

# Configuring PPP Callback With TACACS+

Document ID: 13859

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## Introduction

This document shows configuration examples of a router and AAA server to do Point-to-Point Protocol (PPP) callback with TACACS+. Two examples are included that use the callback number specified by the AAA server or by the Windows 2000 client.

- Perform initial testing with local authentication and callback (remove the **aaa new-model** command). If callback does not work with local authentication, it does not work with TACACS+. Refer to *Configuring MS Callback Between a Router and a Windows PC* for an example of how to use local authentication.
- Perform further PPP authentication testing with TACACS+ without callback. If users FAIL authentication and/or authorization without callback, authentication and authorization do not work with callback.
- Once local authentication for callback and PPP authentication with TACACS+ work, add the information from the local user on the router (such as callback dial-string) to the user's profile on the server.

**Note:** The client in these tests is a Windows 2000 Professional Client, DUN, set up as usual for a PPP connection, with Microsoft Callback setup as "Ask me during dialing when the server offers." Microsoft Callback is supported in Cisco IOS® Software Releases 11.3.2.T and later.

## Prerequisites

### Requirements

There are no specific requirements for this document.

## Components Used

The information in this document is based on these software and hardware versions:

- Cisco IOS Software Release 12.1(7)AA
- Cisco Secure ACS UNIX 2.3(2)
- Cisco Secure ACS for Windows 3.3
- TACACS Freeware Daemon 4.0(3)

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

## Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

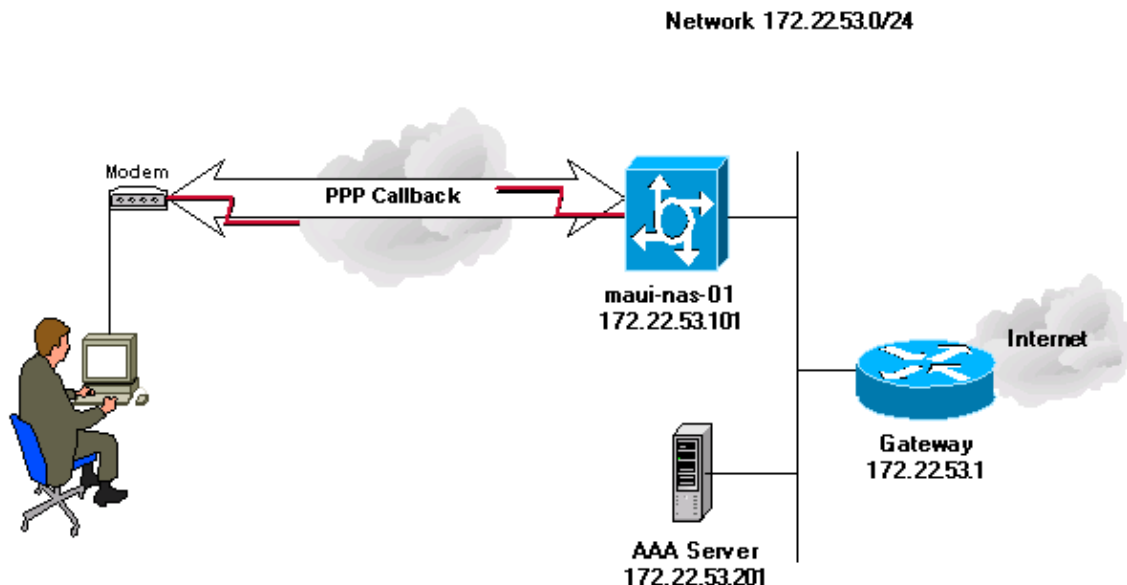
## Configure

In this section, you are presented with the information to configure the features described in this document.

**Note:** To find additional information on the commands used in this document, use the Command Lookup Tool (registered customers only) .

## Network Diagram

This document uses the network setup shown in this diagram.



## PPP Callback with Server-Specified Number

## Server Configurations

These are the AAA server configurations for PPP callback with a telephone number specified by the AAA server.

### *Server Setup – Cisco Secure ACS for Windows*

- To enable the LCP option for User and Group, go to the **Interface Configuration** screen, select **TACACS+ (Cisco IOS)**, and ensure that the **PPP IP** and **PPP LCP** options are checked for **User** and **Group**.
- Callback may be configured either in the Group or the User settings.
  - ◆ **Configure a group for callback:** On the Group Setup screen, under Callback, select the option to **Use Windows Database Callback Settings (in older version of ACS this option is known as "Use Microsoft NT Callback Settings")**. Then check the options for **PPP IP** and **PPP LCP**. Select **Callback line** and type **84007** in the blank field.

For a user that is a member of the group, go to the **User Setup screen** and select **Use group setting** under Callback. Click **Submit + Restart**.

- ◆ **Configure an individual user for callback:** On the User Setup screen, under Callback, select **Callback using this number** and type **84007** in the blank field. Then check the options for **PPP IP** and **PPP LCP**. Click **Submit + Restart**.

### *Server Setup – Cisco Secure UNIX*

```
<coachella>/export/home/brownr> ViewProfile -p 9900 -u callback_user
User Profile Information
user = callback_user{
profile_id = 113
profile_cycle = 15
member = ccie_study
password = chap "*****"
service=ppp {
protocol=ip {
}
protocol=lcp {
set callback-dialstring=84007
}
}
}
```

### *Server Setup – TACACS+ Freeware*

```
user = callback_user {
chap= cleartext "chapuser"
service = ppp protocol = lcp {
callback-dialstring=84007
}
service = ppp protocol = ip {
}
}
```

## PPP Callback with User-Specified Number

The examples earlier in this document are of callback at a predefined number (specified in the AAA server). Callback may also be done at a user-specified number using the callback number and is specified as null in the AAA server. This causes the router to ask the user for a callback number. Initial testing should be done

with local callback specified. Refer to the asynchronous PPP callback between an access server and a PC example and note that the "callback-dialstring" is specified as quotes ("").

The client in these tests was a Windows 2000 Professional Client, set up as usual for a PPP connection, with Microsoft Callback set up as "Call me back at the numbers below."

**Note:** The network diagram and router configuration displayed apply to the callback configurations discussed here.

## Server Configurations

Shown here are AAA server configurations for PPP callback with a telephone number specified by the user.

### *Server Setup – Cisco Secure for Windows*

- To enable the LCP option for User and Group, go to the **Interface Configuration** screen, select **TACACS+ (Cisco IOS)**, and ensure that the **PPP IP** and **PPP LCP** options are checked for **User** and **Group**.
- Callback may be configured either in the Group or the User settings.
  - ◆ **Configure a group for callback:** On the Group Setup screen, under **Callback**, select the option for **Dialup client specifies callback number**. Then check the options for **PPP IP** and **PPP LCP**.

For a user that is a member of the group, go to the **User Setup** screen and select **Use group setting** under **Callback**. Click **Submit + Restart**.

