

# ASA with WebVPN and Single Sign-on using ASDM and NTLMv1 Configuration Example

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## [Introduction](#)

This document describes how to configure the Cisco Adaptive Security Appliance (ASA) to automatically pass WebVPN user login credentials, as well as secondary authentication, to servers that require additional login validation against Windows Active Directory running NT LAN Manager version 1 (NTLMv1). This feature is known as single-sign-on (SSO). It gives links configured for a specific WebVPN group the capability to pass on this user authentication information, thus eliminating multiple authentication prompts. This feature can also be used at the global or user configuration level.

## [Prerequisites](#)

### [Requirements](#)

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

- Ensure that NTLMv1 and Windows permissions for the target VPN users are configured. Consult your Microsoft documentation for more information on Windows domain access rights.

### [Components Used](#)

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

- Cisco ASA 7.1(1)
- Cisco Adaptive Security Device Manager (ASDM) 5.1(2)
- Microsoft Internet Information Services (IIS)

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.

## Configure

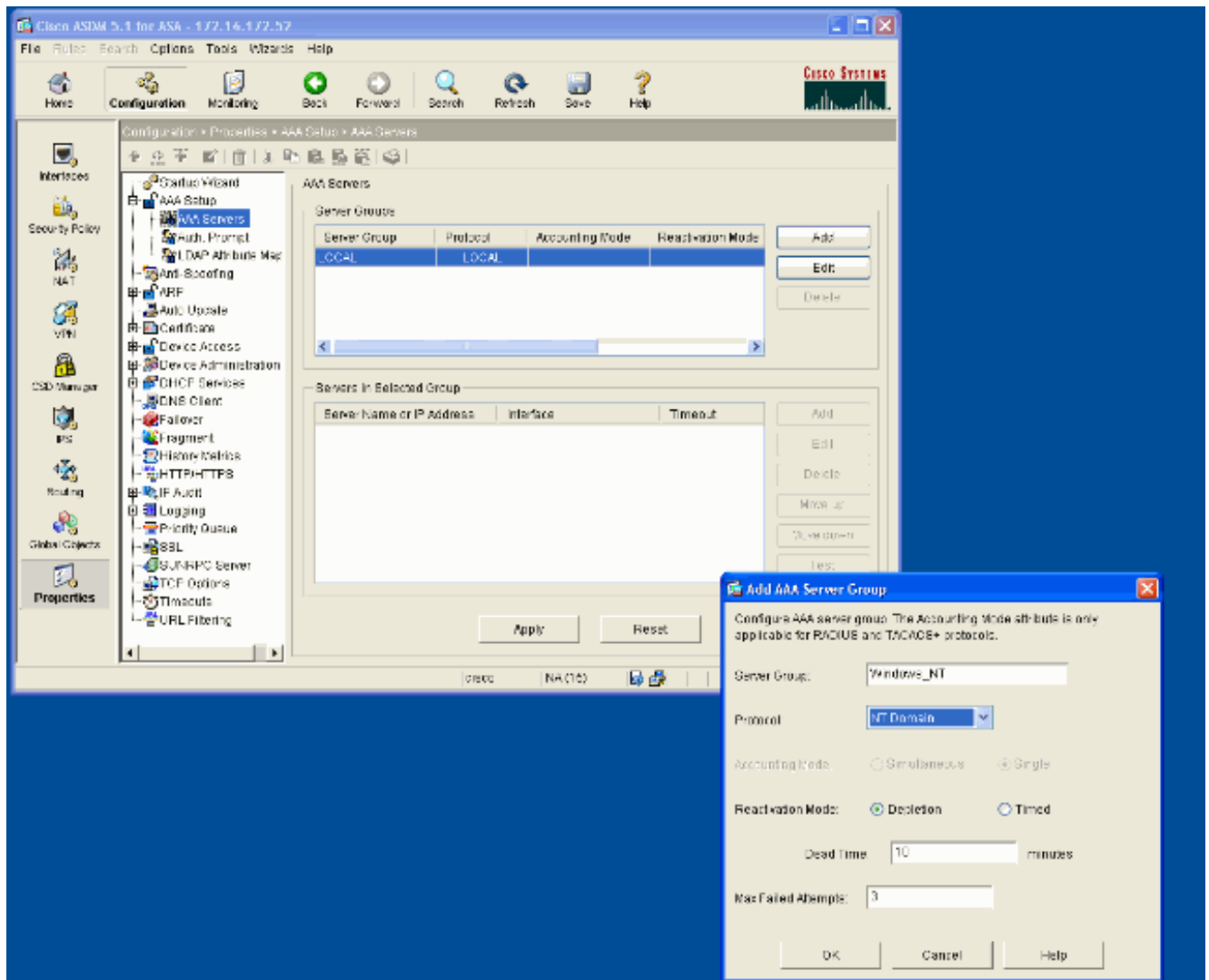
In this section, you are presented with the information to configure the ASA as a WebVPN server with SSO.

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

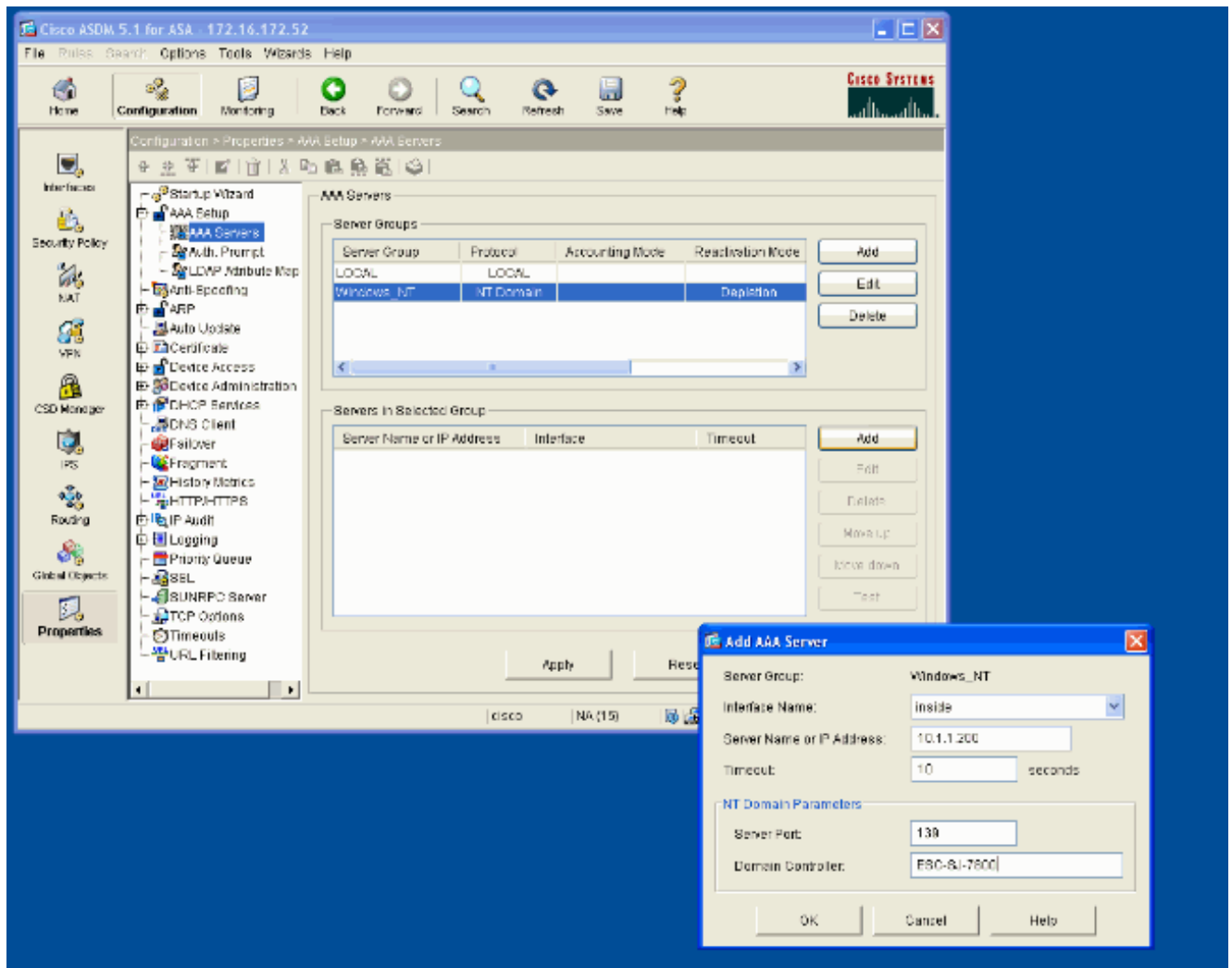
### Add an AAA Server for Windows Domain Authentication

Complete these steps to configure the ASA to use a domain controller for authentication.

