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## **Введение**

Этот документ исследует общие проблемы отладки на RADIUS при использовании Протокола аутентификации пароля (PAP) или Протокола аутентификации по квитированию вызова (CHAP). Стандартные настройки ПК для Microsoft Windows 95, Windows NT, Windows 98 и Windows 2000 предоставлены, а также примеры конфигураций и примеры пользы и неудачных отладок.

## **Перед началом работы**

### **Условные обозначения**

[Дополнительные сведения об условных обозначениях в документах см. Cisco Technical Tips Conventions.](#)

### **Предварительные условия**

Для данного документа отсутствуют предварительные условия.

### **Используемые компоненты**

Сведения в этом документе основываются на Версиях программного обеспечения Cisco IOS

11.2 и позже.

Сведения, содержащиеся в данном документе, были получены с устройств в специальной лабораторной среде. Все устройства, описанные в данном документе, были запущены с конфигурацией по умолчанию. При работе с реальной сетью необходимо полностью осознавать возможные результаты использования всех команд.

## Стандартная настройка ПК

### Windows 95

Следуйте приведенным ниже инструкциям:

1. В Окне "Dialup Networking" (Работа в сети через модем) выберите имя соединения, затем **File> Properties**.
2. На Вкладке Тип сервера посмотрите, проверено ли **Потребовать Поле зашифрованного пароля** ниже Типа Сервера Модемной связи. Если этот бокс отмечен, то это значит, что PC признает только аутентификацию CHAP. Если этот флажок не установлен, это означает, что ПК принимает PAP или Аутентификацию CHAP.

### Windows NT

Следуйте приведенным ниже инструкциям:

1. В окне Dial-Up Networking выберите имя соединения, и затем выберите **File> Properties**.
2. Проверьте параметры настройки на Вкладке Безопасность: Если **Принятие какой-либо аутентификации включая** коробку **открытого текста** проверено, это означает, что ПК принимает PAP или CHAP. Если **Принятие только** флажок **зашифрованной проверки подлинности** установлен, ПК принимает только Аутентификацию CHAP.

### Windows 98

Следуйте приведенным ниже инструкциям:

1. В окне Dial-Up Networking выберите имя соединения, и затем выберите **Properties**.
2. На вкладке Server Types проверьте параметры настройки в области Advanced Options: Если **Потребовать поле зашифрованного пароля** неконтролируемо, это означает, что ПК принимает PAP или Аутентификацию CHAP. Если **Потребовать поле зашифрованного пароля** проверено, это означает, что ПК принимает только Аутентификацию CHAP.

### Windows 2000

Следуйте приведенным ниже инструкциям:

1. В Сети и Подключениях удаленного доступа, выберите имя соединения, и затем выберите **Properties**.
2. На Вкладке Безопасность проверьте параметры настройки в **Усовершенствованном>**,

Параметры настройки> Позволяют им область протоколов: если Незашифрованный пароль (PAP) PAP, флажок установлен, ПК принимает Если флажок Протокола аутентификации по квитированию вызова (CHAP) установлен, ПК принимает CHAP на [RFC 1994](#).. если Microsoft CHAP (MS-CHAP) Версию MS-CHAP 1 и не принимает CHAP на RFC 1994, флажок установлен, ПК принимает

## Конфигурации и примеры отладки

### RADIUS и PAP

#### Конфигурация - RADIUS и 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 localaaa  
authentication ppp default if-needed radius localaaa  
authorization exec radius if-authenticatedaaa  
authorization network radius 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 domain-name  
RTP.CISCO.COMip 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 dedicatedpeer  
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 pppmodem  
InOuttransport input allstopbits 1  
speed 38400flowcontrol hardwareline 2  
modem InOutspeed 38400flowcontrol hardwareline 3  
16line aux 0line vty 0 4  
exec-timeout 0  
password ww!  
end
```

### Команды для других версий Cisco IOS

**Примечание:** Для использования этих команд, удалите выделенные команды из конфигурации выше и вставьте их как положено в вашей реализации Cisco IOS.

#### Cisco IOS 11.3.3. T до 12.0.5. T

