NAT 및 Cisco VPN 클라이언트를 사용하여 PIX에서 PIX로 동적-정적 IPSec 구성

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소개

이 샘플 컨피그레이션에서는 원격 PIX가 DHCP(Dynamic Host Configuration Protocol)를 통해 IP 주소를 수신하고 중앙 PIX에 연결합니다. 이 컨피그레이션을 사용하면 중앙 PIX가 동적 IPsec 연결을 수락할 수 있습니다. 원격 PIX는 NAT(Network Address Translation)를 사용하여 그 뒤에 있는 개인 주소 지정 장치를 중앙 PIX 뒤에 있는 개인 주소 지정 네트워크에 "연결"합니다. 원격 PIX는 중앙 PIX에 대한 연결을 시작할 수 있지만(엔드포인트를 아는 경우) 중앙 PIX는 원격 PIX에 대한 연결을 시작할 수 없습니다(엔드포인트를 모르는 경우).

이 샘플 구성에서 Tiger는 원격 PIX이고 Lion은 중앙 PIX입니다. Tiger의 IP 주소가 어떤 주소인지 알 수 없으므로 와일드카드가 미리 공유된 키를 알고 있는 곳에서 연결을 동적으로 허용하도록 Lion을 구성해야 합니다. Tiger는 어떤 트래픽이 암호화되는지(액세스 목록에 의해 지정되기 때문) 및 Lion 엔드포인트가 어디에 있는지 알고 있습니다. Tiger가 연결을 시작해야 합니다. 양쪽 모두 NAT 및 nat 0을 수행하여 IPsec 트래픽에 대해 NAT를 우회합니다.

또한 이 구성의 원격 사용자는 Cisco VPN Client 3.x를 사용하여 중앙 PIX(Lion)에 연결됩니다. 원격 사용자는 원격 PIX(Tiger)에 연결할 수 없습니다. 양측 모두 동적으로 IP 주소를 할당했고 요청을 전송할 위치를 알지 못하기 때문입니다.

Cisco VPN Client 4.x를 사용하는 PIX/ASA 7.x PIX-to-PIX Dynamic-to-Static IPsec with NAT 및 VPN Client Configuration 예를 참조하십시오.

사전 요구 사항

요구 사항

이 문서에 대한 특정 요건이 없습니다.

사용되는 구성 요소

이 문서의 정보는 다음 소프트웨어 및 하드웨어 버전을 기반으로 합니다.

- Cisco PIX Firewall Software 릴리스 6.0(1)(Cisco VPN Client 3.x용) 이상
- Cisco PIX Firewall Software 릴리스 5.3.1(원격 PIX)
- Cisco VPN Client 버전 3.x

이 문서의 정보는 특정 랩 환경의 디바이스를 토대로 작성되었습니다. 이 문서에 사용된 모든 디바이스는 초기화된(기본) 컨피그레이션으로 시작되었습니다. 현재 네트워크가 작동 중인 경우, 모든 명령어의 잠재적인 영향을 미리 숙지하시기 바랍니다.

표기 규칙

문서 규칙에 대한 자세한 내용은 Cisco 기술 팁 표기 규칙을 참고하십시오.