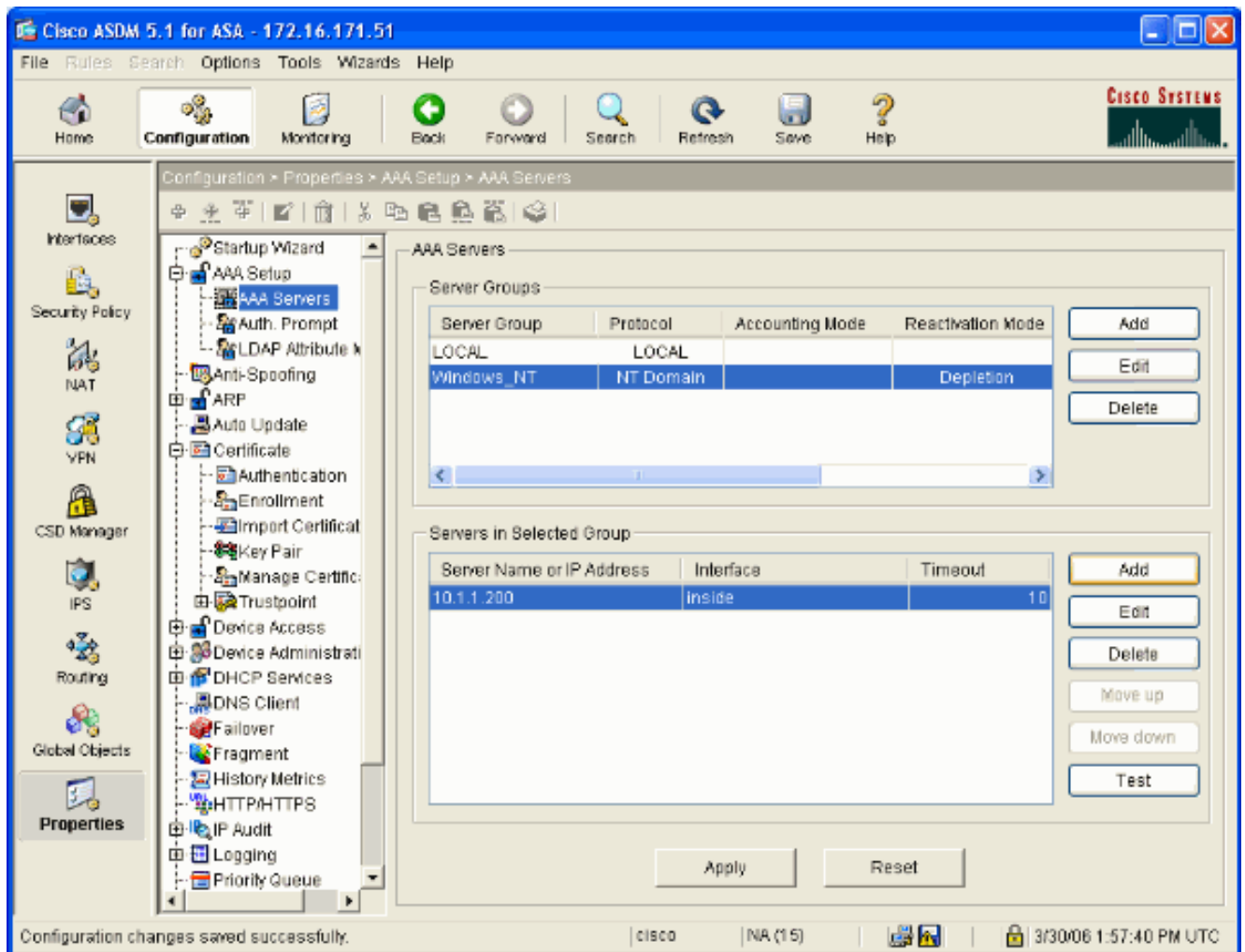
1. Select **Configuration > Properties > AAA Setup > AAA Servers** and click **Add**. Provide a name for the server group, such as `Windows_NT`, and choose **NT Domain** as the protocol.



2. Add a Windows server. Select the newly created group and click **Add**. Select the interface where the server is located and enter the IP address and domain controller name. Be sure that the domain controller name is entered in all capital letters. Click **OK** when you are done.



This window shows the completed AAA configuration:

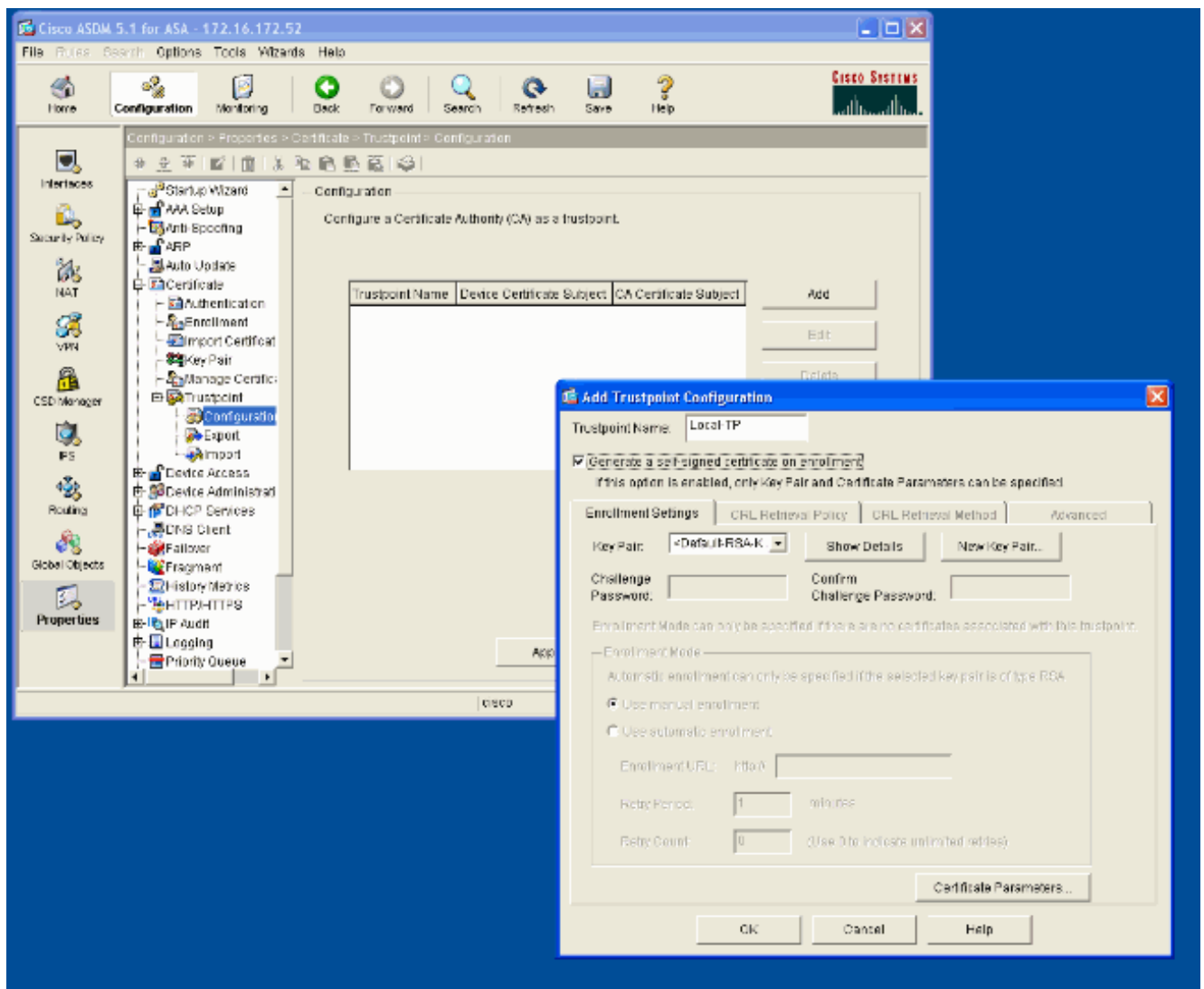


## [Create a Self-signed Certificate](#)

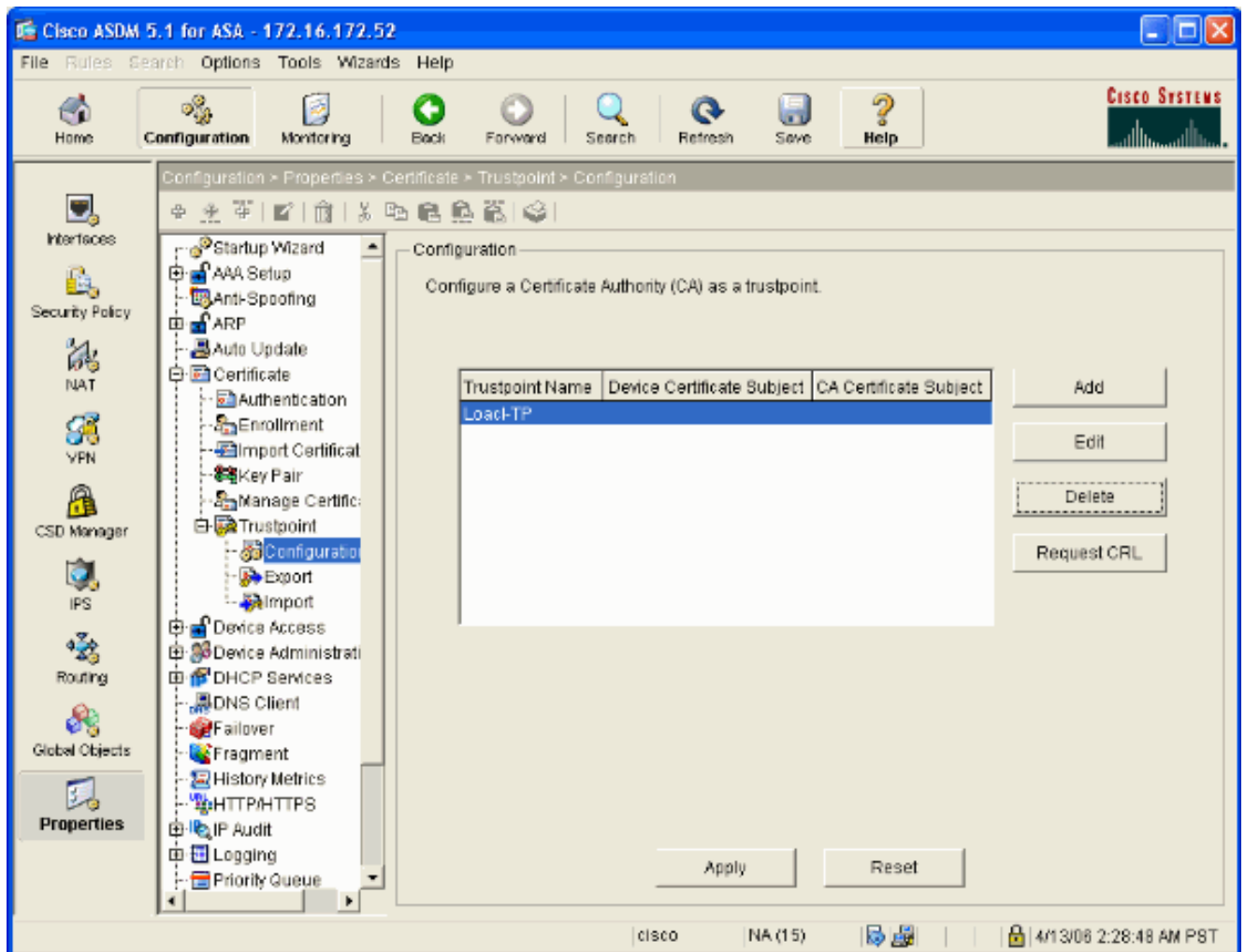
Complete these steps to configure the ASA to use a self-signed certificate.

