

ASA 7.2(2): SSL VPN Client (SVC) for Public Internet VPN on a Stick Configuration Example

Document ID: 100894

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Introduction

This document describes how to set up an Adaptive Security Appliance (ASA) 7.2.2 to perform SSL VPN on a stick. This setup applies to a specific case in which the ASA does not allow split tunneling and users connect directly to the ASA before they are permitted to go to the Internet.

Note: In ASA version 7.2.2, the *intra-interface* keyword of the **same-security-traffic permit** configuration mode command allows all traffic to enter and exit the same interface (not just IPsec traffic).

Prerequisites

Requirements

Ensure that you meet these requirements before you attempt this configuration:

- The hub ASA Security Appliance needs to run version 7.2.2
- Cisco SSL VPN Client (SVC) 1.x

Note: Download the SSL VPN Client package (sslclient-win*.pkg) from Cisco Software Download (registered customers only). Copy the SVC to the flash memory on the ASA. The SVC is to be downloaded to the remote user computers in order to establish the SSL VPN connection with the ASA. Refer to Installing the SVC Software section of the *Cisco Security Appliance Command Line Configuration Guide, Version 7.2* for more information.

Components Used

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

- Cisco 5500 Series Adaptive Security Appliance (ASA) that runs software version 7.2(2)
- Cisco SSL VPN Client version for Windows 1.1.4.179
- PC that runs Windows 2000 Professional or Windows XP
- Cisco Adaptive Security Device Manager (ASDM) version 5.2(2)

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

Refer to the Cisco Technical Tips Conventions for more information on document conventions.

Background Information

The SSL VPN Client (SVC) is a VPN tunneling technology that gives remote users the benefits of an IPSec VPN client without the need for network administrators to install and configure IPSec VPN clients on remote computers. The SVC uses the SSL encryption that is already present on the remote computer as well as the WebVPN login and authentication of the security appliance.

To establish an SVC session, the remote user enters the IP address of a WebVPN interface of the security appliance in the browser, and the browser connects to that interface and displays the WebVPN login screen. If the user satisfies the login and authentication, and the security appliance identifies the user as requiring the SVC, the security appliance downloads the SVC to the remote computer. If the security appliance identifies the user as having the option to use the SVC, the security appliance downloads the SVC to the remote computer while presenting a link on the user screen to skip the SVC installation.

After downloading, the SVC installs and configures itself, and then the SVC either remains or uninstalls itself (depending on the configuration) from the remote computer when the connection terminates.

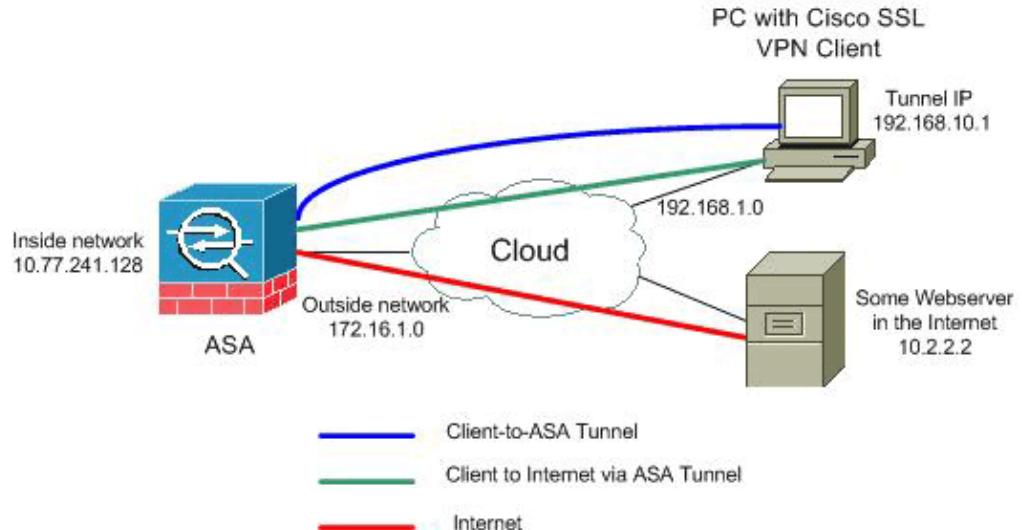
Configure

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

Note: Use the Command Lookup Tool (registered customers only) to obtain more information on the commands used in this section.

Network Diagram

This document uses this network setup:



Note: The IP addressing schemes used in this configuration are not legally routable on the Internet. They are RFC 1918 addresses which have been used in a lab environment.

ASA 7.2(2) Configurations Using ASDM 5.2(2)

This document assumes the basic configurations, such as interface configuration, are already made and working properly.

Note: Refer to Allowing HTTPS Access for ASDM in order to allow the ASA to be configured by the ASDM.

Note: WebVPN and ASDM cannot be enabled on the same ASA interface unless you change the port numbers. Refer to ASDM and WebVPN Enabled on the Same Interface of ASA for more information.

Complete these steps in order to configure the SSL VPN on a stick in ASA:

1. Choose **Configuration > Interfaces**, and check the **Enable traffic between two or more hosts connected to the same interface** check box in order to allow SSL VPN traffic to enter and exit the same interface.
2. Click **Apply**.

Configuration > Interfaces

Interface	Name	Enabled	Security Level	IP Address	Subnet Mask
Ethernet0/0	inside	Yes	100	10.77.241.142	255.255.255.192
Ethernet0/1	outside	Yes	0	172.16.1.1	255.255.255.0
Ethernet0/2		No			
Ethernet0/3		No			
Management0/0		No			

Please wait...

Please wait while ASDM is delivering the command(s) to the device...

Parsing running configuration...

Enable traffic between two or more interfaces which are configured with same security levels

Enable traffic between two or more hosts connected to the same interface

Apply **Reset**

Note: Here is the equivalent CLI configuration command:

Cisco ASA 7.2(2)

```
ciscoasa(config)#same-security-traffic permit intra-interface
```

- Choose **Configuration > VPN > IP Address Management > IP Pools > Add** in order to create an IP address pool named *vpngpool*.

Add IP Pool

Name:

Starting IP Address:

Ending IP Address:

Subnet Mask:

OK **Cancel** **Help**

- Click **Apply**.

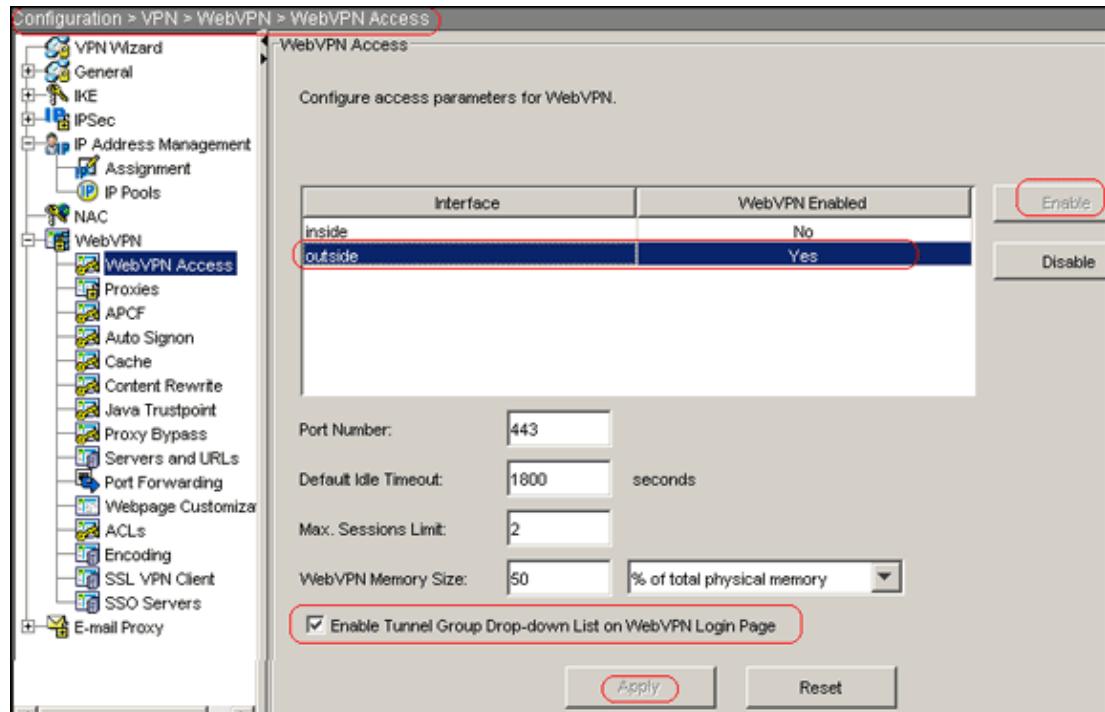
Note: Here is the equivalent CLI configuration command:

