IPSec - PIX到Cisco VPN客戶端萬用字元，預共用，帶擴展身份驗證的模式配置

目錄

簡介

此配置示例演示如何使用萬用字元、mode-config、**sysopt connection permit-ipsec**命令和擴展身份驗證(Xauth)將VPN客戶端連線到PIX防火牆。

要檢視PIX 6.3及更高版本的TACACS+和RADIUS配置，請參閱適用於PIX 6.3和PIX/ASA 7.x的TACACS+和RADIUS配置示例。

VPN客戶端支援高級加密標準(AES)作為Cisco VPN客戶端3.6.1版及更高版本和PIX防火牆6.3中的加密演算法。VPN客戶端僅支援128位和256位的金鑰大小。有關如何配置AES的詳細資訊，請參閱如何使用AES將Cisco VPN客戶端配置為PIX。

請參閱PIX/ASA 7.x和Cisco VPN Client 4.x for Windows with Microsoft Windows 2003 IAS RADIUS身份驗證配置示例，以使用Microsoft Windows 2003 Internet Authentication Service(IAS)RADIUS伺服器在Cisco VPN客戶端(4.x for Windows)和PIX 500系列安全裝置7.x之間設定遠端訪問VPN連線。

請參閱使用RADIUS進行使用者身份驗證和記賬的VPN 3000集中器和VPN Client 4.x for Windows之間的IPsec配置示例，以使用RADIUS進行使用者身份驗證和記賬的Cisco VPN Client 4.x for Windows之間建立IPsec隧道。

請參閱使用RADIUS進行使用者身份驗證在Cisco IOS路由器和Cisco VPN客戶端4.x for Windows之間配置IPsec，以配置路由器和Cisco VPN客戶端4.x之間使用RADIUS進行使用者身份驗證的連線。

必要條件

需求

本文件沒有特定需求。

採用元件

本文中的資訊係根據以下軟體和硬體版本：

- Cisco VPN客戶端4.x.與Cisco Secure VPN Client 1.x不同，此產品具有高級VPN功能。
- PIX防火牆515E版本6.3(3)。

註：加密技術受出口管制約束。您有責任瞭解關於加密技術出口的法律。詳情請參閱出口管理局網站 。如果您對出口管制有任何疑問，請傳送電子郵件至export@cisco.com。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您的網路正在作用，請確保您已瞭解任何指令可能造成的影響。

慣例

如需文件慣例的詳細資訊，請參閱思科技術提示慣例。

背景資訊

sysopt connection permit-ipsec命令隱式允許來自IPsec隧道的任何資料包繞過IPsec連線的相關**access-list**、**conduit**或**access-group**命令的檢查。Xauth會將IPsec使用者驗證到外部TACACS+或RADIUS伺服器。除了萬用字元預共用金鑰外，使用者還必須提供使用者名稱/密碼。

具有VPN客戶端的使用者從其ISP接收IP地址。該地址由PIX上IP地址池中的IP地址替換。使用者可以訪問防火牆內部的所有內容，包括網路。不運行VPN客戶端的使用者只能使用靜態分配提供的外部地址連線到Web伺服器。

