缓存在Cisco IOS配置示例的ACS 5.x AAA

目录

简介

本文描述必要步骤为了配置TACACS+ Telnet和VTY线路访问的管理员用户凭证高速缓冲存储。授权和验证缓存在Cisco IOS版本15.0(1)M集成。在收到对AAA请求后的一TACACS+回复此功能在其缓存使路由器存储验证、授权和统计(AAA)凭证。万一AAA服务器是不可得到的，缓存用于为了提高性能和减少作为后退认证方法发送的对AAA服务器，或者相当数量请求。

先决条件

要求

Cisco推荐您：

- 确认在路由器和思科安全访问控制服务器(ACS)版本5.x之间的IP连通性。
- 定义在ACS的路由器作为一个AAA客户端(网络设备)有同样的共享的机密。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- ACS版本5
- 运行Cisco IOS版本15.1的路由器

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。

配置

在Cisco IOS路由器的配置

1. 输入这些命令为了定义TACACS服务器和预先共享密钥：

```
Router(config)#tacacs-server host 192.168.159.41
Router(config)#tacacs-server timeout 4
Router(config)#tacacs-server key SECRET12345
```

2. 输入这些命令为了定义缓存配置文件组。
   Note:每配置文件名称必须匹配AAA用户名。

```
Router(config)#aaa cache profile admin
Router(config-profile-map)# profile peteradmin
```

3. 输入这些命令为了分配认证和授权高速缓冲存储规则到AAA服务器组：

```
Router(config-profile-map)# aaa group server tacacs+ admin-tac
Router(config-sg-tacacs+)# server 192.168.159.41
Router(config-sg-tacacs+)# cache authentication profile admin
Router(config-sg-tacacs+)# cache authorization profile admin
```

4. 定义包含缓存方法的认证和授权方法列表。在本例中配置示例，缓存，如果AAA服务器不回应，只使用。如果命令交换**缓存Admin TAC组Admin TAC**，缓存是查找的第一。
   Note:没有缓存从TACACS的特权密码。

```
aaa authentication login mtac group admin-tac cache admin-tac local
aaa authorization exec default group admin-tac cache admin-tac local
aaa accounting exec default start-stop group admin-tac
```

5. 输入这些命令为了配置在VTY线路的TACACS+ ：

```
Router(config)#line vty 0 4
Router(config-line)#login authentication mtac
```

