

# PIX/ASA 7.x and Cisco VPN Client 4.x for Cisco Secure ACS Authentication Configuration Example

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## Introduction

This sample configuration shows how to set up a remote access VPN connection between a Cisco VPN Client (4.x for Windows) and the PIX 500 Series Security Appliance 7.x using a Cisco Secure Access Control Server (ACS version 3.2) for extended authentication (Xauth).

Refer to PIX/ASA 7.x and Cisco VPN Client 4.x for Windows with Microsoft Windows 2003 IAS RADIUS Authentication Configuration Example in order to learn more about the same scenario in PIX/ASA 7.x with Cisco VPN Client 4.8.

Refer to Cisco Secure PIX Firewall 6.x and Cisco VPN Client 3.5 for Windows with Microsoft Windows 2000 and 2003 IAS RADIUS Authentication in order to learn more about the same scenario in PIX 6.x with Cisco VPN Client 3.5.

## Prerequisites

### Requirements

Ensure that the PIX 500 Series Security Appliance is reachable from the Internet before you attempt this configuration.

## Components Used

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

- PIX 515E Series Security Appliance Software Release 7.1(1)
- Cisco VPN Client version 4.8 for Windows
- Cisco Secure Access Control Server (ACS) version 3.2

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.

## Related Products

This configuration can also be used with the Cisco ASA 5500 Series Security Appliance.

## Conventions

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

## Background Information

Remote access VPNs address the requirement of the mobile workforce to securely connect to the organization's network. Mobile users are able to set up a secure connection using the VPN Client software installed on their PCs. The VPN Client initiates a connection to a central site device configured to accept these requests. In this example, the central site device is a PIX 500 Series Security Appliance that uses dynamic crypto maps.

In this configuration example, an IPsec tunnel is configured with these elements:

- Crypto maps applied to the outside interfaces on the PIX.
- Xauth of the VPN Clients against a RADIUS database.
- Dynamic assignment of a private IP address from a pool to VPN Clients.
- The **nat 0 access-list** command functionality, which allows hosts on a LAN to use private IP addresses with a remote user and still get a Network Address Translation (NAT) address from the PIX to visit an untrusted network.

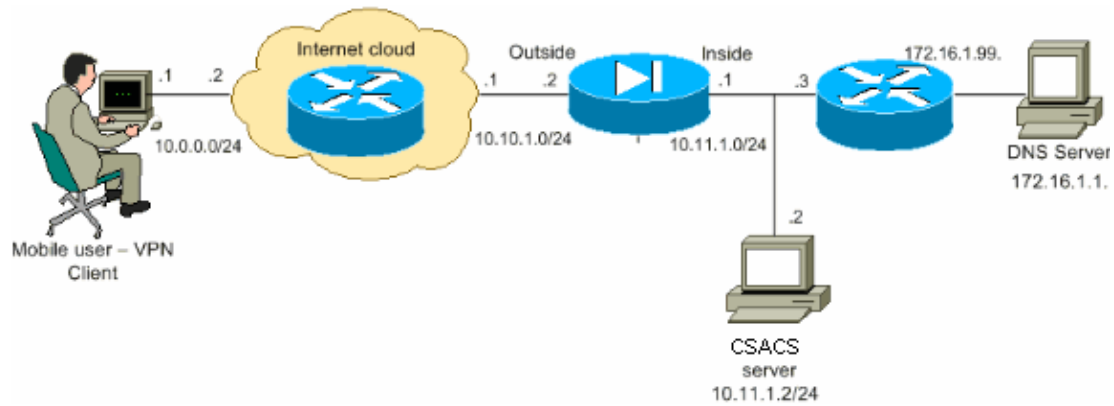
## Configure

In this section, you are presented with the information to configure the remote access VPN connection with Xauth using the Windows 2003 Internet Authentication Service (IAS) server.

**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:



## Configurations

This document uses these configurations:

- PIX 515E Security Appliance
- Cisco VPN Client 4.8 for Windows
- RADIUS Server Using Cisco Secure ACS

### PIX 515E Security Appliance

```

PIX Version 7.1(1)
!
hostname PIX

!--- Specify the domain name for the security appliance.

domain-name cisco.com
enable password 9jNfZuG3TC5tCVH0 encrypted
names

!--- Configure the outside and inside interfaces.

!
interface Ethernet0
 nameif outside
 security-level 0
 ip address 10.10.1.2 255.255.255.0
!
interface Ethernet1
 nameif inside
 security-level 100
 ip address 10.11.1.1 255.255.255.0
!

!--- Output is suppressed.

!
passwd 2KFQnbNIdI.2KYOU encrypted
ftp mode passive

!--- Specify the interface which points toward the DNS server
!--- to enable the PIX to use DNS.

dns domain-lookup inside
dns server-group DefaultDNS
 timeout 30

