

# RADIUS サーバによってダイヤル インターフェイスにアクセス リストを追加する方法

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## [はじめに](#)

このドキュメントでは、RADIUS サーバを使用してダイヤル インターフェイスにアクセス リストを適用する方法を示します。次の 2 つの方法を使用できます。

- 番号付アクセス リストをルータで定義してから、番号付アクセス リストを RADIUS サーバで参照します。これは多くの Cisco IOS® ソフトウェア リリースでサポートされています。たとえば、番号付アクセス リストをルータで定義し、それをサーバで参照します。
- 完全なアクセス リストをサーバで定義します。このユーザごとの手法では、Cisco IOS ソフトウェア リリース 11.3 以降が必要です。たとえば、アクセス リストを RADIUS サーバ (NAS ではない) で定義します。コールが接続すると、NAS は RADIUS サーバでコールを認証します。サーバは、認証情報とともにアクセス リストを NAS に返し、NAS はこれをダイヤル インターフェイスに適用します。

注: ISDN の場合は、ユーザごとの手法を使用する必要があるあり、仮想プロファイルをルータで設定する必要があります。これらは Cisco IOS ソフトウェア リリース 11.3 のために[仮想プロファイルの設定](#)で記述されています。

## [前提条件](#)

## 要件

このドキュメントに関しては個別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情報は、次のソフトウェアとハードウェアのバージョンに基づくものです。

- Cisco IOS ソフトウェア リリース 11.1 以降 ( アクセス リストをルータで定義 )
- Cisco IOS ソフトウェア リリース 11.3 以降 ( アクセス リストをサーバで定義 )
- Cisco Secure ACS UNIX、Cisco Secure ACS for Windows 2.x、Livingston RADIUS、Merit RADIUS

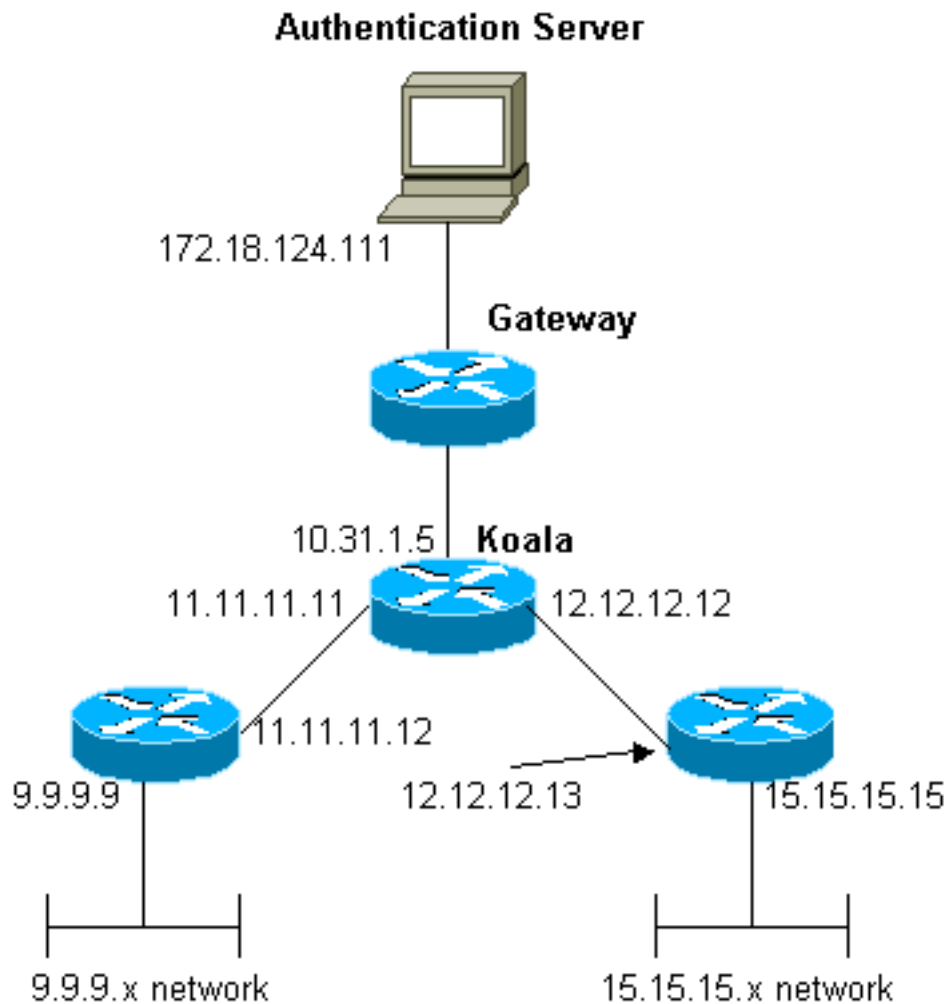
このドキュメントの情報は、特定のラボ環境にあるデバイスに基づいて作成されたものです。このドキュメントで使用するすべてのデバイスは、初期 ( デフォルト ) 設定の状態から起動しています。対象のネットワークが実稼働中である場合には、どのような作業についても、その潜在的な影響について確実に理解しておく必要があります。

## 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。

## ネットワーク図

両方の例で次のネットワークを使用します。



## ルータの番号付アクセスリストの定義

### ルータの設定

```

Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname koala
!
aaa new-model
!
!--- The following three lines of the configuration !---
!--- are specific to Cisco IOS Software Release 12.0.5.T and
!--- later. !--- See below this configuration for commands !-
!--- for other Cisco IOS Software Releases. ! aaa
aaa authentication login default local group radius
aaa authentication ppp default if-needed group radius
aaa authorization network default group radius
enable secret 5 $1$mNzQ$g6XdsgVnnYjEa.17v.Pijl
enable password ww
!
username john password 0 doe
!
ip subnet-zero

```

```

!
cns event-service server
!
interface Ethernet0
ip address 10.31.1.5 255.255.255.0
no ip directed-broadcast
no mop enabled
!
interface Serial0
ip address 11.11.11.11 255.255.255.0
no ip directed-broadcast
no ip mroute-cache
no fair-queue
!
interface Serial1
ip address 12.12.12.12 255.255.255.0
no ip directed-broadcast
!
interface Async1
ip unnumbered Ethernet0
no ip directed-broadcast
encapsulation ppp
no ip route-cache
no ip mroute-cache
async mode dedicated
peer default ip address pool mypool
fair-queue 64 16 0
no cdp enable
ppp authentication chap
!
ip local pool mypool 1.1.1.1 1.1.1.5
ip classless
ip route 0.0.0.0 0.0.0.0 10.31.1.1
ip route 9.9.9.0 255.255.255.0 11.11.11.12
ip route 15.15.15.0 255.255.255.0 12.12.12.13
no ip http server
!
access-list 101 permit icmp 1.1.1.0 0.0.0.255 9.9.9.0
0.0.0.255
access-list 101 permit tcp 1.1.1.0 0.0.0.255 15.15.15.0
0.0.0.255
!--- This is the access-list that is specified by the
RADIUS server. dialer-list 1 protocol ip permit dialer-
list 1 protocol ipx permit ! radius-server host
172.18.124.111 auth-port 1645 acct-port 1646 radius-
server key cisco ! line con 0 transport input none line
1 modem InOut transport input all stopbits 1 speed
115200 flowcontrol hardware line 2 16 line aux 0 line
vty 0 4 password ww ! end

```

## 他の Cisco IOS ソフトウェア リリース用のコマンド

注: 注 : これらのコマンドを使用する場合は、上記の設定からボードのコマンドを削除し、使用している Cisco IOS ソフトウェア リリースで規定されているように、該当コマンドをペーストしてください。

## Cisco IOS ソフトウェア リリース 11.3.3.T から 12.0.5.T

Current configuration:

```

!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname koala
!
aaa new-model
!
!--- The following three lines of the configuration !--- are specific to Cisco IOS Software
Release 12.0.5.T and later. !--- See below this configuration for commands !--- for other Cisco
IOS Software Releases. ! aaa authentication login default local group radius
aaa authentication ppp default if-needed group radius
aaa authorization network default group radius
enable secret 5 $1$mnnZQ$g6XdsgVnnYjEa.l7v.Pij1
enable password ww
!
username john password 0 doe
!
ip subnet-zero
!
cns event-service server
!
interface Ethernet0
ip address 10.31.1.5 255.255.255.0
no ip directed-broadcast
no mop enabled
!
interface Serial0
ip address 11.11.11.11 255.255.255.0
no ip directed-broadcast
no ip mroute-cache
no fair-queue
!
interface Serial1
ip address 12.12.12.12 255.255.255.0
no ip directed-broadcast
!
interface Async1
ip unnumbered Ethernet0
no ip directed-broadcast
encapsulation ppp
no ip route-cache
no ip mroute-cache
async mode dedicated
peer default ip address pool mypool
fair-queue 64 16 0
no cdp enable
ppp authentication chap
!
ip local pool mypool 1.1.1.1 1.1.1.5
ip classless
ip route 0.0.0.0 0.0.0.0 10.31.1.1
ip route 9.9.9.0 255.255.255.0 11.11.11.12
ip route 15.15.15.0 255.255.255.0 12.12.12.13
no ip http server
!
access-list 101 permit icmp 1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255
access-list 101 permit tcp 1.1.1.0 0.0.0.255 15.15.15.0 0.0.0.255
!--- This is the access-list that is specified by the RADIUS server. dialer-list 1 protocol ip
permit dialer-list 1 protocol ipx permit ! radius-server host 172.18.124.111 auth-port 1645
acct-port 1646 radius-server key cisco ! line con 0 transport input none line 1 modem InOut
transport input all stopbits 1 speed 115200 flowcontrol hardware line 2 16 line aux 0 line vty 0