在ACS的配置

1. 创建ACS的一个用户。导航给**用户，并且标识存储>创建用户**。此示例使用测试用户Peteradmin。

2. TACACS+管理员用户需要给他们权限级别**15的**shell配置文件，以便他们能输入**特权模式**。为了配置shell配置文件，请导航到**策略元素>授权和权限>设备Administration > Shell配置文件**。

3. 创建服务选择规则在**访问策略>Access服务**下匹配TACACS ：

4. 导航到**设备Admin priv15 >允许协议>选择身份验证协议**，并且配置**允许协议**。此示例使用**PAP/ASCII**。

5. 导航到**访问策略>Access Services>设备Admin priv15 >标识**，并且配置**内部用户的**标识来源。

6. 配置授权策略在**访问策略>Access Services>设备Admin**下**priv15 >授权**。

验证

使用本部分可确认配置能否正常运行。

测试Telnet访问

这些调试用于为了验证TACACS+的认证和授权高速缓冲存储：

- **debug tacacs events**
- **debug aaa cache group**

对路由器的Telnet有TACACS用户和TACACS特权密码的：

```
username: peteradmin
password: peteradmin

R102>en
password: cpeter
R102#

R102#debug tacacs events
R102#debug aaa cache group
R102#
11:35:47.151: TPLUS: Queuing AAA Authentication request 16 for processing
11:35:47.159: TPLUS: processing authentication start request id 16
11:35:47.163: TPLUS: Authentication start packet created for 16()
11:35:47.167: TPLUS: Using server 192.168.159.41
```

```
11:35:47.187: TPLUS(00000010)/0/NB_WAIT/69540BEC: Started 4 sec timeout
11:35:47.223: TPLUS(00000010)/0/NB_WAIT: wrote entire 37 bytes request
11:35:47.227: TPLUS: Would block while reading pak header
11:35:47.251: TPLUS(00000010)/0/READ: read entire 12 header bytes (expect 16
bytes)
11:35:47.255: TPLUS(00000010)/0/READ: read entire 28 bytes response
11:35:47.255: TPLUS(00000010)/0/69540BEC: Processing the reply packet
11:35:47.259: TPLUS: Received authen response status GET_USER (7)
11:35:47.263: AAA/AUTHEN/CACHE: No username in response
11:35:56.703: TPLUS: Queuing AAA Authentication request 16 for processing
11:35:56.711: TPLUS: processing authentication continue request id 1611:35:56.715:
TPLUS: Authentication continue packet generated for 16
11:35:56.719: TPLUS(00000010)/0/WRITE/69540BEC: Started 4 sec timeout
11:35:56.727: TPLUS(00000010)/0/WRITE: wrote entire 27 bytes request
11:35:56.751: TPLUS(00000010)/0/READ: read entire 12 header bytes (expect 16
bytes)
11:35:56.751: TPLUS(00000010)/0/READ: read entire 28 bytes response
11:35:56.755: TPLUS(00000010)/0/69540BEC: Processing the reply packet
11:35:56.759: TPLUS: Received authen response status GET_PASSWORD (8)
11:35:56.763: AAA/AUTHEN/CACHE: Request status = 8, cannot add to cache
11:36:02.943: TPLUS: Queuing AAA Authentication request 16 for processing
11:36:02.955: TPLUS: processing authentication continue request id 16
11:36:02.959: TPLUS: Authentication continue packet generated for 16
11:36:02.963: TPLUS(00000010)/0/WRITE/69540BEC: Started 4 sec timeout
11:36:02.967: TPLUS(00000010)/0/WRITE: wrote entire 27 bytes request
11:36:03.971: TPLUS(00000010)/0/READ: read entire 12 header bytes (expect 6
bytes)
11:36:03.975: TPLUS(00000010)/0/READ: read entire 18 bytes response
11:36:03.975: TPLUS(00000010)/0/69540BEC: Processing the reply packet
11:36:03.979: TPLUS: Received authen response status PASS (2)
11:36:03.983: AAA/AUTHEN/CACHE: SG profile admin
11:36:03.987: AAA/AUTHEN/CACHE: SG block for admin found
11:36:03.987: AAA/AUTHEN/CACHE: matching profile found for peteradmin in admin
11:36:03.991: AAA/AUTHEN/CACHE: Dealing with authen_type = 1
11:36:03.995: TPLUS: Error occurs in reading packet header, shutdown the single
connection
11:36:04.047: TPLUS: Queuing AAA Authorization request 16 for processing
11:36:04.055: TPLUS: processing authorization request id 16
11:36:04.059: TPLUS: Protocol set to None .....Skipping
11:36:04.063: TPLUS: Sending AV service=shell
11:36:04.067: TPLUS: Sending AV cmd*
11:36:04.067: TPLUS: Authorization request created for 16(peteradmin)
11:36:04.071: TPLUS: using previously set server 192.168.159.41 from group
admin-tac
11:36:04.091: TPLUS(00000010)/0/NB_WAIT/689C0FDC: Started 4 sec timeout
11:36:04.127: TPLUS(00000010)/0/NB_WAIT: wrote entire 66 bytes request
11:36:04.131: TPLUS: Would block while reading pak header
11:36:05.319: TPLUS(00000010)/0/READ: read entire 12 header bytes (expect 6
bytes)
11:36:05.323: TPLUS(00000010)/0/READ: read entire 18 bytes response
11:36:05.327: TPLUS(00000010)/0/689C0FDC: Processing the reply packet
11:36:05.327: TPLUS: received authorization response for 16: PASS
11:36:05.335: AAA/AUTHEN/CACHE: SG profile admin
11:36:05.335: AAA/AUTHEN/CACHE: SG block for admin found
11:36:05.339: AAA/AUTHEN/CACHE: matching profile found for peteradmin in admin
11:36:05.339: AAA/AUTHOR/CACHE(00000010): Existing entry no set for authorization
11:36:05.347: TPLUS: Error occurs in reading packet header, shutdown the single
connection
11:36:05.419: TPLUS: Queuing AAA Accounting request 16 for processing
11:36:05.431: TPLUS: processing accounting request id 16
11:36:05.439: TPLUS: Sending AV task_id=6
11:36:05.439: TPLUS: Sending AV timezone=UTC
11:36:05.443: TPLUS: Sending AV service=shell
11:36:05.443: TPLUS: Accounting request created for 16(peteradmin)
```

```
11:36:05.447: TPLUS: using previously set server 192.168.159.41 from group
admin-tac
11:36:05.471: TPLUS(00000010)/0/NB_WAIT/689C0FDC: Started 4 sec timeout
11:36:05.523: TPLUS(00000010)/0/NB_WAIT: wrote entire 85 bytes request
11:36:05.523: TPLUS: Would block while reading pak header
11:36:05.587: TPLUS(00000010)/0/READ: read entire 12 header bytes (expect 5
bytes)
11:36:05.591: TPLUS(00000010)/0/READ: read entire 17 bytes response
11:36:05.591: TPLUS(00000010)/0/689C0FDC: Processing the reply packet
11:36:05.595: TPLUS: Received accounting response with status PASS
11:36:05.603: TPLUS: Error occurs in reading packet header, shutdown the single
connection
R102#
```