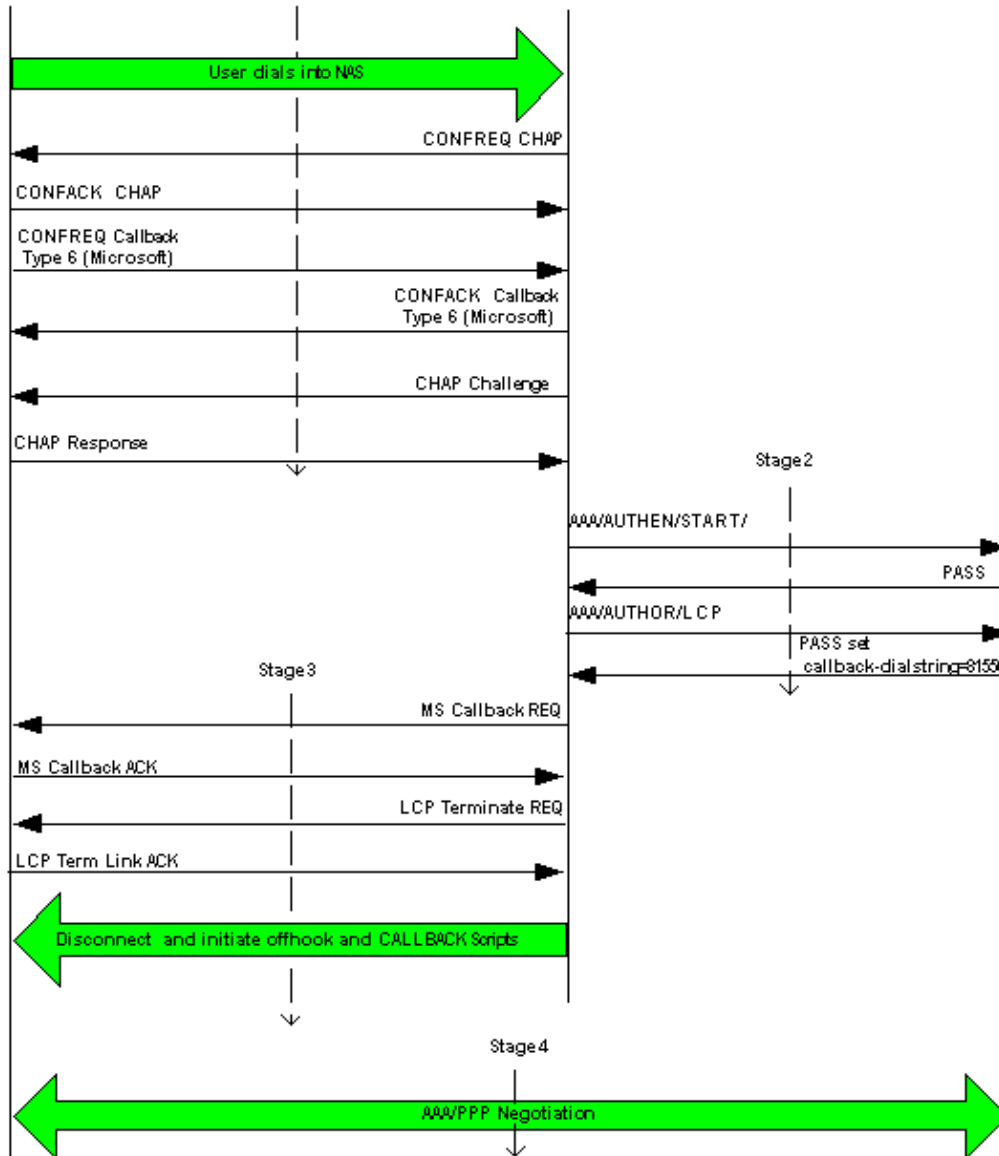
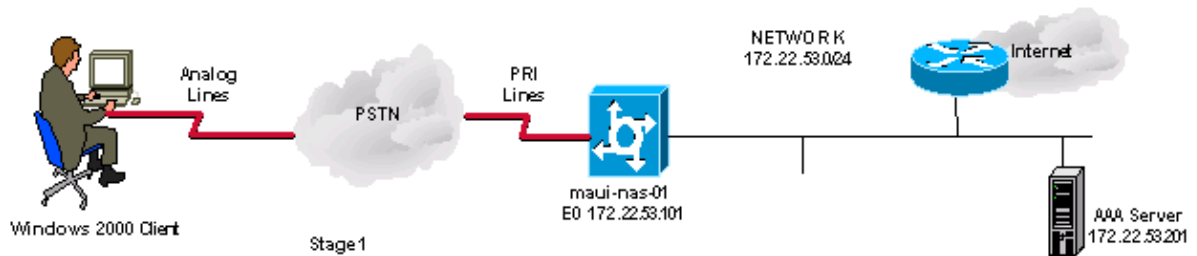
- ◆ **Configure an individual user for callback:** On the User Setup screen, under **Callback**, select the option for **Dialup client specifies callback number**. Then check the options for **PPP IP** and **PPP LCP**. Click **Submit + Restart**.

### *Server Setup – Cisco Secure UNIX*

```
<coachella>ViewProfile -p 9900 -u callback_user
User Profile Information
user = callback_user{
profile_id = 113
profile_cycle = 15
member = ccie_study
password = chap "*****"
service=ppp {
protocol=ip {
}
}
protocol=lcp {
set callback-dialstring=""
}
}
}
```

### *Server Setup – TACACS+ Freeware*

```
user = callback_user {
chap= cleartext "chapuser"
service = ppp protocol = lcp {
callback-dialstring=""
}
}
service = ppp protocol = ip {
}
}
```



## Router Configurations

NAS Configuration
<pre> AS5200  maui-nas-01#show run Building configuration...  Current configuration : 2882 bytes ! version 12.1 no service pad service tcp-keepalives-in </pre>

```
service timestamps debug datetime msec localtime show-timezone
service timestamps log datetime msec localtime show-timezone
service password-encryption
!
hostname maui-nas-01
!
logging buffered 4096 debugging
no logging console guaranteed
no logging console

!--- Basic AAA configuration using TACACS+ as the primary method,
!--- local if the ERROR is received during negotiation.
!--- Disable AAA authentication and authorization on console port.

aaa new-model
aaa authentication login default group tacacs+ local
aaa authentication login NO_AUTHEN none
aaa authentication ppp default if-needed group tacacs+ local
aaa authorization exec default group tacacs+ local
aaa authorization exec NO_AUTHOR none
aaa authorization network default group tacacs+ local
enable secret <snipped>
!
username admin password <snipped>
spe 1/0 1/23
firmware location feature_card_flash
spe 2/0 2/4
!
resource-pool disable
!
clock timezone CST -6
clock summer-time CST recurring
modem recovery action none
ip subnet-zero
no ip source-route
no ip finger
no ip domain-lookup
ip name-server 172.22.53.210
!
no ip bootp server
isdn switch-type primary-ni
!

!--- Chat scripts "offhook" and "CALLBACK"
!--- used intuitively to go offhook and callback clients.

chat-script CALLBACK ABORT ERROR ABORT BUSY "" "AT"
OK "ATDT \T" TIMEOUT 30 CONNECT \c
chat-script offhook "" "ATH1" OK \c
!
controller T1 0
framing esf
clock source line primary
linecode b8zs
pri-group timeslots 1-24
!
interface Ethernet0
ip address 172.22.53.101 255.255.255.0
no ip route-cache
no ip mroute-cache
no cdp enable
!
interface Serial0:23
no ip address
encapsulation ppp
no ip route-cache
```

```

isdn switch-type primary-ni
isdn incoming-voice modem
isdn bchan-number-order ascending
no cdp enable
!
interface Group-Async1
ip unnumbered Ethernet0
encapsulation ppp
no ip route-cache
ip tcp header-compression passive
no ip mroute-cache
async mode interactive
peer default ip address pool IP_POOL
no cdp enable

!--- Allows "group-async 1" to accept PPP callback requests from clients.
!--- Use Challenge Authentication Protocol (CHAP) for authentication
!--- on incoming calls.

ppp callback accept
ppp authentication chap callin
group-range 1 48
!
ip local pool IP_POOL 172.22.53.141 172.22.53.148
ip default-gateway 172.22.53.1
no ip http server
ip classless
ip route 0.0.0.0 0.0.0.0 172.22.53.1
!
no cdp run
tacacs-server host 172.22.53.201 key <snipped>
!
line con 0
authorization exec NO_AUTHOR
login authentication NO_AUTHEN
transport input none
line 1 48

!--- Specifies chat scripts used during callback to clients.

script modem-off-hook offhook
script callback CALLBACK
modem InOut
transport preferred none
transport input all
transport output none
autoselect during-login
autoselect ppp
callback forced-wait 5
line aux 0
line vty 0 4
!
ntp server 172.22.53.1
end

