail internal

Mon Jul 27 14:03:40.255 UTC

Interface: Bundle-Ether1.200.ip18012  
Circuit ID: Unknown  
Remote ID: Unknown  
Type: IP: DHCP-trigger  
IPv4 State: Up, Mon Jul 27 13:33:22 2015  
IPv4 Address: 172.188.243.147, VRF: default  
IPv4 Up helpers: 0x00000040 {IPSUB}  
IPv4 Up requestors: 0x00000040 {IPSUB}  
Mac Address: 0000.6602.0102  
Account-Session Id: 0000472d  
Nas-Port: Unknown  
User name: 0000.6602.0102  
Formatted User name: 0000.6602.0102  
Client User name: unknown  
Outer VLAN ID: 200  
Subscriber Label: 0x0000004a  
Created: Mon Jul 27 13:33:21 2015  
State: Activated  
Authentication: unauthenticated  
Authorization: authorized  
Ifhandle: 0x000abca0  
Session History ID: 1  
Access-interface: Bundle-Ether1.200  
SRG Flags: 0x00000000  
Policy Executed:

```
event Session-Start match-first [at Mon Jul 27 13:33:21 2015]
  class type control subscriber DHCP do-until-failure [Succeeded]
    10 activate dynamic-template DT_NOVA_DHCP [cerr: No error][aaa: Success]
    20 authorize aaa list WDAAR [cerr: No error][aaa: Success]
```

Session Accounting:

Acct-Session-Id: 0000472d  
Method-list: WDAAR  
Accounting started: Mon Jul 27 13:33:22 2015

```

Interim accounting:      On, interval 2 mins
  Last successful update: Mon Jul 27 14:03:24 2015
  Next update in:       00:01:43 (dhms)
  Last update sent:     Mon Jul 27 14:03:24 2015
  Updates sent:         15
  Updates accepted:     15
  Updates rejected:     0
  Update send failures: 0
Accounting stop state:  Final stats available
Service Accounting:     WDAAR_DAY_PACKAGE
Acct-Session-Id:       00004730
Method-list:           WDAAR
Accounting started:     Mon Jul 27 14:03:35 2015
Interim accounting:     On, interval 10 mins
  Last successful update: Never
  Next update in:       00:09:56 (dhms)
  Last update sent:     Never
  Updates sent:         0
  Updates accepted:     0
  Updates rejected:     0
  Update send failures: 0
Accounting stop state:  Final stats available
Last COA request: Mon Jul 27 14:03:35 2015
COA Request Attribute List: 0x50106248
1: sd len= 19 value= WDAAR_NIGHT_PACKAGE 2: command len= 18 value= deactivate-service 3:
service-info len= 19 value= WDAAR_NIGHT_PACKAGE 4: service-name len= 19 value=
WDAAR_NIGHT_PACKAGE 5: sa len= 17 value= WDAAR_DAY_PACKAGE 6: command len= 16 value= activate-
service 7: service-info len= 17 value= WDAAR_DAY_PACKAGE 8: service-name len= 17 value=
WDAAR_DAY_PACKAGE Last COA response: Result ACK
COA Response Attribute List: 0x50106458
1: sd len= 19 value= WDAAR_NIGHT_PACKAGE
2: sa len= 17 value= WDAAR_DAY_PACKAGE
User Profile received from AAA:
Attribute List: 0x50106668
1: acct-interval len= 4 value= 120(78)
2: accounting-list len= 5 value= WDAAR
Services:
Name      : DT_NOVA_DHCP
Service-ID : 0x4000016
Type      : Template
Status    : Applied
-----
Name      : WDAAR_DAY_PACKAGE
Service-ID : 0x400001a
Type      : Multi Template
Status    : Applied
-----
[Event History]
Jul 27 13:33:21.152 IPv4 Start
Jul 27 13:33:22.560 IPv4 Up
Jul 27 14:03:35.296 CoA request [many]
Jul 27 14:03:35.680 SUBDB produce done [many]

```

通过MA-CoA，您可以看到多服务计数器也增加了。

```

RP/0/RSP0/CPU0:acdc-asr9000-4#show subscriber manager statistics AAA COA
Mon Jul 27 14:05:04.724 UTC

