

# 目录

[简介](#)

[先决条件](#)

[要求](#)

[使用的组件](#)

[规则](#)

[普通 PC 设置](#)

[Windows 95](#)

[Windows NT](#)

[Windows 98](#)

[Windows 2000](#)

[配置和调试示例](#)

[用于其它 Cisco IOS 版本的命令](#)

[调试示例 - TACACS+ 和 PAP](#)

[用于其它 Cisco IOS 版本的命令](#)

[调试示例 - TACACS+ 和 CHAP](#)

[debug 命令](#)

[相关信息](#)

## 简介

**注意：** 本文档中的信息基于 Cisco IOS 软件版本 11.2 及以上。

本文档会检查使用口令身份验证协议 (PAP) 或质询握手身份验证协议 (CHAP) 时，TACACS+ 的常见调试问题。并会提供 Microsoft Windows 95、Windows NT、Windows 98 和 Windows 2000 的普通 PC 设置和各种配置示例，以及调试成功与失败的示例。

## 先决条件

### 要求

本文档没有任何特定的要求。

### 使用的组件

本文档不限于特定的软件和硬件版本。

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。

### 规则

有关文档规则的详细信息，请参阅 [Cisco 技术提示规则](#)。

## 普通 PC 设置

### Windows 95

完成这些步骤：

1. 在“拨号网络”窗口中，请选择连接名，然后选择**文件 > 属性**。
2. 在“服务器类型”选项卡上，查看是否已勾选“拨号服务器类型”下的**要求加密的**口令框。如果此方框已勾选，表示 PC 只接受 CHAP 身份验证。如果此方框未勾选，表示 PC 接受 PAP 或 CHAP 身份验证。

### Windows NT

完成这些步骤：

1. 在“拨号网络”窗口中选择连接名，然后选择**文件 > 属性**。
2. 检查“安全”选项卡上的设置：如果**接受任何身份验证，包括明文**方框已勾选，表示 PC 接受 PAP 或 CHAP。如果**仅接受加密的身份验证**方框已勾选，表示 PC 只接受 CHAP 身份验证。

### Windows 98

完成这些步骤：

1. 在“拨号网络”窗口中选择连接名，然后选择**属性**。
2. 在“服务器类型”选项卡上，检查“高级选项”区域中的设置：如果**要求加密的**口令框未勾选，表示 PC 接受 PAP 或 CHAP 身份验证。如果**要求加密的**口令框已勾选，表示 PC 只接受 CHAP 身份验证。

### Windows 2000

完成这些步骤：

1. 在“网络和拨号连接”中选择连接名，然后选择**属性**。
2. 在“安全”选项卡的高级 > 设置 > 允许这些协议区域中：如果**未加密的口令 (PAP)** 方框已勾选，表示 PC 接受 PAP。如果**质询握手身份验证协议 (CHAP)** 方框已勾选，表示 PC 接受 [RFC 1994](#) 中规定的 CHAP。如果 **Microsoft CHAP (MS-CHAP)** 方框已勾选，表示 PC 接受 MS-CHAP 版本 1，不接受 RFC 1994 中规定的 CHAP。

## 配置和调试示例

### 配置 - TACACS+ 和 PAP

```
Current configuration:!version 11.2service timestamps
debug uptimeservice timestamps log uptimeno service
password-encryptionservice udp-small-serversservice tcp-
small-servers!hostname rtpkrb!aaa new-model!--- The
following four lines of the !--- configuration are
specific to !--- Cisco IOS 11.2 and later, until
11.3.3.T. !--- See below this configuration !--- for
```

```

commands for other Cisco IOS releases.!aaa
authentication login default tacacs+ localaaa
authentication ppp default if-needed tacacs+ localaaa
authorization exec tacacs+ if-authenticatedaaa
authorization network tacacs+ if-authenticatedenable
secret 5 $1$pkX.$JdAySRE1SbdbDe7bj0wyt0enable password
ww!username john password 0 doeusername cse password 0
csecseip host rtpkrb 10.31.1.5ip domain-name
RTP.CISCO.COMip name-server 171.68.118.103!interface
Loopback0ip address 1.1.1.1 255.255.255.0!interface
Ethernet0ip address 10.31.1.5 255.255.0.0no mop
enabled!interface Serial0no ip addressno ip mroute-
cacheshutdown!interface Serial1no ip
addressshutdown!interface Async1ip unnumbered
Ethernet0encapsulation pppasync mode dedicatedpeer
default ip address pool asyncno cdp enableppp
authentication pap!ip local pool async 15.15.15.15ip
classlessip route 0.0.0.0 0.0.0.0 10.31.1.1!tacacs-
server host 171.68.118.101tacacs-server key ciscosnmp-
server community public RWsnmp-server host
171.68.118.100 traps public!line con 0line 1session-
timeout 20 exec-timeout 20 0password wwautoselect
during-loginautoselect pppmodem InOuttransport input
allstopbits 1speed 38400flowcontrol hardwareline 2modem
InOutspeed 38400flowcontrol hardwareline 3 16line aux
0line vty 0 4password ww!end

