

PIX/ASA 7.x Easy VPN with an ASA 5500 as the Server and PIX 506E as the Client (NEM) Configuration Example

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Introduction

This document provides a sample configuration for IPsec between a Cisco Adaptive Security Appliance (ASA) 5520 and a Cisco PIX 506E using EasyVPN. The ASA 5520 acts as the EasyVPN server and the PIX 506E acts as the EasyVPN remote client. While this configuration uses an ASA 5520 device that runs ASA software version 7.0(4), you can also use this configuration for PIX Firewall devices that run PIX operating system version 7.0 and later.

Refer to PIX/ASA 7.x Easy VPN with an ASA 5500 as the Server and Cisco 871 as the Easy VPN Remote Configuration Example for more information on a similar scenario where the Cisco 871 Router acts as the Easy VPN Remote.

Refer to VPN Hardware Client on a PIX 501/506 Series Security Appliance with VPN 3000 Concentrator Configuration Example for more information on a similar scenario where the Cisco VPN 3000 Concentrator acts as the Easy VPN Server.

Refer to PIX 501/506 Easy VPN Remote to an IOS® Router in Network Extension Mode with Extended Authentication Configuration Example for more information on a similar scenario where the Cisco IOS Router acts as the Easy VPN Server.

Refer to PIX-to-PIX 6.x: Easy VPN (NEM) Configuration Example for more information on a similar scenario where the PIX 506 6.x acts as the Easy VPN Server.

Prerequisites

Requirements

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

- Ensure that you have a basic understanding of IPsec and the ASA/PIX 6.x and 7.x operating systems.

Components Used

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

- The EasyVPN remote hardware client is a PIX 506E that runs version 6.3(5).
- The EasyVPN server is an ASA 5520 that runs version 7.0(4).

Note: The ASA 5500 series version 7.x runs the same software seen in PIX version 7.x. The configurations in this document are applicable to both product lines.

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.

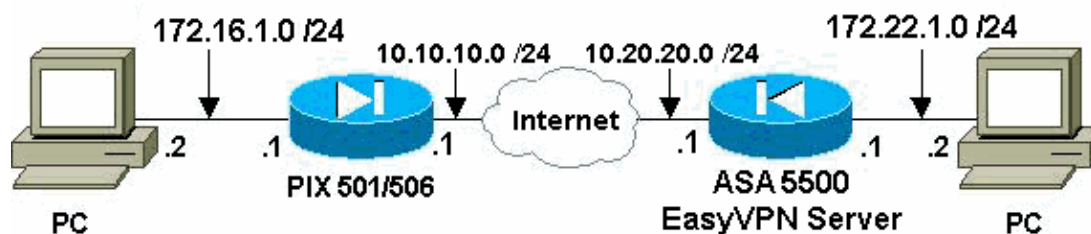
Configure

In this section, you are presented with the information to configure the 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:



Configurations

This document uses these configurations:

- Easy VPN Server (ASA 5520)
- Easy VPN Remote Hardware Client

```
ASA5520-704#write terminal
: Saved
:
ASA Version 7.0(4)
!
hostname ASA5520-704
enable password 8Ry2YjIyt7RRXU24 encrypted
names
!

!--- Configure the outside and inside interfaces.

interface GigabitEthernet0/0
 nameif outside
 security-level 0
 ip address 10.20.20.1 255.255.255.0
!
interface GigabitEthernet0/1
 nameif inside
 security-level 100
 ip address 172.22.1.1 255.255.255.0
!
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

!--- This access list is used for a nat zero command that prevents
!--- traffic which matches the access list from undergoing
!--- network address translation (NAT).

access-list no-nat extended permit ip 172.22.1.0 255.255.255.0 172.16.1.0 255.255.255.0

!--- This access list is used to define the traffic
!--- that should pass through the tunnel.
!--- It is bound to the group policy which defines
!--- a dynamic crypto map.

access-list ezvpn1 extended permit ip 172.22.1.0 255.255.255.0 172.16.1.0 255.255.255.0
pager lines 24
mtu outside 1500
mtu inside 1500
no failover
icmp permit any echo-reply outside
icmp permit any inside
no asdm history enable
arp timeout 14400
```

```
!--- Specify the NAT configuration.
!--- NAT 0 prevents NAT for the ACL defined in this configuration.
!--- The nat 1 command specifies NAT for all other traffic.

global (outside) 1 interface
nat (inside) 0 access-list no-nat
nat (inside) 1 0.0.0.0 0.0.0.0
route outside 0.0.0.0 0.0.0.0 10.20.20.2 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
timeout mgcp-pat 0:05:00 sip 0:30:00 sip_media 0:02:00
timeout uauth 0:05:00 absolute

!--- This defines the group policy you use with EasyVPN.
!--- Specify the networks
!--- that should pass through the tunnel and that you want to
!--- use network extension mode.

group-policy myGROUP internal
group-policy myGROUP attributes
  split-tunnel-policy tunnelspecified
  split-tunnel-network-list value ezvpn1
  nem enable
  webvpn

!--- Here the username and password associated with
!--- this VPN connection are defined. You
!--- can also use AAA for this function.

username cisco password 3USUCOPFUiMCO4Jk 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 DES encryption with
!--- the md5 hash algorithm is used.

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

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

crypto dynamic-map myDYN-MAP 5 set transform-set mySET

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

crypto map myMAP 60 ipsec-isakmp dynamic myDYN-MAP

!--- 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 1.  
!--- Policy 65535 is included in the default  
!--- configuration. The configuration commands here define the Phase  
!--- 1 policies that are used.  
  
isakmp enable outside  
isakmp policy 1 authentication pre-share  
isakmp policy 1 encryption des  
isakmp policy 1 hash md5  
isakmp policy 1 group 2  
isakmp policy 1 lifetime 86400  
  
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 tunnel-group commands bind the configurations  
!--- defined in this configuration to the tunnel that is  
!--- used for EasyVPN. This tunnel name is the one specified on the remote side.  
  
tunnel-group mytunnel type ipsec-ra  
tunnel-group mytunnel general-attributes  
default-group-policy myGROUP  
tunnel-group mytunnel ipsec-attributes  
  
!--- The pre-shared-key used here is "cisco".  
  
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:42123a94a33d8d10ae6a1505fb4ba653  
: end  
[OK]  
ASA5520-704#
```