```
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 localaaa authentication ppp default if-needed radius
localaaa authorization exec radius if-authenticatedaaa authorization network radius 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 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
Asynclip unnumbered Ethernet0encapsulation pppasync mode dedicatedpeer default ip address pool
asynchno 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!snmp-server community public RWsnmp-server host 171.68.118.100 traps
publicradius-server host 171.68.118.101 auth-port 1645 acct-port 1646radius-server key
cisco!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 4exec-timeout 0
0password ww!end

```

## Cisco IOS 12.0.5. T и позже

```

Current configuration:!version 11.2service timestamps debug uptimeno service password-
encryptionservice udp-small-serversservice 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 localaaa authentication ppp default if-needed radius
localaaa authorization exec radius if-authenticatedaaa authorization network radius 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 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
Asynclip unnumbered Ethernet0encapsulation pppasync mode dedicatedpeer default ip address pool
asynchno 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!snmp-server community public RWsnmp-server host 171.68.118.100 traps
publicradius-server host 171.68.118.101 auth-port 1645 acct-port 1646radius-server key
cisco!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 4exec-timeout 0
0password ww!end

```

## [Примеры отладки - RADIUS и PAP](#)

**Примечание:** В выходных данных отладки полужирный текст выделяет проблемы в отладке. Обычный текст показывает хорошую отладку.