```

## [用于其它 Cisco IOS 版本的命令](#)

**注意：** 要使用这些命令，请按照 Cisco IOS 版本的指示，从配置中删除粗体命令，然后再粘贴这些命令。

### [Cisco IOS 11.3.3.T 到 12.0.5.T](#)

```

Current configuration:!version 11.2service timestamps debug uptimeservice timestamps log
uptimeno service password-encryptionservice udp-small-serversservice tcp-small-servers!hostname
rtpkrb!aaa new-model!!--- The following four lines of the !--- configuration are specific to !--
- Cisco IOS 11.2 and later, until 11.3.3.T. !--- See below this configuration !--- for commands
for other Cisco IOS releases.!aaa authentication login default tacacs+ localaaa authentication
ppp default if-needed tacacs+ localaaa authorization exec tacacs+ if-authenticatedaaa
authorization network tacacs+ if-authenticatedenable secret 5
$1$pkX.$JdAySRE1SbdbDe7bj0wyt0enable password ww!username john password 0 doeusername cse
password 0 csecseip host rtpkrb 10.31.1.5ip domain-name RTP.CISCO.COMip name-server
171.68.118.103!interface Loopback0ip address 1.1.1.1 255.255.255.0!interface Ethernet0ip address
10.31.1.5 255.255.0.0no mop enabled!interface Serial0no ip addressno ip mroute-
cacheshutdown!interface Serial1no ip addressshutdown!interface Async1ip unnumbered
Ethernet0encapsulation pppasync mode dedicatedpeer default ip address pool asyncno cdp enableppp
authentication pap!ip local pool async 15.15.15.15ip classlessip route 0.0.0.0 0.0.0.0
10.31.1.1!tacacs-server host 171.68.118.101tacacs-server key ciscosnmp-server community public
RWsnmp-server host 171.68.118.100 traps public!line con 0line 1session-timeout 20 exec-timeout
20 0password wwautoselect during-loginautoselect pppmodem InOuttransport input allstopbits
1speed 38400flowcontrol hardwareline 2modem InOutspeed 38400flowcontrol hardwareline 3 16line
aux 0line vty 0 4password ww!end

```

### [Cisco IOS 12.0.5.T 及更高版本](#)

```

Current configuration:!version 11.2service timestamps debug uptimeservice timestamps log
uptimeno service password-encryptionservice udp-small-serversservice tcp-small-servers!hostname
rtpkrb!aaa new-model!!--- The following four lines of the !--- configuration are specific to !--
- Cisco IOS 11.2 and later, until 11.3.3.T. !--- See below this configuration !--- for commands
for other Cisco IOS releases.!aaa authentication login default tacacs+ localaaa authentication

```

```

ppp default if-needed tacacs+ localaaa authorization exec tacacs+ if-authenticatedaaa
authorization network tacacs+ if-authenticatedenable secret 5
$1$pkX.$JdAysRE1SbDbDe7bj0wyt0enable password ww!username john password 0 doeusername cse
password 0 csecseip host rtpkrb 10.31.1.5ip domain-name RTP.CISCO.COMip name-server
171.68.118.103!interface Loopback0ip address 1.1.1.1 255.255.255.0!interface Ethernet0ip address
10.31.1.5 255.255.0.0no mop enabled!interface Serial0no ip addressno ip mroute-
cacheshutdown!interface Serial1no ip addressshutdown!interface Async1ip unnumbered
Ethernet0encapsulation pppasync mode dedicatedpeer default ip address pool asyncno cdp enableppp
authentication pap!ip local pool async 15.15.15.15ip classlessip route 0.0.0.0 0.0.0.0
10.31.1.1!tacacs-server host 171.68.118.101tacacs-server key ciscosnmp-server community public
RWSnmp-server host 171.68.118.100 traps public!line con 0line 1session-timeout 20 exec-timeout
20 0password wwautoselect during-loginautoselect pppmodem InOuttransport input allstopbits
1speed 38400flowcontrol hardwareline 2modem InOutspeed 38400flowcontrol hardwareline 3 16line
aux 0line vty 0 4password ww!end