Easy VPN Remote Hardware Client

```
pix506-635#write terminal
Building configuration...
: Saved
:
PIX Version 6.3(5)

!--- Brings the interfaces out of a shutdown state.

interface ethernet0 auto
interface ethernet1 auto

!--- Assign the interface names.

nameif ethernet0 outside security0
nameif ethernet1 inside security100
enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted
hostname pix506-635
domain-name cisco.com
fixup protocol dns maximum-length 512
fixup protocol ftp 21
fixup protocol h323 h225 1720
fixup protocol h323 ras 1718-1719
fixup protocol http 80
fixup protocol rsh 514
fixup protocol rtsp 554
fixup protocol sip 5060
fixup protocol sip udp 5060
fixup protocol skinny 2000
fixup protocol smtp 25
fixup protocol sqlnet 1521
fixup protocol tftp 69
names
pager lines 24
icmp permit any outside
mtu outside 1500
mtu inside 1500

!--- Assign the interface IP addresses.

ip address outside 10.10.10.1 255.255.255.0
ip address inside 172.16.1.1 255.255.255.0

ip audit info action alarm
ip audit attack action alarm
pdm history enable
arp timeout 14400

!--- Set the standard NAT configuration.
!--- EasyVPN provides the NAT exceptions needed.

global (outside) 1 interface
nat (inside) 1 0.0.0.0 0.0.0.0 0 0

!--- Specify the default route.

route outside 0.0.0.0 0.0.0.0 10.10.10.2 1
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 rpc 0:10:00 h225 1:00:00
timeout h323 0:05:00 mgcp 0:05:00 sip 0:30:00 sip_media 0:02:00
```

```

timeout sip-disconnect 0:02:00 sip-invite 0:03:00
timeout uauth 0:05:00 absolute
aaa-server TACACS+ protocol tacacs+
aaa-server TACACS+ max-failed-attempts 3
aaa-server TACACS+ deadtime 10
aaa-server RADIUS protocol radius
aaa-server RADIUS max-failed-attempts 3
aaa-server RADIUS deadtime 10
aaa-server LOCAL protocol local
no snmp-server location
no snmp-server contact
snmp-server community public
no snmp-server enable traps
floodguard enable
telnet timeout 5
ssh timeout 5
console timeout 0

!--- EasyVPN Client Configuration ---!
!--- Specify the IP address of the VPN server.

vpnclient server 10.20.20.1

!--- This example uses network extension mode.

vpnclient mode network-extension-mode

!--- Specify the group name and the pre-shared key.

vpnclient vpngroup mytunnel password *****

!--- Specify the authentication username and password.

vpnclient username cisco password *****

!---- After you issue this command, the tunnel is established.

vpnclient enable
terminal width 80
Cryptochecksum:1564fd62a9e4312020f51846bd1b3534
: end
[OK]
pix506-635#

```

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.

- PIX EasyVPN Server show Commands and Sample Output
- PIX EasyVPN Remote Hardware Client show Commands and Sample Output

PIX EasyVPN Server show Commands and Sample Output

- **show crypto isakmp sa** Displays all current Internet Key Exchange (IKE) security associations (SA) at a peer.

```
ASA5520-704#show crypto isakmp sa
```

```
Active SA: 1
Rekey SA: 0 (A tunnel will report 1 Active and 1 Rekey SA during rekey)
Total IKE SA: 1
```

```
1 IKE Peer: 10.10.10.1
Type : user Role : responder
Rekey : no State : AM_ACTIVE
ASA5520-704#
```

