

# VPDN에 대한 RADIUS 인증을 구성하는 방법

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## 소개

VPDN(Virtual Private Dial-up Network)을 사용하면 프라이빗 네트워크 다이얼인 서비스가 원격 액세스 서버(L2TP Access Concentrator [LAC]로 정의됨)에 걸쳐 분산될 수 있습니다. PPP(Point-to-Point Protocol) 클라이언트가 LAC에 전화를 걸 때 LAC는 해당 클라이언트의 L2TP 네트워크 서버(LNS)에 해당 PPP 세션을 전달해야 한다고 결정하며, 이 경우 사용자를 인증하고 PPP 협상을 시작합니다. PPP 설정이 완료되면 모든 프레임이 LAC를 통해 클라이언트와 LNS로 전송됩니다.

이 샘플 컨피그레이션을 사용하면 VPDN과 함께 RADIUS 인증을 사용할 수 있습니다. LAC는 RADIUS 서버를 쿼리하고, 사용자를 전달할 LNS를 결정하고, 적절한 터널을 설정합니다.

VPDN에 대한 자세한 내용은 VPDN [이해를 참조하십시오](#).

## 사전 요구 사항

### 요구 사항

이 문서에 대한 특정 요건이 없습니다.

### 사용되는 구성 요소

이 문서의 정보는 다음 소프트웨어 및 하드웨어 버전을 기반으로 합니다.

- Cisco Secure ACS UNIX 버전 2.x.x 이상 또는 Merit RADIUS
- Cisco IOS® 소프트웨어 릴리스 11.2 이상

이 문서의 정보는 특정 랩 환경의 디바이스를 토대로 작성되었습니다. 이 문서에 사용된 모든 디바이스는 초기화된(기본) 컨피그레이션으로 시작되었습니다. 현재 네트워크가 작동 중인 경우, 모든 명령어의 잠재적인 영향을 미리 숙지하시기 바랍니다.

## 표기 규칙

문서 표기 규칙에 대한 자세한 내용은 [Cisco 기술 팁 표기 규칙을 참조하십시오.](#)

## 배경 정보

이 예에서는 "test"라는 비밀번호가 있는 "jsmith@hp.com"입니다. "jsmith@hp.com"이 ISP 라우터로 전화를 걸면 ISP 라우터는 "hp.com" 사용자 ID를 ISP RADIUS 서버로 전송합니다. ISP 서버는 "hp.com" 사용자 ID를 찾아 터널 ID("isp"), 홈 게이트웨이(HGW) 라우터의 IP 주소(10.31.1.50), 네트워크 액세스 서버(NAS) 비밀번호("hello"), 게이트웨이 비밀번호("there")를 ISP 라우터로 다시 보냅니다.

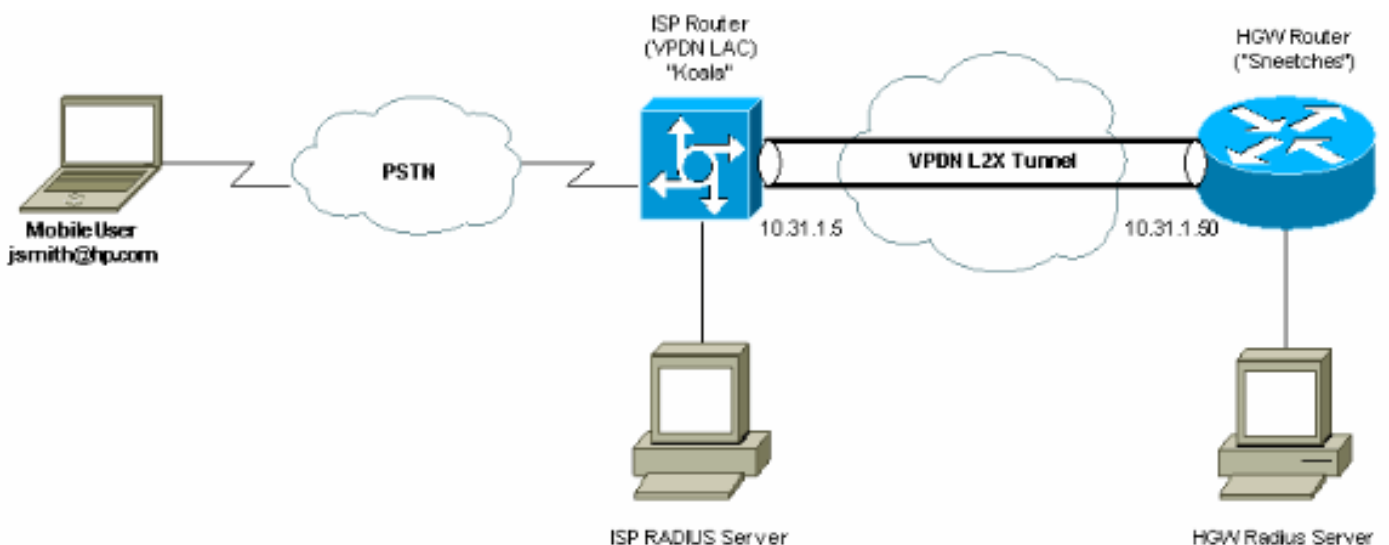
ISP 라우터는 터널을 시작하고 10.31.1.50 HGW 라우터에 연결합니다. 이 라우터는 사용자 "hp-gw"를 로컬로 인증하고 사용자 ID "isp"("hello")의 비밀번호를 HGW RADIUS 서버에 전달합니다. 터널이 설정되면 ISP 라우터가 HGW 라우터로 전송되고 이 사용자의 사용자 다이얼링 사용자 ID("jsmith@hp.com") 및 비밀번호("테스트")가 HGW 서버에서 인증됩니다. 이 예에서는 ISP 라우터를 "코알라"라고 하고 HGW 라우터를 "스네츠"라고 합니다.