```

## Verify

There is currently no verification procedure available for this configuration.

## Troubleshoot

This section provides information you can use to troubleshoot your configuration.

## Troubleshooting Commands

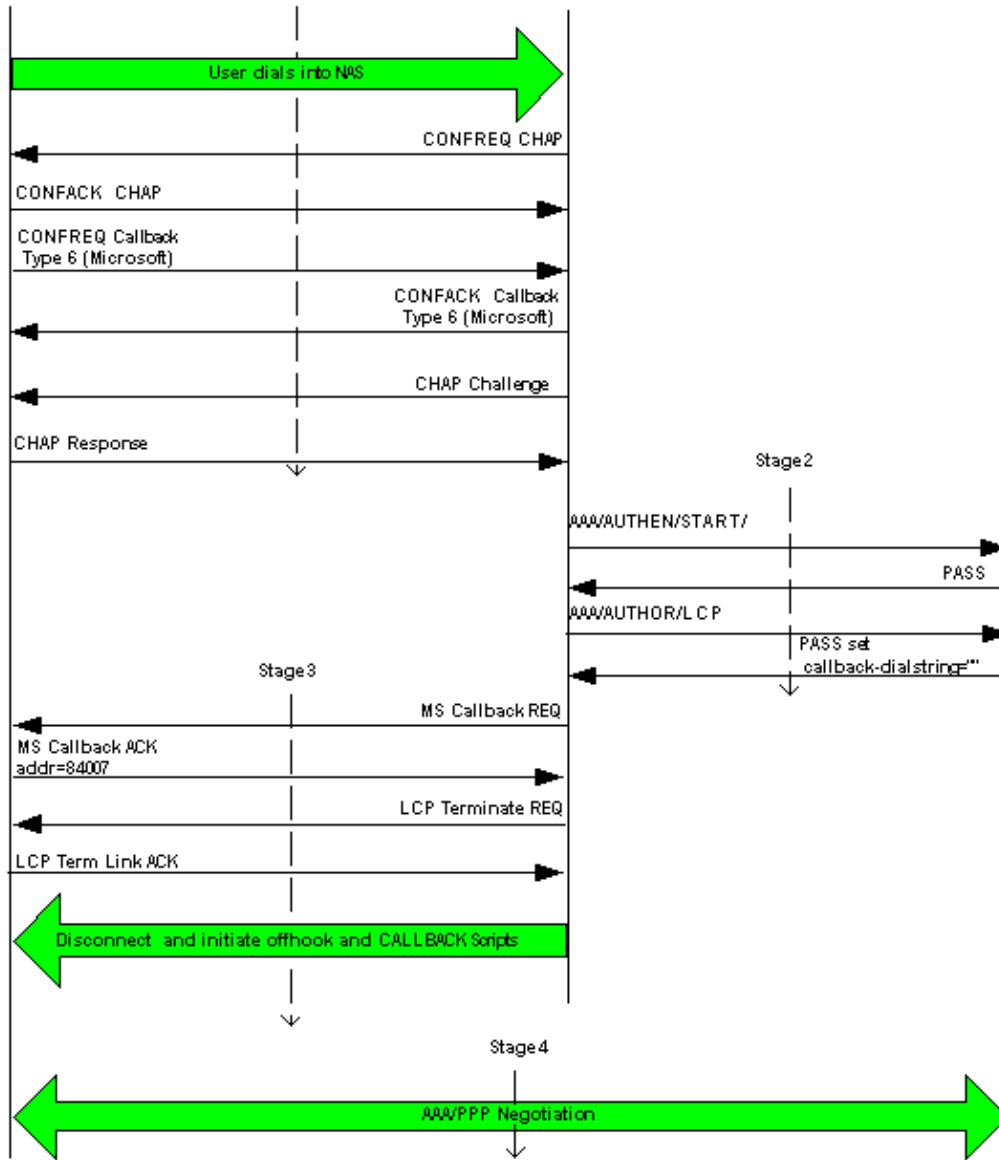
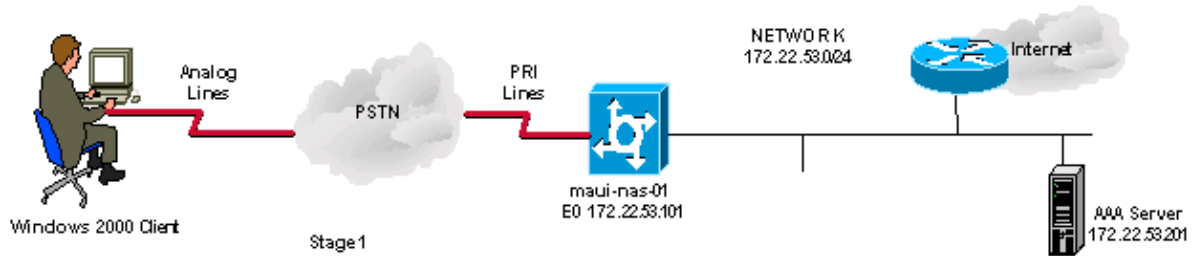
**Note:** Before issuing **debug** commands, refer to Important Information on Debug Commands.

- **debug aaa authentication** Displays information on AAA authentication.
- **debug aaa authorization** Displays information on AAA authorization.
- **debug callback** Displays callback events when the router uses a modem and a chat script to call back on a terminal line.
- **debug chat** Displays characters sent between the Network Access Server (NAS) and the PC. A chat-script is a set of expect-send string pairs that define the handshaking between data terminal equipment (DTE)-DTE or DTE-data communications equipment (DCE) devices.
- **debug modem** Displays modem line activity on an access server.
- **debug ppp negotiation** Displays PPP packets transmitted during PPP startup, where PPP options are negotiated.
- **debug ppp authentication** Displays authentication protocol messages, including Challenge Authentication Protocol (CHAP) packet exchanges and Password Authentication Protocol (PAP) exchanges.
- **debug tacacs+** Displays detailed debugging information associated with TACACS+.

