TACACS+ 、PAP およびCHAP のデバッグのよくある問題

内容

概要

注：このドキュメントの情報は、Cisco IOS®ソフトウェアリリース11.2以降に基づくものです。

このマニュアルでは、パスワード認証プロトコル（PAP）またはチャレンジ ハンドシェイク認証プロトコル（CHAP）を使用するときの TACACS+ に共通のデバッグの問題を検証します。Microsoft Windows 95、Windows NT、Windows 98、Windows 2000 に共通する PC の設定に加えて、設定例および適切なデバッグ例と不適切なデバッグ例も示します。

前提条件

要件

このドキュメントに特有の要件はありません。

使用するコンポーネント

このドキュメントの内容は、特定のソフトウェアやハードウェアのバージョンに限定されるもの

ではありません。

このドキュメントの情報は、特定のラボ環境にあるデバイスに基づいて作成されました。このドキュメントで使用するすべてのデバイスは、初期（デフォルト）設定の状態から起動しています。対象のネットワークが実稼働中である場合には、どのようなコマンドについても、その潜在的な影響について確実に理解しておく必要があります。

表記法

ドキュメント表記の詳細は、『シスコ テクニカル ティップスの表記法』を参照してください。

一般的な PC セッティング

Windows 95

次のステップを実行します。

1. [Dialup Networking] ウィンドウで、接続名を選択し、[File] > [Properties] を選択します。
2. [Server Type] タブで、[Type of Dial-up Server] の下にある [Require Encrypted Password] **ボックスがチェックされているかどうかを確認します。**このボックスがチェックされている場合、PC では CHAP 認証だけが受け入れられています。このボックスがチェックされていない場合、PC では PAP または CHAP の認証が受け入れられます。

Windows NT

次のステップを実行します。

1. [Dial-Up Networking] ウィンドウで、接続名を選択し、[File] > [Properties] を選択します。
2. Security タブで、設定を確認します。[Accept any authentication including clear text] **ボックスにチェックが入っている場合、PC では PAP または CHAP を受け入れられます。**[Accept only encrypted authentication] **ボックスがチェックされている場合、PC では CHAP 認証だけが受け入れられます。**

Windows 98

次のステップを実行します。

1. [Dial-Up Networking] ウィンドウで、接続名を選択してから [Properties] を選択します。
2. Server Types タブで、Advanced Options エリアの設定を確認します。[Require encrypted password] **ボックスがチェックされていない場合、PC では PAP または CHAP の認証が受け入れられます。**[Require encrypted password] **ボックスがチェックされている場合、PC では CHAP 認証だけが受け入れられています。**

Windows 2000

次のステップを実行します。

1. [Network and Dial-Up Connections] で、接続名を選択してから [Properties] を選択します。

2. [Security] タブ上の **[Advanced] > [Settings] > [Allow these protocols]領域で、次を実行します。**[Unencrypted password (PAP)] **ボックスがチェックされている場合、PC では PAP が受け入れられます。**[Challenge Handshake Authentication Protocol (CHAP)] **ボックスがチェックされている場合、PC では、RFC 1994 の規定による CHAP が受け入れられます。**[Microsoft CHAP (MS-CHAP)] **ボックスがチェックされている場合、PC では MS-CHAP バージョン 1 が受け入れられますが、RFC 1994 の規定による CHAP は受け入れられません。**

設定およびデバッグ例

設定:TACACS+ および PAP

```
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.$JdAySRE1SbdbDe7bj0wyt0
enable password ww
!
username john password 0 doe
username cse password 0 csecse
ip host rtpkrb 10.31.1.5
ip domain-name RTP.CISCO.COM
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 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
!
tacacs-server host 171.68.118.101
tacacs-server key cisco
snmp-server community public RW
snmp-server host 171.68.118.100 traps public
!
line con 0
line 1
session-timeout 20
exec-timeout 20 0
password ww
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
```