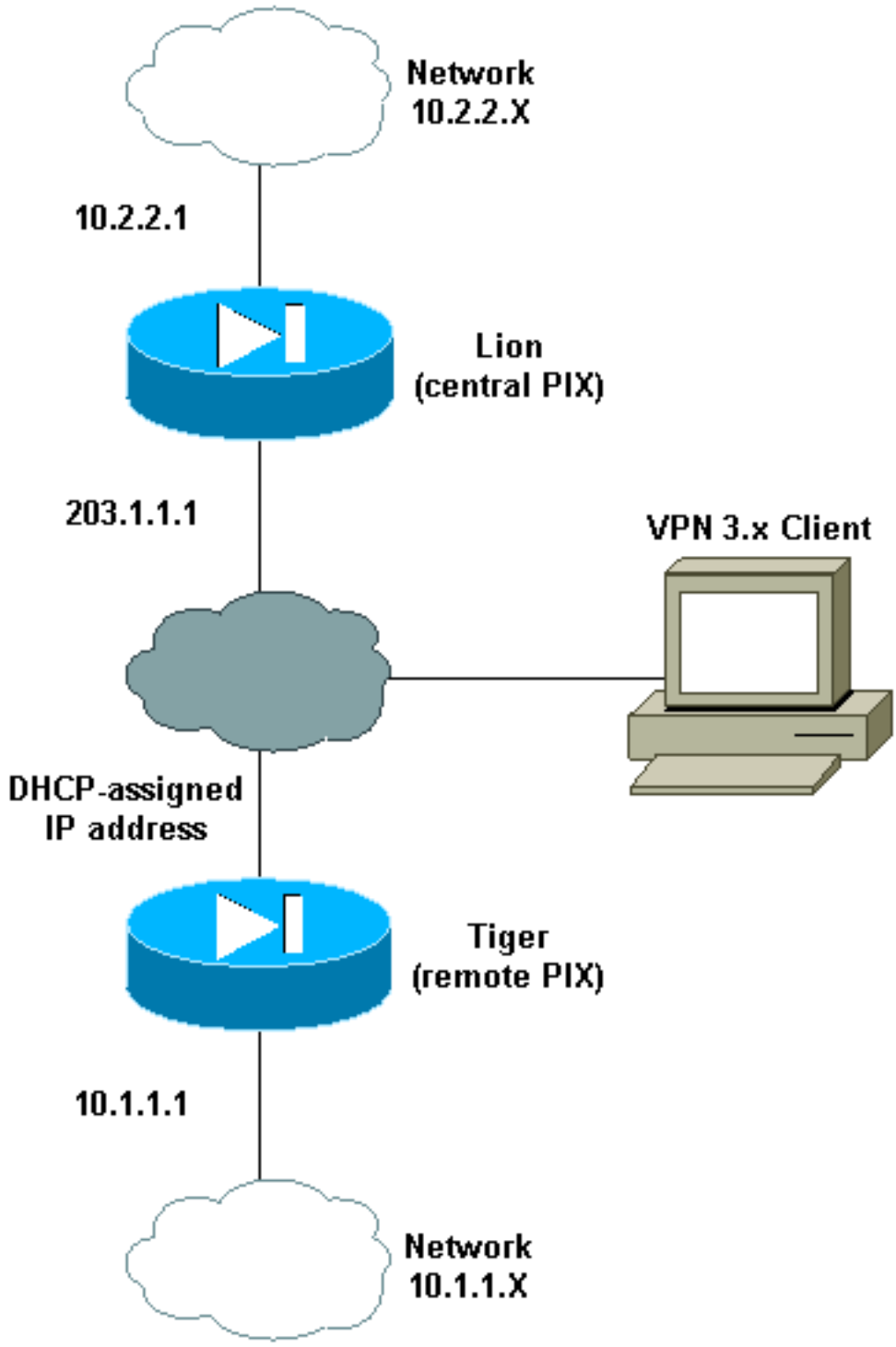
구성

이 섹션에는 이 문서에서 설명하는 기능을 구성하기 위한 정보가 표시됩니다.

참고: 명령 조회 도구(등록된 고객만 해당)를 사용하여 이 섹션에 사용된 명령에 대한 자세한 내용을 확인하십시오.

네트워크 다이어그램

이 문서에서는 다음 네트워크 설정을 사용합니다.