## 구성

이 섹션에서는 이 문서에 설명된 기능을 구성하는 정보를 제공합니다.

## 네트워크 다이어그램

이 문서에서는 이 다이어그램에 표시된 네트워크 설정을 사용합니다.



## 서버 구성

## Merit RADIUS 컨피그레이션

```
!--- The RADIUS Server must support Cisco av-pairs. !--- This user is on the ISP RADIUS server.
hp.com Password = "cisco" Service-Type = Outbound-User, cisco-avpair = "vpdn:tunnel-id=isp",
cisco-avpair = "vpdn:ip-addresses=10.31.1.50", cisco-avpair = "vpdn:nas-password=hello", cisco-
avpair = "vpdn:gw-password=there" !--- The next two users are on the HGW Server. isp Password =
"hello", Service-Type = Framed, Framed-Protocol = PPP jsmith@hp.com Password = "test", Service-
Type = Framed, Framed-Protocol = PPP
```

## Cisco Secure ACS UNIX 2.x.x 구성

```
!--- This user is on the ISP server. # ./ViewProfile -p 9900 -u hp.com User Profile Information
user = hp.com{ profile_id = 86 profile_cycle = 1 RADIUS=Cisco { check_items= { 2="cisco" }
reply_attributes= { 9,1="vpdn:tunnel-id=isp" 9,1="vpdn:ip-addresses=10.31.1.50" 9,1="vpdn:NAS-
password=hello" 9,1="vpdn:gw-password=there" } } } !--- The next two users are on the HGW
Server. # ./ViewProfile -p 9900 -u isp User Profile Information user = isp{ profile_id = 70
profile_cycle = 1 RADIUS=Cisco { check_items= { 2="hello" } reply_attributes= { 6=2 7=1 } } } #
./ViewProfile -p 9900 -u jsmith@hp.com User Profile Information user = jsmith@hp.com{ profile_id
= 84 profile_cycle = 1 RADIUS=Cisco { check_items= { 2="test" } reply_attributes= { 6=2 7=1 } }
}
```

## 라우터 컨피그레이션

### ISP 라우터 컨피그레이션

```
koala#show running config

Building configuration...

Current configuration:
!
version 11.3
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname koala
!
aaa new-model
aaa authentication ppp default if-needed RADIUS
aaa authorization network default RADIUS
aaa accounting network default start-stop RADIUS
enable password ww
!
vpdn enable
!--- VPDN is enabled. ! interface Ethernet0 ip address
10.31.1.5 255.255.255.0 ! interface Serial0 shutdown !
interface Serial1 shutdown ! interface Async1 ip
unnumbered Ethernet0 encapsulation ppp async mode
dedicated no peer default ip address no cdp enable ppp
authentication chap ! ip default-gateway 10.31.1.1 no ip
classless ip route 0.0.0.0 0.0.0.0 10.31.1.1 logging
trap debugging logging 171.68.118.101 snmp-server
community public RW snmp-server enable traps config
snmp-server host 171.68.118.105 traps public RADIUS-
server host 171.68.120.194 auth-port 1645 acct-port 1646
```

```
RADIUS-server key cisco
!--- Specify RADIUS server information on the NAS. !
line con 0 password WW line 1 password WW autoselect ppp
modem InOut transport input all stopbits 1 speed 115200
flowcontrol hardware line 2 16 autoselect during-login
line aux 0 line vty 0 4 exec-timeout 0 0 password WW !
end
```