他の Cisco IOS リリース用のコマンド

注：これらのコマンドを使用するには、Cisco IOSリリースで規定されているように、設定から太字のコマンドを削除し、これらのコマンドを貼り付けます。

Cisco IOS 11.3.3.T から 12.0.5.T よりも前まで

```
aaa authen login default tacacs+ local
aaa authen ppp default if-needed tacacs+ local
aaa authorization exec default tacacs+ if-authenticated
aaa authorization network default tacacs+ if-authenticated
```

Cisco IOS 12.0.5.T 以降

```
aaa authen login default group tacacs+ local
aaa authen ppp default if-needed group tacacs+ local
aaa authorization exec default group tacacs+ if-authenticated
aaa authorization network default group tacacs+ if-authenticated
```

デバッグの例- TACACS+ およびPAP

注：デバッグ出力では、太字のテキストがデバッグの問題を強調表示しています。プレーンテキストは、正常なデバッグを示しています。

```
rtpkrb#show debug
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: %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 14 len 24
3d22h: 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 12
As1 LCP: AuthProto 0xC123 (0x0308C12301000001)
As1 PPP: Closing connection because remote won't authenticate

3d22h: As1 LCP: Interface transitioned, discarding packet
3d22h: As1 LCP: I CONFACK [REQsent] id 14 len 24
3d22h: 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 ACKrcvd
3d22h: As1 LCP: O CONFREQ [ACKrcvd] id 15 len 24
3d22h: 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 24
3d22h: 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 20
3d22h: 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 20
3d22h: 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 Open
3d22h: As1 PPP: Phase is AUTHENTICATING, by this end
3d22h: As1 PAP: I AUTH-REQ id 4 len 20 from "papuser"
3d22h: As1 PAP: Authenticating peer papuser
3d22h: AAA/AUTHEN: create_user (0x16DAC0) user='papuser'
ruser='' port='Async1' rem_addr='async' authen_type=PAP
```

```
service=PPP priv=1
3d22h: AAA/AUTHEN/START (1190231344): port='Async1' list=''
 action=LOGIN service=PPP
3d22h: AAA/AUTHEN/START (1190231344): using "default" list
3d22h: AAA/AUTHEN (1190231344): status = UNKNOWN
3d22h: AAA/AUTHEN/START (1190231344): Method=TACACS+
3d22h: TAC+: send AUTHEN/START packet ver=193 id=1190231344
3d22h: 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 host**
AAA/AUTHEN (866823886): status = ERROR
AAA/AUTHEN/START (866823886): Method=LOCAL
AAA/AUTHEN (866823886): status = FAIL

```
3d22h: TAC+: Opened TCP/IP handle 0x16C1F8 to 171.68.118.101/49
3d22h: TAC+: 171.68.118.101 (1190231344) AUTHEN/START/LOGIN/PAP queued
3d22h: 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 67857**
TAC+: Invalid AUTHEN/START packet (check keys)
AAA/AUTHEN (1771887965): status = ERROR

```
3d22h: TAC+: ver=192 id=1190231344 received AUTHEN status = GETPASS
3d22h: TAC+: Closing TCP/IP 0x16C1F8 connection to 171.68.118.101/49
3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=5
3d22h: TAC+: Opened TCP/IP handle 0x16EF4C to 171.68.118.101/49
3d22h: TAC+: Opened 171.68.118.101 index=1
3d22h: AAA/AUTHEN: create_user (0x16C5EC) user='papuser' ruser=''
port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=1
3d22h: TAC+: rev0 inbound pap login for id=1190231344 using id=3112896669
3d22h: TAC+: 171.68.118.101 (3112896669) AUTHEN/START/LOGIN/PAP queued
3d22h: TAC+: (3112896669) AUTHEN/START/LOGIN/PAP processed
3d22h: TAC+: ver=192 id=3112896669 received AUTHEN status = GETPASS
3d22h: TAC+: send AUTHEN/CONT packet
3d22h: TAC+: 171.68.118.101 (3112896669) AUTHEN/CONT queued
3d22h: 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 = FAIL**
TAC+: rev0 inbound pap completed for 1139034411 status=FAIL
AAA/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 = FAIL**
TAC+: rev0 inbound pap completed for 3917384959 status=FAIL
AAA/AUTHEN: free_user (0x15AD58) user='idochap' ruser=''
port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=1