检查缓存

输入这些命令为了查看和清除缓存信息：

- **显示aaa缓存组[cache group name]全部**
- **清除aaa缓存组[cache group name]全部**

```
R102#show aaa cache group admin-tac all
------------------------------------------------------------
Entries in Profile dB admin-tac for exact match
------------------------------------------------------------
Profile: peteradmin
Updated: 00:00:42
Parse User: N
Authen User: Y
Query Count: 2
6731AF7C 0 00000009 username(422) 10 peteradmin, service shell, protocol none
6731AF8C 0 0000000A cmd(73) 0 , service shell, protocol none
------------------------------------------------------------
Entries in Profile dB admin-tac for regexp match
------------------------------------------------------------
No entries found for regexp match
```

模拟ACS失败

从网络断开ACS服务器为了模拟失败和调用缓存检查。

对路由器的Telnet有TACACS用户和本地特权密码的(不可能缓存从TACACS的特权密码)：

```
username: peteradmin
password: peteradmin

R102>en
password:
R102#
11:39:10.723: TPLUS: Queuing AAA Authentication request 17 for processing
11:39:10.735: TPLUS: processing authentication start request id 17
11:39:10.739: TPLUS: Authentication start packet created for 17()
11:39:10.743: TPLUS: Using server 192.168.159.41
11:39:10.759: TPLUS(00000011)/0/NB_WAIT/68A4A820: Started 4 sec timeout
11:39:14.759: TPLUS(00000011)/0/NB_WAIT/68A4A820: timed out
11:39:14.763: TPLUS(00000011)/0/NB_WAIT/68A4A820: timed out, clean up
11:39:14.767: TPLUS(00000011)/0/68A4A820: Processing the reply packet
```

```
11:39:14.771: AAA/AUTHEN/CACHE: Don't cache responses with errors
11:39:14.779: AAA/AUTHEN/CACHE(00000011): GET_USER for username NULL
11:39:23.315: AAA/AUTHEN/CACHE(00000011): GET_PASSWORD for username peteradmin
11:39:25.191: AAA/AUTHEN/CACHE(00000011): Found a match
11:39:25.195: AAA/AUTHEN/CACHE(00000011): PASS for username peteradmin
11:39:25.215: TPLUS: Queuing AAA Authorization request 17 for processing
11:39:25.223: TPLUS: processing authorization request id 17
11:39:25.227: TPLUS: Protocol set to None .....Skipping
11:39:25.231: TPLUS: Sending AV service=shell
11:39:25.235: TPLUS: Sending AV cmd*
11:39:25.239: TPLUS: Authorization request created for 17(peteradmin)
11:39:25.239: TPLUS: Using server 192.168.159.41
11:39:25.243: TPLUS(00000011)/0/IDLE/689C3A0C: got immediate connect on new 0
11:39:25.247: TPLUS(00000011)/0/WRITE/689C3A0C: Started 4 sec timeout
11:39:25.251: TPLUS(00000011)/0/WRITE: write to 192.168.159.41 failed with errno
257((ENOTCONN))
11:39:25.255: TPLUS: Protocol set to None .....Skipping
11:39:25.259: TPLUS: Sending AV service=shell
11:39:25.259: TPLUS: Sending AV cmd*
11:39:25.263: TPLUS: Authorization request created for 17(peteradmin)
11:39:25.263: TPLUS(00000011): Start write failed
11:39:29.247: TPLUS(00000011)/0/WRITE/689C3A0C: timed out
11:39:29.251: TPLUS: Protocol set to None .....Skipping
11:39:29.255: TPLUS: Sending AV service=shell
11:39:29.255: TPLUS: Sending AV cmd*
11:39:29.259: TPLUS: Authorization request created for 17(peteradmin)
11:39:29.263: TPLUS(00000011)/0/WRITE/689C3A0C: timed out, clean up
11:39:29.267: TPLUS: Error occured while writing, shutdown the single
connection
11:39:29.267: TPLUS(00000011)/0/689C3A0C: Processing the reply packet