```

```
!--- Specify the location of the DNS server in the DefaultDNS group.

name-server 172.16.1.1

domain-name cisco.com

!--- This access list is used for a nat zero command.
!--- This command prevents traffic that matches the access list from undergoing NAT.

access-list 101 extended permit ip 172.16.0.0 255.255.0.0 10.16.20.0 255.255.255.00

pager lines 24
logging buffer-size 500000
logging console debugging
logging monitor errors
mtu outside 1500
mtu inside 1500

!--- Create a pool of addresses from which IP addresses are assigned
!--- dynamically to the remote VPN Clients.

ip local pool vpnclient 10.16.20.1-10.16.20.5

no failover
icmp permit any outside
icmp permit any inside
no asdm history enable
arp timeout 14400

!--- NAT 0 prevents NAT for networks specified in the ACL 101.
!--- The nat 1 command specifies Port Address Translation (PAT)
!--- using the outside interface (10.10.1.2) for all other traffic.

global (outside) 1 interface
nat (inside) 0 access-list 101
nat (inside) 1 0.0.0.0 0.0.0.0
route outside 10.10.0.0 255.255.255.0 10.10.1.1 1
route outside 0.0.0.0 0.0.0.0 10.11.1.1 1
route inside 172.16.0.0 255.255.0.0 10.11.1.3 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

!--- Create the AAA server group "vpn" and specify the protocol as RADIUS.
!--- Specify the Cisco Secure ACS server as a member of the "vpn" group and provide the
!--- location and key.

aaa-server vpn protocol radius
aaa-server vpn host 10.11.1.2
key cisco123

!--- Create the VPN users' group policy and specify the DNS server IP address
!--- and the domain name in the group policy.
```

```
group-policy vpn3000 internal
group-policy vpn3000 attributes
  dns-server value 172.16.1.1
  default-domain value cisco.com

!--- In order to identify remote access users to the security appliance,
!--- you can also configure usernames and passwords on the device
!--- in addition to using AAA.

username vpn3000 password nPtKy7KDCerzhKeX encrypted
no snmp-server location
no snmp-server contact
snmp-server enable traps snmp authentication linkup linkdown coldstart

!--- PHASE 2 CONFIGURATION ---!
!--- The encryption types for Phase 2 are defined here.
!--- A single Data Encryption Standard (DES) encryption with
!--- the md5 hash algorithm is used.

crypto ipsec transform-set my-set esp-des esp-md5-hmac

!--- Defines a dynamic crypto map with
!--- the specified encryption settings.

crypto dynamic-map dynmap 10 set transform-set my-set

!--- Enable Reverse Route Injection (RRI), which allows the security appliance
!--- to learn routing information for connected clients.

crypto dynamic-map dynmap 10 set reverse-route

!--- Binds the dynamic map to the IPsec/ISAKMP process.

crypto map mymap 10 ipsec-isakmp dynamic dynmap

!--- Specifies the interface to be used with
!--- the settings defined in this configuration.

crypto map mymap interface outside

!--- PHASE 1 CONFIGURATION ---!

!--- This configuration uses ISAKMP policy 10.
!--- Policy 65535 is included in the configuration by default.
!--- The configuration commands here define the Phase
!--- 1 policy parameters that are used.

isakmp enable outside
isakmp policy 10 authentication pre-share
isakmp policy 10 encryption des
isakmp policy 10 hash md5
isakmp policy 10 group 2
```

```
isakmp policy 10 lifetime 1000

isakmp policy 65535 authentication pre-share
isakmp policy 65535 encryption 3des
isakmp policy 65535 hash sha
isakmp policy 65535 group 2
isakmp policy 65535 lifetime 86400

!--- The security appliance provides the default tunnel groups
!--- for remote access (DefaultRAGroup).

tunnel-group DefaultRAGroup general-attributes
authentication-server-group (outside) vpn

!--- Create a new tunnel group and set the connection
!--- type to IPsec remote access (ipsec-ra).

tunnel-group vpn3000 type ipsec-ra

!--- Associate the VPN Client pool to the tunnel group using the address pool.
!--- Associate the AAA server group (VPN) with the tunnel group.

tunnel-group vpn3000 general-attributes
address-pool vpnclient
authentication-server-group vpn

!--- Enter the pre-shared-key to configure the authentication method.

tunnel-group vpn3000 ipsec-attributes
pre-shared-key *

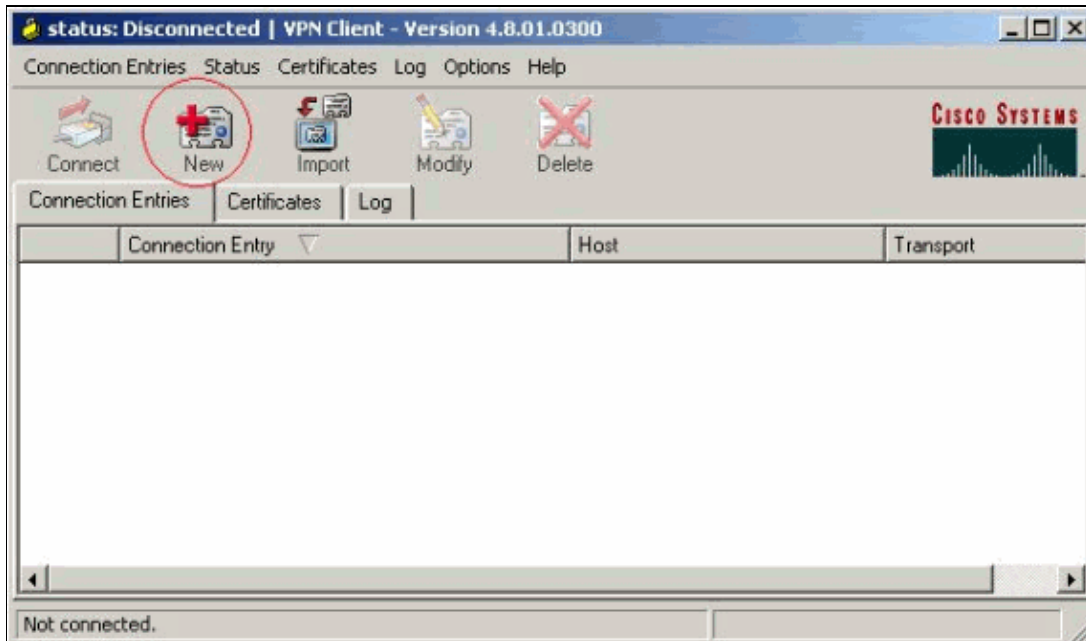
telnet timeout 5
ssh timeout 5
console timeout 0
!
class-map inspection_default
match default-inspection-traffic
!
!
policy-map global_policy
class inspection_default
inspect dns maximum-length 512
inspect ftp
inspect h323 h225
inspect h323 ras
inspect netbios
inspect rsh
inspect rtsp
inspect skinny
inspect esmtp
inspect sqlnet
inspect sunrpc
inspect tftp
inspect sip
inspect xdmcp
!
service-policy global_policy global
Cryptochecksum:ecb58c5d8ce805b3610b198c73a3d0cf
```