```
3d22h: TAC+: ver=192 id=3112896669 received AUTHEN status = PASS
3d22h: TAC+: rev0 inbound pap completed for 1190231344 status=PASS
3d22h: AAA/AUTHEN: free_user (0x16C5EC) user='papuser' ruser=''
port='Async1' rem_addr='async' authen_type=PAP service=PPP priv=1
3d22h: TAC+: Closing TCP/IP 0x16EF4C connection to 171.68.118.101/49
3d22h: AAA/AUTHEN (1190231344): status = PASS
3d22h: AAA/AUTHOR/LCP As1: Authorize LCP
3d22h: AAA/AUTHOR/LCP: Async1: (1061976769): user='papuser'
3d22h: AAA/AUTHOR/LCP: Async1: (1061976769): send AV service=ppp
3d22h: AAA/AUTHOR/LCP: Async1: (1061976769): send AV protocol=lcp
```

```
3d22h: AAA/AUTHOR/LCP: Async1: (1061976769): Method=TACACS+
3d22h: AAA/AUTHOR/TAC+: (1061976769): user=papuser
3d22h: AAA/AUTHOR/TAC+: (1061976769): send AV service=ppp
3d22h: AAA/AUTHOR/TAC+: (1061976769): send AV protocol=lcp
3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=5
3d22h: TAC+: Opened TCP/IP handle 0x16C9E0 to 171.68.118.101/49
3d22h: TAC+: Opened 171.68.118.101 index=1
3d22h: TAC+: 171.68.118.101 (1061976769) AUTHOR/START queued
3d22h: 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 = FAIL**
TAC+: Closing TCP/IP 0x17054C connection to 171.68.118.101/49
AAA/AUTHOR (1793875816): Post authorization status = FAIL
AAA/AUTHOR/LCP As1: Denied

```
3d22h: TAC+: (1061976769): received author response status = PASS_ADD
3d22h: TAC+: Closing TCP/IP 0x16C9E0 connection to 171.68.118.101/49
3d22h: AAA/AUTHOR (1061976769): Post authorization status = PASS_ADD
3d22h: As1 PAP: O AUTH-ACK id 4 len 5
3d22h: As1 PPP: Phase is UP
3d22h: 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=ppp
3d22h: AAA/AUTHOR/FSM: Async1: (3602788894): send AV protocol=ip
3d22h: AAA/AUTHOR/FSM: Async1: (3602788894): Method=TACACS+
3d22h: AAA/AUTHOR/TAC+: (3602788894): user=papuser
3d22h: AAA/AUTHOR/TAC+: (3602788894): send AV service=ppp
3d22h: AAA/AUTHOR/TAC+: (3602788894): send AV protocol=ip
3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=5
3d22h: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1,
changed state to up
3d22h: TAC+: Opened TCP/IP handle 0x17054C to 171.68.118.101/49
3d22h: TAC+: Opened 171.68.118.101 index=1
3d22h: TAC+: 171.68.118.101 (3602788894) AUTHOR/START queued
3d22h: As1 IPCP: I CONFREQ [Closed] id 1 len 34
3d22h: 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 processed
3d22h: TAC+: (3602788894): received author response status = PASS_ADD
3d22h: TAC+: Closing TCP/IP 0x17054C connection to 171.68.118.101/49
3d22h: AAA/AUTHOR (3602788894): Post authorization status = PASS_ADD
3d22h: AAA/AUTHOR/FSM As1: We can start IPCP
3d22h: As1 IPCP: O CONFREQ [Closed] id 10 len 10
3d22h: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)
3d22h: As1 IPCP: I CONFACK [REQsent] id 10 len 10
3d22h: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)
3d22h: As1 IPCP: I CONFREQ [ACKrcvd] id 1 len 34
3d22h: 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 0.0.0.0
3d22h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
3d22h: AAA/AUTHOR/IPCP As1: Processing AV protocol=ip
