

# Configuring TACACS+ Authentication for VPDNs

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## Introduction

### Prerequisites

- Requirements
- Components Used
- Conventions

### Configure

- Network Diagram
- TACACS+ Server Configurations
- Router Configurations

### Verify

### Troubleshoot

- Troubleshooting Commands
- Sample debug Output

### Related Information

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## Introduction

A virtual private dial-up network (VPDN) allows a private network dial in service to span across to remote access servers (defined as the L2TP Access Concentrator [LAC]). When a Point-to-Point Protocol (PPP) client dials into a LAC, the LAC determines that it should forward that PPP session on to an L2TP Network Server (LNS) for that client, which then authenticates the user and starts the PPP negotiation. Once PPP setup has completed, all frames are sent through the LAC to the client and the LNS.

This sample configuration allows you to use TACACS+ authentication with Virtual Private Dial-Up Networks (VPDNs). The LAC queries the TACACS+ server, determines which LNS to forward the user, and establishes the appropriate tunnel.

For more information on VPDNs, refer to Understanding VPDN.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

The information in this document is based on these software and hardware versions:

- Cisco Secure ACS for UNIX version 2.x.x and later or TACACS+ freeware
- Cisco IOS® Software Release 11.2 and later

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

## Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

## Configure

This section presents the information needed to configure the features described in this document.

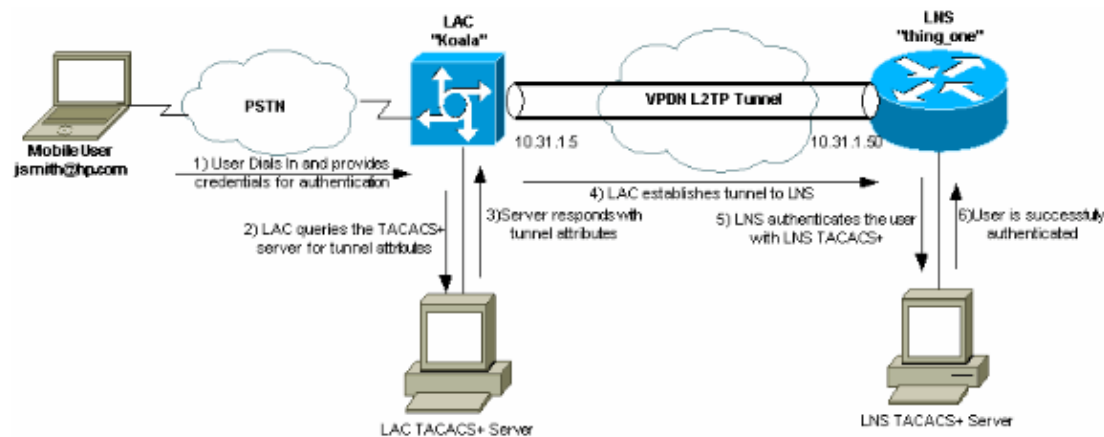
In this example, the user is "jsmith@hp.com" with password "test". When "jsmith@hp.com" dials into the ISP router, the ISP router sends "hp.com" userid to the ISP TACACS+ server. The ISP server finds the "hp.com" userid and sends its tunnel-id ("isp"), the IP address of the home gateway (HGW) router (10.31.1.50), the Network Access Server (NAS) password ("hello"), and the gateway password ("there") back to the ISP router.

The ISP router initiates a tunnel and connects to the HGW router, which forwards the passwords for userid "hp-gw" ("there") and then userid "isp" ("hello") to the HGW TACACS+ server. Once the tunnels is established, the ISP router forwards to the HGW router the userid ("jsmith@hp.com") and password ("test") of the user that dials in. This user is authenticated on the HGW server. In the sample configurations in this document, the ISP router host name is "koala" and the HGW router host name is "thing\_one".

**Note:** To find additional information on the commands used in this document, use the Command Lookup Tool (registered customers only).

## Network Diagram

This document uses the network setup shown in this diagram.



## TACACS+ Server Configurations

This document uses the server configurations shown here.