: end

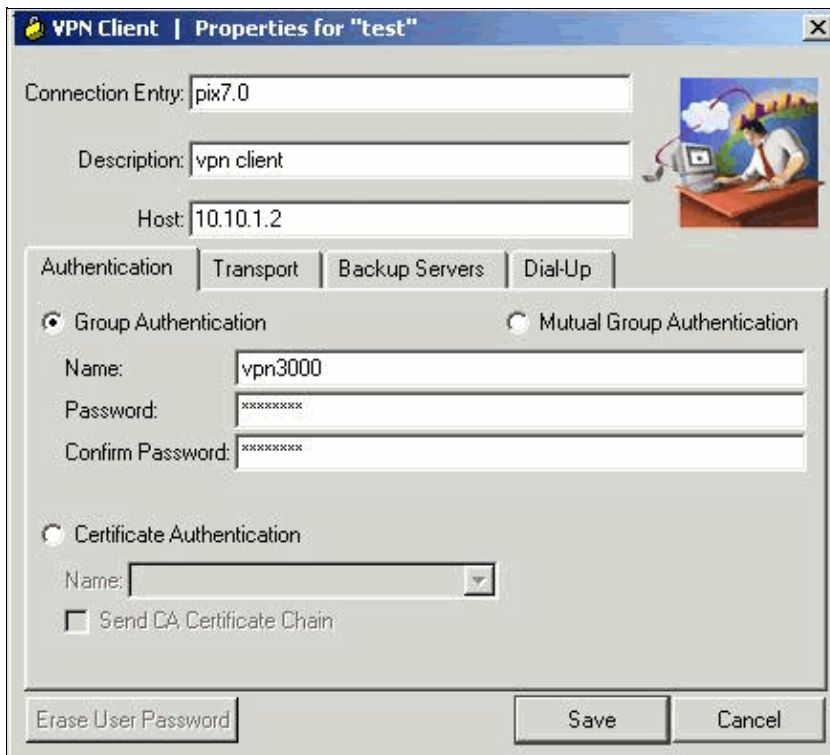
## VPN Client 4.8 Configuration

Complete these steps to configure VPN Client 4.8.

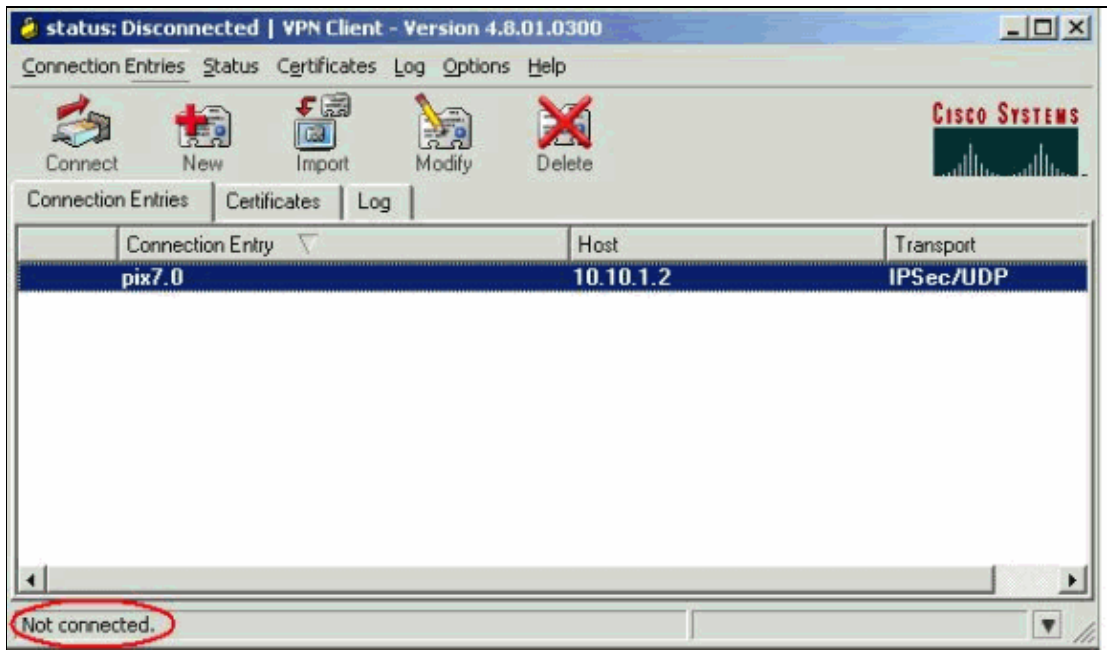
1. Choose **Start > Programs > Cisco Systems VPN Client > VPN Client**.
2. Click **New** to launch the Create New VPN Connection Entry window.



3. Enter the name of the Connection Entry along with a description. Enter the outside IP address of the PIX Firewall in the Host box. Then enter the VPN Group name and password and click **Save**.