구성

Lion 컨피그레이션
Building configuration... : Saved : PIX Version 6.0(1) nameif gb-ethernet0 spare1 security10 nameif gb-ethernet1 spare2 security15 nameif ethernet0 outside security0 nameif ethernet1 inside security100 enable password 8Ry2YjIyt7RRXU24 encrypted passwd 2KFQnbNIdI.2KYOU encrypted hostname lion

```
domain-name cisco.com
fixup protocol ftp 21
fixup protocol http 80
fixup protocol h323 1720
fixup protocol rsh 514
fixup protocol smtp 25
fixup protocol sqlnet 1521
fixup protocol sip 5060
fixup protocol skinny 2000
names
!
!--- ACL to avoid Network Address Translation (NAT) on
the IPsec packets. access-list 100 permit ip 10.2.2.0
255.255.255.0 10.1.1.0 255.255.255.0
access-list 100 permit ip 10.2.2.0 255.255.255.0
10.3.3.0 255.255.255.0
!
pager lines 24
logging buffered debugging
interface gb-ethernet0 1000auto shutdown
interface gb-ethernet1 1000auto shutdown
interface ethernet0 10baset
interface ethernet1 10baset
mtu spare1 1500
mtu spare2 1500
mtu outside 1500
mtu inside 1500
ip address spare1 127.0.0.1 255.255.255.255
ip address spare2 127.0.0.1 255.255.255.255
!
!--- IP addresses on the interfaces ip address outside
203.1.1.1 255.255.255.0
ip address inside 10.2.2.1 255.255.255.0
!
ip audit info action alarm
ip audit attack action alarm
ip local pool clientpool 10.3.3.1-10.3.3.10
no failover
failover timeout 0:00:00
failover poll 15
failover ip address spare1 0.0.0.0
failover ip address spare2 0.0.0.0
failover ip address outside 0.0.0.0
failover ip address inside 0.0.0.0
pdm history enable
arp timeout 14400
!--- global (outside) 1 203.1.1.10-203.1.1.15 !---
Change from NAT to PAT on the DHCP interface. global
(outside) 1 interface ! !--- Binding ACL 100 to the NAT
statement to avoid NAT on the IPsec packets. nat
(inside) 0 access-list 100
!
nat (inside) 1 0.0.0.0 0.0.0.0 0 0
conduit permit icmp any any
!
!--- Default route to the Internet route outside 0.0.0.0
0.0.0.0 203.1.1.2 1
!
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 rpc
0:10:00 h323 0:05:00 sip
  0:30:00 sip_media 0:02:00
timeout uauth 0:05:00 absolute
aaa-server TACACS+ protocol tacacs+
```

```
aaa-server RADIUS protocol radius
no snmp-server location
no snmp-server contact
snmp-server community public
no snmp-server enable traps
floodguard enable
!
!--- The sysopt command avoids conduit on the IPsec
encrypted traffic.

sysopt connection permit-ipsec
!
no sysopt route dnat
!
!--- Phase 2 encryption type crypto ipsec transform-set
myset esp-des esp-md5-hmac
crypto dynamic-map cisco 1 set transform-set myset
crypto map dyn-map 20 ipsec-isakmp dynamic cisco
!
!--- Binds the IPsec engine on the outside interface.
crypto map dyn-map interface outside
!
!--- Enables ISAKMP key-exchange. isakmp enable outside
!
!--- ISAKMP policy for accepting dynamic connections
from the remote PIX. isakmp key ******** address 0.0.0.0
netmask 0.0.0.0
!--- ISAKMP policy for Cisco VPN Client 2.x isakmp
policy 10 authentication pre-share
isakmp policy 10 encryption des
isakmp policy 10 hash md5
isakmp policy 10 group 1
isakmp policy 10 lifetime 1000
!
!--- ISAKMP policy for Cisco VPN Client 3.x isakmp
policy 20 authentication pre-share
isakmp policy 20 encryption des
isakmp policy 20 hash sha
isakmp policy 20 group 2
isakmp policy 20 lifetime 86400
!
!--- IPsec group configuration for either client
vpngroup unityclient address-pool clientpool
vpngroup unityclient dns-server 10.1.1.3
vpngroup unityclient wins-server 10.1.1.3
vpngroup unityclient default-domain cisco.com
vpngroup unityclient idle-time 1800
vpngroup unityclient password ********
!
telnet timeout 5
ssh timeout 5
terminal width 80
Cryptochecksum:d6fe92db883a052c5765be21a74e7c8d
: end
[OK]
```