**Note:** In this example a self-signed certificate is used for simplicity. For other certificate enrollment options, such as enrolling with an external Certificate Authority, refer to [Configuring Certificates](#).

1. Select **Configuration > Properties > Certificate > Trustpoint > Configuration** and click **Add**.
2. In the window that appears enter a Trustpoint Name such as Local-TP and check **Generate a self-signed certificate on enrollment**. Other options can be left with their default settings. Click **OK** when you are done.



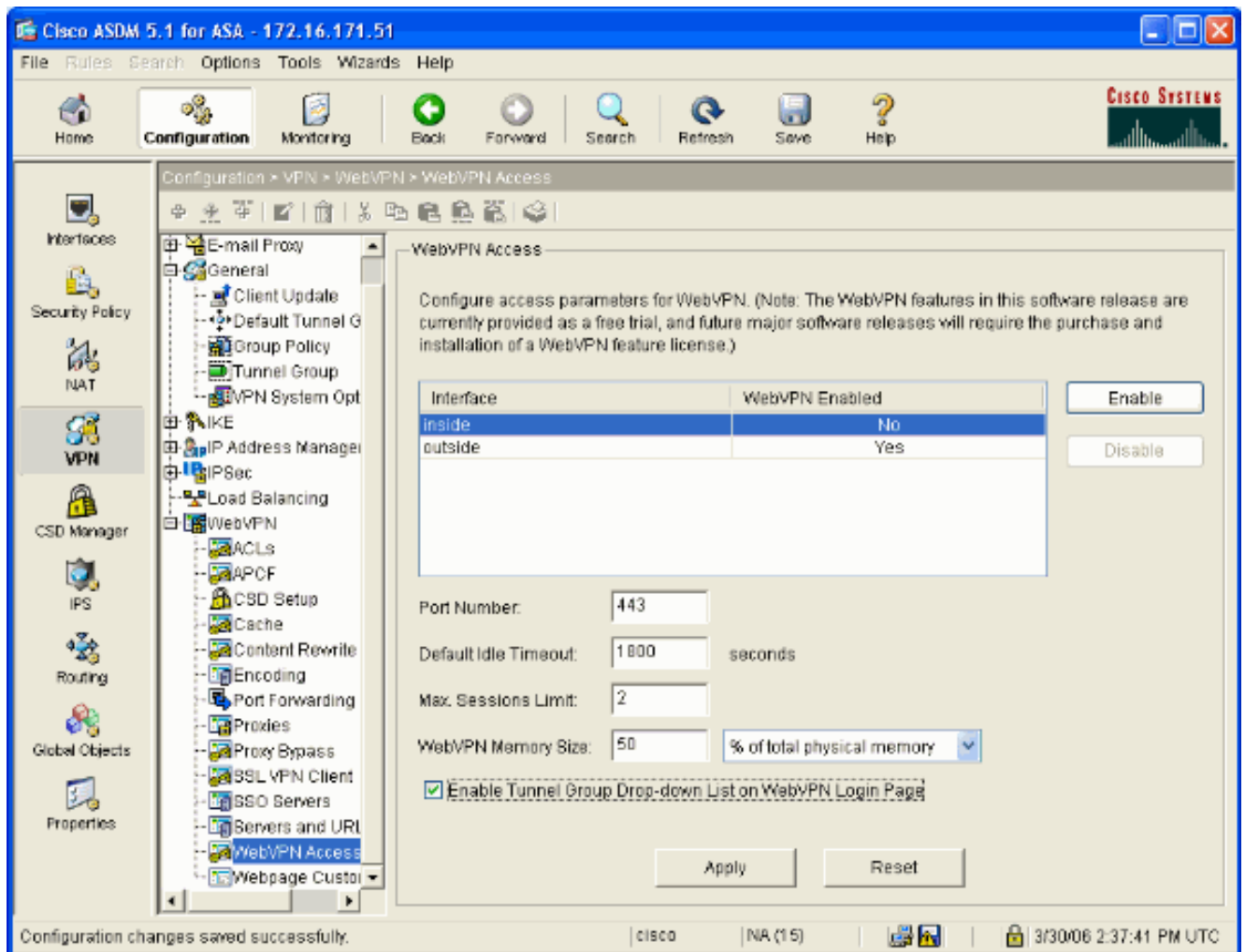
This window shows the completed Trustpoint configuration:



## [Enable WebVPN on the Outside Interface](#)

Complete these steps to allow users outside your network to connect using WebVPN.

1. Select **Configuration > VPN > WebVPN > WebVPN Access**.
2. Select the desired interface, click **Enable**, and check **Enable Tunnel Group Drop-down List on WebVPN Login Page**.**Note:** If the same interface is used for WebVPN and ASDM access, you must change the default port for ASDM access from port 80 to a new port such as 8080. This is done under **Configuration > Properties > Device Access > HTTPS/ASDM**.**Note:** You can automatically redirect a user to port 443 in the event that a user navigates to **http://<ip\_address>** instead of **https://<ip\_address>**. Select **Configuration > Properties > HTTP/HTTPS**, choose the desired interface, click **Edit** and select **Redirect HTTP to HTTPS**.