```

## 调试示例 - TACACS+ 和 PAP

**注意：**在调试输出中，粗体文本突出显示了调试中的问题。纯文本表示调试成功。

```

rtpkrb#show debugGeneral OS:TACACS access control debugging is onAAA Authentication debugging is
onAAA Authorization debugging is onPPP:PPP authentication debugging is onPPP protocol
negotiation debugging is onrtpkrb#3d22h: %LINK-3-UPDOWN: Interface Async1, changed state to
up3d22h: As1 PPP: Treating connection as a dedicated line3d22h: As1 PPP: Phase is ESTABLISHING,
Active Open3d22h: As1 LCP: O CONFREQ [Closed] id 14 len 243d22h: As1 LCP: ACCM 0x000A0000
(0x0206000A0000)3d22h: As1 LCP: AuthProto PAP (0x0304C023)3d22h: As1 LCP: MagicNumber 0xF45FB7A7
(0x0506F45FB7A7)3d22h: As1 LCP: PFC (0x0702)3d22h: As1 LCP: ACFC (0x0802)!--- PC insists on
doing CHAP !--- ("accept encrypted authentication only"), !--- but router is set up for PAP.As1
LCP: I CONFNAK [REQsent] id 27 len 12As1 LCP: AuthProto 0xC123 (0x0308C12301000001)As1 PPP:
Closing connection because remote won't authenticate3d22h: As1 LCP: Interface transitioned,
discarding packet3d22h: As1 LCP: I CONFACK [REQsent] id 14 len 243d22h: As1 LCP: ACCM 0x000A0000
(0x0206000A0000)3d22h: As1 LCP: AuthProto PAP (0x0304C023)3d22h: As1 LCP: MagicNumber 0xF45FB7A7
(0x0506F45FB7A7)3d22h: As1 LCP: PFC (0x0702)3d22h: As1 LCP: ACFC (0x0802)3d22h: As1 LCP:
TIMEout: Time 0x14417CC4 State ACKRcvd3d22h: As1 LCP: O CONFREQ [ACKrcvd] id 15 len 243d22h: As1
LCP: ACCM 0x000A0000 (0x0206000A0000)3d22h: As1 LCP: AuthProto PAP (0x0304C023)3d22h: As1 LCP:
MagicNumber 0xF45FB7A7 (0x0506F45FB7A7)3d22h: As1 LCP: PFC (0x0702)3d22h: As1 LCP: ACFC
(0x0802)3d22h: As1 LCP: I CONFACK [REQsent] id 15 len 243d22h: As1 LCP: ACCM 0x000A0000
(0x0206000A0000)3d22h: As1 LCP: AuthProto PAP (0x0304C023)3d22h: As1 LCP: MagicNumber 0xF45FB7A7
(0x0506F45FB7A7)3d22h: As1 LCP: PFC (0x0702)3d22h: As1 LCP: ACFC (0x0802)3d22h: As1 LCP: I
CONFREQ [ACKrcvd] id 0 len 203d22h: As1 LCP: ACCM 0x00000000 (0x020600000000)3d22h: As1 LCP:
MagicNumber 0x000030A3 (0x0506000030A3)3d22h: As1 LCP: PFC (0x0702)3d22h: As1 LCP: ACFC
(0x0802)3d22h: As1 LCP: O CONFACK [ACKrcvd] id 0 len 203d22h: As1 LCP: ACCM 0x00000000
(0x020600000000)3d22h: As1 LCP: MagicNumber 0x000030A3 (0x0506000030A3)3d22h: As1 LCP: PFC
(0x0702)3d22h: As1 LCP: ACFC (0x0802)3d22h: As1 LCP: State is Open3d22h: As1 PPP: Phase is
AUTHENTICATING, by this end3d22h: As1 PAP: I AUTH-REQ id 4 len 20 from "papuser"3d22h: As1 PAP:
Authenticating peer papuser3d22h: AAA/AUTHEN: create_user (0x16DAC0) user='papuser' ruser=''
port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=13d22h: AAA/AUTHEN/START
(1190231344): port='Async1' list='' action=LOGIN service=PPP3d22h: AAA/AUTHEN/START
(1190231344): using "default" list3d22h: AAA/AUTHEN (1190231344): status = UNKNOWN3d22h:
AAA/AUTHEN/START (1190231344): Method=TACACS+3d22h: TAC+: send AUTHEN/START packet ver=193
id=11902313443d22h: TAC+: Using default tacacs server list.3d22h: TAC+: Opening TCP/IP to
171.68.118.101/49 timeout=5!--- The TAC+ server is down, producing an error. !--- Since the user
is not in the local database, !--- the failover to local fails.TAC+: TCP/IP open to
171.68.118.101/49 failed -- Connection refused by remote hostAAA/AUTHEN (866823886): status =
ERRORAAA/AUTHEN/START (866823886): Method=LOCALAAA/AUTHEN (866823886): status = FAIL3d22h: TAC+:
Opened TCP/IP handle 0x16C1F8 to 171.68.118.101/493d22h: TAC+: 171.68.118.101 (1190231344)
AUTHEN/START/LOGIN/PAP queued3d22h: TAC+: (1190231344) AUTHEN/START/LOGIN/PAP processed!--- The
key in the router does not match that of the server.TAC+: received bad AUTHEN packet: length =
68, expected 67857TAC+: Invalid AUTHEN/START packet (check keys)AAA/AUTHEN (1771887965): status
= ERROR 3d22h: TAC+: ver=192 id=1190231344 received AUTHEN status = GETPASS3d22h: TAC+: Closing
TCP/IP 0x16C1F8 connection to 171.68.118.101/493d22h: TAC+: Opening TCP/IP to 171.68.118.101/49
timeout=53d22h: TAC+: Opened TCP/IP handle 0x16EF4C to 171.68.118.101/493d22h: TAC+: Opened
171.68.118.101 index=13d22h: AAA/AUTHEN: create_user (0x16C5EC) user='papuser' ruser=''
port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=13d22h: TAC+: rev0 inbound pap