- TACACS+ Freeware
- Cisco Secure ACS for UNIX 2.x.x

### TACACS+ Freeware

```
!--- This user is on the ISP TACACS+ server.  
!--- The profile includes the Tunnel ID ("isp"), the IP address  
!--- of the Peer (10.31.1.50),  
!--- and the passwords used to authenticate the tunnel.
```

*!--- The ISP uses these attributes to establish the tunnel.*

```
user = hp.com {
service = ppp protocol = vpdn {
tunnel-id = isp
ip-addresses = "10.31.1.50"
nas-password = "hello"
gw-password = "there"
}
}
```

*!--- The next three users are on the HGW server.*

```
user = isp {
chap = cleartext "hello"
service = ppp protocol = ip {
default attribute = permit
}
}
```

```
user = hp-gw {
chap = cleartext "there"
service = ppp protocol = ip {
default attribute = permit
}
}
```

```
user = jsmith@hp.com {
chap = cleartext "test"
service = ppp protocol = ip {
default attribute = permit
}
}
```

## **Cisco Secure ACS for UNIX 2.x.x**

*!--- This user is on the ISP server.*

```
# ./ViewProfile -p 9900 -u hp.com
User Profile Information
user = hp.com{
profile_id = 83
profile_cycle = 1
service=ppp {
protocol=vpdn {
set tunnel-id=isp
set ip-addresses="10.31.1.50"
set nas-password="hello"
set gw-password="there"
}
}
protocol=lcp {
}
}
}
```

*!--- The next three users are on the HGW server.*

*!--- The next two usernames are used to authenticate the LAC*

*!--- during tunnel initialization.*

```
# ./ViewProfile -p 9900 -u isp
User Profile Information
user = isp{
```

```

profile_id = 84
profile_cycle = 1
password = chap "*****"
service=ppp {
protocol=ip {
default attribute=permit
}
}
protocol=lcp {
}
}

# ./ViewProfile -p 9900 -u hp-gw
User Profile Information
user = hp-gw{
profile_id = 82
profile_cycle = 1
password = chap "*****"
service=ppp {
protocol=ip {
default attribute=permit
}
}
protocol=lcp {
}
}

}

!--- This username is used to authenticate the end user
!--- after the tunnel is established.

# ./ViewProfile -p 9900 -u jsmith@hp.com
User Profile Information
user = jsmith@hp.com{
profile_id = 85
profile_cycle = 1
password = chap "*****"
service=ppp {
protocol=ip {
default attribute=permit
}
}
protocol=lcp {
}
}

}

```

## Router Configurations

This document uses the configurations shown here.

- ISP Router
- HGW Router

ISP Router Configuration
<pre> koala#show running config Building configuration...  Current configuration: ! version 11.2 no service password-encryption </pre>

```

service udp-small-servers
service tcp-small-servers
!
hostname koala
!
aaa new-model
aaa authentication ppp default tacacs+ none
aaa authorization network tacacs+ none
aaa accounting network start-stop tacacs+

enable password ww
!

!--- VPDN is enabled.

vpdn enable
!
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 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
!

!--- Specify the TACACS server information on the NAS.

tacacs-server host 171.68.120.194
tacacs-server key cisco
no tacacs-server directed-request
snmp-server community public RW
snmp-server enable traps config
!
line con 0
password ww
line 1 16
password ww
autoselect ppp
modem InOut
transport input all
stopbits 1
rxspeed 115200
txspeed 115200
flowcontrol hardware
line aux 0
line vty 0 4
exec-timeout 0 0
password ww
!
end

```

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

Current configuration:
!
version 11.2
no service password-encryption
no service udp-small-servers
no service tcp-small-servers
!
hostname thing_one
!
aaa new-model
aaa authentication ppp default tacacs+ none
aaa authorization network tacacs+ none
enable password ww
!

!--- Enable VPDN.

vpdn enable

!--- Specify the remote host ("isp" on the network access server)
!--- and the local name ("hp-gw" on the home gateway) to use to authenticate.
!--- Also specify the virtual template to use.
!--- The local name and the remote host name must match
!--- the ones in the TACACS server.

vpdn incoming isp hp-gw virtual-template 1
!
interface Loopback0
shutdown
!
interface Ethernet0
ip address 10.31.1.50 255.255.255.0
!
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 15.15.15.15
no ip classless
ip route 0.0.0.0 0.0.0.0 10.31.1.1
!
tacacs-server host 171.68.118.101
no tacacs-server directed-request
tacacs-server key cisco
```

