

PIX/ASA 7.x ASDM: Restrict the Network Access of Remote Access VPN Users

Document ID: 69308

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Introduction

This document provides a sample configuration using the Cisco Adaptive Security Device Manager (ASDM) for restricting what internal networks remote access VPN users can access behind the PIX Security Appliance or Adaptive Security Appliance (ASA). You can limit remote access VPN users to only the areas of the network that you want them to access when you:

1. Create access lists.
2. Associate them with group policies.
3. Associate those group policies with tunnel groups.

Refer to Configuring the Cisco VPN 3000 Concentrator for Blocking with Filters and RADIUS Filter Assignment in order to learn more about the scenario where the VPN Concentrator blocks the access from VPN users.

Prerequisites

Requirements

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

- The PIX can be configured using the ASDM.

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

- You have at least one known good remote access VPN configuration in place.

Note: If you do not have any such configurations, refer to ASA as a Remote VPN Server using ASDM Configuration Example for information on how to configure one good remote access VPN configuration.

Components Used

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

- Cisco Secure PIX 500 Series Security Appliance version 7.1(1)

Note: The PIX 501 and 506E Security Appliances do not support version 7.x.

- Cisco Adaptive Security Device Manager version 5.1(1)

Note: The ASDM is only available in PIX or ASA 7.x.

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.

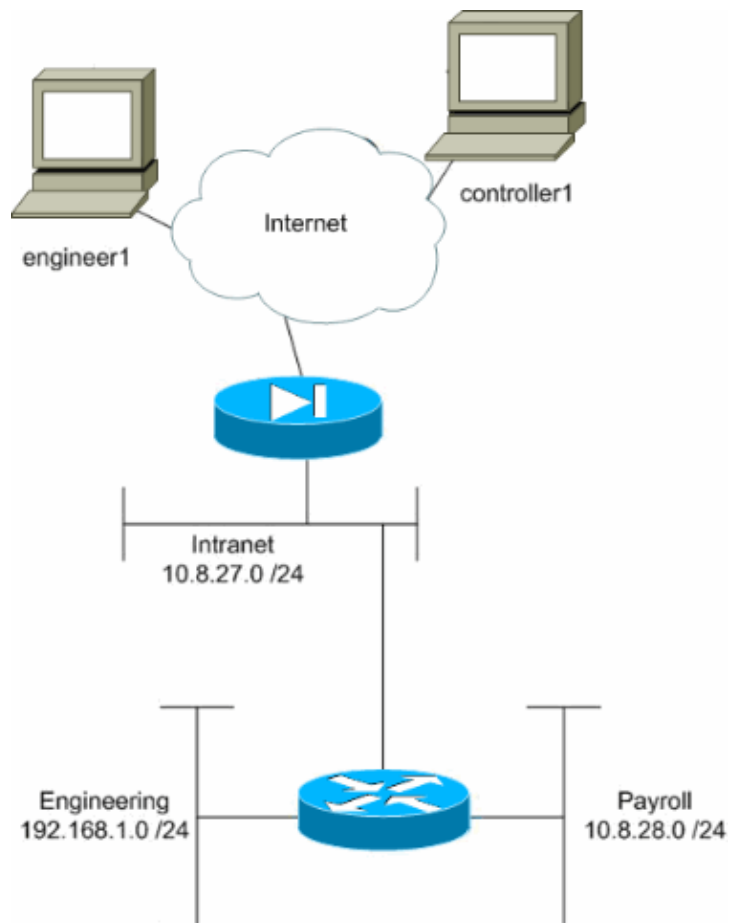
Related Products

This configuration can also be used with these hardware and software versions:

- Cisco ASA 5500 Series Adaptive Security Appliance version 7.1(1)

Network Diagram

This document uses this network setup:



In this configuration example, a small corporate network with three subnets is supposed. This diagram illustrates the topology. The three subnets are Intranet, Engineering, and Payroll. The goal of this configuration example is to permit payroll personnel remote access to the Intranet and Payroll subnets and prevent them from accessing the Engineering subnet. Also, the engineers should be able to remotely access the Intranet and Engineering subnets, but not the Payroll subnet. The payroll user in this example is "controller1". The engineering user in this example is "engineer1".

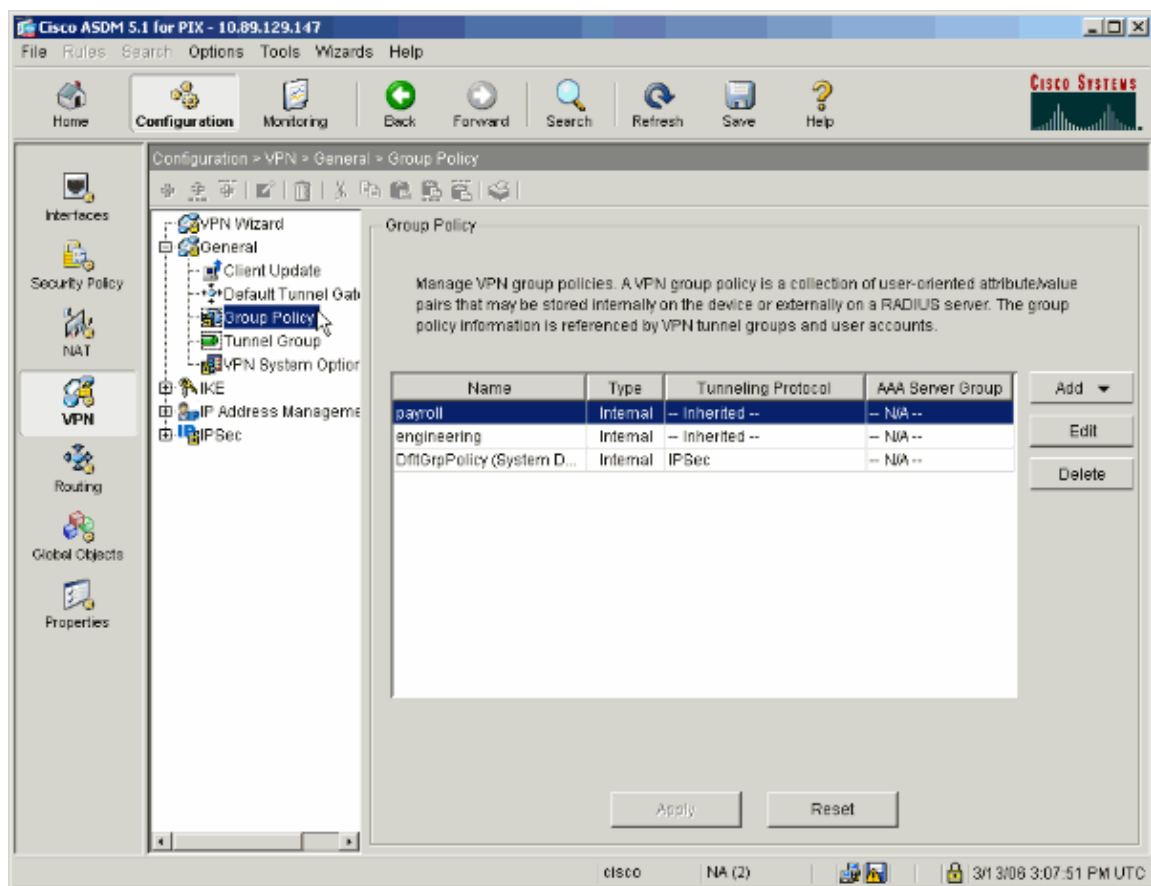
Conventions

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

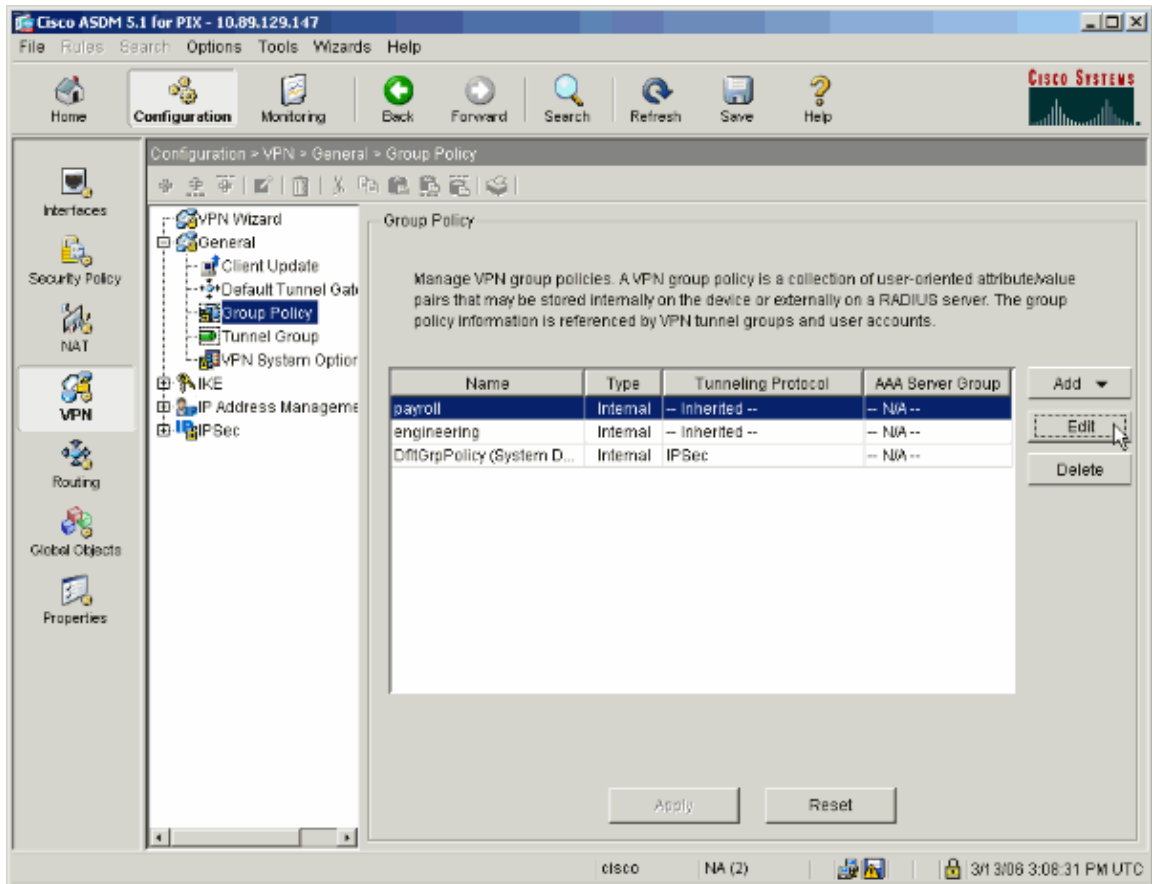
Configure Access via ASDM

Complete these steps to configure the PIX Security Appliance using ASDM:

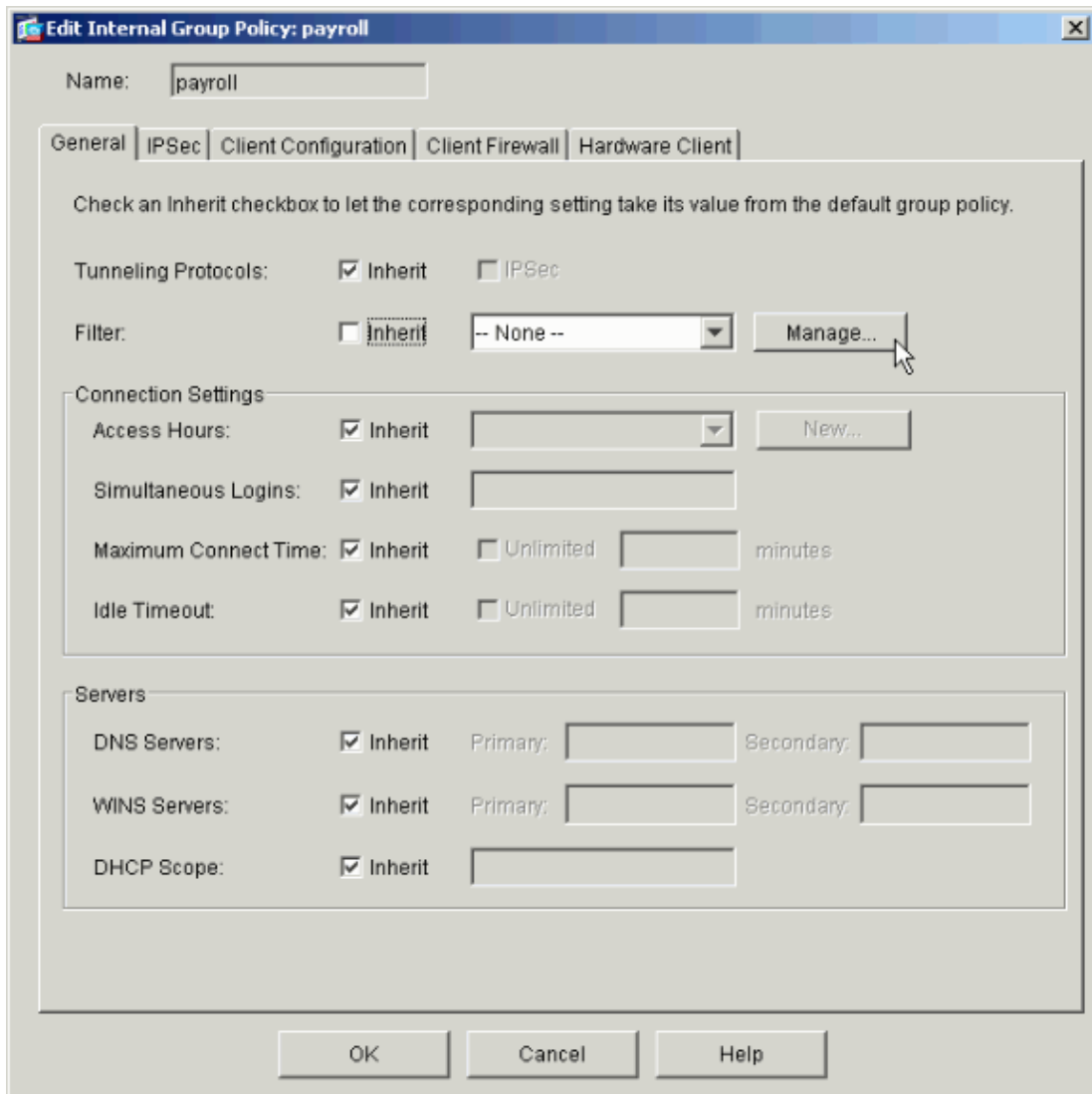
1. Select **Configuration > VPN > General > Group Policy**.



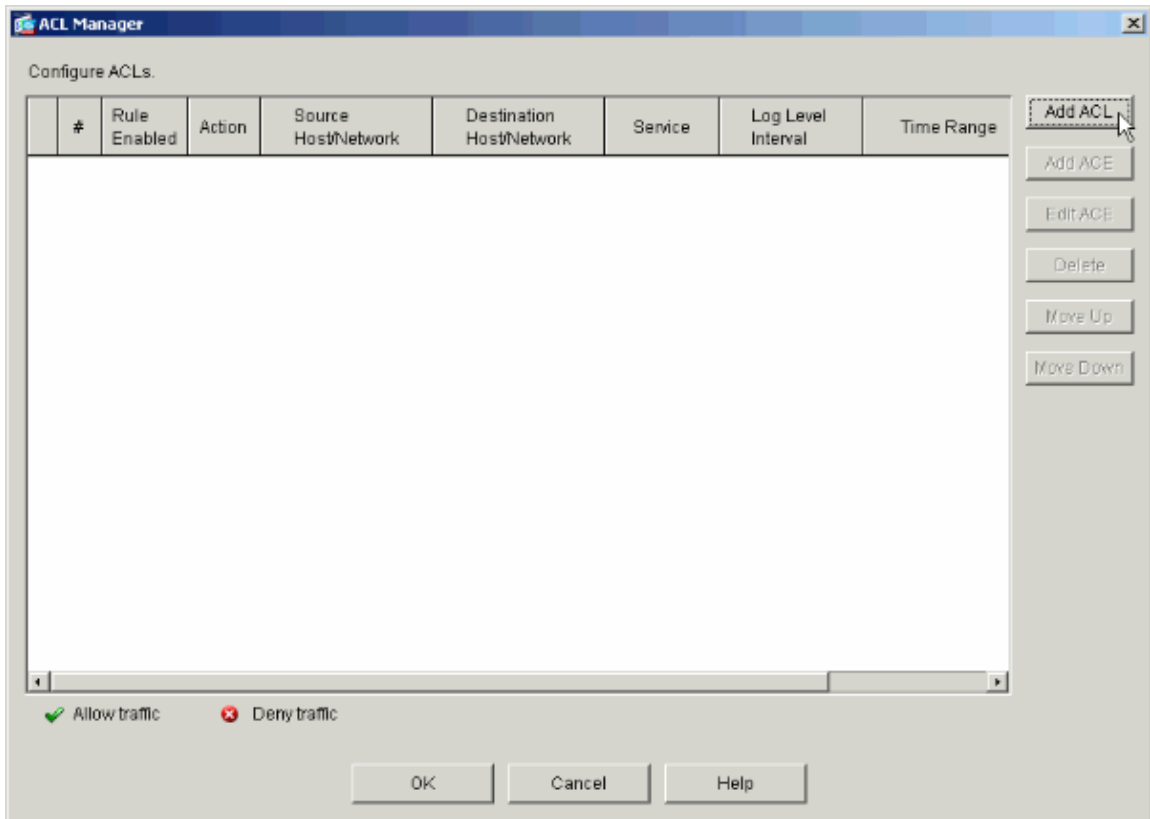
2. Based on what steps were taken to configure tunnel groups on the PIX, Group Policies might already exist for those tunnel groups whose users you wish to restrict. If a suitable Group Policy already exists, choose it and click **Edit**. Otherwise, click **Add** and choose **Internal Group Policy...**



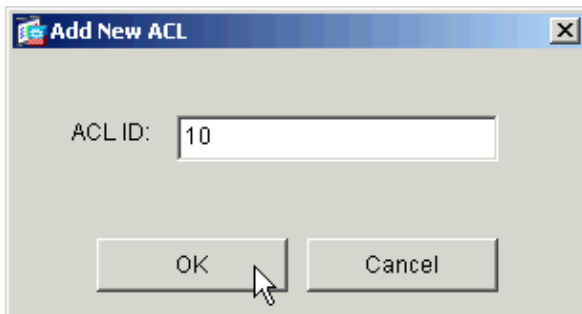
3. If necessary, enter or change the name of the Group Policy at the top of the window that opens.
4. On the General tab uncheck the **Inherit** box next to Filter and then click **Manage**.