```

login for id=1190231344 using id=31128966693d22h: TAC+: 171.68.118.101 (3112896669)  
AUTHEN/START/LOGIN/PAP queued3d22h: TAC+: (3112896669) AUTHEN/START/LOGIN/PAP processed3d22h:  
TAC+: ver=192 id=3112896669 received AUTHEN status = GETPASS3d22h: TAC+: send AUTHEN/CONT  
packet3d22h: TAC+: 171.68.118.101 (3112896669) AUTHEN/CONT queued3d22h: TAC+: (3112896669)  
AUTHEN/CONT processed!--- *The NT client sends the "DOMAIN\user" !--- and the TAC+ server expects  
"user".* TAC+: ver=192 id=260507389 received AUTHEN status = FAILTAC+: rev0 inbound pap completed  
for 1139034411 status=FAILAAA/AUTHEN: free\_user (0x16CDD4) user='CISCO\papuser' ruser=''  
port='Async1' rem\_addr='async' authen\_type=PAP service=PPP priv=1!--- *The TAC+ server refuses  
the user !--- because the user is set up for PAP. !--- The user enters a bad password, !--- or  
both the username and password are bad.* TAC+: ver=192 id=691012958 received AUTHEN status =  
FAILTAC+: rev0 inbound pap completed for 3917384959 status=FAILAAA/AUTHEN: free\_user (0x15AD58)  
user='idochap' ruser='' port='Async1' rem\_addr='async' authen\_type=PAP service=PPP priv=13d22h:  
TAC+: ver=192 id=3112896669 received AUTHEN status = PASS3d22h: TAC+: rev0 inbound pap completed  
for 1190231344 status=PASS3d22h: AAA/AUTHEN: free\_user (0x16C5EC) user='papuser' ruser=''  
port='Async1' rem\_addr='async' authen\_type=PAP service=PPP priv=13d22h: TAC+: Closing TCP/IP  
0x16EF4C connection to 171.68.118.101/493d22h: AAA/AUTHEN (1190231344): status = PASS3d22h:  
AAA/AUTHOR/LCP As1: Authorize LCP3d22h: AAA/AUTHOR/LCP: Async1: (1061976769):  
user='papuser'3d22h: AAA/AUTHOR/LCP: Async1: (1061976769): send AV service=ppp3d22h:  
AAA/AUTHOR/LCP: Async1: (1061976769): send AV protocol=lcp3d22h: AAA/AUTHOR/LCP: Async1:  
(1061976769): Method=TACACS+3d22h: AAA/AUTHOR/TAC+: (1061976769): user=papuser3d22h:  
AAA/AUTHOR/TAC+: (1061976769): send AV service=ppp3d22h: AAA/AUTHOR/TAC+: (1061976769): send AV  
protocol=lcp3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=53d22h: TAC+: Opened TCP/IP  
handle 0x16C9E0 to 171.68.118.101/493d22h: TAC+: Opened 171.68.118.101 index=13d22h: TAC+:  
171.68.118.101 (1061976769) AUTHOR/START queued3d22h: TAC+: (1061976769) AUTHOR/START  
processed!--- *The user passes authentication !--- (the username/password is good) !--- but fails  
authorization !--- (the profile is not set up to authorize PPP).* TAC+: (1793875816): received  
author response status = FAILTAC+: Closing TCP/IP 0x17054C connection to  
171.68.118.101/49AAA/AUTHOR (1793875816): Post authorization status = FAILAAA/AUTHOR/LCP As1:  
Denied3d22h: TAC+: (1061976769): received author response status = PASS\_ADD3d22h: TAC+: Closing  
TCP/IP 0x16C9E0 connection to 171.68.118.101/493d22h: AAA/AUTHOR (1061976769): Post  
authorization status = PASS\_ADD3d22h: As1 PAP: O AUTH-ACK id 4 len 53d22h: As1 PPP: Phase is  
UP3d22h: AAA/AUTHOR/FSM As1: (0): Can we start IPCP?3d22h: AAA/AUTHOR/FSM: Async1: (3602788894):  
user='papuser'3d22h: AAA/AUTHOR/FSM: Async1: (3602788894): send AV service=ppp3d22h:  
AAA/AUTHOR/FSM: Async1: (3602788894): send AV protocol=ip3d22h: AAA/AUTHOR/FSM: Async1:  
(3602788894): Method=TACACS+3d22h: AAA/AUTHOR/TAC+: (3602788894): user=papuser3d22h:  
AAA/AUTHOR/TAC+: (3602788894): send AV service=ppp3d22h: AAA/AUTHOR/TAC+: (3602788894): send AV  
protocol=ip3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=53d22h: %LINEPROTO-5-UPDOWN:  
Line protocol on Interface Async1, changed state to up3d22h: TAC+: Opened TCP/IP handle 0x17054C  
to 171.68.118.101/493d22h: TAC+: Opened 171.68.118.101 index=13d22h: TAC+: 171.68.118.101  
(3602788894) AUTHOR/START queued3d22h: As1 IPCP: I CONFREQ [Closed] id 1 len 343d22h: As1 IPCP:  
Address 0.0.0.0 (0x030600000000)3d22h: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)3d22h: As1  
IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)3d22h: As1 IPCP: SecondaryDNS 0.0.0.0  
(0x830600000000)3d22h: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)3d22h: TAC+: (3602788894)  
AUTHOR/START processed3d22h: TAC+: (3602788894): received author response status =  
PASS\_ADD3d22h: TAC+: Closing TCP/IP 0x17054C connection to 171.68.118.101/493d22h: AAA/AUTHOR  
(3602788894): Post authorization status = PASS\_ADD3d22h: AAA/AUTHOR/FSM As1: We can start  
IPCP3d22h: As1 IPCP: O CONFREQ [Closed] id 10 len 103d22h: As1 IPCP: Address 10.31.1.5  
(0x03060A1F0105)3d22h: As1 IPCP: I CONFACK [REQsent] id 10 len 103d22h: As1 IPCP: Address  
10.31.1.5 (0x03060A1F0105)3d22h: As1 IPCP: I CONFREQ [ACKrcvd] id 1 len 343d22h: As1 IPCP:  
Address 0.0.0.0 (0x030600000000)3d22h: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)3d22h: As1  
IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)3d22h: As1 IPCP: SecondaryDNS 0.0.0.0  
(0x830600000000)3d22h: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)3d22h: AAA/AUTHOR/IPCP  
As1: Start. Her address 0.0.0.0, we want 0.0.0.03d22h: AAA/AUTHOR/IPCP As1: Processing AV  
service=ppp3d22h: AAA/AUTHOR/IPCP As1: Processing AV protocol=ip3d22h: AAA/AUTHOR/IPCP As1:  
Authorization succeeded3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0, we want  
0.0.0.03d22h: As1 IPCP: Using pool 'async'3d22h: As1 IPCP: Pool returned 15.15.15.153d22h: As1  
IPCP: O CONFREQ [ACKrcvd] id 1 len 223d22h: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)3d22h:  
As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)3d22h: As1 IPCP: SecondaryWINS 0.0.0.0  
(0x840600000000)3d22h: As1 IPCP: I CONFREQ [ACKrcvd] id 2 len 163d22h: As1 IPCP: Address 0.0.0.0  
(0x030600000000)3d22h: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)3d22h: AAA/AUTHOR/IPCP As1:  
Start. Her address 0.0.0.0, we want 15.15.15.153d22h: AAA/AUTHOR/IPCP As1: Processing AV  
service=ppp3d22h: AAA/AUTHOR/IPCP As1: Processing AV protocol=ip3d22h: AAA/AUTHOR/IPCP As1:  
Authorization succeeded3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0, we want  
15.15.15.153d22h: As1 IPCP: O CONFNAK [ACKrcvd] id 2 len 163d22h: As1 IPCP: Address 15.15.15.15

```
(0x03060F0F0F0F)3d22h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)3d22h: As1 IPCP: I
CONFREQ [ACKrcvd] id 3 len 163d22h: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)3d22h: As1
IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)3d22h: AAA/AUTHOR/IPCP As1: Start. Her address
15.15.15.15, we want 15.15.15.153d22h: AAA/AUTHOR/IPCP: Async1: (3654974050):
user='papuser'3d22h: AAA/AUTHOR/IPCP: Async1: (3654974050): send AV service=ppp3d22h:
AAA/AUTHOR/IPCP: Async1: (3654974050): send AV protocol=ip3d22h: AAA/AUTHOR/IPCP: Async1:
(3654974050): send AV addr*15.15.15.153d22h: AAA/AUTHOR/IPCP: Async1: (3654974050):
Method=TACACS+3d22h: AAA/AUTHOR/TAC+: (3654974050): user=papuser3d22h: AAA/AUTHOR/TAC+:
(3654974050): send AV service=ppp3d22h: AAA/AUTHOR/TAC+: (3654974050): send AV protocol=ip3d22h:
AAA/AUTHOR/TAC+: (3654974050): send AV addr*15.15.15.153d22h: TAC+: Opening TCP/IP to
171.68.118.101/49 timeout=53d22h: TAC+: Opened TCP/IP handle 0x16EF4C to 171.68.118.101/493d22h:
TAC+: Opened 171.68.118.101 index=13d22h: TAC+: 171.68.118.101 (3654974050) AUTHOR/START
queued3d22h: TAC+: (3654974050) AUTHOR/START processed3d22h: TAC+: (3654974050): received author
response status = PASS_ADD3d22h: TAC+: Closing TCP/IP 0x16EF4C connection to
171.68.118.101/493d22h: AAA/AUTHOR (3654974050): Post authorization status = PASS_ADD3d22h:
AAA/AUTHOR/IPCP As1: Processing AV service=ppp3d22h: AAA/AUTHOR/IPCP As1: Processing AV
protocol=ip3d22h: AAA/AUTHOR/IPCP As1: Processing AV addr*15.15.15.153d22h: AAA/AUTHOR/IPCP As1:
Authorization succeeded3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 15.15.15.15, we want
15.15.15.153d22h: As1 IPCP: O CONFACK [ACKrcvd] id 3 len 163d22h: As1 IPCP: Address 15.15.15.15
(0x03060F0F0F0F)3d22h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)3d22h: As1 IPCP:
State is Open3d22h: As1 IPCP: Install route to 15.15.15.15rtpkrb#
```

