

# Häufige Probleme beim Debuggen von RADIUS, PAP und CHAP

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## [Einführung](#)

In diesem Dokument werden häufige Debugprobleme für RADIUS bei Verwendung von Password Authentication Protocol (PAP) oder Challenge Handshake Authentication Protocol (CHAP) untersucht. Gängige PC-Einstellungen für Microsoft Windows 95, Windows NT, Windows 98 und Windows 2000 sowie Beispiele für Konfigurationen und Beispiele für gute und schlechte Debugging-Optionen werden bereitgestellt.

## [Bevor Sie beginnen](#)

### [Konventionen](#)

Weitere Informationen zu Dokumentkonventionen finden Sie in den [Cisco Technical Tips Conventions](#).

### [Voraussetzungen](#)

Für dieses Dokument bestehen keine besonderen Voraussetzungen.

## Verwendete Komponenten

Die Informationen in diesem Dokument basieren auf Cisco IOS® Software Releases 11.2 und höher.

Die in diesem Dokument enthaltenen Informationen wurden aus Geräten in einer bestimmten Laborumgebung erstellt. Alle in diesem Dokument verwendeten Geräte haben mit einer leeren (Standard-)Konfiguration begonnen. Wenn Sie in einem Live-Netzwerk arbeiten, stellen Sie sicher, dass Sie die potenziellen Auswirkungen eines Befehls verstehen, bevor Sie es verwenden.

## Allgemeine PC-Einstellungen

### Windows 95

Befolgen Sie die nachstehenden Anweisungen:

1. Wählen Sie im Fenster DFÜ-Netzwerk den Verbindungsnamen und dann **Datei > Eigenschaften** aus.
2. Überprüfen Sie auf der Registerkarte Servertyp, ob das Kontrollkästchen **Verschlüsseltes Kennwort** unter Typ des DFÜ-Servers aktiviert ist. Wenn dieses Kontrollkästchen aktiviert ist, bedeutet dies, dass der PC nur die CHAP-Authentifizierung akzeptiert. Wenn dieses Kontrollkästchen nicht aktiviert ist, bedeutet dies, dass der PC die PAP- oder CHAP-Authentifizierung akzeptiert.

### Windows NT

Befolgen Sie die nachstehenden Anweisungen:

1. Wählen Sie im Fenster DFÜ-Netzwerk den Namen der Verbindung aus, und wählen Sie dann **Datei > Eigenschaften**.
2. Überprüfen Sie die Einstellungen auf der Registerkarte Sicherheit: Wenn das Kontrollkästchen **Authentifizierung einschließlich Klartext akzeptieren** aktiviert ist, bedeutet dies, dass der PC PAP oder CHAP akzeptiert. Wenn das Kontrollkästchen **Nur verschlüsselte Authentifizierung akzeptieren** aktiviert ist, akzeptiert der PC nur die CHAP-Authentifizierung.

### Windows 98

Befolgen Sie die nachstehenden Anweisungen:

1. Wählen Sie im Fenster DFÜ-Netzwerk den Namen der Verbindung aus, und wählen Sie dann **Eigenschaften** aus.
2. Überprüfen Sie auf der Registerkarte Servertypen die Einstellungen im Bereich Erweiterte Optionen: Wenn das Kontrollkästchen **Verschlüsseltes Kennwort** anfordern deaktiviert ist, bedeutet dies, dass der PC die PAP- oder CHAP-Authentifizierung akzeptiert. Wenn das Kontrollkästchen **Verschlüsseltes Kennwort** anfordern aktiviert ist, bedeutet dies, dass der PC nur die CHAP-Authentifizierung akzeptiert.

## Windows 2000

Befolgen Sie die nachstehenden Anweisungen:

1. Wählen Sie unter Netzwerk- und DFÜ-Verbindungen den Namen der Verbindung aus, und wählen Sie dann **Eigenschaften aus**.
2. Aktivieren Sie auf der Registerkarte Sicherheit die Einstellungen im Bereich **Erweitert > Einstellungen > Diese Protokolle zulassen**: Wenn das Kontrollkästchen **Uncrypted Password (PAP)** aktiviert ist, akzeptiert der PC PAP. Wenn das Kontrollkästchen **Challenge Handshake Authentication Protocol (CHAP)** aktiviert ist, akzeptiert der PC CHAP gemäß [RFC 1994](#). Wenn das Kontrollkästchen **Microsoft CHAP (MS-CHAP)** aktiviert ist, akzeptiert der PC MS-CHAP Version 1 und akzeptiert kein CHAP gemäß RFC 1994.