## HGW 라우터 컨피그레이션

```
Sneetches#show running config
Building configuration...

Current configuration:
!
version 11.3
no service password-encryption
service udp-small-servers
service tcp-small-servers
!
hostname Sneetches
!
aaa new-model
aaa authentication ppp default RADIUS local
aaa authorization network default RADIUS local
aaa accounting network default start-stop RADIUS
!
username hp-gw password 0 there
username isp password 0 hello
vpdn enable
!--- Enable VPDN. vpdn incoming isp hp-gw virtual-
template 1
!--- Specify the remote host (the network access server)
!--- the local name (the home gateway) to use for
authenticating !--- and the virtual template to use. !
interface Ethernet0 ip address 10.31.1.50 255.255.255.0
! interface Ethernet1 no ip address shutdown ! interface
Virtual-Template1
!--- Create a virtual template interface. ip unnumbered
Ethernet0
!--- Un-number the Virtual interface to an available LAN
interface. peer default ip address pool async
!--- Use the pool "async" to assign the IP address for
incoming connections. ppp authentication chap
!--- Use CHAP authentication for the incoming
connection. ! interface Serial0 shutdown ! interface
Serial1 shutdown ! ip local pool async 1.1.1.1 1.1.1.6
ip default-gateway 10.31.1.1 no ip classless ip route
0.0.0.0 0.0.0.0 10.31.1.1 RADIUS-server host
171.68.118.101 auth-port 1645 acct-port 1646
RADIUS-server timeout 20
RADIUS-server key cisco
!--- Specify RADIUS server information on the NAS. !
line con 0 exec-timeout 3600 0 line aux 0 line vty 0 4
password WW ! end
```

## 다음을 확인합니다.

현재 이 구성에 대해 사용 가능한 확인 절차가 없습니다.

## 문제 해결

이 섹션에서는 컨피그레이션 문제를 해결하는 데 사용할 수 있는 정보를 제공합니다.

### 문제 해결 명령

특정 **show** 명령은 **show** 명령 출력의 분석을 볼 수 있는 출력 인터프리터 도구에서 지원됩니다.

**참고:** debug 명령을 실행하기 전에 [디버그 명령에 대한 중요 정보를 참조하십시오.](#)

- **debug aaa authentication**—AAA/Terminal Access Controller TACACS+(Access Control System Plus) 인증에 대한 정보를 표시합니다.
- **debug aaa authorization** - AAA/TACACS+ 권한 부여에 대한 정보를 표시합니다.
- **debug ppp negotiation** - PPP 시작 중에 전송된 PPP 패킷을 표시합니다. 여기서 PPP 옵션은 협상됩니다.
- **debug RADIUS** - RADIUS와 관련된 자세한 디버깅 정보를 표시합니다.
- **debug vpdn errors** - PPP 터널이 설정되지 않도록 하는 오류 또는 설정된 터널을 닫도록 하는 오류를 표시합니다.
- **debug vpdn events** - 일반 PPP 터널 설정 또는 종료의 일부인 이벤트에 대한 메시지를 표시합니다.
- **debug vpdn l2f-errors** - 레이어 2 설정을 방지하거나 정상적인 작동을 방지하는 레이어 2 프로토콜 오류를 표시합니다.
- **debug vpdn l2f-events** - Layer 2에 대한 일반 PPP 터널 설정 또는 종료의 일부인 이벤트에 대한 메시지를 표시합니다.
- **debug vpdn l2f-packets** - Layer 2 Forwarding 프로토콜 헤더 및 상태에 대한 메시지를 표시합니다.
- **debug vpdn packets** - VPDN에 대한 일반 터널 설정 또는 종료의 일부인 레이어 2 터널 프로토콜 오류 및 이벤트를 표시합니다.
- **debug vtemplate** - 가상 액세스 인터페이스가 가상 템플릿에서 복제될 때부터 통화가 종료될 때 가상 액세스 인터페이스가 중단될 때까지 가상 액세스 인터페이스에 대한 복제 정보를 표시합니다.