```

```
[ CHANGE OF AUTHORIZATION STATISTICS ]
```

```
Location: 0/RSP0/CPU0
```

CoA Requests:

Type	Received	Acked	NAKed
====	===== =====	===== =====	===== =====
Account Logon	0	0	0
Account Logoff	0	0	0
Account Update	0	0	0
Account-Query	0	0	0
Disconnect	0	0	0
Single Service Logon	1	1	0
Single Service Logoff	1	1	0
Single Service Modify	0	0	0
<b>Multiple Service 1 1 0</b>			

Errors:

Responses to COA with unknown session identifier = 3

[ CHANGE OF AUTHORIZATION STATISTICS ]

Location: 0/0/CPU0

CoA Requests:

Type	Received	Acked	NAKed
====	===== =====	===== =====	===== =====
Account Logon	0	0	0
Account Logoff	0	0	0
Account Update	0	0	0
Account-Query	0	0	0
Disconnect	0	0	0
Single Service Logon	0	0	0
Single Service Logoff	0	0	0
Single Service Modify	0	0	0
Multiple Service	0	0	0

Errors:

None

如果ASR9K收到一个CoA数据包以在用户会话上执行任何操作，但CoA数据包中的ASR9K接收的标识符不属于任何活动的用户会话，则如果启用上述建议的调试，日志中将显示以下消息。

```
RP/0/RSP0/CPU0:Jul 27 13:41:39.133 : radiusd[1133]: RADIUS: Received from id 159 , CoA Request, len 69
RP/0/RSP0/CPU0:Jul 27 13:41:39.133 : radiusd[1133]: RADIUS: authenticator 0D 52 11 54 B0 B7 37 07 - E1 9A 1D AF FA 1A 1A 09
RP/0/RSP0/CPU0:Jul 27 13:41:39.133 : radiusd[1133]: RADIUS: Acct-Session-Id [44] 10 00004723
RP/0/RSP0/CPU0:Jul 27 13:41:39.133 : radiusd[1133]: RADIUS: Vendor,Cisco [26] 39
RP/0/RSP0/CPU0:Jul 27 13:41:39.133 : radiusd[1133]: RADIUS: Cisco AVpair [1] 33
subscriber:sd=WDAAR_DAY_PACKAGE
RP/0/RSP0/CPU0:Jul 27 13:41:39.133 : radiusd[1133]: Processing Dynamic authorization request
RP/0/RSP0/CPU0:Jul 27 13:41:39.133 : radiusd[1133]: COA: Service-Name attribute is present in service profile push
RP/0/RSP0/CPU0:Jul 27 13:41:39.134 : radiusd[1133]: COA/POD:request processing underway.
RP/0/RSP0/CPU0:Jul 27 13:41:39.135 : iedged[245]: [IEDGE:TP83:COMMAND-HANDLER:ERROR:0x0] 0
matching session found for CoA request, rc 0
LC/0/0/CPU0:Jul 27 13:41:39.137 : iedged[209]: [IEDGE:TP83:COMMAND-HANDLER:ERROR:0x0] 0 matching session found for CoA request, rc 0
```

## 故障排除

可以在ASR9K上使用这些命令来检验CoA数据包的处理。如果CoA数据包已成功处理或正由ASR9K进行NACK处理。

- show radius dynamic-author

以上输出显示了由ASR9K确认和确认的CoA的简要概述。

- 显示用户管理器统计信息AAA COA

输出包括如下统计信息：**单态子** 服务激活（服务登录）和 **单态子** 已接收、ACK'd和NACK'd的服务停用（服务注销），还包括 **多服务** 跟踪计数器。

- show subscriber manager statistics PRE event

输出显示已由策略平面策略规则引擎(PRE)处理的多服务事件的统计信息。

- show subscriber manager statistics SVM events

如果为coa rollback配置了例外，则上述命令显示失败的MA-CoA请求后成功回滚的统计信息，以及失败的MA-CoA请求后失败的回滚。

- show subscriber manager statistics perf not zero

上面的命令为您简要概述ASR9K上CoA的处理时间，并包括CoA事务的事务时间（平均值、标准偏差、最小值、最大值和计数）。



## 关于此翻译

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