- **show crypto ipsec sa** Displays IPsec SAs built between peers.

```
ASA5520-704#show crypto ipsec sa
interface: outside
    Crypto map tag: myDYN-MAP, seq num: 5, local addr: 10.20.20.1

local ident (addr/mask/prot/port): (172.22.1.0/255.255.255.0/0/0)
remote ident (addr/mask/prot/port): (172.16.1.0/255.255.255.0/0/0)
current_peer: 10.10.10.1, username: cisco
dynamic allocated peer ip: 0.0.0.0

#pkts encaps: 655, #pkts encrypt: 655, #pkts digest: 655
#pkts decaps: 706, #pkts decrypt: 706, #pkts verify: 706
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 655, #pkts comp failed: 0, #pkts decomp failed: 0
#send errors: 0, #recv errors: 0

local crypto endpt.: 10.20.20.1, remote crypto endpt.: 10.10.10.1

path mtu 1500, ipsec overhead 60, media mtu 1500
current outbound spi: 3EA12BBE

inbound esp sas:
spi: 0x9B94D824 (2610223140)
transform: esp-des esp-md5-hmac
in use settings ={RA, Tunnel, }
slot: 0, conn_id: 4, crypto-map: myDYN-MAP
sa timing: remaining key lifetime (sec): 25015
IV size: 8 bytes
replay detection support: Y
outbound esp sas:
spi: 0x3EA12BBE (1050749886)
transform: esp-des esp-md5-hmac
in use settings ={RA, Tunnel, }
slot: 0, conn_id: 4, crypto-map: myDYN-MAP
sa timing: remaining key lifetime (sec): 25011
IV size: 8 bytes
replay detection support: Y

ASA5520-704#
```

PIX EasyVPN Remote Hardware Client show Commands and Sample Output

- **vpnclient enable** Enables an EasyVPN remote connection. In Network Extension Mode (NEM), the tunnel is up even when there is no interesting traffic to be exchanged with the headend EasyVPN server.

```
pix506-635(config)#vpnclient enable
```

- **show crypto isakmp policy** Displays the parameters for each IKE policy.

```
pix506-635#show crypto isakmp policy
```

```
Default protection suite
```

```
encryption algorithm:  DES - Data Encryption Standard (56 bit keys).
hash algorithm:        Secure Hash Standard
authentication method: Rivest-Shamir-Adleman Signature
Diffie-Hellman group:  #1 (768 bit)
lifetime:              86400 seconds, no volume limit
```