```
!--- Specify the TACACS+ server information on the NAS.
!
line con 0
exec-timeout 0 0
line 1 8
line aux 0
line vty 0 4
!
end
```

## Verify

There is currently no verification procedure available for this configuration.

## Troubleshoot

This section provides information you can use to troubleshoot your configuration.

## Troubleshooting Commands

**Note:** Before issuing **debug** commands, please see Important Information on Debug Commands.

- **debug aaa authentication** Displays information on authentication, authorization, and accounting (AAA)/TACACS+ authentication.
- **debug aaa authorization** Displays information on AAA/TACACS+ authorization.
- **debug ppp negotiation** Displays PPP packets transmitted during PPP startup, where PPP options are negotiated.
- **debug tacacs+** Displays detailed debugging information associated with TACACS+.
- **debug vpdn errors** Displays errors that prevent a PPP tunnel from being established or errors that cause an established tunnel to close.
- **debug vpdn events** Displays messages about events that are part of normal PPP tunnel establishment or shutdown.
- **debug vpdn l2f-errors** Displays Layer 2 protocol errors that prevent Layer 2 establishment or prevent its normal operation.
- **debug vpdn l2f-events** Displays messages about events that are part of normal PPP tunnel establishment or shutdown for Layer 2.
- **debug vpdn l2f-packets** Displays messages about Layer 2 Forwarding protocol headers and status.
- **debug vpdn packets** Displays Layer 2 Tunnel Protocol (L2TP) errors and events that are a part of normal tunnel establishment or shutdown for VPDNs.
- **debug vtemplate** Displays cloning information for a virtual access interface from the time it is cloned from a virtual template to the time the virtual access interface comes down when the call ends.

## Sample debug Output

These debugs are provided for reference.

- ISP Router Good Debug
- HGW Router Good Debug
- Debugs for failed connection on ISP Router
- Debugs for Failed connections on HGW Router

## ISP Router Good Debug

```
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
koala#
%LINK-3-UPDOWN: Interface Async1, changed state to up
15:04:47: VPDN: Looking for tunnel -- hp.com --
15:04:47: AAA/AUTHEN: create_user (0x15FA80) user='hp.com' ruser=''
    port='Async1' rem_addr='' authn_type=NONE service=LOGIN priv=0
15:04:47: AAA/AUTHOR/VPDN: : (2445181346): user='hp.com'
15:04:47: AAA/AUTHOR/VPDN: : (2445181346): send AV service=ppp
15:04:47: AAA/AUTHOR/VPDN: : (2445181346): send AV protocol=vpdn
15:04:47: AAA/AUTHOR/VPDN: : (2445181346): Method=TACACS+
15:04:47: AAA/AUTHOR/TAC+: (2445181346): user=hp.com
15:04:47: AAA/AUTHOR/TAC+: (2445181346): send AV service=ppp
15:04:47: AAA/AUTHOR/TAC+: (2445181346): send AV protocol=vpdn
15:04:47: TAC+: (2445181346): received author response status = PASS_ADD

15:04:47: AAA/AUTHOR (2445181346): Post authorization status = PASS_ADD
15:04:47: AAA/AUTHOR/VPDN: Processing AV service=ppp
15:04:47: AAA/AUTHOR/VPDN: Processing AV protocol=vpdn
15:04:47: AAA/AUTHOR/VPDN: Processing AV tunnel-id=isp
15:04:47: AAA/AUTHOR/VPDN: Processing AV ip-addresses=10.31.1.50
15:04:47: AAA/AUTHOR/VPDN: Processing AV nas-password=hello
15:04:47: AAA/AUTHOR/VPDN: Processing AV gw-password=there
15:04:47: VPDN: Get tunnel info with NAS isp GW hp.com, IP 10.31.1.50

!--- The TACACS+ server returns the attributes the
!--- NAS should use for the tunnel.
!--- The tunnel-id is "ISP" and the IP address of HGW is 10.31.1.50.