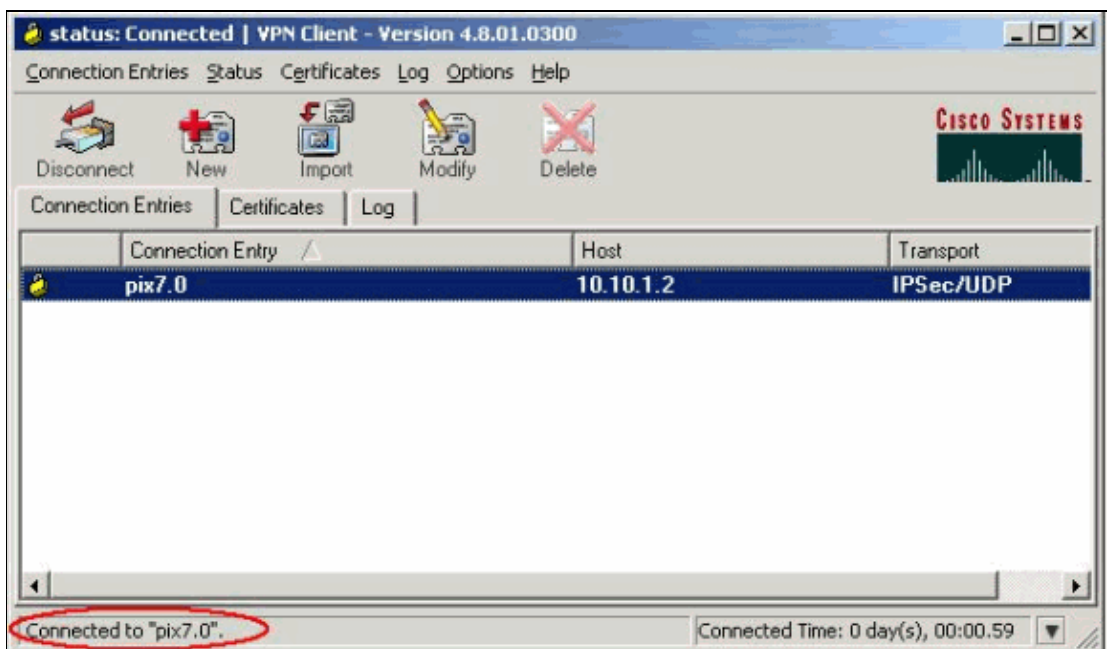
4. Click on the connection you would like to use and click **Connect** from the VPN Client main window.



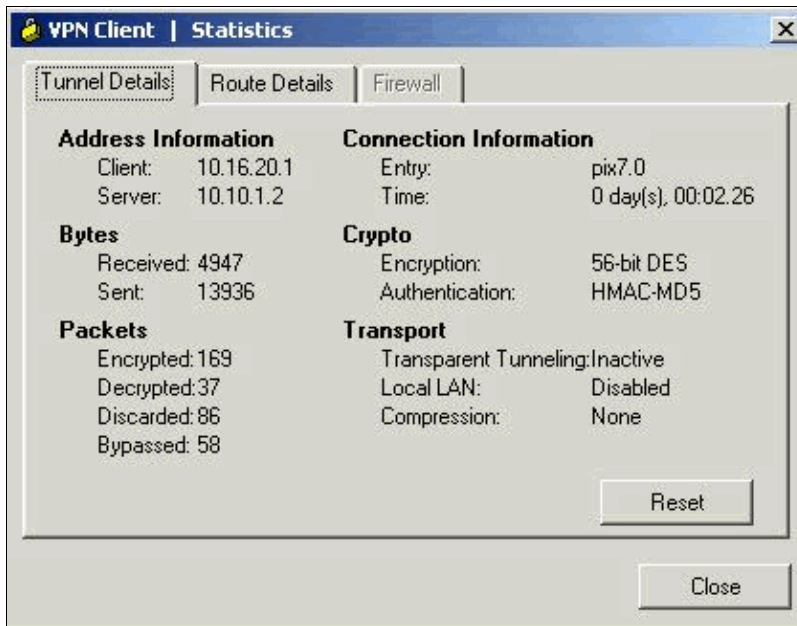
- When prompted, enter the Username and Password information for Xauth and click **OK** to connect to the remote network.



- The VPN Client gets connected with the PIX at the central site.



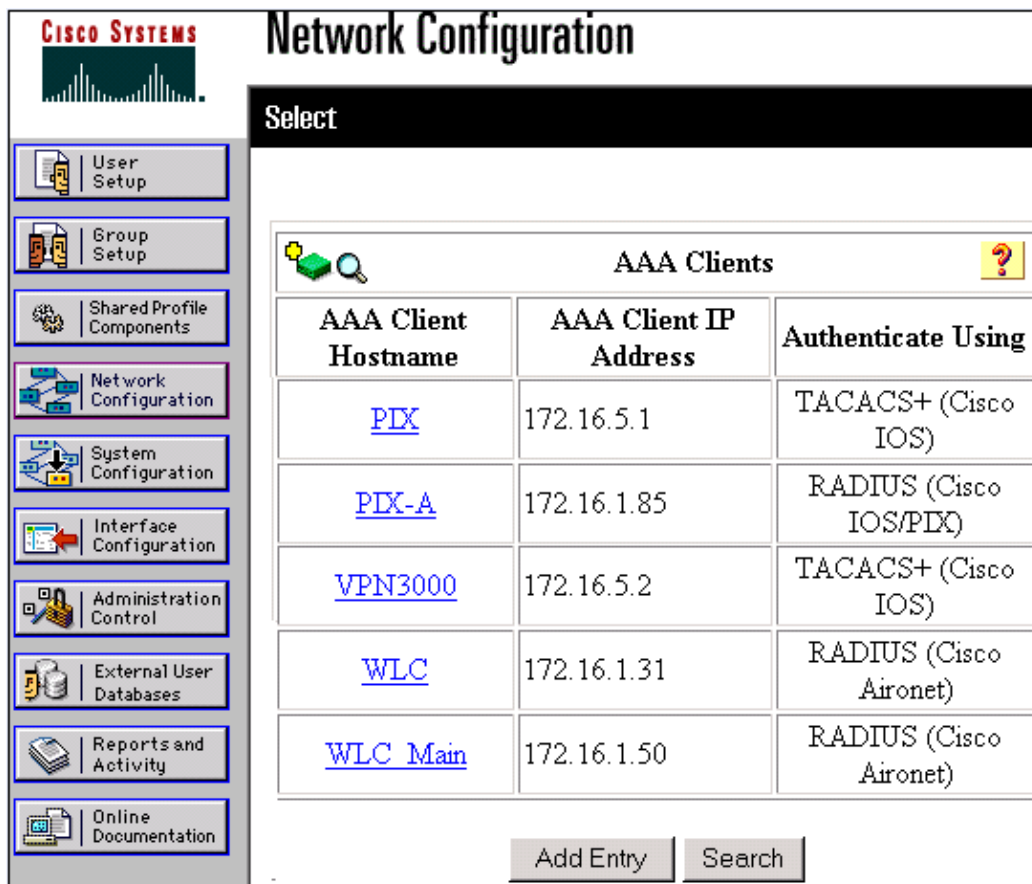
- Choose **Status > Statistics** to check the tunnel statistics of the VPN Client.



