

# Configuring a PC as a PPPoA Client Using L3 SSG/SSD

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## [Introduction](#)

The sample configuration described in this document shows a remote client that accesses an Internet Service Provider (ISP) network using Point-to-Point Protocol over Asynchronous Transfer Mode (PPPoA).

The remote client wants to access a Layer 2 Tunneling Protocol (L2TP) service using Layer 3 Service Selection Gateway/Service Selection Dashboard (SSG/SSD). The L2TP service is represented in the configuration with a host IP address of 15.15.15.5. Using Dynamic Host Configuration Protocol (DHCP), the Cisco 677 provides an IP address to the PC from an IP address pool of 10.0.0.2 to 10.0.0.254, with a mask of 255.255.255.0. Also, Port Address Translation (PAT) is enabled on the Cisco 677.

There are three tests for this sample configuration:

- The SSG-related debugs during different steps of the service logon by the remote client.
- The single sign-on SSD 2.5.1 feature.
- Enabling the SSD debugging.

## [Before You Begin](#)

### [Conventions](#)

For more information on document conventions, see the [Cisco Technical Tips Conventions](#).

### [Prerequisites](#)

There are no specific prerequisites for this document.

### [Components Used](#)

The information in this document is based on the software and hardware versions below.

- Cisco C6400R software (C6400R-G4P5-M), version 12.1(5)DC1
- Cisco 7200 software (C7200-IS-M), version 12.2(1)

The information presented in this document was created from devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If you are working in a live network, ensure that you understand the potential impact of any command before using it.

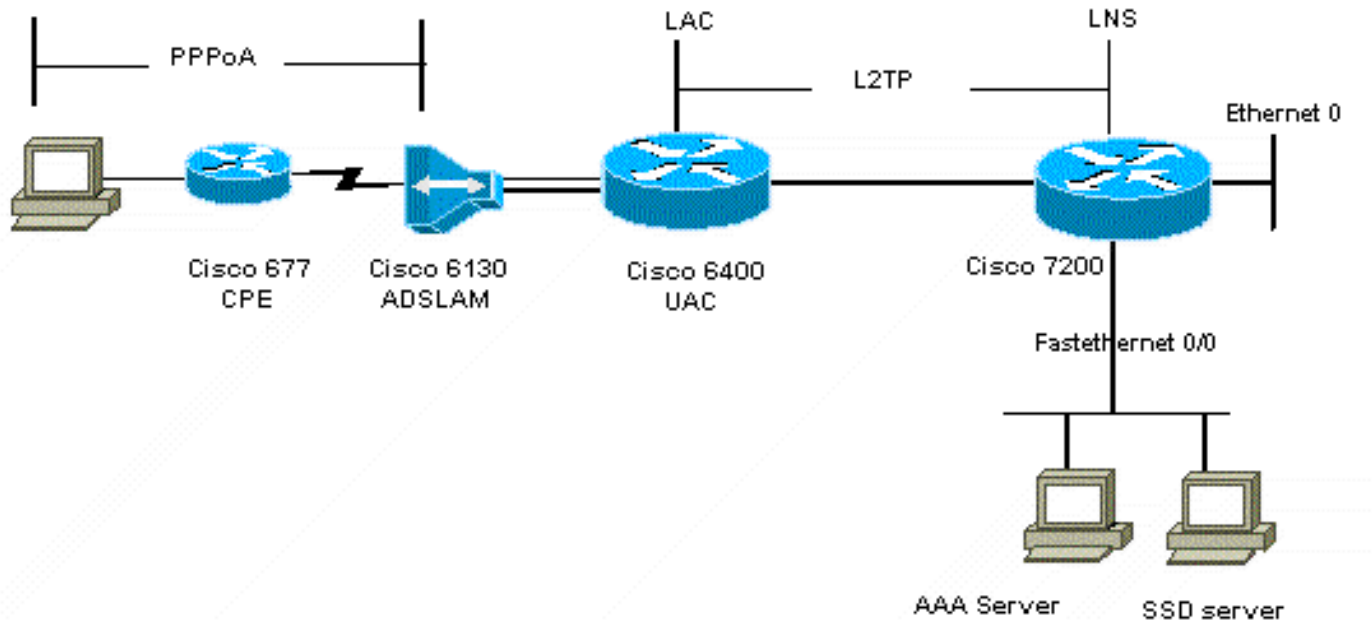
## [Configure](#)

In this section, you are presented with the information to configure the features described in this document.