### 디버그 출력

#### ISP 라우터 정상 디버그

```
koala#show debug
General OS:
AAA Authentication debugging is on
AAA Authorization debugging is on
AAA Accounting debugging is on
VPN:
VPN events debugging is on
VPN errors debugging is on
RADIUS protocol debugging is on
koala#
%LINK-3-UPDOWN: Interface Async1, changed state to up
17:28:19: VPDN: Looking for tunnel -- hp.com --
17:28:19: AAA/AUTHEN: create_user (0x15D28C) user='hp.com' ruser='' port='Async1'
rem_addr='' authen_type=NONE service=LOGIN priv=0
```

```
17:28:19: AAA/AUTHOR/VPDN (982041598): Port='Async1' list='default' service=NET
17:28:19: AAA/AUTHOR/VPDN: (982041598) user='hp.com'
17:28:19: AAA/AUTHOR/VPDN: (982041598) send AV service=ppp
17:28:19: AAA/AUTHOR/VPDN: (982041598) send AV protocol=vpdn
17:28:19: AAA/AUTHOR/VPDN (982041598) found list "default"
17:28:19: AAA/AUTHOR/VPDN: (982041598) Method=RADIUS
17:28:19: RADIUS: authenticating to get author data
17:28:19: RADIUS: Computed extended port value 0:1:
17:28:19: RADIUS: Initial Transmit id 62 171.68.120.194:1645, Access-Request, len 70
17:28:19: Attribute 4 6 0A1F0105
17:28:19: Attribute 5 6 00000001
17:28:19: Attribute 61 6 00000000
17:28:19: Attribute 1 8 68702E63
17:28:19: Attribute 2 18 8070079C
17:28:19: Attribute 6 6 00000005
17:28:19: RADIUS: Received from id 62 171.68.120.194:1645, Access-Accept, len 143
17:28:19: Attribute 26 26 0000000901147670
17:28:19: Attribute 26 36 00000009011E7670
17:28:19: Attribute 26 31 0000000901197670
17:28:19: Attribute 26 30 0000000901187670
!--- These messages can be decrypted using the OI tool. !--- As of Cisco IOS Software Release
12.2(11)T, !--- the output was changed to be readable. 17:28:19: RADIUS: saved authorization
data for user 15D28C at 10EE74 17:28:19: RADIUS: cisco AVPair "vpdn:tunnel-id=isp" 17:28:19:
RADIUS: cisco AVPair "vpdn:ip-addresses=10.31.1.50" 17:28:19: RADIUS: cisco AVPair "vpdn:nas-
password=hello" 17:28:19: RADIUS: cisco AVPair "vpdn:gw-password=there" 17:28:19: AAA/AUTHOR
(982041598): Post authorization status = PASS_ADD 17:28:19: AAA/AUTHOR/VPDN: Processing AV
service=ppp
17:28:19: AAA/AUTHOR/VPDN: Processing AV protocol=vpdn
17:28:19: AAA/AUTHOR/VPDN: Processing AV tunnel-id=isp
17:28:19: AAA/AUTHOR/VPDN: Processing AV ip-addresses=10.31.1.50
17:28:19: AAA/AUTHOR/VPDN: Processing AV nas-password=hello
17:28:19: AAA/AUTHOR/VPDN: Processing AV gw-password=there
17:28:19: VPDN: Get tunnel info with NAS isp GW hp.com, IP 10.31.1.50
!--- The RADIUS server returns the attributes the !--- NAS should use for the tunnel. !---
Tunnel-id is "ISP" and the IP address of HGW is 10.31.1.50. 17:28:19: AAA/AUTHEN: free_user
(0x15D28C) user='hp.com' ruser='' port='Async1' rem_addr='' authen_type=NONE service=LOGIN
priv=0 17:28:19: VPDN: Forward to address 10.31.1.50 17:28:19: As1 VPDN: Forwarding... 17:28:19:
AAA/AUTHEN: create_user (0x15D334) user='jsmith@hp.com' ruser='' port='Async1' rem_addr='async'
authen_type=CHAP service=PPP priv=1 17:28:19: As1 VPDN: Bind interface direction=1 17:28:19: As1
VPDN: jsmith@hp.com is forwarded 17:28:19: AAA/ACCT/NET/START User jsmith@hp.com, Port Async1,
List "" 17:28:19: AAA/ACCT/NET: Found list "default" 17:28:19: RADIUS: Computed extended port
value 0:1: 17:28:19: RADIUS: Initial Transmit id 63 171.68.120.194:1646, Accounting-Request, len
93 17:28:19: Attribute 4 6 0A1F0105 17:28:19: Attribute 5 6 00000001 17:28:19: Attribute 61 6
00000000 17:28:19: Attribute 1 15 6A736D69 17:28:19: Attribute 40 6 00000001 17:28:19: Attribute
45 6 00000002 17:28:19: Attribute 6 6 00000002 17:28:19: Attribute 44 10 30303030 17:28:19:
Attribute 7 6 7670646E 17:28:19: Attribute 41 6 00000000 17:28:19: RADIUS: Received from id 63
171.68.120.194:1646, Accounting-response, len 20 %LINEPROTO-5-UPDOWN: Line protocol on Interface
Async1, changed state to up koala# !--- The user finishes and disconnects. %LINEPROTO-5-UPDOWN:
Line protocol on Interface Async1, changed state to down %LINK-5-CHANGED: Interface Async1,
changed state to reset 17:28:48: As1 VPDN: Cleanup 17:28:48: As1 VPDN: Reset 17:28:48: As1 VPDN:
Reset 17:28:48: As1 VPDN: Unbind interface 17:28:48: AAA/ACCT/NET/STOP User jsmith@hp.com, Port
Async1: task_id=20 start_time=900759730 timezone=UTC service=vpdn disc-cause=2 disc-cause-
ext=1011 pre-bytes-in=-226131998 pre-bytes-out=-1034130241 pre-paks-in=-63570 pre-paks-out=-
64410 bytes_in=1999 bytes_out=364 paks_in=29 paks_out=12 pre-session-time=5 elapsed_time=29
data-rate=0 xmit-rate=0 17:28:48: RADIUS: Computed extended port value 0:1: 17:28:48: RADIUS:
Initial Transmit id 64 171.68.120.194:1646, Accounting-Request, len 129 17:28:48: Attribute 4 6
0A1F0105 17:28:48: Attribute 5 6 00000001 17:28:48: Attribute 61 6 00000000 17:28:48: Attribute
1 15 6A736D69 17:28:48: Attribute 40 6 00000002 17:28:48: Attribute 45 6 00000002 17:28:48:
Attribute 6 6 00000002 17:28:48: Attribute 44 10 30303030 17:28:48: Attribute 7 6 7670646E
17:28:48: Attribute 49 6 00000002 17:28:48: Attribute 42 6 000007CF 17:28:48: Attribute 43 6
0000016C 17:28:48: Attribute 47 6 0000001D 17:28:48: Attribute 48 6 0000000C 17:28:48: Attribute
46 6 0000001D 17:28:48: Attribute 41 6 00000000 17:28:48: RADIUS: Received from id 64
171.68.120.194:1646, Accounting-response, len 20 %LINK-3-UPDOWN: Interface Async1, changed state
to down 17:28:51: AAA/AUTHEN: free_user (0x15D334) user='jsmith@hp.com' ruser='' port='Async1'
```