## Konfigurationen und Debugbeispiele

### RADIUS und PAP

#### Konfiguration - RADIUS und PAP

```
Current configuration:
!
version 11.2
service timestamps debug uptime
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname rtpkrb
!
aaa new-model
!
!--- The following four command lines are specific to !-
-- Cisco IOS 11.2 and later, up until 11.3.3.T. !--- See
below this configuration for commands !--- for other
Cisco IOS releases. ! aaa authentication login default
radius local
aaa authentication ppp default if-needed radius local
aaa authorization exec radius if-authenticated
aaa authorization network radius 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
!
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 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
exec-timeout 0 0
password ww
!
end

```

## [Befehle für andere Cisco IOS-Versionen](#)

**Hinweis:** Um diese Befehle zu verwenden, entfernen Sie die hervorgehobenen Befehle aus der obigen Konfiguration und fügen Sie diese Befehle gemäß der Cisco IOS-Version ein.

### **Cisco IOS 11.3.3.T bis 12.0.5.T**

```

aaa authen login default radius local
aaa authen ppp default if-needed radius local

```

```
aaa authorization exec default radius if-authenticated
aaa authorization network default radius if-authenticated
```

## Cisco IOS 12.0.5.T und höher

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

## Beispieldebugging - RADIUS und PAP

**Hinweis:** In der Debugausgabe wird der fett formatierte Text auf Probleme beim Debuggen hinweisen. Einfacher Text weist auf eine gute Fehlersuche hin.

```
rtpkrb#
rtpkrb#sho deb
General OS:
AAA Authentication debugging is on
AAA Authorization debugging is on
PPP:
PPP authentication debugging is on
PPP protocol negotiation debugging is on
Radius protocol debugging is on
rtpkrb#
4d02h: As1 LCP: I CONFREQ [Closed] id 0 len 20
4d02h: As1 LCP: ACCM 0x00000000 (0x020600000000)
4d02h: As1 LCP: MagicNumber 0x00001F67 (0x050600001F67)
4d02h: As1 LCP: PFC (0x0702)
4d02h: As1 LCP: ACFC (0x0802)
4d02h: As1 LCP: Lower layer not up, discarding packet
%LINK-3-UPDOWN: Interface Async1, changed state to up
4d02h: As1 PPP: Treating connection as a dedicated line
4d02h: As1 PPP: Phase is ESTABLISHING, Active Open
4d02h: As1 LCP: O CONFREQ [Closed] id 85 len 24
4d02h: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
4d02h: As1 LCP: AuthProto PAP (0x0304C023)
4d02h: As1 LCP: MagicNumber 0xF54252D5 (0x0506F54252D5)
4d02h: As1 LCP: PFC (0x0702)
4d02h: 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 98 len 12
As1 LCP: AuthProto 0xC123 (0x0308C12301000001)
As1 LCP: O CONFREQ [REQsent] id 99 len 24
As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
As1 LCP: AuthProto PAP (0x0304C023)
As1 LCP: MagicNumber 0xF54D1AF8 (0x0506F54D1AF8)
As1 LCP: PFC (0x0702)
As1 LCP: ACFC (0x0802)
As1 LCP: I CONFREJ [REQsent] id 99 len 8
As1 LCP: AuthProto PAP (0x0304C023)
As1 PPP: Closing connection because remote won't authenticate

4d02h: As1 LCP: I CONFACK [REQsent] id 85 len 24
4d02h: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
```