**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 the diagram below.



## Configurations

This document uses the configurations shown below.

- [Cisco 6400 LAC \(airielle\\_nrp3\)](#)
- [Cisco 7204 LNS \(hostname ior\)](#)
- [Cisco 677](#)

### Cisco 6400 LAC (airielle\_nrp3)

```
Building configuration...

Current configuration : 125008 bytes
!
! Last configuration change at 02:11:30 UTC Mon Jun 18
2001
! NVRAM config last updated at 00:43:51 UTC Mon Jun 18
2001
!
version 12.1
no service single-slot-reload-enable
service timestamps debug datetime msec
service timestamps log uptime
no service password-encryption
!
hostname arielle_nrp3
!
boot system tftp c6400r-g4p5-mz.121-5.DC1 172.17.247.195
logging rate-limit console 10 except errors
aaa new-model
aaa authentication login default none
aaa authentication login tty enable
aaa authentication ppp ayman group radius
aaa nas port extended
enable password ww
!
username ayman@cairo.com password 0 ayman
```

```
redundancy
main-cpu
  auto-sync standard
no secondary console enable
ip subnet-zero
ip cef
no ip finger
no ip domain-lookup
!
!
vpdn enable
no vpdn logging
vpdn search-order domain
!
!
ssg enable
ssg default-network 10.200.56.0 255.255.255.0
ssg service-password cisco
ssg radius-helper auth-port 1645 acct-port 1646
ssg radius-helper key cisco
ssg next-hop download nxthoptbl cisco
ssg bind direction downlink Virtual-Template66
ssg service-search-order remote local
!
!
interface Loopback3
ip address 200.200.200.1 255.255.255.252
!
!
interface ATM0/0/0.61 point-to-point
description LAC L2TP connection to Ior
ip address 14.14.14.6 255.255.255.252
pvc 61/61
  broadcast
  encapsulation aal5snap
!
!
!
interface ATM0/0/0.5555 multipoint
pvc 66/66
  encapsulation aal5mux ppp Virtual-Template66
!
!
!
interface Ethernet0/0/1
no ip address
!
interface Ethernet0/0/0
ip address 3.0.0.2 255.255.255.0
no ip mroute-cache
shutdown
tag-switching ip
!
interface FastEthernet0/0/0
ip address 10.200.56.6 255.255.255.0
no ip mroute-cache
half-duplex
!
!
interface Virtual-Template66
ip unnumbered Loopback3
peer default ip address pool ayman
ppp authentication pap ayman
!
```

```
!  
router eigrp 5  
network 14.14.14.4 0.0.0.3  
no auto-summary  
no eigrp log-neighbor-changes  
!  
ip local pool ayman 212.93.193.114 212.93.193.126  
ip route 10.0.0.0 255.255.255.0 212.93.193.114  
!  
radius-server host 10.200.56.16 auth-port 1645 acct-port  
1646  
radius-server retransmit 3  
radius-server attribute 25 nas-port format d  
radius-server attribute nas-port format d  
radius-server key cisco  
!  
!  
line con 0  
exec-timeout 0 0  
login authentication tty  
transport input none  
line aux 0  
line vty 0 4  
exec-timeout 0 0  
password ww  
login authentication tty  
!  
end
```