This output shows the **show crypto isakmp policy** command after the hardware client is enabled.

```
pix506-635(config)#show crypto isakmp policy
```

```
Protection suite of priority 65001
  encryption algorithm:  AES - Advanced Encryption Standard (256 bit keys).
  hash algorithm:        Secure Hash Standard
  authentication method: Pre-Shared Key with XAUTH
  Diffie-Hellman group:  #2 (1024 bit)
  lifetime:              86400 seconds, no volume limit
Protection suite of priority 65002
  encryption algorithm:  AES - Advanced Encryption Standard (256 bit keys).
  hash algorithm:        Message Digest 5
  authentication method: Pre-Shared Key with XAUTH
  Diffie-Hellman group:  #2 (1024 bit)
  lifetime:              86400 seconds, no volume limit
Protection suite of priority 65003
  encryption algorithm:  AES - Advanced Encryption Standard (192 bit keys).
  hash algorithm:        Secure Hash Standard
  authentication method: Pre-Shared Key with XAUTH
  Diffie-Hellman group:  #2 (1024 bit)
  lifetime:              86400 seconds, no volume limit
Protection suite of priority 65004
  encryption algorithm:  AES - Advanced Encryption Standard (192 bit keys).
  hash algorithm:        Message Digest 5
  authentication method: Pre-Shared Key with XAUTH
  Diffie-Hellman group:  #2 (1024 bit)
  lifetime:              86400 seconds, no volume limit
Protection suite of priority 65005
  encryption algorithm:  AES - Advanced Encryption Standard (128 bit keys).
  hash algorithm:        Secure Hash Standard
  authentication method: Pre-Shared Key with XAUTH
  Diffie-Hellman group:  #2 (1024 bit)
  lifetime:              86400 seconds, no volume limit
Protection suite of priority 65006
  encryption algorithm:  AES - Advanced Encryption Standard (128 bit keys).
  hash algorithm:        Message Digest 5
  authentication method: Pre-Shared Key with XAUTH
  Diffie-Hellman group:  #2 (1024 bit)
  lifetime:              86400 seconds, no volume limit
Protection suite of priority 65007
  encryption algorithm:  Three key triple DES
  hash algorithm:        Secure Hash Standard
  authentication method: Pre-Shared Key with XAUTH
  Diffie-Hellman group:  #2 (1024 bit)
  lifetime:              86400 seconds, no volume limit
Protection suite of priority 65008
  encryption algorithm:  Three key triple DES
  hash algorithm:        Message Digest 5
  authentication method: Pre-Shared Key with XAUTH
  Diffie-Hellman group:  #2 (1024 bit)
  lifetime:              86400 seconds, no volume limit
Protection suite of priority 65009
  encryption algorithm:  DES - Data Encryption Standard (56 bit keys).
  hash algorithm:        Message Digest 5
  authentication method: Pre-Shared Key with XAUTH
  Diffie-Hellman group:  #2 (1024 bit)
  lifetime:              86400 seconds, no volume limit
Protection suite of priority 65010
  encryption algorithm:  AES - Advanced Encryption Standard (256 bit keys).
```

```

    hash algorithm:          Secure Hash Standard
    authentication method:   Pre-Shared Key
    Diffie-Hellman group:    #2 (1024 bit)
    lifetime:                86400 seconds, no volume limit
Protection suite of priority 65011
    encryption algorithm:    AES - Advanced Encryption Standard (256 bit keys).
    hash algorithm:          Message Digest 5
    authentication method:   Pre-Shared Key
    Diffie-Hellman group:    #2 (1024 bit)
    lifetime:                86400 seconds, no volume limit
Protection suite of priority 65012
    encryption algorithm:    AES - Advanced Encryption Standard (192 bit keys).
    hash algorithm:          Secure Hash Standard
    authentication method:   Pre-Shared Key
    Diffie-Hellman group:    #2 (1024 bit)
    lifetime:                86400 seconds, no volume limit
Protection suite of priority 65013
    encryption algorithm:    AES - Advanced Encryption Standard (192 bit keys).
    hash algorithm:          Message Digest 5
    authentication method:   Pre-Shared Key
    Diffie-Hellman group:    #2 (1024 bit)
    lifetime:                86400 seconds, no volume limit
Protection suite of priority 65014
    encryption algorithm:    AES - Advanced Encryption Standard (128 bit keys).
    hash algorithm:          Secure Hash Standard
    authentication method:   Pre-Shared Key
    Diffie-Hellman group:    #2 (1024 bit)
    lifetime:                86400 seconds, no volume limit
Protection suite of priority 65015
    encryption algorithm:    AES - Advanced Encryption Standard (128 bit keys).
    hash algorithm:          Message Digest 5
    authentication method:   Pre-Shared Key
    Diffie-Hellman group:    #2 (1024 bit)
    lifetime:                86400 seconds, no volume limit
Protection suite of priority 65016
    encryption algorithm:    Three key triple DES
    hash algorithm:          Secure Hash Standard
    authentication method:   Pre-Shared Key
    Diffie-Hellman group:    #2 (1024 bit)
    lifetime:                86400 seconds, no volume limit
Protection suite of priority 65017
    encryption algorithm:    Three key triple DES
    hash algorithm:          Message Digest 5
    authentication method:   Pre-Shared Key
    Diffie-Hellman group:    #2 (1024 bit)
    lifetime:                86400 seconds, no volume limit
Protection suite of priority 65018
    encryption algorithm:    DES - Data Encryption Standard (56 bit keys).
    hash algorithm:          Message Digest 5
    authentication method:   Pre-Shared Key
    Diffie-Hellman group:    #2 (1024 bit)
    lifetime:                86400 seconds, no volume limit

```

- **show crypto isakmp sa** Displays all current IKE SAs at a peer.

```

pix506-635#show crypto isakmp sa
Total          : 1
Embryonic     : 0
      dst          src          state    pending    created
      10.20.20.1   10.10.10.1  QM_IDLE    0          4
pix506-635#

```

- **show crypto ipsec sa** Displays IPsec SAs built between peers.

```

pix506-635#show crypto ipsec sa

```

```

interface: outside
Crypto map tag: _vpnc_cm, local addr. 10.10.10.1

local ident (addr/mask/prot/port): (172.16.1.0/255.255.255.0/0/0)
remote ident (addr/mask/prot/port): (172.22.1.0/255.255.255.0/0/0)
current_peer: 10.20.20.1:500
PERMIT, flags={origin_is_acl,}
#pkts encaps: 706, #pkts encrypt: 706, #pkts digest 706
#pkts decaps: 655, #pkts decrypt: 655, #pkts verify 655
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 0, #pkts compr. failed: 0, #pkts decompress f ailed: 0
#send errors 1, #recv errors 0

local crypto endpt.: 10.10.10.1, remote crypto endpt.: 10.20.20.1
path mtu 1500, ipsec overhead 56, media mtu 1500
current outbound spi: 9b94d824

inbound esp sas:
spi: 0x3ea12bbe(1050749886)
transform: esp-des esp-md5-hmac ,
in use settings ={Tunnel, }
slot: 0, conn id: 3, crypto map: _vpnc_cm
sa timing: remaining key lifetime (k/sec): (4607941/24712)
IV size: 8 bytes
replay detection support: Y

inbound ah sas:

inbound pcp sas:

outbound esp sas:
spi: 0x9b94d824(2610223140)
transform: esp-des esp-md5-hmac ,
in use settings ={Tunnel, }
slot: 0, conn id: 4, crypto map: _vpnc_cm
sa timing: remaining key lifetime (k/sec): (4607958/24712)
IV size: 8 bytes
replay detection support: Y

outbound ah sas:

outbound pcp sas:

```

- **show vpnclient** Displays VPN Client or EasyVPN remote device configuration information.

```

pix506-635#show vpnclient

LOCAL CONFIGURATION
vpnclient server 10.20.20.1
vpnclient mode network-extension-mode
vpnclient vpngroup mytunnel password *****
vpnclient username cisco password *****
vpnclient enable

DOWNLOADED DYNAMIC POLICY
Current Server : 10.20.20.1
PFS Enabled : No
Secure Unit Authentication Enabled : No
User Authentication Enabled : No
Split Networks : 172.22.1.0/255.255.255.0
Backup Servers : None

```

Troubleshoot

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

If you have set up the EasyVPN remote hardware client and EasyVPN server as this document describes and you still experience problems, gather the **debug** output from each PIX and the output from the **show** commands for analysis by Cisco Technical Support. Also refer to Troubleshooting the PIX to Pass Data Traffic on an Established IPsec Tunnel or IP Security Troubleshooting – Understanding and Using debug Commands. Enable IPsec debugging on the PIX.

These sections display PIX **debug** commands and sample output.

- EasyVPN Server Commands
- EasyVPN Remote Hardware Client 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.

EasyVPN Server Commands

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

Sample output is shown here.

```
ASA5520-704#debug crypto ipsec 2
ASA5520-704#debug crypto isakmp 2
ASA5520-704# Sep 15 23:02:42 [IKEv1]: IP = 10.10.10.1, Connection landed
on tunnel_group mytunnel
Sep 15 23:02:43 [IKEv1]: Group = mytunnel, Username = cisco, IP = 10.10.10.1,
User (cisco) authenticated.
Sep 15 23:02:48 [IKEv1]: Group = mytunnel, Username = cisco, IP = 10.10.10.1,
PHASE 1 COMPLETED
Sep 15 23:02:48 [IKEv1]: Group = mytunnel, Username = cisco, IP = 10.10.10.1,
IKE: requesting SPI!
Sep 15 23:02:48 [IKEv1]: Group = mytunnel, Username = cisco, IP = 10.10.10.1,
Security negotiation complete for User (cisco) Responder, Inbound SPI = 0x436fbef1,
Outbound SPI = 0x5c6b5137
Sep 15 23:02:48 [IKEv1]: Group = mytunnel, Username = cisco, IP = 10.10.10.1,
IKE: requesting SPI!
Sep 15 23:02:48 [IKEv1]: Group = mytunnel, Username = cisco, IP = 10.10.10.1,
Starting P2 Rekey timer to expire in 27360 seconds
Sep 15 23:02:48 [IKEv1]: Group = mytunnel, Username = cisco, IP = 10.10.10.1,
PHASE 2 COMPLETED (msgid=dc3aalef)
Sep 15 23:02:48 [IKEv1]: Group = mytunnel, Username = cisco, IP = 10.10.10.1,
Security negotiation complete for User (cisco) Responder, Inbound SPI = 0x69352d74,
Outbound SPI = 0x4a7e47fc
Sep 15 23:02:48 [IKEv1]: Group = mytunnel, Username = cisco, IP = 10.10.10.1,
Starting P2 Rekey timer to expire in 27360 seconds
Sep 15 23:02:48 [IKEv1]: Group = mytunnel, Username = cisco, IP = 10.10.10.1,
PHASE 2 COMPLETED (msgid=58a397ad)
```

