# Configuring PPP Callback with RADIUS

**Document ID: 12427**

# Contents

# Introduction

This document shows examples of configuring the router and server to do Point–to–Point Protocol (PPP) callback with RADIUS.

# Before You Begin

## Conventions

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

## Prerequisites

To make this work:

- Do initial testing with local authentication and callback (that is, remove the **aaa new–model** command). If callback does not work with local authentication, it will not work with RADIUS. See this example of using local authentication.
- Do further PPP authentication testing with RADIUS without callback. If users FAIL authentication and/or authorization without callback, authentication and authorization will not work with callback.
- Once local authentication for callback and PPP authentication with RADIUS 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 was an NT 4.0 server, DUN, set up as usual for a PPP connection, but with **Enable PPP/LCP** extensions checked under **Server** to allow Microsoft callback. Microsoft callback is supported in Cisco IOS® Software Releases 11.3.2.T and later. For specific information on how to setup your Microsoft Windows PC for Callback, refer to the Microsoft website.

## Components Used

This configuration was developed and tested using the software versions below.

- Cisco IOS Software Release 11.3.2.T and later
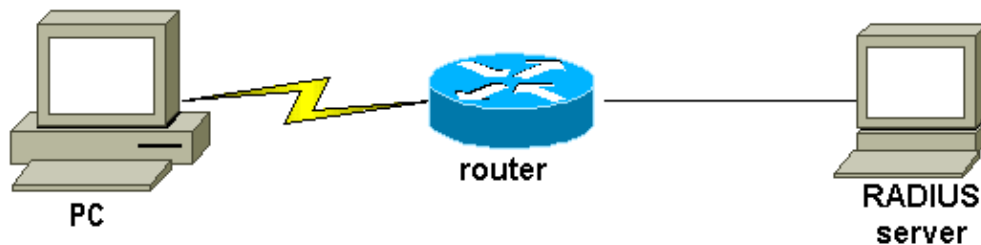- CiscoSecure ACS UNIX 2.x or CiscoSecure ACS for Windows 2.x or higher

# 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 the diagram below.



## Server Setup – CiscoSecure NT

- User gets password and confirm password.
- In Group Settings: attribute 006 Service−Type = Framed attribute 007 Framed−Protocol = PPP
- In the last box on the screen, Cisco RADIUS Attributes, check [009\001 – AV−Pair] and underneath, enter: **lcp:callback−dialstring=20367**

## Server Setup – CiscoSecure UNIX

```
rtp-berry# ./ViewProfile -p 9900 -u callback
User Profile Information
user = callback{
profile_id = 34
profile_cycle = 1
radius=Cisco {
check_items= {
2="callback"
}
reply_attributes= {
6=2
7=1
9,1="lcp:callback-dialstring=20367"
```

```
        }
    }

    }
```

## Server Setup – Livingston RADIUS (with Cisco av–pairs)

```
        callback2 Password = "callback2"
        User-Service-Type = Framed-User,
        Framed-Protocol = PPP,
        cisco-avpair = "lcp:callback-dialstring=20367"
```

## Configurations

| Router Configuration |
| --- |

```
rtpkrb#show run
Building configuration...

Current configuration:
!
version 11.3
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname rtpkrb
!

!--- AAA configuration.

aaa new-model
aaa authentication login default radius none
aaa authentication ppp default radius none
aaa authorization exec default radius none
aaa authorization network default radius none
enable secret 5 $1$pkX.$JdAySRE1SbdbDe7bj0wyt0
enable password ww
!
ip host rtpkrb 10.31.1.5
ip domain-name RTP.CISCO.COM
ip name-server 171.68.118.103

!--- Chat-scripts to be used for the dialout.

chat-script offhook "" "ATH1" OK
chat-script callback ABORT ERROR ABORT BUSY "" "ATZ" OK "ATDT \T"
   TIMEOUT 30 CONNECT \c
!
interface Loopback0
ip address 1.1.1.1 255.255.255.0
!
interface Ethernet0
ip address 10.31.1.5 255.255.0.0
!
interface Serial0
no ip address
no ip mroute-cache
shutdown
!
interface Serial1
```

```
no ip address
shutdown
!
interface Async1
ip unnumbered Ethernet0
encapsulation ppp
async mode dedicated
peer default ip address pool async
no cdp enable
ppp max-bad-auth 3
ppp callback accept
ppp authentication pap
!
ip local pool async 15.15.15.15
ip classless
ip route 0.0.0.0 0.0.0.0 10.31.1.1
snmp-server community public RW
snmp-server host 171.68.118.100 traps public
radius-server host 171.68.118.101 auth-port 1645 acct-port 1646
radius-server key cisco
!
line con 0
line 1
session-timeout 20
exec-timeout 20 0
password ww
autoselect ppp
script modem-off-hook offhook
script callback callback
modem InOut
transport input all
stopbits 1
speed 38400
flowcontrol hardware
line 2
modem InOut
speed 38400
flowcontrol hardware
line 3 16
line aux 0
line vty 0 4
exec-timeout 0 0
timeout login response 100
password ww
!
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, please see Important Information on Debug Commands.

- **debug aaa authentication**Display information on AAA authentication.
- **debug aaa authorization** – Display information on AAA authorization.

- **debug callback** – Display callback events when the router is using a modem and a chat script to call back on a terminal line.
- **debug chat** – Display 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** – Observe modem line activity on an access server.
- **debug ppp negotiation** – Display PPP packets transmitted during PPP startup, where PPP options are negotiated.
- **debug ppp authentication** – Display authentication protocol messages, including Challenge Authentication Protocol (CHAP) packet exchanges and Password Authentication Protocol (PAP) exchanges.
- **debug radius** – Display detailed debugging information associated with RADIUS.

# Sample Debug Output