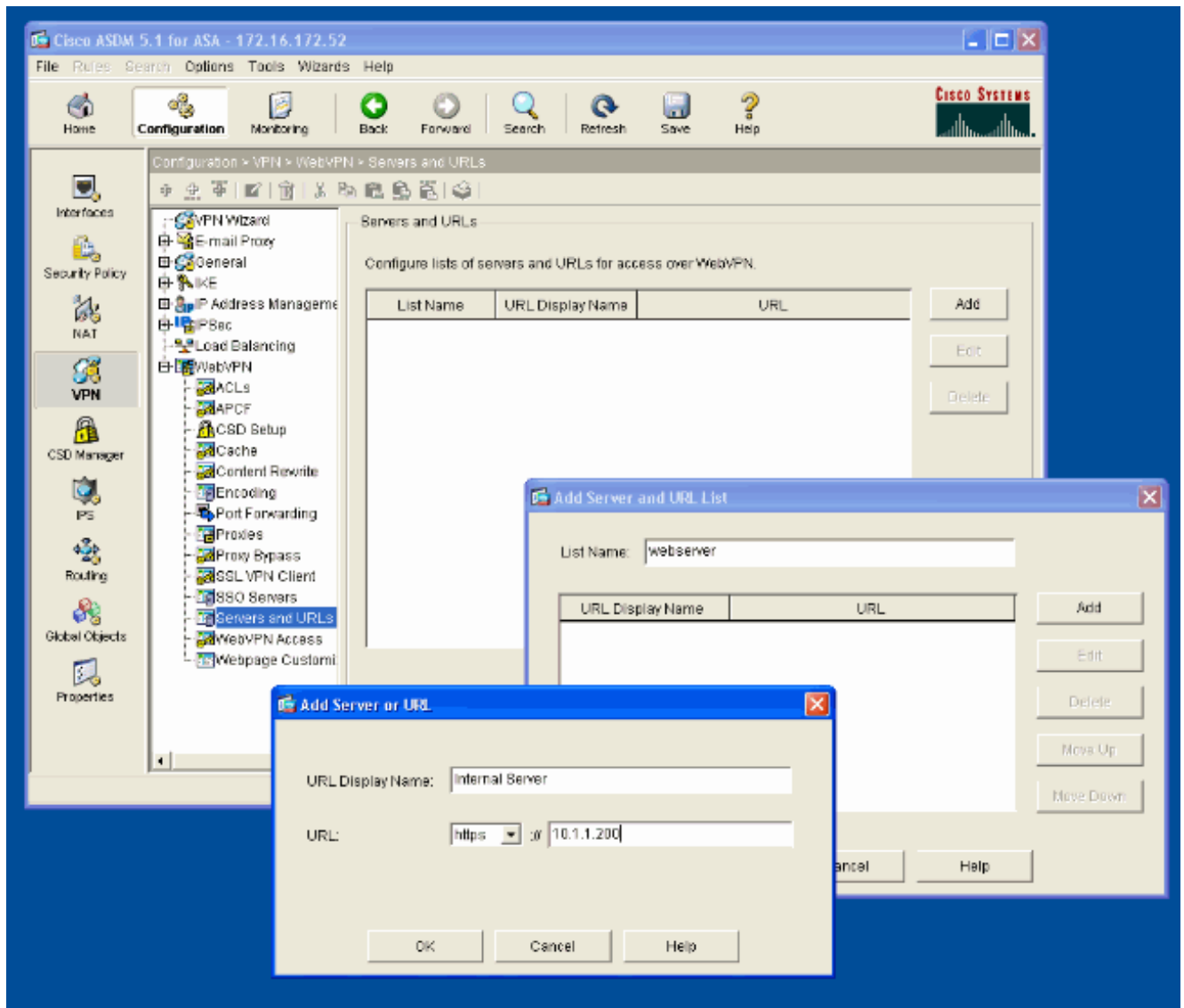


## [Configure a URL List for your Internal Server\(s\)](#)

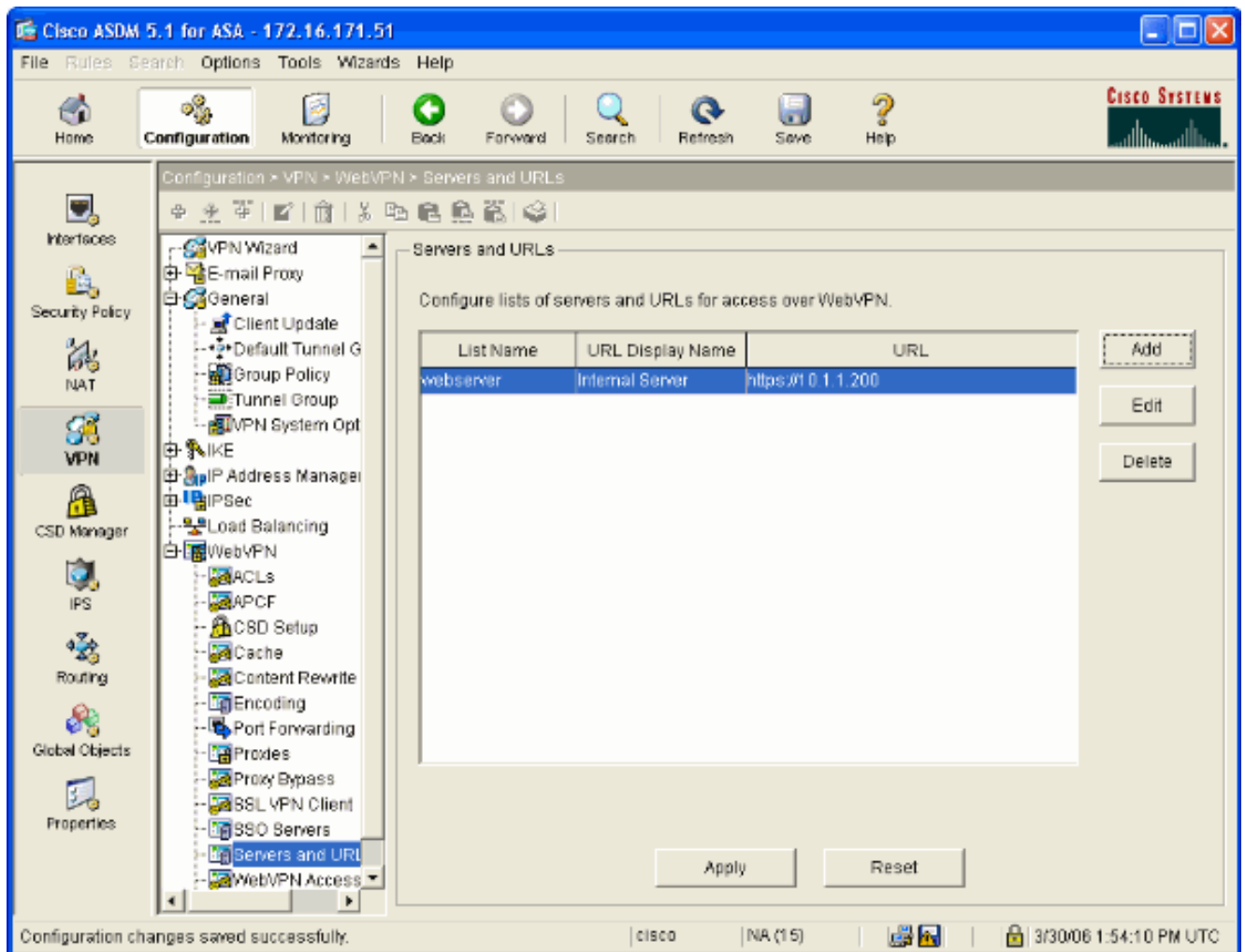
Complete these steps to create a list that contains the servers for which you want to grant your WebVPN users access.

1. Select **Configuration > VPN > WebVPN > Servers and URLs** and click **Add**.
2. Enter a name for the URL list. This name is not visible to end users. Click **Add**.
3. Enter the URL Display Name as it is to be displayed to users. Enter the URL information of the server. This should be how you normally access the server.





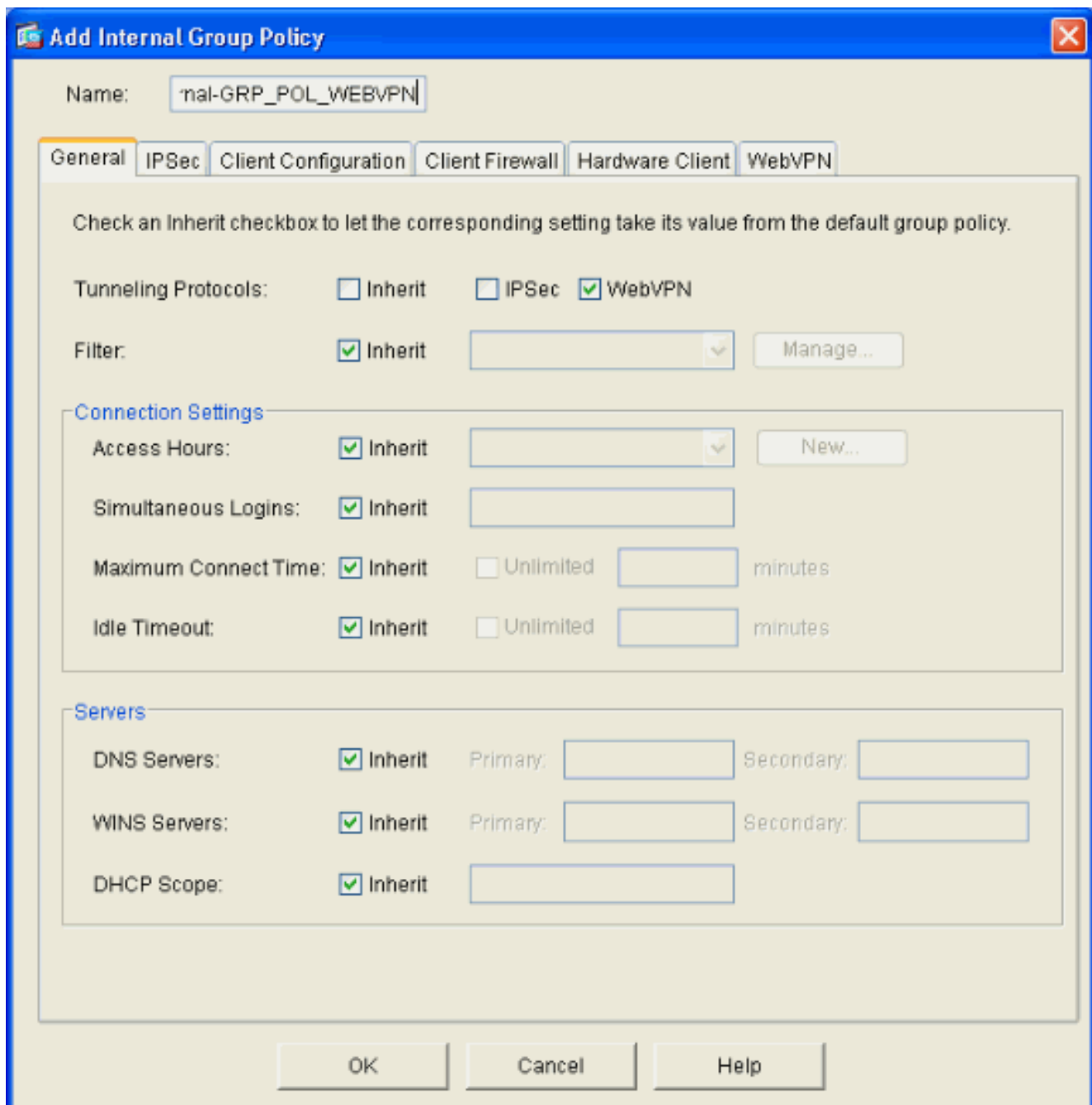
4. Click **OK**, **OK**, and then **Apply**.