## Sample Debug Output

The individual stages in this diagram correspond to the actual **debug** output that is displayed after this diagram. Note that some output has been wrapped onto two lines because of spacing considerations.





### Stage 1

```
maui-nas-01#debug aaa authentication
maui-nas-01#debug aaa authorization
```

```
maui-nas-01#show debug
```

```
General OS:
```

```
AAA Authentication debugging is on
```

```
AAA Authorization debugging is on
```

```
!--- AAA negotiation begins, aborted because PPP is autoselected.
```

```
Aug 1 09:23:53.320 CST: AAA: parse name=tty6 idb type=10 tty=6
```

```
Aug 1 09:23:53.320 CST: AAA: name=tty6 flags=0x11 type=4 shelf=0 slot=0
adapter=0 port=6 channel=0
```

```
Aug 1 09:23:53.324 CST: AAA: parse name=Serial0:4 idb type=12 tty=-1
Aug 1 09:23:53.328 CST: AAA: name=Serial0:4 flags=0x51 type=1 shelf=0 slot=0
  adapter=0 port=0 channel=4
Aug 1 09:23:53.332 CST: AAA/MEMORY: create_user (0x2A0AA0) user='' ruser=''
  port='tty6' rem_addr='async/81560' authen_type=ASCII service=LOGIN priv=1
Aug 1 09:23:53.336 CST: AAA/AUTHEN/START (2776623843): port='tty6' list=''
  action=LOGIN service=LOGIN
Aug 1 09:23:53.340 CST: AAA/AUTHEN/START (2776623843): using "default" list
Aug 1 09:23:53.344 CST: AAA/AUTHEN/START (2776623843): Method=tacacs+ (tacacs+)
Aug 1 09:23:53.348 CST: TAC+: send AUTHEN/START packet ver=192 id=2776623843
Aug 1 09:23:53.572 CST: TAC+: ver=192 id=2776623843 received AUTHEN
  status = GETUSER
Aug 1 09:23:53.576 CST: AAA/AUTHEN (2776623843): status = GETUSER
Aug 1 09:23:55.548 CST: AAA/AUTHEN/ABORT: (2776623843) because Autoselected.
Aug 1 09:23:55.552 CST: TAC+: send abort reason=Autoselected
Aug 1 09:23:55.668 CST: AAA/MEMORY: free_user (0x2A0AA0) user='' ruser=''
  port='tty6' rem_addr='async/81560' authen_type=ASCII service=LOGIN priv=1
Aug 1 09:23:58.124 CST: %LINK-3-UPDOWN: Interface Async6, changed state to up
Aug 1 09:23:58.148 CST: As6 AAA/AUTHOR/FSM: (0): LCP succeeds trivially
Aug 1 09:23:58.912 CST: AAA: parse name=Async6 idb type=10 tty=6
Aug 1 09:23:58.916 CST: AAA: name=Async6 flags=0x11 type=4 shelf=0 slot=0
  adapter=0 port=6 channel=0
Aug 1 09:23:58.916 CST: AAA: parse name=Serial0:4 idb type=12 tty=-1
Aug 1 09:23:58.920 CST: AAA: name=Serial0:4 flags=0x51 type=1 shelf=0 slot=0
  adapter=0 port=0 channel=4
```

*!--- AAA Authentication start packet is sent to AAA server.*

```
Aug 1 09:23:58.924 CST: AAA/MEMORY: create_user (0x2984EC)
  user='callback_user' ruser='' port='Async6' rem_addr='async/81560'
  authen_type=CHAP service=PPP priv=1
Aug 1 09:23:58.932 CST: AAA/AUTHEN/START (3527356355): port='Async6' list=''
  action=LOGIN service=PPP
Aug 1 09:23:58.936 CST: AAA/AUTHEN/START (3527356355): using "default" list
Aug 1 09:23:58.936 CST: AAA/AUTHEN (3527356355): status = UNKNOWN
Aug 1 09:23:58.940 CST: AAA/AUTHEN/START (3527356355): Method=tacacs+ (tacacs+)
```

*!--- Receive PASS from AAA server.*

```
Aug 1 09:23:58.944 CST: TAC+: send AUTHEN/START packet ver=193 id=3527356355
Aug 1 09:23:59.172 CST: TAC+: ver=193 id=3527356355 received AUTHEN
  status = PASS
Aug 1 09:23:59.172 CST: AAA/AUTHEN (3527356355): status = PASS
```

*!--- AAA Authorization request sent to AAA server for LCP.*

```
Aug 1 09:23:59.180 CST: As6 AAA/AUTHOR/LCP: Authorize LCP
Aug 1 09:23:59.184 CST: As6 AAA/AUTHOR/LCP (1701401119): Port='Async6'
  list='' service=NET
Aug 1 09:23:59.188 CST: AAA/AUTHOR/LCP: As6 (1701401119) user='callback_user'
Aug 1 09:23:59.192 CST: As6 AAA/AUTHOR/LCP (1701401119): send AV service=ppp
Aug 1 09:23:59.196 CST: As6 AAA/AUTHOR/LCP (1701401119): send AV protocol=lcp
Aug 1 09:23:59.196 CST: As6 AAA/AUTHOR/LCP (1701401119): found list "default"
Aug 1 09:23:59.200 CST: As6 AAA/AUTHOR/LCP (1701401119):
  Method=tacacs+ (tacacs+)
```

*!--- Receive PASS from AAA server, set the callback dialstring  
!--- via the "callback-dialstring" Attribute Value Pair.*

```
Aug 1 09:23:59.204 CST: AAA/AUTHOR/TAC+: (1701401119): user=callback_user
Aug 1 09:23:59.208 CST: AAA/AUTHOR/TAC+: (1701401119): send AV service=ppp
Aug 1 09:23:59.212 CST: AAA/AUTHOR/TAC+: (1701401119): send AV protocol=lcp
Aug 1 09:23:59.440 CST: TAC+: (1701401119): received author response status
  = PASS_ADD
Aug 1 09:23:59.448 CST: As6 AAA/AUTHOR (1701401119): Post authorization status
  = PASS_ADD
```

```
Aug 1 09:23:59.452 CST: As6 AAA/AUTHOR/LCP: Processing AV service=ppp
Aug 1 09:23:59.456 CST: As6 AAA/AUTHOR/LCP: Processing AV protocol=lcp
Aug 1 09:23:59.456 CST: As6 AAA/AUTHOR/LCP: Processing AV
callback-dialstring=81550
```

## Stage 2

```
maui-nas-01#debug aaa authentication
maui-nas-01#debug aaa authorization
```

```
maui-nas-01#show debug
General OS:
AAA Authentication debugging is on
AAA Authorization debugging is on
```