```
General OS:
Modem control/process activation debugging is on
AAA Authentication debugging is on
AAA Authorization debugging is on
PPP:
PPP protocol negotiation debugging is on
Chat Scripts:
Chat scripts activity debugging is on
Callback:
Callback activity debugging is on
Radius protocol debugging is on
rtpkrb#
04:04:42: TTY1: DSR came up
04:04:42: tty1: Modem: IDLE->READY
04:04:42: TTY1: Autoselect started
04:04:44: TTY1: Autoselect sample 7E
04:04:44: TTY1: Autoselect sample 7EFF
04:04:44: TTY1: Autoselect sample 7EFF7D
04:04:44: TTY1: Autoselect sample 7EFF7D23
04:04:44: TTY1 Autoselect cmd: ppp negotiate
04:04:44: TTY1: EXEC creation
04:04:46: %LINK-3-UPDOWN: Interface Async1, changed state to up
04:04:46: As1 PPP: Treating connection as a dedicated line
04:04:46: As1 PPP: Phase is ESTABLISHING, Active Open
04:04:46: As1 LCP: O CONFREQ [Closed] id 224 len 24
04:04:46: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
04:04:46: As1 LCP: AuthProto PAP (0x0304C023)
04:04:46: As1 LCP: MagicNumber 0xE0FE5C09 (0x0506E0FE5C09)
04:04:46: As1 LCP: PFC (0x0702)
04:04:46: As1 LCP: ACFC (0x0802)
04:04:46: As1 LCP: I CONFACK [REQsent] id 224 len 24
04:04:46: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
04:04:46: As1 LCP: AuthProto PAP (0x0304C023)
04:04:46: As1 LCP: MagicNumber 0xE0FE5C09 (0x0506E0FE5C09)
04:04:46: As1 LCP: PFC (0x0702)
04:04:46: As1 LCP: ACFC (0x0802)
04:04:47: As1 LCP: I CONFREQ [ACKrcvd] id 0 len 23
04:04:47: As1 LCP: ACCM 0x00000000 (0x020600000000)
04:04:47: As1 LCP: MagicNumber 0x00006CCD (0x050600006CCD)
04:04:47: As1 LCP: PFC (0x0702)
04:04:47: As1 LCP: ACFC (0x0802)
04:04:47: As1 LCP: Callback 6 (0x0D0306)
04:04:47: As1 LCP: O CONFACK [ACKrcvd] id 0 len 23
04:04:47: As1 LCP: ACCM 0x00000000 (0x020600000000)
04:04:47: As1 LCP: MagicNumber 0x00006CCD (0x050600006CCD)
04:04:47: As1 LCP: PFC (0x0702)
04:04:47: As1 LCP: ACFC (0x0802)
```

```
04:04:47: As1 LCP: Callback 6 (0x0D0306)
04:04:47: As1 LCP: State is Open
04:04:47: As1 PPP: Phase is AUTHENTICATING, by this end
04:04:47: As1 LCP: I IDENTIFY [Open] id 1 len 18 magic
   0x00006CCD MSRASV4.00
04:04:47: As1 LCP: I IDENTIFY [Open] id 2 len 21 magic
   0x00006CCD MSRAS-1-ZEKIE
04:04:47: As1 PAP: I AUTH-REQ id 15 len 24 from "callback2"
04:04:47: As1 PAP: Authenticating peer callback2
04:04:47: AAA/AUTHEN: create_user (0x14B1CC) user='callback2' ruser=''
   port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=1
04:04:47: AAA/AUTHEN/START (3229557248): port='Async1' list=''
   action=LOGIN service=PPP
04:04:47: AAA/AUTHEN/START (3229557248): using "default" list
04:04:47: AAA/AUTHEN/START (3229557248): Method=RADIUS
04:04:47: RADIUS: Computed extended port value 0:1:
04:04:47: RADIUS: Initial Transmit id 156 171.68.118.101:1645,
   Access-Request, len 79
04:04:47: Attribute 4 6 0A1F0105
04:04:47: Attribute 5 6 00000001
04:04:47: Attribute 61 6 00000000
04:04:47: Attribute 1 11 63616C6C
04:04:47: Attribute 2 18 47E86FBC
04:04:47: Attribute 6 6 00000002
04:04:47: Attribute 7 6 00000001
04:04:47: RADIUS: Received from id 156 171.68.118.101:1645,
   Access-Accept, len 69
04:04:47: Attribute 6 6 00000002
04:04:47: Attribute 7 6 00000001
04:04:47: Attribute 26 37 00000009011F6C63
04:04:47: RADIUS: saved authorization data for user 14B1CC at 14A684
04:04:47: AAA/AUTHEN (3229557248): status = PASS
04:04:47: AAA/AUTHOR/LCP As1: Authorize LCP
04:04:47: AAA/AUTHOR/LCP As1 (101984404): Port='Async1'
   list='' service=NET
04:04:47: AAA/AUTHOR/LCP: As1 (101984404) user='callback2'
04:04:47: AAA/AUTHOR/LCP: As1 (101984404) send AV service=ppp
04:04:47: AAA/AUTHOR/LCP: As1 (101984404) send AV protocol=lcp
04:04:47: AAA/AUTHOR/LCP (101984404) found list "default"
04:04:47: AAA/AUTHOR/LCP: As1 (101984404) Method=RADIUS

!--- Callback number is obtained from the RADIUS server.

04:04:47: RADIUS: cisco AVPair "lcp:callback-dialstring=20367"
04:04:47: AAA/AUTHOR (101984404): Post authorization status = PASS_REPL
04:04:47: AAA/AUTHOR/LCP As1: Processing AV service=ppp
04:04:47: AAA/AUTHOR/LCP As1: Processing AV callback-dialstring=20367
04:04:47: As1 PAP: O AUTH-ACK id 15 len 5
04:04:47: As1 MCB: User callback2 Callback Number - Server 20367
04:04:47: Async1 PPP: O MCB Request(1) id 47 len 7
04:04:47: Async1 MCB: O 1 2F 0 7 3 3 0
04:04:47: As1 MCB: O Request Id 47 Callback Type Server-Num delay 0
04:04:47: Async1 PPP: I MCB Response(2) id 47 len 7
04:04:47: Async1 MCB: I 2 2F 0 7 3 3 C
04:04:47: As1 MCB: Received response
04:04:47: As1 MCB: Response CBK-Server-Num 3 3 12
04:04:47: Async1 PPP: O MCB Ack(3) id 48 len 7
04:04:47: Async1 MCB: O 3 30 0 7 3 3 C
04:04:47: As1 MCB: O Ack Id 48 Callback Type Server-Num delay 12
04:04:47: As1 MCB: Negotiated MCB with peer
04:04:47: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1,
   changed state to up
04:04:47: As1 LCP: I TERMREQ [Open] id 3 len 8 (0x00000000)
04:04:47: As1 LCP: O TERMACK [Open] id 3 len 4
04:04:47: As1 MCB: Peer terminating the link
04:04:47: As1 PPP: Phase is TERMINATING
```

```
04:04:47: As1 MCB: Link terminated by peer, Callback Needed
```

!--- Callback is initiated.