타이거 구성

```
Building configuration...
: Saved
:
PIX Version 5.3(1)
nameif gb-ethernet0 spare1 security10
```

```
nameif gb-ethernet1 spare2 security15
nameif ethernet0 outside security0
nameif ethernet1 inside security100
enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted
hostname tiger
fixup protocol ftp 21
fixup protocol http 80
fixup protocol h323 1720
fixup protocol rsh 514
fixup protocol smtp 25
fixup protocol sqlnet 1521
fixup protocol sip 5060
names
!
!--- ACL to avoid NAT on the IPsec packets access-list
101 permit ip 10.1.1.0 255.255.255.0 10.2.2.0
255.255.255.0
!
pager lines 24
logging on
no logging timestamp
no logging standby
no logging console
no logging monitor
logging buffered debugging
no logging trap
no logging history
logging facility 20
logging queue 512
interface gb-ethernet0 1000auto shutdown
interface gb-ethernet1 1000auto shutdown
interface ethernet0 10baset
interface ethernet1 10baset
mtu spare1 1500
mtu spare2 1500
mtu outside 1500
mtu inside 1500
ip address spare1 127.0.0.1 255.255.255.255
ip address spare2 127.0.0.1 255.255.255.255
!
ip address outside dhcp
ip address inside 10.1.1.1 255.255.255.0
!
ip audit info action alarm
ip audit attack action alarm
no failover
failover timeout 0:00:00
failover poll 15
failover ip address spare1 0.0.0.0
failover ip address spare2 0.0.0.0
failover ip address outside 0.0.0.0
failover ip address inside 0.0.0.0
arp timeout 14400
global (outside) 1 204.1.1.10-204.1.1.15
!
!--- Binds ACL 101 to the NAT statement to avoid NAT on
the IPsec packets. nat (inside) 0 access-list 101
!
nat (inside) 1 0.0.0.0 0.0.0.0 0 0
conduit permit icmp any any
route outside 0.0.0.0 0.0.0.0 204.1.1.2 1
timeout xlate 3:00:00
timeout conn 1:00:00 half-closed 0:10:00 udp 0:02:00 rpc
```

```
0:10:00 h323 0:05:00 sip
  0:30:00 sip_media 0:02:00
timeout uauth 0:05:00 absolute
aaa-server TACACS+ protocol tacacs+
aaa-server RADIUS protocol radius
no snmp-server location
no snmp-server contact
snmp-server community public
no snmp-server enable traps
floodguard enable
!
!--- The sysopt command avoids conduit on the IPsec
encrypted traffic.

sysopt connection permit-ipsec
!
no sysopt route dnat
!
!--- Phase 2 encryption type crypto ipsec transform-set
myset esp-des esp-md5-hmac
crypto map newmap 10 ipsec-isakmp
crypto map newmap 10 match address 101
crypto map newmap 10 set peer 203.1.1.1
crypto map newmap 10 set transform-set myset
!
!--- Binds the IPsec engine on the outside interface.
crypto map newmap interface outside
!
!--- Enables ISAKMP key-exchange isakmp enable outside
!
!--- ISAKMP policy for connecting to the central PIX.
isakmp key ******** address 203.1.1.1 netmask
255.255.255.255
isakmp identity hostname
isakmp policy 10 authentication pre-share
isakmp policy 10 encryption des
isakmp policy 10 hash md5
isakmp policy 10 group 1
isakmp policy 10 lifetime 1000
!
telnet timeout 5
ssh timeout 5
terminal width 80
Cryptochecksum:6743b7bf9476590ecd1a1a8c6d75245b
: end
[OK]
```

다음을 확인합니다.

이 섹션에서는 컨피그레이션이 제대로 작동하는지 확인하는 데 사용할 수 있는 정보를 제공합니다.

Output Interpreter 도구(등록된 고객만 해당)(OIT)는 특정 **show** 명령을 지원합니다. OIT를 사용하여 **show** 명령 출력의 분석을 봅니다.

참고: clear 명령은 컨피그레이션 모드에서 수행해야 합니다.

- **clear crypto ipsec sa** - VPN 터널 협상 시도가 실패한 후 IPsec 연결을 재설정합니다.
- **clear crypto isakmp sa** - VPN 터널 협상을 실패한 후 ISAKMP(Internet Security Association and Key Management Protocol) 보안 연결을 재설정합니다.

- **show crypto engine ipsec** - 암호화된 세션을 표시합니다.

문제 해결

이 섹션에서는 컨피그레이션 문제를 해결하는 데 사용할 수 있는 정보를 제공합니다.

문제 해결 명령

Output Interpreter 도구(등록된 고객만 해당)(OIT)는 특정 **show** 명령을 지원합니다. OIT를 사용하여 **show** 명령 출력의 분석을 봅니다.

참고: debug **명령**을 사용하기 전에 디버그 명령에 대한 중요 정보를 참조하십시오.

- **debug crypto ipsec** - 클라이언트가 VPN 연결의 IPsec 부분을 협상하는지 확인하는 데 사용됩니다.
- **debug crypto isakmp connection** - 피어가 VPN의 ISAKMP 부분을 협상하는지 확인하는 데 사용됩니다.