*!--- AAA negotiation begins, aborted because PPP is autoselected.*

```
Aug 1 09:23:53.320 CST: AAA: parse name=tty6 idb type=10 tty=6
Aug 1 09:23:53.320 CST: AAA: name=tty6 flags=0x11 type=4 shelf=0 slot=0
adapter=0 port=6 channel=0
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action=LOGIN service=LOGIN
Aug 1 09:23:53.340 CST: AAA/AUTHEN/START (2776623843): using "default" list
Aug 1 09:23:53.344 CST: AAA/AUTHEN/START (2776623843): Method=tacacs+ (tacacs+)
Aug 1 09:23:53.348 CST: TAC+: send AUTHEN/START packet ver=192 id=2776623843
Aug 1 09:23:53.572 CST: TAC+: ver=192 id=2776623843 received AUTHEN
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Aug 1 09:23:53.576 CST: AAA/AUTHEN (2776623843): status = GETUSER
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Aug 1 09:23:55.552 CST: TAC+: send abort reason=Autoselected
Aug 1 09:23:55.668 CST: AAA/MEMORY: free_user (0x2A0AA0) user='' ruser=''
port='tty6' rem_addr='async/81560' authen_type=ASCII service=LOGIN priv=1
Aug 1 09:23:58.124 CST: %LINK-3-UPDOWN: Interface Async6, changed state to up
Aug 1 09:23:58.148 CST: As6 AAA/AUTHOR/FSM: (0): LCP succeeds trivially
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Aug 1 09:23:58.916 CST: AAA: name=Async6 flags=0x11 type=4 shelf=0 slot=0
adapter=0 port=6 channel=0
Aug 1 09:23:58.916 CST: AAA: parse name=Serial0:4 idb type=12 tty=-1
Aug 1 09:23:58.920 CST: AAA: name=Serial0:4 flags=0x51 type=1 shelf=0 slot=0
adapter=0 port=0 channel=4
```

*!--- AAA Authentication start packet is sent to AAA server.*

```
Aug 1 09:23:58.924 CST: AAA/MEMORY: create_user (0x2984EC)
user='callback_user' ruser='' port='Async6' rem_addr='async/81560'
authen_type=CHAP service=PPP priv=1
Aug 1 09:23:58.932 CST: AAA/AUTHEN/START (3527356355): port='Async6' list=''
action=LOGIN service=PPP
Aug 1 09:23:58.936 CST: AAA/AUTHEN/START (3527356355): using "default" list
Aug 1 09:23:58.936 CST: AAA/AUTHEN (3527356355): status = UNKNOWN
Aug 1 09:23:58.940 CST: AAA/AUTHEN/START (3527356355): Method=tacacs+ (tacacs+)
```

*!--- Receive PASS from AAA Server.*

```
Aug 1 09:23:58.944 CST: TAC+: send AUTHEN/START packet ver=193 id=3527356355
Aug 1 09:23:59.172 CST: TAC+: ver=193 id=3527356355 received AUTHEN
status = PASS
Aug 1 09:23:59.172 CST: AAA/AUTHEN (3527356355): status = PASS
```

*!--- AAA Authorization request sent to AAA server for LCP.*

```
Aug 1 09:23:59.180 CST: As6 AAA/AUTHOR/LCP: Authorize LCP
Aug 1 09:23:59.184 CST: As6 AAA/AUTHOR/LCP (1701401119): Port='Async6'
  list='' service=NET
Aug 1 09:23:59.188 CST: AAA/AUTHOR/LCP: As6 (1701401119) user='callback_user'
Aug 1 09:23:59.192 CST: As6 AAA/AUTHOR/LCP (1701401119): send AV service=ppp
Aug 1 09:23:59.196 CST: As6 AAA/AUTHOR/LCP (1701401119): send AV protocol=lcp
Aug 1 09:23:59.196 CST: As6 AAA/AUTHOR/LCP (1701401119): found list "default"
Aug 1 09:23:59.200 CST: As6 AAA/AUTHOR/LCP (1701401119):
  Method=tacacs+ (tacacs+)
```

```
!--- Receive PASS from AAA Server, set the callback dialstring
!--- via the "callback-dialstring" Attribute Value Pair.
```

```
Aug 1 09:23:59.204 CST: AAA/AUTHOR/TAC+: (1701401119): user=callback_user
Aug 1 09:23:59.208 CST: AAA/AUTHOR/TAC+: (1701401119): send AV service=ppp
Aug 1 09:23:59.212 CST: AAA/AUTHOR/TAC+: (1701401119): send AV protocol=lcp
Aug 1 09:23:59.440 CST: TAC+: (1701401119): received author response status
  = PASS_ADD
Aug 1 09:23:59.448 CST: As6 AAA/AUTHOR (1701401119): Post authorization status
  = PASS_ADD
Aug 1 09:23:59.452 CST: As6 AAA/AUTHOR/LCP: Processing AV service=ppp
Aug 1 09:23:59.456 CST: As6 AAA/AUTHOR/LCP: Processing AV protocol=lcp
Aug 1 09:23:59.456 CST: As6 AAA/AUTHOR/LCP: Processing AV
  callback-dialstring=81550
```

### Stage 3

```
maui-nas-01#show debug
```

```
General OS:
Modem control/process activation debugging is on
PPP:
PPP protocol negotiation debugging is on
Chat Scripts:
Chat scripts activity debugging is on
Callback:
Callback activity debugging is on
```

```
Aug 1 09:33:38.862 CST: As7 MCB: User callback_user Callback Number
  - Server 81550
Aug 1 09:33:38.870 CST: Async7 PPP: O MCB Request(1) id 1 len 7
Aug 1 09:33:38.874 CST: Async7 MCB: O 1 1 0 7 3 3 0
Aug 1 09:33:38.874 CST: As7 MCB: O Request Id 1 Callback Type
  Server-Num delay 0
Aug 1 09:33:38.878 CST: As7 PPP: Phase is CBCP
Aug 1 09:33:39.018 CST: Async7 PPP: I MCB Response(2) id 1 len 7
Aug 1 09:33:39.022 CST: Async7 MCB: I 2 1 0 7 3 3 C
Aug 1 09:33:39.026 CST: As7 MCB: Received response
Aug 1 09:33:39.026 CST: As7 MCB: Response CBK-Server-Num 3 3 12
Aug 1 09:33:39.034 CST: Async7 PPP: O MCB Ack(3) id 2 len 7
Aug 1 09:33:39.034 CST: Async7 MCB: O 3 2 0 7 3 3 C
Aug 1 09:33:39.038 CST: As7 MCB: O Ack Id 2 Callback Type Server-Num delay 12
Aug 1 09:33:39.042 CST: As7 MCB: Negotiated MCB with peer
```

```
!--- NAS sends LCP Terminate Request from client.
```

```
Aug 1 09:33:39.182 CST: As7 LCP: I TERMREQ [Open] id 6 len 16
  (0x566260A7003CCD7400000000)
```

```
!--- NAS receives Terminate Acknowledge from client.
```

```
Aug 1 09:33:39.186 CST: As7 LCP: O TERMACK [Open] id 6 len 4
Aug 1 09:33:39.190 CST: As7 MCB: Peer terminating the link
Aug 1 09:33:39.194 CST: As7 MCB: Link terminated by peer, Callback Needed
Aug 1 09:33:39.198 CST: As7 MCB: Initiate Callback for callback_user
  at 81550 using Async
Aug 1 09:33:39.202 CST: As7 MCB: Async-callback in progress
```