15:04:47: AAA/AUTHEN: free_user (0x15FA80) user='hp.com' ruser=''
    port='Async1' rem_addr='' authn_type=NONE service=LOGIN priv=0
15:04:47: VPDN: Forward to address 10.31.1.50
15:04:47: As1 VPDN: Forwarding...
15:04:47: AAA/AUTHEN: create_user (0x118008) user='jsmith@hp.com' ruser=''
    port='Async1' rem_addr='async' authn_type=CHAP service=PPP priv=1
15:04:47: As1 VPDN: Bind interface direction=1
15:04:47: As1 VPDN: jsmith@hp.com is forwarded
%LINEPROTO-5-UPDOWN: Line protocol on Interface Async1, changed state to up
15:04:49: AAA/ACCT: NET acct start. User jsmith@hp.com, Port Async1: Async1

!--- 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
15:05:27: As1 VPDN: Cleanup
15:05:27: As1 VPDN: Reset
15:05:27: As1 VPDN: Reset
15:05:27: As1 VPDN: Unbind interface
15:05:27: AAA/ACCT: Network acct stop. User jsmith@hp.com, Port Async1:
task_id=2 timezone=UTC service=vpdn bytes_in=1399 bytes_out=150 paks_in=27
    paks_out=9 elapsed_time=38
%LINK-3-UPDOWN: Interface Async1, changed state to down
15:05:30: AAA/AUTHEN: free_user (0x118008) user='jsmith@hp.com' ruser=''
    port='Async1' rem_addr='async' authn_type=CHAP service=PPP priv=1
koala#
```

## HGW Router Good Debug

```
thing_one#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
```

```
VTEMPLATE:
```

```
Virtual Template debugging is on
```

```
thing_one#
```

```
15:04:46: AAA/AUTHEN: create_user (0x15E6E0) user='isp' ruser='' port=''
rem_addr='' authen_type=CHAP service=PPP priv=1
```

```
15:04:46: TAC+: ver=192 id=969200103 received AUTHEN status = PASS
```

```
15:04:46: AAA/AUTHEN: free_user (0x15E6E0) user='isp' ruser='' port=''
rem_addr='' authen_type=CHAP service=PPP priv=1
```

```
15:04:46: AAA/AUTHEN (3252085483): status = PASS
```

```
15:04:46: AAA/AUTHEN: free_user (0x15CBEC) user='isp' ruser='' port=''
rem_addr='' authen_type=CHAP service=PPP priv=1
```

```
15:04:46: AAA/AUTHEN: create_user (0x15F1B8) user='isp' ruser='' port=''
rem_addr='' authen_type=CHAP service=PPP priv=1
```

```
15:04:46: AAA/AUTHEN/START (3897539709): port='' list='default'
action=LOGIN service=PPP
```

```
15:04:46: AAA/AUTHEN/START (3897539709): found list default
```

```
15:04:46: AAA/AUTHEN/START (3897539709): Method=TACACS+
```

```
15:04:46: TAC+: send AUTHEN/START packet ver=193 id=3897539709
```

```
15:04:46: TAC+: ver=192 id=3897539709 received AUTHEN status = GETPASS
```

```
15:04:46: AAA/AUTHEN: create_user (0x15E6F0) user='isp' ruser='' port=''
rem_addr='' authen_type=CHAP service=PPP priv=1
```

```
15:04:46: TAC+: ver=192 id=2306139011 received AUTHEN status = PASS
```

```
15:04:46: AAA/AUTHEN: free_user (0x15E6F0) user='isp' ruser='' port=''
rem_addr='' authen_type=CHAP service=PPP priv=1
```

```
15:04:46: AAA/AUTHEN (3897539709): status = PASS
```

```
15:04:46: VPDN: Chap authentication succeeded for isp
```

```
!--- The LAC ("ISP") is succesfully authenticated.
```

```
15:04:46: AAA/AUTHEN: free_user (0x15F1B8) user='isp' ruser='' port=''
rem_addr='' authen_type=CHAP service=PPP priv=1
```

```
15:04:46: Vi1 VTEMPLATE: Reuse Vi1, recycle queue size 0
```

```
15:04:46: Vi1 VTEMPLATE: Set default settings with no ip address
```

```
15:04:47: Vi1 VTEMPLATE: Hardware address 00e0.1e68.942c
```

```
15:04:47: Vi1 VPDN: Virtual interface created for jsmith@hp.com
```

```
15:04:47: Vi1 VPDN: Set to Async interface
```

```
15:04:47: Vi1 VPDN: Clone from Vtemplate 1 filterPPP=0 blocking
```

```
15:04:47: Vi1 VTEMPLATE: Has a new cloneblk vtemplate, now it has vtemplate
```