## 配置 - TACACS+ 和 CHAP

```
Current configuration:!  
version 11.2  
service timestamps  
debug uetimeservice timestamps log uptime no service  
password-encryption service udp-small-servers service tcp-  
small-servers!  
hostname rtpkrb!  
aaa new-model!  
!--- The following four lines of the configuration !--- are  
specific to Cisco IOS 11.2 and later, until 11.3.3.T. !-  
-- See below this configuration !--- for commands for  
other Cisco IOS releases.  
aaa authentication login  
default tacacs+ localaaa authentication ppp default if-  
needed tacacs+ localaaa authorization exec tacacs+ if-  
authenticatedaaa authorization network tacacs+ if-  
authenticated  
enable secret 5  
$1$pkX.$JdAySRE1SbdbDe7bj0wyt0enable password  
ww!username john password 0 doeusername cse password 0  
csecseip host rtpkrb 10.31.1.5ip name-server  
171.68.118.103!  
interface Loopback0ip address 1.1.1.1  
255.255.255.0!  
interface Ethernet0ip address 10.31.1.5  
255.255.0.0no mop enabled!  
interface Serial0no ip  
addressno ip mroute-cacheshutdown!  
interface Serial1no ip  
addressshutdown!  
interface Async1ip unnumbered  
Ethernet0encapsulation pppasync mode dedicatedpeer  
default ip address pool asyncno cdp enableppp  
authentication chap!  
ip local pool async 15.15.15.15ip  
classlessip route 0.0.0.0 0.0.0.0 10.31.1.1!  
tacacs-  
server host 171.68.118.101tacacs-server key ciscosnmp-  
server community public RWSnmp-server host  
171.68.118.100 traps public!  
line con 0line 1session-  
timeout 20 exec-timeout 20 0password wwautoselect  
during-loginautoselect pppmodem InOuttransport input  
allstopbits 1speed 38400flowcontrol hardwareline 2modem  
InOutspeed 38400flowcontrol hardwareline 3 16line aux  
0line vty 0 4password ww!end
```

## 用于其它 Cisco IOS 版本的命令

**注意：**要使用这些命令，请按照 Cisco IOS 版本的指示，从配置中删除粗体命令，然后再粘贴这些命令。

## [Cisco IOS 11.3.3.T 到 12.0.5.T](#)

```
Current configuration:!  
version 11.2  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
service udp-small-servers  
service tcp-small-servers!  
hostname rtpkrb!  
aaa new-model!  
!--- The following four lines of the configuration !--- are specific to Cisco IOS 11.2 and later, until 11.3.3.T. !--- See below this configuration !--- for commands for other Cisco IOS releases.  
aaa authentication login default tacacs+ local  
aaa authentication ppp default if-needed tacacs+ local  
aaa authorization exec tacacs+ if-authenticated  
aaa authorization network tacacs+ if-authenticated  
enable secret 5  
$1$pkX.$JdAysRE1SbdbDe7bj0wyt0enable password ww!  
username john password 0 doe  
username cse password 0 cse  
cseip host rtpkrb 10.31.1.5  
ip name-server 171.68.118.103!  
interface Loopback0  
ip address 1.1.1.1 255.255.255.0!  
interface Ethernet0  
ip address 10.31.1.5 255.255.0.0  
no mop enabled!  
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 authentication chap!  
ip local pool async 15.15.15.15  
ip classless  
ip route 0.0.0.0 0.0.0.0 10.31.1.1!  
tacacs-server host 171.68.118.101  
tacacs-server key ciscosnmp-server community public RW  
snmp-server host 171.68.118.100 traps public!  
line con 0  
line 1  
session-timeout 20  
exec-timeout 20  
password wwa  
autoselect during-login  
autoselect ppp  
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  
password ww!  
end
```