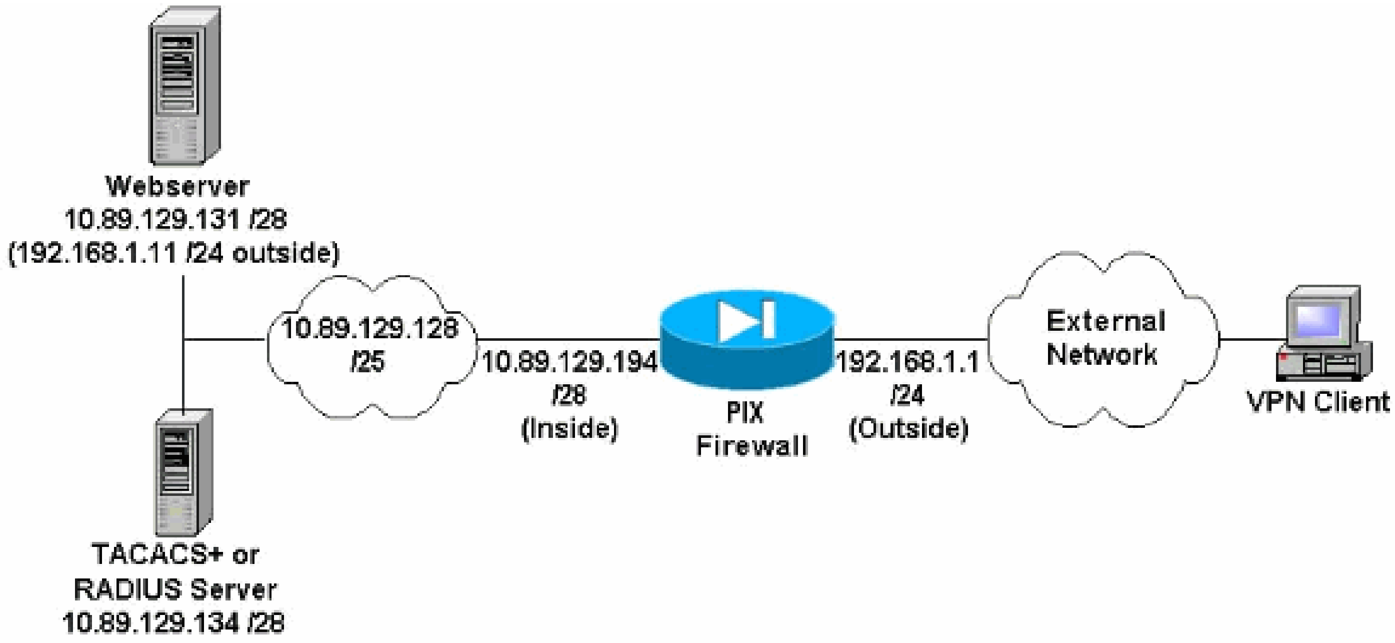
設定

本節提供用於設定本文件中所述功能的資訊。

註：使用Command Lookup Tool(僅限註冊客戶)查詢有關本文檔中使用的命令的更多資訊。

網路圖表

本檔案會使用以下網路設定：



網路圖表說明

- 即使未建立VPN連線，使用全域性IP地址192.168.1.1訪問Web伺服器的Internet主機也會進行身份驗證。此流量*未加*密。
- 一旦建立IPsec隧道，VPN客戶端就可以訪問內部網路(10.89.129.128 /25)中的所有主機。從VPN客戶端到PIX防火牆的所有流量都經過加密。如果沒有IPsec隧道，則它們只能通過其全域性IP地址訪問Web伺服器，但仍需要進行身份驗證。
- VPN客戶端來自Internet，其IP地址事先未知。

組態

本檔案會使用這些設定。

- PIX配置6.3(3)
- VPN客戶端4.0.5配置
- VPN客戶端3.5配置
- VPN客戶端1.1配置

PIX配置6.3(3)