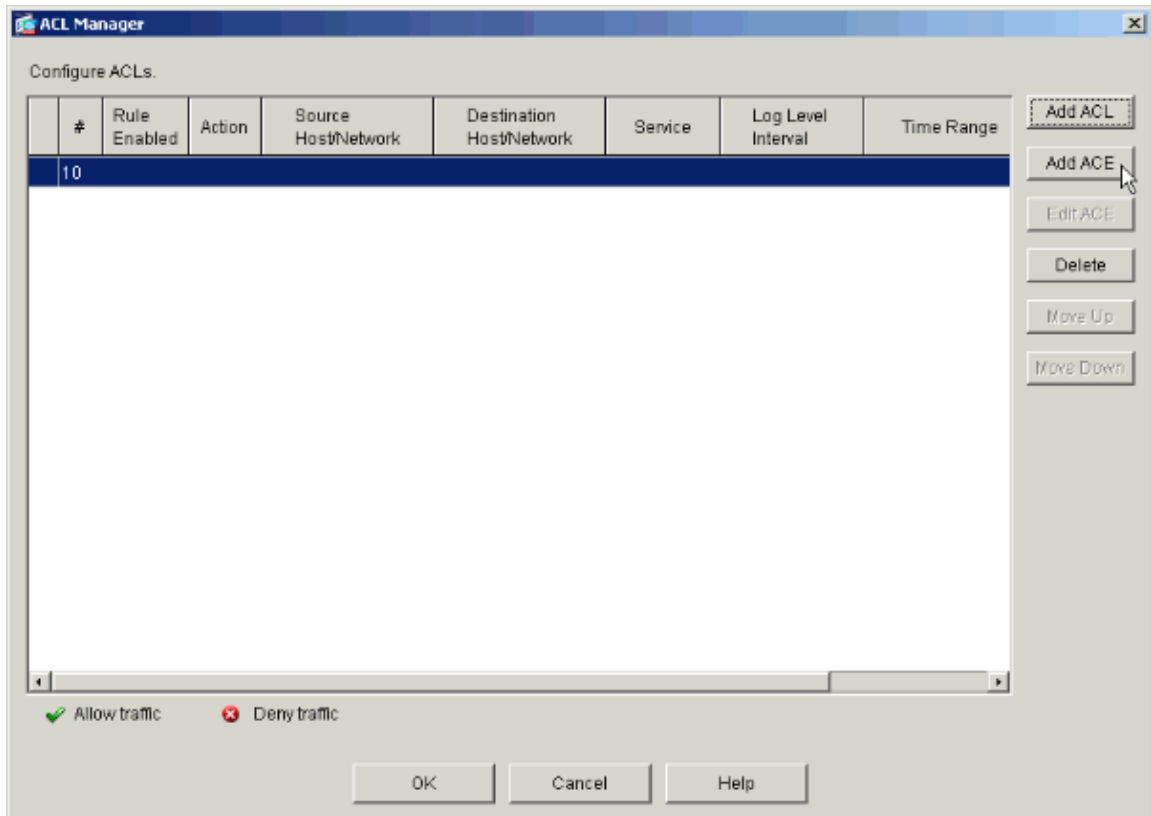
5. Click **Add ACL** to create a new access list in the ACL Manager window that appears.



6. Choose a number for the new access list and click **OK**.



7. With your new ACL selected on the left, click **Add ACE** to add a new access control entry to the list.



8. Define the access control entry (ACE) that you wish to add.

In this example, the first ACE in ACL 10 permits IP access to the Payroll subnet from any source.

Note: By default, ASDM selects only TCP as the protocol. You must choose IP if you wish to permit or deny users full IP access. Click **OK** when you are finished.

Add Extended Access List Rule

Action

Permit Deny

Time Range

Time Range: -- Not Applied --

Syslog

Default Syslog

Source Host/Network

IP Address Name Group

IP address: 0.0.0.0

Mask: 0.0.0.0

Destination Host/Network

IP Address Name Group

IP address: 10.8.28.0

Mask: 255.255.255.0

Protocol and Service

TCP UDP ICMP IP

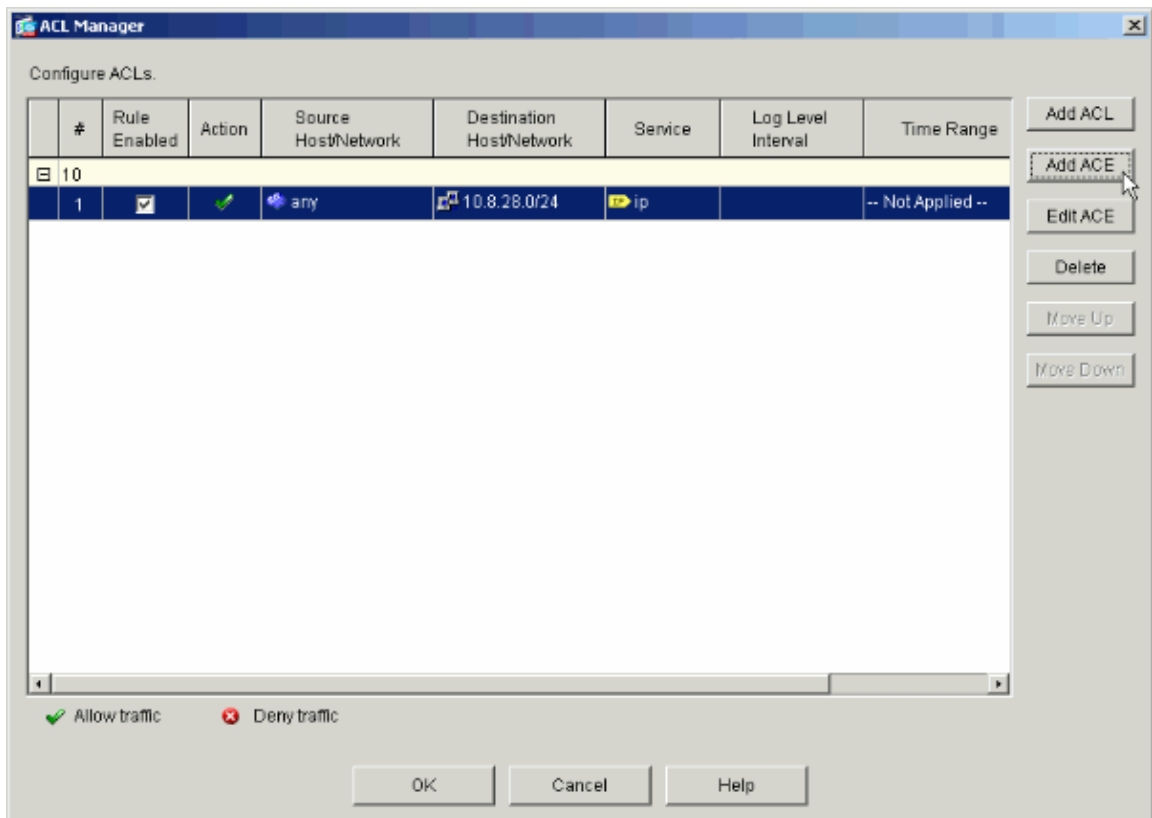
IP Protocol

IP protocol: any

Please enter the description below (optional):

permit IP access from ANY source to the payroll subnet (10.8.28.0 /24)

9. The ACE that you just added now appears in the list. Choose **Add ACE** again to add any additional lines to the access list.



In this example, a second ACE is added to ACL 10 in order to permit access to the Intranet subnet.