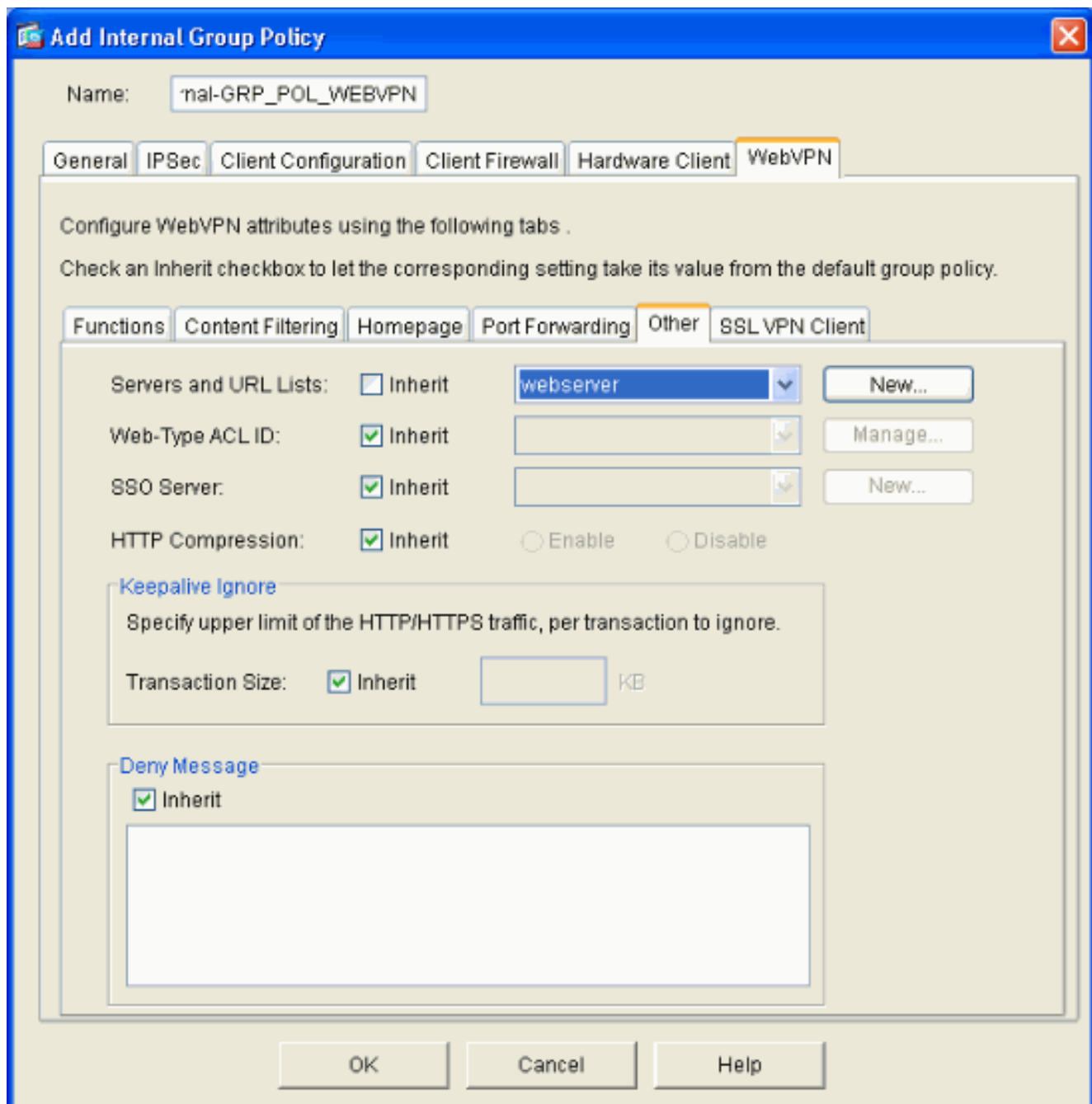
## [Configure an Internal Group Policy](#)

Complete these steps to configure a group policy for your WebVPN users.

1. Select **Configuration > VPN > General > Group Policy**, click **Add**, and select **Internal Group Policy**.
2. On the General tab, specify a policy name, such as Internal-Group\_POL\_WEBVPN. Then uncheck **Inherit** next to Tunneling Protocols and check **WebVPN**.



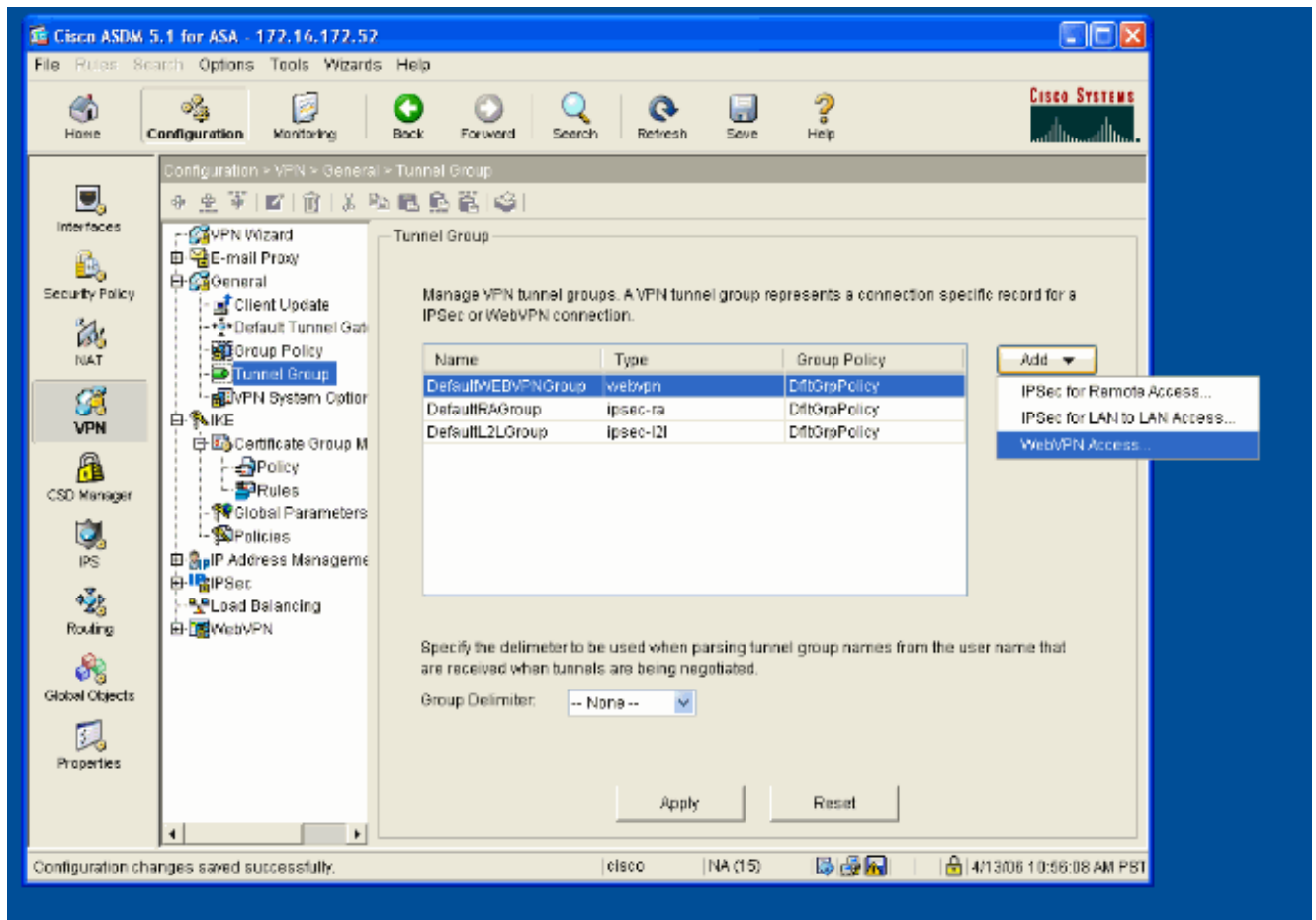
3. On the WebVPN tab select the **Other** sub-tab. Uncheck **Inherit** next to Servers and URL Lists and select the URL List you configured from the drop-down list. Click **OK** when you are done.



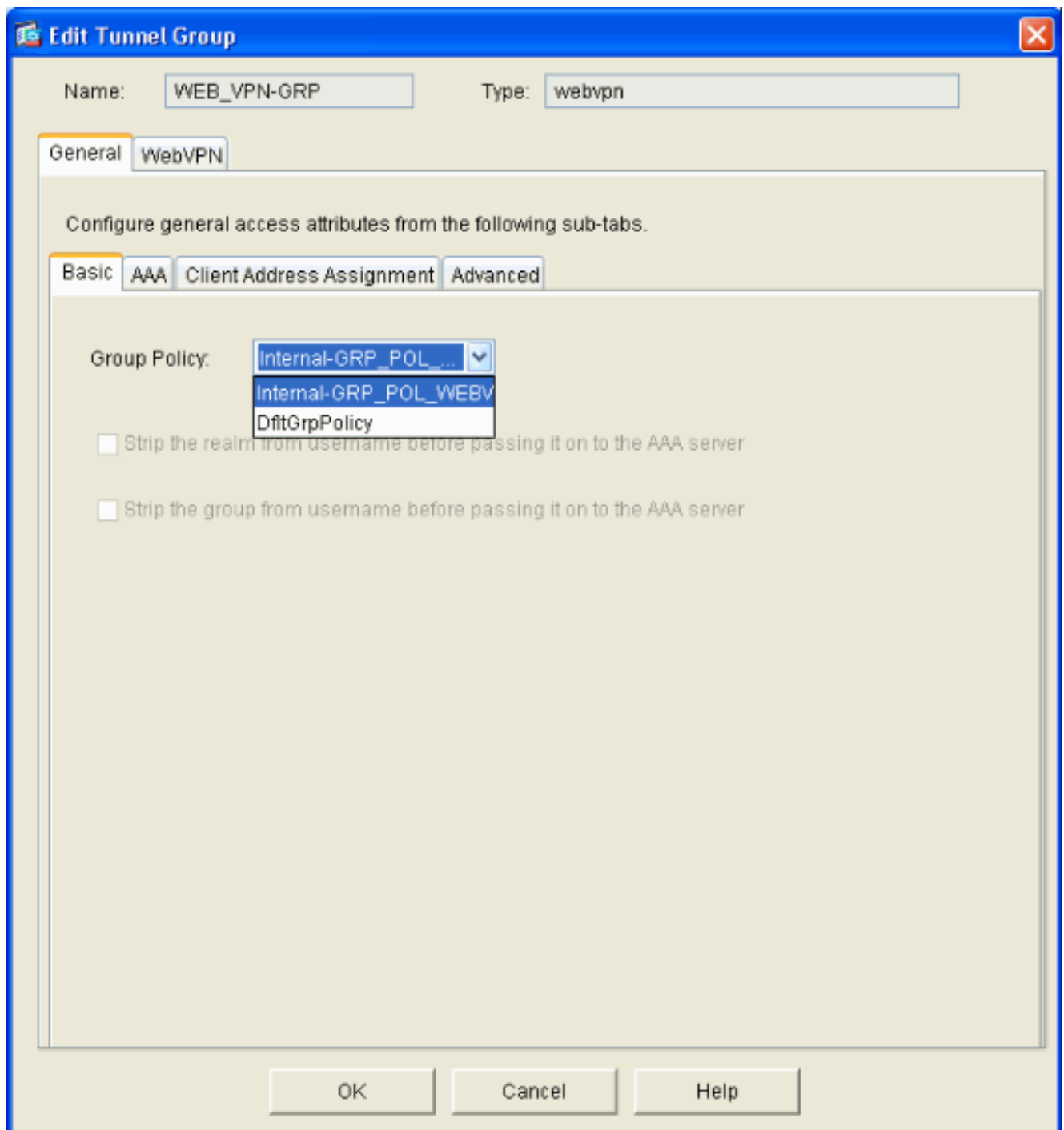
## [Configure a Tunnel Group](#)