### Cisco 7204 LNS (hostname ior)

```
Building configuration...  
  
Current configuration : 6769 bytes  
!  
version 12.2  
no service single-slot-reload-enable  
service timestamps debug datetime msec localtime show-  
timezone  
service timestamps log datetime localtime show-timezone  
no service password-encryption  
!  
hostname ior  
!  
boot system flash c7200-is-mz.122-1.bin  
logging buffered 16384 debugging  
logging rate-limit console 10 except errors  
aaa new-model  
aaa authentication login default none  
aaa authentication login tty enable  
aaa authentication ppp ayman local  
aaa nas port extended  
enable password 7 03134C  
!  
username ayman@cairo.com password 0 ayman  
clock timezone GMT+1 1  
clock summer-time PDT recurring  
ip subnet-zero  
no ip source-route  
ip cef  
!  
!  
no ip finger
```

```
ip tcp window-size 8192
ip ftp username tftp
ip ftp password 7 061118
ip host rund 172.17.247.195
ip host PAGENT-SECURITY-V3 57.63.30.76 95.26.0.0
!
!
!
!
!
vpdn enable
no vpdn logging
vpdn search-order domain
!
vpdn-group 1
accept-dialin
  protocol l2tp
  virtual-template 24
terminate-from hostname nap
local name cairo
l2tp tunnel password 7 052827261363
!
!
interface Loopback1
ip address 212.93.194.5 255.255.255.252
!
interface Loopback2
ip address 15.15.15.5 255.255.255.252
!
!
interface FastEthernet0/0
ip address 10.200.56.2 255.255.255.0
ip ospf network point-to-multipoint
no ip mroute-cache
load-interval 60
duplex half
no cdp enable
!
interface ATM2/0
no ip mroute-cache
atm pvc 1 0 5 qsaal
atm pvc 2 0 16 ilmi
no atm ilmi-keepalive
!
!
!
!
!
interface ATM2/0.61 point-to-point
description L2TP tunnel link
ip address 14.14.14.5 255.255.255.252
pvc 61/61
  broadcast
  encapsulation aal5snap
!
!
interface ATM2/0.5555 multipoint
pvc 55/55
  encapsulation aal5mux ppp Virtual-Template24
!
!
!
interface Virtual-Template24
ip unnumbered Loopback1
```

```

peer default ip address pool SSG-L2TP
ppp authentication pap ayman
!
!
router eigrp 5
network 14.14.14.4 0.0.0.3
network 15.15.15.4 0.0.0.3
no auto-summary
no eigrp log-neighbor-changes
!
!
ip route 212.93.193.112 255.255.255.252 14.14.14.6
ip local pool SSG-L2TP 212.93.197.114 212.93.197.126
radius-server host 10.200.56.16 auth-port 1645 acct-port
1646
radius-server retransmit 3
radius-server attribute 25 nas-port format d
radius-server attribute nas-port format d
radius-server key cisco
radius-server vsa send accounting
radius-server vsa send authentication
!
!
!
!
line con 0
exec-timeout 0 0
password 7 010411
login authentication tty
transport input none
line aux 0
password 7 021113
line vty 0 4
exec-timeout 0 0
password 7 010411
login authentication tty
line vty 5 15
!
end
!

```

You must reset the Cisco 677 to its default configuration before you implement the new configuration. To restore the default configuration use the **set nvram erase** command; for example:

```

cbos#set nvram erase
Erasing running configuration.
You must use "write" for changes to be permanent.

```

```

cbos#write
NVRAM written.

```

```

cbos#reboot

```

Enabling the DHCP server feature on the Cisco 677 Cisco Broadband Operating System (CBOS) automatically creates a pool named "pool0" and assigns a subnet of 10.0.0.0 with a mask of 255.255.255.0. By default, the IP address of the Cisco 677 Ethernet interface is assigned the address of 10.0.0.1, and the "pool0" is then able to lease IP addresses between 10.0.0.2 and 10.0.0.254 for the local LAN clients/PC.

```
cbos#set nvram erase
Erasing running configuration.
You must use "write" for changes to be permanent.

cbos#write
NVRAM written.

cbos#reboot
```

## RADIUS Profiles

The following Remote Dial-In User Service (RADIUS) profiles are for the remote user and for the services.

- [Profile of Remote User hisham](#)
- [Profile of Service Group Travelling](#)
- [Profile of Service Group Cities](#)
- [Profile of cairo.com Service](#)
- [Profile of Next Hop Table](#)

### **Profile of Remote User hisham**

```
cbos#set nvram erase
Erasing running configuration.
You must use "write" for changes to be permanent.

cbos#write
NVRAM written.

cbos#reboot
```

### **Profile of Service Group Travelling**

```
cbos#set nvram erase
Erasing running configuration.
You must use "write" for changes to be permanent.

cbos#write
NVRAM written.

cbos#reboot
```

### **Profile of Service Group Cities**

```
cbos#set nvram erase
Erasing running configuration.
You must use "write" for changes to be permanent.

cbos#write
NVRAM written.

cbos#reboot
```

### **Profile of cairo.com Service**

```
cbos#set nvram erase
Erasing running configuration.
```



```
You must use "write" for changes to be permanent.  
  
cbos#write  
NVRAM written.  
  
cbos#reboot
```

### Profile of Next Hop Table

```
cbos#set nvram erase  
Erasing running configuration.  
You must use "write" for changes to be permanent.  
  
cbos#write  
NVRAM written.  
  
cbos#reboot
```

## Verify

There is currently no verification procedure available for this configuration.