Cisco ASA 7.2(2)

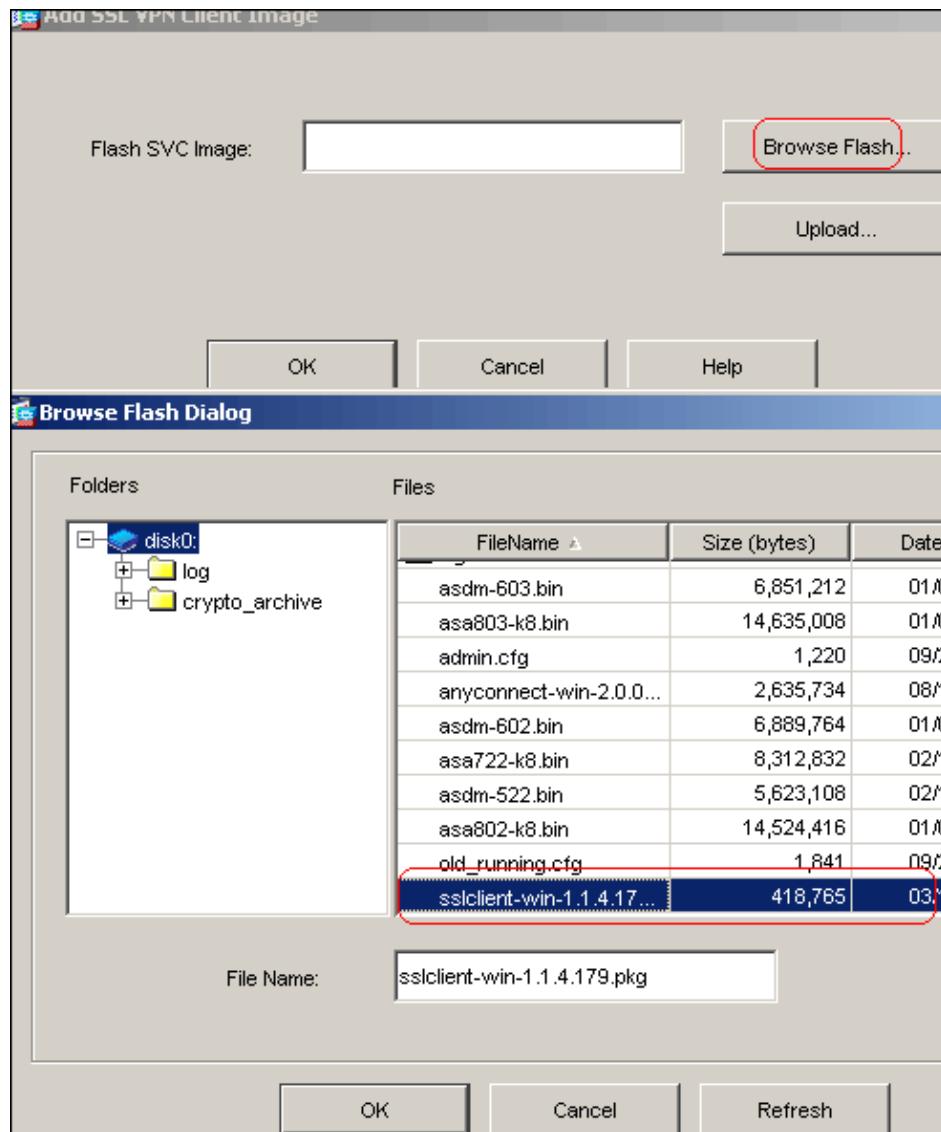
```
ciscoasa(config)#ip local pool vpnpool 192.168.10.1-192.168.10.254
```

5. Enable WebVPN:

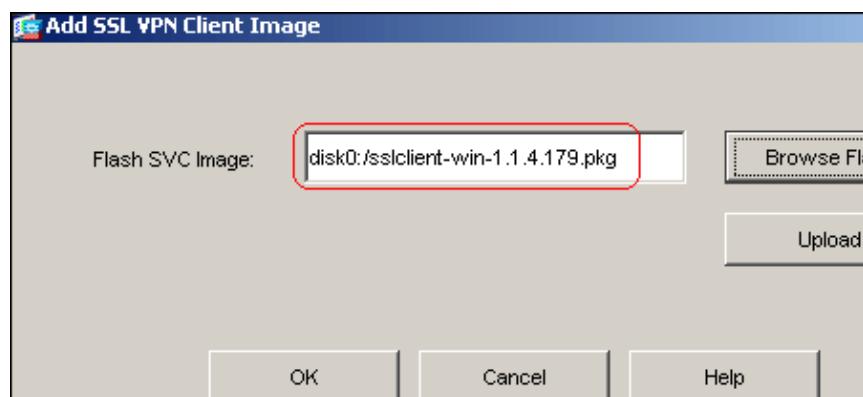
- a. Choose **Configuration > VPN > WebVPN > WebVPN Access**, and select the outside interface.
- b. Click **Enable**.
- c. Check the **Enable Tunnel Group Drop-down List on WebVPN Login Page** check box in order to allow users to choose their respective groups from the Login page.



- d. Click **Apply**.
- e. Choose **Configuration > VPN > WebVPN > SSL VPN Client > Add** in order to add the SSL VPN Client image from the flash memory of ASA.



f. Click **OK**.



g. Click **OK**.

h. Click **SSL VPN Client** check box.



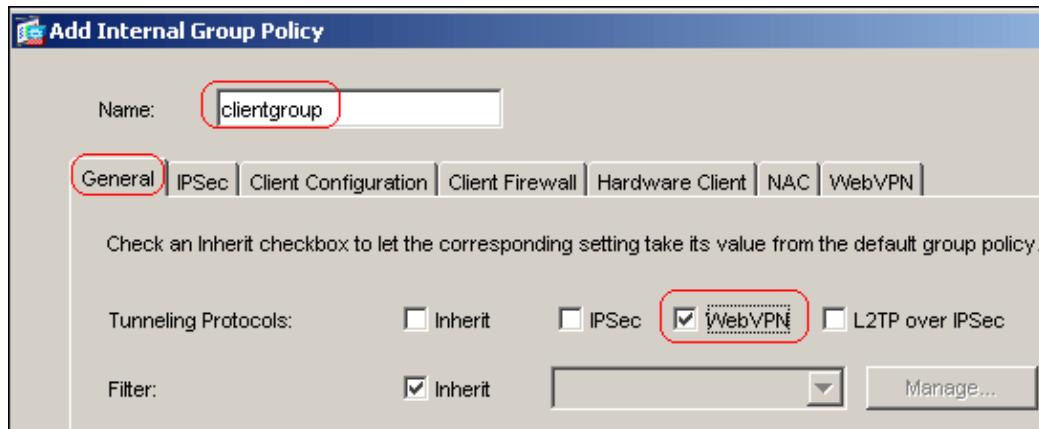
Note: Here are the equivalent CLI configuration commands:

Cisco ASA 7.2(2)