4d02h: As1 LCP: AuthProto PAP (0x0304C023)  
4d02h: As1 LCP: MagicNumber 0xF54252D5 (0x0506F54252D5)  
4d02h: As1 LCP: PFC (0x0702)  
4d02h: As1 LCP: ACFC (0x0802)  
4d02h: As1 LCP: I CONFREQ [ACKrcvd] id 0 len 20  
4d02h: As1 LCP: ACCM 0x00000000 (0x020600000000)  
4d02h: As1 LCP: MagicNumber 0x00001F67 (0x050600001F67)  
4d02h: As1 LCP: PFC (0x0702)  
4d02h: As1 LCP: ACFC (0x0802)  
4d02h: As1 LCP: O CONFACK [ACKrcvd] id 0 len 20  
4d02h: As1 LCP: ACCM 0x00000000 (0x020600000000)  
4d02h: As1 LCP: MagicNumber 0x00001F67 (0x050600001F67)  
4d02h: As1 LCP: PFC (0x0702)  
4d02h: As1 LCP: ACFC (0x0802)  
4d02h: As1 LCP: State is Open  
4d02h: As1 PPP: Phase is AUTHENTICATING, by this end  
4d02h: As1 PAP: I AUTH-REQ id 14 len 19 from "ddunlap"  
4d02h: As1 PAP: Authenticating peer ddunlap  
4d02h: AAA/AUTHEN: create\_user (0x15AD58) user='ddunlap' ruser=''  
port='Async1' rem\_addr='async' authen\_type=PAP service=PPP priv=1  
4d02h: AAA/AUTHEN/START (1953436918): port='Async1' list=''  
action=LOGIN service=PPP  
4d02h: AAA/AUTHEN/START (1953436918): using "default" list  
4d02h: AAA/AUTHEN (1953436918): status = UNKNOWN  
4d02h: AAA/AUTHEN/START (1953436918): Method=RADIUS  
4d02h: RADIUS: Initial Transmit id 7 171.68.118.101:1645,  
Access-Request, len 77  
4d02h: Attribute 4 6 0A1F0105  
4d02h: Attribute 5 6 00000001  
4d02h: Attribute 61 6 00000000  
4d02h: Attribute 1 9 6464756E  
4d02h: Attribute 2 18 7882E0A5  
4d02h: Attribute 6 6 00000002  
4d02h: Attribute 7 6 00000001

**Radius server is down - produces ERROR - since user is not  
in local database, failover to local FAILs**

As1 PAP: I AUTH-REQ id 16 len 19 from "ddunlap"  
As1 AUTH: Duplicate authentication request id=16 already in progress  
As1 PAP: I AUTH-REQ id 17 len 19 from "ddunlap"  
As1 AUTH: Duplicate authentication request id=17 already in progress  
RADIUS: Retransmit id 9  
As1 PAP: I AUTH-REQ id 18 len 19 from "ddunlap"  
As1 AUTH: Duplicate authentication request id=18 already in progress  
As1 PAP: I AUTH-REQ id 19 len 19 from "ddunlap"  
As1 AUTH: Duplicate authentication request id=19 already in progress  
As1 PAP: I AUTH-REQ id 20 len 19 from "ddunlap"  
As1 AUTH: Duplicate authentication request id=20 already in progress  
RADIUS: Retransmit id 9  
As1 PAP: I AUTH-REQ id 21 len 19 from "ddunlap"  
As1 AUTH: Duplicate authentication request id=21 already in progress  
As1 PAP: I AUTH-REQ id 22 len 19 from "ddunlap"  
As1 AUTH: Duplicate authentication request id=22 already in progress  
RADIUS: Retransmit id 9  
As1 PAP: I AUTH-REQ id 23 len 19 from "ddunlap"  
As1 AUTH: Duplicate authentication request id=23 already in progress  
As1 LCP: I TERMREQ [Open] id 1 len 8 (0x000002CE)  
As1 LCP: O TERMACK [Open] id 1 len 4  
As1 PPP: Phase is TERMINATING  
RADIUS: No response for id 9  
%RADIUS-3-ALLDEADSERVER: No active radius servers found. Id 9.  
RADIUS: No response from server  
AAA/AUTHEN (3025998849): status = ERROR

AAA/AUTHEN/START (3025998849): Method=LOCAL  
AAA/AUTHEN (3025998849): status = FAIL

Key in router does not match that of server:

RADIUS: Received from id 21 171.68.118.101:1645, Access-Reject, len 20  
RADIUS: Reply for 21 fails decrypt

NT client sends 'DOMAIN\user' and Radius server expects 'user':  
RADIUS: Received from id 11 171.68.118.101:1645, Access-Reject, len 20  
AAA/AUTHEN (1406749115): status = FAIL  
As1 PAP: O AUTH-NAK id 25 len 32 msg is "Password validation failure"  
As1 PPP: Phase is TERMINATING  
As1 LCP: O TERMREQ [Open] id 108 len 4  
AAA/AUTHEN: free\_user (0xDA520) user='CISCO\ddunlap' ruser=''  
port='Async1' rem\_addr='async' authen\_type=PAP service=PPP priv=1

Radius server refuses user because user user enters bad password,  
or both userid & password are bad:  
RADIUS: Received from id 12 171.68.118.101:1645, Access-Reject, len 20  
AAA/AUTHEN (733718529): status = FAIL  
As1 PAP: O AUTH-NAK id 26 len 32 msg is "Password validation failure"  
As1 PPP: Phase is TERMINATING  
As1 LCP: O TERMREQ [Open] id 111 len 4  
AAA/AUTHEN: free\_user (0x15B030) user='ddunlap' ruser=''  
='Async1' rem\_addr='async' authen\_type=PAP service=PPP priv=1