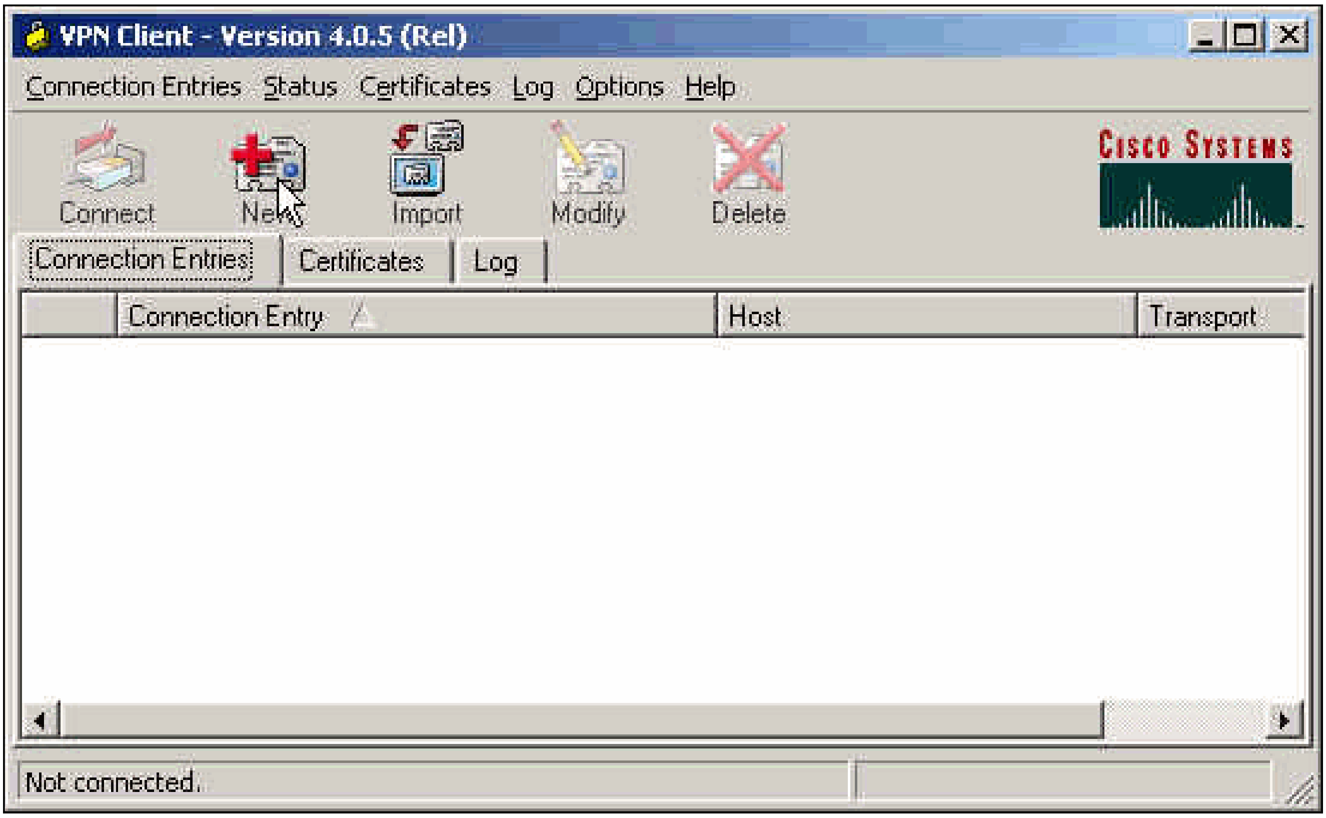
```
pixfirewall#show run
: Saved
:
PIX Version 6.3(3)
interface ethernet0 100full
interface ethernet1 100full
nameif ethernet0 outside security0
nameif ethernet1 inside security100
enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted
hostname pixfirewall
fixup protocol dns maximum-length 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
!--- Do not use Network Address Translation (NAT) for
inside-to-pool !--- traffic. This should not go through
NAT. access-list 101 permit ip 10.89.129.128
255.255.255.240 10.89.129.192 255.255.255.240 !---
Permits Internet Control Message Protocol (ICMP) !---
Transmission Control Protocol (TCP) and User Datagram
Protocol (UDP) !--- traffic from any host on the
Internet (non-VPN) to the web server. access-list 120
permit icmp any host 10.89.129.131 access-list 120
permit tcp any host 10.89.129.131 access-list 120 permit
udp any host 10.89.129.131 pager lines 24 mtu outside
1500 mtu inside 1500 ip address outside 192.168.1.1
255.255.255.0 ip address inside 10.89.129.194
255.255.255.240 ip audit info action alarm ip audit
attack action alarm !--- Specifies the inside IP address
range to be assigned !--- to the VPN Clients. ip local
pool VPNpool 10.89.129.200-10.89.129.204 no failover
failover timeout 0:00:00 failover poll 15 no failover ip
address outside no failover ip address inside pdm
history enable arp timeout 14400 !--- Defines a pool of
global addresses to be used by NAT. global (outside) 1
192.168.1.6-192.168.1.10 nat (inside) 0 access-list 101
nat (inside) 1 0.0.0.0 0.0.0.0 0 0 !--- Specifies which
outside IP address to apply to the web server. static
(inside,outside) 192.168.1.11 10.89.129.131 netmask
255.255.255.255 0 0 !--- Apply ACL 120 to the outside
interface in the inbound direction. access-group 120 in
interface outside !--- Defines a default route for the
PIX. route outside 0.0.0.0 0.0.0.0 192.168.1.3 1 !---
Defines a route for traffic within the PIX's !--- subnet
to reach other inside hosts. route inside 10.89.129.128
255.255.255.128 10.89.129.193 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 uauth 0:05:00
absolute aaa-server TACACS+ protocol tacacs+ aaa-server
RADIUS protocol radius aaa-server LOCAL protocol local
!--- Authentication, authorization, and accounting (AAA)
statements !--- for authentication. !--- Use either of
these statements to define the protocol of the group
AuthInbound. !--- You cannot use both.
aaa-server AuthInbound protocol tacacs+

!--- OR aaa-server AuthInbound protocol radius !---
After you define the protocol of the group AuthInbound,
define !--- a server of the same type. !--- In this case
we specify the TACACS+ server and key of "secretkey".
aaa-server AuthInbound (inside) host 10.89.129.134
secretkey timeout 10 !--- Authenticate HTTP, FTP, and
Telnet traffic to the web server. aaa authentication
include http outside 10.89.129.131 255.255.255.255
0.0.0.0 0.0.0.0 AuthInbound aaa authentication include
ftp outside 10.89.129.131 255.255.255.255 0.0.0.0
0.0.0.0 AuthInbound aaa authentication include telnet
```

```
outside 10.89.129.131 255.255.255.255 0.0.0.0 0.0.0.0
AuthInbound no snmp-server location no snmp-server
contact snmp-server community public no snmp-server
enable traps floodguard enable !--- Trust IPsec traffic
and avoid going through ACLs/NAT. sysopt connection
permit-ipsec !--- IPsec and dynamic map configuration.
crypto ipsec transform-set myset esp-des esp-md5-hmac
crypto dynamic-map dynmap 10 set transform-set myset
crypto map mymap 10 ipsec-isakmp dynamic dynmap !---
Assign IP address for VPN 1.1 Clients. crypto map mymap
client configuration address initiate crypto map mymap
client configuration address respond !--- Use the AAA
server for authentication (AuthInbound). crypto map
mymap client authentication AuthInbound !--- Apply the
IPsec/AAA/ISAKMP configuration to the outside interface.
crypto map mymap interface outside isakmp enable outside
!--- Pre-shared key for VPN 1.1 Clients. isakmp key
******** address 0.0.0.0 netmask 0.0.0.0 isakmp identity
address !--- Assign address from "VPNpool" pool for VPN
1.1 Clients. isakmp client configuration address-pool
local VPNpool outside !--- ISAKMP configuration for VPN
Client 3.x/4.x. isakmp policy 10 authentication pre-
share isakmp policy 10 encryption des isakmp policy 10
hash md5 isakmp policy 10 group 2 isakmp policy 10
lifetime 86400 !--- ISAKMP configuration for VPN Client
1.x. isakmp policy 20 authentication pre-share isakmp
policy 20 encryption des isakmp policy 20 hash md5
isakmp policy 20 group 1 isakmp policy 20 lifetime 86400
!--- Assign addresses from "VPNpool" for VPN Client
3.x/4.x. vpngroup vpn3000 address-pool VPNpool vpngroup
vpn3000 idle-time 1800 !--- Group password for VPN
Client 3.x/4.x (not shown in configuration). vpngroup
vpn3000 password ******** telnet timeout 5 ssh timeout 5
console timeout 0 terminal width 80
Cryptochecksum:ba54c063d94989cbd79076955dbfeefc : end
pixfirewall#
```