```

```
4 password ww ! end
```

## [Cisco IOS ソフトウェア リリース 11.1 から 11.3.3.T](#)

Current configuration:

```
!  
version 12.0  
service timestamps debug uptime  
service timestamps log uptime  
no service password-encryption  
!  
hostname koala  
!  
aaa new-model  
!  
!--- The following three lines of the configuration !--- are specific to Cisco IOS Software  
Release 12.0.5.T and later. !--- See below this configuration for commands !--- for other Cisco  
IOS Software Releases. ! aaa authentication login default local group radius  
aaa authentication ppp default if-needed group radius  
aaa authorization network default group radius  
enable secret 5 $1$mnZQ$g6XdsgVnnYjEa.l7v.Pij1  
enable password ww  
!  
username john password 0 doe  
!  
ip subnet-zero  
!  
cns event-service server  
!  
interface Ethernet0  
ip address 10.31.1.5 255.255.255.0  
no ip directed-broadcast  
no mop enabled  
!  
interface Serial0  
ip address 11.11.11.11 255.255.255.0  
no ip directed-broadcast  
no ip mroute-cache  
no fair-queue  
!  
interface Serial1  
ip address 12.12.12.12 255.255.255.0  
no ip directed-broadcast  
!  
interface Async1  
ip unnumbered Ethernet0  
no ip directed-broadcast  
encapsulation ppp  
no ip route-cache  
no ip mroute-cache  
async mode dedicated  
peer default ip address pool mypool  
fair-queue 64 16 0  
no cdp enable  
ppp authentication chap  
!  
ip local pool mypool 1.1.1.1 1.1.1.5  
ip classless  
ip route 0.0.0.0 0.0.0.0 10.31.1.1  
ip route 9.9.9.0 255.255.255.0 11.11.11.12  
ip route 15.15.15.0 255.255.255.0 12.12.12.13  
no ip http server  
!
```

```
access-list 101 permit icmp 1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255
access-list 101 permit tcp 1.1.1.0 0.0.0.255 15.15.15.0 0.0.0.255
!--- This is the access-list that is specified by the RADIUS server. dialer-list 1 protocol ip
permit dialer-list 1 protocol ipx permit ! radius-server host 172.18.124.111 auth-port 1645
acct-port 1646 radius-server key cisco ! line con 0 transport input none line 1 modem InOut
transport input all stopbits 1 speed 115200 flowcontrol hardware line 2 16 line aux 0 line vty 0
4 password ww ! end
```

## サーバの設定 - ルータのアクセス リスト

この手順には、アクセス リスト自体をルータで設定することが関連します。RADIUS サーバは、適用されるアクセス リスト番号で設定されます。コールが認証すると、RADIUS サーバはアクセス リスト番号を NAS に返し、NAS は対応するアクセス リストを適用します。

## サーバ設定 - Cisco Secure ACS for Windows 2.X - RADIUS

次の手順に従ってください。

1. [User Settings] に名前とパスワードを入力します。
2. [Group Settings] で次のようになっていることを確認します。属性 6 - **Framed**属性 7 - **PPP**属性 11 - **Filter-Id**. 下の領域に「101.in」と入力注: 属性 11 は、アクセス リスト 101 が適用されることを指定します。アクセス リスト 101 をルータで確実に設定してください。

## サーバ設定 - Cisco Secure ACS UNIX - RADIUS

```
rtp-evergreen# ./ViewProfile -p 9900 -u chaprtr
User Profile Information
user = chaprtr{
profile_id = 51
profile_cycle = 1
radius=Cisco {
check_items= {
2="chaprtr"
}
reply_attributes= {
6=2
7=1
11=101.in
}
}
}
```

注: 属性 11 は、アクセス リスト 101 が適用されることを指定します。アクセス リスト 101 をルータで確実に設定してください。

## サーバ設定 - Livingston RADIUS

```
chaprtr Password = chaprtr
User-Service-Type = Framed-User,
Framed-Protocol = PPP,
Framed-Filter-Id = 101.in
```