```

rtpkrb#rtpkrb#sho debGeneral OS:AAA Authentication debugging is onAAA Authorization debugging is
onPPP:PPP authentication debugging is onPPP protocol negotiation debugging is onRadius protocol
debugging is onrtpkrb#4d02h: As1 LCP: I CONFREQ [Closed] id 0 len 204d02h: 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 up4d02h: As1 PPP: Treating connection
as a dedicated line4d02h: As1 PPP: Phase is ESTABLISHING, Active Open4d02h: As1 LCP: O CONFREQ
[Closed] id 85 len 244d02h: 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 12As1 LCP:
AuthProto 0xC123 (0x0308C12301000001)As1 LCP: O CONFREQ [REQsent] id 99 len 24As1 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 CONFREQ [REQsent] id 99
len 8As1 LCP: AuthProto PAP (0x0304C023)As1 PPP: Closing connection because remote won't
authenticate4d02h: As1 LCP: I CONFACK [REQsent] id 85 len 244d02h: 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 204d02h: 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 204d02h: 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 Open4d02h: As1 PPP: Phase is  
AUTHENTICATING, by this end4d02h: As1 PAP: I AUTH-REQ id 14 len 19 from "ddunlap"4d02h: As1 PAP:  
Authenticating peer ddunlap4d02h: AAA/AUTHEN: create\_user (0x15AD58) user='ddunlap' ruser=''  
port='Async1' rem\_addr='async' authen\_type=PAP service=PPP priv=14d02h: AAA/AUTHEN/START  
(1953436918): port='Async1' list='' action=LOGIN service=PPP4d02h: AAA/AUTHEN/START  
(1953436918): using "default" list4d02h: AAA/AUTHEN (1953436918): status = UNKNOWN4d02h:  
AAA/AUTHEN/START (1953436918): Method=RADIUS4d02h: RADIUS: Initial Transmit id 7  
171.68.118.101:1645, Access-Request, len 774d02h: Attribute 4 6 0A1F01054d02h: Attribute 5 6  
000000014d02h: Attribute 6 1 000000004d02h: Attribute 1 9 6464756E4d02h: Attribute 2 18  
7882E0A54d02h: Attribute 6 6 000000024d02h: 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  
progressAs1 PAP: I AUTH-REQ id 17 len 19 from "ddunlap"As1 AUTH: Duplicate authentication  
request id=17 already in progressRADIUS: Retransmit id 9As1 PAP: I AUTH-REQ id 18 len 19 from  
"ddunlap"As1 AUTH: Duplicate authentication request id=18 already in progressAs1 PAP: I AUTH-REQ  
id 19 len 19 from "ddunlap"As1 AUTH: Duplicate authentication request id=19 already in  
progressAs1 PAP: I AUTH-REQ id 20 len 19 from "ddunlap"As1 AUTH: Duplicate authentication  
request id=20 already in progressRADIUS: Retransmit id 9As1 PAP: I AUTH-REQ id 21 len 19 from  
"ddunlap"As1 AUTH: Duplicate authentication request id=21 already in progressAs1 PAP: I AUTH-REQ  
id 22 len 19 from "ddunlap"As1 AUTH: Duplicate authentication request id=22 already in  
progressRADIUS: Retransmit id 9As1 PAP: I AUTH-REQ id 23 len 19 from "ddunlap"As1 AUTH:  
Duplicate authentication request id=23 already in progressAs1 LCP: I TERMREQ [Open] id 1 len 8  
(0x000002CE)As1 LCP: O TERMACK [Open] id 1 len 4As1 PPP: Phase is TERMINATINGRADIUS: No response  
for id 9%RADIUS-3-ALLDEADSERVER: No active radius servers found. Id 9.RADIUS: No response from  
serverAAA/AUTHEN (3025998849): status = ERRORAAA/AUTHEN/START (3025998849):  
Method=LOCALAAA/AUTHEN (3025998849): status = FAILKey in router does not match that of  
server:RADIUS: Received from id 21 171.68.118.101:1645, Access-Reject, len 20RADIUS: Reply for  
21 fails decryptNT client sends 'DOMAIN\user' and Radius server expects 'user':RADIUS: Received  
from id 11 171.68.118.101:1645, Access-Reject, len 20AAA/AUTHEN (1406749115): status = FAILAs1  
PAP: O AUTH-NAK id 25 len 32 msg is "Password validation failure"As1 PPP: Phase is  
TERMINATINGAs1 LCP: O TERMREQ [Open] id 108 len 4AAA/AUTHEN: free\_user (0xDA520)  
user='CISCO\ddunlap' ruser='' port='Async1' rem\_addr='async' authen\_type=PAP service=PPP  
priv=1Radius 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  
20AAA/AUTHEN (733718529): status = FAILAs1 PAP: O AUTH-NAK id 26 len 32 msg is "Password  
validation failure"As1 PPP: Phase is TERMINATINGAs1 LCP: O TERMREQ [Open] id 111 len  