VPN客戶端4.0.5配置

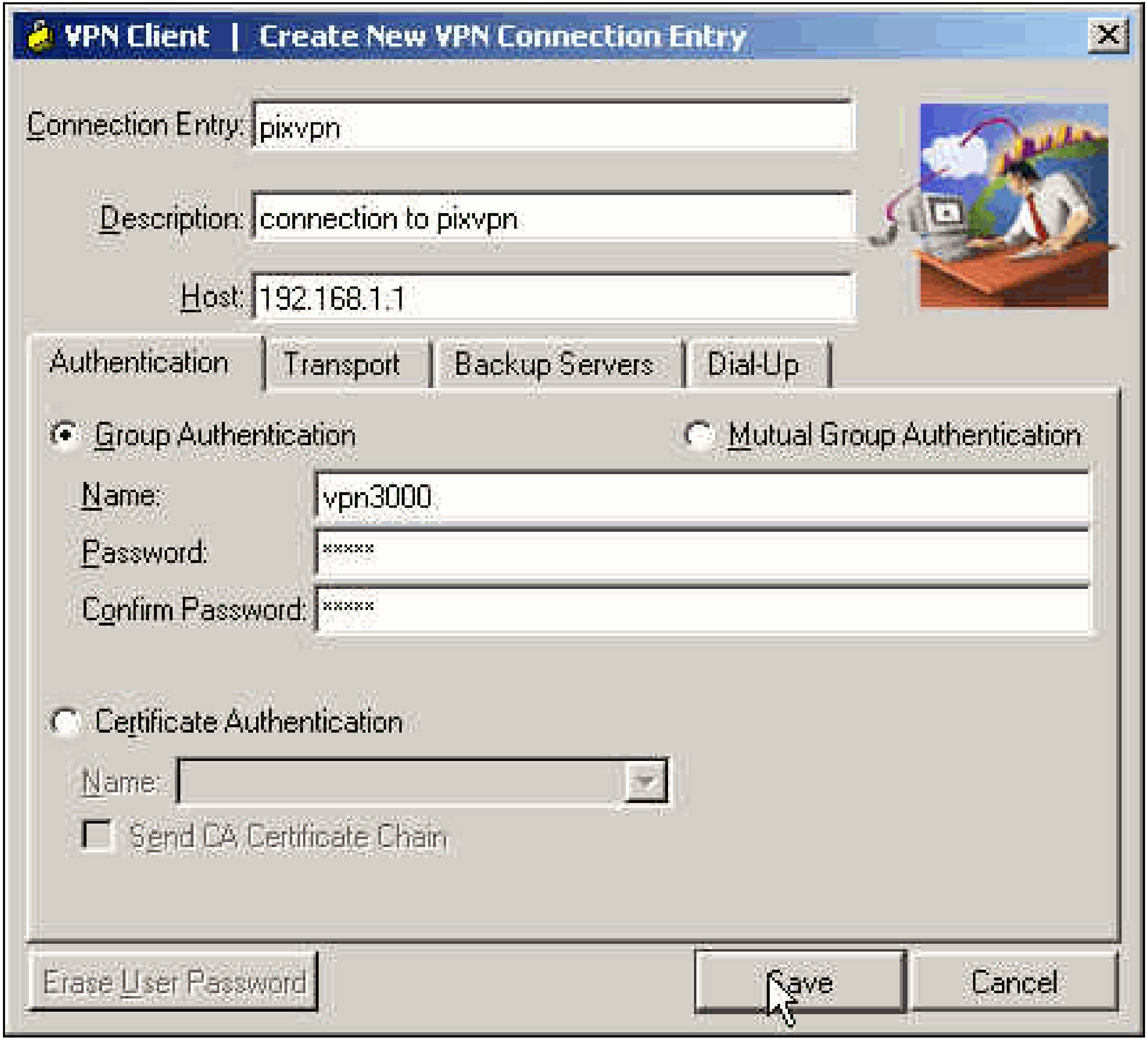
完成以下步驟以配置VPN客戶端4.0.5。

1. 選擇**Start > Programs > Cisco Systems VPN Client > VPN Client**。
2. 按一下**New**以啟動Create New VPN Connection Entry視窗。



Not connected.