注: アクセス リスト 101 が適用されることを指定します。アクセス リスト 101 をルータで確実に設定してください。

## ルータのデバッグ例

```
koala#show debug
```

```
General OS:
```

```
AAA Authentication debugging is on
```

```
AAA Authorization debugging is on
```

```
PPP:
```

```
PPP protocol negotiation debugging is on
```

```
Radius protocol debugging is on
```

```
koala#
```

```
*Mar 1 00:55:36.307: As1 LCP: I CONFREQ [Closed] id 0 len 23
*Mar 1 00:55:36.311: As1 LCP: ACCM 0x00000000 (0x020600000000)
*Mar 1 00:55:36.311: As1 LCP: MagicNumber 0x00004CDD (0x050600004CDD)
*Mar 1 00:55:36.315: As1 LCP: PFC (0x0702)
*Mar 1 00:55:36.319: As1 LCP: ACFC (0x0802)
*Mar 1 00:55:36.319: As1 LCP: Callback 6 (0x0D0306)
*Mar 1 00:55:36.323: As1 LCP: Lower layer not up, Fast Starting
*Mar 1 00:55:36.323: As1 PPP: Treating connection as a dedicated line
*Mar 1 00:55:36.327: As1 PPP: Phase is ESTABLISHING,
    Active Open [0 sess, 0 load]
*Mar 1 00:55:36.331: As1 AAA/AUTHOR/FSM: (0): LCP succeeds trivially
*Mar 1 00:55:36.335: As1 LCP: O CONFREQ [Closed] id 26 len 25
*Mar 1 00:55:36.339: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
*Mar 1 00:55:36.343: As1 LCP: AuthProto CHAP (0x0305C22305)
*Mar 1 00:55:36.343: As1 LCP: MagicNumber 0xE0512B4A (0x0506E0512B4A)
*Mar 1 00:55:36.347: As1 LCP: PFC (0x0702)
*Mar 1 00:55:36.347: As1 LCP: ACFC (0x0802)
*Mar 1 00:55:36.355: As1 LCP: O CONFREQ [REQsent] id 0 len 7
*Mar 1 00:55:36.355: As1 LCP: Callback 6 (0x0D0306)
00:55:36: %LINK-3-UPDOWN: Interface Async1, changed state to up
*Mar 1 00:55:36.479: As1 LCP: I CONFACK [REQsent] id 26 len 25
*Mar 1 00:55:36.483: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
*Mar 1 00:55:36.483: As1 LCP: AuthProto CHAP (0x0305C22305)
*Mar 1 00:55:36.487: As1 LCP: MagicNumber 0xE0512B4A (0x0506E0512B4A)
*Mar 1 00:55:36.491: As1 LCP: PFC (0x0702)
*Mar 1 00:55:36.491: As1 LCP: ACFC (0x0802)
*Mar 1 00:55:36.495: As1 LCP: I CONFREQ [ACKrcvd] id 1 len 20
*Mar 1 00:55:36.499: As1 LCP: ACCM 0x00000000 (0x020600000000)
*Mar 1 00:55:36.503: As1 LCP: MagicNumber 0x00004CDD (0x050600004CDD)
*Mar 1 00:55:36.503: As1 LCP: PFC (0x0702)
*Mar 1 00:55:36.507: As1 LCP: ACFC (0x0802)
*Mar 1 00:55:36.511: As1 LCP: O CONFACK [ACKrcvd] id 1 len 20
*Mar 1 00:55:36.515: As1 LCP: ACCM 0x00000000 (0x020600000000)
*Mar 1 00:55:36.515: As1 LCP: MagicNumber 0x00004CDD (0x050600004CDD)
*Mar 1 00:55:36.519: As1 LCP: PFC (0x0702)
*Mar 1 00:55:36.519: As1 LCP: ACFC (0x0802)
*Mar 1 00:55:36.523: As1 LCP: State is Open
*Mar 1 00:55:36.527: As1 PPP: Phase is AUTHENTICATING,
    by this end [0 sess, 1 load]
*Mar 1 00:55:36.531: As1 CHAP: O CHALLENGE id 8 len 26 from "koala"
*Mar 1 00:55:36.647: As1 LCP: I IDENTIFY [Open] id 2 len 18
    magic 0x00004CDD MSRASV4.00
*Mar 1 00:55:36.651: As1 LCP: I IDENTIFY [Open] id 3 len 21
    magic 0x00004CDD MSRAS-1-ZEKIE
*Mar 1 00:55:36.655: As1 CHAP: I RESPONSE id 8 len 28 from "chaptrtr"
*Mar 1 00:55:36.663: AAA: parse name=Async1 idb type=10 tty=1
*Mar 1 00:55:36.667: AAA: name=Async1 flags=0x11 type=4 shelf=0
    slot=0 adapter=0 port=1 channel=0
*Mar 1 00:55:36.671: AAA/MEMORY: create_user (0x4E9DF4) user='chaptrtr'
    ruser='' port='Async1' rem_addr='async'
    authen_type=CHAP service=PPP priv=1
*Mar 1 00:55:36.675: AAA/AUTHEN/START (128288046): port='Async1'
```



```
list='' action=LOGIN service=PPP
*Mar 1 00:55:36.675: AAA/AUTHEN/START (128288046): using "default" list
*Mar 1 00:55:36.679: AAA/AUTHEN (128288046): status = UNKNOWN
*Mar 1 00:55:36.679: AAA/AUTHEN/START (128288046): Method=radius (radius)
*Mar 1 00:55:36.683: RADIUS: ustruct sharecount=1
*Mar 1 00:55:36.687: RADIUS: Initial Transmit Async1
    id 8 172.18.124.111:1645, Access-Request, len 78
*Mar 1 00:55:36.691:      Attribute 4 6 0A1F0105
*Mar 1 00:55:36.695:      Attribute 5 6 00000001
*Mar 1 00:55:36.695:      Attribute 61 6 00000000
*Mar 1 00:55:36.695:      Attribute 1 9 63686170
*Mar 1 00:55:36.699:      Attribute 3 19 08E468A8
*Mar 1 00:55:36.699:      Attribute 6 6 00000002
*Mar 1 00:55:36.703:      Attribute 7 6 00000001
*Mar 1 00:55:36.835: RADIUS: Received from
    id 8 172.18.124.111:1645, Access-Accept, len 40
*Mar 1 00:55:36.839:      Attribute 6 6 00000002
*Mar 1 00:55:36.843:      Attribute 7 6 00000001
*Mar 1 00:55:36.843:      Attribute 11 8 3130312E
*Mar 1 00:55:36.851: AAA/AUTHEN (128288046): status = PASS
*Mar 1 00:55:36.855: As1 AAA/AUTHOR/LCP: Authorize LCP
*Mar 1 00:55:36.855: As1 AAA/AUTHOR/LCP (821299011):
    Port='Async1' list='' service=NET
*Mar 1 00:55:36.859: AAA/AUTHOR/LCP: As1 (821299011) user='chaprtr'
*Mar 1 00:55:36.859: As1 AAA/AUTHOR/LCP (821299011):
    send AV service=ppp
*Mar 1 00:55:36.863: As1 AAA/AUTHOR/LCP (821299011):
    send AV protocol=lcp
*Mar 1 00:55:36.863: As1 AAA/AUTHOR/LCP (821299011):
    found list "default"
*Mar 1 00:55:36.867: As1 AAA/AUTHOR/LCP (821299011):
    Method=radius (radius)
*Mar 1 00:55:36.871: As1 AAA/AUTHOR (821299011): Post
    authorization status = PASS_REPL
*Mar 1 00:55:36.871: As1 AAA/AUTHOR/LCP: Processing
    AV service=ppp
*Mar 1 00:55:36.879: As1 CHAP: 0 SUCCESS id 8 len 4
*Mar 1 00:55:36.883: As1 PPP: Phase is UP [0 sess, 1 load]
*Mar 1 00:55:36.887: As1 AAA/AUTHOR/FSM: (0): Can we
    start IPCP?
*Mar 1 00:55:36.887: As1 AAA/AUTHOR/FSM (3701006396):
    Port='Async1' list='' service=NET
*Mar 1 00:55:36.891: AAA/AUTHOR/FSM: As1 (3701006396)
    user='chaprtr'
*Mar 1 00:55:36.891: As1 AAA/AUTHOR/FSM (3701006396):
    send AV service=ppp
*Mar 1 00:55:36.895: As1 AAA/AUTHOR/FSM (3701006396):
    send AV protocol=ip
*Mar 1 00:55:36.899: As1 AAA/AUTHOR/FSM (3701006396):
    found list "default"
*Mar 1 00:55:36.899: As1 AAA/AUTHOR/FSM (3701006396):
    Method=radius (radius)
*Mar 1 00:55:36.903: As1 AAA/AUTHOR (3701006396):
    Post authorization status = PASS_REPL
*Mar 1 00:55:36.907: As1 AAA/AUTHOR/FSM: We can start IPCP
*Mar 1 00:55:36.915: As1 IPCP: 0 CONFREQ [Closed] id 5 len 10
*Mar 1 00:55:36.915: As1 IPCP:      Address 10.31.1.5 (0x03060A1F0105)
*Mar 1 00:55:36.923: As1 AAA/AUTHOR/FSM: (0): Can we start CDPCP?
*Mar 1 00:55:36.923: As1 AAA/AUTHOR/FSM (3075092411):
    Port='Async1' list='' service=NET
*Mar 1 00:55:36.927: AAA/AUTHOR/FSM: As1 (3075092411) user='chaprtr'
*Mar 1 00:55:36.931: As1 AAA/AUTHOR/FSM (3075092411):
    send AV service=ppp
*Mar 1 00:55:36.931: As1 AAA/AUTHOR/FSM (3075092411):
```

```
send AV protocol=cdp
*Mar 1 00:55:36.935: As1 AAA/AUTHOR/FSM (3075092411):
found list "default"
*Mar 1 00:55:36.935: As1 AAA/AUTHOR/FSM (3075092411):
Method=radius (radius)
*Mar 1 00:55:36.939: RADIUS: unknown proto "cdp" in acl-check
*Mar 1 00:55:36.943: RADIUS: Filter-Id 101 out of range
for protocol cdp. Ignoring.
*Mar 1 00:55:36.943: As1 AAA/AUTHOR (3075092411): Post
authorization status = PASS_REPL
*Mar 1 00:55:36.947: As1 AAA/AUTHOR/FSM: We can start CDPCP
*Mar 1 00:55:36.951: As1 CDPCP: O CONFREQ [Closed] id 5 len 4
*Mar 1 00:55:36.987: As1 CCP: I CONFREQ [Not negotiated] id 4 len 12
*Mar 1 00:55:36.991: As1 CCP: OUI (0x0002)
*Mar 1 00:55:36.991: As1 CCP: MS-PPC supported bits
0x00007080 (0x120600007080)
*Mar 1 00:55:36.999: As1 LCP: O PROTREJ [Open] id 27 len 18
protocol CCP (0x80FD0104000C0002120600007080)
*Mar 1 00:55:37.003: As1 IPCP: I CONFREQ [REQsent] id 5 len 40
*Mar 1 00:55:37.007: As1 IPCP: CompressType VJ 15 slots
CompressSlotID (0x0206002D0F01)
*Mar 1 00:55:37.011: As1 IPCP: Address 0.0.0.0 (0x030600000000)
*Mar 1 00:55:37.015: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)
*Mar 1 00:55:37.019: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)
*Mar 1 00:55:37.023: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)
*Mar 1 00:55:37.027: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)
*Mar 1 00:55:37.027: As1 AAA/AUTHOR/IPCP: Start. Her
address 0.0.0.0, we want 0.0.0.0
*Mar 1 00:55:37.031: As1 AAA/AUTHOR/IPCP: Processing AV service=ppp
*Mar 1 00:55:37.035: As1 AAA/AUTHOR/IPCP: Processing AV inacl=101
!--- Note that acl 101 is applied to the dialer interface. *Mar 1 00:55:37.035: As1
AAA/AUTHOR/IPCP: Authorization succeeded *Mar 1 00:55:37.039: As1 AAA/AUTHOR/IPCP: Done. Her
address 0.0.0.0, we want 0.0.0.0 *Mar 1 00:55:37.043: As1 IPCP: Pool returned 1.1.1.1 *Mar 1
00:55:37.047: As1 IPCP: O CONFREQ [REQsent] id 5 len 28 *Mar 1 00:55:37.051: As1 IPCP:
CompressType VJ 15 slots CompressSlotID (0x0206002D0F01) *Mar 1 00:55:37.055: As1 IPCP:
PrimaryWINS 0.0.0.0 (0x820600000000) *Mar 1 00:55:37.059: As1 IPCP: SecondaryDNS 0.0.0.0
(0x830600000000) *Mar 1 00:55:37.063: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000) *Mar 1
00:55:37.067: As1 IPCP: I CONFACK [REQsent] id 5 len 10 *Mar 1 00:55:37.071: As1 IPCP: Address
10.31.1.5 (0x03060A1F0105) *Mar 1 00:55:37.075: As1 LCP: I PROTREJ [Open] id 6 len 10 protocol
CDPCP (0x820701050004) *Mar 1 00:55:37.079: As1 CDPCP: State is Closed *Mar 1 00:55:37.183: As1
IPCP: I CONFREQ [ACKrcvd] id 7 len 16 *Mar 1 00:55:37.187: As1 IPCP: Address 0.0.0.0
(0x030600000000) *Mar 1 00:55:37.191: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000) *Mar 1
00:55:37.191: As1 AAA/AUTHOR/IPCP: Start. Her address 0.0.0.0, we want 1.1.1.1 *Mar 1
00:55:37.195: As1 AAA/AUTHOR/IPCP: Processing AV service=ppp *Mar 1 00:55:37.199: As1
AAA/AUTHOR/IPCP: Processing AV inacl=101 *Mar 1 00:55:37.199: As1 AAA/AUTHOR/IPCP: Authorization
succeeded *Mar 1 00:55:37.203: As1 AAA/AUTHOR/IPCP: Done. Her address 0.0.0.0, we want 1.1.1.1
*Mar 1 00:55:37.207: As1 IPCP: O CONFNAK [ACKrcvd] id 7 len 16 *Mar 1 00:55:37.211: As1 IPCP:
Address 1.1.1.1 (0x030601010101) *Mar 1 00:55:37.215: As1 IPCP: PrimaryDNS 172.18.125.3
(0x8106AC127D03) *Mar 1 00:55:37.327: As1 IPCP: I CONFREQ [ACKrcvd] id 8 len 16 *Mar 1
00:55:37.331: As1 IPCP: Address 1.1.1.1 (0x030601010101) *Mar 1 00:55:37.335: As1 IPCP:
PrimaryDNS 172.18.125.3 (0x8106AC127D03) *Mar 1 00:55:37.335: As1 AAA/AUTHOR/IPCP: Start. Her
address 1.1.1.1, we want 1.1.1.1 *Mar 1 00:55:37.343: As1 AAA/AUTHOR/IPCP (408915304):
Port='Asyncl' list='' service=NET *Mar 1 00:55:37.347: AAA/AUTHOR/IPCP: As1 (408915304)
user='chaprtr' *Mar 1 00:55:37.347: As1 AAA/AUTHOR/IPCP (408915304): send AV service=ppp *Mar 1
00:55:37.351: As1 AAA/AUTHOR/IPCP (408915304): send AV protocol=ip *Mar 1 00:55:37.355: As1
AAA/AUTHOR/IPCP (408915304): send AV addr*1.1.1.1 *Mar 1 00:55:37.355: As1 AAA/AUTHOR/IPCP
(408915304): found list "default" *Mar 1 00:55:37.359: As1 AAA/AUTHOR/IPCP (408915304):
Method=radius (radius) *Mar 1 00:55:37.363: As1 AAA/AUTHOR (408915304): Post authorization
status = PASS_REPL *Mar 1 00:55:37.367: As1 AAA/AUTHOR/IPCP: Reject 1.1.1.1, using 1.1.1.1 *Mar
1 00:55:37.375: As1 AAA/AUTHOR/IPCP: Processing AV service=ppp *Mar 1 00:55:37.375: As1
AAA/AUTHOR/IPCP: Processing AV inacl=101 *Mar 1 00:55:37.379: As1 AAA/AUTHOR/IPCP: Processing AV
addr*1.1.1.1 *Mar 1 00:55:37.379: As1 AAA/AUTHOR/IPCP: Authorization succeeded *Mar 1
00:55:37.383: As1 AAA/AUTHOR/IPCP: Done. Her address 1.1.1.1, we want 1.1.1.1 *Mar 1
00:55:37.387: As1 IPCP: O CONFACK [ACKrcvd] id 8 len 16 *Mar 1 00:55:37.391: As1 IPCP: Address
```

```
1.1.1.1 (0x030601010101) *Mar 1 00:55:37.395: As1 IPCP: PrimaryDNS 172.18.125.3 (0x8106AC127D03)
*Mar 1 00:55:37.399: As1 IPCP: State is Open *Mar 1 00:55:37.727: As1 IPCP: Install route to
1.1.1.1 *Mar 1 00:55:37: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1, changed state
to up koala#
```