User passes authentication (i.e. username/password is good)  
but fails authorization (profile not set up for Service-Type=Framed &  
Framed-Protocol=PPP):

RADIUS: Received from id 13 171.68.118.101:1645, Access-Accept, len 20  
RADIUS: saved authorization data for user 15AD58 at 15ADF0  
AAA/AUTHEN (56862281): status = PASS  
AAA/AUTHOR/LCP As1: Authorize LCP  
AAA/AUTHOR/LCP: Async1: (959162008): user='cse'  
AAA/AUTHOR/LCP: Async1: (959162008): send AV service=ppp  
AAA/AUTHOR/LCP: Async1: (959162008): send AV protocol=lcp  
AAA/AUTHOR/LCP: Async1: (959162008): Method=RADIUS  
RADIUS: no appropriate authorization type for user.  
AAA/AUTHOR (959162008): Post authorization status = FAIL  
AAA/AUTHOR/LCP As1: Denied  
AAA/AUTHEN: free\_user (0x15AD58) user='cse' ruser=''  
port='Async1' rem\_addr='async' authen\_type=PAP service=PPP priv=1  
As1 PAP: O AUTH-NAK id 27 len 25 msg is "Authorization failed"

4d02h: RADIUS: Received from id 7 171.68.118.101:1645, Access-Accept, len 32  
4d02h: Attribute 6 6 00000002  
4d02h: Attribute 7 6 00000001  
4d02h: RADIUS: saved authorization data for user 15AD58 at 16C7F4  
4d02h: AAA/AUTHEN (1953436918): status = PASS  
4d02h: AAA/AUTHOR/LCP As1: Authorize LCP  
4d02h: AAA/AUTHOR/LCP: Async1: (2587233868): user='ddunlap'  
4d02h: AAA/AUTHOR/LCP: Async1: (2587233868): send AV service=ppp  
4d02h: AAA/AUTHOR/LCP: Async1: (2587233868): send AV protocol=lcp  
4d02h: AAA/AUTHOR/LCP: Async1: (2587233868): Method=RADIUS  
4d02h: AAA/AUTHOR (2587233868): Post authorization status = PASS\_REPL  
4d02h: AAA/AUTHOR/LCP As1: Processing AV service=ppp  
4d02h: As1 PAP: O AUTH-ACK id 14 len 5  
4d02h: As1 PPP: Phase is UP  
4d02h: AAA/AUTHOR/FSM As1: (0): Can we start IPCP?  
4d02h: AAA/AUTHOR/FSM: Async1: (423372862): user='ddunlap'

```

4d02h: AAA/AUTHOR/FSM: Async1: (423372862): send AV service=ppp
4d02h: AAA/AUTHOR/FSM: Async1: (423372862): send AV protocol=ip
4d02h: AAA/AUTHOR/FSM: Async1: (423372862): Method=RADIUS
4d02h: AAA/AUTHOR (423372862): Post authorization status = PASS_REPL
4d02h: AAA/AUTHOR/FSM As1: We can start IPCP
4d02h: As1 IPCP: O CONFREQ [Closed] id 17 len 10
4d02h: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)
4d02h: As1 IPCP: I CONFREQ [REQsent] id 1 len 34
4d02h: As1 IPCP: Address 0.0.0.0 (0x030600000000)
4d02h: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)
4d02h: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)
4d02h: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)
4d02h: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)
4d02h: AAA/AUTHOR/PCP As1: Start. Her address 0.0.0.0, we want 0.0.0.0
4d02h: AAA/AUTHOR/PCP As1: Processing AV service=ppp
4d02h: AAA/AUTHOR/PCP As1: Authorization succeeded
4d02h: AAA/AUTHOR/PCP As1: Done. Her address 0.0.0.0, we want 0.0.0.0
4d02h: As1 IPCP: Using pool 'async'
4d02h: As1 IPCP: Pool returned 15.15.15.15
4d02h: As1 IPCP: O CONFREQ [REQsent] id 1 len 22
4d02h: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)
4d02h: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)
4d02h: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)
4d02h: As1 IPCP: I CONFACK [REQsent] id 17 len 10
4d02h: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)
%LINEPROTO-5-UPDOWN: Line protocol on Interface Async1, changed state to up
4d02h: As1 IPCP: I CONFREQ [ACKrcvd] id 2 len 16
4d02h: As1 IPCP: Address 0.0.0.0 (0x030600000000)
4d02h: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)
4d02h: AAA/AUTHOR/PCP As1: Start. Her address 0.0.0.0, we want 15.15.15.15
4d02h: AAA/AUTHOR/PCP As1: Processing AV service=ppp
4d02h: AAA/AUTHOR/PCP As1: Authorization succeeded
4d02h: AAA/AUTHOR/PCP As1: Done. Her address 0.0.0.0, we want 15.15.15.15
4d02h: As1 IPCP: O CONFNAK [ACKrcvd] id 2 len 16
4d02h: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
4d02h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
4d02h: As1 IPCP: I CONFREQ [ACKrcvd] id 3 len 16
4d02h: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
4d02h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
4d02h: AAA/AUTHOR/PCP As1: Start. Her address 15.15.15.15, we want 15.15.15.15
4d02h: AAA/AUTHOR/PCP: Async1: (4204275250): user='ddunlap'
4d02h: AAA/AUTHOR/PCP: Async1: (4204275250): send AV service=ppp
4d02h: AAA/AUTHOR/PCP: Async1: (4204275250): send AV protocol=ip
4d02h: AAA/AUTHOR/PCP: Async1: (4204275250): send AV addr*15.15.15.15
4d02h: AAA/AUTHOR/PCP: Async1: (4204275250): Method=RADIUS
4d02h: AAA/AUTHOR (4204275250): Post authorization status = PASS_REPL
4d02h: AAA/AUTHOR/PCP As1: Reject 15.15.15.15, using 15.15.15.15
4d02h: AAA/AUTHOR/PCP As1: Processing AV service=ppp
4d02h: AAA/AUTHOR/PCP As1: Processing AV addr*15.15.15.15
4d02h: AAA/AUTHOR/PCP As1: Authorization succeeded
4d02h: AAA/AUTHOR/PCP As1: Done. Her address 15.15.15.15, we want 15.15.15.15
4d02h: As1 IPCP: O CONFACK [ACKrcvd] id 3 len 16
4d02h: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
4d02h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
4d02h: As1 IPCP: State is Open
4d02h: As1 IPCP: Install route to 15.15.15.15
rtpkrb#