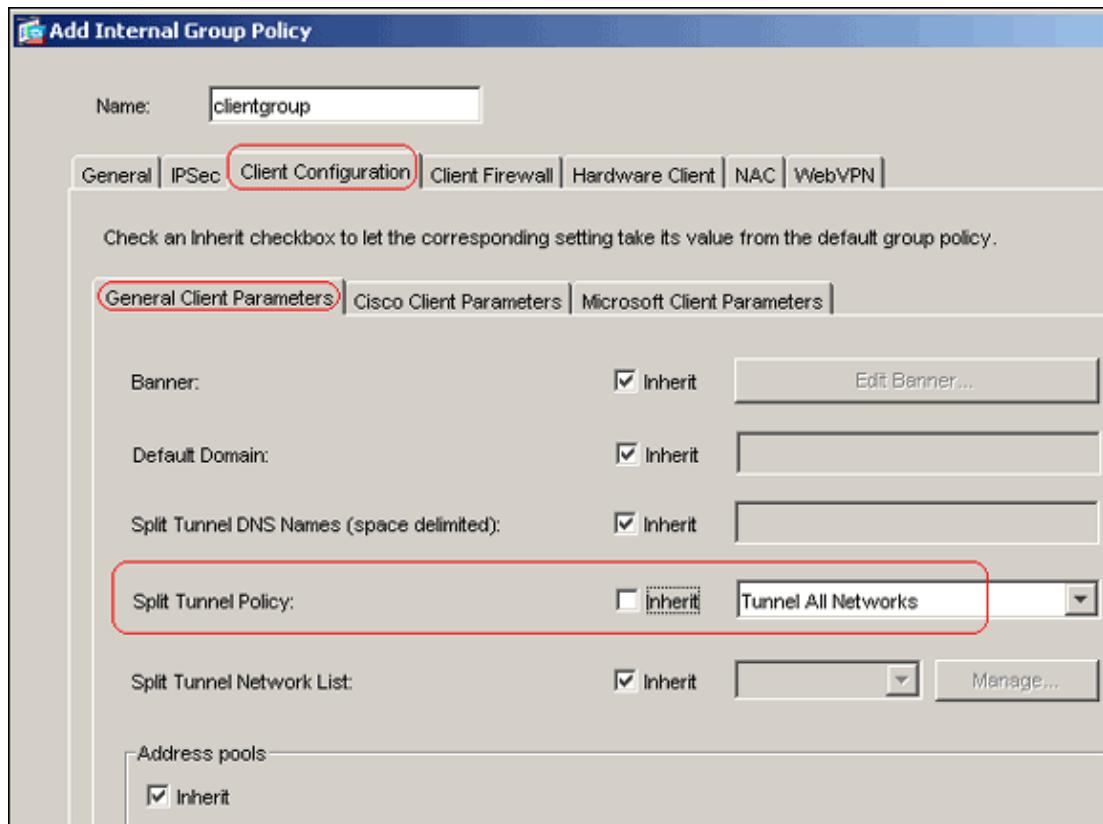
```
ciscoasa(config)#webvpn
ciscoasa(config-webvpn)#enable outside
ciscoasa(config-webvpn)#svc image disk0:/sslclient-win-1.1.4.179.pkg 1
ciscoasa(config-webvpn)#tunnel-group-list enable
ciscoasa(config-webvpn)#svc enable
```

6. Configure the group policy:

- Choose **Configuration > VPN > General > Group Policy > Add (Internal Group Policy)** in order to create an internal group policy named *clientgroup*.
- Click the **General** tab, and select the **WebVPN** check box in order to enable the WebVPN as tunneling protocol.



- Click the **Client Configuration** tab, and then click the **General Client Parameters** tab.
- Choose **Tunnel All Networks** from the Split Tunnel Policy drop-down list in order to make all the packets travel from the remote PC through a secure tunnel.



e. Click the **WebVPN > SSLVPN Client** tab, and choose these options:

- For the Use SSL VPN Client option, uncheck the **Inherit** check box, and click the **Optional** radio button.

This option allows the remote client to choose whether or not to download the SVC. The Always choice ensures that the SVC is downloaded to the remote workstation during each SSL VPN connection.

- For the Keep Installer on Client System option, uncheck the **Inherit** check box, and click the **Yes** radio button

This option allows the SVC software to remain on the client machine. Therefore, the ASA is not required to download the SVC software to the client each time a connection is made. This option is a good choice for remote users who often access the corporate network.

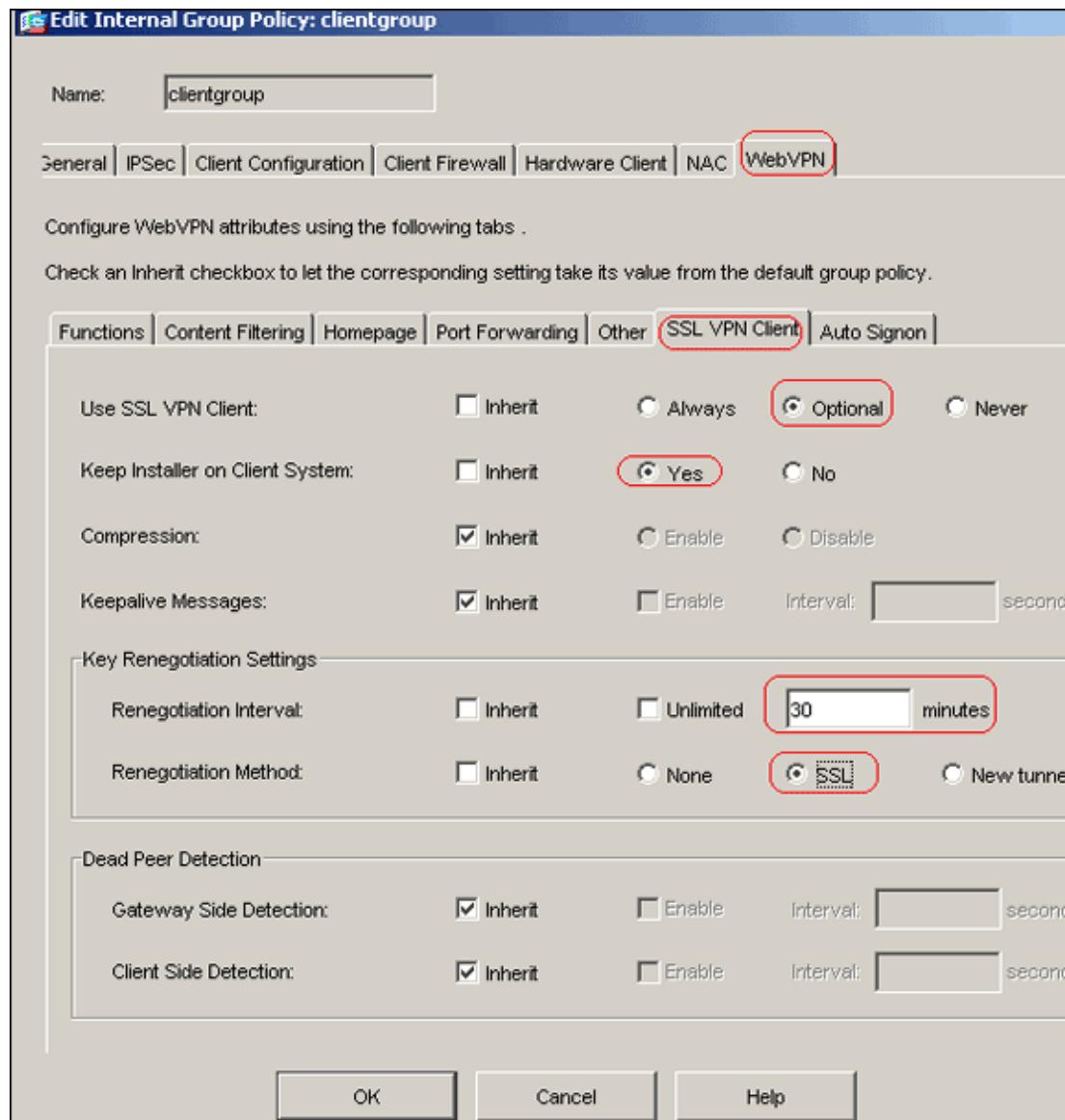
- For the Renegotiation Interval option, uncheck the **Inherit** box, uncheck the **Unlimited** check box, and enter the number of minutes until rekey.

Note: Security is enhanced by setting limits on the length of time a key is valid.

- For the Renegotiation Method option, uncheck the **Inherit** check box, and click the **SSL** radio button.

Note: Renegotiation can use the present SSL tunnel or a new tunnel created specifically for renegotiation.

Your SSL VPN Client attributes should be configured as shown in this image:



f. Click **OK**, and then click **Apply**.