## Configure the RADIUS Server Using Cisco Secure ACS

Complete these steps in order to configure RADIUS in a Cisco Secure ACS.

1. Choose **Network Configuration** on the left and click **Add Entry** to add an entry for the PIX in either the TACACS+ or RADIUS server database. Choose the server database according to the PIX configuration.



2. Enter **10.11.1.1** in the Client IP Address field, and enter **cisco123** for the shared secret Key field. Choose **RADIUS (Cisco IOS/PIX)** in the Authenticate Using drop-down box. Click **Submit**.

**CISCO SYSTEMS** Network Configuration

**Edit**

### Add AAA Client

AAA Client Hostname

AAA Client IP Address

Key

Authenticate Using

Single Connect TACACS+ AAA Client (Record stop in accounting on failure).

Log Update/Watchdog Packets from this AAA Client

Log RADIUS Tunneling Packets from this AAA Client

Replace RADIUS Port info with Username from this AAA Client

**Note:** The shared secret key should be the same as configured in the PIX.

```
aaa-server vpn host 10.11.1.2
key cisco123
```

**Note:** If you want to select the **TACACS+ protocol** for authentication, then choose **TACACS+(Cisco IOS)** in the Authenticate Using drop-down menu.

3. Enter the username in the User field in the Cisco Secure database, then click **Add/Edit**.

In this example, the username is **administrator**.

**CISCO SYSTEMS** **User Setup**

**Select**

User Setup  
Group Setup  
Shared Profile Components  
Network Configuration  
System Configuration  
Interface Configuration  
Administration Control  
External User Databases  
Reports and Activity  
Online Documentation

User:

List users beginning with letter/number:

[A](#) [B](#) [C](#) [D](#) [E](#) [F](#) [G](#) [H](#) [I](#) [J](#) [K](#) [L](#) [M](#)  
[N](#) [O](#) [P](#) [Q](#) [R](#) [S](#) [T](#) [U](#) [V](#) [W](#) [X](#) [Y](#) [Z](#)  
[0](#) [1](#) [2](#) [3](#) [4](#) [5](#) [6](#) [7](#) [8](#) [9](#)

4. In the next window, enter the password for **administrator**. In this example, the password is also **password1**. You can map the user account to a group if you wish. Click **Submit** when you are done.

## Verify

### AAA Authentication

From the PIX, use the **Test** keyword with the **aaa authentication** command in global configuration mode to verify the user authentication with the AAA server. After you enter the command, the PIX prompts you to enter the username and password to validate. When the user credential is verified and it is valid, you receive the **Authentication Successful** message.

```
pix(config-aaa-server-host)#test aaa authentication radius host 10.11.1.2
```

```
Username: administrator
Password: *****
```

```
INFO: Attempting Authentication test to IP address <10.11.1.2> (timeout: 12 seconds)
INFO: Authentication Successful
```

### show Commands

This section provides information you can use to confirm your configuration is working 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 crypto isakmp sa** Shows all current IKE Security Associations (SAs) at a peer.
- **show crypto ipsec sa** Shows the settings used by current SAs.

```
PIX#show crypto ipsec sa
                                interface: outside
Crypto map tag: dynmap, seq num: 10, local addr: 10.10.1.2

local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
remote ident (addr/mask/prot/port): (10.16.20.1/255.255.255.255/0/0)
current_peer: 10.0.0.1, username: administrator
dynamic allocated peer ip: 10.16.20.1

#pkts encaps: 33, #pkts encrypt: 33, #pkts digest: 33
#pkts decaps: 33, #pkts decrypt: 33, #pkts verify: 33
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 0, #pkts comp failed: 0, #pkts decomp failed: 0
#send errors: 0, #recv errors: 0

local crypto endpt.: 10.10.1.2, remote crypto endpt.: 10.0.0.1

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: CA8BF3BC

inbound esp sas:
spi: 0xE4F08D9F (3840970143)
  transform: esp-des esp-md5-hmac
  in use settings = {RA, Tunnel, }
  slot: 0, conn_id: 1, crypto-map: dynmap
  sa timing: remaining key lifetime (sec): 28689
  IV size: 8 bytes
  replay detection support: Y
outbound esp sas:
spi: 0xCA8BF3BC (3398169532)
  transform: esp-des esp-md5-hmac
  in use settings = {RA, Tunnel, }
  slot: 0, conn_id: 1, crypto-map: dynmap
  sa timing: remaining key lifetime (sec): 28687
  IV size: 8 bytes
  replay detection support: Y
```

## Troubleshoot

This section provides information you can use to troubleshoot your configuration. Sample debug output is also shown.

### Clear Security Associations

When you troubleshoot, be sure to clear existing Security Associations after you make a change. In the privileged mode of the PIX, use these commands:

- **clear [crypto] ipsec sa** Deletes the active IPsec SAs. The keyword **crypto** is optional.
- **clear [crypto] isakmp sa** Deletes the active IKE SAs. The keyword **crypto** is optional.