```

## RADIUS und CHAP

|  |
|--|
| <b>Konfiguration - RADIUS und CHAP</b> |
|--|



```
Current configuration:
!
version 11.2
service timestamps debug uptime
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname rtpkrb
!
aaa new-model
!
!--- The following four command lines are specific to !-
-- Cisco IOS 11.2 and later, up until 11.3.3.T. !--- See
below this configuration for commands !--- for other
Cisco IOS releases. ! aaa authentication login default
radius local
aaa authentication ppp default if-needed radius local
aaa authorization exec radius if-authenticated
aaa authorization network radius 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
!
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 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  
exec-timeout 0 0  
password ww  
!  
end
```

## Befehle für andere Cisco IOS-Versionen

**Hinweis:** Um diese Befehle zu verwenden, entfernen Sie die hervorgehobenen Befehle aus der obigen Konfiguration und fügen Sie diese Befehle gemäß der Cisco IOS-Version ein.

### Cisco IOS 11.3.3.T bis 12.0.5.T

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

### Cisco IOS 12.0.5.T und höher

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

## Beispieldebugging - RADIUS und CHAP

**Hinweis:** In der Debugausgabe hebt der fettgedruckte, kursiv formatierte Text Probleme beim Debuggen hervor. Einfacher Text weist auf eine gute Fehlersuche hin.

```
rtpkrb#show debug  
General OS:  
AAA Authentication debugging is on  
AAA Authorization debugging is on  
PPP:  
PPP authentication debugging is on  
PPP protocol negotiation debugging is on  
Radius protocol debugging is on
```

```
rtpkrb#
4d02h: As1 LCP: I CONFREQ [Closed] id 0 len 20
4d02h: As1 LCP: ACCM 0x00000000 (0x020600000000)
4d02h: As1 LCP: MagicNumber 0x0000405F (0x05060000405F)
4d02h: As1 LCP: PFC (0x0702)
4d02h: As1 LCP: ACFC (0x0802)
4d02h: As1 LCP: Lower layer not up, discarding packet
%LINK-3-UPDOWN: Interface Async1, changed state to up
4d02h: As1 PPP: Treating connection as a dedicated line
4d02h: As1 PPP: Phase is ESTABLISHING, Active Open
4d02h: As1 LCP: O CONFREQ [Closed] id 87 len 25
4d02h: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
4d02h: As1 LCP: AuthProto CHAP (0x0305C22305)
4d02h: As1 LCP: MagicNumber 0xF5445B55 (0x0506F5445B55)
4d02h: As1 LCP: PFC (0x0702)
4d02h: As1 LCP: ACFC (0x0802)
4d02h: As1 LCP: I CONFACK [REQsent] id 87 len 25
4d02h: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
4d02h: As1 LCP: AuthProto CHAP (0x0305C22305)
4d02h: As1 LCP: MagicNumber 0xF5445B55 (0x0506F5445B55)
4d02h: As1 LCP: PFC (0x0702)
4d02h: As1 LCP: ACFC (0x0802)
4d02h: As1 LCP: I CONFREQ [ACKRcvd] id 0 len 20
4d02h: As1 LCP: ACCM 0x00000000 (0x020600000000)
4d02h: As1 LCP: MagicNumber 0x0000405F (0x05060000405F)
4d02h: As1 LCP: PFC (0x0702)
4d02h: As1 LCP: ACFC (0x0802)