Aug 1 09:33:39.206 CST: As7 PPP: Phase is TERMINATING

*!--- NAS disconnects and initiates offhook and CALLBACK chat scripts.*

```
Aug 1 09:33:39.210 CST: TTY7 Callback PPP process creation
Aug 1 09:33:39.218 CST: TTY7 Callback process initiated, user: dialstring 81550
Aug 1 09:33:40.110 CST: %ISDN-6-DISCONNECT: Interface Serial0:5 disconnected
    from unknown , call lasted 19 seconds
Aug 1 09:33:40.294 CST: TTY7: Async Int reset: Dropping DTR
Aug 1 09:33:41.210 CST: As7 LCP: TIMEout: State TERMsent
Aug 1 09:33:41.210 CST: As7 LCP: State is Closed
Aug 1 09:33:41.214 CST: As7 PPP: Phase is DOWN
Aug 1 09:33:41.218 CST: As7 PPP: Phase is ESTABLISHING, Passive Open
Aug 1 09:33:41.226 CST: As7 LCP: State is Listen
Aug 1 09:33:42.298 CST: %LINK-5-CHANGED: Interface Async7,
    changed state to reset
Aug 1 09:33:42.318 CST: As7 LCP: State is Closed
Aug 1 09:33:42.318 CST: As7 PPP: Phase is DOWN
Aug 1 09:33:45.302 CST: As7 IPCP: Remove route to 172.22.53.147
Aug 1 09:33:45.306 CST: TTY7 Callback forced wait = 5 seconds
Aug 1 09:33:47.302 CST: %LINK-3-UPDOWN: Interface Async7, changed state to down
Aug 1 09:33:47.322 CST: As7 LCP: State is Closed
Aug 1 09:33:50.310 CST: CHAT7: Matched chat script offhook to string offhook
Aug 1 09:33:50.314 CST: CHAT7: Asserting DTR
Aug 1 09:33:50.318 CST: CHAT7: Chat script offhook started
Aug 1 09:33:50.322 CST: CHAT7: Sending string: ATH1
Aug 1 09:33:50.322 CST: CHAT7: Expecting string: OK
Aug 1 09:33:50.634 CST: CHAT7: Completed match for expect: OK
Aug 1 09:33:50.638 CST: CHAT7: Sending string: \c
Aug 1 09:33:50.638 CST: CHAT7: Chat script offhook finished, status = Success
Aug 1 09:33:50.642 CST: CHAT7: Matched chat script CALLBACK to string CALLBACK
Aug 1 09:33:50.650 CST: CHAT7: Asserting DTR
Aug 1 09:33:50.650 CST: CHAT7: Chat script CALLBACK started
Aug 1 09:33:50.654 CST: CHAT7: Sending string: AT
Aug 1 09:33:50.658 CST: CHAT7: Expecting string: OK
Aug 1 09:33:50.686 CST: CHAT7: Completed match for expect: OK
Aug 1 09:33:50.686 CST: CHAT7: Sending string: ATDT \T<81550>
Aug 1 09:33:50.694 CST: CHAT7: Expecting string: CONNECT
Aug 1 09:34:04.051 CST: %ISDN-6-CONNECT: Interface Serial0:0 is now
    connected to 81550
Aug 1 09:34:17.543 CST: CHAT7: Completed match for expect: CONNECT
Aug 1 09:34:17.547 CST: CHAT7: Sending string: \c
Aug 1 09:34:17.547 CST: CHAT7: Chat script CALLBACK finished, status = Success
```

#### Stage 4

```
maui-nas-01#debug aaa authentication
maui-nas-01#debug aaa authorization
maui-nas-01#debug ppp authentication
```

```
maui-nas-01#show debug
General OS:
AAA Authentication debugging is on
AAA Authorization debugging is on
PPP:
PPP authentication debugging is on
PPP protocol negotiation debugging is on
```

*!--- AAA/ PPP negotiation begins.*

```
Aug 1 09:42:15.096 CST: TTY8: Callback starting PPP directly with
    valid auth info
Aug 1 09:42:15.104 CST: TTY8: destroy timer type 1
Aug 1 09:42:15.104 CST: TTY8: destroy timer type 0
Aug 1 09:42:15.160 CST: As8 LCP: I CONFREQ [Closed] id 0 len 47
Aug 1 09:42:15.164 CST: As8 LCP: ACCM 0x00000000 (0x020600000000)
```