Add Extended Access List Rule

Action

Permit Deny

Time Range

Time Range: -- Not Applied --

Syslog

Default Syslog

Source Host/Network

IP Address Name Group

IP address: 0.0.0.0

Mask: 0.0.0.0

Destination Host/Network

IP Address Name Group

IP address: 10.8.27.0

Mask: 255.255.255.0

Protocol and Service

TCP UDP ICMP IP

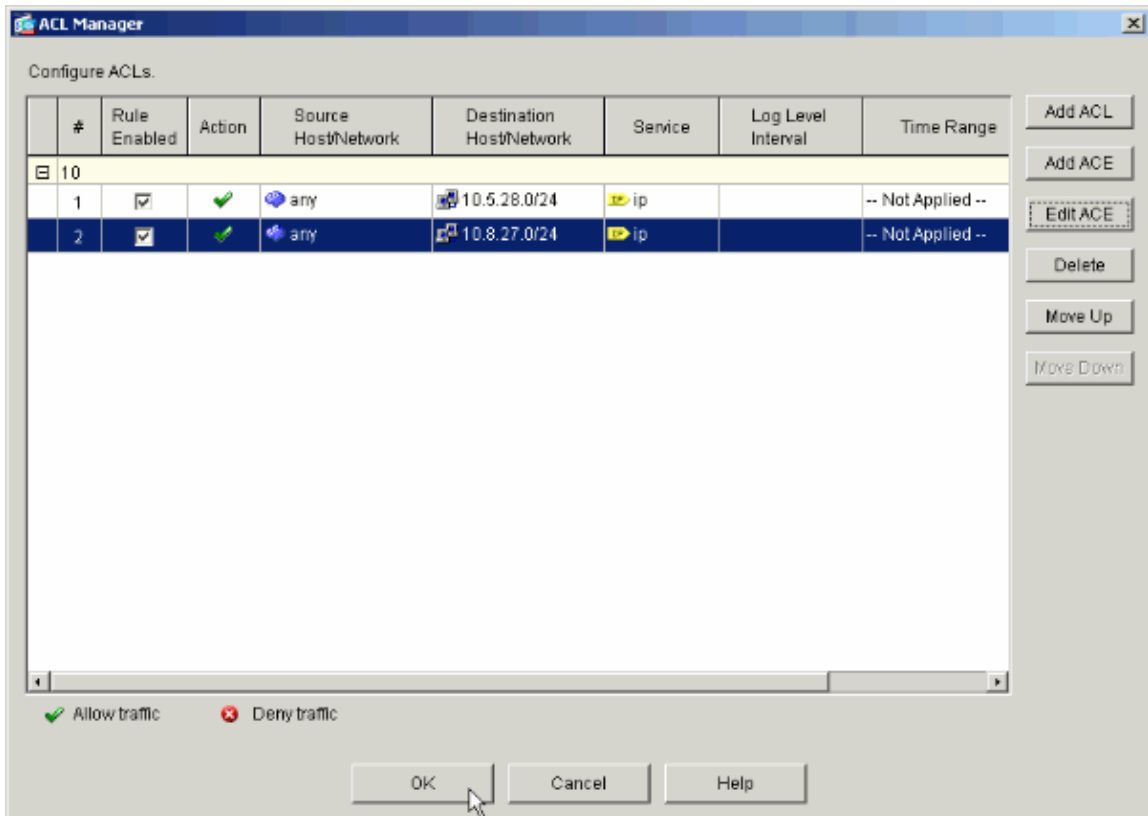
IP Protocol

IP protocol: any

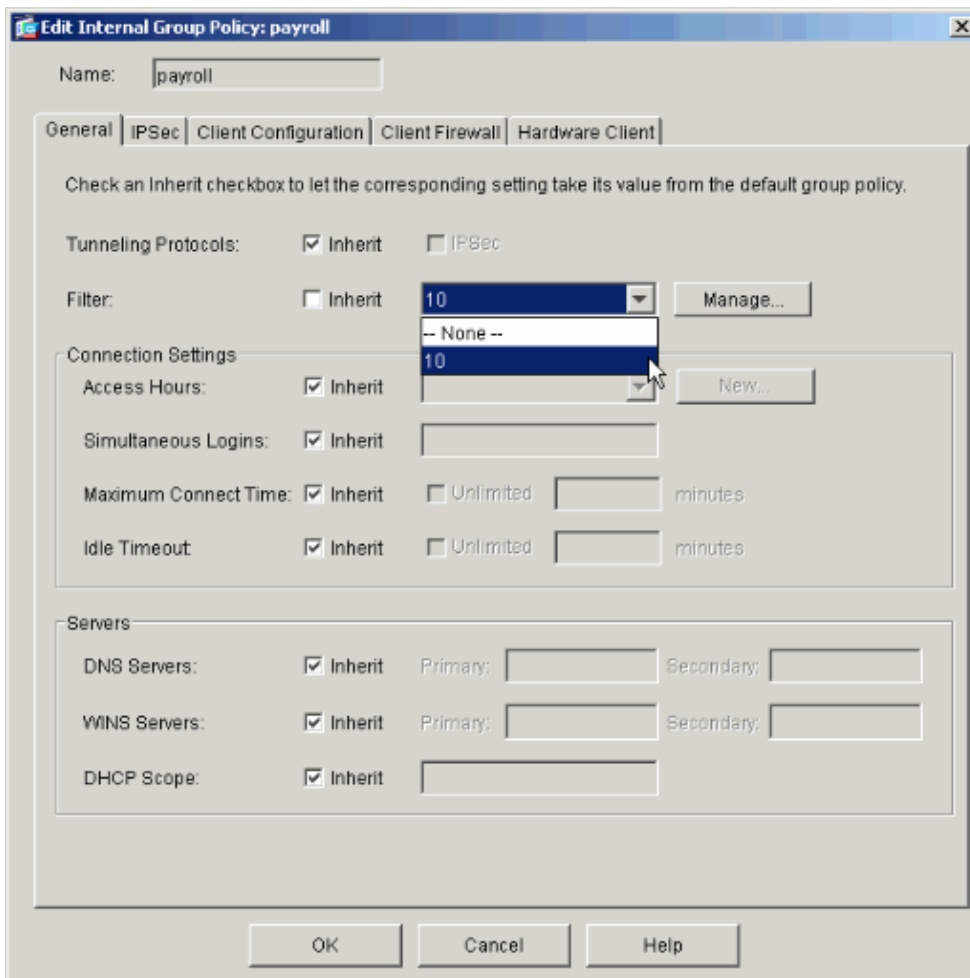
Please enter the description below (optional):

permit IP access from ANY source to the subnet used by all employees (10.8.27.0 /24)

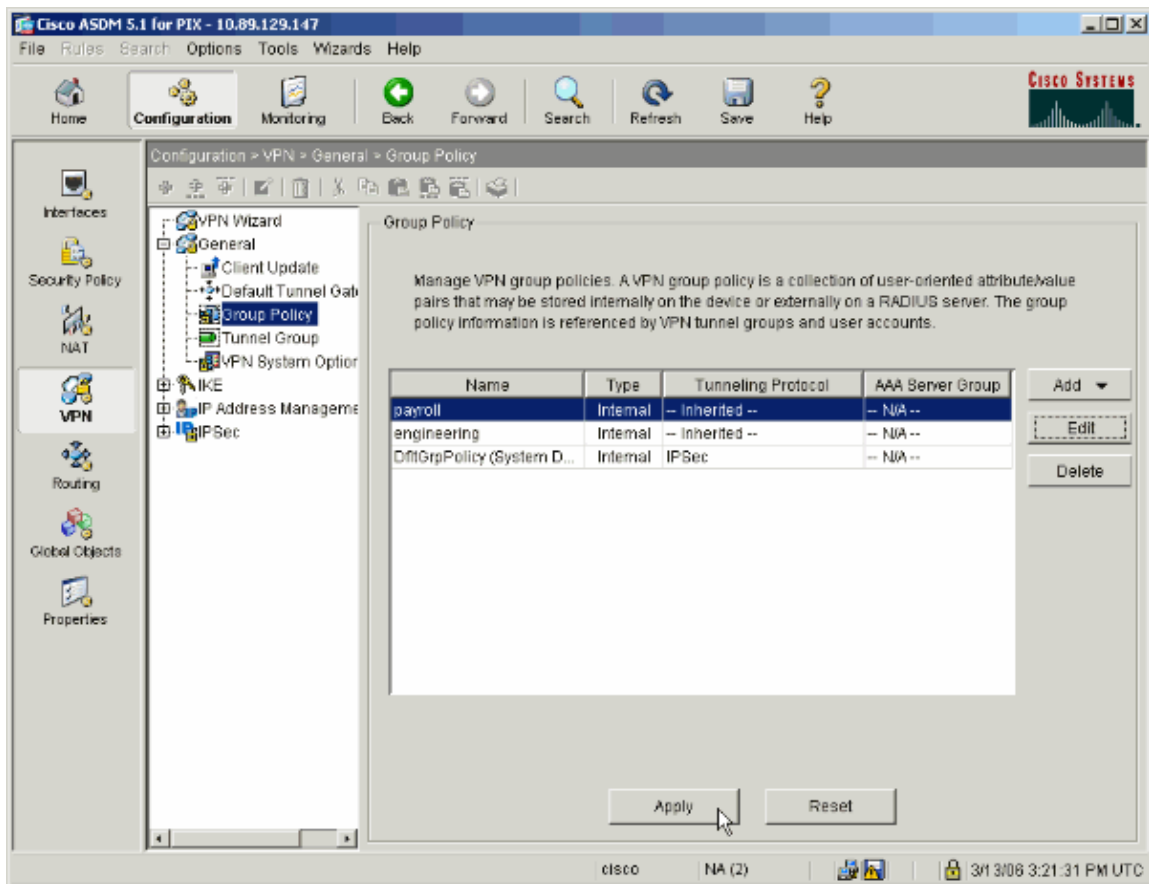
10. Click **OK** once you are done adding ACEs.



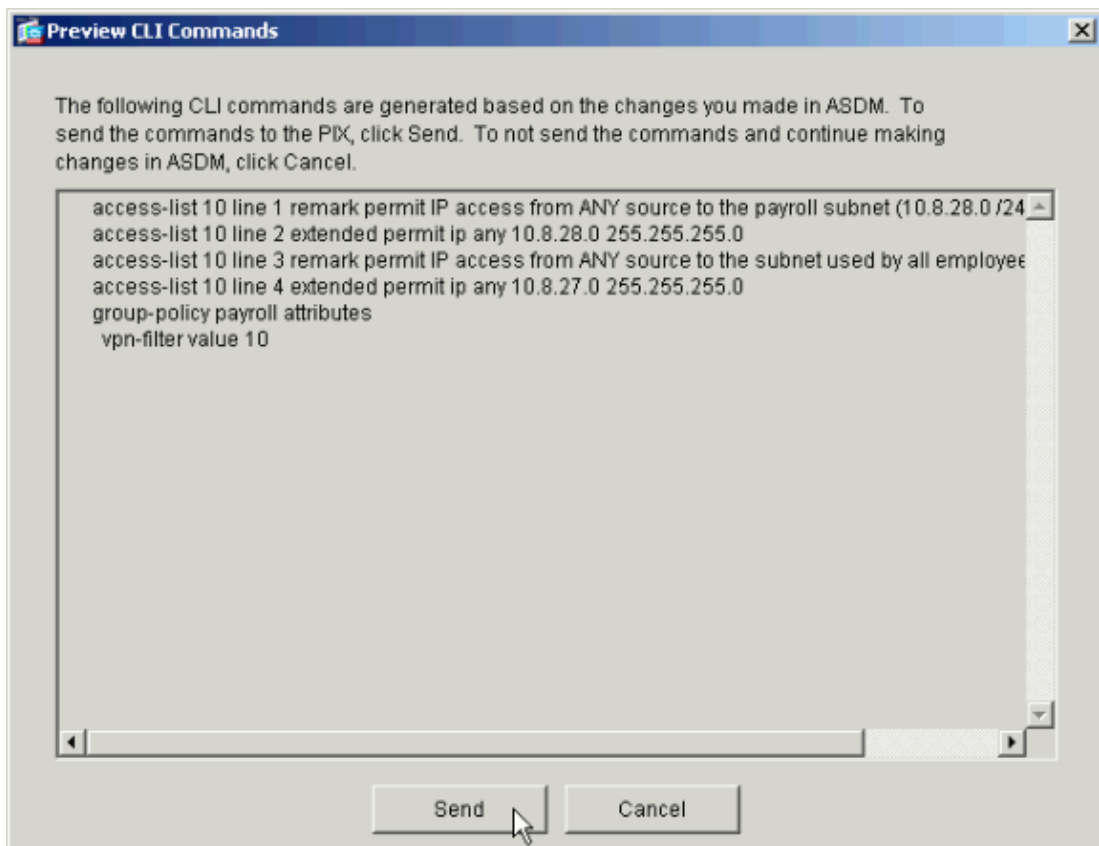
11. Select the ACL that you defined and populated in the last steps to be the filter for your Group Policy. Click **OK** when you are done.