샘플 "정상" 디버그 출력

- 중앙 PIX 디버그
- 원격 PIX 디버그
- 클라이언트 디버깅

중앙 PIX 디버그

```
crypto_isakmp_process_block: src 204.1.1.1, dest 203.1.1.1
OAK_MM exchange
ISAKMP (0): processing SA payload. message ID = 0

ISAKMP (0): Checking ISAKMP transform 1 against priority 10 policy
ISAKMP:      encryption DES-CBC
ISAKMP:      hash MD5
ISAKMP:      default group 1
ISAKMP:      auth pre-share
ISAKMP:      life type in seconds
ISAKMP:      life duration (basic) of 1000
ISAKMP (0): atts are acceptable. Next payload is 0
ISAKMP (0): SA is doing pre-shared key authentication using id type ID_FQDN
return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 204.1.1.1, dest 203.1.1.1
OAK_MM exchange
ISAKMP (0): processing KE payload. message ID = 0

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

ISAKMP (0): processing vendor id payload

ISAKMP (0): processing vendor id payload

ISAKMP (0): processing vendor id payload

ISAKMP (0): speaking to another IOS box!
```

```
return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 204.1.1.1, dest 203.1.1.1
OAK_MM exchange
ISAKMP (0): processing ID payload. message ID = 0
ISAKMP (0): processing HASH payload. message ID = 0
ISAKMP (0): SA has been authenticated

ISAKMP (0): ID payload
        next-payload : 8
        type         : 2
        protocol     : 17
        port         : 500
        length       : 10
ISAKMP (0): Total payload length: 14
return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 204.1.1.1, dest 203.1.1.1
OAK_QM exchange
oakley_process_quick_mode:
OAK_QM_IDLE
ISAKMP (0): processing SA payload. message ID = 1223411072

ISAKMP : Checking IPSec proposal 1

ISAKMP: transform 1, ESP_DES
ISAKMP:   attributes in transform:
ISAKMP:      encaps is 1
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:      authenticator is HMAC-MD5
ISAKMP (0): atts are acceptable.IPSEC(validate_proposal_request): proposal part #1,
  (key eng. msg.) dest= 203.1.1.1, src= 204.1.1.1,
    dest_proxy= 10.1.1.0/255.255.255.0/0/0 (type=4),
    src_proxy= 10.2.2.0/255.255.255.0/0/0 (type=4),
    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 = 1223411072

ISAKMP (0): processing ID payload. message ID = 1223411072
ISAKMP (0): ID_IPV4_ADDR_SUBNET src 10.2.2.0/255.255.255.0 prot 0 port 0
ISAKMP (0): processing ID payload. message ID = 1223411072
ISAKMP (0): ID_IPV4_ADDR_SUBNET dst 10.1.1.0/255.255.255.0 prot 0 port
   0IPSEC(key_engine): got a queue event...
IPSEC(spi_response): getting spi 0xd0e27cb6(3504503990) for SA from 204.1.1.1
   to 203.1.1.1 for prot 3

return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 204.1.1.1, dest 203.1.1.1
OAK_QM exchange
oakley_process_quick_mode:
OAK_QM_AUTH_AWAIT
ISAKMP (0): Creating IPSec SAs
        inbound SA from 204.1.1.1 to 203.1.1.1 proxy 10.2.2.0 to 10.1.1.0)
        has spi 3504503990 and conn_id 4 and flags 4
        lifetime of 28800 seconds
        lifetime of 4608000 kilobytes
        outbound SA from 203.1.1.1 to 204.1.1.1(proxy 10.1.1.0 to 10.2.2.0)
        has spi 2729504033 and conn_id 3 and flags 4
        lifetime of 28800 seconds
        lifetime of 4608000 kilobytesIPSEC(key_engine): got a queue event...
```

```
IPSEC(initialize_sas): ,
  (key eng. msg.) dest= 203.1.1.1, src= 204.1.1.1,
    dest_proxy= 10.1.1.0/255.255.255.0/0/0 (type=4),
    src_proxy= 10.2.2.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-des esp-md5-hmac ,
    lifedur= 28800s and 4608000kb,
    spi= 0xd0e27cb6(3504503990), conn_id= 4, keysize= 0, flags= 0x4
IPSEC(initialize_sas): ,
  (key eng. msg.) src= 203.1.1.1, dest= 204.1.1.1,
    src_proxy= 10.1.1.0/255.255.255.0/0/0 (type=4),
    dest_proxy= 10.2.2.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-des esp-md5-hmac ,
    lifedur= 28800s and 4608000kb,
    spi= 0xa2b0ed21(2729504033), conn_id= 3, keysize= 0, flags= 0x4

return status is IKMP_NO_ERROR
```