Complete these steps to configure a Tunnel Group for your WebVPN users.

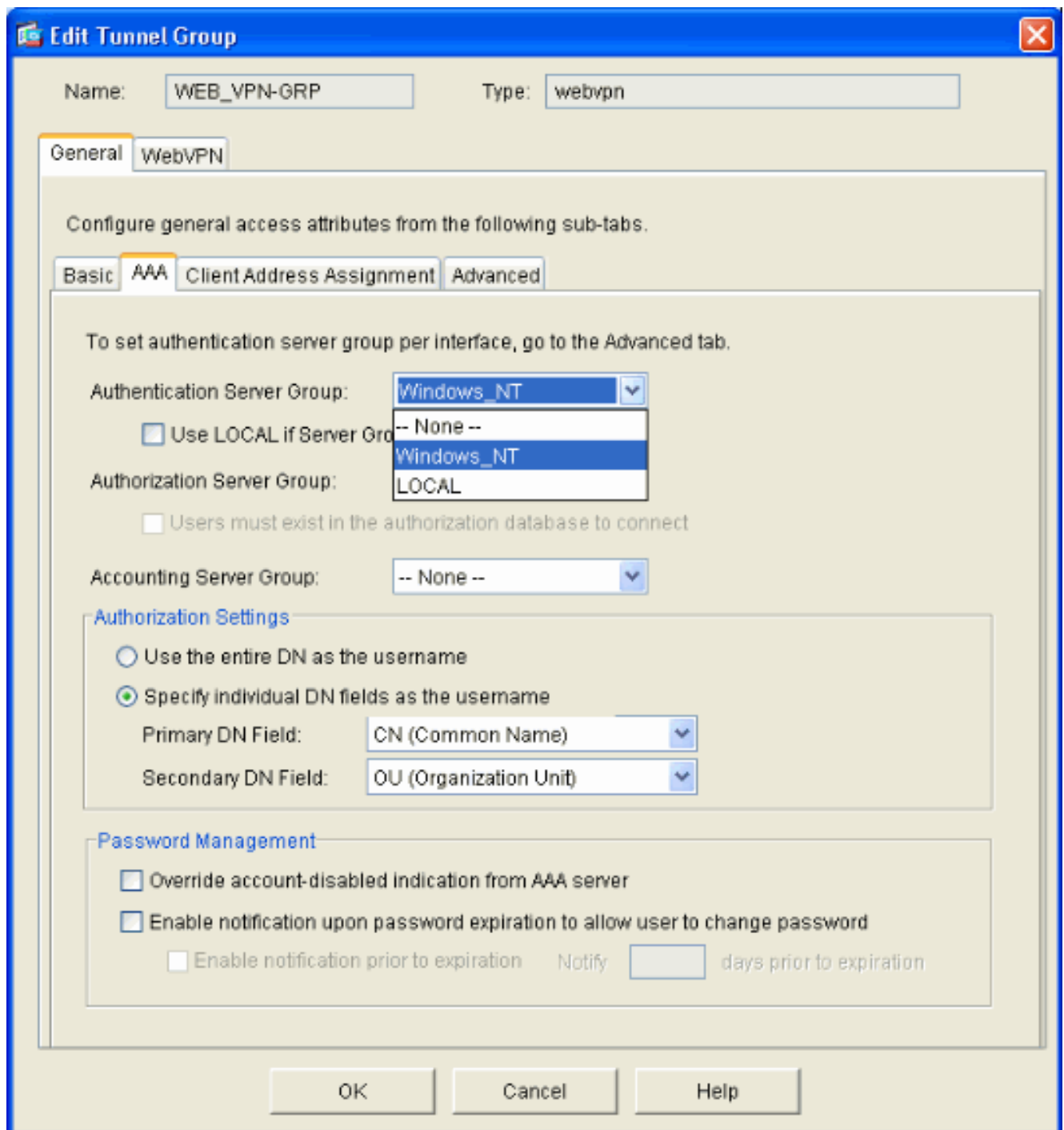
1. Select **Configuration > VPN > General > Tunnel Group**, click **Add** and select **WebVPN Access...**



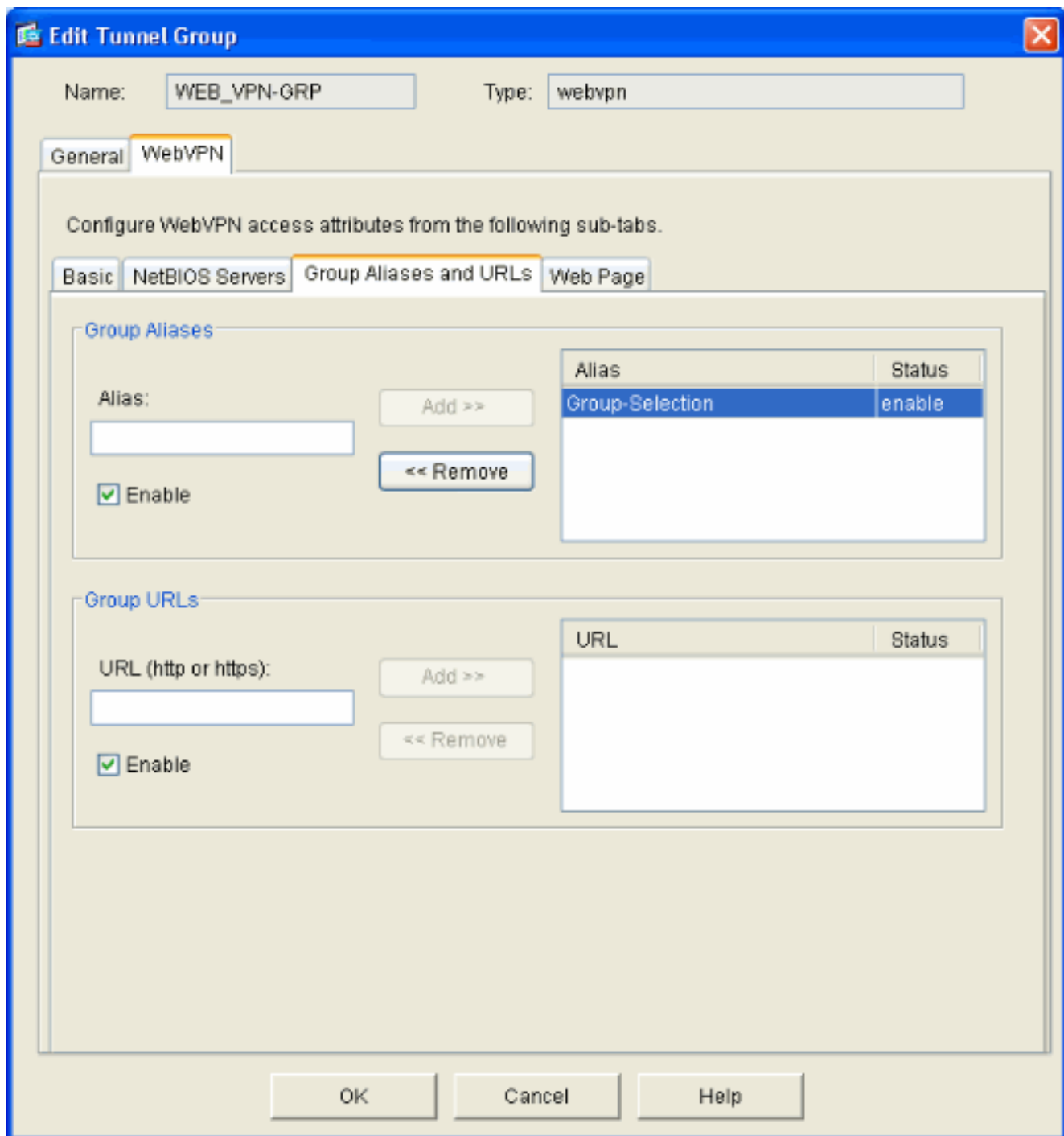
2. Enter a name for the Tunnel Group, such as WEB\_VPN-GRP. On the Basic tab select the Group Policy that you created and verify that the group Type is **webvpn**.