## サーバ上のアクセス リストの定義

注: サーバからルータにルート文を渡す必要はありません。ダイヤルユーザは、一般的にルータからルートを選択します。ルータにルート文があるかどうかは、ルートをサーバから渡すか、ルータから選択するかによって決まります。ただし、この例では、アクセスリストとルート文を渡します。

```
koala#show debug
```

```
General OS:
```

```
AAA Authentication debugging is on
```

```
AAA Authorization debugging is on
```

```
PPP:
```

```
PPP protocol negotiation debugging is on
```

```
Radius protocol debugging is on
```

```
koala#
```

```
*Mar 1 00:55:36.307: As1 LCP: I CONFREQ [Closed] id 0 len 23
*Mar 1 00:55:36.311: As1 LCP: ACCM 0x00000000 (0x020600000000)
*Mar 1 00:55:36.311: As1 LCP: MagicNumber 0x00004CDD (0x050600004CDD)
*Mar 1 00:55:36.315: As1 LCP: PFC (0x0702)
*Mar 1 00:55:36.319: As1 LCP: ACFC (0x0802)
*Mar 1 00:55:36.319: As1 LCP: Callback 6 (0x0D0306)
*Mar 1 00:55:36.323: As1 LCP: Lower layer not up, Fast Starting
*Mar 1 00:55:36.323: As1 PPP: Treating connection as a dedicated line
*Mar 1 00:55:36.327: As1 PPP: Phase is ESTABLISHING,
Active Open [0 sess, 0 load]
*Mar 1 00:55:36.331: As1 AAA/AUTHOR/FSM: (0): LCP succeeds trivially
*Mar 1 00:55:36.335: As1 LCP: O CONFREQ [Closed] id 26 len 25
*Mar 1 00:55:36.339: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
*Mar 1 00:55:36.343: As1 LCP: AuthProto CHAP (0x0305C22305)
*Mar 1 00:55:36.343: As1 LCP: MagicNumber 0xE0512B4A (0x0506E0512B4A)
*Mar 1 00:55:36.347: As1 LCP: PFC (0x0702)
*Mar 1 00:55:36.347: As1 LCP: ACFC (0x0802)
*Mar 1 00:55:36.355: As1 LCP: O CONFREQ [REQsent] id 0 len 7
*Mar 1 00:55:36.355: As1 LCP: Callback 6 (0x0D0306)
00:55:36: %LINK-3-UPDOWN: Interface Async1, changed state to up
*Mar 1 00:55:36.479: As1 LCP: I CONFACK [REQsent] id 26 len 25
*Mar 1 00:55:36.483: As1 LCP: ACCM 0x000A0000 (0x0206000A0000)
*Mar 1 00:55:36.483: As1 LCP: AuthProto CHAP (0x0305C22305)
*Mar 1 00:55:36.487: As1 LCP: MagicNumber 0xE0512B4A (0x0506E0512B4A)
*Mar 1 00:55:36.491: As1 LCP: PFC (0x0702)
*Mar 1 00:55:36.491: As1 LCP: ACFC (0x0802)
*Mar 1 00:55:36.495: As1 LCP: I CONFREQ [ACKrcvd] id 1 len 20
*Mar 1 00:55:36.499: As1 LCP: ACCM 0x00000000 (0x020600000000)
*Mar 1 00:55:36.503: As1 LCP: MagicNumber 0x00004CDD (0x050600004CDD)
*Mar 1 00:55:36.503: As1 LCP: PFC (0x0702)
*Mar 1 00:55:36.507: As1 LCP: ACFC (0x0802)
*Mar 1 00:55:36.511: As1 LCP: O CONFACK [ACKrcvd] id 1 len 20
*Mar 1 00:55:36.515: As1 LCP: ACCM 0x00000000 (0x020600000000)
*Mar 1 00:55:36.515: As1 LCP: MagicNumber 0x00004CDD (0x050600004CDD)
*Mar 1 00:55:36.519: As1 LCP: PFC (0x0702)
*Mar 1 00:55:36.519: As1 LCP: ACFC (0x0802)
*Mar 1 00:55:36.523: As1 LCP: State is Open
*Mar 1 00:55:36.527: As1 PPP: Phase is AUTHENTICATING,
by this end [0 sess, 1 load]
*Mar 1 00:55:36.531: As1 CHAP: O CHALLENGE id 8 len 26 from "koala"
*Mar 1 00:55:36.647: As1 LCP: I IDENTIFY [Open] id 2 len 18
```

```
magic 0x00004CDD MSRASV4.00
*Mar 1 00:55:36.651: As1 LCP: I IDENTIFY [Open] id 3 len 21
magic 0x00004CDD MSRAS-1-ZEKIE
*Mar 1 00:55:36.655: As1 CHAP: I RESPONSE id 8 len 28 from "chaptrtr"
*Mar 1 00:55:36.663: AAA: parse name=Async1 idb type=10 tty=1
*Mar 1 00:55:36.667: AAA: name=Async1 flags=0x11 type=4 shelf=0
slot=0 adapter=0 port=1 channel=0
*Mar 1 00:55:36.671: AAA/MEMORY: create_user (0x4E9DF4) user='chaptrtr'
ruser='' port='Async1' rem_addr='async'
authen_type=CHAP service=PPP priv=1
*Mar 1 00:55:36.675: AAA/AUTHEN/START (128288046): port='Async1'
list='' action=LOGIN service=PPP
*Mar 1 00:55:36.675: AAA/AUTHEN/START (128288046): using "default" list
*Mar 1 00:55:36.679: AAA/AUTHEN (128288046): status = UNKNOWN
*Mar 1 00:55:36.679: AAA/AUTHEN/START (128288046): Method=radius (radius)
*Mar 1 00:55:36.683: RADIUS: ustruct sharecount=1
*Mar 1 00:55:36.687: RADIUS: Initial Transmit Async1
id 8 172.18.124.111:1645, Access-Request, len 78
*Mar 1 00:55:36.691: Attribute 4 6 0A1F0105
*Mar 1 00:55:36.695: Attribute 5 6 00000001
*Mar 1 00:55:36.695: Attribute 61 6 00000000
*Mar 1 00:55:36.695: Attribute 1 9 63686170
*Mar 1 00:55:36.699: Attribute 3 19 08E468A8
*Mar 1 00:55:36.699: Attribute 6 6 00000002
*Mar 1 00:55:36.703: Attribute 7 6 00000001
*Mar 1 00:55:36.835: RADIUS: Received from
id 8 172.18.124.111:1645, Access-Accept, len 40
*Mar 1 00:55:36.839: Attribute 6 6 00000002
*Mar 1 00:55:36.843: Attribute 7 6 00000001
*Mar 1 00:55:36.843: Attribute 11 8 3130312E
*Mar 1 00:55:36.851: AAA/AUTHEN (128288046): status = PASS
*Mar 1 00:55:36.855: As1 AAA/AUTHOR/LCP: Authorize LCP
*Mar 1 00:55:36.855: As1 AAA/AUTHOR/LCP (821299011):
Port='Async1' list='' service=NET
*Mar 1 00:55:36.859: AAA/AUTHOR/LCP: As1 (821299011) user='chaptrtr'
*Mar 1 00:55:36.859: As1 AAA/AUTHOR/LCP (821299011):
send AV service=ppp
*Mar 1 00:55:36.863: As1 AAA/AUTHOR/LCP (821299011):
send AV protocol=lcp
*Mar 1 00:55:36.863: As1 AAA/AUTHOR/LCP (821299011):
found list "default"
*Mar 1 00:55:36.867: As1 AAA/AUTHOR/LCP (821299011):
Method=radius (radius)
*Mar 1 00:55:36.871: As1 AAA/AUTHOR (821299011): Post
authorization status = PASS_REPL
*Mar 1 00:55:36.871: As1 AAA/AUTHOR/LCP: Processing
AV service=ppp
*Mar 1 00:55:36.879: As1 CHAP: O SUCCESS id 8 len 4
*Mar 1 00:55:36.883: As1 PPP: Phase is UP [0 sess, 1 load]
*Mar 1 00:55:36.887: As1 AAA/AUTHOR/FSM: (0): Can we
start IPCP?
*Mar 1 00:55:36.887: As1 AAA/AUTHOR/FSM (3701006396):
Port='Async1' list='' service=NET
*Mar 1 00:55:36.891: AAA/AUTHOR/FSM: As1 (3701006396)
user='chaptrtr'
*Mar 1 00:55:36.891: As1 AAA/AUTHOR/FSM (3701006396):
send AV service=ppp
*Mar 1 00:55:36.895: As1 AAA/AUTHOR/FSM (3701006396):
send AV protocol=ip
*Mar 1 00:55:36.899: As1 AAA/AUTHOR/FSM (3701006396):
found list "default"
*Mar 1 00:55:36.899: As1 AAA/AUTHOR/FSM (3701006396):
Method=radius (radius)