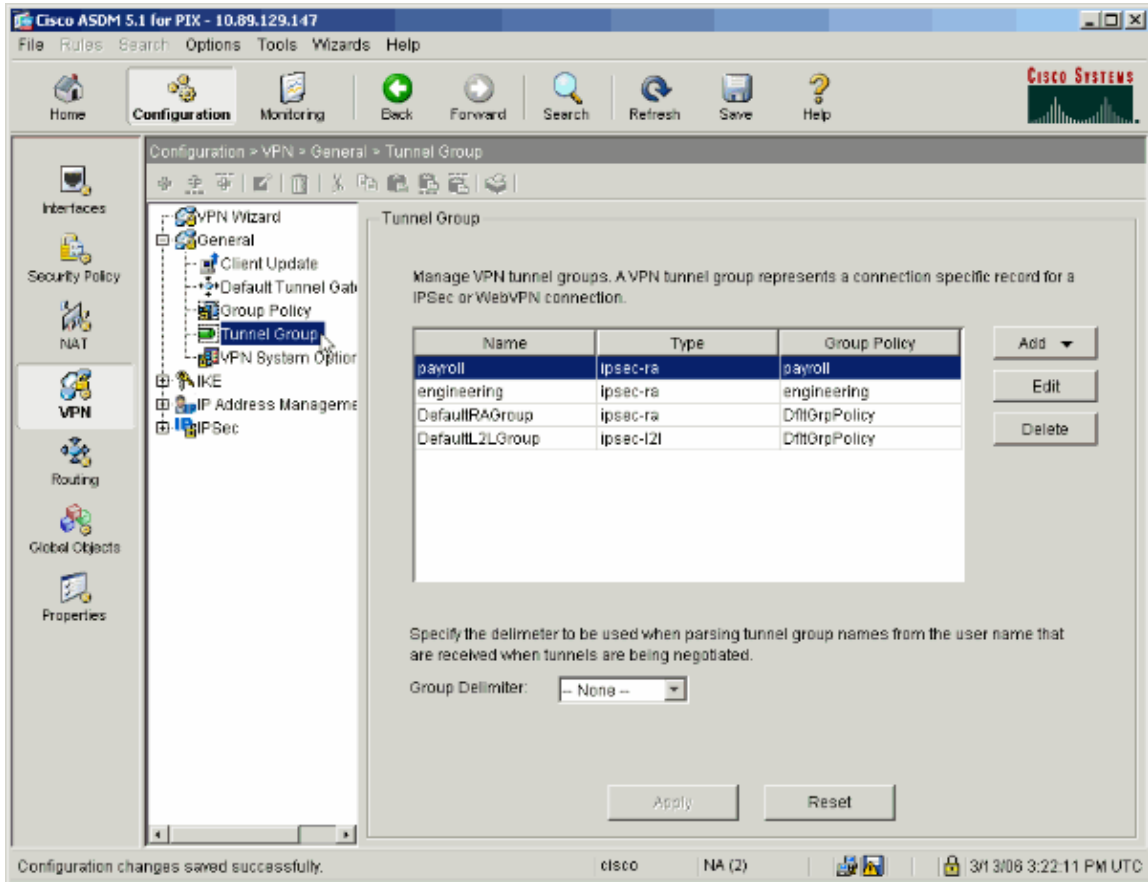
12. Click **Apply** to send the changes to the PIX.



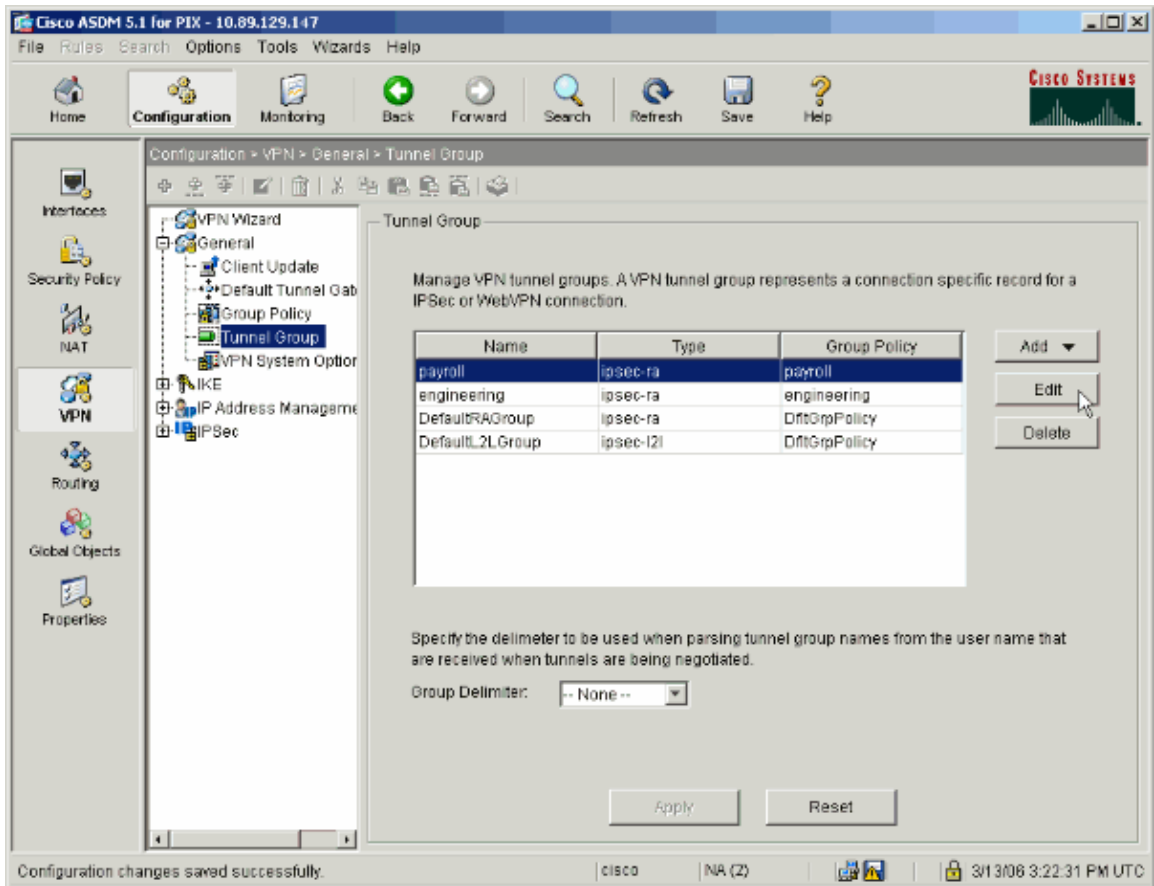
13. If you have it configured to do so under **Options > Preferences**, the ASDM previews the commands that it is about to send to the PIX. Click **Send**.