3d22h: AAA/AUTHOR/IPCP As1: Authorization succeeded
3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0,
we want 0.0.0.0
```

```
3d22h: As1 IPCP: Using pool 'async'
3d22h: As1 IPCP: Pool returned 15.15.15.15
3d22h: As1 IPCP: O CONFREJ [ACKrcvd] id 1 len 22
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: As1 IPCP: I CONFREQ [ACKrcvd] id 2 len 16
3d22h: 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 15.15.15.15
3d22h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
3d22h: AAA/AUTHOR/IPCP As1: Processing AV protocol=ip
3d22h: AAA/AUTHOR/IPCP As1: Authorization succeeded
3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0,
we want 15.15.15.15
3d22h: As1 IPCP: O CONFNAK [ACKrcvd] id 2 len 16
3d22h: 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 16
3d22h: 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 15.15.15.15
3d22h: AAA/AUTHOR/IPCP: Async1: (3654974050): user='papuser'
3d22h: AAA/AUTHOR/IPCP: Async1: (3654974050): send AV service=ppp
3d22h: AAA/AUTHOR/IPCP: Async1: (3654974050): send AV protocol=ip
3d22h: AAA/AUTHOR/IPCP: Async1: (3654974050): send AV addr*15.15.15.15
3d22h: AAA/AUTHOR/IPCP: Async1: (3654974050): Method=TACACS+
3d22h: AAA/AUTHOR/TAC+: (3654974050): user=papuser
3d22h: AAA/AUTHOR/TAC+: (3654974050): send AV service=ppp
3d22h: AAA/AUTHOR/TAC+: (3654974050): send AV protocol=ip
3d22h: AAA/AUTHOR/TAC+: (3654974050): send AV addr*15.15.15.15
3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=5
3d22h: TAC+: Opened TCP/IP handle 0x16EF4C to 171.68.118.101/49
3d22h: TAC+: Opened 171.68.118.101 index=1
3d22h: TAC+: 171.68.118.101 (3654974050) AUTHOR/START queued
3d22h: TAC+: (3654974050) AUTHOR/START processed
3d22h: TAC+: (3654974050): received author response status = PASS_ADD
3d22h: TAC+: Closing TCP/IP 0x16EF4C connection to 171.68.118.101/49
3d22h: AAA/AUTHOR (3654974050): Post authorization status = PASS_ADD
3d22h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
3d22h: AAA/AUTHOR/IPCP As1: Processing AV protocol=ip
3d22h: AAA/AUTHOR/IPCP As1: Processing AV addr*15.15.15.15
3d22h: AAA/AUTHOR/IPCP As1: Authorization succeeded
3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 15.15.15.15,
we want 15.15.15.15
3d22h: As1 IPCP: O CONFACK [ACKrcvd] id 3 len 16
3d22h: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
3d22h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
3d22h: As1 IPCP: State is Open
3d22h: As1 IPCP: Install route to 15.15.15.15
rtpkrb#
```

設定；TACACS+ および chap

```
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.$JdAySRE1SbdbDe7bj0wyt0
enable password ww
!
username john password 0 doe
username cse password 0 csecse
ip 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 cisco
snmp-server community public RW
snmp-server host 171.68.118.100 traps public
!
line con 0
line 1
session-timeout 20
exec-timeout 20 0
password ww
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
```

他の Cisco IOS リリース用のコマンド

注：これらのコマンドを使用するには、この設定から太字のコマンドを削除して、使用している Cisco IOS リリースによって定義されているとおりに、これらのコマンドを貼り付けます。