3. 輸入連線條目的名稱和說明。在「主機」框中輸入PIX防火牆的外部IP地址。然後輸入VPN組名稱和密碼，然後按一下**Save**。



Connection Entry: pixvpn

Description: connection to pixvpn

Host: 192.168.1.1

● Group Authentication ○ Mutual Group Authentication

Name: vpn3000

Password: *****

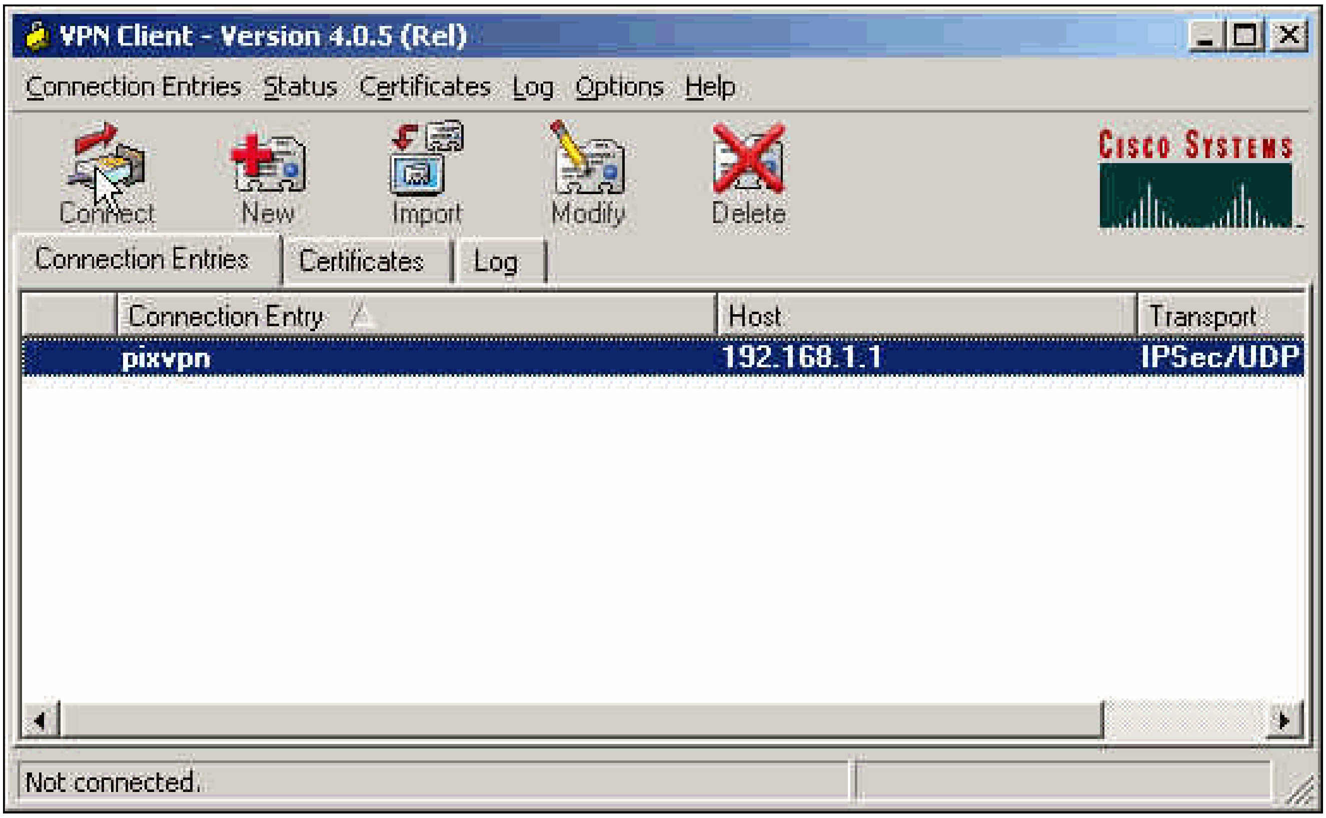
Confirm Password: *****

○ Certificate Authentication

Name:

□ Send CA Certificate Chain

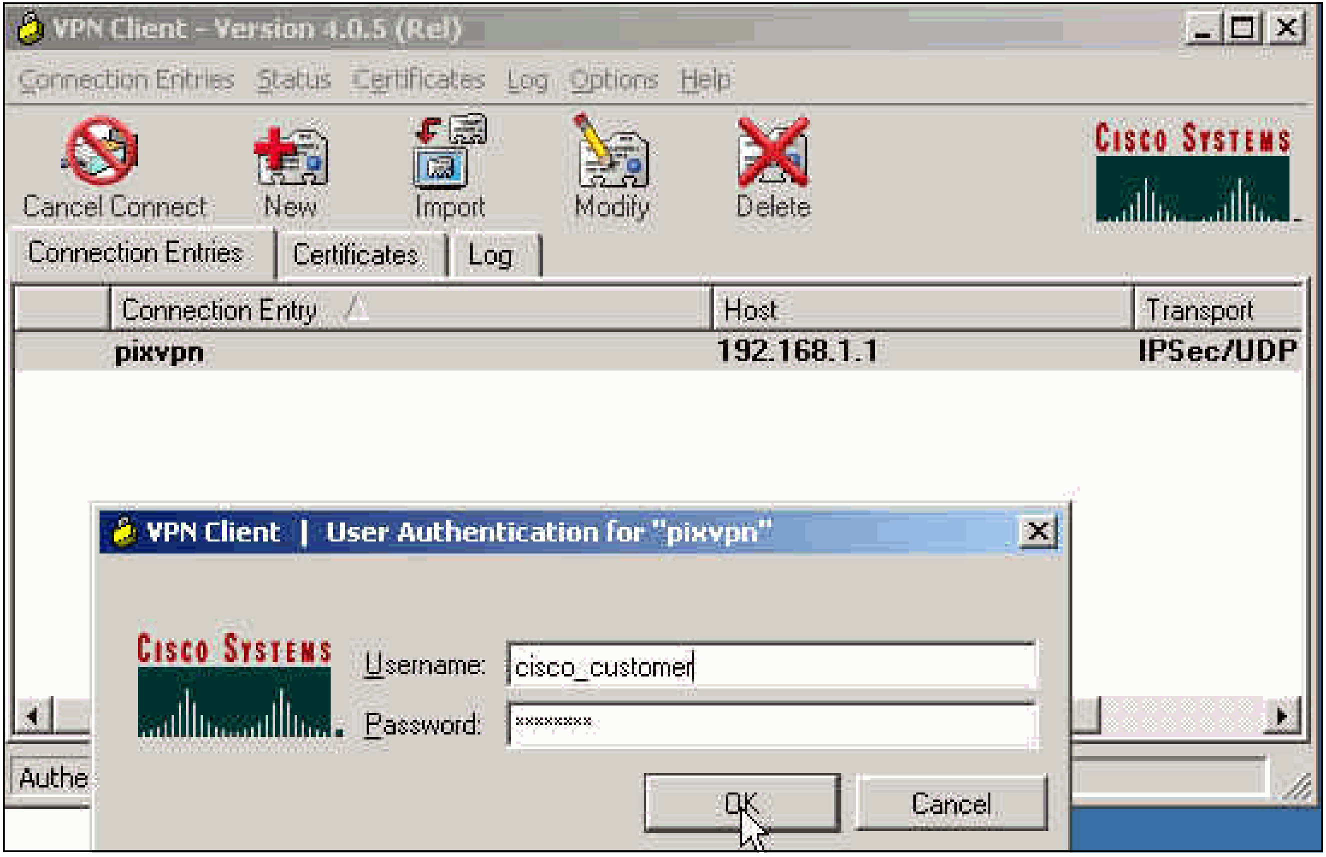
4. 在VPN客戶端主視窗中，按一下要使用的連線，然後按一下**Connect**按鈕。


VPN Client - Version 4.0.5 (Rel)
Connection Entries Status Certificates Log Options Help
Connect
New
Import
Modify
Delete
Cisco Systems
Connection Entries
Certificates
Log

	Connection Entry	Host	Transport
	pixvpn	192.168.1.1	IPSec/UDP

Not connected.