11:39:29.271: AAA/AUTHEN/CACHE: Don't cache responses with errors
11:39:29.331: TPLUS: Queuing AAA Accounting request 17 for processing
11:39:29.343: TPLUS: processing accounting request id 17
11:39:29.351: TPLUS: Sending AV task_id=7
11:39:29.351: TPLUS: Sending AV timezone=UTC
11:39:29.355: TPLUS: Sending AV service=shell
11:39:29.359: TPLUS: Accounting request created for 17(peteradmin)
11:39:29.359: TPLUS: using previously set server 192.168.159.41 from group
admin-tac
11:39:29.379: TPLUS(00000011)/0/NB_WAIT/689C0FDC: Started 4 sec timeout
11:39:33.375: TPLUS(00000011)/0/NB_WAIT/689C0FDC: timed out
11:39:33.379: TPLUS: Choosing next server 192.168.159.41
11:39:33.383: TPLUS(00000011)/689C0FDC: releasing old socket 0
11:39:33.387: TPLUS(00000011)/0/NB_WAIT/689C0FDC: got immediate connect on
new 0
11:39:33.387: TPLUS(00000011)/0/WRITE/689C0FDC: Started 4 sec timeout
11:39:33.391: TPLUS(00000011)/0/WRITE: write to 192.168.159.41 failed with errno
257((ENOTCONN))
11:39:33.399: TPLUS: Sending AV task_id=7
11:39:33.399: TPLUS: Sending AV timezone=UTC
11:39:33.403: TPLUS: Sending AV service=shell
11:39:33.403: TPLUS: Accounting request created for 17(peteradmin)
11:39:33.407: TPLUS(00000011)/0/WRITE/689C0FDC: Write failed, this request
will be cleaned up after timeout
11:39:37.387: TPLUS(00000011)/0/WRITE/689C0FDC: timed out
11:39:37.395: TPLUS: Sending AV task_id=7
11:39:37.395: TPLUS: Sending AV timezone=UTC
11:39:37.399: TPLUS: Sending AV service=shell
11:39:37.403: TPLUS: Accounting request created for 17(peteradmin)
11:39:37.407: TPLUS: Choosing next server 192.168.159.41
11:39:37.407: TPLUS(00000011)/689C0FDC: releasing old socket 0
11:39:37.411: TPLUS(00000011)/0/WRITE/689C0FDC: got immediate connect on
new 0
11:39:37.415: TPLUS(00000011)/0/WRITE/689C0FDC: Started 4 sec timeout
```

```
11:39:37.415: TPLUS(00000011)/0/WRITE: write to 192.168.159.41 failed with errno
257((ENOTCONN))
11:39:37.423: TPLUS: Sending AV task_id=7
11:39:37.427: TPLUS: Sending AV timezone=UTC
11:39:37.427: TPLUS: Sending AV service=shell
11:39:37.431: TPLUS: Accounting request created for 17(peteradmin)
11:39:37.431: TPLUS(00000011)/0/WRITE/689C0FDC: Write failed, this request
will be cleaned up after timeout
11:39:41.411: TPLUS(00000011)/0/WRITE/689C0FDC: timed out
11:39:41.419: TPLUS: Sending AV task_id=7
11:39:41.423: TPLUS: Sending AV timezone=UTC
11:39:41.423: TPLUS: Sending AV service=shell
11:39:41.427: TPLUS: Accounting request created for 17(peteradmin)
11:39:41.431: TPLUS(00000011)/0/WRITE/689C0FDC: timed out, clean up
11:39:41.431: TPLUS: Error occured while writing, shutdown the single
connection
11:39:41.435: TPLUS(00000011)/0/689C0FDC: Processing the reply packet

Cached username and password works.

R102#clear aaa cache group admin-tac all
R102#show aaa cache group admin-tac all
-------------------------------------------------------------
Entries in Profile dB admin-tac for exact match
-------------------------------------------------------------
No entries found in Profile dB
```

故障排除

命令输出解释程序工具（仅限注册用户）支持某些 **show** 命令。请使用Output Interpreter Tool为了查看show命令输出分析。

目前没有针对此配置的故障排除信息。