원격 PIX 디버그

```
ISAKMP (0): beginning Main Mode exchange

crypto_isakmp_process_block: src 203.1.1.1, dest 204.1.1.1
OAK_MM exchange
ISAKMP (0): processing SA payload. message ID = 0

ISAKMP (0): Checking ISAKMP transform 1 against priority 10 policy
ISAKMP:      encryption DES-CBC
ISAKMP:      hash MD5
ISAKMP:      default group 1
ISAKMP:      auth pre-share
ISAKMP:      life type in seconds
ISAKMP:      life duration (basic) of 1000
ISAKMP (0): atts are acceptable. Next payload is 0
ISAKMP (0): SA is doing pre-shared key authentication using id type ID_FQDN
return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 203.1.1.1, dest 204.1.1.1
OAK_MM exchange
ISAKMP (0): processing KE payload. message ID = 0

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

ISAKMP (0): processing vendor id payload

ISAKMP (0): speaking to another IOS box!

ISAKMP (0): ID payload
        next-payload : 8
        type         : 2
        protocol     : 17
        port         : 500
        length       : 18
ISAKMP (0): Total payload length: 22
return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 203.1.1.1, dest 204.1.1.1
OAK_MM exchange
ISAKMP (0): processing ID payload. message ID = 0
ISAKMP (0): processing HASH payload. message ID = 0
ISAKMP (0): SA has been authenticated

ISAKMP (0): beginning Quick Mode exchange, M-ID of
   1223411072:48ebc580IPSEC(key_engine):got a queue event...
IPSEC(spi_response): getting spi 0xa2b0ed21(2729504033) for SA
        from       203.1.1.1 to       204.1.1.1 for prot 3
```

```
return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 203.1.1.1, dest 204.1.1.1
OAK_QM exchange
oakley_process_quick_mode:
OAK_QM_IDLE
ISAKMP (0): processing SA payload. message ID = 1223411072

ISAKMP : Checking IPSec proposal 1

ISAKMP: transform 1, ESP_DES
ISAKMP:   attributes in transform:
ISAKMP:      encaps is 1
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:      authenticator is HMAC-MD5
ISAKMP (0): atts are acceptable.IPSEC(validate_proposal_request): proposal part #1,
  (key eng. msg.) dest= 203.1.1.1, src= 204.1.1.1,
    dest_proxy= 10.1.1.0/255.255.255.0/0/0 (type=4),
    src_proxy= 10.2.2.0/255.255.255.0/0/0 (type=4),
    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 = 1223411072

ISAKMP (0): processing ID payload. message ID = 1223411072
ISAKMP (0): processing ID payload. message ID = 1223411072
ISAKMP (0): Creating IPSec SAs
        inbound SA from 203.1.1.1 to 204.1.1.1 (proxy 10.1.1.0 to 10.2.2.0)
        has spi 2729504033 and conn_id 4 and flags 4
        lifetime of 28800 seconds
        lifetime of 4608000 kilobytes
        outbound SA from 204.1.1.1 to 203.1.1.1 (proxy 10.2.2.0 to 10.1.1.0)
        has spi 3504503990 and conn_id 3 and flags 4
        lifetime of 28800 seconds
        lifetime of 4608000 kilobytesIPSEC(key_engine): got a queue event...
IPSEC(initialize_sas): ,
  (key eng. msg.) dest= 204.1.1.1, src= 203.1.1.1,
    dest_proxy= 10.2.2.0/255.255.255.0/0/0 (type=4),
    src_proxy= 10.1.1.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-des esp-md5-hmac ,
    lifedur= 28800s and 4608000kb,
    spi= 0xa2b0ed21(2729504033), conn_id= 4, keysize= 0, flags= 0x4
IPSEC(initialize_sas): ,
  (key eng. msg.) src= 204.1.1.1, dest= 203.1.1.1,
    src_proxy= 10.2.2.0/255.255.255.0/0/0 (type=4),
    dest_proxy= 10.1.1.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-des esp-md5-hmac ,
    lifedur= 28800s and 4608000kb,
    spi= 0xd0e27cb6(3504503990), conn_id= 3, keysize= 0, flags= 0x4

return status is IKMP_NO_ERROR
```