5. 出現提示時，輸入Xauth的使用者名稱和密碼資訊，然後按一下**OK**連線到遠端網路。


VPN Client - Version 4.0.5 (Rel)
Connection Entries Status Certificates Log Options Help
Cancel Connect
New
Import
Modify
Delete
Cisco Systems
Connection Entries
Certificates
Log
Authe
VPN Client | User Authentication for "pixvpn"
Cisco Systems
OK
Cancel

	Connection Entry	Host	Transport
	pixvpn	192.168.1.1	IPSec/UDP

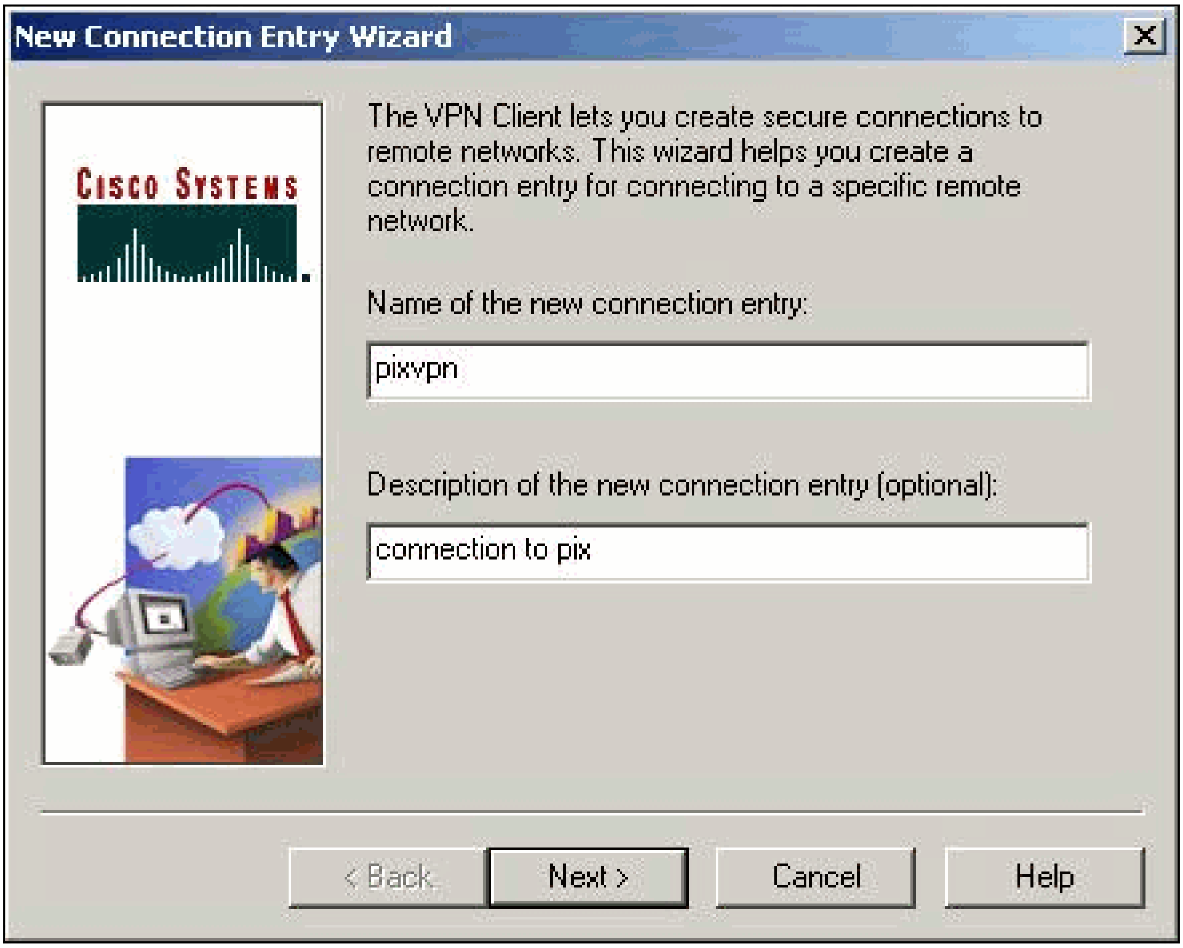
Username: cisco_customer

Password: ********

VPN客戶端3.5配置

完成以下步驟以配置VPN客戶端3.5配置。

1. 選擇**Start > Programs > Cisco Systems VPN Client > VPN Dialer**。
2. 按一下**New**以啟動New Connection Entry Wizard。
3. 輸入新連線條目的名稱，然後按一下**下一步**。



New Connection Entry Wizard

The VPN Client lets you create secure connections to remote networks. This wizard helps you create a connection entry for connecting to a specific remote network.