## [Cisco IOS 12.0.5.T 及更高版本](#)

```
Current configuration:!  
version 11.2  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
service udp-small-servers  
service tcp-small-servers!  
hostname rtpkrb!  
aaa new-model!  
!--- The following four lines of the configuration !--- are specific to Cisco IOS 11.2 and later, until 11.3.3.T. !--- See below this configuration !--- for commands for other Cisco IOS releases.  
aaa authentication login default tacacs+ local  
aaa authentication ppp default if-needed tacacs+ local  
aaa authorization exec tacacs+ if-authenticated  
aaa authorization network tacacs+ if-authenticated  
enable secret 5  
$1$pkX.$JdAysRE1SbdbDe7bj0wyt0enable password ww!  
username john password 0 doe  
username cse password 0 cse  
cseip host rtpkrb 10.31.1.5  
ip name-server 171.68.118.103!  
interface Loopback0  
ip address 1.1.1.1 255.255.255.0!  
interface Ethernet0  
ip address 10.31.1.5 255.255.0.0  
no mop enabled!  
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 authentication chap!  
ip local pool async 15.15.15.15  
ip classless  
ip route 0.0.0.0 0.0.0.0 10.31.1.1!  
tacacs-server host 171.68.118.101  
tacacs-server key ciscosnmp-server community public RW  
snmp-server host 171.68.118.100 traps public!  
line con 0  
line 1  
session-timeout 20  
exec-timeout 20  
password wwa  
autoselect during-login  
autoselect ppp  
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  
password ww!  
end
```

## [调试示例 - TACACS+ 和 CHAP](#)

**注意：**在调试输出中，粗体文本突出显示了调试中的问题。纯文本表示调试成功。

```
General OS:TACACS access control debugging is on  
AAA Authentication debugging is on  
AAA Authorization debugging is on  
PPP:PPP authentication debugging is on  
PPP protocol negotiation debugging is on  
rtpkrb#3d22h: As1 LCP: I CONFREQ [Closed] id 0 len 203  
3d22h: As1 LCP: ACCM 0x00000000 (0x020600000000)  
3d22h: As1 LCP: MagicNumber 0x000042C5 (0x0506000042C5)  
3d22h: As1 LCP: PFC (0x0702)3d22h: As1 LCP: ACFC (0x0802)  
3d22h: As1 LCP: Lower layer not up, discarding packet  
3d22h: %LINK-3-UPDOWN: Interface Async1, changed state to up  
3d22h: As1 PPP: Treating connection as a dedicated line  
3d22h: As1 PPP: Phase is ESTABLISHING, Active Open  
3d22h: As1 LCP: O CONFREQ [Closed] id 12 len 253  
3d22h: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)  
3d22h: As1 LCP: AuthProto CHAP (0x0305C22305)  
3d22h: As1 LCP: MagicNumber 0xF45D776F (0x0506F45D776F)  
3d22h: As1 LCP: PFC (0x0702)3d22h: As1 LCP: ACFC (0x0802)  
3d22h: As1 LCP: I CONFACK [REQsent] id 12 len 253  
3d22h: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)  
3d22h: As1 LCP: AuthProto CHAP (0x0305C22305)  
3d22h: As1 LCP: MagicNumber 0xF45D776F (0x0506F45D776F)  
3d22h: As1 LCP: PFC (0x0702)3d22h: As1 LCP: ACFC (0x0802)  
3d22h: As1 LCP: I CONFREQ [ACKrcvd] id 0 len 203  
3d22h: As1 LCP: ACCM 0x00000000 (0x020600000000)  
3d22h: As1 LCP: MagicNumber 0x000042C5
```