## Troubleshoot

### What is the single sign-on SSD 2.5.1 feature?

This feature applies to an SSD server. When the SSD server cannot find a host object in its cache database for a remote client sending HTTP traffic, it sends an access request to the SSG. If the SSG has a host object, it sends an access accept message to the SSD. The user can then grant access to the services.

If there is no host object on the SSD or SSG, then the user should authenticate on the SSD with normal SSD logon authentication procedures.

### What do I need to know before I configure SSG and SSD?

Before you configure SSD or SSG, you have to verify the following:

- SSD, SSG, and Authentication, Authorization, and Accounting (AAA) are all running, and all network entities can ping one another.
- The remote user can ping any host in the default network (SSG, SSD, AAA) before logging on to the SSD server.
- The Network Access Provider (NAP), in this case the Cisco 6400 NRP1, can ping the service destination network.
- The remote client cannot ping the remote service destination network.

### What do I do after the PPPoA session is initiated but before an SSD logon is set?

After all the SSG commands are configured, you must verify that the next hop table for the user's services has been successfully downloaded. Issue the **show ssg binding** command.

```
arielle_nrp3# show ssg binding
cairo.com_key      -> 14.14.14.5 (NHT)
```

```
arielle_nrp3# show ssg next-hop
Next hop table loaded from profile nxthoptbl:
cairo.com_key      -> 14.14.14.5
End of next hop table.
```

Check that all your direction bindings are active on the SSG.

```
arielle_nrp3# show ssg direction
Virtual-Template66: Downlink
!--- You can verify this by enabling debug ssg ctrl-events after the !--- remote user tries to
initiate its PPPoA session to access the NRP.

Jun 18 02:13:12.791: SSG-CTL-EVN: Handling PPP logon for user hisham.
Jun 18 02:13:12.791: SSG-CTL-EVN: Locate/create SSG sub-block from/for Virtual-Access3.
Jun 18 02:13:12.791: SSG-CTL-EVN: Checking for old HostObject in the sub-block.
Jun 18 02:13:12.791: SSG-CTL-EVN: SSG: pppterm: NO extra data for PPP logon
Jun 18 02:13:12.791: SSG-CTL-EVN: Authenticating user hisham for PPP logon.
Jun 18 02:13:12.799: SSG-CTL-EVN: Creating HostObject for the PPP user hisham.
Jun 18 02:13:12.799: SSG-CTL-EVN: Set Host Mac Address .
Jun 18 02:13:12.799: SSG-CTL-EVN: ** attr->type = 6
Jun 18 02:13:12.799: SSG-CTL-EVN: ATTR_LOOP = 1
Jun 18 02:13:12.799: SSG-CTL-EVN: ** attr->type = 7
Jun 18 02:13:12.799: SSG-CTL-EVN: ATTR_LOOP = 2
Jun 18 02:13:12.799: SSG-CTL-EVN: ATTR_LOOP = 3
Jun 18 02:13:12.799: SSG-CTL-EVN: ATTR_LOOP = 4
Jun 18 02:13:12.799: SSG-CTL-EVN: PPP logon for user hisham is accepted.
The link is Virtual-Access3
Jun 18 02:13:12.799: SSG-CTL-EVN: Bind the HostObject to Virtual-Access3.
!--- Downlink binding success. Jun 18 02:13:12.867: SSG-CTL-EVN: IPCP is up. Locate SSG sub-
block from Virtual-Access3. Jun 18 02:13:12.871: SSG-CTL-EVN: Locate HostObject from the sub-
block. Jun 18 02:13:12.871: SSG-CTL-EVN: Set Host IP 212.93.193.114. !--- Host object is
created. Jun 18 02:13:12.879: SSG-CTL-EVN: Host Mac Address lookup failed Jun 18 02:13:12.879:
SSG-CTL-EVN: Activate the HostObject. Link=Virtual-Access3 !--- Host object is active. Jun 18
02:13:12.879: SSG-CTL-EVN: ##### ssg_l2tp_ip_up: 03:49:01: %LINEPROTO-5-UPDOWN: Line protocol on
Interface Virtual-Access3, changed state to up
```

When a client is initiating an HTTP session to the SSD server, the user sees the SSD server logon home page.