```
15:04:47: Vi1 VTEMPLATE: Undo default settings
```

```
15:04:47: Vi1 VTEMPLATE: ***** CLONE VACCESS1 *****
```

```
15:04:47: Vi1 VTEMPLATE: Clone from vtemplate1
```

```
interface Virtual-Access1
```

```
no ip address
```

```
encap ppp
```

```
ip unnum eth 0
```

```
peer default ip address pool async
```

```
ppp authen chap
```

```
end
```

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

```
15:04:48: Vi1 VPDN: Bind interface direction=2
```

```
15:04:48: Vi1 VPDN: PPP LCP accepted sent & rcv CONFACK
```

```
15:04:48: Vi1 VPDN: Virtual interface iteration
```

```
15:04:48: AAA/AUTHEN: create_user (0x161688) user='jsmith@hp.com' ruser=''
port='Virtual-Access1' rem_addr='async' authen_type=CHAP service=PPP priv=1
```

```
15:04:48: AAA/AUTHEN/START (580760432): port='Virtual-Access1' list=''
  action=LOGIN service=PPP
15:04:48: AAA/AUTHEN/START (580760432): using "default" list
15:04:48: AAA/AUTHEN/START (580760432): Method=TACACS+
15:04:48: TAC+: send AUTHEN/START packet ver=193 id=580760432
15:04:48: Vil VPDN: Virtual interface iteration
15:04:49: TAC+: ver=192 id=580760432 received AUTHEN status = GETPASS

!--- Authenticate user jsmith@hp.com with the TACACS+ server.

15:04:49: AAA/AUTHEN: create_user (0x1667C0) user='jsmith@hp.com' ruser=''
  port='Virtual-Access1' rem_addr='async' authen_type=CHAP service=PPP priv=1
15:04:49: TAC+: ver=192 id=2894253624 received AUTHEN status = PASS
15:04:49: AAA/AUTHEN: free_user (0x1667C0) user='jsmith@hp.com' ruser=''
  port='Virtual-Access1' rem_addr='async' authen_type=CHAP service=PPP priv=1
15:04:49: AAA/AUTHEN (580760432): status = PASS
15:04:49: AAA/AUTHOR/LCP Vil: Authorize LCP
15:04:49: AAA/AUTHOR/LCP: Virtual-Access1: (687698354): user='jsmith@hp.com'
15:04:49: AAA/AUTHOR/LCP: Virtual-Access1: (687698354): send AV service=ppp
15:04:49: AAA/AUTHOR/LCP: Virtual-Access1: (687698354): send AV protocol=lcp
15:04:49: AAA/AUTHOR/LCP: Virtual-Access1: (687698354): Method=TACACS+
15:04:49: AAA/AUTHOR/TAC+: (687698354): user=jsmith@hp.com
15:04:49: AAA/AUTHOR/TAC+: (687698354): send AV service=ppp
15:04:49: AAA/AUTHOR/TAC+: (687698354): send AV protocol=lcp
15:04:49: TAC+: (687698354): received author response status = PASS_ADD
15:04:49: AAA/AUTHOR (687698354): Post authorization status = PASS_ADD
15:04:49: AAA/ACCT: NET acct start. User jsmith@hp.com, Port Virtual-Access1:
  Virtual-Access1
15:04:49: AAA/AUTHOR/FSM Vil: (0): Can we start IPCP?
15:04:49: AAA/AUTHOR/FSM: Virtual-Access1: (3562892028): user='jsmith@hp.com'
15:04:49: AAA/AUTHOR/FSM: Virtual-Access1: (3562892028): send AV service=ppp
15:04:49: AAA/AUTHOR/FSM: Virtual-Access1: (3562892028): send AV protocol=ip
15:04:49: AAA/AUTHOR/FSM: Virtual-Access1: (3562892028): Method=TACACS+
15:04:49: AAA/AUTHOR/TAC+: (3562892028): user=jsmith@hp.com
15:04:49: AAA/AUTHOR/TAC+: (3562892028): send AV service=ppp
15:04:49: AAA/AUTHOR/TAC+: (3562892028): send AV protocol=ip
%LINEPROTO-5-UPDOWN: Line protocol on Interface Virtual-Access1,
  changed state to up
15:04:49: TAC+: (3562892028): received author response status = PASS_ADD
15:04:49: AAA/AUTHOR (3562892028): Post authorization status = PASS_ADD

!--- IPCP negotiation begins.