```
04:04:47: As1 MCB: Initiate Callback for callback2 at 20367 using Async
04:04:47: As1 MCB: Async-callback in progress
04:04:47: TTY1 Callback PPP process creation
04:04:47: As1 AAA/ACCT: Using PPP accounting list ""
04:04:47: TTY1 Callback process initiated, user: dialstring 20367
04:04:48: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1,
   changed state to down
04:04:48: TTY1: Async Int reset: Dropping DTR
04:04:49: As1 LCP: TIMEout: Time 0xE02574 State TERMsent
04:04:49: As1 LCP: State is Closed
04:04:49: As1 PPP: Phase is DOWN
04:04:49: As1 PPP: Phase is ESTABLISHING, Passive Open
04:04:49: As1 LCP: State is Listen
04:04:50: %LINK-5-CHANGED: Interface Async1, changed state to reset
04:04:50: As1 LCP: State is Closed
04:04:50: As1 PPP: Phase is DOWN
04:04:50: As1 IPCP: Remove route to 15.15.15.15
04:04:53: AAA/AUTHEN: free_user (0x14B1CC) user='callback2' ruser=''
   port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=1
04:04:53: TTY1 Callback forced wait = 4 seconds
04:04:55: %LINK-3-UPDOWN: Interface Async1, changed state to down
04:04:55: As1 LCP: State is Closed
04:04:55: As1 PPP: Phase is DOWN
04:04:57: CHAT1: Matched chat script offhook to string offhook
04:04:57: CHAT1: Asserting DTR
04:04:57: CHAT1: Chat script offhook started
04:04:57: CHAT1: Sending string: ATH1
04:04:57: CHAT1: Expecting string: OK
04:04:57: CHAT1: Completed match for expect: OK
04:04:57: CHAT1: Chat script offhook finished, status = Success
04:04:57: CHAT1: Matched chat script callback to string callback
04:04:57: CHAT1: Asserting DTR
04:04:57: CHAT1: Chat script callback started
04:04:57: CHAT1: Sending string: ATZ
04:04:57: CHAT1: Expecting string: OK
04:04:57: CHAT1: Completed match for expect: OK
04:04:57: CHAT1: Sending string: ATDT \T<20367>
04:04:57: CHAT1: Expecting string: CONNECT
04:05:14: CHAT1: Completed match for expect: CONNECT
04:05:14: CHAT1: Sending string: \c
04:05:14: CHAT1: Chat script callback finished, status = Success
04:05:14: TTY1 PPP Callback Successful - await exec/autoselect pickup
04:05:16: TTY1: DSR came up
04:05:16: TTY1: Callback in effect
04:05:16: tty1: Modem: IDLE->READY
04:05:16: TTY1: Autoselect started
04:05:16: As1 LCP: I CONFREQ [Closed] id 0 len 20
04:05:16: As1 LCP: ACCM 0x00000000 (0x020600000000)
04:05:16: As1 LCP: MagicNumber 0x000007A0 (0x0506000007A0)
04:05:16: As1 LCP: PFC (0x0702)
04:05:16: As1 LCP: ACFC (0x0802)
04:05:16: As1 LCP: Lower layer not up, discarding packet
04:05:18: %LINK-3-UPDOWN: Interface Async1, changed state to up
04:05:18: As1 PPP: Treating connection as a dedicated line
04:05:18: As1 PPP: Phase is ESTABLISHING, Active Open
04:05:18: As1 LCP: O CONFREQ [Closed] id 225 len 24
04:05:18: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
04:05:18: As1 LCP: AuthProto PAP (0x0304C023)
04:05:18: As1 LCP: MagicNumber 0xE0FED8A0 (0x0506E0FED8A0)
04:05:18: As1 LCP: PFC (0x0702)
04:05:18: As1 LCP: ACFC (0x0802)
04:05:18: As1 LCP: I CONFACK [REQsent] id 225 len 24
```