rem\_addr='async' authen\_type=CHAP service=PPP priv=1 koala#

## HW 라우터 정상 디버그

Sneetches#show debug

General OS:

AAA Authentication debugging is on

AAA Authorization debugging is on

AAA Accounting debugging is on

VPN:

VPN events debugging is on

VPN errors debugging is on

RADIUS protocol debugging is on

Sneetches#

17:28:21: AAA/AUTHEN: create\_user (0x14A914) user='hp-gw' ruser='' port=''

rem\_addr='' authen\_type=CHAP service=PPP priv=1

17:28:21: AAA/AUTHEN/START (496523999): port='' list='default'

action=SENDAUTH service=PPP

17:28:21: AAA/AUTHEN/START (496523999): found list default

17:28:21: AAA/AUTHEN/START (496523999): Method=RADIUS

17:28:21: RADIUS: SENDPASS not supported (action=4)

17:28:21: AAA/AUTHEN (496523999): status = ERROR

17:28:21: AAA/AUTHEN/START (496523999): Method=LOCAL

17:28:21: AAA/AUTHEN (496523999): status = PASS

17:28:21: AAA/AUTHEN: free\_user (0x14A914) user='hp-gw' ruser='' port=''

rem\_addr='' authen\_type=CHAP service=PPP priv=1

17:28:21: AAA/AUTHEN: create\_user (0x14A914) user='isp' ruser='' port=''

rem\_addr='' authen\_type=CHAP service=PPP priv=1

17:28:21: AAA/AUTHEN/START (3095573082): port='' list='default'

action=SENDAUTH service=PPP

17:28:21: AAA/AUTHEN/START (3095573082): found list default

17:28:21: AAA/AUTHEN/START (3095573082): Method=RADIUS

17:28:21: RADIUS: SENDPASS not supported (action=4)

17:28:21: AAA/AUTHEN (3095573082): status = ERROR

17:28:21: AAA/AUTHEN/START (3095573082): Method=LOCAL

17:28:21: AAA/AUTHEN (3095573082): status = PASS

17:28:21: AAA/AUTHEN: free\_user (0x14A914) user='isp' ruser='' port=''

rem\_addr='' authen\_type=CHAP service=PPP priv=1

17:28:21: AAA/AUTHEN: create\_user (0x14ADB4) user='isp' ruser='' port=''

rem\_addr='' authen\_type=CHAP service=PPP priv=1

17:28:21: AAA/AUTHEN/START (3506257139): port='' list='default'

action=LOGIN service=PPP

17:28:21: AAA/AUTHEN/START (3506257139): found list default

17:28:21: AAA/AUTHEN/START (3506257139): Method=RADIUS

17:28:21: RADIUS: Initial Transmit id 53 171.68.118.101:1645, Access-Request, len 68

17:28:21: Attribute 4 6 0A1F0132

17:28:21: Attribute 61 6 00000000

17:28:21: Attribute 1 5 69737003

17:28:21: Attribute 3 19 10C82B7A

17:28:21: Attribute 6 6 00000002

17:28:21: Attribute 7 6 00000001

17:28:21: RADIUS: Received from id 53 171.68.118.101:1645, Access-Accept, len 32

17:28:21: Attribute 6 6 00000002

17:28:21: Attribute 7 6 00000001

17:28:21: AAA/AUTHEN (3506257139): status = PASS

17:28:21: VPDN: Chap authentication succeeded for isp

17:28:21: AAA/AUTHEN: free\_user (0x14ADB4) user='isp' ruser='' port='' rem\_addr=''