15:04:49: AAA/AUTHOR/FSM Vil: We can start IPCP
15:04:50: AAA/AUTHOR/IPCP Vil: Start. Her address 0.0.0.0, we want 0.0.0.0
15:04:50: AAA/AUTHOR/IPCP Vil: Processing AV service=ppp
15:04:50: AAA/AUTHOR/IPCP Vil: Processing AV protocol=ip
15:04:50: AAA/AUTHOR/IPCP Vil: Authorization succeeded
15:04:50: AAA/AUTHOR/IPCP Vil: Done. Her address 0.0.0.0, we want 0.0.0.0
15:04:51: AAA/AUTHOR/IPCP Vil: Start. Her address 0.0.0.0,
  we want 15.15.15.15
15:04:51: AAA/AUTHOR/IPCP Vil: Processing AV service=ppp
15:04:51: AAA/AUTHOR/IPCP Vil: Processing AV protocol=ip
15:04:51: AAA/AUTHOR/IPCP Vil: Authorization succeeded
15:04:51: AAA/AUTHOR/IPCP Vil: Done. Her address 0.0.0.0,
  we want 15.15.15.15
15:04:51: AAA/AUTHOR/IPCP Vil: Start. Her address 15.15.15.15,
  we want 15.15.15.15
15:04:51: AAA/AUTHOR/IPCP: Virtual-Access1: (3193852847):
  user='jsmith@hp.com'
15:04:51: AAA/AUTHOR/IPCP: Virtual-Access1: (3193852847):
  send AV service=ppp
15:04:51: AAA/AUTHOR/IPCP: Virtual-Access1: (3193852847):
  send AV protocol=ip
15:04:51: AAA/AUTHOR/IPCP: Virtual-Access1: (3193852847):
  send AV addr*15.15.15.15
```

```
15:04:51: AAA/AUTHOR/IPCP: Virtual-Access1: (3193852847):
  Method=TACACS+
15:04:51: AAA/AUTHOR/TAC+: (3193852847): user=jsmith@hp.com
15:04:51: AAA/AUTHOR/TAC+: (3193852847): send AV service=ppp
15:04:51: AAA/AUTHOR/TAC+: (3193852847): send AV protocol=ip
15:04:51: AAA/AUTHOR/TAC+: (3193852847): send AV addr*15.15.15.15
15:04:51: TAC+: (3193852847): received author response status = PASS_ADD
15:04:51: AAA/AUTHOR (3193852847): Post authorization status = PASS_ADD
15:04:51: AAA/AUTHOR/IPCP Vi1: Processing AV service=ppp
15:04:51: AAA/AUTHOR/IPCP Vi1: Processing AV protocol=ip
15:04:51: AAA/AUTHOR/IPCP Vi1: Processing AV addr*15.15.15.15
15:04:51: AAA/AUTHOR/IPCP Vi1: Authorization succeeded
15:04:51: AAA/AUTHOR/IPCP Vi1: Done. Her address 15.15.15.15,
  we want 15.15.15.15
```

*!--- User finishes and disconnects.*

```
15:05:24: Vi1 VPDN: Reset
15:05:24: Vi1 VPDN: Reset
%LINK-3-UPDOWN: Interface Virtual-Access1, changed state to down
15:05:24: Vi1 VPDN: Cleanup
15:05:24: Vi1 VPDN: Reset
15:05:24: Vi1 VPDN: Reset
15:05:24: Vi1 VPDN: Unbind interface
15:05:24: Vi1 VTEMPLATE: Free vaccess
15:05:24: Vi1 VPDN: Reset
15:05:24: Vi1 VPDN: Reset
15:05:24: AAA/ACCT: Network acct stop. User jsmith@hp.com,
  Port Virtual-Access1:
task_id=2 timezone=UTC service=ppp protocol=ip addr=15.15.15.15
  bytes_in=564
bytes_out=142 paks_in=15 paks_out=8 elapsed_time=35
15:05:24: AAA/AUTHEN: free_user (0x161688) 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
15:05:25: VTEMPLATE: Clean up dirty vaccess queue, size 1
15:05:25: Vi1 VTEMPLATE: Found a dirty vaccess clone with vtemplate
15:05:25: Vi1 VTEMPLATE: ***** UNCLONE VACCESS1 *****
15:05:25: Vi1 VTEMPLATE: Unclone to-be-freed command#5
interface Virtual-Access1
default ppp authen chap
default peer default ip address pool async
default ip unnum eth 0
default encaps ppp
default ip address
end

15:05:26: Vi1 VTEMPLATE: Set default settings with no ip address
15:05:26: Vi1 VTEMPLATE: Remove cloneblk vtemplate with vtemplate
15:05:26: Vi1 VTEMPLATE: Add vaccess to recycle queue, queue size=1
thing_one#
```

## Debugs for Failed Connection on ISP Router

```
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
koala#
```

```
!--- Problem 1:
!--- The ISP TACACS+ server is down.
!--- There is no output on the HGW router
!--- because the call has not gone that far.