3. Go to the AAA tab. For Authentication Server Group, choose the group you configured in order to enable NTLMv1 authentication with your domain controller. **Optional:** Check **Use LOCAL if Server Group Fails** to enable the use of the LOCAL user database in the event that the configured AAA group fails. This can help you troubleshoot at a later time.



4. Go to the WebVPN tab and then go to the **Group Aliases and URLs** sub-tab.
5. Enter an alias under Group Aliases and click **Add**. This alias appears in the drop-down list presented to WebVPN users at login.



6. Click **OK** and then **Apply**.

## [Configure Auto-Signon for a Server](#)

Switch to the command line to enable SSO for your internal server(s).

**Note:** This step cannot be completed in the ASDM and must be accomplished using the command line. Refer to [Accessing the Command-Line Interface](#) for more information.

Use the **auto-signon** command to specify the network resource, such as a server, that you want to give your users access to. A single server IP address is configured here, but a network range such as **10.1.1.0 /24** can also be specified. Refer to the [auto-signon](#) command for more information.

```
ASA>enable ASA#configure terminal ASA(config)#webvpn ASA(config-webvpn)#auto-signon allow ip
10.1.1.200 255.255.255.255 auth-type ntlm ASA(config-webvpn)#quit ASA(config)#exit ASA#write
```



In this example output, the **auto-signon** command is configured for WebVPN globally. This command can also be used in WebVPN group configuration mode or WebVPN username configuration mode. The use of this command in WebVPN group configuration mode limits it to a particular group. Likewise, the use of this command in WebVPN username configuration mode limits it to an individual user. Refer to the [auto-signon](#) command for more information.

## Final ASA Configuration

This document uses this configuration:

### ASA Version 7.1(1)

```
ASA#show running-config : Saved : ASA Version 7.1(1) !
terminal width 200 hostname ASA domain-name cisco.com enable
password 8Ry2YjIyt7RRXU24 encrypted names ! interface
GigabitEthernet0/0 nameif outside security-level 0 ip address
172.16.171.51 255.255.255.0 ! interface GigabitEthernet0/1
nameif inside security-level 100 ip address 10.1.1.1
255.255.255.0 ! interface GigabitEthernet0/2 shutdown no
nameif no security-level no ip address ! interface
GigabitEthernet0/3 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 dns server-group DefaultDNS
domain-name cisco.com pager lines 24 mtu inside 1500 mtu
outside 1500 no failover asdm image disk0:/asdm512.bin no
asdm history enable arp timeout 14400 route outside 0.0.0.0
0.0.0.0 172.16.171.1 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 timeout
mgcp-pat 0:05:00 sip 0:30:00 sip_media 0:02:00 timeout uauth
0:05:00 absolute !--- AAA server configuration aaa-server
Windows_NT protocol nt aaa-server Windows_NT host 10.1.1.200
nt-auth-domain-controller ESC-SJ-7800 !--- Internal group
policy configuration group-policy Internal-GRP_POL_WEBVPN
internal group-policy Internal-GRP_POL_WEBVPN attributes vpn-
tunnel-protocol webvpn webvpn url-list value webserver
username cisco password Q/odgwmtmVIw4Dcm encrypted privilege
15 aaa authentication http console LOCAL aaa authentication
ssh console LOCAL aaa authentication enable console LOCAL
http server enable 8181 http 0.0.0.0 0.0.0.0 outside no snmp-
server location no snmp-server contact snmp-server enable
traps snmp authentication linkup linkdown coldstart !---
Trustpoint/certificate configuration crypto ca trustpoint
Local-TP enrollment self crl configure crypto ca certificate
chain Local-TP certificate 31 308201b0 30820119 a0030201
02020131 300d0609 2a864886 f70d0101 04050030 1e311c30
1a06092a 864886f7 0d010902 160d4153 412e6369 73636f2e
636f6d30 1e170d30 36303333 30313334 3930345a 170d3136
30333237 31333439 30345a30 1e311c30 1a06092a 864886f7
0d010902 160d4153 412e6369 73636f2e 636f6d30 819f300d
06092a86 4886f70d 01010105 0003818d 00308189 02818100
e47a29cd 56becf8d 99d6d919 47892f5a 1b8fc5c0 c7d01ea6
58f3bec4 a60b2025 03748d5b 1226b434 561e5507 5b45f30e
9d65a03f 30add0b5 81f6801a 766c9404 9cabcbde 44b221f9
b6d6dc18 496fe5bb 4983927f adabfb17 68b4d22c cddfa6c3
d8802efc ec3af7c7 749f0aa2 3ea2c7e3 776d6d1d 6ce5f748
e4cda3b7 4f007d4f 02030100 01300d06 092a8648 86f70d01
01040500 03818100 c6f87c61 534bb544 59746bdb 4e01680f
```

```
06a88a15 e3ed8929 19c6c522 05ec273d 3e37f540 f433fb38
7f75928e 1b1b6300 940b8dff 69eac16b af551d7f 286bc79c
e6944e21 49bf15f3 c4ec82d8 8811b6de 775b0c57 e60a2700
fd6acc16 a77abee6 34cb0cad 81dfaf5a f544258d cc74fe2d
4c298076 294f843a edda3a0a 6e7f5b3c quit !--- Tunnel group
configuration tunnel-group WEB_VPN-GRP type webvpn tunnel-
group WEB_VPN-GRP general-attributes authentication-server-
group Windows_NT default-group-policy Internal-GRP_POL_WEBVPN
tunnel-group WEB_VPN-GRP webvpn-attributes group-alias Group-
Selection enable telnet timeout 5 ssh timeout 5 console
timeout 0 ! class-map inspection_default match default-
inspection-traffic ! ! policy-map global_policy class
inspection_default inspect dns maximum-length 512 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 Configuration
webvpn enable outside url-list webserver "Internal Server"
https://10.1.1.200 1 tunnel-group-list enable auto-signon
allow ip 10.1.1.200 255.255.255.255 auth-type ntlm
Cryptochecksum:c80ac5f6232df50fc1ecc915512c3cd6 : end
```

## Verify

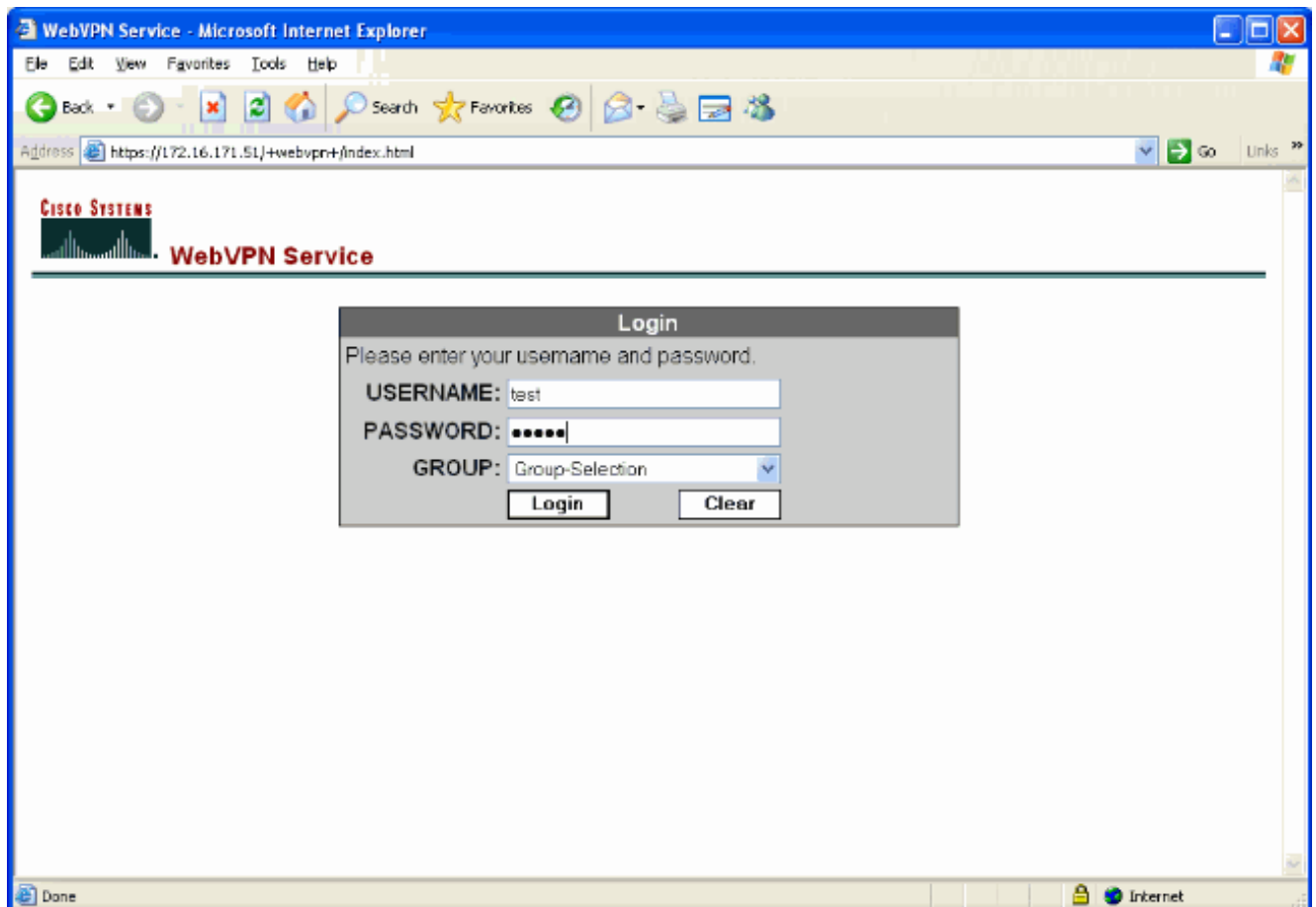
Use this section to confirm that your configuration works properly.