EasyVPN Remote Hardware Client Commands

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

```
pix506-635(config)#vpnclient enable
```

```
ISAKMP (0): ID payload
next-payload : 13
type : 11
protocol : 17
port : 0
length : 12pix506-635(config)#
ISAKMP (0): Total payload length: 16
ISAKMP (0:0): sending NAT-T vendor ID - rev 2 & 3
ISAKMP (0): beginning Aggressive Mode exchange
crypto_isakmp_process_block:src:10.20.20.1, dest:10.10.10.1 spt:500 dpt:500
OAK_AG exchange
ISAKMP (0): processing SA payload. message ID = 0

ISAKMP (0): Checking ISAKMP transform 9 against priority 65001 policy
ISAKMP: encryption DES-CBC
ISAKMP: hash MD5
ISAKMP: default group 2
ISAKMP: extended auth pre-share (init)
ISAKMP: life type in seconds
ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80
ISAKMP (0): atts are not acceptable. Next payload is 0
ISAKMP (0): Checking ISAKMP transform 9 against priority 65002 policy
ISAKMP: encryption DES-CBC
ISAKMP: hash MD5
ISAKMP: default group 2
ISAKMP: extended auth pre-share (init)
ISAKMP: life type in seconds
ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80
ISAKMP (0): atts are not acceptable. Next payload is 0
ISAKMP (0): Checking ISAKMP transform 9 against priority 65003 policy
ISAKMP: encryption DES-CBC
ISAKMP: hash MD5
ISAKMP: default group 2
ISAKMP: extended auth pre-share (init)
ISAKMP: life type in seconds
ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80
ISAKMP (0): atts are not acceptable. Next payload is 0
ISAKMP (0): Checking ISAKMP transform 9 against priority 65004 policy
ISAKMP: encryption DES-CBC
ISAKMP: hash MD5
ISAKMP: default group 2
ISAKMP: extended auth pre-share (init)
ISAKMP: life type in seconds
ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80
ISAKMP (0): atts are not acceptable. Next payload is 0
ISAKMP (0): Checking ISAKMP transform 9 against priority 65005 policy
ISAKMP: encryption DES-CBC
ISAKMP: hash MD5
ISAKMP: default group 2
ISAKMP: extended auth pre-share (init)
ISAKMP: life type in seconds
ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80
ISAKMP (0): atts are not acceptable. Next payload is 0
ISAKMP (0): Checking ISAKMP transform 9 against priority 65006 policy
ISAKMP: encryption DES-CBC
ISAKMP: hash MD5
ISAKMP: default group 2
ISAKMP: extended auth pre-share (init)
```

```
ISAKMP: life type in seconds
ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80
ISAKMP (0): atts are not acceptable. Next payload is 0
ISAKMP (0): Checking ISAKMP transform 9 against priority 65007 policy
ISAKMP: encryption DES-CBC
ISAKMP: hash MD5
ISAKMP: default group 2
ISAKMP: extended auth pre-share (init)
ISAKMP: life type in seconds
ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80
ISAKMP (0): atts are not acceptable. Next payload is 0
ISAKMP (0): Checking ISAKMP transform 9 against priority 65008 policy
ISAKMP: encryption DES-CBC
ISAKMP: hash MD5
ISAKMP: default group 2
ISAKMP: extended auth pre-share (init)
ISAKMP: life type in seconds
ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80
ISAKMP (0): atts are not acceptable. Next payload is 0
ISAKMP (0): Checking ISAKMP transform 9 against priority 65009 policy
ISAKMP: encryption DES-CBC
ISAKMP: hash MD5
ISAKMP: default group 2
ISAKMP: extended auth pre-share (init)
ISAKMP: life type in seconds
ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80
ISAKMP (0): atts are acceptable. Next payload is 0
ISAKMP (0): processing KE payload. message ID = 0

ISAKMP (0): processing NONCE payload. message ID = 0

ISAKMP (0): processing ID payload. message ID = 0
ISAKMP (0): processing HASH payload. message ID = 0
crypto_isakmp_process_block:src:10.20.20.1, dest:10.10.10.1 spt:500 dpt:500
crypto_isakmp_process_block:src:10.20.20.1, dest:10.10.10.1 spt:500 dpt:500
ISAKMP : attributes being requested

crypto_isakmp_process_block:src:10.20.20.1, dest:10.10.10.1 spt:500 dpt:500
ISAKMP (0): beginning Quick Mode exchange, M-ID of 1567562998:5d6f1cf6IPSEC
(key_engine): got a queue event...
IPSEC(spi_response): getting spi 0x411cf95(68276117) for SA
from 10.20.20.1 to 10.10.10.1 for prot 3

crypto_isakmp_process_block:src:10.20.20.1, dest:10.10.10.1 spt:500 dpt:500
OAK_QM exchange
oakley_process_quick_mode:
OAK_QM_IDLE
ISAKMP (0): processing SA payload. message ID = 1567562998

ISAKMP : Checking IPsec proposal 1

ISAKMP: transform 1, ESP_DES
ISAKMP: attributes in transform:
ISAKMP: SA life type in seconds
ISAKMP: SA life duration (basic) of 28800
ISAKMP: SA life type in kilobytes
ISAKMP: SA life duration (VPI) of 0x0 0x46 0x50 0x0
ISAKMP: encaps is 1
ISAKMP: authenticator is HMAC-MD5
ISAKMP (0): atts are acceptable.IPSEC(validate_proposal_request):