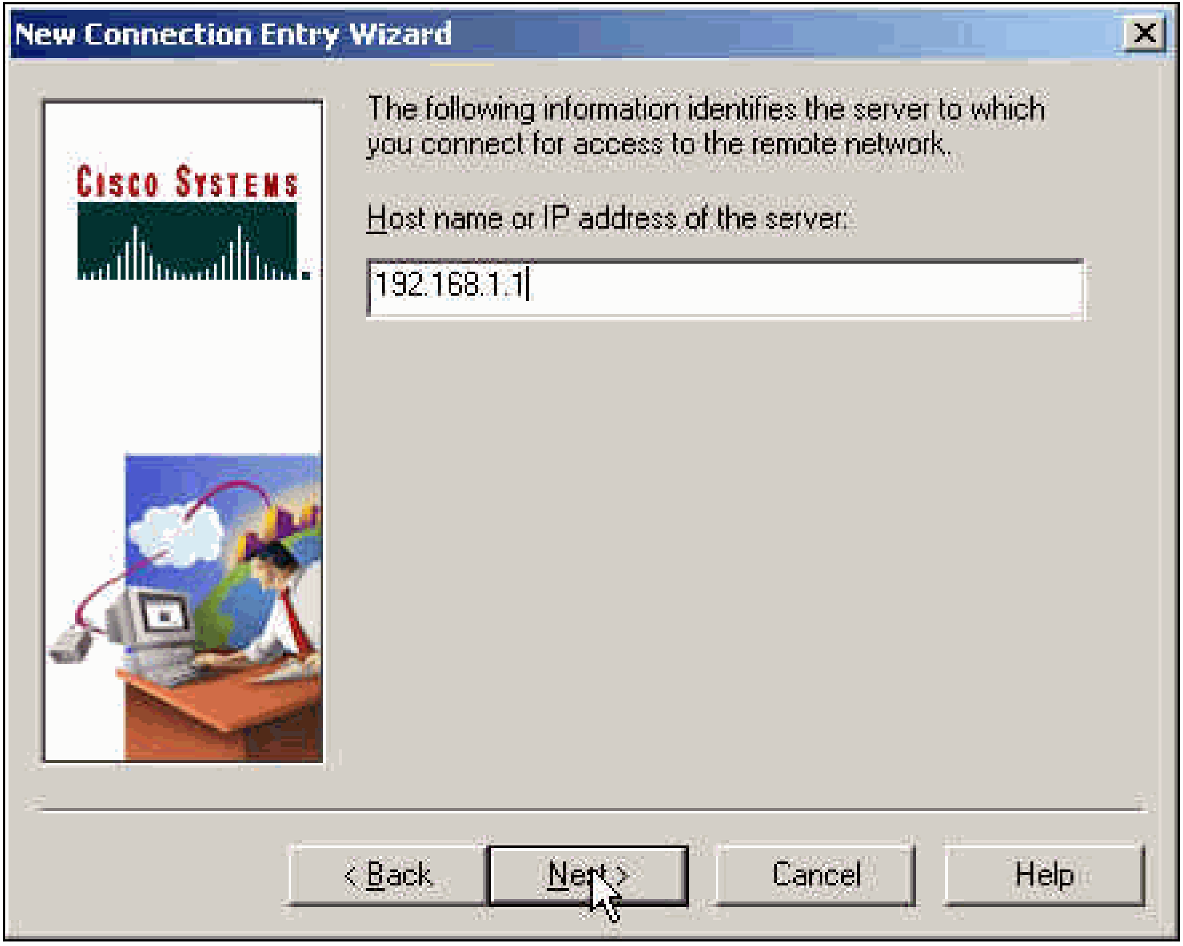
Name of the new connection entry:

pixvpn

Description of the new connection entry (optional):