*Mar 1 00:55:36.903: As1 AAA/AUTHOR (3701006396):
```

```
Post authorization status = PASS_REPL
*Mar 1 00:55:36.907: As1 AAA/AUTHOR/FSM: We can start IPCP
*Mar 1 00:55:36.915: As1 IPCP: O CONFREQ [Closed] id 5 len 10
*Mar 1 00:55:36.915: As1 IPCP: Address 10.31.1.5 (0x03060A1F0105)
*Mar 1 00:55:36.923: As1 AAA/AUTHOR/FSM: (0): Can we start CDPCP?
*Mar 1 00:55:36.923: As1 AAA/AUTHOR/FSM (3075092411):
Port='Async1' list='' service=NET
*Mar 1 00:55:36.927: AAA/AUTHOR/FSM: As1 (3075092411) user='chaptrtr'
*Mar 1 00:55:36.931: As1 AAA/AUTHOR/FSM (3075092411):
send AV service=ppp
*Mar 1 00:55:36.931: As1 AAA/AUTHOR/FSM (3075092411):
send AV protocol=cdp
*Mar 1 00:55:36.935: As1 AAA/AUTHOR/FSM (3075092411):
found list "default"
*Mar 1 00:55:36.935: As1 AAA/AUTHOR/FSM (3075092411):
Method=radius (radius)
*Mar 1 00:55:36.939: RADIUS: unknown proto "cdp" in acl-check
*Mar 1 00:55:36.943: RADIUS: Filter-Id 101 out of range
for protocol cdp. Ignoring.
*Mar 1 00:55:36.943: As1 AAA/AUTHOR (3075092411): Post
authorization status = PASS_REPL
*Mar 1 00:55:36.947: As1 AAA/AUTHOR/FSM: We can start CDPCP
*Mar 1 00:55:36.951: As1 CDPCP: O CONFREQ [Closed] id 5 len 4
*Mar 1 00:55:36.987: As1 CCP: I CONFREQ [Not negotiated] id 4 len 12
*Mar 1 00:55:36.991: As1 CCP: OUI (0x0002)
*Mar 1 00:55:36.991: As1 CCP: MS-PPC supported bits
0x00007080 (0x120600007080)
*Mar 1 00:55:36.999: As1 LCP: O PROTREJ [Open] id 27 len 18
protocol CCP (0x80FD0104000C0002120600007080)
*Mar 1 00:55:37.003: As1 IPCP: I CONFREQ [REQsent] id 5 len 40
*Mar 1 00:55:37.007: As1 IPCP: CompressType VJ 15 slots
CompressSlotID (0x0206002D0F01)
*Mar 1 00:55:37.011: As1 IPCP: Address 0.0.0.0 (0x030600000000)
*Mar 1 00:55:37.015: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000)
*Mar 1 00:55:37.019: As1 IPCP: PrimaryWINS 0.0.0.0 (0x820600000000)
*Mar 1 00:55:37.023: As1 IPCP: SecondaryDNS 0.0.0.0 (0x830600000000)
*Mar 1 00:55:37.027: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000)
*Mar 1 00:55:37.027: As1 AAA/AUTHOR/IPCP: Start. Her
address 0.0.0.0, we want 0.0.0.0
*Mar 1 00:55:37.031: As1 AAA/AUTHOR/IPCP: Processing AV service=ppp
*Mar 1 00:55:37.035: As1 AAA/AUTHOR/IPCP: Processing AV inacl=101
!--- Note that acl 101 is applied to the dialer interface. *Mar 1 00:55:37.035: As1
AAA/AUTHOR/IPCP: Authorization succeeded *Mar 1 00:55:37.039: As1 AAA/AUTHOR/IPCP: Done. Her
address 0.0.0.0, we want 0.0.0.0 *Mar 1 00:55:37.043: As1 IPCP: Pool returned 1.1.1.1 *Mar 1
00:55:37.047: As1 IPCP: O CONFREQ [REQsent] id 5 len 28 *Mar 1 00:55:37.051: As1 IPCP:
CompressType VJ 15 slots CompressSlotID (0x0206002D0F01) *Mar 1 00:55:37.055: As1 IPCP:
PrimaryWINS 0.0.0.0 (0x820600000000) *Mar 1 00:55:37.059: As1 IPCP: SecondaryDNS 0.0.0.0
(0x830600000000) *Mar 1 00:55:37.063: As1 IPCP: SecondaryWINS 0.0.0.0 (0x840600000000) *Mar 1
00:55:37.067: As1 IPCP: I CONFACK [REQsent] id 5 len 10 *Mar 1 00:55:37.071: As1 IPCP: Address
10.31.1.5 (0x03060A1F0105) *Mar 1 00:55:37.075: As1 LCP: I PROTREJ [Open] id 6 len 10 protocol
CDPCP (0x820701050004) *Mar 1 00:55:37.079: As1 CDPCP: State is Closed *Mar 1 00:55:37.183: As1
IPCP: I CONFREQ [ACKrcvd] id 7 len 16 *Mar 1 00:55:37.187: As1 IPCP: Address 0.0.0.0
(0x030600000000) *Mar 1 00:55:37.191: As1 IPCP: PrimaryDNS 0.0.0.0 (0x810600000000) *Mar 1
00:55:37.191: As1 AAA/AUTHOR/IPCP: Start. Her address 0.0.0.0, we want 1.1.1.1 *Mar 1
00:55:37.195: As1 AAA/AUTHOR/IPCP: Processing AV service=ppp *Mar 1 00:55:37.199: As1
AAA/AUTHOR/IPCP: Processing AV inacl=101 *Mar 1 00:55:37.199: As1 AAA/AUTHOR/IPCP: Authorization
succeeded *Mar 1 00:55:37.203: As1 AAA/AUTHOR/IPCP: Done. Her address 0.0.0.0, we want 1.1.1.1
*Mar 1 00:55:37.207: As1 IPCP: O CONFNAK [ACKrcvd] id 7 len 16 *Mar 1 00:55:37.211: As1 IPCP:
Address 1.1.1.1 (0x030601010101) *Mar 1 00:55:37.215: As1 IPCP: PrimaryDNS 172.18.125.3
(0x8106AC127D03) *Mar 1 00:55:37.327: As1 IPCP: I CONFREQ [ACKrcvd] id 8 len 16 *Mar 1
00:55:37.331: As1 IPCP: Address 1.1.1.1 (0x030601010101) *Mar 1 00:55:37.335: As1 IPCP:
PrimaryDNS 172.18.125.3 (0x8106AC127D03) *Mar 1 00:55:37.335: As1 AAA/AUTHOR/IPCP: Start. Her
address 1.1.1.1, we want 1.1.1.1 *Mar 1 00:55:37.343: As1 AAA/AUTHOR/IPCP (408915304):
Port='Async1' list='' service=NET *Mar 1 00:55:37.347: AAA/AUTHOR/IPCP: As1 (408915304)
```

```
user='chaprtr' *Mar 1 00:55:37.347: Asl AAA/AUTHOR/IPCP (408915304): send AV service=ppp *Mar 1
00:55:37.351: Asl AAA/AUTHOR/IPCP (408915304): send AV protocol=ip *Mar 1 00:55:37.355: Asl
AAA/AUTHOR/IPCP (408915304): send AV addr*1.1.1.1 *Mar 1 00:55:37.355: Asl AAA/AUTHOR/IPCP
(408915304): found list "default" *Mar 1 00:55:37.359: Asl AAA/AUTHOR/IPCP (408915304):
Method=radius (radius) *Mar 1 00:55:37.363: Asl AAA/AUTHOR (408915304): Post authorization
status = PASS_REPL *Mar 1 00:55:37.367: Asl AAA/AUTHOR/IPCP: Reject 1.1.1.1, using 1.1.1.1 *Mar
1 00:55:37.375: Asl AAA/AUTHOR/IPCP: Processing AV service=ppp *Mar 1 00:55:37.375: Asl
AAA/AUTHOR/IPCP: Processing AV inacl=101 *Mar 1 00:55:37.379: Asl AAA/AUTHOR/IPCP: Processing AV
addr*1.1.1.1 *Mar 1 00:55:37.379: Asl AAA/AUTHOR/IPCP: Authorization succeeded *Mar 1
00:55:37.383: Asl AAA/AUTHOR/IPCP: Done. Her address 1.1.1.1, we want 1.1.1.1 *Mar 1
00:55:37.387: Asl IPCP: O CONFACK [ACKrcvd] id 8 len 16 *Mar 1 00:55:37.391: Asl IPCP: Address
1.1.1.1 (0x030601010101) *Mar 1 00:55:37.395: Asl IPCP: PrimaryDNS 172.18.125.3 (0x8106AC127D03)
*Mar 1 00:55:37.399: Asl IPCP: State is Open *Mar 1 00:55:37.727: Asl IPCP: Install route to
1.1.1.1 *Mar 1 00:55:37: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1, changed state
to up koala#
```