authen\_type=CHAP service=PPP priv=1

17:28:21: Vi1 VPDN: Virtual interface created for jsmith@hp.com

17:28:21: Vi1 VPDN: Set to Async interface

17:28:21: Vi1 VPDN: Clone from Vtemplate 1 filterPPP=0 blocking

%LINK-3-UPDOWN: Interface Virtual-Access1, changed state to up

17:28:23: Vi1 VPDN: Bind interface direction=2

17:28:23: Vi1 VPDN: PPP LCP accepted sent & rcv CONFACK  
17:28:23: AAA/AUTHEN: create\_user (0x143368) user='jsmith@hp.com' ruser=''  
port='Virtual-Access1' rem\_addr='async' authen\_type=CHAP service=PPP priv=1  
17:28:23: AAA/AUTHEN/START (637397616): port='Virtual-Access1' list=''  
action=LOGIN service=PPP  
17:28:23: AAA/AUTHEN/START (637397616): using "default" list  
17:28:23: AAA/AUTHEN/START (637397616): Method=RADIUS  
17:28:23: RADIUS: Computed extended port value 0:60100:  
17:28:23: RADIUS: Initial Transmit id 54 171.68.118.101:1645, Access-Request, len 78  
17:28:23: Attribute 4 6 0A1F0132  
17:28:23: Attribute 5 6 0000EAC4  
17:28:23: Attribute 1 15 6A736D69  
17:28:23: Attribute 3 19 186C2AC9  
17:28:23: Attribute 6 6 00000002  
17:28:23: Attribute 7 6 00000001  
17:28:23: RADIUS: Received from id 54 171.68.118.101:1645, Access-Accept, len 32  
17:28:23: Attribute 6 6 00000002  
17:28:23: Attribute 7 6 00000001  
17:28:23: AAA/AUTHEN (637397616): status = PASS  
17:28:23: AAA/AUTHOR/LCP Vi1: Authorize LCP  
17:28:23: AAA/AUTHOR/LCP Vi1 (1528831370): Port='Virtual-Access1' list=''  
service=NET  
17:28:23: AAA/AUTHOR/LCP: Vi1 (1528831370) user='jsmith@hp.com'  
17:28:23: AAA/AUTHOR/LCP: Vi1 (1528831370) send AV service=ppp  
17:28:23: AAA/AUTHOR/LCP: Vi1 (1528831370) send AV protocol=lcp  
17:28:23: AAA/AUTHOR/LCP (1528831370) found list "default"  
17:28:23: AAA/AUTHOR/LCP: Vi1 (1528831370) Method=RADIUS  
17:28:23: AAA/AUTHOR (1528831370): Post authorization status = PASS\_REPL  
17:28:23: AAA/AUTHOR/LCP Vi1: Processing AV service=ppp  
17:28:23: AAA/ACCT/NET/START User jsmith@hp.com, Port Virtual-Access1, List ""  
17:28:23: AAA/ACCT/NET: Found list "default"  
17:28:23: AAA/AUTHOR/FSM Vi1: (0): Can we start IPCP?  
17:28:23: AAA/AUTHOR/FSM Vi1 (4249637449): Port='Virtual-Access1' list=''  
service=NET  
17:28:23: AAA/AUTHOR/FSM: Vi1 (4249637449) user='jsmith@hp.com'  
17:28:23: AAA/AUTHOR/FSM: Vi1 (4249637449) send AV service=ppp  
17:28:23: AAA/AUTHOR/FSM: Vi1 (4249637449) send AV protocol=ip  
17:28:23: AAA/AUTHOR/FSM (4249637449) found list "default"  
17:28:23: AAA/AUTHOR/FSM: Vi1 (4249637449) Method=RADIUS  
17:28:23: AAA/AUTHOR (4249637449): Post authorization status = PASS\_REPL  
17:28:23: AAA/AUTHOR/FSM Vi1: We can start IPCP  
17:28:23: RADIUS: Computed extended port value 0:60100:  
17:28:23: RADIUS: Initial Transmit id 55 171.68.118.101:1646, Accounting-Request,  
len 87  
17:28:23: Attribute 4 6 0A1F0132  
17:28:23: Attribute 5 6 0000EAC4  
17:28:23: Attribute 1 15 6A736D69  
17:28:23: Attribute 40 6 00000001  
17:28:23: Attribute 45 6 00000001  
17:28:23: Attribute 6 6 00000002  
17:28:23: Attribute 44 10 30303030  
17:28:23: Attribute 7 6 00000001  
17:28:23: Attribute 41 6 00000000  
17:28:23: RADIUS: Received from id 55 171.68.118.101:1646, Accounting-response,  
len 20  
17:28:23: AAA/AUTHOR/IPCP Vi1: Start. Her address 0.0.0.0, we want 0.0.0.0  