proposal part #1,
(key eng. msg.) dest= 10.20.20.1, src= 10.10.10.1,
dest_proxy= 172.22.1.0/255.255.255.0/0/0 (type=4),
src_proxy= 10.10.10.1/255.255.255.255/0/0 (type=1),
protocol= ESP, transform= esp-des esp-md5-hmac ,
lifedur= 0s and 0kb,
```

```
spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x4

ISAKMP (0): processing NONCE payload. message ID = 1567562998

ISAKMP (0): processing ID payload. message ID = 1567562998
ISAKMP (0): processing ID payload. message ID = 1567562998
ISAKMP (0): Creating IPsec SAs
inbound SA from 10.20.20.1 to 10.10.10.1 (proxy 172.22.1.0 to 10.10.10.1)
has spi 68276117 and conn_id 5 and flags 4
lifetime of 28800 seconds
lifetime of 4608000 kilobytes
outbound SA from 10.10.10.1 to 10.20.20.1 (proxy 10.10.10.1 to 172.22.1.0)
has spi 418090151 and conn_id 6 and flags 4
lifetime of 28800 seconds
lifetime of 4608000 kilobytesIPSEC(key_engine): got a queue event...
IPSEC(initialize_sas): ,
(key eng. msg.) dest= 10.10.10.1, src= 10.20.20.1,
dest_proxy= 10.10.10.1/255.255.255.255/0/0 (type=1),
src_proxy= 172.22.1.0/255.255.255.0/0/0 (type=4),
protocol= ESP, transform= esp-des esp-md5-hmac ,
lifedur= 28800s and 4608000kb,
spi= 0x411cf95(68276117), conn_id= 5, keysize= 0, flags= 0x4
IPSEC(initialize_sas): ,
(key eng. msg.) src= 10.10.10.1, dest= 10.20.20.1,
src_proxy= 10.10.10.1/255.255.255.255/0/0 (type=1),
dest_proxy= 172.22.1.0/255.255.255.0/0/0 (type=4),
protocol= ESP, transform= esp-des esp-md5-hmac ,
lifedur= 28800s and 4608000kb,
spi= 0x18eb8ca7(418090151), conn_id= 6, keysize= 0, flags= 0x4

VPN Peer: IPSEC: Peer ip:10.20.20.1/500 Ref cnt incremented to:2
Total VPN Peers:1
VPN Peer: IPSEC: Peer ip:10.20.20.1/500 Ref cnt incremented to:3
Total VPN Peers:1
return status is IKMP_NO_ERROR
ISAKMP (0): beginning Quick Mode exchange,
M-ID of 43279810:29465c2IPSEC(key_engine): got a queue event...
IPSEC(spi_response): getting spi 0xa12022dd(2703237853) for SA
from 10.20.20.1 to 10.10.10.1 for prot 3

crypto_isakmp_process_block:src:10.20.20.1, dest:10.10.10.1 spt:500 dpt:500
OAK_QM exchange
oakley_process_quick_mode:
OAK_QM_IDLE
ISAKMP (0): processing SA payload. message ID = 43279810

ISAKMP : Checking IPsec proposal 1

ISAKMP: transform 1, ESP_DES
ISAKMP: attributes in transform:
ISAKMP: SA life type in seconds
ISAKMP: SA life duration (basic) of 28800
ISAKMP: SA life type in kilobytes
ISAKMP: SA life duration (VPI) of 0x0 0x46 0x50 0x0
ISAKMP: encaps is 1
ISAKMP: authenticator is HMAC-MD5
ISAKMP (0): atts are acceptable.IPSEC(validate_proposal_request): proposal
part #1,
(key eng. msg.) dest= 10.20.20.1, src= 10.10.10.1,
dest_proxy= 10.20.20.1/255.255.255.255/0/0 (type=1),
src_proxy= 10.10.10.1/255.255.255.255/0/0 (type=1),
protocol= ESP, transform= esp-des esp-md5-hmac ,
lifedur= 0s and 0kb,
spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x4

ISAKMP (0): processing NONCE payload. message ID = 43279810
```

```

ISAKMP (0): processing ID payload. message ID = 43279810
ISAKMP (0): processing ID payload. message ID = 43279810
ISAKMP (0): Creating IPsec SAs
inbound SA from 10.20.20.1 to 10.10.10.1 (proxy 10.20.20.1 to 10.10.10.1)
has spi 2703237853 and conn_id 3 and flags 4
lifetime of 28800 seconds
lifetime of 4608000 kilobytes
outbound SA from 10.10.10.1 to 10.20.20.1 (proxy 10.10.10.1 to 10.20.20.1)
has spi 1010314457 and conn_id 4 and flags 4
lifetime of 28800 seconds
lifetime of 4608000 kilobytesIPSEC(key_engine): got a queue event...
IPSEC(initialize_sas): ,
(key eng. msg.) dest= 10.10.10.1, src= 10.20.20.1,
dest_proxy= 10.10.10.1/255.255.255.255/0/0 (type=1),
src_proxy= 10.20.20.1/255.255.255.255/0/0 (type=1),
protocol= ESP, transform= esp-des esp-md5-hmac ,
lifedur= 28800s and 4608000kb,
spi= 0xa12022dd(2703237853), conn_id= 3, keysize= 0, flags= 0x4
IPSEC(initialize_sas): ,
(key eng. msg.) src= 10.10.10.1, dest= 10.20.20.1,
src_proxy= 10.10.10.1/255.255.255.255/0/0 (type=1),
dest_proxy= 10.20.20.1/255.255.255.255/0/0 (type=1),
protocol= ESP, transform= esp-des esp-md5-hmac ,
lifedur= 28800s and 4608000kb,
spi= 0x3c382cd9(1010314457), conn_id= 4, keysize= 0, flags= 0x4

VPN Peer: IPSEC: Peer ip:10.20.20.1/500 Ref cnt incremented to:4 Total
VPN Peers:1
VPN Peer: IPSEC: Peer ip:10.20.20.1/500 Ref cnt incremented to:5 Total
VPN Peers:1
return status is IKMP_NO_ERROR
ISAKMP (0): sending NOTIFY message 36136 protocol 1
crypto_isakmp_process_block:src:10.20.20.1, dest:10.10.10.1 spt:500 dpt:500
ISAKMP (0): processing NOTIFY payload 36137 protocol 1
spi 0, message ID = 1608818011
ISAKMP (0): received DPD_R_U_THERE_ACK from peer 10.20.20.1
return status is IKMP_NO_ERR_NO_TRANS
pix506-635(config)#