### Troubleshooting Commands

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

**Note:** Refer to Important Information on Debug Commands before you use **debug** commands.

- **debug crypto ipsec** Displays the IPsec negotiations of Phase 2.
- **debug crypto isakmp** Displays the ISAKMP negotiations of Phase 1.

## Sample debug Output

- PIX Firewall
- VPN Client 3.5 for Windows

### PIX Firewall

```
PIX#debug crypto isakmp 7
PIX# May 22 22:32:25 [IKEv1]: IP = 10.0.0.1, IKE_DECODE RECEIVED Message (msgid=
9117fc3d) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length :
80
May 22 22:32:25 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, processing hash payload
May 22 22:32:25 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, processing notify payload
May 22 22:32:25 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1

!--- Dead-Peer-Detection exchange

0.0.0.1, Received keep-alive of type DPD R-U-THERE (seq number 0x36a6342)
May 22 22:32:25 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, Sending keep-alive of type DPD R-U-THERE-ACK (seq number 0x36a6342)
May 22 22:32:25 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, constructing blank hash payload
May 22 22:32:25 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, constructing qm hash payload
May 22 22:32:25 [IKEv1]: IP = 10.0.0.1, IKE_DECODE SENDING Message (msgid=4c047e
39) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80
May 22 22:32:36 [IKEv1]: IP = 10.0.0.1, IKE_DECODE RECEIVED Message (msgid=a1063
306) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80
May 22 22:32:36 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, processing hash payload
May 22 22:32:36 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, processing notify payload
May 22 22:32:36 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, Received keep-alive of type DPD R-U-THERE (seq number 0x36a6343)
May 22 22:32:36 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, Sending keep-alive of type DPD R-U-THERE-ACK (seq number 0x36a6343)
May 22 22:32:36 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, constructing blank hash payload
May 22 22:32:36 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, constructing qm hash payload
May 22 22:32:36 [IKEv1]: IP = 10.0.0.1, IKE_DECODE SENDING Message (msgid=ceada9
19) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80
May 22 22:32:47 [IKEv1]: IP = 10.0.0.1, IKE_DECODE RECEIVED Message (msgid=ab66b
5e2) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80
May 22 22:32:47 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, processing hash payload
May 22 22:32:47 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, processing notify payload
May 22 22:32:47 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, Received keep-alive of type DPD R-U-THERE (seq number 0x36a6344)
May 22 22:32:47 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, Sending keep-alive of type DPD R-U-THERE-ACK (seq number 0x36a6344)
May 22 22:32:47 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
0.0.0.1, constructing blank hash payload
May 22 22:32:47 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1
```

0.0.0.1, constructing qm hash payload  
May 22 22:32:47 [IKEv1]: IP = 10.0.0.1, IKE\_DECODE SENDING Message (msgid=b5341b  
a5) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80  
May 22 22:32:58 [IKEv1]: IP = 10.0.0.1, IKE\_DECODE RECEIVED Message (msgid=22d77  
ee7) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80  
May 22 22:32:58 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, processing hash payload  
May 22 22:32:58 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, processing notify payload  
May 22 22:32:58 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, Received keep-alive of type DPD R-U-THERE (seq number 0x36a6345)  
May 22 22:32:58 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, Sending keep-alive of type DPD R-U-THERE-ACK (seq number 0x36a6345)  
May 22 22:32:58 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, constructing blank hash payload  
May 22 22:32:58 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, constructing qm hash payload  
May 22 22:32:58 [IKEv1]: IP = 10.0.0.1, IKE\_DECODE SENDING Message (msgid=8d688b  
d2) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80  
May 22 22:33:14 [IKEv1]: IP = 10.0.0.1, IKE\_DECODE RECEIVED Message (msgid=f949a  
e6) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80  
May 22 22:33:14 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, processing hash payload  
May 22 22:33:14 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, processing notify payload  
May 22 22:33:14 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, Received keep-alive of type DPD R-U-THERE (seq number 0x36a6346)  
May 22 22:33:14 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, Sending keep-alive of type DPD R-U-THERE-ACK (seq number 0x36a6346)  
May 22 22:33:14 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, constructing blank hash payload  
May 22 22:33:14 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, constructing qm hash payload  
May 22 22:33:14 [IKEv1]: IP = 10.0.0.1, IKE\_DECODE SENDING Message (msgid=fd9fef  
25) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80  
May 22 22:33:25 [IKEv1]: IP = 10.0.0.1, IKE\_DECODE RECEIVED Message (msgid=54d3b  
543) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80  
May 22 22:33:25 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, processing hash payload  
May 22 22:33:25 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, processing notify payload  
May 22 22:33:25 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, Received keep-alive of type DPD R-U-THERE (seq number 0x36a6347)  
May 22 22:33:25 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, Sending keep-alive of type DPD R-U-THERE-ACK (seq number 0x36a6347)  
May 22 22:33:26 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, constructing blank hash payload  
May 22 22:33:26 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, constructing qm hash payload  
May 22 22:33:26 [IKEv1]: IP = 10.0.0.1, IKE\_DECODE SENDING Message (msgid=4d4102  
0b) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80  
May 22 22:33:37 [IKEv1]: IP = 10.0.0.1, IKE\_DECODE RECEIVED Message (msgid=af7ad  
910) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80  
May 22 22:33:37 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, processing hash payload  
May 22 22:33:37 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, processing notify payload  
May 22 22:33:37 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, Received keep-alive of type DPD R-U-THERE (seq number 0x36a6348)  
May 22 22:33:37 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, Sending keep-alive of type DPD R-U-THERE-ACK (seq number 0x36a6348)  
May 22 22:33:37 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, constructing blank hash payload  
May 22 22:33:37 [IKEv1 DEBUG]: Group = vpn3000, Username = administrator, IP = 1  
0.0.0.1, constructing qm hash payload  
May 22 22:33:37 [IKEv1]: IP = 10.0.0.1, IKE\_DECODE SENDING Message (msgid=84cd22