Cisco IOS 11.3.3.T から 12.0.5.T よりも前まで

```
aaa authen login default tacacs+ local
aaa authen ppp default if-needed tacacs+ local
aaa authorization exec default tacacs+ if-authenticated
aaa authorization network default tacacs+ if-authenticated
```

Cisco IOS 12.0.5.T 以降

```
aaa authen login default group tacacs+ local
aaa authen ppp default if-needed group tacacs+ local
aaa authorization exec default group tacacs+ if-authenticated
aaa authorization network default group tacacs+ if-authenticated
```

デバッグの例- TACACS+ およびCHAP

注：**デバッグ**出力では、太字のテキストがデバッグの問題を強調表示しています。プレーンテキストは、正常なデバッグを示しています。

```
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 20
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 25
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 25
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 20
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 20
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: State is Open
3d22h: As1 PPP: Phase is AUTHENTICATING, by this end
3d22h: As1 CHAP: O CHALLENGE id 3 len 27 from "rtpkrb"
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=1
3d22h: AAA/AUTHEN/START (2183639772): port='Async1' list=''
action=LOGIN service=PPP
3d22h: AAA/AUTHEN/START (2183639772): using "default" list
3d22h: AAA/AUTHEN (2183639772): status = UNKNOWN
3d22h: AAA/AUTHEN/START (2183639772): Method=TACACS+
3d22h: TAC+: send AUTHEN/START packet ver=193 id=2183639772
3d22h: 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 host
AAA/AUTHEN (2546660185): status = ERROR
AAA/AUTHEN/START (2546660185): Method=LOCAL
AAA/AUTHEN (2546660185): status = FAIL
As1 CHAP: Unable to validate Response. Username chapuser: Authentication failure