Name	Type	Tunneling Protocol	AAA Server Group
clientgroup	Internal	webvpn	-- N/A --
DfltGrpPolicy (System Defa...	Internal	L2TP-IPSec/IPSec	-- N/A --

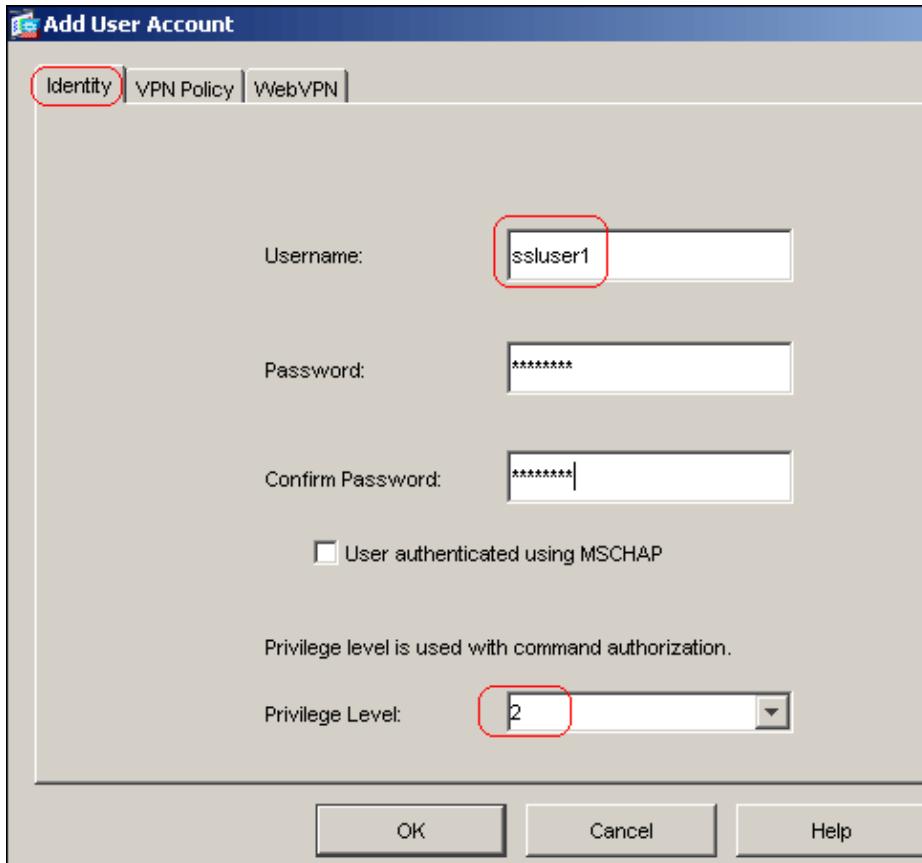
Note: Here are the equivalent CLI configuration commands:

Cisco ASA 7.2(2)

```
ciscoasa(config)#group-policy clientgroup internal
ciscoasa(config)#group-policy clientgroup attributes
ciscoasa(config-group-policy)#vpn-tunnel-protocol webvpn
ciscoasa(config-group-policy)#split-tunnel-policy tunnelall
ciscoasa(config-group-policy)#webvpn
ciscoasa(config-group-webvpn)#svc required
ciscoasa(config-group-webvpn)#svc keep-installer installed
```

```
ciscoasa(config-group-webvpn)#svc rekey time 30  
ciscoasa(config-group-webvpn)#svc rekey method ssl
```

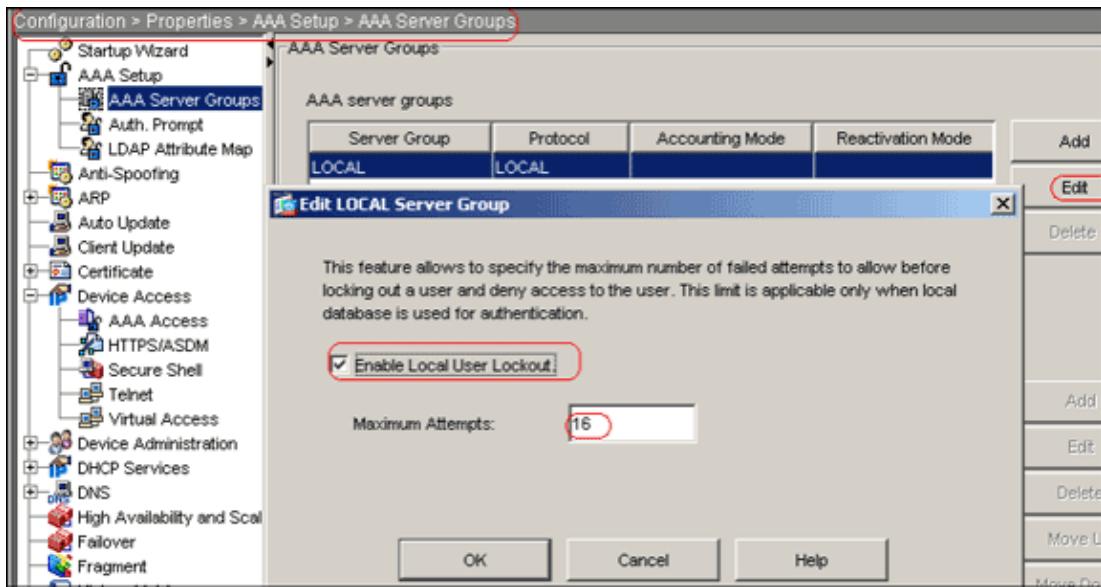
7. Choose **Configuration > VPN > General > Users > Add** in order to create a new user account **ssluser1**.
8. Click **OK**, and then click **Apply**.



Note: Here is the equivalent CLI command:

```
Cisco ASA 7.2(2)  
ciscoasa(config)#username ssluser1 password asdmASA@
```

9. Choose **Configuration > Properties > AAA Setup > AAA Servers Groups > Edit**.
10. Select the default server group **LOCAL**, and click **Edit**.
11. In the Edit LOCAL Server Group dialog box, click the **Enable Local User Lockout** check box, and enter 16 in the Maximum Attempts text box.
12. Click **OK**.

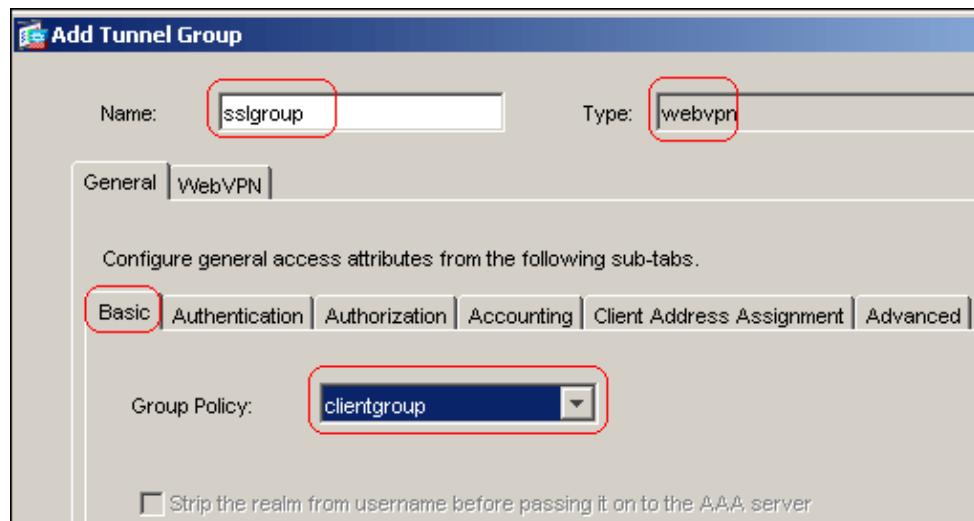


Note: Here is the equivalent CLI command:

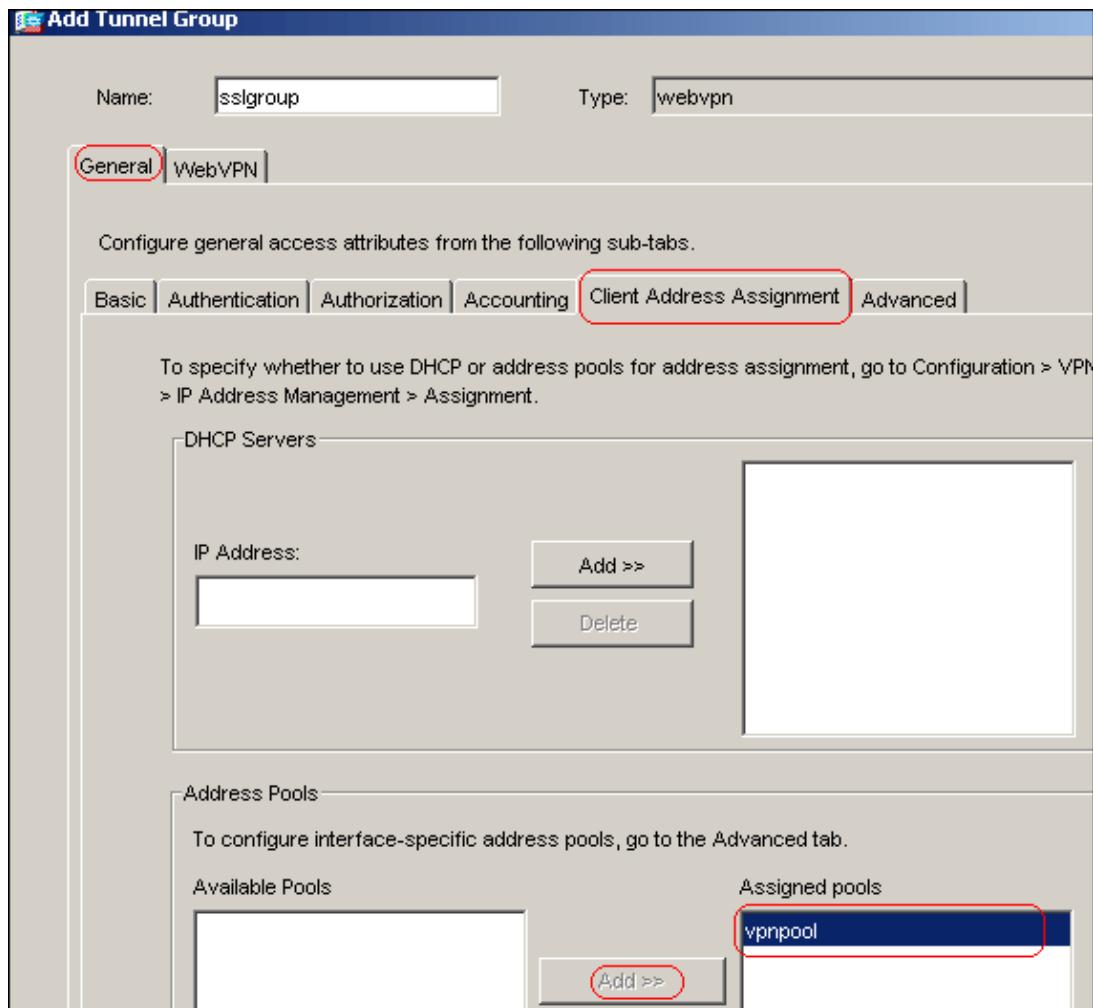
Cisco ASA 7.2(2)
ciscoasa(config)#aaa local authentication attempts max-fail 16

13. Configure the tunnel group:

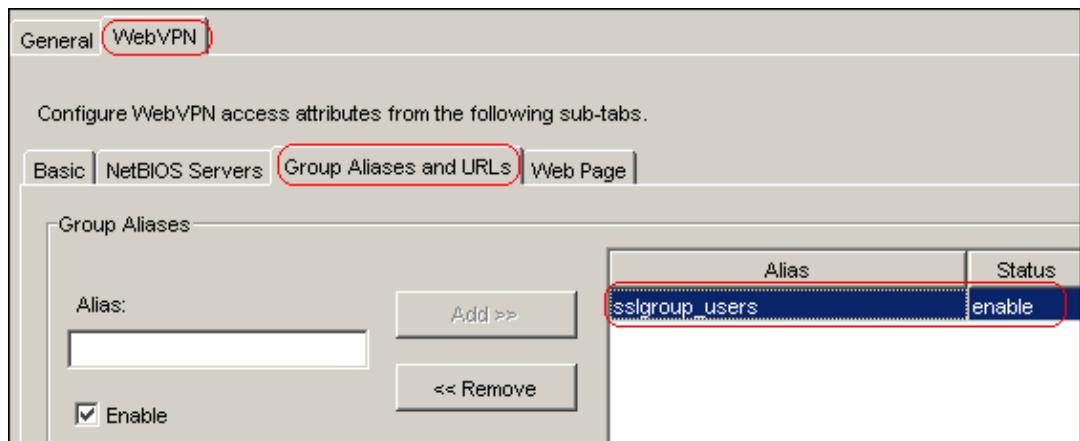
- Choose **Configuration > VPN > General > Tunnel Group > Add(WebVPN access)** in order to create a new tunnel group named *sslgroup*.
- Click the **General** tab, and then click the **Basic** tab.
- Choose **clientgroup** from the Group Policy drop-down list.



- Click the **Client Address Assignment** tab, and then click **Add** in order to assign the available address pool *vpngpool*.



- e. Click the **WebVPN** tab, and then click the **Group Aliases and URLs** tab.
f. Type the alias name in the parameter box, and click **Add** in order to add it to the list of group names on the Login page.



- g. Click **OK**, and then click **Apply**.
Note: Here are the equivalent CLI configuration commands:

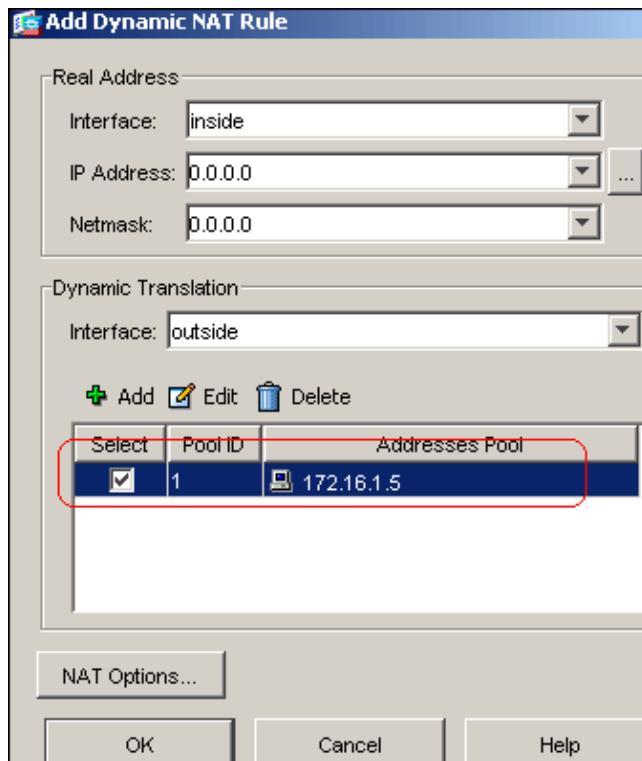
Cisco ASA 7.2(2)

```
ciscoasa(config)#tunnel-group sslgroup type webvpn
ciscoasa(config)#tunnel-group sslgroup general-attributes
ciscoasa(config-tunnel-general)#address-pool vpnpool
ciscoasa(config-tunnel-general)#default-group-policy clientgroup
ciscoasa(config-tunnel-general)#exit
```

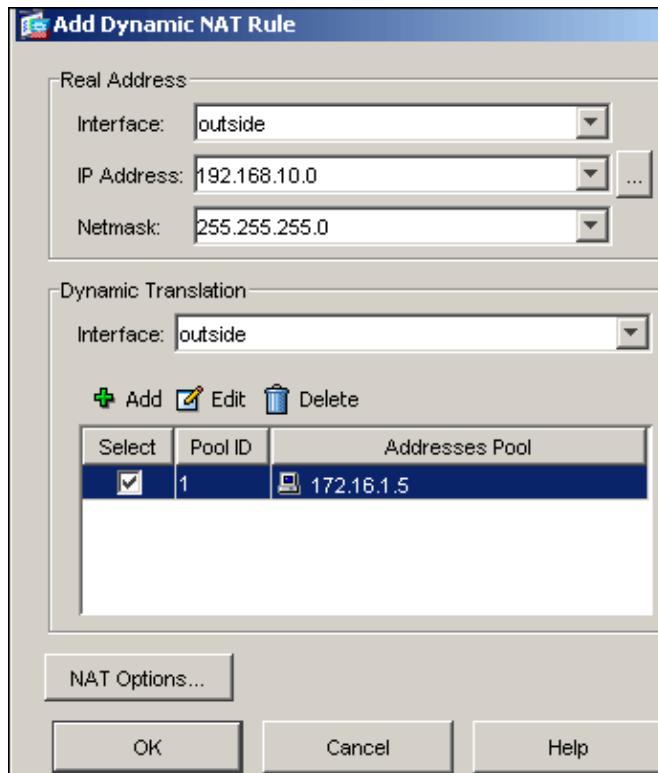
```
ciscoasa(config)#tunnel-group sslgroup webvpn-attributes  
ciscoasa(config-tunnel-webvpn)#group-alias sslgroup_users enable
```

14. Configure NAT:

- Choose **Configuration > NAT > Add > Add Dynamic NAT Rule** to allow the traffic that comes from the inside network to be translated with the use of the outside IP address 172.16.1.5.