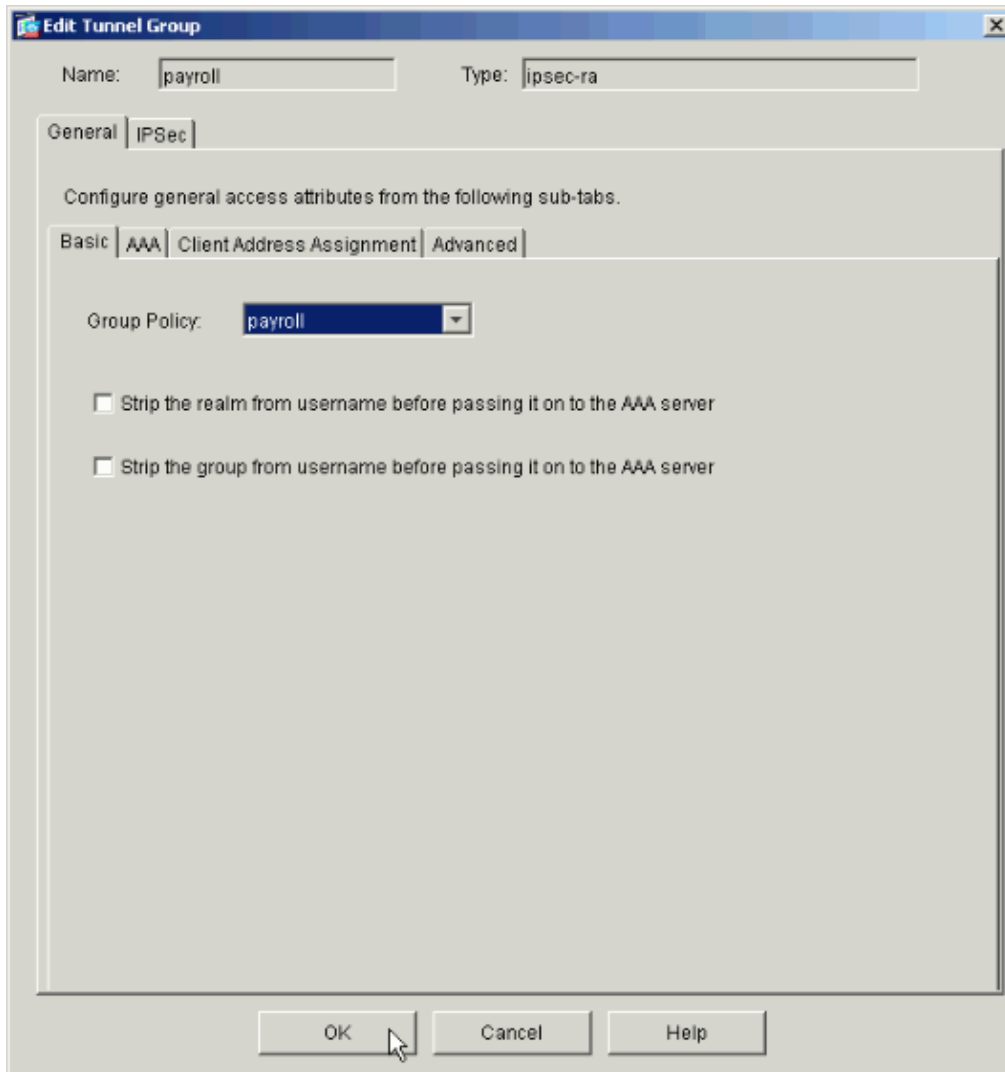
14. Apply the Group Policy that was just created or modified to the correct tunnel group. Click **Tunnel Group** in the left frame.



15. Choose the Tunnel Group that you wish to apply the Group Policy to and click **Edit**.



16. If your Group Policy was created automatically (see step 2), verify that the Group Policy you just configured is selected in the drop-down box. If your Group Policy was not automatically configured, select it from the drop-down box. Click **OK** when you are done.



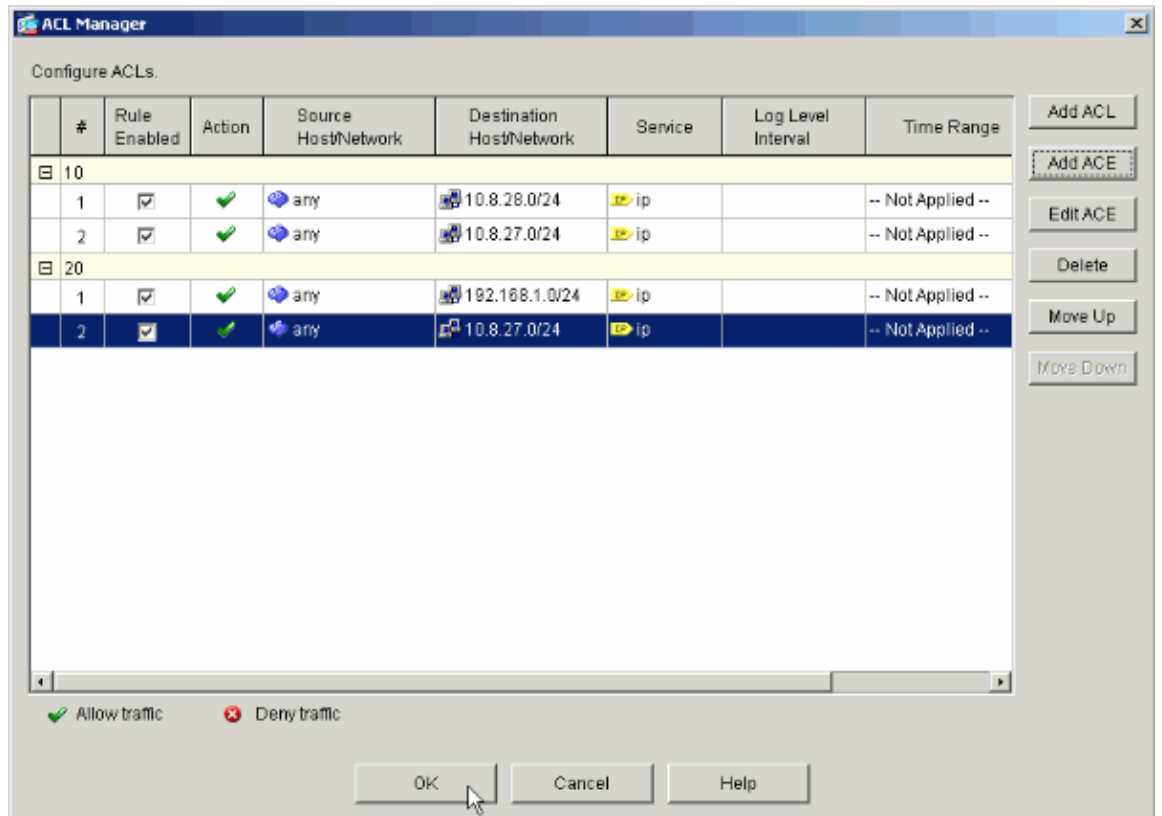
17. Click **Apply** and, if prompted, click **Send** to add the change to the PIX configuration.

If the Group Policy was already selected you might receive a message that says "No changes were made." Click **OK**.

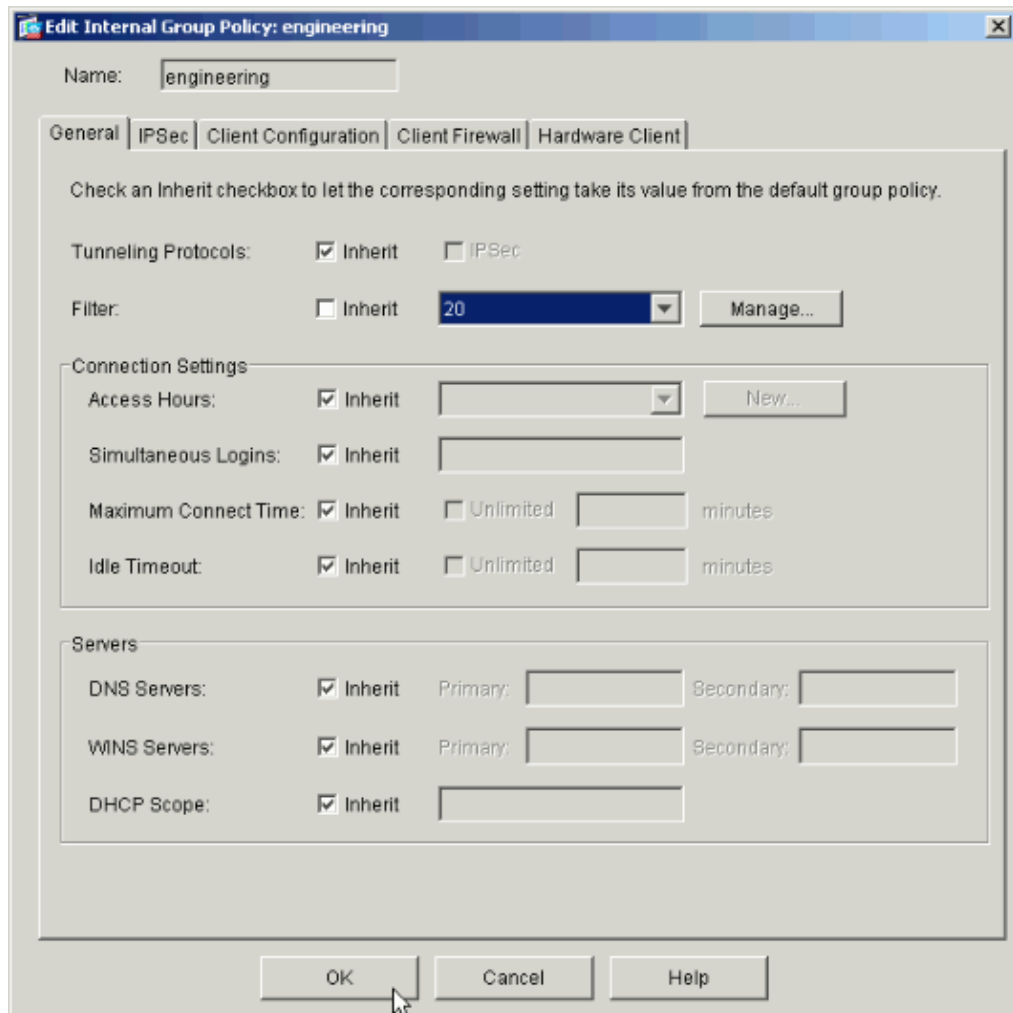
18. Repeat steps 2 through 17 for any additional Tunnel Groups to which you would like to add restrictions.