4AAA/AUTHEN: free\_user (0x15B030) user='ddunlap' ruser='' port='Async1' rem\_addr='async'  
authen\_type=PAP service=PPP priv=1User 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 20RADIUS:  
saved authorization data for user 15AD58 at 15ADF0AAA/AUTHEN (56862281): status =  
PASSAAA/AUTHOR/LCP As1: Authorize LCPAAA/AUTHOR/LCP: Async1: (959162008):  
user='cse'AAA/AUTHOR/LCP: Async1: (959162008): send AV service=pppAAA/AUTHOR/LCP: Async1:  
(959162008): send AV protocol=lcpAAA/AUTHOR/LCP: Async1: (959162008): Method=RADIUSRADIUS: no  
appropriate authorization type for user.AAAA/AUTHOR (959162008): Post authorization status =  
FAILAAA/AUTHOR/LCP As1: DeniedAAA/AUTHEN: free\_user (0x15AD58) user='cse' ruser=''  
port='Async1' rem\_addr='async' authen\_type=PAP service=PPP priv=1As1 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 324d02h: Attribute 6 6 000000024d02h: Attribute 7 6 000000014d02h: RADIUS: saved  
authorization data for user 15AD58 at 16C7F44d02h: AAA/AUTHEN (1953436918): status = PASS4d02h:  
AAA/AUTHOR/LCP As1: Authorize LCP4d02h: AAA/AUTHOR/LCP: Async1: (2587233868):  
user='ddunlap'4d02h: AAA/AUTHOR/LCP: Async1: (2587233868): send AV service=ppp4d02h:  
AAA/AUTHOR/LCP: Async1: (2587233868): send AV protocol=lcp4d02h: AAA/AUTHOR/LCP: Async1:  
(2587233868): Method=RADIUS4d02h: AAA/AUTHOR (2587233868): Post authorization status =  
PASS\_REPL4d02h: AAA/AUTHOR/LCP As1: Processing AV service=ppp4d02h: As1 PAP: O AUTH-ACK id 14  
len 54d02h: As1 PPP: Phase is UP4d02h: 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=ppp4d02h: AAA/AUTHOR/FSM: Async1: (423372862): send AV protocol=ip4d02h:  
AAA/AUTHOR/FSM: Async1: (423372862): Method=RADIUS4d02h: AAA/AUTHOR (423372862): Post  
authorization status = PASS\_REPL4d02h: AAA/AUTHOR/FSM As1: We can start IPCP4d02h: As1 IPCP: O  
CONFREQ [Closed] id 17 len 104d02h: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)4d02h: As1 IPCP:  
I CONFREQ [REQsent] id 1 len 344d02h: 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 0.0.0.04d02h:
AAA/AUTHOR/IPCP As1: Processing AV service=ppp4d02h: AAA/AUTHOR/IPCP As1: Authorization
succeeded4d02h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0, we want 0.0.0.04d02h: As1 IPCP:
Using pool 'async'4d02h: As1 IPCP: Pool returned 15.15.15.154d02h: As1 IPCP: O CONFREJ [REQsent]
id 1 len 224d02h: 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 104d02h: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)%LINEPROTO-5-
UPDOWN: Line protocol on Interface Async1, changed state to up4d02h: As1 IPCP: I CONFREQ
[ACKrcvd] id 2 len 164d02h: 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 15.15.15.154d02h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp4d02h: AAA/AUTHOR/IPCP As1:
Authorization succeeded4d02h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0, we want
15.15.15.154d02h: As1 IPCP: O CONFNAK [ACKrcvd] id 2 len 164d02h: 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 164d02h: 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 15.15.15.154d02h: AAA/AUTHOR/IPCP: Async1: (4204275250):
user='ddunlap'4d02h: AAA/AUTHOR/IPCP: Async1: (4204275250): send AV service=ppp4d02h:
AAA/AUTHOR/IPCP: Async1: (4204275250): send AV protocol=ip4d02h: AAA/AUTHOR/IPCP: Async1:
(4204275250): send AV addr*15.15.15.154d02h: AAA/AUTHOR/IPCP: Async1: (4204275250):
Method=RADIUS4d02h: AAA/AUTHOR (4204275250): Post authorization status = PASS_REPL4d02h:
AAA/AUTHOR/IPCP As1: Reject 15.15.15.15, using 15.15.15.154d02h: AAA/AUTHOR/IPCP As1: Processing
AV service=ppp4d02h: AAA/AUTHOR/IPCP As1: Processing AV addr*15.15.15.154d02h: AAA/AUTHOR/IPCP
As1: Authorization succeeded4d02h: AAA/AUTHOR/IPCP As1: Done. Her address 15.15.15.15, we want
15.15.15.154d02h: As1 IPCP: O CONFACK [ACKrcvd] id 3 len 164d02h: As1 IPCP: Address 15.15.15.15
(0x03060F0F0F0F)4d02h: As1 IPCP: PrimaryDNS 171.68.118.103 (0x8106AB447667)4d02h: As1 IPCP:
State is Open4d02h: As1 IPCP: Install route to 15.15.15.15rtpkrb#

```

## Протоколы RADIUS и CHAP

### Конфигурация - RADIUS и CHAP

