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

Contents

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.

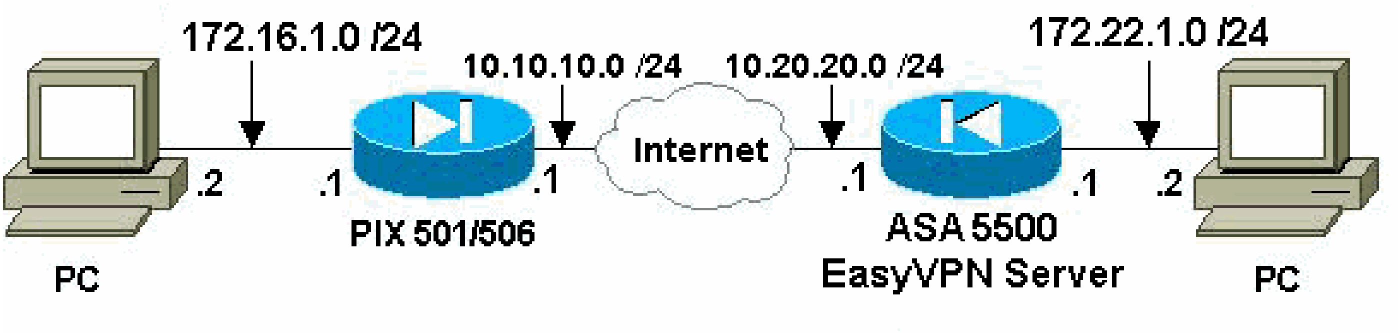
Configure

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

Easy VPN Server (ASA 5520)

```
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 pix506-635#
  ```

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=dc3aa1ef) 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 ISAMKP (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**
- **Technical Support & Documentation - Cisco Systems**