Aug 1 09:42:15.168 CST: As8 LCP: MagicNumber 0x5FA259DE (0x05065FA259DE)  
Aug 1 09:42:15.172 CST: As8 LCP: PFC (0x0702)  
Aug 1 09:42:15.172 CST: As8 LCP: ACFC (0x0802)  
Aug 1 09:42:15.176 CST: As8 LCP: MRRU 1614 (0x1104064E)  
Aug 1 09:42:15.180 CST: As8 LCP: EndpointDisc 1 Local  
Aug 1 09:42:15.184 CST: As8 LCP: (0x131701DC57FC8B1CEA4CCEA064C0D958)  
Aug 1 09:42:15.188 CST: As8 LCP: (0x82667300000000)  
Aug 1 09:42:15.192 CST: As8 LCP: Lower layer not up, Fast Starting  
Aug 1 09:42:15.196 CST: As8 PPP: Treating connection as a callout  
Aug 1 09:42:15.200 CST: As8 PPP: Phase is ESTABLISHING, Active Open  
Aug 1 09:42:15.204 CST: AAA/MEMORY: dup\_user (0x4DDDF8) user='callback\_user'  
ruser='' port='Async8' rem\_addr='async/81560' authen\_type=CHAP service=PPP  
priv=1 source='AAA dup lcp\_reset'  
Aug 1 09:42:15.212 CST: AAA/MEMORY: free\_user (0x2F5418) user='callback\_user'  
ruser='' port='Async8' rem\_addr='async/81560' authen\_type=CHAP service=PPP  
priv=1  
Aug 1 09:42:15.216 CST: As8 AAA/AUTHEN: Method=IF-NEEDED: no authentication  
needed. user='callback\_user' port='Async8' rem\_addr='async/81560'  
Aug 1 09:42:15.224 CST: As8 AAA/AUTHOR/FSM: (0): LCP succeeds trivially  
Aug 1 09:42:15.228 CST: As8 LCP: O CONFREQ [Closed] id 2 len 20  
Aug 1 09:42:15.232 CST: As8 LCP: ACCM 0x000A0000 (0x0206000A0000)  
Aug 1 09:42:15.236 CST: As8 LCP: MagicNumber 0x6530AEA5 (0x05066530AEA5)  
Aug 1 09:42:15.240 CST: As8 LCP: PFC (0x0702)  
Aug 1 09:42:15.240 CST: As8 LCP: ACFC (0x0802)  
Aug 1 09:42:15.248 CST: As8 LCP: O CONFREQ [REQsent] id 0 len 8  
Aug 1 09:42:15.252 CST: As8 LCP: MRRU 1614 (0x1104064E)  
Aug 1 09:42:15.260 CST: %LINK-3-UPDOWN: Interface Async8, changed state to up  
Aug 1 09:42:15.368 CST: As8 LCP: I CONFACK [REQsent] id 2 len 20  
Aug 1 09:42:15.372 CST: As8 LCP: ACCM 0x000A0000 (0x0206000A0000)  
Aug 1 09:42:15.376 CST: As8 LCP: MagicNumber 0x6530AEA5 (0x05066530AEA5)  
Aug 1 09:42:15.380 CST: As8 LCP: PFC (0x0702)  
Aug 1 09:42:15.384 CST: As8 LCP: ACFC (0x0802)  
Aug 1 09:42:15.404 CST: As8 LCP: I CONFREQ [ACKrcvd] id 1 len 43  
Aug 1 09:42:15.408 CST: As8 LCP: ACCM 0x00000000 (0x020600000000)  
Aug 1 09:42:15.412 CST: As8 LCP: MagicNumber 0x5FA259DE (0x05065FA259DE)  
Aug 1 09:42:15.412 CST: As8 LCP: PFC (0x0702)  
Aug 1 09:42:15.416 CST: As8 LCP: ACFC (0x0802)  
Aug 1 09:42:15.420 CST: As8 LCP: EndpointDisc 1 Local  
Aug 1 09:42:15.424 CST: As8 LCP: (0x131701DC57FC8B1CEA4CCEA064C0D958)  
Aug 1 09:42:15.428 CST: As8 LCP: (0x82667300000000)  
Aug 1 09:42:15.432 CST: As8 LCP: O CONFACK [ACKrcvd] id 1 len 43  
Aug 1 09:42:15.436 CST: As8 LCP: ACCM 0x00000000 (0x020600000000)  
Aug 1 09:42:15.440 CST: As8 LCP: MagicNumber 0x5FA259DE (0x05065FA259DE)  
Aug 1 09:42:15.444 CST: As8 LCP: PFC (0x0702)  
Aug 1 09:42:15.448 CST: As8 LCP: ACFC (0x0802)  
Aug 1 09:42:15.452 CST: As8 LCP: EndpointDisc 1 Local  
Aug 1 09:42:15.456 CST: As8 LCP: (0x131701DC57FC8B1CEA4CCEA064C0D958)  
Aug 1 09:42:15.460 CST: As8 LCP: (0x82667300000000)  
Aug 1 09:42:15.460 CST: As8 LCP: State is Open  
Aug 1 09:42:15.468 CST: As8 AAA/AUTHOR/LCP: Authorize LCP  
Aug 1 09:42:15.468 CST: As8 AAA/AUTHOR/LCP (2679858087): Port='Async8' list=''  
service=NET  
Aug 1 09:42:15.472 CST: AAA/AUTHOR/LCP: As8 (2679858087) user='callback\_user'  
Aug 1 09:42:15.476 CST: As8 AAA/AUTHOR/LCP (2679858087): send AV service=ppp  
Aug 1 09:42:15.480 CST: As8 AAA/AUTHOR/LCP (2679858087): send AV protocol=lcp  
Aug 1 09:42:15.484 CST: As8 AAA/AUTHOR/LCP (2679858087): found list "default"  
Aug 1 09:42:15.488 CST: As8 AAA/AUTHOR/LCP (2679858087): Method=tacacs+ (tacacs+)  
Aug 1 09:42:15.492 CST: AAA/AUTHOR/TAC+: (2679858087): user=callback\_user  
Aug 1 09:42:15.492 CST: AAA/AUTHOR/TAC+: (2679858087): send AV service=ppp  
Aug 1 09:42:15.496 CST: AAA/AUTHOR/TAC+: (2679858087): send AV protocol=lcp  
Aug 1 09:42:15.724 CST: TAC+: (2679858087): received author response status  
= PASS\_ADD  
Aug 1 09:42:15.732 CST: As8 AAA/AUTHOR (2679858087): Post authorization status  
= PASS\_ADD  
Aug 1 09:42:15.736 CST: As8 AAA/AUTHOR/LCP: Processing AV service=ppp  
Aug 1 09:42:15.740 CST: As8 AAA/AUTHOR/LCP: Processing AV protocol=lcp