**Note:** Remember to start the SSD server operation by issuing the UNIX shell command `root@crazyball[/export/home/ssd251/ssd]startSSD.sh`.

## [How do I test the SSD single sign-on feature?](#)

1. Configure the parameter (REAUTHENTICATE=off) in the dashboard.conf file. The default value is REAUTHENTICATE=on.
2. Log on to any Web page on the SSD. For example, while you are logged on to the cairo.com service home page, close your browser, and then open it again with `http://10.200.56.40:8080`.

The host object on the SSD is still in the cache, so you should be able to log on again to the SSD service page that you were logged onto previously. The default behavior is to re-authenticate on the SSD; that is, you have to get to the SSD logon home page.

## How do I run SSD debugging?

1. Type **https://10.200.56.40:8443/log** in the address bar of the browser.
2. Click **Set Option**. All the debugs you selected run, and the output is logged in a log file. The format for the log file name is `yy_mm_dd.request.log`.
3. Navigate to the directory on the SSD server where the log files reside.
4. Using a UNIX editor, open the file `/export/home/ssd251/ssd/logs]vi yy_mm_dd.request.log` to view the debug output.

## Sample debug Output

### NRP1 Output

```
arielle_nrp3# show debugging
```

```
SSG:
```

```
SSG data path packets debugging is on  
SSG control path events debugging is on  
SSG control path packets debugging is on  
SSG packets debugging is on  
Radius protocol debugging is on
```

```
Just before the SSD logon, the output of these debugs are :
```

```
Jun 18 23:30:08.414:  
SSG-DATA:CEF-SSGSubBlock=0(AT0/0/0.61:0.0.0.0->0.0.0.0)  
Jun 18 23:30:09.530:  
SSG-DATA:CEF-FIB_FLAG_RECEIVE=1(Vi3:212.93.193.114->10.200.56.6)  
Jun 18 23:30:11.142:  
SSG-DATA:CEF-SSGSubBlock=0(AT0/0/0.61:0.0.0.0->0.0.0.0)  
Jun 18 23:30:11.494:  
SSG-DATA:CEF-FIB_FLAG_RECEIVE=1(Vi3:212.93.193.114->10.200.56.6)  
Jun 18 23:30:12.482:  
SSG-DATA:CEF-FIB_FLAG_RECEIVE=1(Vi3:212.93.193.114->10.200.56.6)  
Jun 18 23:30:13.310:  
SSG-DATA:CEF-SSGSubBlock=0(AT0/0/0.61:0.0.0.0->0.0.0.0)  
Jun 18 23:30:14.462:  
  
Jun 18 23:39:39.610: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)  
Jun 18 23:39:39.638:  
SSG-DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40)  
Jun 18 23:39:39.638:  
SSG-DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40)  
Jun 18 23:39:39.642: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)  
Jun 18 23:39:39.642:  
SSG-DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40)  
Jun 18 23:39:39.646: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)  
Jun 18 23:39:39.674:  
SSG-DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40)  
Jun 18 23:39:39.678:  
SSG-DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40)  
Jun 18 23:39:39.678: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)  
Jun 18 23:39:39.682:  
SSG-DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40)  
Jun 18 23:39:39.686:  
SSG-DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40)  
Jun 18 23:39:39.686: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)  
Jun 18 23:39:39.698: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)  
Jun 18 23:39:39.742: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)  
Jun 18 23:39:39.926: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)
```

Jun 18 23:39:39.926: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)  
Jun 18 23:39:39.926: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)  
Jun 18 23:39:39.926: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)