```

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 localaaa  

authentication ppp default if-needed radius localaaa  

authorization exec radius if-authenticatedaaa  

authorization network radius 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!snmp-server  

community public RWsnmp-server host 171.68.118.100 traps  

publicradius-server host 171.68.118.101 auth-port 1645  

acct-port 1646radius-server key cisco!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 4exec-timeout 0
0password ww!end
```

## [Команды для других версий Cisco IOS](#)

**Примечание:** Для использования этих команд, удалите выделенные команды из конфигурации выше и вставьте их как положено в вашей реализации Cisco IOS.

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

```
Current configuration:!version 11.2service 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 localaaa authentication ppp default if-needed radius
localaaa authorization exec radius if-authenticatedaaa authorization network radius 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 addresssshutdown!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!snmp-server community public RWsnmp-server host 171.68.118.100 traps publicradius-
server host 171.68.118.101 auth-port 1645 acct-port 1646radius-server key cisco!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 4exec-timeout 0 0password ww!end
```

### [Cisco IOS 12.0.5. T и позже](#)

```
Current configuration:!version 11.2service 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 localaaa authentication ppp default if-needed radius
localaaa authorization exec radius if-authenticatedaaa authorization network radius 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 addresssshutdown!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!snmp-server community public RWsnmp-server host 171.68.118.100 traps publicradius-
server host 171.68.118.101 auth-port 1645 acct-port 1646radius-server key cisco!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 4exec-timeout 0 0password ww!end
```

## [Примеры отладок - протоколы RADIUS и CHAP](#)

**Примечание:** В выходных данных отладки, ошибки `<ts font_id="MS Sans Serif"/> <ts font_id="MS Shell Dlg"/>v<ts font_id="MS Sans Serif"/> <ts font_id="MS Shell Dlg"/>` отладке `<ts font_id="MS Sans Serif"/> <ts font_id="MS Shell Dlg"/>` выделены `<ts font_id="MS Sans Serif"/> <ts font_id="MS Shell Dlg"/>` курсивным и жирным шрифтом. Обычный текст показывает хорошую отладку.