```
04:05:18: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
04:05:18: As1 LCP: AuthProto PAP (0x0304C023)
04:05:18: As1 LCP: MagicNumber 0xE0FED8A0 (0x0506E0FED8A0)
04:05:18: As1 LCP: PFC (0x0702)
04:05:18: As1 LCP: ACFC (0x0802)
04:05:19: As1 LCP: I CONFREQ [ACKrcvd] id 0 len 20
04:05:19: As1 LCP: ACCM 0x00000000 (0x020600000000)
04:05:19: As1 LCP: MagicNumber 0x000007A0 (0x0506000007A0)
04:05:19: As1 LCP: PFC (0x0702)
04:05:19: As1 LCP: ACFC (0x0802)
04:05:19: As1 LCP: O CONFACK [ACKrcvd] id 0 len 20
04:05:19: As1 LCP: ACCM 0x00000000 (0x020600000000)
04:05:19: As1 LCP: MagicNumber 0x000007A0 (0x0506000007A0)
04:05:19: As1 LCP: PFC (0x0702)
04:05:19: As1 LCP: ACFC (0x0802)
04:05:19: As1 LCP: State is Open
04:05:19: As1 PPP: Phase is AUTHENTICATING, by this end
04:05:19: As1 LCP: I IDENTIFY [Open] id 1 len 18 magic
   0x000007A0 MSRASV4.00
04:05:19: As1 LCP: I IDENTIFY [Open] id 2 len 21 magic
   0x000007A0 MSRAS-1-ZEKIE
04:05:19: As1 PAP: I AUTH-REQ id 16 len 24 from "callback2"
04:05:19: As1 PAP: Authenticating peer callback2
04:05:19: AAA/AUTHEN: create_user (0x14A640) user='callback2' ruser=''
   port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=1
04:05:19: AAA/AUTHEN/START (1256800753): port='Async1' list=''
   action=LOGIN service=PPP
04:05:19: AAA/AUTHEN/START (1256800753): using "default" list
04:05:19: AAA/AUTHEN/START (1256800753): Method=RADIUS
04:05:19: RADIUS: Computed extended port value 0:1:
04:05:19: RADIUS: Initial Transmit id 157 171.68.118.101:1645,
   Access-Request, len 79
04:05:19: Attribute 4 6 0A1F0105
04:05:19: Attribute 5 6 00000001
04:05:19: Attribute 61 6 00000000
04:05:19: Attribute 1 11 63616C6C
04:05:19: Attribute 2 18 C29C6276
04:05:19: Attribute 6 6 00000002
04:05:19: Attribute 7 6 00000001
04:05:19: RADIUS: Received from id 157 171.68.118.101:1645,
   Access-Accept, len 69
04:05:19: Attribute 6 6 00000002
04:05:19: Attribute 7 6 00000001
04:05:19: Attribute 26 37 00000009011F6C63
04:05:19: RADIUS: saved authorization data for user 14A640 at 14B1CC
04:05:19: AAA/AUTHEN (1256800753): status = PASS
04:05:19: AAA/AUTHOR/LCP As1: Authorize LCP
04:05:19: AAA/AUTHOR/LCP As1 (1783017574): Port='Async1'
   list='' service=NET
04:05:19: AAA/AUTHOR/LCP: As1 (1783017574) user='callback2'
04:05:19: AAA/AUTHOR/LCP: As1 (1783017574) send AV service=ppp
04:05:19: AAA/AUTHOR/LCP: As1 (1783017574) send AV protocol=lcp
04:05:19: AAA/AUTHOR/LCP (1783017574) found list "default"
04:05:19: AAA/AUTHOR/LCP: As1 (1783017574) Method=RADIUS
04:05:19: RADIUS: cisco AVPair "lcp:callback-dialstring=20367"
04:05:19: AAA/AUTHOR (1783017574): Post authorization status = PASS_REPL
04:05:19: AAA/AUTHOR/LCP As1: Processing AV service=ppp
04:05:19: AAA/AUTHOR/LCP As1: Processing AV callback-dialstring=20367
04:05:19: As1 PAP: O AUTH-ACK id 16 len 5
04:05:19: As1 PPP: Phase is UP
04:05:19: AAA/AUTHOR/FSM As1: (0): Can we start IPCP?
04:05:19: AAA/AUTHOR/FSM As1 (1621572650): Port='Async1'
   list='' service=NET
04:05:19: AAA/AUTHOR/FSM: As1 (1621572650) user='callback2'
04:05:19: AAA/AUTHOR/FSM: As1 (1621572650) send AV service=ppp
04:05:19: AAA/AUTHOR/FSM: As1 (1621572650) send AV protocol=ip
```

```
04:05:19: AAA/AUTHOR/FSM (1621572650) found list "default"
04:05:19: AAA/AUTHOR/FSM: As1 (1621572650) Method=RADIUS
04:05:19: RADIUS: cisco AVPair "lcp:callback-dialstring=20367"
   not applied for ip
04:05:19: AAA/AUTHOR (1621572650): Post authorization status = PASS_REPL
04:05:19: AAA/AUTHOR/FSM As1: We can start IPCP
04:05:19: As1 IPCP: O CONFREQ [Closed] id 24 len 10
04:05:19: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)
04:05:19: As1 IPCP: I CONFREQ [REQsent] id 3 len 40
04:05:19: As1 IPCP: CompressType VJ 15 slots CompressSlotID (0x0206002D0F01)
04:05:19: As1 IPCP: Address 0.0.0.0 (0x030600000000)
04:05:19: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)
04:05:19: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)
04:05:19: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)
04:05:19: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)
04:05:19: AAA/AUTHOR/IPCP As1: Start. Her address 0.0.0.0, we want 0.0.0.0
04:05:19: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
04:05:19: AAA/AUTHOR/IPCP As1: Authorization succeeded
04:05:19: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0, we want 0.0.0.0
04:05:19: As1 IPCP: Using pool 'async'
04:05:19: As1 IPCP: Pool returned 15.15.15.15
04:05:19: As1 IPCP: O CONFREJ [REQsent] id 3 len 28
04:05:19: As1 IPCP: CompressType VJ 15 slots CompressSlotID (0x0206002D0F01)
04:05:19: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)
04:05:19: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)
04:05:19: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)
04:05:19: As1 IPCP: I CONFACK [REQsent] id 24 len 10
04:05:19: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)
04:05:19: As1 IPCP: I CONFREQ [ACKrcvd] id 4 len 16
04:05:19: As1 IPCP: Address 0.0.0.0 (0x030600000000)
04:05:19: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)
04:05:19: AAA/AUTHOR/IPCP As1: Start. Her address 0.0.0.0,
   we want 15.15.15.15
04:05:19: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
04:05:19: AAA/AUTHOR/IPCP As1: Authorization succeeded
04:05:19: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0,
   we want 15.15.15.15
04:05:19: As1 IPCP: O CONFNAK [ACKrcvd] id 4 len 16
04:05:19: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
04:05:19: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
04:05:20: As1 IPCP: I CONFREQ [ACKrcvd] id 5 len 16
04:05:20: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
04:05:20: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
04:05:20: AAA/AUTHOR/IPCP As1: Start. Her address 15.15.15.15,
   we want 15.15.15.15
04:05:20: AAA/AUTHOR/IPCP As1 (2922034935): Port='Async1'
   list='' service=NET
04:05:20: AAA/AUTHOR/IPCP: As1 (2922034935) user='callback2'
04:05:20: AAA/AUTHOR/IPCP: As1 (2922034935) send AV service=ppp
04:05:20: AAA/AUTHOR/IPCP: As1 (2922034935) send AV protocol=ip
04:05:20: AAA/AUTHOR/IPCP: As1 (2922034935) send AV addr*15.15.15.15
04:05:20: AAA/AUTHOR/IPCP (2922034935) found list "default"
04:05:20: AAA/AUTHOR/IPCP: As1 (2922034935) Method=RADIUS
04:05:20: RADIUS: cisco AVPair "lcp:callback-dialstring=20367"
   not applied for ip
04:05:20: AAA/AUTHOR (2922034935): Post authorization status = PASS_REPL
04:05:20: AAA/AUTHOR/IPCP As1: Reject 15.15.15.15, using 15.15.15.15
04:05:20: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
04:05:20: AAA/AUTHOR/IPCP As1: Processing AV addr*15.15.15.15
04:05:20: AAA/AUTHOR/IPCP As1: Authorization succeeded
04:05:20: AAA/AUTHOR/IPCP As1: Done. Her address 15.15.15.15,
   we want 15.15.15.15
04:05:20: As1 IPCP: O CONFACK [ACKrcvd] id 5 len 16
04:05:20: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
04:05:20: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
04:05:20: As1 IPCP: State is Open
```