```
3d22h: TAC+: Opened TCP/IP handle 0x17054C to 171.68.118.101/49
3d22h: TAC+: 171.68.118.101 (2183639772) AUTHEN/START/LOGIN/CHAP queued
3d22h: 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 67857
TAC+: Invalid AUTHEN/START packet (check keys)
AAA/AUTHEN (1771887965): status = ERROR

```
3d22h: TAC+: ver=192 id=2183639772 received AUTHEN status = GETPASS
3d22h: TAC+: Closing TCP/IP 0x17054C connection to 171.68.118.101/49
3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=5
3d22h: TAC+: Opened TCP/IP handle 0x16EF4C to 171.68.118.101/49
3d22h: TAC+: Opened 171.68.118.101 index=1
3d22h: AAA/AUTHEN: create_user (0x170940) user='chapuser' ruser=''
port='Async1' rem_addr='async' authen_type=CHAP service=PPP priv=1
3d22h: TAC+: rev0 inbound chap for id=2183639772 using id=166703029
3d22h: TAC+: 171.68.118.101 (166703029) AUTHEN/START/SENDPASS/CHAP queued
3d22h: 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 = FAIL
TAC+: rev0 inbound chap FAIL for id=2082151566
AAA/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 = PASS
TAC+: rev0 inbound chap SENDPASS status=PASS for id=3657266965
TAC+: rev0 inbound chap MD5 compare FAILED
AAA/AUTHEN: free_user (0x170940) user='chapuser' ruser=''
port='Async1' rem_addr='async' authen_type=CHAP service=PPP priv=1
TAC+: Closing TCP/IP 0x16EF4C connection to 171.68.118.101/49
AAA/AUTHEN (2082151566): status = FAIL
As1 CHAP: Unable to validate Response. Username papuser: Authentication failure

3d22h: TAC+: ver=192 id=166703029 received AUTHEN status = PASS
3d22h: TAC+: rev0 inbound chap SENDPASS status=PASS for id=2183639772
3d22h: TAC+: rev0 inbound chap MD5 compare OK
3d22h: AAA/AUTHEN: free_user (0x170940) user='chapuser' ruser=''
port='Async1' rem_addr='async' authen_type=CHAP service=PPP priv=1
3d22h: TAC+: Closing TCP/IP 0x16EF4C connection to 171.68.118.101/49
3d22h: AAA/AUTHEN (2183639772): status = PASS
3d22h: AAA/AUTHOR/LCP As1: Authorize LCP
3d22h: AAA/AUTHOR/LCP: Async1: (683360936): user='chapuser'
3d22h: AAA/AUTHOR/LCP: Async1: (683360936): send AV service=ppp
3d22h: AAA/AUTHOR/LCP: Async1: (683360936): send AV protocol=lcp
3d22h: AAA/AUTHOR/LCP: Async1: (683360936): Method=TACACS+
3d22h: AAA/AUTHOR/TAC+: (683360936): user=chapuser
3d22h: AAA/AUTHOR/TAC+: (683360936): send AV service=ppp
3d22h: AAA/AUTHOR/TAC+: (683360936): send AV protocol=lcp
3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=5
3d22h: TAC+: Opened TCP/IP handle 0x16C1F8 to 171.68.118.101/49
3d22h: TAC+: Opened 171.68.118.101 index=1
3d22h: TAC+: 171.68.118.101 (683360936) AUTHOR/START queued
3d22h: 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 = FAIL
TAC+: Closing TCP/IP 0x16C2A4 connection to 171.68.118.101/49
AAA/AUTHOR (3803447096): Post authorization status = FAIL
AAA/AUTHOR/LCP As1: Denied
AAA/AUTHEN: free_user (0x15B2E8) user='noauth' ruser='' port='Async1'
rem_addr='async' authen_type=CHAP service=PPP priv=1
As1 CHAP: O FAILURE id 9 len 24 msg is "Authorization failed"

3d22h: TAC+: (683360936): received author response status = PASS_ADD
3d22h: TAC+: Closing TCP/IP 0x16C1F8 connection to 171.68.118.101/49
3d22h: AAA/AUTHOR (683360936): Post authorization status = PASS_ADD
3d22h: As1 CHAP: O SUCCESS id 3 len 4
3d22h: As1 PPP: Phase is UP
3d22h: 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=ppp
3d22h: AAA/AUTHOR/FSM: Async1: (977509495): send AV protocol=ip
3d22h: AAA/AUTHOR/FSM: Async1: (977509495): Method=TACACS+
3d22h: AAA/AUTHOR/TAC+: (977509495): user=chapuser
3d22h: AAA/AUTHOR/TAC+: (977509495): send AV service=ppp
3d22h: AAA/AUTHOR/TAC+: (977509495): send AV protocol=ip
3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=5
3d22h: TAC+: Opened TCP/IP handle 0x16EF4C to 171.68.118.101/49
3d22h: TAC+: Opened 171.68.118.101 index=1
3d22h: TAC+: 171.68.118.101 (977509495) AUTHOR/START queued