この設定例では、例示のためだけに、サーバからルートを渡します。

## ルータの設定

```
Current configuration:
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname koala
!
aaa new-model
!
!--- The following three lines of the configuration are
!--- specific to Cisco IOS Software Release 12.0.5.T and
later. !--- See below this configuration for commands !-
-- for other Cisco IOS Software Releases. ! aaa
authentication login default group radius none
aaa authentication ppp default if-needed group radius
aaa authorization network default group radius
enable secret 5 $1$mnZQ$g6XdsgVnnYjEa.l7v.Pijl
enable password ww
!
username john password 0 doe
!
ip subnet-zero
!
cns event-service server
!
interface Ethernet0
ip address 10.31.1.5 255.255.255.0
no ip directed-broadcast
no mop enabled
!
interface Serial0
ip address 11.11.11.11 255.255.255.0
no ip directed-broadcast
no ip mroute-cache
no fair-queue
!
interface Serial1
ip address 12.12.12.12 255.255.255.0
no ip directed-broadcast
!
interface Async1
```

```
ip unnumbered Ethernet0
no ip directed-broadcast
encapsulation ppp
no ip route-cache
no ip mroute-cache
async mode dedicated
peer default ip address pool mypool
fair-queue 64 16 0
no cdp enable
ppp authentication chap
!
ip local pool mypool 1.1.1.1 1.1.1.5
ip classless
ip route 0.0.0.0 0.0.0.0 10.31.1.1
ip route 172.17.192.0 255.255.255.0 10.31.1.1
ip route 172.18.124.0 255.255.255.0 10.31.1.1
ip route 172.18.125.0 255.255.255.0 10.31.1.1
no ip http server
!
dialer-list 1 protocol ip permit
dialer-list 1 protocol ipx permit
!
radius-server host 172.18.124.111 auth-port 1645 acct-
port 1646
radius-server key cisco
!
line con 0
transport input none
line 1
autoselect during-login
autoselect ppp
modem InOut
transport input all
stopbits 1
speed 115200
flowcontrol hardware
line 2 16
line aux 0
line vty 0 4
password ww
!
end
```

## 他の Cisco IOS ソフトウェア リリース用のコマンド

**注:** 注：これらのコマンドを使用する場合は、上記の設定からボールドのコマンドを削除し、使用している Cisco IOS ソフトウェア リリースで規定されているように、該当コマンドをペーストしてください。

## Cisco IOS ソフトウェア リリース 11.3.3.T から 12.0.5.T

Current configuration:

```
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname koala
```

```
!  
aaa new-model  
!  
!--- The following three lines of the configuration are !--- specific to Cisco IOS Software  
Release 12.0.5.T and later. !--- See below this configuration for commands !--- for other Cisco  
IOS Software Releases. ! aaa authentication login default group radius none  
aaa authentication ppp default if-needed group radius  
aaa authorization network default group radius  
enable secret 5 $1$mnZQ$g6XdsgVnnYjEa.17v.Pij1  
enable password ww  
!  
username john password 0 doe  
!  
ip subnet-zero  
!  
cns event-service server  
!  
interface Ethernet0  
ip address 10.31.1.5 255.255.255.0  
no ip directed-broadcast  
no mop enabled  
!  
interface Serial0  
ip address 11.11.11.11 255.255.255.0  
no ip directed-broadcast  
no ip mroute-cache  
no fair-queue  
!  
interface Serial1  
ip address 12.12.12.12 255.255.255.0  
no ip directed-broadcast  
!  
interface Async1  
ip unnumbered Ethernet0  
no ip directed-broadcast  
encapsulation ppp  
no ip route-cache  
no ip mroute-cache  
async mode dedicated  
peer default ip address pool mypool  
fair-queue 64 16 0  
no cdp enable  
ppp authentication chap  
!  
ip local pool mypool 1.1.1.1 1.1.1.5  
ip classless  
ip route 0.0.0.0 0.0.0.0 10.31.1.1  
ip route 172.17.192.0 255.255.255.0 10.31.1.1  
ip route 172.18.124.0 255.255.255.0 10.31.1.1  
ip route 172.18.125.0 255.255.255.0 10.31.1.1  
no ip http server  
!  
dialer-list 1 protocol ip permit  
dialer-list 1 protocol ipx permit  
!  
radius-server host 172.18.124.111 auth-port 1645 acct-port 1646  
radius-server key cisco  
!  
line con 0  
transport input none  
line 1  
autoselect during-login  
autoselect ppp  
modem InOut
```



```
transport input all
stopbits 1
speed 115200
flowcontrol hardware
line 2 16
line aux 0
line vty 0 4
password ww
!
end
```

### [11.3.3.TによるCisco IOS ソフトウェア リリース 11.3](#)

Current configuration:

```
!
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname koala
!
aaa new-model
!
!--- The following three lines of the configuration are !--- specific to Cisco IOS Software
Release 12.0.5.T and later. !--- See below this configuration for commands !--- for other Cisco
IOS Software Releases. ! aaa authentication login default group radius none
aaa authentication ppp default if-needed group radius
aaa authorization network default group radius
enable secret 5 $1$mnZQ$g6XdsgVnnYjEa.l7v.Pijl
enable password ww
!
username john password 0 doe
!
ip subnet-zero
!
cns event-service server
!
interface Ethernet0
ip address 10.31.1.5 255.255.255.0
no ip directed-broadcast
no mop enabled
!
interface Serial0
ip address 11.11.11.11 255.255.255.0
no ip directed-broadcast
no ip mroute-cache
no fair-queue
!
interface Serial1
ip address 12.12.12.12 255.255.255.0
no ip directed-broadcast
!
interface Async1
ip unnumbered Ethernet0
no ip directed-broadcast
encapsulation ppp
no ip route-cache
no ip mroute-cache
async mode dedicated
peer default ip address pool mypool
fair-queue 64 16 0
no cdp enable
```

```
ppp authentication chap
!
ip local pool mypool 1.1.1.1 1.1.1.5
ip classless
ip route 0.0.0.0 0.0.0.0 10.31.1.1
ip route 172.17.192.0 255.255.255.0 10.31.1.1
ip route 172.18.124.0 255.255.255.0 10.31.1.1
ip route 172.18.125.0 255.255.255.0 10.31.1.1
no ip http server
!
dialer-list 1 protocol ip permit
dialer-list 1 protocol ipx permit
!
radius-server host 172.18.124.111 auth-port 1645 acct-port 1646
radius-server key cisco
!
line con 0
transport input none
line 1
autoselect during-login
autoselect ppp
modem InOut
transport input all
stopbits 1
speed 115200
flowcontrol hardware
line 2 16
line aux 0
line vty 0 4
password ww
!
end
```