```
04:05:20: As1 IPCP: Install route to 15.15.15.15
04:05:20: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1,
   changed state to up
```

# PPP Callback with User−Specified Number

The previous examples were of callback at a predefined number (specified in the server). Callback may also be done at a user−specified numbe; that is, the callback number is specified as null in the authentication server. This causes the router to ask the user for a callback number. Again, initial testing should be done with local callback specified. If local callback and a null callback string does not work (that is, remove the **aaa new−model** command), RADIUS callback will not work! To specify a null callback string local to the router:

```
username callback callback-dialstring "" password 0 callback
```

On the PC, under Dial−Up−Networking (Windows NT server), User Preferences, check the **Callback − maybe ask me during redial if server offers** box. Once the user is authenticated, a window is displayed on the PC that says "Callback − You have entered "Set by caller," followed by the rest of the message, and then "Enter modem phone number."

# Server Configurations

## Server Setup – CiscoSecure NT

- User gets password and confirm password.
- In Group Settings: attribute 006 Service−Type = Framed attribute 007 Framed−Protocol = PPP
- In the last box on the screen, Cisco RADIUS Attributes, check [009\001 − AV−Pair] and underneath, enter: lcp:callback−dialstring=

## Server Setup – CiscoSecure UNIX

```
rtp-berry# ./ViewProfile -p 9900 -u callback
User Profile Information
user = callback{
profile_id = 34
profile_cycle = 1
radius=Cisco {
check_items= {
2="callback"
}
reply_attributes= {
6=2
7=1
9,1="lcp:callback-dialstring="
}
}

}
```

## Server Setup – Livingston RADIUS

```
callback2 Password = "callback2"
User-Service-Type = Framed-User,
Framed-Protocol = PPP,
cisco-avpair = "lcp:callback-dialstring="
```

# Sample Debug Output

```
koala#show debug
General OS:
Modem control/process activation debugging is on
AAA Authentication debugging is on
AAA Authorization debugging is on
Dial on demand:
Dial on demand events debugging is on
PPP:
PPP authentication debugging is on
PPP protocol negotiation debugging is on
Chat Scripts:
Chat scripts activity debugging is on
Callback:
Callback activity debugging is on
Radius protocol debugging is on
koala#
02:23:01: TTY1: DSR came up
02:23:01: tty1: Modem: IDLE->READY
02:23:01: TTY1: Autoselect started
02:23:03: TTY1: Autoselect sample 7E
02:23:03: TTY1: Autoselect sample 7EFF
02:23:03: TTY1: Autoselect sample 7EFF7D
02:23:03: TTY1: Autoselect sample 7EFF7D23
02:23:03: TTY1 Autoselect cmd: ppp negotiate
02:23:03: TTY1: EXEC creation
02:23:05: %LINK-3-UPDOWN: Interface Async1, changed state to up
02:23:05: As1 PPP: Treating connection as a dedicated line
02:23:05: As1 PPP: Phase is ESTABLISHING, Active Open
02:23:05: As1 LCP: O CONFREQ [Closed] id 27 len 24
02:23:05: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
02:23:05: As1 LCP: AuthProto PAP (0x0304C023)
02:23:05: As1 LCP: MagicNumber 0xE0A14386 (0x0506E0A14386)
02:23:05: As1 LCP: PFC (0x0702)
02:23:05: As1 LCP: ACFC (0x0802)
02:23:05: As1 LCP: I CONFACK [REQsent] id 27 len 24
02:23:05: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
02:23:05: As1 LCP: AuthProto PAP (0x0304C023)
02:23:05: As1 LCP: MagicNumber 0xE0A14386 (0x0506E0A14386)
02:23:05: As1 LCP: PFC (0x0702)
02:23:05: As1 LCP: ACFC (0x0802)
02:23:06: As1 LCP: I CONFREQ [ACKrcvd] id 0 len 23
02:23:06: As1 LCP: ACCM 0x00000000 (0x020600000000)
02:23:06: As1 LCP: MagicNumber 0x0000152B (0x05060000152B)
02:23:06: As1 LCP: PFC (0x0702)
02:23:06: As1 LCP: ACFC (0x0802)
02:23:06: As1 LCP: Callback 6 (0x0D0306)
02:23:06: As1 LCP: O CONFACK [ACKrcvd] id 0 len 23
02:23:06: As1 LCP: ACCM 0x00000000 (0x020600000000)
02:23:06: As1 LCP: MagicNumber 0x0000152B (0x05060000152B)
02:23:06: As1 LCP: PFC (0x0702)
02:23:06: As1 LCP: ACFC (0x0802)
02:23:06: As1 LCP: Callback 6 (0x0D0306)
02:23:06: As1 LCP: State is Open
02:23:06: As1 PPP: Phase is AUTHENTICATING, by this end
02:23:06: As1 LCP: I IDENTIFY [Open] id 1 len 18 magic
   0x0000152B MSRASV4.00
02:23:06: As1 LCP: I IDENTIFY [Open] id 2 len 21 magic
   0x0000152B MSRAS-1-ZEKIE
02:23:06: As1 PAP: I AUTH-REQ id 64 len 22 from "userspec"
02:23:06: As1 PAP: Authenticating peer userspec
02:23:06: AAA/AUTHEN: create_user (0x16E284) user='userspec' ruser=''
   port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=1
02:23:06: AAA/AUTHEN/START (835406208): port='Async1' list=''
```