```
3d22h: As1 IPCP: I CONFREQ [Closed] id 1 len 34
3d22h: 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 processed
3d22h: TAC+: (977509495): received author response status = PASS_ADD
3d22h: TAC+: Closing TCP/IP 0x16EF4C connection to 171.68.118.101/49
3d22h: AAA/AUTHOR (977509495): Post authorization status = PASS_ADD
3d22h: AAA/AUTHOR/FSM As1: We can start IPCP
3d22h: As1 IPCP: O CONFREQ [Closed] id 8 len 10
3d22h: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)
3d22h: As1 IPCP: I CONFACK [REQsent] id 8 len 10
3d22h: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)
3d22h: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1,
changed state to up
3d22h: As1 IPCP: I CONFREQ [ACKrcvd] id 1 len 34
3d22h: 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 0.0.0.0
3d22h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
3d22h: AAA/AUTHOR/IPCP As1: Processing AV protocol=ip
3d22h: AAA/AUTHOR/IPCP As1: Authorization succeeded
3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0,
we want 0.0.0.0
3d22h: As1 IPCP: Using pool 'async'
3d22h: As1 IPCP: Pool returned 15.15.15.15
3d22h: As1 IPCP: O CONFREJ [ACKrcvd] id 1 len 22
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: As1 IPCP: I CONFREQ [ACKrcvd] id 2 len 16
3d22h: 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 15.15.15.15
3d22h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
3d22h: AAA/AUTHOR/IPCP As1: Processing AV protocol=ip
3d22h: AAA/AUTHOR/IPCP As1: Authorization succeeded
3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0,
we want 15.15.15.15
3d22h: As1 IPCP: O CONFNAK [ACKrcvd] id 2 len 16
3d22h: 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 16
3d22h: 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 15.15.15.15
3d22h: AAA/AUTHOR/IPCP: Async1: (3918374858): user='chapuser'
3d22h: AAA/AUTHOR/IPCP: Async1: (3918374858): send AV service=ppp
3d22h: AAA/AUTHOR/IPCP: Async1: (3918374858): send AV protocol=ip
3d22h: AAA/AUTHOR/IPCP: Async1: (3918374858): send AV addr*15.15.15.15
3d22h: AAA/AUTHOR/IPCP: Async1: (3918374858): Method=TACACS+
3d22h: AAA/AUTHOR/TAC+: (3918374858): user=chapuser
3d22h: AAA/AUTHOR/TAC+: (3918374858): send AV service=ppp
3d22h: AAA/AUTHOR/TAC+: (3918374858): send AV protocol=ip
3d22h: AAA/AUTHOR/TAC+: (3918374858): send AV addr*15.15.15.15
3d22h: TAC+: Opening TCP/IP to 171.68.118.101/49 timeout=5
```

```
3d22h: TAC+: Opened TCP/IP handle 0x16C9E0 to 171.68.118.101/49
3d22h: TAC+: Opened 171.68.118.101 index=1
3d22h: TAC+: 171.68.118.101 (3918374858) AUTHOR/START queued
3d22h: TAC+: (3918374858) AUTHOR/START processed
3d22h: TAC+: (3918374858): received author response status = PASS_ADD
3d22h: TAC+: Closing TCP/IP 0x16C9E0 connection to 171.68.118.101/49
3d22h: AAA/AUTHOR (3918374858): Post authorization status = PASS_ADD
3d22h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
3d22h: AAA/AUTHOR/IPCP As1: Processing AV protocol=ip
3d22h: AAA/AUTHOR/IPCP As1: Processing AV addr*15.15.15.15
3d22h: AAA/AUTHOR/IPCP As1: Authorization succeeded
3d22h: AAA/AUTHOR/IPCP As1: Done. Her address 15.15.15.15,
we want 15.15.15.15
3d22h: As1 IPCP: O CONFACK [ACKrcvd] id 3 len 16
3d22h: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
3d22h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
3d22h: As1 IPCP: State is Open
3d22h: As1 IPCP: Install route to 15.15.15.15
rtpkrb#
```

デバッグ コマンド

次の debug コマンドが、このマニュアルのデバッグ出力例の生成に使用されました。

注：debugコマンドを発行する前に、『debugコマンドの重要な情報』を参照してください。

- **debug aaa authentication**：AAA 認証に関する情報を表示します。
- **debug aaa authorization**：AAA 認可に関する情報を表示します。
- **debug tacacs+**：TACACS+ に関連する詳細なデバッグ情報を表示します。
- **debug ppp negotiation**：PPP の開始時に送信される PPP パケットを表示します。PPP の開始時には PPP オプションがネゴシエートされます。

関連情報

- IOS での TACACS+ に関するドキュメント
- TACACS+ に関するサポート ページ
- テクニカル サポートとドキュメント – Cisco Systems