```
rtpkrb#show debugGeneral OS:AAA Authentication debugging is onAAA Authorization debugging is
onPPP:PPP authentication debugging is onPPP protocol negotiation debugging is onRadius protocol
```

debugging is onrtpkrb#4d02h: As1 LCP: I CONFREQ [Closed] id 0 len 204d02h: 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 up4d02h: As1 PPP: Treating connection as a dedicated line4d02h: As1 PPP: Phase is ESTABLISHING, Active Open4d02h: As1 LCP: O CONFREQ [Closed] id 87 len 254d02h: 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 254d02h: 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 204d02h: 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 204d02h: 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 Open4d02h: As1 PPP: Phase is AUTHENTICATING, by this end4d02h: 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=14d02h: AAA/AUTHEN/START (575703226): port='Async1' list='' action=LOGIN service=PPP4d02h: AAA/AUTHEN/START (575703226): using "default" list4d02h: AAA/AUTHEN (575703226): status = UNKNOWN4d02h: AAA/AUTHEN/START (575703226): Method=RADIUS4d02h: RADIUS: Initial Transmit id 8 171.68.118.101:1645, Access-Request, len 784d02h: Attribute 4 6 0A1F01054d02h: Attribute 5 6 000000014d02h: Attribute 61 6 000000004d02h: Attribute 1 9 636861704d02h: Attribute 3 19 0B895D574d02h: Attribute 6 6 000000024d02h: Attribute 7 6 00000001Radius 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 progressAs1 CHAP: I RESPONSE id 12 len 28 from "chapadd"As1 AUTH: Duplicate authentication request id=12 already in progressRADIUS: Retransmit id 15As1 CHAP: I RESPONSE id 12 len 28 from "chapadd"As1 AUTH: Duplicate authentication request id=12 already in progressAs1 CHAP: I RESPONSE id 12 len 28 from "chapadd"As1 AUTH: Duplicate authentication request id=12 already in progressAs1 CHAP: I RESPONSE id 12 len 28 from "chapadd"As1 AUTH: Duplicate authentication request id=12 already in progressRADIUS: Retransmit id 15As1 CHAP: I RESPONSE id 12 len 28 from "chapadd"As1 AUTH: Duplicate authentication request id=12 already in progressAs1 CHAP: I RESPONSE id 12 len 28 from "chapadd"As1 AUTH: Duplicate authentication request id=12 already in progressAs1 LCP: I TERMREQ [Open] id 1 len 8 (0x000002CE)As1 LCP: O TERMACK [Open] id 1 len 4As1 PPP: Phase is TERMINATINGRADIUS: id 15, requester hung up.RADIUS: No response for id 15RADIUS: No response from serverAAA/AUTHEN (1866705040): status = ERRORAAA/AUTHEN/START (1866705040): Method=LOCALAAA/AUTHEN (1866705040): status = FAILAs1 CHAP: Unable to validate Response. Username chapadd: Authentication failureAs1 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=1Key in router does not match that of server:RADIUS: Received from id 21 171.68.118.101:1645, Access-Reject, len 20RADIUS: Reply for 21 fails decryptNT client sends 'DOMAIN\user' and Radius server expects 'user':RADIUS: Received from id 16 171.68.118.101:1645, Access-Reject, len 20AAA/AUTHEN (2974782384): status = FAILAs1 CHAP: Unable to validate Response. Username CISCO\chapadd: Authentication failureAs1 CHAP: O FAILURE id 13 len 26 msg is "Authentication failure"As1 PPP: Phase is TERMINATINGAs1 LCP: O TERMREQ [Open] id 131 len 4AAA/AUTHEN: free\_user (0x171700) user='CISCO\chapadd' ruser='' port='Async1' rem\_addr='async' authen\_type=CHAP service=PPP priv=1Radius 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 20AAA/AUTHEN (3898168391): status = FAILAs1 CHAP: Unable to validate Response. Username ddunlap: Authentication failureAs1 CHAP: O FAILURE id 14 len 26 msg is "Authentication failure"As1 PPP: Phase is TERMINATINGAs1 LCP: O TERMREQ [Open] id 134 len 4AAA/AUTHEN: free\_user (0x1716B8) user='ddunlap' ruser='' port='Async1' rem\_addr='async' authen\_type=CHAP service=PPP priv=1User 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 20AAA/AUTHEN (2006894701): status = PASSAAA/AUTHOR/LCP As1: Authorize LCPAAA/AUTHOR/LCP: Async1: (2370106832): user='noauth'AAA/AUTHOR/LCP: Async1: (2370106832): send AV service=pppAAA/AUTHOR/LCP: Async1: (2370106832): send AV protocol=lcpAAA/AUTHOR/LCP: Async1: (2370106832): Method=RADIUSRADIUS: no appropriate authorization type for user.AAAA/AUTHOR (2370106832): Post authorization status = FAILAAA/AUTHOR/LCP As1: Denied4d02h: RADIUS: Received from id 8 171.68.118.101:1645, Access-