(0x0506000042C5)3d22h: As1 LCP: PFC (0x0702)3d22h: As1 LCP: ACFC (0x0802)3d22h: As1 LCP: O  
CONFACK [ACKrcvd] id 0 len 203d22h: As1 LCP: ACCM 0x00000000 (0x020600000000)3d22h: As1 LCP:  
MagicNumber 0x000042C5 (0x0506000042C5)3d22h: As1 LCP: PFC (0x0702)3d22h: As1 LCP: ACFC  
(0x0802)3d22h: As1 LCP: State is Open3d22h: As1 PPP: Phase is AUTHENTICATING, by this end3d22h:  
As1 CHAP: O CHALLENGE id 3 len 27 from "rtppkrb"3d22h: As1 CHAP: I RESPONSE id 3 len 29 from  
"chapuser"3d22h: AAA/AUTHEN: create\_user (0x15B394) user='chapuser' ruser='' port='Async1'  
rem\_addr='async' authen\_type=CHAP service=PPP priv=13d22h: AAA/AUTHEN/START (2183639772):  
port='Async1' list='' action=LOGIN service=PPP3d22h: AAA/AUTHEN/START (2183639772): using  
"default" list3d22h: AAA/AUTHEN (2183639772): status = UNKNOWN3d22h: AAA/AUTHEN/START  
(2183639772): Method=TACACS+3d22h: TAC+: send AUTHEN/START packet ver=193 id=21836397723d22h:  
TAC+: Using default tacacs server list.3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49  
timeout=5!--- *The TAC+ server is down, producing an error. !--- Since the user is not in the  
local database, !--- the failover to local fails.*TAC+: TCP/IP open to 171.68.118.101/49 failed -  
- **Connection refused by remote hostAAA/AUTHEN (2546660185): status = ERRORAAA/AUTHEN/START  
(2546660185): Method=LOCALAAA/AUTHEN (2546660185): status = FAILAs1 CHAP: Unable to validate  
Response. Username chapuser: Authentication failure**3d22h: TAC+: Opened TCP/IP handle 0x17054C to  
171.68.118.101/493d22h: TAC+: 171.68.118.101 (2183639772) AUTHEN/START/LOGIN/CHAP queued3d22h:  
TAC+: (2183639772) AUTHEN/START/LOGIN/CHAP processed!--- *The key in the router does not match  
that of the server.*TAC+: **received bad AUTHEN packet: length = 68, expected 67857TAC+: Invalid  
AUTHEN/START packet (check keys)AAA/AUTHEN (1771887965): status = ERROR**3d22h: TAC+: ver=192  
id=2183639772 received AUTHEN status = GETPASS3d22h: TAC+: Closing TCP/IP 0x17054C connection to  
171.68.118.101/493d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=53d22h: TAC+: Opened  
TCP/IP handle 0x16EF4C to 171.68.118.101/493d22h: TAC+: Opened 171.68.118.101 index=13d22h:  
AAA/AUTHEN: create\_user (0x170940) user='chapuser' ruser='' port='Async1' rem\_addr='async'  
authen\_type=CHAP service=PPP priv=13d22h: TAC+: rev0 inbound chap for id=2183639772 using  
id=1667030293d22h: TAC+: 171.68.118.101 (166703029) AUTHEN/START/SENDPASS/CHAP queued3d22h:  
TAC+: (166703029) AUTHEN/START/SENDPASS/CHAP processed!--- *The NT client sends the "DOMAIN\user"  
!--- and the TAC+ server expects "user".*TAC+: ver=192 id=3373385106 received AUTHEN status =  
**FAILTAC+: rev0 inbound chap FAIL for id=2082151566AAA/AUTHEN: free\_user (0x170940)  
user='CISCO\chapuser' ruser='' port='Async1' rem\_addr='async' authen\_type=CHAP service=PPP  
priv=1!--- The TAC+ server refuses the user !--- because the user is set up for PAP. !--- The  
user enters a bad password, !--- or both the username and password are bad.**TAC+: ver=192  
id=1989464562 received AUTHEN status = PASSTAC+: rev0 inbound chap SENDPASS status=PASS for  
id=3657266965TAC+: rev0 inbound chap MD5 compare FAILEDAAA/AUTHEN: free\_user (0x170940)  
user='chapuser' ruser='' port='Async1' rem\_addr='async' authen\_type=CHAP service=PPP priv=1TAC+:  
**Closing TCP/IP 0x16EF4C connection to 171.68.118.101/49AAA/AUTHEN (2082151566): status = FAILAs1  
CHAP: Unable to validate Response. Username papuser: Authentication failure**3d22h: TAC+: ver=192  
id=166703029 received AUTHEN status = PASS3d22h: TAC+: rev0 inbound chap SENDPASS status=PASS  
for id=21836397723d22h: TAC+: rev0 inbound chap MD5 compare OK3d22h: AAA/AUTHEN: free\_user  
(0x170940) user='chapuser' ruser='' port='Async1' rem\_addr='async' authen\_type=CHAP service=PPP  
priv=13d22h: TAC+: Closing TCP/IP 0x16EF4C connection to 171.68.118.101/493d22h: AAA/AUTHEN  
(2183639772): status = PASS3d22h: AAA/AUTHOR/LCP As1: Authorize LCP3d22h: AAA/AUTHOR/LCP:  
Async1: (683360936): user='chapuser'3d22h: AAA/AUTHOR/LCP: Async1: (683360936): send AV  
service=ppp3d22h: AAA/AUTHOR/LCP: Async1: (683360936): send AV protocol=lcp3d22h:  
AAA/AUTHOR/LCP: Async1: (683360936): Method=TACACS+3d22h: AAA/AUTHOR/TAC+: (683360936):  
user=chapuser3d22h: AAA/AUTHOR/TAC+: (683360936): send AV service=ppp3d22h: AAA/AUTHOR/TAC+:  
(683360936): send AV protocol=lcp3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49  
timeout=53d22h: TAC+: Opened TCP/IP handle 0x16C1F8 to 171.68.118.101/493d22h: TAC+: Opened  
171.68.118.101 index=13d22h: TAC+: 171.68.118.101 (683360936) AUTHOR/START queued3d22h: TAC+:  
(683360936) AUTHOR/START processed!--- *The user passes authentication !--- (the  
username/password is good) !--- but fails authorization !--- (the profile is not set up to  
authorize PPP).*TAC+: (3803447096): **received author response status = FAILTAC+: Closing TCP/IP  
0x16C2A4 connection to 171.68.118.101/49AAA/AUTHOR (3803447096): Post authorization status =  
FAILAAA/AUTHOR/LCP As1: DeniedAAA/AUTHEN: free\_user (0x15B2E8) user='noauth' ruser=''  
port='Async1' rem\_addr='async' authen\_type=CHAP service=PPP priv=1As1 CHAP: O FAILURE id 9 len  
24 msg is "Authorization failed"**3d22h: TAC+: (683360936): received author response status =  
PASS\_ADD3d22h: TAC+: Closing TCP/IP 0x16C1F8 connection to 171.68.118.101/493d22h: AAA/AUTHOR  