## サーバ設定

### サーバ設定 - Cisco Secure ACS UNIX - RADIUS

```
# ./ViewProfile -p 9900 -u chaprtr
User Profile Information
user = chaprtr{
profile_id = 31
profile_cycle = 1
radius=Cisco {
check_items= {
2="chaprtr"
}
reply_attributes= {
6=2
7=1
9,1="ip:route#1=9.9.9.9 255.255.255.255 11.11.11.12"
9,1="ip:route#2=15.15.15.15 255.255.255.255 12.12.12.13"
9,1="ip:route#3=15.15.15.16 255.255.255.255 12.12.12.13"
9,1="ip:inacl#1=permit icmp 1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255"
9,1="ip:inacl#2=permit tcp 1.1.1.0 0.0.0.255 15.15.15.0 0.0.0.255"
!--- The access-list to be applied is specified. !--- Note that the number after inacl#
increments for each line of the access-list. } } }
```

### **サーバ設定 - Cisco Secure ACS for Windows 2.x - RADIUS**

次の手順を実行します。

1. [User Settings] に名前とパスワードを入力します。
2. [Group Settings] で次のようになっていることを確認します。属性 6 - Framed属性 7 - PPP
3. Cisco RADIUS 属性で [009\001] AV-Pair を確認し、下のボックスに次のテキストを入力します。

```
ip:route#1=9.9.9.9 255.255.255.255 11.11.11.12
ip:route#2=15.15.15.15 255.255.255.255 12.12.12.13
ip:route#3=15.15.15.16 255.255.255.255 12.12.12.13
ip:inacl#1=permit icmp 1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255
ip:inacl#2=permit tcp 1.1.1.0 0.0.0.255 15.15.15.0 0.0.0.255
!--- The access-list to be applied is specified. !--- Note that the number after inacl#
increments for !--- each line of the access-list.
```

## サーバ設定 - Merit RADIUS

注: この設定は、Cisco AV ペアをサポートする Merit RADIUS バージョン 3.6b 以降で有効です。

```
chaprtr Password = "chaprtr",
Service-Type = Framed,
Framed-Protocol = PPP,
Framed-IP-Address = 255.255.255.254
Cisco:Avpair="ip:route#1=9.9.9.9 255.255.255.255 11.11.11.12"
Cisco:Avpair="ip:route#2=15.15.15.15 255.255.255.255 12.12.12.13"
Cisco:Avpair="ip:route#3=15.15.15.16 255.255.255.255 12.12.12.13"
Cisco:Avpair="ip:inacl#1=permit icmp 1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255"
Cisco:Avpair="ip:inacl#2=permit tcp 1.1.1.0 0.0.0.255 15.15.15.0 0.0.0.255"
!--- The access-list to be applied is specified. ! --- Note that the number after inacl#
increments for each line of the access-list.
```

## ルータのデバッグ例

デバッグ用の RADIUS ユーザ設定は次のとおりです。

```
RADIUS user password = "radiususer",
Service-Type = Framed,
Framed-Protocol = PPP,
Framed-IP-Address = 255.255.255.254
cisco-avpair = "ip:route#1=9.9.9.0 255.255.255.0 11.11.11.12"
cisco-avpair = "ip:route#2=15.15.15.0 255.255.255.0 12.12.12.13"
cisco-avpair = "ip:inacl#1=permit icmp 1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255 log"
cisco-avpair = "ip:inacl#2=permit tcp 1.1.1.0 0.0.0.255 15.15.15 .0 0.0.0.255 log"
```