클라이언트 디버깅

```
19     16:43:20.402  06/28/01  Sev=Info/4       CM/0x63100004
Establish secure connection using Ethernet

20     16:43:20.402  06/28/01  Sev=Info/4       CM/0x63100025
Attempt connection with server "203.1.1.1"
```

```
21     16:43:20.402  06/28/01  Sev=Info/6       IKE/0x6300003B
Attempting to establish a connection with 203.1.1.1.

22     16:43:20.442  06/28/01  Sev=Info/4       IKE/0x63000013
SENDING >>> ISAKMP OAK AG (SA, KE, NON, ID, VID, VID, VID) to 203.1.1.1

23     16:43:20.452  06/28/01  Sev=Info/4       IPSEC/0x63700014
Deleted all keys

24     16:43:20.492  06/28/01  Sev=Info/5       IKE/0x6300002F
Received ISAKMP packet: peer = 203.1.1.1

25     16:43:20.492  06/28/01  Sev=Info/4       IKE/0x63000014
RECEIVING <<< ISAKMP OAK AG (SA, VID, VID, VID, KE, ID, NON, HASH) from 203.1.1.1

26     16:43:20.492  06/28/01  Sev=Info/5       IKE/0x63000059
Vendor ID payload = 12F5F28C457168A9702D9FE274CC0100


27     16:43:20.492  06/28/01  Sev=Info/5       IKE/0x63000001
Peer is a Cisco-Unity compliant peer

28     16:43:20.492  06/28/01  Sev=Info/5       IKE/0x63000059
Vendor ID payload = AFCAD71368A1F1C96B8696FC77570100


29     16:43:20.492  06/28/01  Sev=Info/5       IKE/0x63000001
Peer supports DPD

30     16:43:20.492  06/28/01  Sev=Info/5       IKE/0x63000059
Vendor ID payload = A0EB477E6627B406AA10F958254B3517


31     16:43:20.542  06/28/01  Sev=Info/4       IKE/0x63000013
SENDING >>> ISAKMP OAK AG *(HASH, NOTIFY:STATUS_INITIAL_CONTACT) to 203.1.1.1

32     16:43:20.542  06/28/01  Sev=Info/4       CM/0x6310000E
Established Phase 1 SA.  1 Phase 1 SA in the system

33     16:43:21.143  06/28/01  Sev=Info/4       IKE/0x63000013
SENDING >>> ISAKMP OAK TRANS *(HASH, ATTR) to 203.1.1.1

34     16:43:24.067  06/28/01  Sev=Info/5       IKE/0x6300002F
Received ISAKMP packet: peer = 203.1.1.1

35     16:43:24.067  06/28/01  Sev=Info/4       IKE/0x63000014
RECEIVING <<< ISAKMP OAK TRANS *(HASH, ATTR) from 203.1.1.1

36     16:43:24.067  06/28/01  Sev=Info/5       IKE/0x63000010
MODE_CFG_REPLY: Attribute = INTERNAL_IPV4_ADDRESS: , value = 10.3.3.1


37     16:43:24.067  06/28/01  Sev=Info/5       IKE/0x63000010
MODE_CFG_REPLY: Attribute = INTERNAL_IPV4_DNS(1): , value = 10.1.1.3


38     16:43:24.067  06/28/01  Sev=Info/5       IKE/0x63000010
MODE_CFG_REPLY: Attribute = INTERNAL_IPV4_NBNS(1) (a.k.a. WINS) : , value = 10.1.1.3


39     16:43:24.067  06/28/01  Sev=Info/5       IKE/0x6300000E
MODE_CFG_REPLY: Attribute = MODECFG_UNITY_DEFDOMAIN: , value = cisco.com
```

```
40     16:43:24.067  06/28/01  Sev=Info/4       CM/0x63100018
Mode Config data received

41     16:43:24.668  06/28/01  Sev=Info/5       IKE/0x63000055
Received a key request from Driver for IP address 203.1.1.1, GW IP = 203.1.1.1


42     16:43:24.668  06/28/01  Sev=Info/4       IKE/0x63000013
SENDING >>> ISAKMP OAK QM *(HASH, SA, NON, ID, ID) to 203.1.1.1

43     16:43:24.668  06/28/01  Sev=Info/5       IKE/0x63000055
Received a key request from Driver for IP address 10.10.10.255, GW IP = 203.1.1.1

44     16:43:24.668  06/28/01  Sev=Info/4       IKE/0x63000013
SENDING >>> ISAKMP OAK QM *(HASH, SA, NON, ID, ID) to 203.1.1.1

45     16:43:24.668  06/28/01  Sev=Info/4       IPSEC/0x63700014
Deleted all keys

46     16:43:25.619  06/28/01  Sev=Info/5       IKE/0x6300002F
Received ISAKMP packet: peer = 203.1.1.1

47     16:43:25.619  06/28/01  Sev=Info/4       IKE/0x63000014
RECEIVING <<< ISAKMP OAK QM *(HASH, SA, NON, ID, ID, NOTIFY:STATUS_RESP_LIFETIME) from 203.1.1.1

48     16:43:25.619  06/28/01  Sev=Info/5       IKE/0x63000044