Jun 19 00:39:17.477: RADIUS: Initial Transmit id 18 10.200.56.16:1645,  
Access-Request, len 58  
Jun 19 00:39:17.477: Attribute 4 6 D45DC301  
Jun 19 00:39:17.477: Attribute 61 6 00000000  
Jun 19 00:39:17.477: Attribute 1 8 68697368  
Jun 19 00:39:17.477: Attribute 2 18 31B0CDC2  
Jun 19 00:39:17.481: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)  
Jun 19 00:39:17.481: RADIUS: Received from id 18 10.200.56.16:1645,  
Access-Accept, len 70  
Jun 19 00:39:17.481: Attribute 6 6 00000002  
Jun 19 00:39:17.481: Attribute 7 6 00000001  
Jun 19 00:39:17.481: Attribute 26 20 00000009FA0E4754  
Jun 19 00:39:17.481: Attribute 26 18 00000009FA0C4742  
Jun 19 00:39:17.481: RADIUS: saved authorization data for user 61E73934 at  
61E72A58  
Jun 19 00:39:17.481: SSG-CTL-EVN: Creating HostObject for host  
212.93.193.114.  
Jun 19 00:39:17.489: SSG-CTL-EVN: Set Host Mac Address .  
Jun 19 00:39:17.489: SSG-CTL-EVN: \*\* attr->type = 6  
Jun 19 00:39:17.489: SSG-CTL-EVN: ATTR\_LOOP = 1  
Jun 19 00:39:17.489: SSG-CTL-EVN: \*\* attr->type = 7  
Jun 19 00:39:17.493: SSG-CTL-EVN: ATTR\_LOOP = 2  
Jun 19 00:39:17.493: SSG-CTL-EVN: ATTR\_LOOP = 3  
Jun 19 00:39:17.493: SSG-CTL-EVN: ATTR\_LOOP = 4  
Jun 19 00:39:17.493: SSG-CTL-EVN: Account logon is accepted  
(212.93.193.114,hisham).

arielle\_nrp3# **show ssg host 212.93.193.114**

----- HostObject Content -----

Activated: TRUE  
Interface: Virtual-Access3  
User Name: hisham  
Host IP: 212.93.193.114  
Msg IP: 10.200.56.40 (9902)  
Host DNS IP: 0.0.0.0  
Maximum Session Timeout: 0 seconds  
Host Idle Timeout: 0 seconds  
Class Attr: NONE  
User logged on since: 01:54:33.000 UTC Tue Jun 19 2001  
User last activity at: 01:54:33.000 UTC Tue Jun 19 2001  
Default Service: NONE  
DNS Default Service: NONE  
Active Services: NONE  
*!--- No Services are active yet.* AutoService: NONE Subscribed Services: The following output  
also results from the debug commands that are turned on before the SSD logon. Jun 19  
02:06:39.529: SSG-DATA:CEF-FIB\_FLAG\_RECEIVE=1(Vi3:212.93.193.114->10.200.56.6) Jun 19  
02:06:40.789: SSG-DATA:CEF-MulticastDest=1(AT0/0/0.61:14.14.14.5->224.0.0.10) Jun 19  
02:06:41.581: SSG-DATA:CEF-FIB\_FLAG\_RECEIVE=1(Vi3:212.93.193.114->10.200.56.6) Jun 19  
02:06:42.509: SSG-DATA:CEF-FIB\_FLAG\_RECEIVE=1(Vi3:212.93.193.114->10.200.56.6) Jun 19  
02:06:43.313: SSG-DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40) Jun 19  
02:06:43.313: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0) Jun 19 02:06:43.349: SSG-  
DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40) Jun 19 02:06:43.353:

arielle\_nrp3# **show ssg host 212.93.193.114**

----- HostObject Content -----

Activated: TRUE  
Interface: Virtual-Access3  
User Name: hisham  
Host IP: 212.93.193.114  
Msg IP: 10.200.56.40 (9902)

*!--- Message server IP & port address, and TCP port used. !---* This is configured in the *dashboard.conf* file. Host DNS IP: 0.0.0.0 Maximum Session Timeout: 0 seconds Host Idle Timeout: 0 seconds Class Attr: NONE User logged on since: 01:54:33.000 UTC Tue Jun 19 2001 User last activity at: 01:54:33.000 UTC Tue Jun 19 2001 Default Service: NONE DNS Default Service: NONE Active Services: NONE AutoService: NONE Subscribed Services: arielle\_nrp3#

At this point the user hasn't logged on to any service. The client first sees MiddleEast, Cairo, then Egyptian Capital in the service list on the SSD Web page. After the client clicks Egyptian Capital, the username and password fields appear on the page. No active service has been associated to the client yet. The username and password that the client provides to gain access to cairo.com service must match those that are configured by the L2TP Network Server (LNS). In this setup, LNS is authenticating the users locally. The username is ayman@cairo.com, and the password is ayman.