(683360936): Post authorization status = PASS\_ADD3d22h: As1 CHAP: O SUCCESS id 3 len 43d22h: As1  
PPP: Phase is UP3d22h: AAA/AUTHOR/FSM As1: (0): Can we start IPCP?3d22h: AAA/AUTHOR/FSM: Async1:  
(977509495): user='chapuser'3d22h: AAA/AUTHOR/FSM: Async1: (977509495): send AV  
service=ppp3d22h: AAA/AUTHOR/FSM: Async1: (977509495): send AV protocol=ip3d22h: AAA/AUTHOR/FSM:  
Async1: (977509495): Method=TACACS+3d22h: AAA/AUTHOR/TAC+: (977509495): user=chapuser3d22h:  
AAA/AUTHOR/TAC+: (977509495): send AV service=ppp3d22h: AAA/AUTHOR/TAC+: (977509495): send AV  
protocol=ip3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=53d22h: TAC+: Opened TCP/IP



```
handle 0x16EF4C to 171.68.118.101/493d22h: TAC+: Opened 171.68.118.101 index=13d22h: TAC+:
171.68.118.101 (977509495) AUTHOR/START queued3d22h: As1 IPCP: I CONFREQ [Closed] id 1 len
343d22h: As1 IPCP: Address 0.0.0.0 (0x030600000000)3d22h: As1 IPCP: PrimaryDNS 0.0.0.0
(0x810600000000)3d22h: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)3d22h: As1 IPCP:
SecondaryDNS 0.0.0.0 (0x830600000000)3d22h: As1 IPCP: SecondaryWINS 0.0.0.0
(0x840600000000)3d22h: TAC+: (977509495) AUTHOR/START processed3d22h: TAC+: (977509495):
received author response status = PASS_ADD3d22h: TAC+: Closing TCP/IP 0x16EF4C connection to
171.68.118.101/493d22h: AAA/AUTHOR (977509495): Post authorization status = PASS_ADD3d22h:
AAA/AUTHOR/FSM As1: We can start IPCP3d22h: As1 IPCP: O CONFREQ [Closed] id 8 len 103d22h: As1
IPCP: Address 10.31.1.5 (0x03060A1F0105)3d22h: As1 IPCP: I CONFACK [REQsent] id 8 len 103d22h:
As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)3d22h: %LINEPROTO-5-UPDOWN: Line protocol on
Interface Async1, changed state to up3d22h: As1 IPCP: I CONFREQ [ACKrcvd] id 1 len 343d22h: As1
IPCP: Address 0.0.0.0 (0x030600000000)3d22h: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)3d22h:
As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)3d22h: As1 IPCP: SecondaryDNS 0.0.0.0
(0x830600000000)3d22h: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)3d22h: AAA/AUTHOR/IPCP
As1: Start. Her address 0.0.0.0, we want 0.0.0.03d22h: AAA/AUTHOR/IPCP As1: Processing AV
service=ppp3d22h: AAA/AUTHOR/IPCP As1: Processing AV protocol=ip3d22h: AAA/AUTHOR/IPCP As1:
Authorization succeeded3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0, we want
0.0.0.03d22h: As1 IPCP: Using pool 'async'3d22h: As1 IPCP: Pool returned 15.15.15.153d22h: As1
IPCP: O CONFREQ [ACKrcvd] id 1 len 223d22h: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)3d22h:
As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)3d22h: As1 IPCP: SecondaryWINS 0.0.0.0
(0x840600000000)3d22h: As1 IPCP: I CONFREQ [ACKrcvd] id 2 len 163d22h: As1 IPCP: Address 0.0.0.0
(0x030600000000)3d22h: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)3d22h: AAA/AUTHOR/IPCP As1:
Start. Her address 0.0.0.0, we want 15.15.15.153d22h: AAA/AUTHOR/IPCP As1: Processing AV
service=ppp3d22h: AAA/AUTHOR/IPCP As1: Processing AV protocol=ip3d22h: AAA/AUTHOR/IPCP As1:
Authorization succeeded3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0, we want
15.15.15.153d22h: As1 IPCP: O CONFNAK [ACKrcvd] id 2 len 163d22h: As1 IPCP: Address 15.15.15.15
(0x03060F0F0F0F)3d22h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)3d22h: As1 IPCP: I
CONFREQ [ACKrcvd] id 3 len 163d22h: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)3d22h: As1
IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)3d22h: AAA/AUTHOR/IPCP As1: Start. Her address
15.15.15.15, we want 15.15.15.153d22h: AAA/AUTHOR/IPCP: Async1: (3918374858):
user='chapuser'3d22h: AAA/AUTHOR/IPCP: Async1: (3918374858): send AV service=ppp3d22h:
AAA/AUTHOR/IPCP: Async1: (3918374858): send AV protocol=ip3d22h: AAA/AUTHOR/IPCP: Async1:
(3918374858): send AV addr*15.15.15.153d22h: AAA/AUTHOR/IPCP: Async1: (3918374858):
Method=TACACS+3d22h: AAA/AUTHOR/TAC+: (3918374858): user=chapuser3d22h: AAA/AUTHOR/TAC+:
(3918374858): send AV service=ppp3d22h: AAA/AUTHOR/TAC+: (3918374858): send AV protocol=ip3d22h:
AAA/AUTHOR/TAC+: (3918374858): send AV addr*15.15.15.153d22h: TAC+: Opening TCP/IP to
171.68.118.101/49 timeout=53d22h: TAC+: Opened TCP/IP handle 0x16C9E0 to 171.68.118.101/493d22h:
TAC+: Opened 171.68.118.101 index=13d22h: TAC+: 171.68.118.101 (3918374858) AUTHOR/START
queued3d22h: TAC+: (3918374858) AUTHOR/START processed3d22h: TAC+: (3918374858): received author
response status = PASS_ADD3d22h: TAC+: Closing TCP/IP 0x16C9E0 connection to
171.68.118.101/493d22h: AAA/AUTHOR (3918374858): Post authorization status = PASS_ADD3d22h:
AAA/AUTHOR/IPCP As1: Processing AV service=ppp3d22h: AAA/AUTHOR/IPCP As1: Processing AV
protocol=ip3d22h: AAA/AUTHOR/IPCP As1: Processing AV addr*15.15.15.153d22h: AAA/AUTHOR/IPCP As1:
Authorization succeeded3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 15.15.15.15, we want
15.15.15.153d22h: As1 IPCP: O CONFACK [ACKrcvd] id 3 len 163d22h: As1 IPCP: Address 15.15.15.15
(0x03060F0F0F0F)3d22h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)3d22h: As1 IPCP:
State is Open3d22h: As1 IPCP: Install route to 15.15.15.15rtpkrb#
```

## debug 命令

这些 debug 命令用于生成本文档中的调试输出示例。

**注意：**在发出 debug 命令之前，请参阅[有关 debug 命令的重要信息](#)。

- debug aaa authentication ? 显示关于AAA认证的信息。
- debug aaa authorization ? 显示关于AAA授权的信息。
- debug tacacs+ ? 显示详细的调试信息关联与TACACS+。
- debug ppp协商 ? 显示 PPP 启动期间传输的数据包，此处 PPP 选项是经过协商的。

## 相关信息

- [IOS 文档中的 TACACS+](#)
- [TACACS+ 支持页](#)
- [技术支持和文档 - Cisco Systems](#)