```
    action=LOGIN service=PPP
02:23:06: AAA/AUTHEN/START (835406208): using "default" list
02:23:06: AAA/AUTHEN (835406208): status = UNKNOWN
02:23:06: AAA/AUTHEN/START (835406208): Method=RADIUS
02:23:06: RADIUS: Computed extended port value 0:1:
02:23:06: RADIUS: Initial Transmit id 25 171.68.120.194:1645,
    Access-Request, len 78
02:23:06: Attribute 4 6 0A1F0105
02:23:06: Attribute 5 6 00000001
02:23:06: Attribute 61 6 00000000
02:23:06: Attribute 1 10 75736572
02:23:06: Attribute 2 18 E1377DA0
02:23:06: Attribute 6 6 00000002
02:23:06: Attribute 7 6 00000001
02:23:06: RADIUS: Received from id 25 171.68.120.194:1645,
    Access-Accept, len 64
02:23:06: Attribute 6 6 00000002
02:23:06: Attribute 7 6 00000001
02:23:06: Attribute 26 32 00000009011A6C63
02:23:06: RADIUS: saved authorization data for user 16E284 at A1B44
02:23:06: AAA/AUTHEN (835406208): status = PASS
02:23:06: AAA/AUTHOR/LCP As1: Authorize LCP
02:23:06: AAA/AUTHOR/LCP As1 (2812925385): Port='Async1'
    list='' service=NET
02:23:06: AAA/AUTHOR/LCP: As1 (2812925385) user='userspec'
02:23:06: AAA/AUTHOR/LCP: As1 (2812925385) send AV service=ppp
02:23:06: AAA/AUTHOR/LCP: As1 (2812925385) send AV protocol=lcp
02:23:06: AAA/AUTHOR/LCP (2812925385) found list "default"
02:23:06: AAA/AUTHOR/LCP: As1 (2812925385) Method=RADIUS

!--- Callback dialstring is empty (null).

02:23:06: RADIUS: cisco AVPair "lcp:callback-dialstring="
02:23:06: AAA/AUTHOR (2812925385): Post authorization status = PASS_REPL
02:23:06: AAA/AUTHOR/LCP As1: Processing AV service=ppp
02:23:06: AAA/AUTHOR/LCP As1: Processing AV callback-dialstring=
02:23:06: As1 PAP: O AUTH-ACK id 64 len 5

!--- Router recognizes that it is to receive number from client
!--- and starts sending requests to PC.

02:23:06: As1 MCB: User userspec Callback Number - Client ANY
02:23:06: Async1 PPP: O MCB Request(1) id 92 len 9
02:23:06: Async1 MCB: O 1 5C 0 9 2 5 0 1 0
02:23:06: As1 MCB: O Request Id 92 Callback Type Client-Num delay 0
02:23:07: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1,
    changed state to up

!--- Router receives response from PC.

02:23:09: Async1 PPP: I MCB Response(2) id 92 len 14
02:23:09: Async1 MCB: I 2 5C 0 E 2 A C 1 32 30 33 36 37 0
02:23:09: As1 MCB: Received response

!--- Received callback number from the client.

02:23:09: As1 MCB: Response CBK-Client-Num 2 10 12, addr 1-20367
02:23:09: Async1 PPP: O MCB Ack(3) id 93 len 14
02:23:09: Async1 MCB: O 3 5D 0 E 2 A C 1 32 30 33 36 37 0
02:23:09: As1 MCB: O Ack Id 93 Callback Type Client-Num delay 12
02:23:09: As1 MCB: Negotiated MCB with peer
02:23:09: As1 LCP: I TERMREQ [Open] id 3 len 8 (0x00000000)
02:23:09: As1 LCP: O TERMACK [Open] id 3 len 4
02:23:09: As1 MCB: Peer terminating the link
02:23:09: As1 PPP: Phase is TERMINATING
02:23:09: As1 MCB: Link terminated by peer, Callback Needed
```