AAA/AUTHOR (3015476150): Post authorization status = ERROR
AAA/AUTHOR/VPDN: : (3015476150): Method=NOT_SET
AAA/AUTHOR/VPDN: : (3015476150): no methods left to try
AAA/AUTHOR (3015476150): Post authorization status = ERROR
VPDN: (hp.com) Authorization failed, could not talk to AAA server or
local tunnel problem
```

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

```
TAC+: (894828802): received author response status = PASS_ADD
AAA/AUTHOR (894828802): Post authorization status = PASS_ADD
VPDN: (hp.com) Authorization failed, had talked to AAA server;
but both Tunnel ID and IP address are missing
AAA/AUTHEN: free_user (0x16A6E4) user='hp.com' ruser=''
port='Async1' rem_addr='' authen_type=NONE service=LOGIN priv=0
AAA/AUTHEN: create_user (0x16CA8C) user='jsmith@hp.com' ruser=''
port='Async1' rem_addr='async' authen_type=CHAP service=PPP priv=1
AAA/AUTHEN/START (1904487288): port='Async1' list=''
action=LOGIN service=PPP
AAA/AUTHEN/START (1904487288): using "default" list
AAA/AUTHEN (1904487288): status = UNKNOWN
AAA/AUTHEN/START (1904487288): Method=TACACS+
TAC+: send AUTHEN/START packet ver=193 id=1904487288
TAC+: ver=193 id=1904487288 received AUTHEN status = FAIL
AAA/AUTHEN (1904487288): status = FAIL
```

## Debugs for Failed connections on HGW Router

```
thing_one#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
VTEMPLATE:
Virtual Template debugging is on
thing_one#
```

```
!--- Problem 1:
!--- The problem is in the tunnel definition on HGW router.
!--- In the HGW configuration, vpdn incoming hp-gw isp virtual-template 1
!--- is inserted instead of vpdn incoming isp hp-gw virtual-template 1
!--- The debug vpdn l2f-errors command displays.
```

```
L2F: Couldn't find tunnel named isp
L2F: Couldn't find tunnel named isp
```

```
!--- Problem 2:
!--- This message appears when User hp-gw is not in the HGW server.
```

```
TAC+: ver=192 id=1920941753 received AUTHEN status = FAIL
AAA/AUTHEN: free_user (0x138C34) user='hp-gw' ruser=''
port='' rem_addr='' authen_type=CHAP service=PPP priv=1
AAA/AUTHEN (3006335673): status = FAIL
VPDN: authentication failed, couldn't find user information for hp-gw
```

*!--- Problem 3:*

*!--- This appears when user isp is not in the HGW server.*

```
TAC+: ver=192 id=1917558147 received AUTHEN status = FAIL
AAA/AUTHEN: free_user (0x15F20C) user='isp' ruser=''
      port='' rem_addr='' authen_type=CHAP service=PPP priv=1
AAA/AUTHEN (1949507921): status = FAIL
VPDN: authentication failed, couldn't find user information for isp
```

*!--- Problem 4:*

*!--- This message appears when User jsmith@hp.com is*

*!--- not in the HGW server:*

```
TAC+: ver=192 id=755036341 received AUTHEN status = FAIL
AAA/AUTHEN: free_user (0x15F89C) user='jsmith@hp.com' ruser=''
      port='Virtual-Access1' rem_addr='async' authen_type=CHAP service=PPP priv=1
AAA/AUTHEN (2606986667): status = FAIL
```

---

## Related Information

- [Cisco Secure ACS for UNIX Support Page](#)
- [Documentation for Cisco Secure ACS for UNIX](#)
- [TACACS/TACACS+ Support Page](#)
- [TACACS+ in IOS Documentation](#)
- [Technical Support – Cisco Systems](#)

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