- Click **OK**.
- Choose **Configuration > NAT > Add > Add Dynamic NAT Rule** to allow the traffic that comes from the outside network 192.168.10.0 to be translated with the use of the outside IP address 172.16.1.5.



d. Click **OK**.

Configuration > NAT					
		Real		Translated	
No	Type	Source	Destination	Interface	Address
inside					
1	Dynamic	any	any	outside	172.16.1.5
outside					
1	Dynamic	192.168.10.0/24	any	outside	172.16.1.5

e. Click **Apply**.

Note: Here are the equivalent CLI configuration commands:

Cisco ASA 7.2(2)

```
ciscoasa(config)#global (outside) 1 172.16.1.5
ciscoasa(config)#nat (inside) 1 0.0.0.0 0.0.0.0
ciscoasa(config)#nat (outside) 1 192.168.10.0 255.255.255.0
```

ASA 7.2(2) CLI Configuration

Cisco ASA 7.2(2)

```
ciscoasa#show running-config
: Saved
:
ASA Version 7.2(2)
!
hostname ciscoasa
enable password 8Ry2YjIyt7RRXU24 encrypted
names
!
interface Ethernet0/0
 nameif inside
```

```

security-level 100
ip address 10.77.241.142 255.255.255.192
!
interface Ethernet0/1
nameif outside
security-level 0
ip address 172.16.1.1 255.255.255.0
!
interface Ethernet0/2
shutdown
no nameif
no security-level
no ip address
!
interface Ethernet0/3
shutdown
no nameif
no security-level
no ip address
!
interface Management0/0
shutdown
no nameif
no security-level
no ip address
!
passwd 2KFQnbNIdI.2KYOU encrypted
ftp mode passive
same-security-traffic permit intra-interface
```

*!---- Command that permits the SSL VPN traffic to enter
!---- and exit the same interface.*

```

access-list 100 extended permit icmp any any
pager lines 24
mtu inside 1500
mtu outside 1500
```

```
ip local pool vpnpool 192.168.10.1-192.168.10.254
```

!---- The address pool for the SSL VPN Clients.

```

no failover
icmp unreachable rate-limit 1 burst-size 1
asdm image disk0:/asdm-522.bin
no asdm history enable
arp timeout 14400
global (outside) 1 172.16.1.5
```

*!---- The global address for Internet access used by VPN Clients.
!---- Note: Uses an RFC 1918 range for lab setup.
!---- Apply an address from your public range provided by your ISP.*

```
nat (inside) 1 0.0.0.0 0.0.0.0
```

*!---- The NAT statement to define what to encrypt
!---- (the addresses from vpn-pool).*

```
nat (outside) 1 192.168.10.0 255.255.255.0

access-group 100 in interface outside
route outside 0.0.0.0 0.0.0.0 172.16.1.2 1
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 icmp 0:00:02
timeout sunrpc 0:10:00 h323 0:05:00 h225 1:00:00 mgcp 0:05:00 mgcp-pat 0:05:0
timeout sip 0:30:00 sip_media 0:02:00 sip-invite 0:03:00 sip-disconnect 0:02:
timeout uauth 0:05:00 absolute
group-policy clientgroup internal

!--- Create an internal group policy "clientgroup.""

group-policy clientgroup attributes
  vpn-tunnel-protocol webvpn

!--- Enable webvpn as tunneling protocol.

split-tunnel-policy tunnelall

!--- Encrypt all the traffic coming from the SSL VPN Clients.

webvpn
  svc required

!--- Activate the SVC under webvpn mode

svc keep-installer installed

!--- When the security appliance and the SVC perform a rekey, they renegotiate
!--- the crypto keys and initialization vectors, increasing the security of
!--- the connection.

svc rekey time 30

!--- Command that specifies the number of minutes from the start of the
!--- session until the rekey takes place, from 1 to 10080 (1 week).

svc rekey method ssl

!--- Command that specifies that SSL renegotiation takes place during SVC rekey.

username ssluser1 password ZRhW85jZqEaVd5P. encrypted

!--- Create an user account "ssluser1."

aaa local authentication attempts max-fail 16
```

```
!--- Enable the AAA local authentication.

http server enable
http 0.0.0.0 0.0.0.0 inside
no snmp-server location
no snmp-server contact
snmp-server enable traps snmp authentication linkup linkdown coldstart
tunnel-group sslgroup type webvpn

!--- Create a tunnel group "sslgroup" with type as WebVPN.

tunnel-group sslgroup general-attributes
  address-pool vpnpool

!--- Associate the address pool vpnpool created.

default-group-policy clientgroup

!--- Associate the group policy "clientgroup" created.

tunnel-group sslgroup webvpn-attributes
  group-alias sslgroup_users enable

!--- Configure the group alias as sslgroup-users.

telnet timeout 5
ssh timeout 5
console timeout 0
!
class-map inspection_default
  match default-inspection-traffic
!
!
policy-map type inspect dns preset_dns_map
  parameters
    message-length maximum 512
policy-map global_policy
  class inspection_default
    inspect dns preset_dns_map
    inspect ftp
    inspect h323 h225
    inspect h323 ras
    inspect netbios
    inspect rsh
    inspect rtsp
    inspect skinny
    inspect esmtp
    inspect sqlnet
    inspect sunrpc
    inspect tftp
    inspect sip
    inspect xdmcp
!
service-policy global_policy global
webvpn
  enable outside
```

```
!---- Enable WebVPN on the outside interface.

svc image disk0:/sslclient-win-1.1.4.179.pkg 1

!---- Assign an order to the SVC image.

svc enable

!---- Enable the security appliance to download SVC images to remote computers.

tunnel-group-list enable

!---- Enable the display of the tunnel-group list on the WebVPN Login page.

prompt hostname context
Cryptochecksum:d41d8cd98f00b204e9800998ecf8427e
: end
ciscoasa#
```

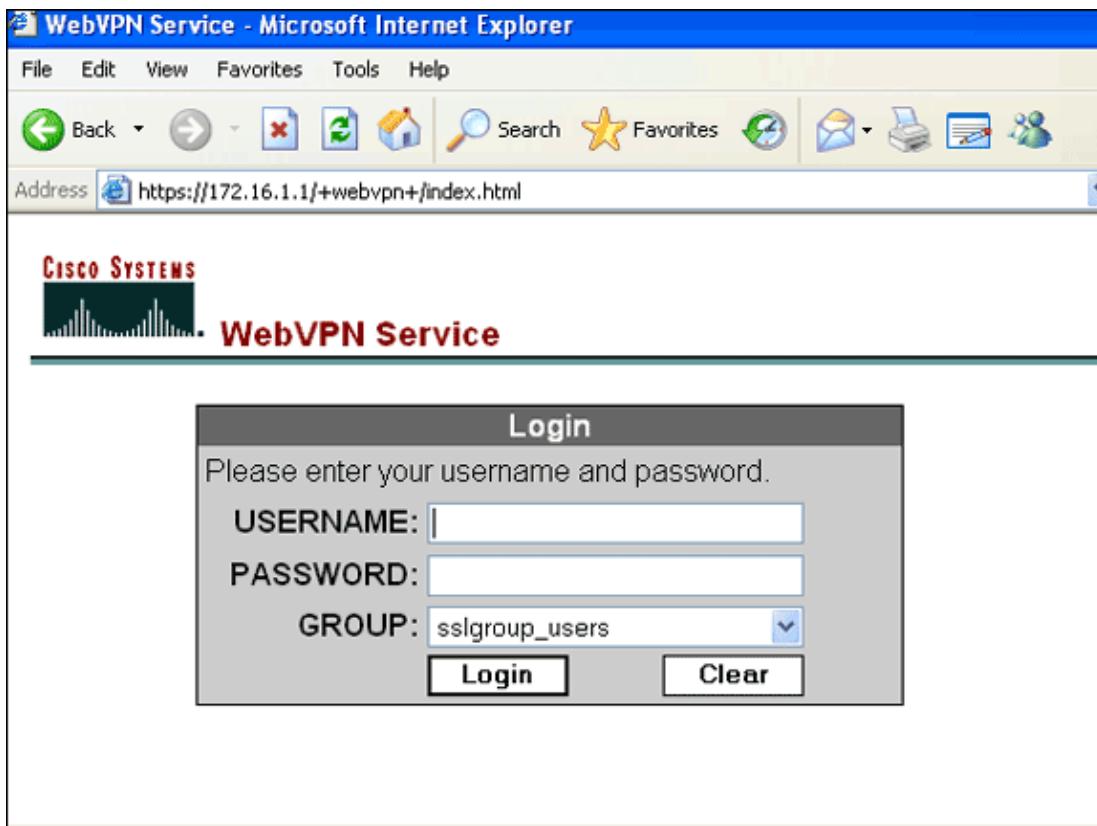
Establish the SSL VPN Connection with SVC

Complete these steps in order to establish a SSL VPN connection with ASA.