35) with payloads : HDR + HASH (8) + NOTIFY (11) + NONE (0) total length : 80

PIX#debug crypto ipsec 7

*!--- Deletes the old SAs.*

PIX# IPSEC: Deleted inbound decrypt rule, SPI 0xA7E3E225  
Rule ID: 0x0243DD38  
IPSEC: Deleted inbound permit rule, SPI 0xA7E3E225  
Rule ID: 0x024BA720  
IPSEC: Deleted inbound tunnel flow rule, SPI 0xA7E3E225  
Rule ID: 0x02445A48  
IPSEC: Deleted inbound VPN context, SPI 0xA7E3E225  
VPN handle: 0x018F68A8  
IPSEC: Deleted outbound encrypt rule, SPI 0xB9C97D06  
Rule ID: 0x024479B0  
IPSEC: Deleted outbound permit rule, SPI 0xB9C97D06  
Rule ID: 0x0243E9E0  
IPSEC: Deleted outbound VPN context, SPI 0xB9C97D06  
VPN handle: 0x0224F490

*!--- Creates new SAs.*

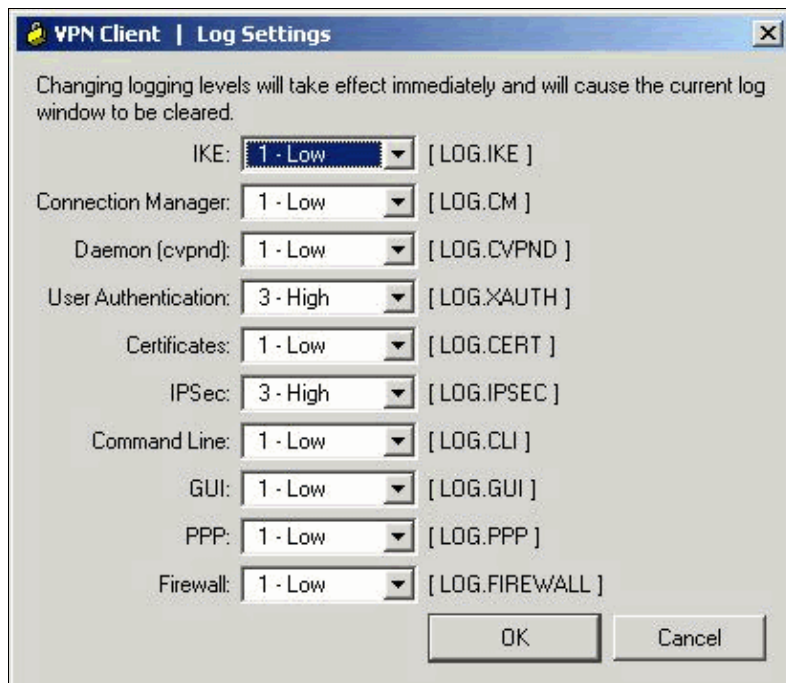
IPSEC: New embryonic SA created @ 0x02448B38,  
SCB: 0x024487E0,  
Direction: inbound  
SPI : 0xE4F08D9F  
Session ID: 0x00000001  
VPIF num : 0x00000001  
Tunnel type: ra  
Protocol : esp  
Lifetime : 240 seconds  
IPSEC: New embryonic SA created @ 0x02446750,  
SCB: 0x02511DD8,  
Direction: outbound  
SPI : 0xCA8BF3BC  
Session ID: 0x00000001  
VPIF num : 0x00000001  
Tunnel type: ra  
Protocol : esp  
Lifetime : 240 seconds  
IPSEC: Completed host OBSA update, SPI 0xCA8BF3BC  
IPSEC: Creating outbound VPN context, SPI 0xCA8BF3BC  
Flags: 0x00000005  
SA : 0x02446750  
SPI : 0xCA8BF3BC  
MTU : 1500 bytes  
VCID : 0x00000000  
Peer : 0x00000000  
SCB : 0x02511DD8  
Channel: 0x014A42F0  
IPSEC: Completed outbound VPN context, SPI 0xCA8BF3BC  
VPN handle: 0x024B9868  
IPSEC: New outbound encrypt rule, SPI 0xCA8BF3BC  
Src addr: 0.0.0.0  
Src mask: 0.0.0.0  
Dst addr: 10.16.20.1  
Dst mask: 255.255.255.255  
Src ports  
Upper: 0  
Lower: 0  
Op : ignore  
Dst ports  
Upper: 0

```
    Lower: 0
    Op   : ignore
    Protocol: 0
    Use protocol: false
    SPI: 0x00000000
    Use SPI: false
IPSEC: Completed outbound encrypt rule, SPI 0xCA8BF3BC
    Rule ID: 0x024B9B58
IPSEC: New outbound permit rule, SPI 0xCA8BF3BC
    Src addr: 10.10.1.2
    Src mask: 255.255.255.255
    Dst addr: 10.0.0.1
    Dst mask: 255.255.255.255
    Src ports
        Upper: 0
        Lower: 0
        Op   : ignore
    Dst ports
        Upper: 0
        Lower: 0
        Op   : ignore
    Protocol: 50
    Use protocol: true
    SPI: 0xCA8BF3BC
    Use SPI: true
IPSEC: Completed outbound permit rule, SPI 0xCA8BF3BC
    Rule ID: 0x024E7D18
IPSEC: Completed host IBSA update, SPI 0xE4F08D9F
IPSEC: Creating inbound VPN context, SPI 0xE4F08D9F
    Flags: 0x00000006
    SA   : 0x02448B38
    SPI  : 0xE4F08D9F
    MTU  : 0 bytes
    VCID : 0x00000000
    Peer : 0x024B9868
    SCB  : 0x024487E0
    Channel: 0x014A42F0
IPSEC: Completed inbound VPN context, SPI 0xE4F08D9F
    VPN handle: 0x024D90A8
IPSEC: Updating outbound VPN context 0x024B9868, SPI 0xCA8BF3BC
    Flags: 0x00000005
    SA   : 0x02446750
    SPI  : 0xCA8BF3BC
    MTU  : 1500 bytes
    VCID : 0x00000000
    Peer : 0x024D90A8
    SCB  : 0x02511DD8
    Channel: 0x014A42F0
IPSEC: Completed outbound VPN context, SPI 0xCA8BF3BC
    VPN handle: 0x024B9868
IPSEC: Completed outbound inner rule, SPI 0xCA8BF3BC
    Rule ID: 0x024B9B58
IPSEC: Completed outbound outer SPD rule, SPI 0xCA8BF3BC
    Rule ID: 0x024E7D18
IPSEC: New inbound tunnel flow rule, SPI 0xE4F08D9F
    Src addr: 10.16.20.1
    Src mask: 255.255.255.255
    Dst addr: 0.0.0.0
    Dst mask: 0.0.0.0
    Src ports
        Upper: 0
        Lower: 0
        Op   : ignore
    Dst ports
        Upper: 0
        Lower: 0
```