17:28:23: AAA/AUTHOR/IPCP Vi1: Processing AV service=ppp  
17:28:23: AAA/AUTHOR/IPCP Vi1: Authorization succeeded  
17:28:23: AAA/AUTHOR/IPCP Vi1: Done. Her address 0.0.0.0, we want 0.0.0.0  
17:28:23: AAA/AUTHOR/IPCP Vi1: Start. Her address 0.0.0.0, we want 1.1.1.1  
17:28:23: AAA/AUTHOR/IPCP Vi1: Processing AV service=ppp  
17:28:23: AAA/AUTHOR/IPCP Vi1: Authorization succeeded  
17:28:23: AAA/AUTHOR/IPCP Vi1: Done. Her address 0.0.0.0, we want 1.1.1.1  
17:28:24: AAA/AUTHOR/IPCP Vi1: Start. Her address 1.1.1.1, we want 1.1.1.1



```
17:28:24: AAA/AUTHOR/IPCP Vi1 (923857566): Port='Virtual-Access1' list=''
service=NET
17:28:24: AAA/AUTHOR/IPCP: Vi1 (923857566) user='jsmith@hp.com'
17:28:24: AAA/AUTHOR/IPCP: Vi1 (923857566) send AV service=ppp
17:28:24: AAA/AUTHOR/IPCP: Vi1 (923857566) send AV protocol=ip
17:28:24: AAA/AUTHOR/IPCP: Vi1 (923857566) send AV addr*1.1.1.1
17:28:24: AAA/AUTHOR/IPCP (923857566) found list "default"
17:28:24: AAA/AUTHOR/IPCP: Vi1 (923857566) Method=RADIUS
17:28:24: AAA/AUTHOR (923857566): Post authorization status = PASS_REPL
17:28:24: AAA/AUTHOR/IPCP Vi1: Reject 1.1.1.1, using 1.1.1.1
17:28:24: AAA/AUTHOR/IPCP Vi1: Processing AV service=ppp
17:28:24: AAA/AUTHOR/IPCP Vi1: Processing AV addr*1.1.1.1
17:28:24: AAA/AUTHOR/IPCP Vi1: Authorization succeeded
17:28:24: AAA/AUTHOR/IPCP Vi1: Done. Her address 1.1.1.1, we want 1.1.1.1
%LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access1, changed state to up
Sneetches#
!--- The user finishes and disconnects. Sneetches# 17:28:50: Vi1 VPDN: Reset 17:28:50: Vi1
VPDN: Reset %LINK-3-UPDOWN: Interface Virtual-Access1, changed state to down 17:28:50: Vi1 VPDN:
Cleanup 17:28:50: Vi1 VPDN: Reset 17:28:50: Vi1 VPDN: Reset 17:28:50: Vi1 VPDN: Unbind interface
17:28:50: Vi1 VPDN: Reset 17:28:50: Vi1 VPDN: Reset 17:28:50: AAA/ACCT/NET/STOP User
jsmith@hp.com, Port Virtual-Access1: task_id=14 start_time=900759731 timezone=UTC service=ppp
protocol=ip addr=1.1.1.1 disc-cause=2 disc-cause-ext=1011 pre-bytes-in=0 pre-bytes-out=42 pre-
paks-in=0 pre-paks-out=2 bytes_in=882 bytes_out=356 paks_in=17 paks_out=11 pre-session-time=0
elapsed_time=27 data-rate=0 xmit-rate=0 17:28:50: RADIUS: Computed extended port value 0:60100:
17:28:50: RADIUS: Initial Transmit id 56 171.68.118.101:1646, Accounting-Request, len 129
17:28:50: Attribute 4 6 0A1F0132 17:28:50: Attribute 5 6 0000EAC4 17:28:50: Attribute 1 15
6A736D69 17:28:50: Attribute 40 6 00000002 17:28:50: Attribute 45 6 00000001 17:28:50: Attribute
6 6 00000002 17:28:50: Attribute 44 10 30303030 17:28:50: Attribute 7 6 00000001 17:28:50:
Attribute 8 6 01010101 17:28:50: Attribute 49 6 00000002 17:28:50: Attribute 42 6 00000372
17:28:50: Attribute 43 6 00000164 17:28:50: Attribute 47 6 00000011 17:28:50: Attribute 48 6
0000000B 17:28:50: Attribute 46 6 0000001B 17:28:50: Attribute 41 6 00000000 17:28:50: RADIUS:
Received from id 56 171.68.118.101:1646, Accounting-response, len 20 17:28:50: AAA/AUTHEN:
free_user (0x143368) user='jsmith@hp.com' ruser='' port='Virtual-Access1' rem_addr='async'
authen_type=CHAP service=PPP priv=1 %LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-
Access1, changed state to down Sneetches#
```