1. Type in the Address field of your web browser the URL or IP address for the WebVPN interface of the ASA.

For example:

```
https://<IP address of the ASA WebVPN interface>
```



2. Enter your user name and password, and then choose your respective group from the Group drop-down list.

A screenshot of the Cisco WebVPN Service login dialog box. The fields are now populated:

- USERNAME: ssluser1
- PASSWORD: [redacted]
- GROUP: sslgroup_users [dropdown menu]

The "Login" and "Clear" buttons are at the bottom.

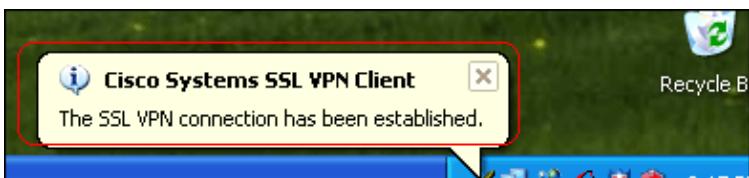
Note: ActiveX software must be installed in your computer before you download the SSL VPN Client.



This dialog box appears as the connection is established:

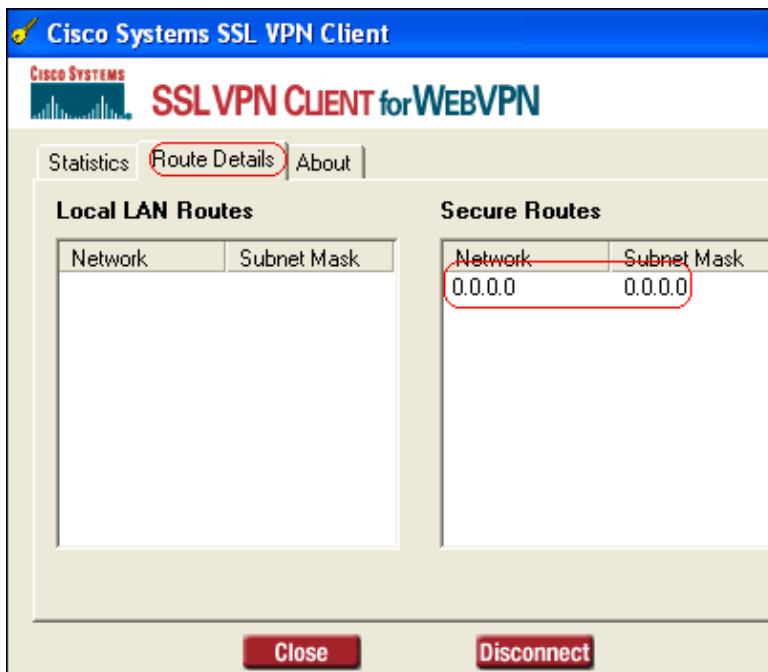
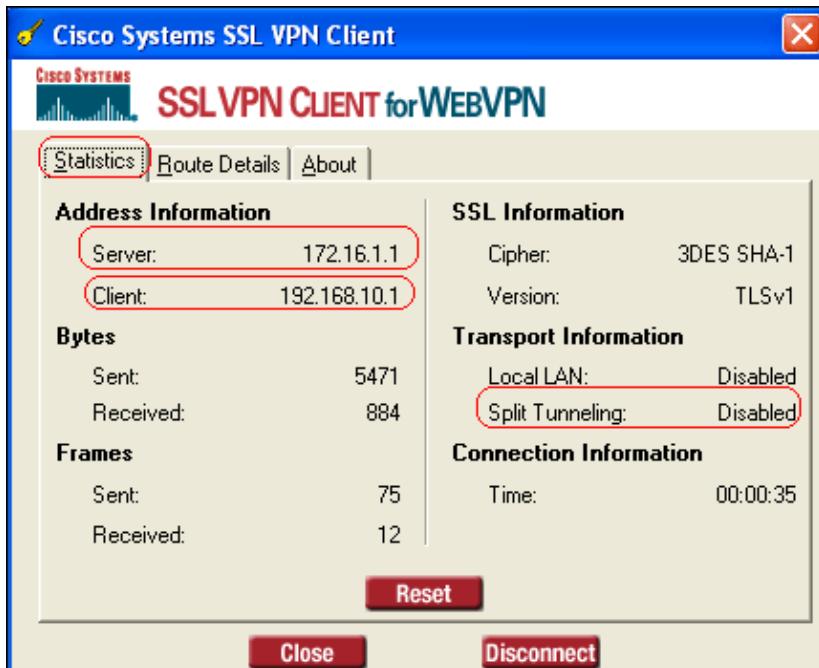


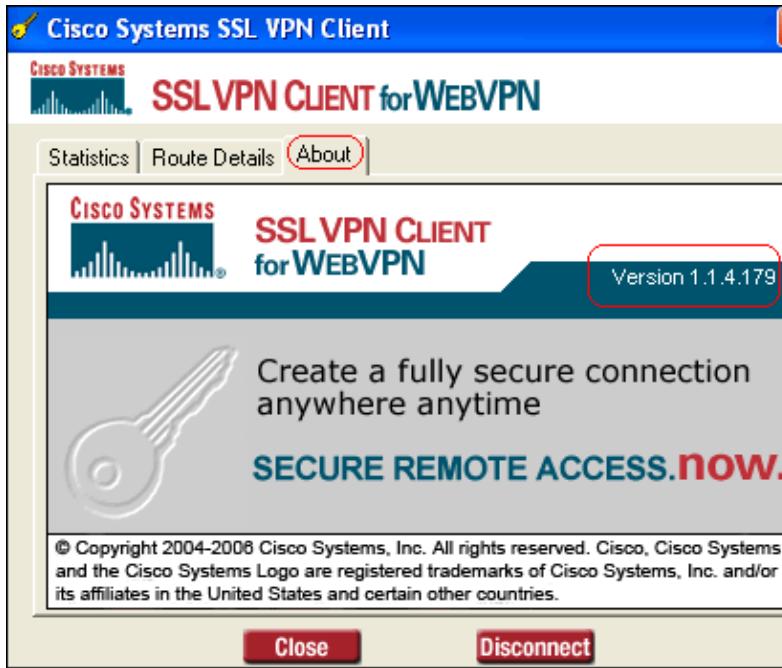
This message appears once the connection is established:



3. Once the connection is established, double-click the yellow key icon that appears in the task bar of your computer.

The Cisco Systems SSL VPN Client dialog box displays information about the SSL connection.





Verify

Use this section in order to confirm that your configuration works properly.

The Output Interpreter Tool (registered customers only) (OIT) supports certain **show** commands. Use the OIT to view an analysis of **show** command output.