4d02h: As1 LCP: O CONFACK [ACKRcvd] id 0 len 20
4d02h: As1 LCP: ACCM 0x00000000 (0x020600000000)
4d02h: As1 LCP: MagicNumber 0x0000405F (0x05060000405F)
4d02h: As1 LCP: PFC (0x0702)
4d02h: As1 LCP: ACFC (0x0802)
4d02h: As1 LCP: State is Open
4d02h: As1 PPP: Phase is AUTHENTICATING, by this end
4d02h: As1 CHAP: O CHALLENGE id 11 len 27 from "rtpkrb"
4d02h: As1 CHAP: I RESPONSE id 11 len 28 from "chapadd"
4d02h: AAA/AUTHEN: create_user (0x15AD58) user='chapadd' ruser=''
    port='Async1' rem_addr='async' authen_type=CHAP service=PPP priv=1
4d02h: AAA/AUTHEN/START (575703226): port='Async1' list=''
    action=LOGIN service=PPP
4d02h: AAA/AUTHEN/START (575703226): using "default" list
4d02h: AAA/AUTHEN (575703226): status = UNKNOWN
4d02h: AAA/AUTHEN/START (575703226): Method=RADIUS
4d02h: RADIUS: Initial Transmit id 8 171.68.118.101:1645,
    Access-Request, len 78
4d02h: Attribute 4 6 0A1F0105
4d02h: Attribute 5 6 00000001
4d02h: Attribute 61 6 00000000
4d02h: Attribute 1 9 63686170
4d02h: Attribute 3 19 0B895D57
4d02h: Attribute 6 6 00000002
4d02h: Attribute 7 6 00000001
```

**Radius server is down - produces ERROR - since user is not  
in local database, failover to local FAILs:**

```
As1 CHAP: I RESPONSE id 12 len 28 from "chapadd"
As1 AUTH: Duplicate authentication request id=12 already in progress
As1 CHAP: I RESPONSE id 12 len 28 from "chapadd"
As1 AUTH: Duplicate authentication request id=12 already in progress
RADIUS: Retransmit id 15
As1 CHAP: I RESPONSE id 12 len 28 from "chapadd"
As1 AUTH: Duplicate authentication request id=12 already in progress
As1 CHAP: I RESPONSE id 12 len 28 from "chapadd"
```

```
As1 AUTH: Duplicate authentication request id=12 already in progress
As1 CHAP: I RESPONSE id 12 len 28 from "chapadd"
As1 AUTH: Duplicate authentication request id=12 already in progress
RADIUS: Retransmit id 15
As1 CHAP: I RESPONSE id 12 len 28 from "chapadd"
As1 AUTH: Duplicate authentication request id=12 already in progress
As1 CHAP: I RESPONSE id 12 len 28 from "chapadd"
As1 AUTH: Duplicate authentication request id=12 already in progress
RADIUS: Retransmit id 15
As1 CHAP: I RESPONSE id 12 len 28 from "chapadd"
As1 AUTH: Duplicate authentication request id=12 already in progress
As1 LCP: I TERMREQ [Open] id 1 len 8 (0x000002CE)
As1 LCP: O TERMACK [Open] id 1 len 4
As1 PPP: Phase is TERMINATING
RADIUS: id 15, requester hung up.
RADIUS: No response for id 15
RADIUS: No response from server
AAA/AUTHEN (1866705040): status = ERROR
AAA/AUTHEN/START (1866705040): Method=LOCAL
AAA/AUTHEN (1866705040): status = FAIL
As1 CHAP: Unable to validate Response. Username chapadd: Authentication failure
As1 CHAP: O FAILURE id 12 len 26 msg is "Authentication failure"
AAA/AUTHEN: free_user (0x1716B8) user='chapadd' ruser=''
      port='Async1' rem_addr='async' authen_type=CHAP service=PPP priv=1
```