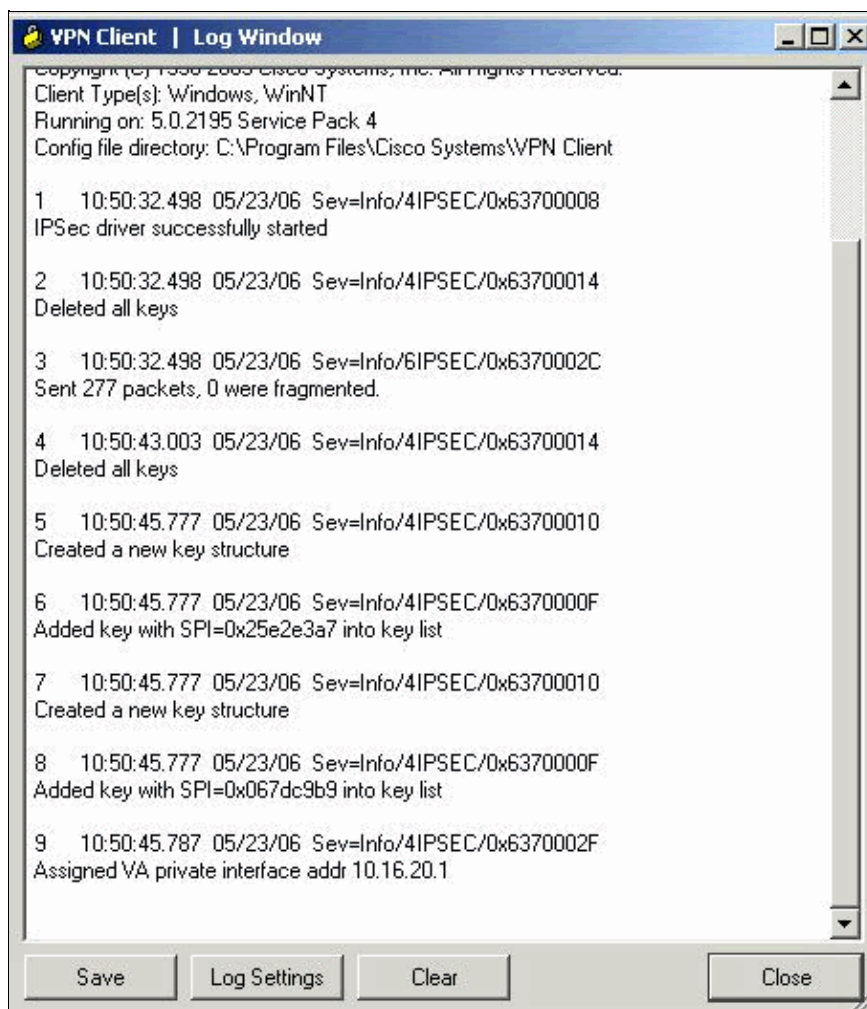
```
Op : ignore
Protocol: 0
Use protocol: false
SPI: 0x00000000
Use SPI: false
IPSEC: Completed inbound tunnel flow rule, SPI 0xE4F08D9F
Rule ID: 0x0243DD38
IPSEC: New inbound decrypt rule, SPI 0xE4F08D9F
Src addr: 10.0.0.1
Src mask: 255.255.255.255
Dst addr: 10.10.1.2
Dst mask: 255.255.255.255
Src ports
Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
Lower: 0
Op : ignore
Protocol: 50
Use protocol: true
SPI: 0xE4F08D9F
Use SPI: true
IPSEC: Completed inbound decrypt rule, SPI 0xE4F08D9F
Rule ID: 0x02440628
IPSEC: New inbound permit rule, SPI 0xE4F08D9F
Src addr: 10.0.0.1
Src mask: 255.255.255.255
Dst addr: 10.10.1.2
Dst mask: 255.255.255.255
Src ports
Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
Lower: 0
Op : ignore
Protocol: 50
Use protocol: true
SPI: 0xE4F08D9F
Use SPI: true
IPSEC: Completed inbound permit rule, SPI 0xE4F08D9F
Rule ID: 0x0251A970
```

## **VPN Client 4.8 for Windows**

Choose **Log > Log settings** to enable the log levels in the VPN Client.



Choose **Log > Log Window** to view the log entries in the VPN Client.



## Related Information

- [Cisco PIX 500 Series Security Appliances](#)
  - [Documentation for Cisco PIX Security Appliance OS Software](#)
  - [Cisco Secure PIX Firewall Command References](#)
  - [TACACS+ and RADIUS for PIX 6.3 and PIX/ASA 7.x Configuration Example](#)
  - [RADIUS Support Page](#)
  - [IPsec Negotiation/IKE Protocols Support Page](#)
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