- **show webvpn svc** Displays the SVC images stored in the ASA flash memory.

```
ciscoasa#show webvpn svc
1. disk0:/sslclient-win-1.1.4.179.pkg 1
  CISCO STC win2k+ 1.0.0
  1,1,4,179
  Fri 01/18/2008 15:19:49.43
```

1 SSL VPN Client(s) installed

- **show vpn-sessiondb svc** Displays the information about the current SSL connections.

```
ciscoasa#show vpn-sessiondb svc

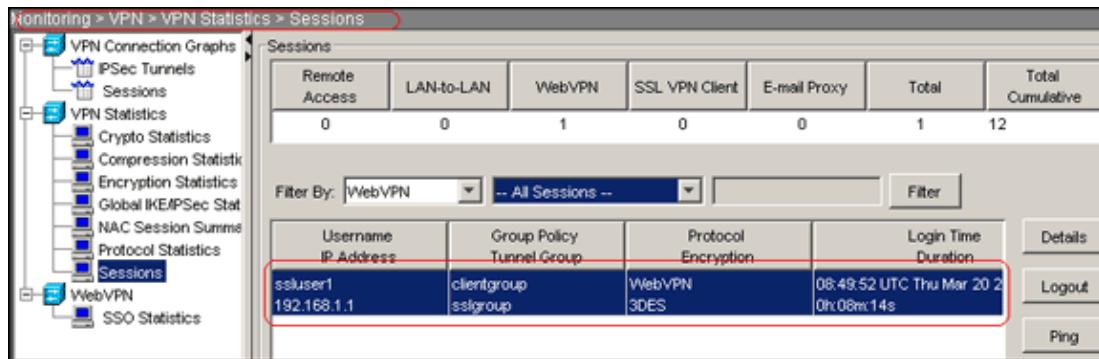
Session Type: SVC

Username      : ssluser1
Index         : 1
Assigned IP   : 192.168.10.1          Public IP     : 192.168.1.1
Protocol      : SVC                      Encryption    : 3DES
Hashing       : SHA1
Bytes Tx      : 131813                  Bytes Rx     : 5082
Client Type   : Mozilla/4.0 (compatible; MSIE 6.0; Windows NT 5.1; SV1)
Client Ver    : Cisco Systems SSL VPN Client 1, 1, 4, 179
Group Policy   : clientgroup
Tunnel Group  : sslgroup
Login Time    : 12:38:47 UTC Mon Mar 17 2008
Duration       : 0h:00m:53s
Filter Name   :
```

- **show webvpn group-alias** Displays the configured alias for various groups.

```
ciscoasa#show webvpn group-alias
Tunnel Group: sslgroup  Group Alias: sslgroup_users enabled
```

- In ASDM, choose **Monitoring > VPN > VPN Statistics > Sessions** in order to view information about the current WebVPN sessions in the ASA.



Troubleshoot

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

- vpn-sessiondb logoff name <username>** Allows you to log off the SSL VPN session for the specified user name.

```
ciscoasa#vpn-sessiondb logoff name ssluser1
Called vpn_remove_uauth: success!
webvpn_svc_np_tear_down: no ACL
NFO: Number of sessions with name "ssluser1" logged off : 1
```

Similarly, you can use the command **vpn-sessiondb logoff svc** in order to terminate all the SVC sessions.

Note: If the PC goes to standby or hibernate mode, then the SSL VPN connection can be terminated.

```
webvpn_rx_data_cstp
webvpn_rx_data_cstp: got message
SVC message: t/s=5/16: Client PC is going into suspend mode (Sleep, Hibernate, etc)
Called vpn_remove_uauth: success!
webvpn_svc_np_tear_down: no ACL

ciscoasa#show vpn-sessiondb svc
INFO: There are presently no active sessions
```

- Debug webvpn svc <1-255>** Provides the real-time WebVPN events in order to establish the session.

```
Ciscoasa#debug webvpn svc 7

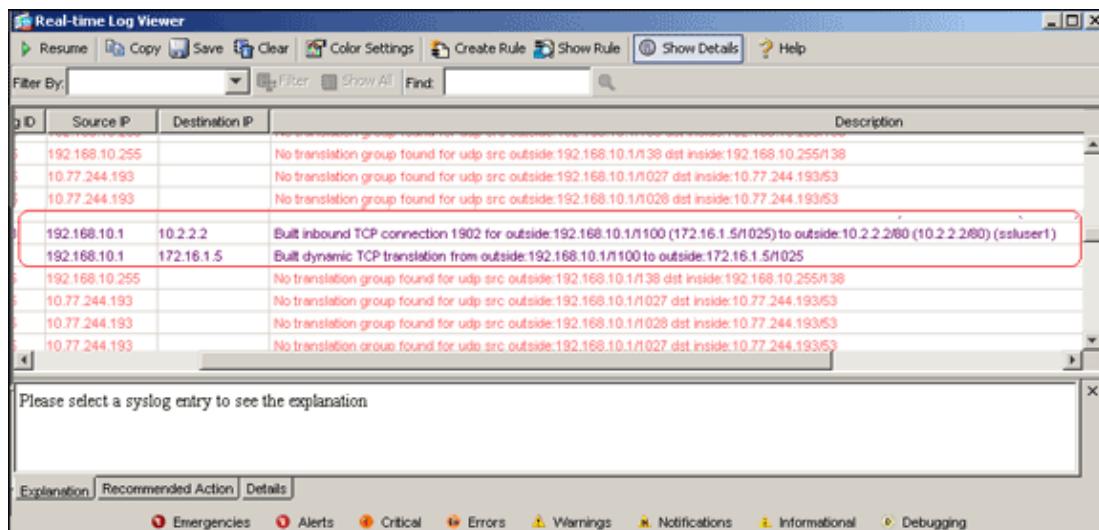
ATTR_CISCO_AV_PAIR: got SVC ACL: -1
webvpn_rx_data_tunnel_connect
CSTP state = HEADER_PROCESSING
http_parse_cstp_method()
...input: 'CONNECT /CSCOSSL/tunnel HTTP/1.1'
webvpn_cstp_parse_request_field()
...input: 'Host: 172.16.1.1'
Processing CSTP header line: 'Host: 172.16.1.1'
webvpn_cstp_parse_request_field()
...input: 'User-Agent: Cisco Systems SSL VPN Client 1, 1, 4, 179'
Processing CSTP header line: 'User-Agent: Cisco Systems SSL VPN Client 1, 1, 4, 179'
Setting user-agent to: 'Cisco Systems SSL VPN Client 1, 1, 4, 179'
webvpn_cstp_parse_request_field()
```

```

...input: 'X-CSTP-Version: 1'
Processing CSTP header line: 'X-CSTP-Version: 1'
Setting version to '1'
webvpn_cstp_parse_request_field()
...input: 'X-CSTP-Hostname: tacweb'
Processing CSTP header line: 'X-CSTP-Hostname: tacweb'
Setting hostname to: 'tacweb'
webvpn_cstp_parse_request_field()
...input: 'X-CSTP-Accept-Encoding: deflate;q=1.0'
Processing CSTP header line: 'X-CSTP-Accept-Encoding: deflate;q=1.0'
webvpn_cstp_parse_request_field()
...input: 'Cookie: webvpn=16885952@10@1205757506@D4886D33FBF1CF236DB5E8BE70B1486
D5BC554D2'
Processing CSTP header line: 'Cookie: webvpn=16885952@10@1205757506@D4886D33FBF1
CF236DB5E8BE70B1486D5BC554D2'
Found WebVPN cookie: 'webvpn=16885952@10@1205757506@D4886D33FBF1CF236DB5E8BE70B1
486D5BC554D2'
WebVPN Cookie: 'webvpn=16885952@10@1205757506@D4886D33FBF1CF236DB5E8BE70B1486D5B
C554D2'
Validating address: 0.0.0.0
CSTP state = WAIT_FOR_ADDRESS
webvpn_cstp_accept_address: 192.168.10.1/0.0.0.0
CSTP state = HAVE_ADDRESS
No subnetmask... must calculate it
SVC: NP setup
webvpn_svc_np_setup
SVC ACL Name: NULL
SVC ACL ID: -1
SVC ACL ID: -1
vpn_put_uauth success!
SVC: adding to sessmgmt
SVC: Sending response
CSTP state = CONNECTED

```

- In ASDM, choose **Monitoring > Logging > Real-time Log Viewer > View** in order to view the real-time events. These examples show session information between the SVC 192.168.10.1 and Webserver 10.2.2.2 in the Internet via ASA 172.16.1.5.



Related Information

- [Cisco 5500 Series Adaptive Security Appliance Support Page](#)
- [PIX/ASA 7.x and VPN Client for Public Internet VPN on a Stick Configuration Example](#)
- [SSL VPN Client \(SVC\) on ASA with ASDM Configuration Example](#)
- [Technical Support & Documentation – Cisco Systems](#)

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Updated: Oct 02, 2009

Document ID: 100894