In this configuration example, it is also necessary to restrict the access of the engineers. While the procedure is the same, these are a few windows on which differences are notable:

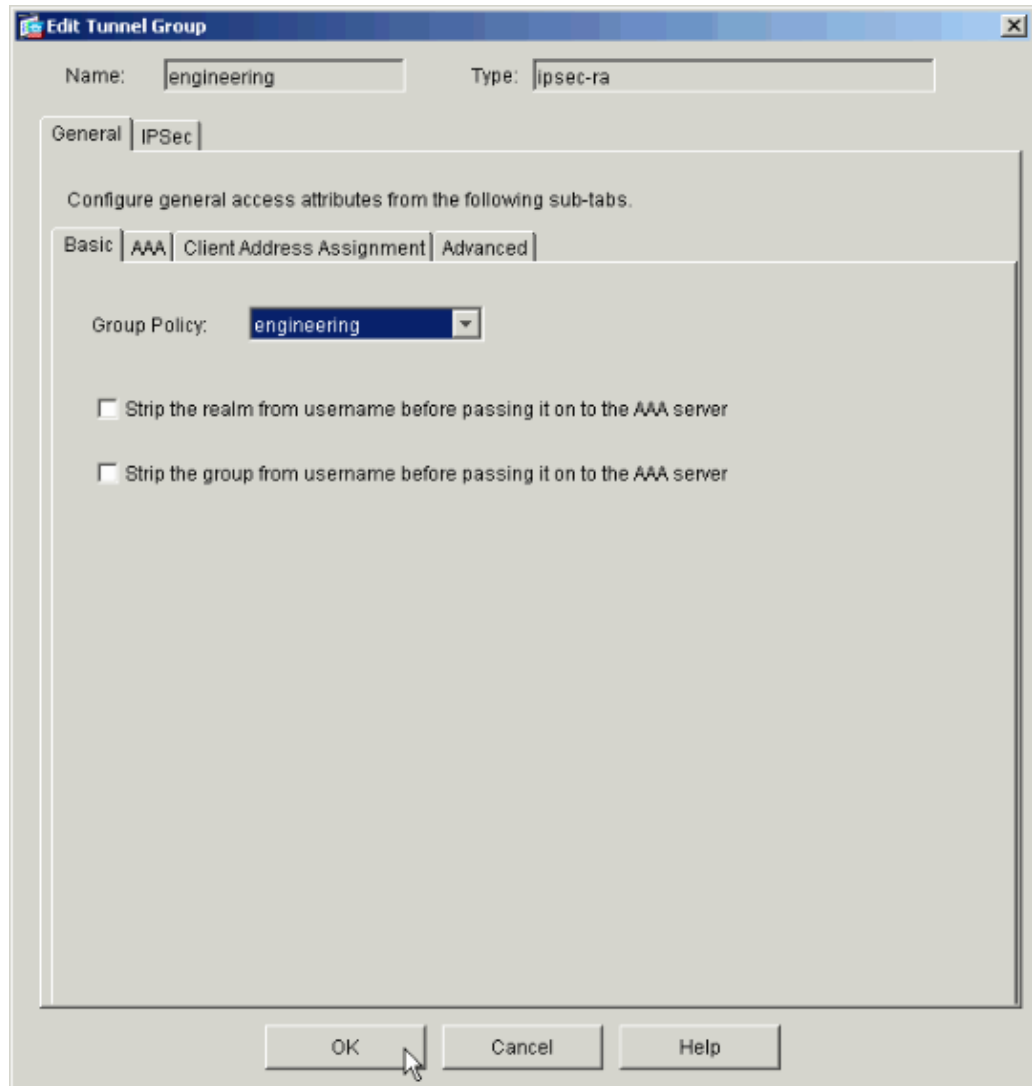
- ◆ New Access List 20



- ◆ Choose **Access List 20** as a filter in the Engineering Group Policy.



- ◆ Verify that the Engineering Group Policy is set for the Engineering Tunnel Group.



Configure Access via CLI

Complete these steps to configure the security appliance using the CLI:

Note: Some of the commands shown in this output are brought down to a second line due to spatial reasons.

1. Create two different access control lists (15 and 20) that are applied to users as they connect to the remote access VPN. This access list is called on later in the configuration.

```
ASAwCSC-CLI(config)#access-list 15 remark permit IP access from ANY  
source to the payroll subnet (10.8.28.0/24)
```

```
ASAwCSC-CLI(config)#access-list 15 extended permit ip  
any 10.8.28.0 255.255.255.0
```

```
ASAwCSC-CLI(config)#access-list 15 remark Permit IP access from ANY  
source to the subnet used by all employees (10.8.27.0)
```

```
ASAwCSC-CLI(config)#access-list 15 extended permit ip  
any 10.8.27.0 255.255.255.0
```

```
ASAwCSC-CLI(config)#access-list 20 remark Permit IP access from ANY
```

```
source to the Engineering subnet (192.168.1.0/24)
```

```
ASAwCSC-CLI(config)#access-list 20 extended permit ip  
any 192.168.1.0 255.255.255.0
```

```
ASAwCSC-CLI(config)#access-list 20 remark Permit IP access from ANY  
source to the subnet used by all employees (10.8.27.0/24)
```

```
ASAwCSC-CLI(config)#access-list 20 extended permit ip  
any 10.8.27.0 255.255.255.0
```

2. Create two different VPN address pools. Create one for Payroll and one for the Engineering remote users.

```
ASAwCSC-CLI(config)#ip local pool Payroll-VPN  
172.10.1.100-172.10.1.200 mask 255.255.255.0
```

```
ASAwCSC-CLI(config)#ip local pool Engineer-VPN 172.16.2.1-172.16.2.199  
mask 255.255.255.0
```

3. Create policies for Payroll that only apply to them when they connect.

```
ASAwCSC-CLI(config)#group-policy Payroll internal
```

```
ASAwCSC-CLI(config)#group-policy Payroll attributes
```

```
ASAwCSC-CLI(config-group-policy)#dns-server value 10.8.27.10
```

```
ASAwCSC-CLI(config-group-policy)#vpn-filter value 15
```

```
!--- Call the ACL created in step 1 for Payroll.
```

```
ASAwCSC-CLI(config-group-policy)#vpn-tunnel-protocol IPSec
```

```
ASAwCSC-CLI(config-group-policy)#default-domain value payroll.corp.com
```

```
ASAwCSC-CLI(config-group-policy)#address-pools value Payroll-VPN
```

```
!--- Call the Payroll address space that you created in step 2.
```

4. This step is the same as step 3 except it is for the Engineering group.

```
ASAwCSC-CLI(config)#group-policy Engineering internal
```

```
ASAwCSC-CLI(config)#group-policy Engineering attributes
```

```
ASAwCSC-CLI(config-group-policy)#dns-server value 10.8.27.10
```

```
ASAwCSC-CLI(config-group-policy)#vpn-filter value 20
```

```
!--- Call the ACL that you created in step 1 for Engineering.
```

```
ASAwCSC-CLI(config-group-policy)#vpn-tunnel-protocol IPSec
```

```
ASAwCSC-CLI(config-group-policy)#default-domain value Engineer.corp.com
```

```
ASAwCSC-CLI(config-group-policy)#address-pools value Engineer-VPN
```

```
!--- Call the Engineering address space that you created in step 2.
```

5. Create local users and assign the attributes you just created to those users to restrict their access to resources.

```
ASAwCSC-CLI(config)#username engineer password cisco123
ASAwCSC-CLI(config)#username engineer attributes
ASAwCSC-CLI(config-username)#vpn-group-policy Engineering
ASAwCSC-CLI(config-username)#vpn-filter value 20
ASAwCSC-CLI(config)#username marty password cisco456
ASAwCSC-CLI(config)#username marty attributes
ASAwCSC-CLI(config-username)#vpn-group-policy Payroll
ASAwCSC-CLI(config-username)#vpn-filter value 15
```

6. Create tunnel-groups that contain connection policies for the Payroll users.

```
ASAwCSC-CLI(config)#tunnel-group Payroll type ipsec-ra
ASAwCSC-CLI(config)#tunnel-group Payroll general-attributes
ASAwCSC-CLI(config-tunnel-general)#address-pool Payroll-VPN
ASAwCSC-CLI(config-tunnel-general)#default-group-policy Payroll
ASAwCSC-CLI(config)#tunnel-group Payroll ipsec-attributes
ASAwCSC-CLI(config-tunnel-ipsec)#pre-shared-key time1234
```

7. Create tunnel-groups that contain connection policies for the Engineering users.

```
ASAwCSC-CLI(config)#tunnel-group Engineering type ipsec-ra
ASAwCSC-CLI(config)#tunnel-group Engineering general-attributes
ASAwCSC-CLI(config-tunnel-general)#address-pool Engineer-VPN
ASAwCSC-CLI(config-tunnel-general)#default-group-policy Engineering
ASAwCSC-CLI(config)#tunnel-group Engineering ipsec-attributes
ASAwCSC-CLI(config-tunnel-ipsec)#pre-shared-key Engine123
```

Once you configuration is entered, you can see this highlighted area in your configuration:

Device Name 1
ASA-AIP-CLI(config)#show running-config ASA Version 7.2(2) ! hostname ASAwCSC-ASDM domain-name corp.com enable password 9jNfZuG3TC5tCVH0 encrypted names ! interface Ethernet0/0 nameif Intranet security-level 0 ip address 10.8.27.2 255.255.255.0 ! interface Ethernet0/1

```
nameif Engineer
security-level 100
ip address 192.168.1.1 255.255.255.0
!
interface Ethernet0/2
nameif Payroll
security-level 100
ip address 10.8.28.0
!
interface Ethernet0/3
no nameif
no security-level
no ip address
!
interface Management0/0
no nameif
no security-level
no ip address
!
passwd 2KFQnbNIdI.2KYOU encrypted
ftp mode passive
dns server-group DefaultDNS
domain-name corp.com
access-list Inside_nat0_outbound extended permit ip any 172.10.1.0 255.255.255.0
access-list Inside_nat0_outbound extended permit ip any 172.16.2.0 255.255.255.0
access-list 15 remark permit IP access from ANY source to the
Payroll subnet (10.8.28.0/24)
access-list 15 extended permit ip any 10.8.28.0 255.255.255.0
access-list 15 remark Permit IP access from ANY source to the subnet
used by all employees (10.8.27.0)
access-list 15 extended permit ip any 10.8.27.0 255.255.255.0
access-list 20 remark Permit IP access from Any source to the Engineering
subnet (192.168.1.0/24)
access-list 20 extended permit ip any 192.168.1.0 255.255.255.0
access-list 20 remark Permit IP access from Any source to the subnet used
by all employees (10.8.27.0/24)
access-list 20 extended permit ip any 10.8.27.0 255.255.255.0
pager lines 24
mtu MAN 1500
mtu Outside 1500
mtu Inside 1500
ip local pool Payroll-VPN 172.10.1.100-172.10.1.200 mask 255.255.255.0
ip local pool Engineer-VPN 172.16.2.1-172.16.2.199 mask 255.255.255.0
no failover
icmp unreachable rate-limit 1 burst-size 1
asdm image disk0:/asdm-522.bin
no asdm history enable
arp timeout 14400
global (Intranet) 1 interface
nat (Inside) 0 access-list Inside_nat0_outbound
nat (Inside) 1 192.168.1.0 255.255.255.0
nat (Inside) 1 10.8.27.0 255.255.255.0
nat (Inside) 1 10.8.28.0 255.255.255.0
route Intranet 0.0.0.0 0.0.0.0 10.8.27.2
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 0:05:00
timeout sip 0:30:00 sip_media 0:02:00 sip-invite 0:03:00 sip-disconnect 0:02:00
timeout uauth 0:05:00 absolute
group-policy Payroll internal
group-policy Payroll attributes
dns-server value 10.8.27.10
vpn-filter value 15
vpn-tunnel-protocol IPSec
default-domain value payroll.corp.com
address-pools value Payroll-VPN
```

```
group-policy Engineering internal
group-policy Engineering attributes
  dns-server value 10.8.27.10
  vpn-filter value 20
  vpn-tunnel-protocol IPSec
  default-domain value Engineer.corp.com
  address-pools value Engineer-VPN
username engineer password LCaPXI.4Xtvclaca encrypted
username engineer attributes
  vpn-group-policy Engineering
  vpn-filter value 20
username marty password 6XmYwQ009tiYnUDN encrypted privilege 0
username marty attributes
  vpn-group-policy Payroll
  vpn-filter value 15
no snmp-server location
no snmp-server contact
crypto ipsec transform-set ESP-3DES-SHA esp-3des esp-sha-hmac
crypto dynamic-map Outside_dyn_map 20 set pfs
crypto dynamic-map Outside_dyn_map 20 set transform-set ESP-3DES-SHA
crypto map Outside_map 65535 ipsec-isakmp dynamic Outside_dyn_map
crypto map Outside_map interface Outside
crypto isakmp enable Outside
crypto isakmp policy 10
  authentication pre-share
  encryption 3des
  hash sha
  group 2
  lifetime 86400
tunnel-group Payroll type ipsec-ra
tunnel-group Payroll general-attributes
  address-pool vpnpool
  default-group-policy Payroll
tunnel-group Payroll ipsec-attributes
  pre-shared-key *
tunnel-group Engineering type ipsec-ra
tunnel-group Engineering general-attributes
  address-pool Engineer-VPN
  default-group-policy Engineering
tunnel-group Engineering ipsec-attributes
  pre-shared-key *
telnet timeout 5
ssh timeout 5
console timeout 0
!
class-map inspection_default
  match default-inspection-traffic
!
!
policy-map type inspect dns migrated_dns_map_1
  parameters
    message-length maximum 512
policy-map global_policy
  class inspection_default
    inspect dns migrated_dns_map_1
    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
prompt hostname context
Cryptochecksum:0e579c85004dcfb4071cb561514a392b
: end
ASA-AIP-CLI(config)#

```

Verify

Use the monitoring capabilities of the ASDM to verify your configuration:

1. Select **Monitoring > VPN > VPN Statistics > Sessions**.

You see the active VPN sessions on the PIX. Select the session that you are interested in and click **Details**.

The screenshot shows the Cisco ASDM 5.1 for PIX interface. The navigation pane on the left is expanded to 'Monitoring > VPN > VPN Statistics > Sessions'. The main content area displays a table of active VPN sessions. The table has columns for 'Remote Access', 'LAN-to-LAN', 'Total', and 'Total Cumulative'. Below this is a 'Filter By' section with a dropdown set to 'Remote Access' and a 'Filter' button. The main table has columns for 'Username', 'Group Policy Tunnel Group', 'Assigned IP Address', 'Public IP Address', and 'Protocol Encryption'. A single session is listed with the following details:

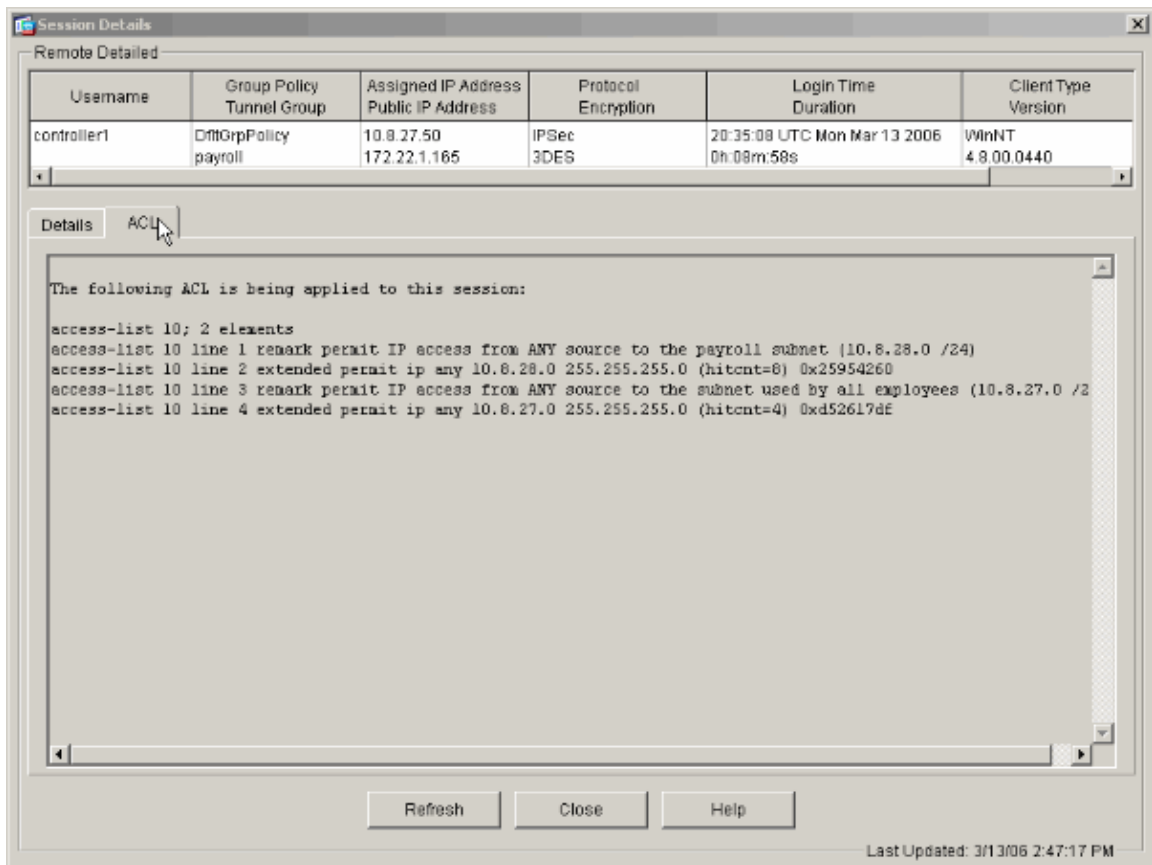
Remote Access	LAN-to-LAN	Total	Total Cumulative
1	0	1	3

Username	Group Policy Tunnel Group	Assigned IP Address	Public IP Address	Protocol Encryption
controller1	DfltGrpPolicy	10.8.27.50	172.22.1.185	IPSec 3DES

Buttons for 'Details', 'Logout', and 'Ping' are visible to the right of the table. Below the table, there is a 'Logout By' dropdown and a 'Logout Sessions' button. A 'Refresh' button is at the bottom. The status bar at the bottom indicates 'Data Refreshed Successfully.' and 'Last Updated: 3/13/06 2:39:33 PM'.

2. Select the ACL tab.

The ACL hitcnts reflects traffic that flows through the tunnel from the client to the permitted network(s).



Troubleshoot

There is currently no specific troubleshooting information available for this configuration.

Related Information

- [Cisco ASA 5500 Series Adaptive Security Appliances ASA as a Remote VPN Server using ASDM Configuration Example](#)
- [Cisco PIX 500 Series Security Appliances Configuration Examples and TechNotes](#)
- [Cisco ASA 5500 Series Adaptive Security Appliances Configuration Examples and TechNotes](#)
- [Cisco VPN Client Configuration Examples and TechNotes](#)
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