```

- **debug vpnclient** Displays the negotiations specific to the VPN Client.

```

pix506-635(config)#vpnclient enable
pix506-635(config)# 44: VPNC CFG: transform set unconfig attempt done
45: VPNC CLI: no isakmp keepalive 10 5
46: VPNC CLI: no isakmp nat-traversal 20
47: VPNC CFG: IKE unconfig successful
48: VPNC CLI: no crypto map _vpnc_cm
49: VPNC CFG: crypto map deletion attempt done
50: VPNC CFG: crypto unconfig successful
51: VPNC CLI: no global (outside) 65001
52: VPNC CLI: no nat (inside) 0 access-list _vpnc_acl
53: VPNC CFG: nat unconfig attempt failed
54: VPNC CLI: no http 172.16.1.1 255.255.255.0 inside
55: VPNC CLI: no http server enable
56: VPNC CLI: no access-list _vpnc_acl
57: VPNC CFG: ACL deletion attempt failed
58: VPNC CLI: no crypto map _vpnc_cm interface outside
59: VPNC CFG: crypto map de/attach failed
60: VPNC CLI: no sysopt connection permit-ipsec
61: VPNC CLI: sysopt connection permit-ipsec
62: VPNC CFG: transform sets configured
63: VPNC CFG: crypto config successful
64: VPNC CLI: isakmp keepalive 10 5
65: VPNC CLI: isakmp nat-traversal 20
66: VPNC CFG: IKE config successful
67: VPNC CLI: http 172.16.1.1 255.255.255.0 inside

```

```
68: VPNC CLI: http server enable
69: VPNC CLI: aaa-server _vpnc_nwp_server protocol tacacs+
70: VPNC CLI: aaa-server _vpnc_nwp_server (outside) host 10.20.20.1
71: VPNC CLI: access-list _vpnc_nwp_acl permit ip any 172.22.1.0 255.255.255.0
72: VPNC CLI: aaa authentication match _vpnc_nwp_acl outbound _vpnc_nwp_server
73: VPNC CLI: no access-list _vpnc_acl
74: VPNC CFG: ACL deletion attempt failed
75: VPNC CLI: access-list _vpnc_acl permit ip host 10.10.10.1 host 10.20.20.1
76: VPNC CLI: crypto map _vpnc_cm 10 match address _vpnc_acl
77: VPNC CFG: crypto map acl update successful
78: VPNC CLI: no crypto map _vpnc_cm interface outside
79: VPNC CLI: crypto map _vpnc_cm interface outside
80: VPNC INF: IKE trigger request done
81: VPNC INF: Constructing policy download req
82: VPNC INF: Packing attributes for policy request
83: VPNC INF: Attributes being requested
84: VPNC ATT: ALT_SPLIT_INCLUDE
85: VPNC INF: 172.22.1.0/255.255.255.0
86: VPNC ATT: ALT_PFS: 0
87: VPNC INF: Received application version 'Cisco Systems, Inc
ASA5520 Version 7.0(4) built by builders on Thu 13-Oct-05 21:43'
88: VPNC ATT: ALT_CFG_SEC_UNIT: 0
89: VPNC ATT: ALT_CFG_USER_AUTH: 0
90: VPNC CLI: no aaa authentication match _vpnc_nwp_acl outbound _vpnc_nwp_server
91: VPNC CLI: no access-list _vpnc_nwp_acl permit ip any 172.22.1.0 255.255.255.0
92: VPNC CLI: no aaa-server _vpnc_nwp_server
93: VPNC CLI: no access-list _vpnc_acl
94: VPNC CLI: access-list _vpnc_acl permit ip 172.16.1.0 255.255.255.0
172.22.1.0 255.255.255.0
95: VPNC CLI: access-list _vpnc_acl permit ip host 10.10.10.1 172.22.1.0
255.255.255.0
96: VPNC CLI: access-list _vpnc_acl permit ip host 10.10.10.1 host 10.20.20.1
97: VPNC CFG: _vpnc_acl ST define done
98: VPNC CFG: Split DNS config attempt done
99: VPNC CLI: crypto map _vpnc_cm 10 match address _vpnc_acl
100: VPNC CFG: crypto map acl update successful
101: VPNC CLI: no crypto map _vpnc_cm interface outside
102: VPNC CLI: crypto map _vpnc_cm interface outside
103: VPNC CLI: no global (outside) 65001
104: VPNC CLI: no nat (inside) 0 access-list _vpnc_acl
105: VPNC CFG: nat unconfig attempt failed
106: VPNC CLI: nat (inside) 0 access-list _vpnc_acl
107: VPNC INF: IKE trigger request done
108: VPNC INF: IKE trigger request done

pix506-635(config)#
```

Related Information

- [Cisco PIX Firewall Software](#)
- [Cisco Secure PIX Firewall Command References](#)
- [Security Product Field Notices \(including PIX\)](#)
- [Requests for Comments \(RFCs\)](#)
- [IPsec Negotiation/IKE Protocols](#)
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