Aug 1 09:42:15.740 CST: As8 AAA/AUTHOR/LCP: Processing AV  
callback-dialstring=81550  
Aug 1 09:42:15.748 CST: As8 PPP: Phase is UP  
Aug 1 09:42:15.752 CST: As8 AAA/AUTHOR/FSM: (0): Can we start IPCP?  
Aug 1 09:42:15.756 CST: As8 AAA/AUTHOR/FSM (3644410406): Port='Async8' list=''  
service=NET  
Aug 1 09:42:15.760 CST: AAA/AUTHOR/FSM: As8 (3644410406) user='callback\_user'  
Aug 1 09:42:15.764 CST: As8 AAA/AUTHOR/FSM (3644410406): send AV service=ppp  
Aug 1 09:42:15.768 CST: As8 AAA/AUTHOR/FSM (3644410406): send AV protocol=ip  
Aug 1 09:42:15.768 CST: As8 AAA/AUTHOR/FSM (3644410406): found list "default"  
Aug 1 09:42:15.772 CST: As8 AAA/AUTHOR/FSM (3644410406): Method=tacacs+ (tacacs+)  
Aug 1 09:42:15.776 CST: AAA/AUTHOR/TAC+: (3644410406): user=callback\_user  
Aug 1 09:42:15.780 CST: AAA/AUTHOR/TAC+: (3644410406): send AV service=ppp  
Aug 1 09:42:15.784 CST: AAA/AUTHOR/TAC+: (3644410406): send AV protocol=ip  
Aug 1 09:42:16.016 CST: TAC+: (3644410406): received author response status  
= PASS\_ADD  
Aug 1 09:42:16.020 CST: As8 AAA/AUTHOR (3644410406): Post authorization status  
= PASS\_ADD  
Aug 1 09:42:16.028 CST: As8 AAA/AUTHOR/FSM: We can start IPCP  
Aug 1 09:42:16.032 CST: As8 IPCP: O CONFREQ [Closed] id 1 len 16  
Aug 1 09:42:16.036 CST: As8 IPCP: CompressType VJ 15 slots (0x0206002D0F00)  
Aug 1 09:42:16.040 CST: As8 IPCP: Address 172.22.53.101 (0x0306AC163565)  
Aug 1 09:42:16.048 CST: As8 LCP: I IDENTIFY [Open] id 2 len 18 magic  
0x5FA259DEMSRASV5.00  
Aug 1 09:42:16.052 CST: As8 LCP: I IDENTIFY [Open] id 3 len 29 magic  
0x5FA259DEMSRAS-1-RBROWN-LAPTOP  
Aug 1 09:42:16.056 CST: As8 CCP: I CONFREQ [Not negotiated] id 4 len 10  
Aug 1 09:42:16.060 CST: As8 CCP: MS-PPC supported bits 0x00000001  
(0x120600000001)  
Aug 1 09:42:16.068 CST: As8 LCP: O PROTREJ [Open] id 3 len 16 protocol CCP  
(0x80FD0104000A120600000001)  
Aug 1 09:42:16.080 CST: As8 IPCP: I CONFREQ [REQsent] id 5 len 40  
Aug 1 09:42:16.084 CST: As8 IPCP: CompressType VJ 15 slots CompressSlotID  
(0x0206002D0F01)  
Aug 1 09:42:16.088 CST: As8 IPCP: Address 0.0.0.0 (0x030600000000)  
Aug 1 09:42:16.092 CST: As8 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)  
Aug 1 09:42:16.096 CST: As8 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)  
Aug 1 09:42:16.100 CST: As8 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)  
Aug 1 09:42:16.104 CST: As8 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)  
Aug 1 09:42:16.108 CST: As8 AAA/AUTHOR/IPCP: Start. Her address 0.0.0.0, we  
want 172.22.53.148  
Aug 1 09:42:16.112 CST: As8 AAA/AUTHOR/IPCP: Processing AV service=ppp  
Aug 1 09:42:16.116 CST: As8 AAA/AUTHOR/IPCP: Processing AV protocol=ip  
Aug 1 09:42:16.120 CST: As8 AAA/AUTHOR/IPCP: Authorization succeeded  
Aug 1 09:42:16.120 CST: As8 AAA/AUTHOR/IPCP: Done. Her address 0.0.0.0, we want  
172.22.53.148  
Aug 1 09:42:16.128 CST: As8 IPCP: O CONFREQ [REQsent] id 5 len 22  
Aug 1 09:42:16.132 CST: As8 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)  
Aug 1 09:42:16.136 CST: As8 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)  
Aug 1 09:42:16.144 CST: As8 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)  
Aug 1 09:42:16.184 CST: As8 IPCP: I CONFACK [REQsent] id 1 len 16  
Aug 1 09:42:16.188 CST: As8 IPCP: CompressType VJ 15 slots (0x0206002D0F00)  
Aug 1 09:42:16.192 CST: As8 IPCP: Address 172.22.53.101 (0x0306AC163565)  
Aug 1 09:42:16.680 CST: As8 IPCP: I CONFREQ [ACKrcvd] id 6 len 22  
Aug 1 09:42:16.684 CST: As8 IPCP: CompressType VJ 15 slots CompressSlotID  
(0x0206002D0F01)  
Aug 1 09:42:16.688 CST: As8 IPCP: Address 0.0.0.0 (0x030600000000)  
Aug 1 09:42:16.692 CST: As8 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)  
Aug 1 09:42:16.696 CST: As8 AAA/AUTHOR/IPCP: Start. Her address 0.0.0.0, we  
want 172.22.53.148  
Aug 1 09:42:16.700 CST: As8 AAA/AUTHOR/IPCP: Processing AV service=ppp  
Aug 1 09:42:16.704 CST: As8 AAA/AUTHOR/IPCP: Processing AV protocol=ip  
Aug 1 09:42:16.708 CST: As8 AAA/AUTHOR/IPCP: Authorization succeeded  
Aug 1 09:42:16.708 CST: As8 AAA/AUTHOR/IPCP: Done. Her address 0.0.0.0, we  
want 172.22.53.148  
Aug 1 09:42:16.716 CST: As8 IPCP: O CONFNAK [ACKrcvd] id 6 len 16

```
Aug 1 09:42:16.720 CST: As8 IPCP: Address 172.22.53.148 (0x0306AC163594)
Aug 1 09:42:16.724 CST: As8 IPCP: PrimaryDNS 172.22.53.210 (0x8106AC1635D2)
Aug 1 09:42:16.748 CST: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async8,
changed state to up
Aug 1 09:42:16.852 CST: As8 IPCP: I CONFREQ [ACKrcvd] id 7 len 22
Aug 1 09:42:16.856 CST: As8 IPCP: CompressType VJ 15 slots CompressSlotID
(0x0206002D0F01)
Aug 1 09:42:16.860 CST: As8 IPCP: Address 172.22.53.148 (0x0306AC163594)
Aug 1 09:42:16.864 CST: As8 IPCP: PrimaryDNS 172.22.53.210 (0x8106AC1635D2)
Aug 1 09:42:16.868 CST: As8 AAA/AUTHOR/IPCP: Start. Her address 172.22.53.148,
we want 172.22.53.148
Aug 1 09:42:16.876 CST: As8 AAA/AUTHOR/IPCP (4022385425): Port='Async8'
list='service=NET
Aug 1 09:42:16.880 CST: AAA/AUTHOR/IPCP: As8 (4022385425) user='callback_user'
Aug 1 09:42:16.884 CST: As8 AAA/AUTHOR/IPCP (4022385425): send AV service=ppp
Aug 1 09:42:16.888 CST: As8 AAA/AUTHOR/IPCP (4022385425): send AV protocol=ip
Aug 1 09:42:16.892 CST: As8 AAA/AUTHOR/IPCP (4022385425):
send AV addr*172.22.53.148
Aug 1 09:42:16.892 CST: As8 AAA/AUTHOR/IPCP (4022385425): found list "default"
Aug 1 09:42:16.896 CST: As8 AAA/AUTHOR/IPCP (4022385425): Method=tacacs+ (tacacs+)
Aug 1 09:42:16.900 CST: AAA/AUTHOR/TAC+: (4022385425): user=callback_user
Aug 1 09:42:16.904 CST: AAA/AUTHOR/TAC+: (4022385425): send AV service=ppp
Aug 1 09:42:16.908 CST: AAA/AUTHOR/TAC+: (4022385425): send AV protocol=ip
Aug 1 09:42:16.912 CST: AAA/AUTHOR/TAC+: (4022385425):
send AV addr*172.22.53.148
Aug 1 09:42:17.140 CST: TAC+: (4022385425): received author response status
= PASS_REPL
Aug 1 09:42:17.148 CST: As8 AAA/AUTHOR (4022385425): Post authorization status
= PASS_REPL
Aug 1 09:42:17.156 CST: As8 AAA/AUTHOR/IPCP: Reject 172.22.53.148,
using 172.22.53.148
Aug 1 09:42:17.164 CST: As8 AAA/AUTHOR/IPCP: Processing AV service=ppp
Aug 1 09:42:17.164 CST: As8 AAA/AUTHOR/IPCP: Processing AV protocol=ip
Aug 1 09:42:17.168 CST: As8 AAA/AUTHOR/IPCP: Processing AV addr*172.22.53.148
Aug 1 09:42:17.172 CST: As8 AAA/AUTHOR/IPCP: Authorization succeeded
Aug 1 09:42:17.176 CST: As8 AAA/AUTHOR/IPCP: Done. Her address 172.22.53.148,
we want 172.22.53.148
Aug 1 09:42:17.180 CST: As8 IPCP: O CONFACK [ACKrcvd] id 7 len 22
Aug 1 09:42:17.184 CST: As8 IPCP: CompressType VJ 15 slots CompressSlotID
(0x0206002D0F01)
Aug 1 09:42:17.192 CST: As8 IPCP: Address 172.22.53.148 (0x0306AC163594)
Aug 1 09:42:17.196 CST: As8 IPCP: PrimaryDNS 172.22.53.210 (0x8106AC1635D2)
Aug 1 09:42:17.200 CST: As8 IPCP: State is Open
Aug 1 09:42:17.220 CST: As8 IPCP: Install route to 172.22.53.148
```

## Related Information

- [Cisco Secure ACS for Windows Support Page](#)
- [Documentation for Cisco Secure ACS for Windows](#)
- [Documentation for Cisco Secure ACS for UNIX](#)
- [TACACS+ Support Page](#)
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