```
Accept, len 324d02h: Attribute 6 6 000000024d02h: Attribute 7 6 000000014d02h: AAA/AUTHEN
(575703226): status = PASS4d02h: AAA/AUTHOR/LCP As1: Authorize LCP4d02h: AAA/AUTHOR/LCP: Async1:
(4143416222): user='chapadd'4d02h: AAA/AUTHOR/LCP: Async1: (4143416222): send AV
service=ppp4d02h: AAA/AUTHOR/LCP: Async1: (4143416222): send AV protocol=lcp4d02h:
AAA/AUTHOR/LCP: Async1: (4143416222): Method=RADIUS4d02h: AAA/AUTHOR (4143416222): Post
authorization status = PASS_REPL4d02h: AAA/AUTHOR/LCP As1: Processing AV service=ppp4d02h: As1
CHAP: O SUCCESS id 11 len 44d02h: As1 PPP: Phase is UP4d02h: 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=ppp4d02h: AAA/AUTHOR/FSM: Async1: (1916451991): send AV
protocol=ip4d02h: AAA/AUTHOR/FSM: Async1: (1916451991): Method=RADIUS4d02h: AAA/AUTHOR
(1916451991): Post authorization status = PASS_REPL4d02h: AAA/AUTHOR/FSM As1: We can start
IPCP4d02h: As1 IPCP: O CONFREQ [Closed] id 19 len 104d02h: As1 IPCP: Address 10.31.1.5
(0x03060A1F0105)4d02h: As1 IPCP: I CONFREQ [REQsent] id 1 len 344d02h: 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 0.0.0.04d02h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp4d02h: AAA/AUTHOR/IPCP As1:
Authorization succeeded4d02h: AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0, we want
0.0.0.04d02h: As1 IPCP: Using pool 'async'4d02h: As1 IPCP: Pool returned 15.15.15.154d02h: As1
IPCP: O CONFREQ [REQsent] id 1 len 224d02h: 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 104d02h: As1 IPCP: Address
10.31.1.5 (0x03060A1F0105)4d02h: As1 IPCP: I CONFREQ [ACKrcvd] id 2 len 164d02h: 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 15.15.15.154d02h: AAA/AUTHOR/IPCP As1:
Processing AV service=ppp4d02h: AAA/AUTHOR/IPCP As1: Authorization succeeded4d02h:
AAA/AUTHOR/IPCP As1: Done. Her address 0.0.0.0, we want 15.15.15.154d02h: As1 IPCP: O CONFNAK
[ACKrcvd] id 2 len 164d02h: 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 164d02h:
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
15.15.15.154d02h: AAA/AUTHOR/IPCP: Async1: (1096193147): user='chapadd'4d02h: AAA/AUTHOR/IPCP:
Async1: (1096193147): send AV service=ppp4d02h: AAA/AUTHOR/IPCP: Async1: (1096193147): send AV
protocol=ip4d02h: AAA/AUTHOR/IPCP: Async1: (1096193147): send AV addr*15.15.15.154d02h:
AAA/AUTHOR/IPCP: Async1: (1096193147): Method=RADIUS4d02h: AAA/AUTHOR (1096193147): Post
authorization status = PASS_REPL4d02h: AAA/AUTHOR/IPCP As1: Reject 15.15.15.15, using
15.15.15.154d02h: AAA/AUTHOR/IPCP As1: Processing AV service=ppp4d02h: AAA/AUTHOR/IPCP As1:
Processing AV addr*15.15.15.154d02h: AAA/AUTHOR/IPCP As1: Authorization succeeded4d02h:
AAA/AUTHOR/IPCP As1: Done. Her address 15.15.15.15, we want 15.15.15.154d02h: As1 IPCP: O
CONFACK [ACKrcvd] id 3 len 164d02h: 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 up4d02h: As1 IPCP: Install route to
15.15.15.15rtpkrb#
```

## Команды "debug"

Чтобы привести пример выходных данных отладки в этом документе, использовались следующие команды debug.

Примечание:

- **debug aaa authentication** – отображает сведения о проверке подлинности AAA.
- **"debug aaa authorization"** - отображение сведений об авторизации AAA.
- **debug radius-** Подробная отладочная информация Показа связалась с Server (RADIUS) Пользователя с наборным телефонным доступом Удаленной аутентификации.
- **"debug ppp negotiation"** – отображаются PPP-пакеты, передаваемые при запуске PPP с согласованием параметров.

## Дополнительные сведения

- [Страница поддержки RADIUS](#)

- [Техническая поддержка - Cisco Systems](#)