## L2TP Access Concentrator (LAC) Output

```
arielle_nrp3# show debugging
```

### SSG:

```
SSG data path packets debugging is on
SSG control path events debugging is on
SSG control path packets debugging is on
SSG packets debugging is on
```

### VPN:

```
L2X protocol events debugging is on
L2X data packets debugging is on
L2X control packets debugging is on
L2TP data sequencing debugging is on
Radius protocol debugging is on
```

```
Jun 19 02:34:48.121:
SSG-DATA:CEF-FIB_FLAG_RECEIVE=1(Vi3:212.93.193.114->10.200.56.6)
Jun 19 02:34:48.157:
SSG-DATA:CEF-FIB_FLAG_RECEIVE=1(Vi3:212.93.193.114->10.200.56.6)
Jun 19 02:34:49.681:
SSG-DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40)
Jun 19 02:34:49.685: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)
Jun 19 02:34:49.717:
SSG-DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40)
Jun 19 02:34:49.725:
SSG-DATA:CEF-UP-DefaultNetwork=1(Vi3:212.93.193.114->10.200.56.40)
Jun 19 02:34:49.725: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)
Jun 19 02:34:49.777: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)
Jun 19 02:34:49.777: SSG-CTL-PAK: Received Packet:
sIP=10.200.56.40 sPort=37638 dIP=10.200.56.6 dPort=1645
Jun 19 02:34:49.777:   header: code=1, id=19, len=102,
auth=3F53BB3F2939DAA1E5D9435792491CD3
Jun 19 02:34:49.777:   attr: type=1, len=17, val=ayman@cairo.com
Jun 19 02:34:49.777:   attr: type=2, len=18, val=(89)(C4)/}(BB)(8F)
Jun 19 02:34:49.777:   attr: type=6, len=6, val=(00)(00)(00)(02)
Jun 19 02:34:49.777:   attr: type=26, len=23,

Jun 19 02:34:49.777: SSG-CTL-EVN: Downloading service profile for service
cairo.com.
Jun 19 02:34:49.777: RADIUS: ustruct sharecount=1
Jun 19 02:34:49.777: RADIUS: Initial Transmit id 73 10.200.56.16:1645,
Access-Request, len 67
Jun 19 02:34:49.777:   Attribute 4 6 D45DC301
Jun 19 02:34:49.777:   Attribute 61 6 00000000
Jun 19 02:34:49.777:   Attribute 1 11 63616972
Jun 19 02:34:49.777:   Attribute 2 18 51CF64B7
Jun 19 02:34:49.777:   Attribute 6 6 00000005
```

```
Jun 19 02:34:49.785: SSG-DATA:CEF-SSGSubBlock=0(Fa0/0/0:0.0.0.0->0.0.0.0)
Jun 19 02:34:49.785: RADIUS: Received from id 73 10.200.56.16:1645,
Access-Accept, len 275
Jun 19 02:34:49.785: Attribute 6 6 00000005
Jun 19 02:34:49.785: Attribute 26 27 0000000901157670
Jun 19 02:34:49.785: Attribute 26 40 0000000901227670
Jun 19 02:34:49.785: Attribute 26 30 0000000901187670
Jun 19 02:34:49.785: Attribute 26 37 00000009011F7670

Jun 19 02:34:49.789: SSG-CTL-EVN: ##### ssg_l2tp_disc_cause: termCause=1026
Jun 19 02:34:49.789: SSG-CTL-EVN: ssg_l2tp_disc_routine:
Jun 19 02:34:49.801: SSG-CTL-EVN: Checking service mode.
Jun 19 02:34:49.801: SSG-CTL-EVN: ServiceLogon: Enqueue request of service
cairo.com
```

```
arielle_nrp3# show ssg host 212.93.193.114
```

```
----- HostObject Content -----
```

```
Activated: TRUE
Interface: Virtual-Access3
User Name: hisham
Host IP: 212.93.193.114
Msg IP: 10.200.56.40 (9902)
Host DNS IP: 0.0.0.0
Maximum Session Timeout: 0 seconds
Host Idle Timeout: 0 seconds
Class Attr: NONE
User logged on since: 01:54:33.000 UTC Tue Jun 19 2001
User last activity at: 02:34:49.000 UTC Tue Jun 19 2001
Default Service: NONE
DNS Default Service: NONE
Active Services: cairo.com
```

```
!--- A service is active. AutoService: NONE Subscribed Services: arielle_nrp3# show ssg service cairo.com
```

```
----- ServiceInfo Content -----
```

```
Uplink IDB:
Name: cairo.com
Type: TUNNEL
Mode: CONCURRENT
Service Session Timeout: 0 seconds
Service Idle Timeout: 0 seconds
Authentication Type: CHAP
Next Hop Gateway Key: cairo.com_key
DNS Server(s):
TunnelId: nap
TunnelPassword: CAIRO
HomeGateway Addresses: 15.15.15.5
Included Network Segments:
15.15.15.4/255.255.255.252
Excluded Network Segments:
ConnectionCount 1
Full User Name not used
Domain List: cairo.com;
Active Connections:
1 : RealIP=212.93.197.114, Subscriber=212.93.193.114
```

```
----- End of ServiceInfo Content -----
```