```
02:23:09: As1 MCB: Initiate Callback for userspec at 20367 using Async
02:23:09: TTY1 Callback user dialstring 20367 from PPP negotiation
02:23:09: As1 MCB: Async-callback in progress
02:23:09: TTY1 Callback PPP process creation
02:23:09: As1 AAA/ACCT: Using PPP accounting list ""
02:23:09: TTY1 Callback process initiated, user: dialstring 20367
02:23:09: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1,
    changed state to down
02:23:10: TTY1: Async Int reset: Dropping DTR
02:23:11: As1 LCP: TIMEout: Time 0x831824 State TERMsent
02:23:11: As1 LCP: State is Closed
02:23:11: As1 PPP: Phase is DOWN
02:23:11: As1 VP: Cleaning already proceeding
02:23:11: As1 PPP: Phase is ESTABLISHING, Passive Open
02:23:11: AAA/AUTHEN: dup_user (0x16E558) user='userspec' ruser=''
    port='Async1' rem_addr='async' authen_type=PAP service=PPP
    priv=1 source='AAA dup lcp_reset'
02:23:11: AAA/AUTHEN: Method=IF-NEEDED: no authentication needed.
    user='userspec' port='Async1' rem_addr='async'
02:23:11: As1 LCP: State is Listen
02:23:11: AAA/AUTHEN: free_user (0x16E284) user='userspec' ruser=''
    port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=1
02:23:12: %LINK-5-CHANGED: Interface Async1, changed state to reset
02:23:12: As1 LCP: State is Closed
02:23:12: As1 PPP: Phase is DOWN
02:23:12: As1 VP: Cleaning already proceeding
02:23:12: As1 IPCP: Remove route to 15.15.15.15
02:23:15: AAA/AUTHEN: free_user (0x16E558) user='userspec' ruser=''
    port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=1
02:23:15: TTY1 Callback forced wait = 4 seconds
02:23:17: %LINK-3-UPDOWN: Interface Async1, changed state to down
02:23:17: As1 LCP: State is Closed
02:23:17: As1 PPP: Phase is DOWN
02:23:17: As1 VP: Cleaning already proceeding
02:23:19: CHAT1: Matched chat script offhook to string offhook
02:23:19: CHAT1: Asserting DTR
02:23:19: CHAT1: Chat script offhook started
02:23:19: CHAT1: Sending string: ATH1
02:23:19: CHAT1: Expecting string: OK
02:23:19: CHAT1: Completed match for expect: OK
02:23:19: CHAT1: Chat script offhook finished, status = Success
02:23:19: CHAT1: Matched chat script callback to string callback
02:23:19: CHAT1: Asserting DTR
02:23:19: CHAT1: Chat script callback started
02:23:19: CHAT1: Sending string: ATZ
02:23:19: CHAT1: Expecting string: OK
02:23:19: CHAT1: Completed match for expect: OK
02:23:19: CHAT1: Sending string: ATDT \T<20367>
02:23:19: CHAT1: Expecting string: CONNECT
02:23:35: CHAT1: Completed match for expect: CONNECT
02:23:35: CHAT1: Sending string: \c
02:23:35: CHAT1: Chat script callback finished, status = Success
02:23:35: TTY1 PPP Callback Successful - await exec/autoselect pickup
02:23:37: TTY1: DSR came up
02:23:37: TTY1: Callback in effect
02:23:37: tty1: Modem: IDLE->READY
02:23:37: TTY1: Autoselect started
02:23:37: As1 LCP: I CONFREQ [Closed] id 0 len 20
02:23:37: As1 LCP: ACCM 0x00000000 (0x020600000000)
02:23:37: As1 LCP: MagicNumber 0x00005156 (0x050600005156)
02:23:37: As1 LCP: PFC (0x0702)
02:23:37: As1 LCP: ACFC (0x0802)
02:23:37: As1 LCP: Lower layer not up, discarding packet
```

```
02:23:39: %LINK-3-UPDOWN: Interface Async1, changed state to up
02:23:39: As1 PPP: Treating connection as a dedicated line
02:23:39: As1 PPP: Phase is ESTABLISHING, Active Open
02:23:39: As1 LCP: O CONFREQ [Closed] id 28 len 24
02:23:39: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
02:23:39: As1 LCP: AuthProto PAP (0x0304C023)
02:23:39: As1 LCP: MagicNumber 0xE0A1CAB2 (0x0506E0A1CAB2)
02:23:39: As1 LCP: PFC (0x0702)
02:23:39: As1 LCP: ACFC (0x0802)
02:23:40: As1 LCP: I CONFACK [REQsent] id 28 len 24
02:23:40: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
02:23:40: As1 LCP: AuthProto PAP (0x0304C023)
02:23:40: As1 LCP: MagicNumber 0xE0A1CAB2 (0x0506E0A1CAB2)
02:23:40: As1 LCP: PFC (0x0702)
02:23:40: As1 LCP: ACFC (0x0802)
02:23:40: As1 LCP: I CONFREQ [ACKrcvd] id 0 len 20
02:23:40: As1 LCP: ACCM 0x00000000 (0x020600000000)
02:23:40: As1 LCP: MagicNumber 0x00005156 (0x050600005156)
02:23:40: As1 LCP: PFC (0x0702)
02:23:40: As1 LCP: ACFC (0x0802)
02:23:40: As1 LCP: O CONFACK [ACKrcvd] id 0 len 20
02:23:40: As1 LCP: ACCM 0x00000000 (0x020600000000)
02:23:40: As1 LCP: MagicNumber 0x00005156 (0x050600005156)
02:23:40: As1 LCP: PFC (0x0702)
02:23:40: As1 LCP: ACFC (0x0802)
02:23:40: As1 LCP: State is Open
02:23:40: As1 PPP: Phase is AUTHENTICATING, by this end
02:23:41: As1 LCP: I IDENTIFY [Open] id 1 len 18 magic
    0x00005156 MSRASV4.00
02:23:41: As1 LCP: I IDENTIFY [Open] id 2 len 21 magic
    0x00005156 MSRAS-1-ZEKIE
02:23:41: As1 PAP: I AUTH-REQ id 65 len 22 from "userspec"
02:23:41: As1 PAP: Authenticating peer userspec
02:23:41: AAA/AUTHEN: create_user (0x16E284) user='userspec' ruser=''
    port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=1
02:23:41: AAA/AUTHEN/START (2883652190): port='Async1'
    list='' action=LOGIN service=PPP
02:23:41: AAA/AUTHEN/START (2883652190): using "default" list
02:23:41: AAA/AUTHEN (2883652190): status = UNKNOWN
02:23:41: AAA/AUTHEN/START (2883652190): Method=RADIUS
02:23:41: RADIUS: Computed extended port value 0:1:
02:23:41: RADIUS: Initial Transmit id 26 171.68.120.194:1645,
    Access-Request, len 78
02:23:41: Attribute 4 6 0A1F0105
02:23:41: Attribute 5 6 00000001
02:23:41: Attribute 61 6 00000000
02:23:41: Attribute 1 10 75736572
02:23:41: Attribute 2 18 8150DA02
02:23:41: Attribute 6 6 00000002
02:23:41: Attribute 7 6 00000001
02:23:41: RADIUS: Received from id 26 171.68.120.194:1645,
    Access-Accept, len 64
02:23:41: Attribute 6 6 00000002
02:23:41: Attribute 7 6 00000001
02:23:41: Attribute 26 32 00000009011A6C63
02:23:41: RADIUS: saved authorization data for user 16E284 at A1B44
02:23:41: AAA/AUTHEN (2883652190): status = PASS
02:23:41: AAA/AUTHOR/LCP As1: Authorize LCP
02:23:41: AAA/AUTHOR/LCP As1 (3660077691): Port='Async1'
    list='' service=NET
02:23:41: AAA/AUTHOR/LCP: As1 (3660077691) user='userspec'
02:23:41: AAA/AUTHOR/LCP: As1 (3660077691) send AV service=ppp
02:23:41: AAA/AUTHOR/LCP: As1 (3660077691) send AV protocol=lcp
02:23:41: AAA/AUTHOR/LCP (3660077691) found list "default"
02:23:41: AAA/AUTHOR/LCP: As1 (3660077691) Method=RADIUS
02:23:41: RADIUS: cisco AVPair "lcp:callback-dialstring="
```