RESPONDER-LIFETIME notify has value of 28800 seconds

49     16:43:25.619  06/28/01  Sev=Info/5       IKE/0x63000045
RESPONDER-LIFETIME notify has value of 4608000 kb

50     16:43:25.619  06/28/01  Sev=Info/4       IKE/0x63000013
SENDING >>> ISAKMP OAK QM *(HASH) to 203.1.1.1

51     16:43:25.619  06/28/01  Sev=Info/5       IKE/0x63000058
Loading IPsec SA (Message ID = 0x59515364 OUTBOUND SPI = 0xB24CDB55 INBOUND SPI = 0x83AA0042)

52     16:43:25.619  06/28/01  Sev=Info/5       IKE/0x63000025
Loaded OUTBOUND ESP SPI: 0xB24CDB55

53     16:43:25.619  06/28/01  Sev=Info/5       IKE/0x63000026
Loaded INBOUND ESP SPI: 0x83AA0042

54     16:43:25.619  06/28/01  Sev=Info/4       CM/0x63100019
One secure connection established

55     16:43:25.629  06/28/01  Sev=Info/6       DIALER/0x63300003
Connection established.

56     16:43:25.669  06/28/01  Sev=Info/6       DIALER/0x63300008
MAPI32 Information - Outlook not default mail client

57     16:43:25.960  06/28/01  Sev=Info/5       IKE/0x6300002F
Received ISAKMP packet: peer = 203.1.1.1

58     16:43:25.960  06/28/01  Sev=Info/4       IKE/0x63000014
RECEIVING <<< ISAKMP OAK QM *(HASH, SA, NON, ID, ID, NOTIFY:STATUS_RESP_LIFETIME) from 203.1.1.1

59     16:43:25.960  06/28/01  Sev=Info/5       IKE/0x63000044
RESPONDER-LIFETIME notify has value of 28800 seconds

60     16:43:25.960  06/28/01  Sev=Info/5       IKE/0x63000045
RESPONDER-LIFETIME notify has value of 4608000 kb
```

```
61     16:43:25.960  06/28/01  Sev=Info/4       IKE/0x63000013
SENDING >>> ISAKMP OAK QM *(HASH) to 203.1.1.1

62     16:43:25.960  06/28/01  Sev=Info/5       IKE/0x63000058
Loading IPsec SA (Message ID = 0x23A23005 OUTBOUND SPI = 0xAD0599DB INBOUND SPI = 0x2B74D4A4)

63     16:43:25.960  06/28/01  Sev=Info/5       IKE/0x63000025
Loaded OUTBOUND ESP SPI: 0xAD0599DB

64     16:43:25.960  06/28/01  Sev=Info/5       IKE/0x63000026
Loaded INBOUND ESP SPI: 0x2B74D4A4

65     16:43:25.960  06/28/01  Sev=Info/4       CM/0x63100021
Additional Phase 2 SA established.

66     16:43:25.960  06/28/01  Sev=Info/4       IPSEC/0x63700010
Created a new key structure

67     16:43:25.960  06/28/01  Sev=Info/4       IPSEC/0x6370000F
Added key with SPI=0x55db4cb2 into key list

68     16:43:25.960  06/28/01  Sev=Info/4       IPSEC/0x63700010
Created a new key structure

69     16:43:25.960  06/28/01  Sev=Info/4       IPSEC/0x6370000F
Added key with SPI=0x4200aa83 into key list

70     16:43:25.960  06/28/01  Sev=Info/4       IPSEC/0x63700010
Created a new key structure

71     16:43:25.960  06/28/01  Sev=Info/4       IPSEC/0x6370000F
Added key with SPI=0xdb9905ad into key list

72     16:43:25.960  06/28/01  Sev=Info/4       IPSEC/0x63700010
Created a new key structure

73     16:43:25.960  06/28/01  Sev=Info/4       IPSEC/0x6370000F
Added key with SPI=0xa4d4742b into key list

74     16:43:35.173  06/28/01  Sev=Info/6       IKE/0x6300003D
Sending DPD request to 203.1.1.1, seq# = 1856135987

75     16:43:35.173  06/28/01  Sev=Info/4       IKE/0x63000013
SENDING >>> ISAKMP OAK INFO *(HASH, NOTIFY:DPD_REQUEST) to 203.1.1.1

76     16:43:35.173  06/28/01  Sev=Info/5       IKE/0x6300002F
Received ISAKMP packet: peer = 203.1.1.1

77     16:43:35.173  06/28/01  Sev=Info/4       IKE/0x63000014
RECEIVING <<< ISAKMP OAK INFO *(HASH, NOTIFY:DPD_ACK) from 203.1.1.1

78     16:43:35.173  06/28/01  Sev=Info/5       IKE/0x6300003F
Received DPD ACK from 203.1.1.1, seq# received = 1856135987, seq# expected = 1856135987
```

관련 정보

- PIX 지원 페이지
- PIX 명령 참조
- IPSec 네트워크 보안 구성
- IP Security(IPSec) 제품 지원 페이지

- 기술 지원 및 문서 – Cisco Systems