In the output above, RealIP is the IP address given by the service network to user hisham. The subscriber field shows the IP address user hisham was given by the SSG NRP access network.

arielle\_nrp3# **show ssg connection 212.93.193.114 cairo.com**

```
----- ConnectionObject Content -----  
User Name: ayman@cairo.com Owner  
Host: 212.93.193.114 Associated Service: cairo.com Connection State: 0 (UP) Connection  
Started since: 02:34:51.000 UTC Tue Jun 19 2001 User last activity at: 02:34:51.000  
UTC Tue Jun 19 2001 Connection Real IP: 212.93.197.114 L2TP VIDB: Virtual-Access4  
L2TP Session Key: 0 Connection Traffic Statistics: Input Bytes = 0 (HI = 0), Input  
packets = 0 Output Bytes = 0 (HI = 0), Output packets = 0
```

## [LNS Output](#)

ior# **show debugging VPN**

```
L2X protocol events debugging is on  
L2X data packets debugging is on  
L2X control packets debugging is on  
L2TP data sequencing debugging is on
```

```
*Jun 18 19:27:09.851 PDT: L2X: Parse AVP 0, len 8, flag 0x8000 (M)  
*Jun 18 19:27:09.851 PDT: L2X: Parse SCCRQ  
*Jun 18 19:27:09.851 PDT: L2X: Parse AVP 2, len 8, flag 0x8000 (M)  
*Jun 18 19:27:09.851 PDT: L2X: Protocol Ver 256  
*Jun 18 19:27:09.851 PDT: L2X: Parse AVP 3, len 10, flag 0x8000 (M)  
*Jun 18 19:27:09.851 PDT: L2X: Framing Cap 0x0  
*Jun 18 19:27:09.851 PDT: L2X: Parse AVP 4, len 10, flag 0x8000 (M)  
*Jun 18 19:27:09.851 PDT: L2X: Bearer Cap 0x0  
*Jun 18 19:27:09.855 PDT: L2X: Parse AVP 6, len 8, flag 0x0  
  
*Jun 18 19:27:09.855 PDT: L2X: I SCCRQ, flg TLS, ver 2, len 128, tnl 0, cl 0, ns 0, nr 0  
C8 02 00 80 00 00 00 00 00 00 00 00 80 08 00 00  
00 00 00 01 80 08 00 00 00 02 01 00 80 0A 00 00  
00 03 00 00 00 00 80 0A 00 00 00 04 00 00 00 ...  
*Jun 18 19:27:09.855 PDT: L2TP: I SCCRQ from nap tnl 13552  
*Jun 18 19:27:09.855 PDT: Tnl 4818 L2TP: Got a challenge in SCCRQ, nap  
*Jun 18 19:27:09.855 PDT: Tnl 4818 L2TP: New tunnel created for remote nap,
```

## [Related Information](#)

- [Cisco DSL Technology Support](#)
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