Key in router does not match that of server:

```
RADIUS: Received from id 21 171.68.118.101:1645, Access-Reject, len 20
RADIUS: Reply for 21 fails decrypt
```

NT client sends 'DOMAIN\user' and Radius server expects 'user':

```
RADIUS: Received from id 16 171.68.118.101:1645, Access-Reject, len 20
AAA/AUTHEN (2974782384): status = FAIL
As1 CHAP: Unable to validate Response. Username CISCO\chapadd:
      Authentication failure
As1 CHAP: O FAILURE id 13 len 26 msg is "Authentication failure"
As1 PPP: Phase is TERMINATING
As1 LCP: O TERMREQ [Open] id 131 len 4
AAA/AUTHEN: free_user (0x171700) user='CISCO\chapadd' ruser=''
      port='Async1' rem_addr='async' authen_type=CHAP service=PPP priv=1
```

Radius server refuses user because user is set up for pap,

user enters bad password, or both userid & password are bad:

```
RADIUS: Received from id 17 171.68.118.101:1645, Access-Reject, len 20
AAA/AUTHEN (3898168391): status = FAIL
As1 CHAP: Unable to validate Response. Username ddunlap: Authentication failure
As1 CHAP: O FAILURE id 14 len 26 msg is "Authentication failure"
As1 PPP: Phase is TERMINATING
As1 LCP: O TERMREQ [Open] id 134 len 4
AAA/AUTHEN: free_user (0x1716B8) user='ddunlap' ruser=''
      port='Async1' rem_addr='async' authen_type=CHAP service=PPP priv=1
```

User PASSes authentication (i.e. username/password is good)

but FAILs authorization (profile not set up for Service-Type=Framed & Framed-Protocol=PPP):

```
RADIUS: Received from id 19 171.68.118.101:1645, Access-Accept, len 20
AAA/AUTHEN (2006894701): status = PASS
AAA/AUTHOR/LCP As1: Authorize LCP
AAA/AUTHOR/LCP: Async1: (2370106832): user='noauth'
AAA/AUTHOR/LCP: Async1: (2370106832): send AV service=ppp
AAA/AUTHOR/LCP: Async1: (2370106832): send AV protocol=lcp
AAA/AUTHOR/LCP: Async1: (2370106832): Method=RADIUS
RADIUS: no appropriate authorization type for user.
```