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

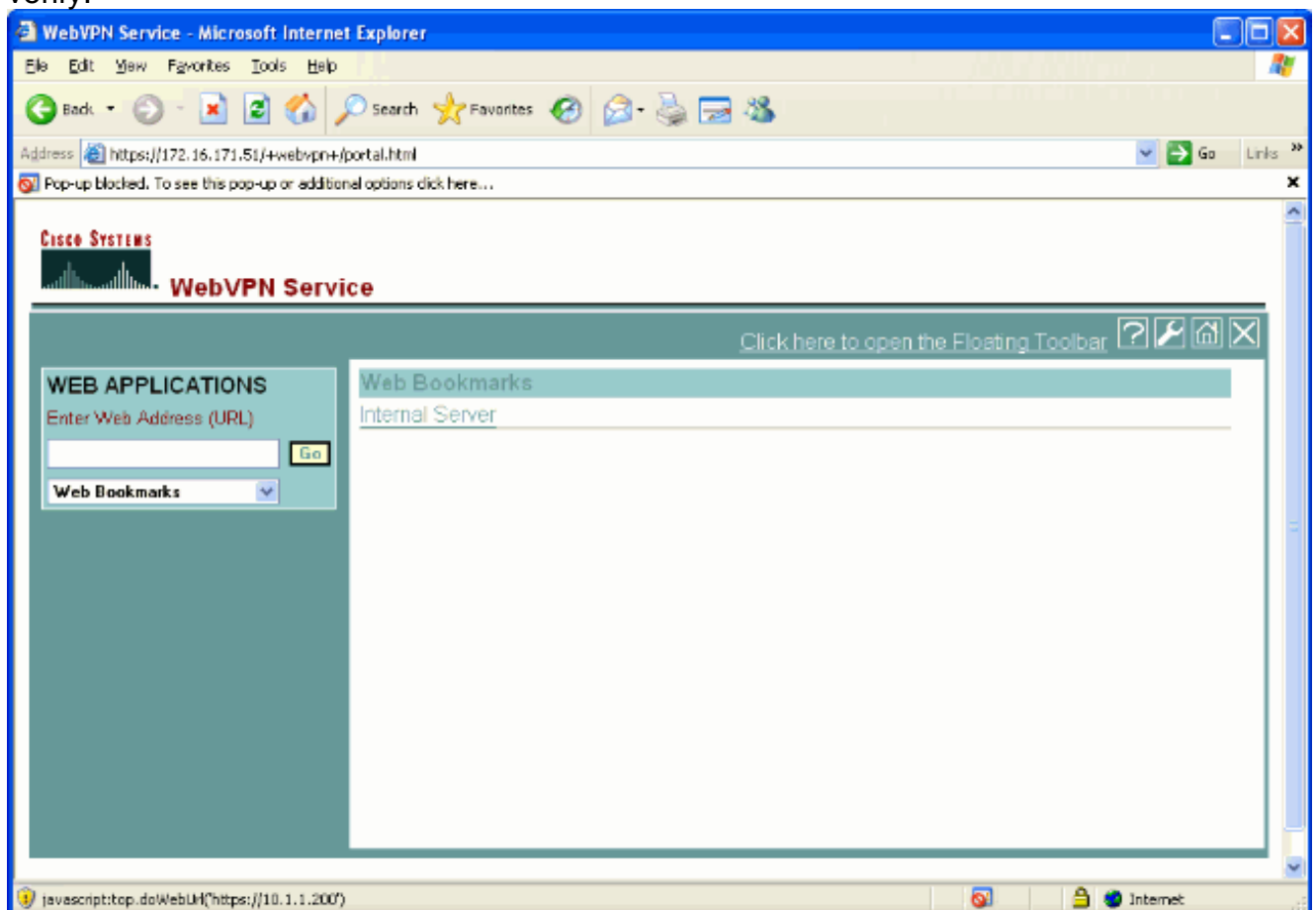
## Test a WebVPN Login

Login as a user to test your configuration.

1. Attempt to login to the ASA with user information from your NT Domain. Select the group alias configured in step 5 under [Configure a Tunnel Group](#).



2. Look for the link(s) configured to the internal server(s). Click on the link to verify.



## Monitor Sessions

Select **Monitoring > VPN > VPN Statistics > Sessions** and look for a WebVPN session that belongs to the group configured in this document.

Monitoring > VPN > VPN Statistics > Sessions

Remote Access	LAN-to-LAN	WebVPN	SSLVPN Client	E-mail Proxy	Total	Total Cumulative
0	0	1	0	0	1	3

Filter By: WebVPN -- All Sessions -- Filter

Username IP Address	Group Policy Tunnel Group	Protocol Encryption	Login Time Duration	Details
test 171.69.89.116	Internal-GRP_POL_ WEB_VPN-GRP	WebVPN 3DES	15:03:38 UTC Thu 0h:01m:18s	Logout Ping

To sort VPN sessions, right-click on the above table and select Table Sort Order from popup menu.

Logout By: -- All Sessions -- Logout Sessions Refresh

Last Updated: 3/30/06 2:31:30 PM

Data Refreshed Successfully: | cisco | NA (15) | 3/30/06 3:05:21 PM UTC

## Debug a WebVPN Session

This output is a sample debug of a successful WebVPN session.

**Note:** Refer to [Important Information on Debug Commands](#) before you use **debug** commands.

```
ASA#debug webvpn 255 INFO: debug webvpn enabled at level 255 ASA# ASA#
webvpn_portal.c:ewaFormServe_webvpn_login[1570] webvpn_portal.c:http_webvpn_kill_cookie[385]
webvpn_auth.c:webvpn_auth[286] WebVPN: no cookie present!!
webvpn_portal.c:ewaFormSubmit_webvpn_login[1640] webvpn_portal.c:http_webvpn_kill_cookie[385]
webvpn_auth.c:http_webvpn_pre_authentication[1782] !--- Begin AAA WebVPN: calling AAA with
ewsContext (78986968) and nh (78960800)! WebVPN: started user authentication...
webvpn_auth.c:webvpn_aaa_callback[3422] WebVPN: AAA status = (ACCEPT)
webvpn_portal.c:ewaFormSubmit_webvpn_login[1640]
webvpn_auth.c:http_webvpn_post_authentication[1095] WebVPN: user: (test) authenticated. !---
End AAA webvpn_auth.c:http_webvpn_auth_accept[2093]
webvpn_session.c:http_webvpn_create_session[159]
webvpn_session.c:http_webvpn_find_session[136] WebVPN session created!
webvpn_session.c:http_webvpn_find_session[136] webvpn_db.c:webvpn_get_server_db_first[161]
webvpn_db.c:webvpn_get_server_db_next[202] traversing list: (webserver)
webvpn_portal.c:ewaFormServe_webvpn_cookie[1421] webvpn_auth.c:webvpn_auth[286]
webvpn_session.c:http_webvpn_find_session[136] webvpn_session.c:webvpn_update_idle_time[924]
WebVPN: session has been authenticated. webvpn_auth.c:webvpn_auth[286]
webvpn_session.c:http_webvpn_find_session[136] webvpn_session.c:webvpn_update_idle_time[924]
```

```
WebVPN: session has been authenticated. !--- Output supressed webvpn_auth.c:webvpn_auth[286]
webvpn_session.c:http_webvpn_find_session[136] webvpn_session.c:webvpn_update_idle_time[924]
WebVPN: session has been authenticated. webvpn_auth.c:webvpn_auth[286]
webvpn_session.c:http_webvpn_find_session[136] webvpn_session.c:webvpn_update_idle_time[924]
WebVPN: session has been authenticated. webvpn_auth.c:webvpn_auth[286]
webvpn_session.c:http_webvpn_find_session[136] webvpn_session.c:webvpn_update_idle_time[924]
WebVPN: session has been authenticated. webvpn_auth.c:webvpn_auth[286]
webvpn_session.c:http_webvpn_find_session[136] webvpn_session.c:webvpn_update_idle_time[924]
WebVPN: session has been authenticated. webvpn_auth.c:webvpn_auth[286]
webvpn_session.c:http_webvpn_find_session[136] webvpn_session.c:webvpn_update_idle_time[924]
WebVPN: session has been authenticated. webvpn_session.c:http_webvpn_find_session[136]
webvpn_session.c:webvpn_update_idle_time[924]
```

## Troubleshoot

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

- If the Group drop-down box is not present on the WebVPN login page, be sure that you have completed step 2 under [Enable WebVPN on the Outside Interface](#) and step 5 under [Configure a Tunnel Group](#). If these steps are not completed and the drop-down is missing, authentication falls under the Default Group and likely fails.
- Although you cannot assign access rights to the user in ASDM or on the ASA, you can restrict users with Microsoft Windows access rights on your domain controller. Add the necessary NT group permissions for the web page the user authenticates to. Once the user logs into WebVPN with the permissions of the group, access to the specified pages is granted or denied accordingly. The ASA only acts as a proxy authentication host on behalf of the domain controller and all communications here are NTLMv1.
- You cannot configure SSO for Sharepoint over WebVPN because the Sharepoint Server does not support forms based authentication. As a result, the bookmarks with post or the post plugin procedure is not applicable here.

## Related Information

- [Cisco ASA 5500 Series Adaptive Security Appliances](#)
- [Technical Support & Documentation - Cisco Systems](#)