## ISP 라우터에서 연결 실패 디버깅

```
koala#show debug
```

```
General OS:
```

```
AAA Authentication debugging is on
```

```
AAA Authorization debugging is on
```

```
AAA Accounting debugging is on
```

```
VPN:
```

```
VPN events debugging is on
```

```
VPN errors debugging is on
```

```
RADIUS protocol debugging is on
```

```
koala#
```

```
!--- Problem 1: !--- User hp.com is not in the ISP server: !--- There is no output on HGW router
because the call has not gone that far.
```

```
RADIUS: Received from id 83 171.68.120.194:1645, Access-Reject, len 20 18:43:18:
```

```
AAA/AUTHEN (4063976505): status = FAIL
```

```
!--- Problem 2: !--- User hp.com is not in the ISP server. !--- There is no output on HGW router
because !--- the call has not gone that far.
```

```
RADIUS: Received from id 83 171.68.120.194:1645, Access-Reject, len 20 18:43:18:
```

```
AAA/AUTHEN (4063976505): status = FAIL
```

```
!--- Problem 3: !--- Problem in tunnel definition on HGW router; in HGW configuration !--- vpdn
incoming hp-gw isp virtual-template 1 is inserted !--- instead of vpdn incoming isp hp-gw
virtual-template 1.
```

```
%VPDN-5-UNREACH: L2F HGW 10.31.1.50 is unreachable
```

```
VPDN: Timeout opening tunnel to 10.31.1.50
VPDN: Free busy address 10.31.1.50
!--- Problem 4: !--- User "isp" or "hp-gw" is removed from HGW router.

%VPDN-6-AUTHENFAIL: L2F NAS koala, authentication failure for tunnel hp-gw;
Invalid key
!--- Problem 5: !--- User "isp" is not in the HGW server.

%VPDN-6-AUTHENFAIL: L2F HGW , AAA authentication failure for tunnel hp-gw
!--- Problem 6: !--- User jsmith@hp.com is not in the HGW server.

%VPDN-6-AUTHENFAIL: L2F HGW hp-gw, AAA authentication failure for Asl
user jsmith@hp.com; Authentication failure
```

## [HGW 라우터의 실패한 연결에 대한 디버깅](#)

```
Sneetches#show debug
```

```
General OS:
```

```
AAA Authentication debugging is on
```

```
AAA Authorization debugging is on
```

```
AAA Accounting debugging is on
```

```
VPN:
```

```
VPN events debugging is on
```

```
VPN errors debugging is on
```

```
RADIUS protocol debugging is on
```

```
Sneetches#
```

```
!--- Problem 1: !--- Problem in tunnel definition on the HGW router; in HGW configuration !---
vpdn incoming hp-gw isp virtual-template 1 is inserted !--- instead of vpdn incoming isp hp-gw
virtual-template 1 !--- debug vpdn l2f-errors display.
```

```
19:25:27: L2F: Couldn't find tunnel named isp
```

```
19:25:30: L2F: Couldn't find tunnel named isp
```

```
!--- Problem 2: !--- User "isp" is removed from the HGW router.
```

```
AAA/AUTHEN (3372073334): SENDAUTH no password for isp
```

```
AAA/AUTHEN (3372073334): status = ERROR
```

```
AAA/AUTHEN/START (3372073334): no methods left to try
```

```
AAA/AUTHEN (3372073334): status = ERROR
```

```
AAA/AUTHEN/START (3372073334): failed to authenticate
```

```
!--- Problem 3: !--- User "hp-gw" is removed from the HGW router.
```

```
AAA/AUTHEN (3999868118): SENDAUTH no password for hp-gw
```

```
AAA/AUTHEN (3999868118): status = ERROR
```

```
AAA/AUTHEN/START (3999868118): no methods left to try
```

```
AAA/AUTHEN (3999868118): status = ERROR
```

```
AAA/AUTHEN/START (3999868118): failed to authenticate
```

```
!--- Problem 4: !--- User "isp" is removed from HGW RADIUS server.
```

```
RADIUS: Received from id 107 171.68.118.101:1645, Access-Reject, len 46
```

```
Attribute 18 26 41757468
```

```
AAA/AUTHEN (2759462034): status = FAIL
```

```
VPDN: Chap authentication failed for isp
```

```
%VPDN-6-AUTHENFAIL: L2F HGW , AAA authentication failure for tunnel isp
```

```
!--- Problem 5: !--- User "jsmith@hp.com" is not in the HGW server.
```

```
RADIUS: Received from id 109 171.68.118.101:1645, Access-Reject, len 46
```

```
Attribute 18 26 41757468
```

```
AAA/AUTHEN (2765235576): status = FAIL
```

```
%VPDN-6-AUTHENFAIL: L2F HGW hp-gw, AAA authentication failure for Vil
```

```
user jsmith@hp.com; Authentication failure
```

## [관련 정보](#)

- [RADIUS 기술 지원 페이지](#)
- [RFC\(Request for Comments\)](#)
- [Cisco Secure UNIX 제품 지원 페이지](#)
- [Technical Support - Cisco Systems](#)