```
02:23:41: AAA/AUTHOR (3660077691): Post authorization status = PASS_REPL
02:23:41: AAA/AUTHOR/LCP As1: Processing AV service=ppp
02:23:41: AAA/AUTHOR/LCP As1: Processing AV callback-dialstring=
02:23:41: As1 PAP: O AUTH-ACK id 65 len 5
02:23:41: As1 PPP: Phase is UP
02:23:41: AAA/AUTHOR/FSM As1: (0): Can we start IPCP?
02:23:41: AAA/AUTHOR/FSM As1 (2418882911): Port='Async1'
   list='' service=NET
02:23:41: AAA/AUTHOR/FSM: As1 (2418882911) user='userspec'
02:23:41: AAA/AUTHOR/FSM: As1 (2418882911) send AV service=ppp
02:23:41: AAA/AUTHOR/FSM: As1 (2418882911) send AV protocol=ip
02:23:41: AAA/AUTHOR/FSM (2418882911) found list "default"
02:23:41: AAA/AUTHOR/FSM: As1 (2418882911) Method=RADIUS
02:23:41: RADIUS: cisco AVPair "lcp:callback-dialstring="
   not applied for ip
02:23:41: AAA/AUTHOR (2418882911): Post authorization
   status = PASS_REPL
02:23:41: AAA/AUTHOR/FSM As1: We can start IPCP
02:23:41: As1 IPCP: O CONFREQ [Closed] id 12 len 10
02:23:41: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)
02:23:41: As1 IPCP: I CONFREQ [REQsent] id 3 len 40
02:23:41: As1 IPCP: CompressType VJ 15 slots
   CompressSlotID (0x0206002D0F01)
02:23:41: As1 IPCP: Address 0.0.0.0 (0x030600000000)
02:23:41: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)
02:23:41: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)
02:23:41: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)
02:23:41: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)
02:23:41: AAA/AUTHOR/IPCP As1: Start. Her address 0.0.0.0,
   we want 0.0.0.0
02:23:41: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
02:23:41: AAA/AUTHOR/IPCP As1: Authorization succeeded
02:23:41: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0,
   we want 0.0.0.0
02:23:41: As1 IPCP: Using pool 'async'
02:23:41: As1 IPCP: Pool returned 15.15.15.15
02:23:41: As1 IPCP: O CONFREJ [REQsent] id 3 len 28
02:23:41: As1 IPCP: CompressType VJ 15 slots
   CompressSlotID (0x0206002D0F01)
02:23:41: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)
02:23:41: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)
02:23:41: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)
02:23:41: As1 IPCP: I CONFACK [REQsent] id 12 len 10
02:23:41: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)
02:23:41: As1 IPCP: I CONFREQ [ACKrcvd] id 4 len 16
02:23:41: As1 IPCP: Address 0.0.0.0 (0x030600000000)
02:23:41: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)
02:23:41: AAA/AUTHOR/IPCP As1: Start. Her address 0.0.0.0,
   we want 15.15.15.15
02:23:41: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
02:23:41: AAA/AUTHOR/IPCP As1: Authorization succeeded
02:23:41: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0,
   we want 15.15.15.15
02:23:41: As1 IPCP: O CONFNAK [ACKrcvd] id 4 len 16
02:23:41: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
02:23:41: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
02:23:41: As1 IPCP: I CONFREQ [ACKrcvd] id 5 len 16
02:23:41: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
02:23:41: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
02:23:41: AAA/AUTHOR/IPCP As1: Start. Her address 15.15.15.15,
   we want 15.15.15.15
02:23:41: AAA/AUTHOR/IPCP As1 (2792483333): Port='Async1'
   list='' service=NET
02:23:41: AAA/AUTHOR/IPCP: As1 (2792483333) user='userspec'
02:23:41: AAA/AUTHOR/IPCP: As1 (2792483333) send AV service=ppp
02:23:41: AAA/AUTHOR/IPCP: As1 (2792483333) send AV protocol=ip
```

```
02:23:41: AAA/AUTHOR/IPCP: As1 (2792483333) send AV addr*15.15.15.15
02:23:41: AAA/AUTHOR/IPCP (2792483333) found list "default"
02:23:41: AAA/AUTHOR/IPCP: As1 (2792483333) Method=RADIUS
02:23:41: RADIUS: cisco AVPair "lcp:callback-dialstring="
   not applied for ip
02:23:41: AAA/AUTHOR (2792483333): Post authorization status = PASS_REPL
02:23:41: AAA/AUTHOR/IPCP As1: Reject 15.15.15.15, using 15.15.15.15
02:23:41: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
02:23:41: AAA/AUTHOR/IPCP As1: Processing AV addr*15.15.15.15
02:23:41: AAA/AUTHOR/IPCP As1: Authorization succeeded
02:23:41: AAA/AUTHOR/IPCP As1: Done. Her address 15.15.15.15,
   we want 15.15.15.15
02:23:41: As1 IPCP: O CONFACK [ACKrcvd] id 5 len 16
02:23:41: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
02:23:41: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
02:23:41: As1 IPCP: State is Open
02:23:41: dialer Protocol up for As1
02:23:41: As1 IPCP: Install route to 15.15.15.15
02:23:42: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1,
   changed state to up
```

# Related Information

- **RADIUS Support Page**
- **Cisco Secure ACS for Windows Support Page**
- **Cisco Secure ACS for UNIX Support Page**
- **Requests for Comments (RFCs)** ⬀
- **Technical Support & Documentation – Cisco Systems**

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