koala#

koala#

```
4d05h: As1 AAA/AUTHOR/FSM: (0): LCP succeeds trivially
4d05h: %LINK-3-UPDOWN: Interface Async1, changed state to up
4d05h: AAA: parse name=Async1 idb type=10 tty=1
4d05h: AAA: name=Async1 flags=0x11 type=4 shelf=0 slot=0
adapter=0 port=1 channel=0
4d05h: AAA/MEMORY: create_user (0x552AB4) user='radiususer'
ruser='' port='Async1' rem_addr='async' authen_type=CHAP
service=PPP priv=1
4d05h: AAA/AUTHEN/START (624846144): port='Async1' list=''
action=LOGIN service=PPP
4d05h: AAA/AUTHEN/START (624846144): using "default" list
4d05h: AAA/AUTHEN (624846144): status = UNKNOWN
4d05h: AAA/AUTHEN/START (624846144): Method=radius (radius)
4d05h: RADIUS: ustruct sharecount=1
```

```
4d05h: RADIUS: Initial Transmit Async1 id 9 172.18.124.111:1645,
  Access-Request, len 81
4d05h: Attribute 4 6 0A1F0105
4d05h: Attribute 5 6 00000001
4d05h: Attribute 61 6 00000000
4d05h: Attribute 1 12 72616469
4d05h: Attribute 3 19 1672E16F
4d05h: Attribute 6 6 00000002
4d05h: Attribute 7 6 00000001
4d05h: RADIUS: Received from id 9 172.18.124.111:1645,
  Access-Accept, len 287
4d05h: Attribute 6 6 00000002
4d05h: Attribute 7 6 00000001
4d05h: Attribute 8 6 FFFFFFFE
4d05h: Attribute 26 52 00000009012E6970
4d05h: Attribute 26 55 0000000901316970
4d05h: Attribute 26 70 0000000901406970
4d05h: Attribute 26 72 0000000901426970
4d05h: AAA/AUTHEN (624846144): status = PASS
4d05h: As1 AAA/AUTHOR/LCP: Authorize LCP
4d05h: As1 AAA/AUTHOR/LCP (3679631149): Port='Async1' list=''
  service=NET
4d05h: AAA/AUTHOR/LCP: As1 (3679631149) user='radiususer'
4d05h: As1 AAA/AUTHOR/LCP (3679631149): send AV service=ppp
4d05h: As1 AAA/AUTHOR/LCP (3679631149): send AV protocol=lcp
4d05h: As1 AAA/AUTHOR/LCP (3679631149): found list "default"
4d05h: As1 AAA/AUTHOR/LCP (3679631149): Method=radius (radius)
4d05h: RADIUS: cisco AVPair "ip:route#1=9.9.9.0 255.255.255.0
  11.11.11.12" not applied for lcp
4d05h: RADIUS: cisco AVPair "ip:route#2=15.15.15.0 255.255.255.0
  12.12.12.13" not applied for lcp
4d05h: RADIUS: cisco AVPair "ip:inacl#1=permit icmp 1.1.1.0 0.0.0.255
  9.9.9.0 0.0.0.255 log" not applied for lcp
4d05h: RADIUS: cisco AVPair "ip:inacl#2=permit tcp 1.1.1.0 0.0.0.255
  15.15.15.0 0.0.0.255 log" not applied for lcp
4d05h: As1 AAA/AUTHOR (3679631149): Post authorization
  status = PASS_REPL
4d05h: As1 AAA/AUTHOR/LCP: Processing AV service=ppp
4d05h: As1 AAA/AUTHOR/FSM: (0): Can we start IPCP?
4d05h: As1 AAA/AUTHOR/FSM (231623628): Port='Async1' list=''
  service=NET
4d05h: AAA/AUTHOR/FSM: As1 (231623628) user='radiususer'
4d05h: As1 AAA/AUTHOR/FSM (231623628): send AV service=ppp
4d05h: As1 AAA/AUTHOR/FSM (231623628): send AV protocol=ip
4d05h: As1 AAA/AUTHOR/FSM (231623628): found list "default"
4d05h: As1 AAA/AUTHOR/FSM (231623628): Method=radius (radius)
4d05h: RADIUS: Using NAS default peer
4d05h: RADIUS: Authorize IP address 0.0.0.0
4d05h: RADIUS: cisco AVPair "ip:route#1=9.9.9.0 255.255.255.0
  11.11.11.12"
4d05h: RADIUS: cisco AVPair "ip:route#2=15.15.15.0 255.255.255.0
  12.12.12.13"
4d05h: RADIUS: cisco AVPair "ip:inacl#1=permit icmp 1.1.1.0 0.0.0.255
  9.9.9.0 0.0.0.255 log"
4d05h: RADIUS: cisco AVPair "ip:inacl#2=permit tcp 1.1.1.0 0.0.0.255
  15.15.15.0 0.0.0.255 log"
!--- The access list is sent down from the RADIUS server. 4d05h: As1 AAA/AUTHOR (231623628):
Post authorization status = PASS_REPL 4d05h: As1 AAA/AUTHOR/FSM: We can start IPCP 4d05h: As1
AAA/AUTHOR/IPCP: Start. Her address 0.0.0.0, we want 0.0.0.0 4d05h: As1 AAA/AUTHOR/IPCP:
Processing AV service=ppp 4d05h: As1 AAA/AUTHOR/IPCP: Processing AV addr=0.0.0.0 4d05h: As1
AAA/AUTHOR/IPCP: Processing AV route#1=9.9.9.0 255.255.255.0 11.11.11.12 4d05h: As1
AAA/AUTHOR/IPCP: Processing AV route#2=15.15.15.0 255.255.255.0 12.12.12.13 4d05h: As1
AAA/AUTHOR/IPCP: Processing AV inacl#1=permit icmp 1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255 log
4d05h: As1 AAA/AUTHOR/IPCP: Processing AV inacl#2=permit tcp 1.1.1.0 0.0.0.255 15.15.15.0
```

```

0.0.0.255 log 4d05h: As1 AAA/AUTHOR/IPCP: Authorization succeeded 4d05h: As1 AAA/AUTHOR/IPCP:
Done. Her address 0.0.0.0, we want 0.0.0.0 4d05h: As1 AAA/AUTHOR/IPCP: Start. Her address
0.0.0.0, we want 1.1.1.3 4d05h: As1 AAA/AUTHOR/IPCP: Processing AV service=ppp 4d05h: As1
AAA/AUTHOR/IPCP: Processing AV addr=0.0.0.0 4d05h: As1 AAA/AUTHOR/IPCP: Processing AV
route#1=9.9.9.0 255.255.255.0 11.11.11.12 4d05h: As1 AAA/AUTHOR/IPCP: Processing AV
route#2=15.15.15.0 255.255.255.0 12.12.12.13 4d05h: As1 AAA/AUTHOR/IPCP: Processing AV
inacl#1=permit icmp 1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255 log 4d05h: As1 AAA/AUTHOR/IPCP:
Processing AV inacl#2=permit tcp 1.1.1.0 0.0.0.255 15.15.15.0 0.0.0.255 log 4d05h: As1
AAA/AUTHOR/IPCP: Authorization succeeded 4d05h: As1 AAA/AUTHOR/IPCP: Done. Her address 0.0.0.0,
we want 1.1.1.3 4d05h: As1 AAA/AUTHOR/IPCP: Start. Her address 1.1.1.3, we want 1.1.1.3 4d05h:
As1 AAA/AUTHOR/IPCP (2383669304): Port='Async1' list='' service=NET 4d05h: AAA/AUTHOR/IPCP: As1
(2383669304) user='radiususer' 4d05h: As1 AAA/AUTHOR/IPCP (2383669304): send AV service=ppp
4d05h: As1 AAA/AUTHOR/IPCP (2383669304): send AV protocol=ip 4d05h: As1 AAA/AUTHOR/IPCP
(2383669304): send AV addr*1.1.1.3 4d05h: As1 AAA/AUTHOR/IPCP (2383669304): found list "default"
4d05h: As1 AAA/AUTHOR/IPCP (2383669304): Method=radius (radius) 4d05h: RADIUS: Using NAS default
peer 4d05h: RADIUS: Authorize IP address 1.1.1.3 4d05h: RADIUS: cisco AVPair "ip:route#1=9.9.9.0
255.255.255.0 11.11.11.12" 4d05h: RADIUS: cisco AVPair "ip:route#2=15.15.15.0 255.255.255.0
12.12.12.13" 4d05h: RADIUS: cisco AVPair "ip:inacl#1=permit icmp 1.1.1.0 0.0.0.255 9.9.9.0
0.0.0.255 log" 4d05h: RADIUS: cisco AVPair "ip:inacl#2=permit tcp 1.1.1.0 0.0.0.255 15.15.15.0
0.0.0.255 log" 4d05h: As1 AAA/AUTHOR (2383669304): Post authorization status = PASS_REPL 4d05h:
As1 AAA/AUTHOR/IPCP: Processing AV service=ppp 4d05h: As1 AAA/AUTHOR/IPCP: Processing AV
addr=1.1.1.3 4d05h: As1 AAA/AUTHOR/IPCP: Processing AV route#1=9.9.9.0 255.255.255.0 11.11.11.12
4d05h: As1 AAA/AUTHOR/IPCP: Processing AV route#2=15.15.15.0 255.255.255.0 12.12.12.13 4d05h:
As1 AAA/AUTHOR/IPCP: Processing AV inacl#1=permit icmp
1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255 log
4d05h: As1 AAA/AUTHOR/IPCP: Processing AV inacl#2=permit tcp
1.1.1.0 0.0.0.255 15.15.15.0 0.0.0.255 log
!--- Access list from the RADIUS server is applied. 4d05h: As1 AAA/AUTHOR/IPCP: Authorization
succeeded 4d05h: As1 AAA/AUTHOR/IPCP: Done. Her address 1.1.1.3, we want 1.1.1.3 4d05h: As1
AAA/AUTHOR/PER-USER: Event IP_UP 4d05h: As1 AAA/AUTHOR: IP_UP 4d05h: As1 AAA/PER-USER:
processing author params. 4d05h: As1 AAA/AUTHOR: Parse 'IP route 9.9.9.0 255.255.255.0
11.11.11.12' 4d05h: As1 AAA/AUTHOR: Parse returned ok (0) 4d05h: As1 AAA/AUTHOR: enqueue peruser
IP txt=no IP route 9.9.9.0 255.255.255.0 11.11.11.12 4d05h: As1 AAA/AUTHOR: Parse 'IP route
15.15.15.0 255.255.255.0 12.12.12.13' 4d05h: As1 AAA/AUTHOR: Parse returned ok (0) 4d05h: As1
AAA/AUTHOR: enqueue peruser IP txt=no IP route 15.15.15.0 255.255.255.0 12.12.12.13 4d05h: As1
AAA/AUTHOR: Parse 'ip access-list extended Async1#0' 4d05h: As1 AAA/AUTHOR: Parse returned ok
(0) 4d05h: As1 AAA/AUTHOR: Parse 'permit icmp 1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255 log' 4d05h:
As1 AAA/AUTHOR: Parse returned ok (0) 4d05h: As1 AAA/AUTHOR: Parse 'permit tcp 1.1.1.0 0.0.0.255
15.15.15.0 0.0.0.255 log' 4d05h: As1 AAA/AUTHOR: Parse returned ok (0) 4d05h: As1 AAA/AUTHOR:
enqueue peruser IP txt=no ip access-list extended Async1#0 4d05h: As1 AAA/AUTHOR: Parse
'interface Async1' 4d05h: %LINEPROTO-5-UPDOWN: Line protocol on Interface Async1, changed state
to up 4d05h: As1 AAA/AUTHOR: Parse returned ok (0) 4d05h: As1 AAA/AUTHOR: Parse 'IP access-group
Async1#0 in' 4d05h: As1 AAA/AUTHOR: Parse returned ok (0) 4d05h: As1 AAA/AUTHOR: enqueue peruser
IP txt=interface Async1 no IP access-group Async1#0 in koala#show ip access-list
Extended IP access list 101
permit icmp 1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255 log (5 matches)
permit tcp 1.1.1.0 0.0.0.255 15.15.15.0 0.0.0.255 log (11 matches)
Extended IP access list Async1#0 (per-user)
permit icmp 1.1.1.0 0.0.0.255 9.9.9.0 0.0.0.255 log
permit tcp 1.1.1.0 0.0.0.255 15.15.15.0 0.0.0.255 log
!--- Verify that the access list is applied to the AS1 dial interface. koala#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route

Gateway of last resort is 10.31.1.1 to network 0.0.0.0

1.0.0.0/32 is subnetted, 1 subnets
C 1.1.1.3 is directly connected, Async1
172.17.0.0/24 is subnetted, 1 subnets

```

```
S 172.17.192.0 [1/0] via 10.31.1.1
172.18.0.0/24 is subnetted, 2 subnets
S 172.18.124.0 [1/0] via 10.31.1.1
S 172.18.125.0 [1/0] via 10.31.1.1
9.0.0.0/24 is subnetted, 1 subnets
U 9.9.9.0 [1/0] via 11.11.11.12
!--- The static user route specified by the RADIUS server is applied. 10.0.0.0/24 is subnetted,
1 subnets C 10.31.1.0 is directly connected, Ethernet0 11.0.0.0/24 is subnetted, 1 subnets C
11.11.11.0 is directly connected, Serial0 12.0.0.0/24 is subnetted, 1 subnets C 12.12.12.0 is
directly connected, Serial1 15.0.0.0/24 is subnetted, 1 subnets U 15.15.15.0 [1/0] via
12.12.12.13
!--- The static user route specified by the RADIUS server is applied. S* 0.0.0.0/0 [1/0] via
10.31.1.1
```

## debug コマンド

- **debug aaa authentication** - AAA 認証に関する情報を表示します。
- **debug aaa authorization** - AAA の許可に関する情報を表示します。
- **debug aaa per-user** - AAA サーバから送信された、ルータかアクセス サーバのユーザごとの構成設定に関する情報を表示します。
- **debug radius** - RADIUS 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。

トラブルシューティングの情報は、「[ダイヤル インターフェイスでのアクセス リストのトラブルシューティング](#)」を参照してください。

## 関連情報

- [Cisco Secure ACS for UNIX に関するマニュアル](#)
- [Cisco Secure ACS for Windows に関するサポート ページ](#)
- [Cisco Secure ACS for Windows に関するドキュメント](#)
- [RADIUS に関するサポート ページ](#)
- [RADIUS の設定](#)
- [Requests for Comments \( RFC \)](#)