**AAA/AUTHOR (2370106832): Post authorization status = FAIL**  
**AAA/AUTHOR/LCP As1: Denied**

4d02h: RADIUS: Received from id 8 171.68.118.101:1645, Access-Accept, len 32  
4d02h: Attribute 6 6 00000002  
4d02h: Attribute 7 6 00000001  
4d02h: AAA/AUTHEN (575703226): status = PASS  
4d02h: AAA/AUTHOR/LCP As1: Authorize LCP  
4d02h: AAA/AUTHOR/LCP: Async1: (4143416222): user='chapadd'  
4d02h: AAA/AUTHOR/LCP: Async1: (4143416222): send AV service=ppp  
4d02h: AAA/AUTHOR/LCP: Async1: (4143416222): send AV protocol=lcp  
4d02h: AAA/AUTHOR/LCP: Async1: (4143416222): Method=RADIUS  
4d02h: AAA/AUTHOR (4143416222): Post authorization status = PASS\_REPL  
4d02h: AAA/AUTHOR/LCP As1: Processing AV service=ppp  
4d02h: As1 CHAP: 0 SUCCESS id 11 len 4  
4d02h: As1 PPP: Phase is UP  
4d02h: AAA/AUTHOR/FSM As1: (0): Can we start IPCP?  
4d02h: AAA/AUTHOR/FSM: Async1: (1916451991): user='chapadd'  
4d02h: AAA/AUTHOR/FSM: Async1: (1916451991): send AV service=ppp  
4d02h: AAA/AUTHOR/FSM: Async1: (1916451991): send AV protocol=ip  
4d02h: AAA/AUTHOR/FSM: Async1: (1916451991): Method=RADIUS  
4d02h: AAA/AUTHOR (1916451991): Post authorization status = PASS\_REPL  
4d02h: AAA/AUTHOR/FSM As1: We can start IPCP  
4d02h: As1 IPCP: 0 CONFREQ [Closed] id 19 len 10  
4d02h: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)  
4d02h: As1 IPCP: I CONFREQ [REQsent] id 1 len 34  
4d02h: As1 IPCP: Address 0.0.0.0 (0x030600000000)  
4d02h: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)  
4d02h: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)  
4d02h: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)  
4d02h: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)  
4d02h: AAA/AUTHOR/IPCP As1: Start. Her address 0.0.0.0, we want 0.0.0.0  
4d02h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp  
4d02h: AAA/AUTHOR/IPCP As1: Authorization succeeded  
4d02h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0, we want 0.0.0.0  
4d02h: As1 IPCP: Using pool 'async'  
4d02h: As1 IPCP: Pool returned 15.15.15.15  
4d02h: As1 IPCP: 0 CONFREQ [REQsent] id 1 len 22  
4d02h: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)  
4d02h: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)  
4d02h: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)  
4d02h: As1 IPCP: I CONFACK [REQsent] id 19 len 10  
4d02h: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)  
4d02h: As1 IPCP: I CONFREQ [ACKrcvd] id 2 len 16  
4d02h: As1 IPCP: Address 0.0.0.0 (0x030600000000)  
4d02h: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)  
4d02h: AAA/AUTHOR/IPCP As1: Start. Her address 0.0.0.0, we want 15.15.15.15  
4d02h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp  
4d02h: AAA/AUTHOR/IPCP As1: Authorization succeeded  
4d02h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0, we want 15.15.15.15  
4d02h: As1 IPCP: 0 CONFNAK [ACKrcvd] id 2 len 16  
4d02h: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)  
4d02h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)  
4d02h: As1 IPCP: I CONFREQ [ACKrcvd] id 3 len 16  
4d02h: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)  
4d02h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)  
4d02h: AAA/AUTHOR/IPCP As1: Start. Her address 15.15.15.15, we want 15.15.15.15  
4d02h: AAA/AUTHOR/IPCP: Async1: (1096193147): user='chapadd'  
4d02h: AAA/AUTHOR/IPCP: Async1: (1096193147): send AV service=ppp  
4d02h: AAA/AUTHOR/IPCP: Async1: (1096193147): send AV protocol=ip  
4d02h: AAA/AUTHOR/IPCP: Async1: (1096193147): send AV addr\*15.15.15.15  
4d02h: AAA/AUTHOR/IPCP: Async1: (1096193147): Method=RADIUS  
4d02h: AAA/AUTHOR (1096193147): Post authorization status = PASS\_REPL  
4d02h: AAA/AUTHOR/IPCP As1: Reject 15.15.15.15, using 15.15.15.15

```
4d02h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp
4d02h: AAA/AUTHOR/IPCP As1: Processing AV addr*15.15.15.15
4d02h: AAA/AUTHOR/IPCP As1: Authorization succeeded
4d02h: AAA/AUTHOR/IPCP As1: Done. Her address 15.15.15.15, we want 15.15.15.15
4d02h: As1 IPCP: O CONFACK [ACKrcvd] id 3 len 16
4d02h: As1 IPCP: Address 15.15.15.15 (0x03060F0F0F0F)
4d02h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)
4d02h: As1 IPCP: State is Open
%LINEPROTO-5-UPDOWN: Line protocol on Interface Async1, changed state to up
4d02h: As1 IPCP: Install route to 15.15.15.15
rtpkrb#
```

## Debugbefehle

Die folgenden **Debugbefehle** wurden verwendet, um die Beispieldebugausgabe in diesem Dokument zu erstellen.

**Hinweis:** Bevor Sie **Debugbefehle** ausgeben, lesen Sie [Wichtige Informationen über Debug-Befehle](#).

- **debug aaa authentication** - Zeigt Informationen zur AAA-Authentifizierung an.
- **debug aaa authorized** - Zeigt Informationen zur AAA-Autorisierung an.
- **Debug-Radius** - Zeigt detaillierte Debuginformationen an, die dem RADIUS (Remote Authentication Dial-In User Server) zugeordnet sind.
- **debug ppp negotiation** - Zeigt PPP-Pakete an, die während des PPP-Starts übertragen werden und über die PPP-Optionen ausgehandelt werden.

## Zugehörige Informationen

- [RADIUS-Support-Seite](#)
- [Technischer Support - Cisco Systems](#)