connection to pix

4. 輸入用於連線到遠端伺服器的伺服器的主機名或IP地址，然後按一下**下一步**。



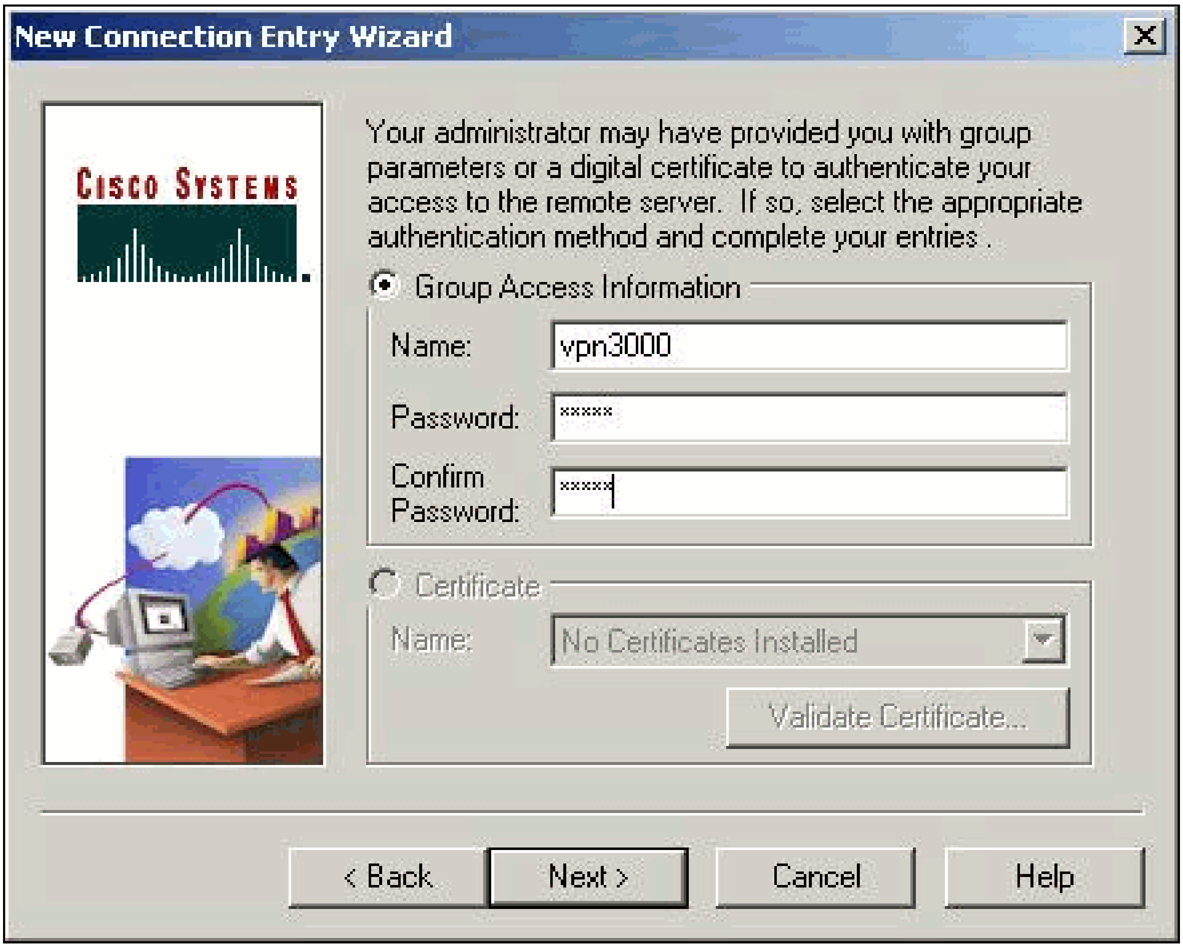
New Connection Entry Wizard

The following information identifies the server to which you connect for access to the remote network.

Host name or IP address of the server:

192.168.1.1

5. 選擇**Group Access Information**，然後輸入用於驗證對遠端伺服器的訪問的名稱和密碼。按「**Next**」（下一步）。



New Connection Entry Wizard

Your administrator may have provided you with group parameters or a digital certificate to authenticate your access to the remote server. If so, select the appropriate authentication method and complete your entries .

● Group Access Information

Name: vpn3000

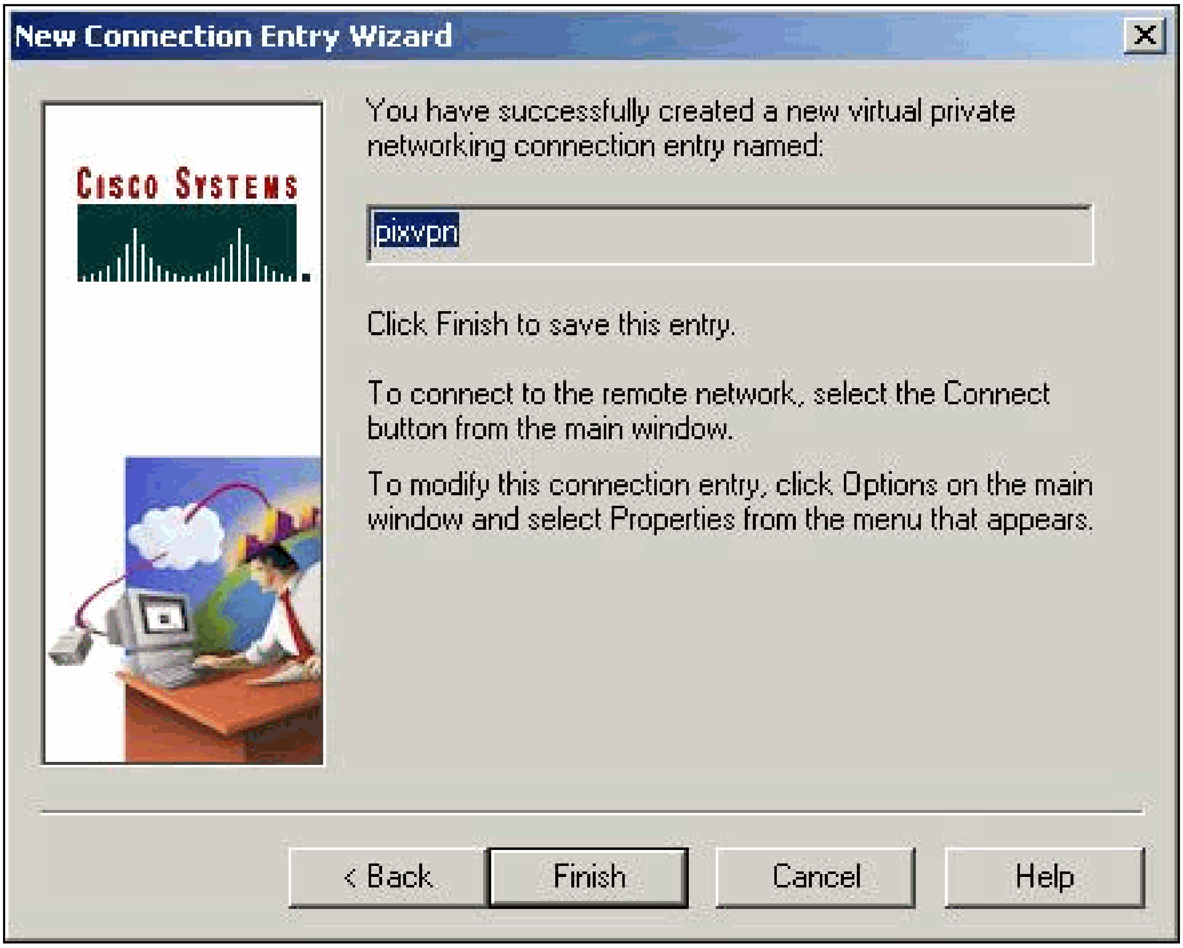
Password: *****

Confirm Password: *****

○ Certificate

Name: No Certificates Installed

6. 按一下**Finish**以儲存新條目。



New Connection Entry Wizard

You have successfully created a new virtual private networking connection entry named:

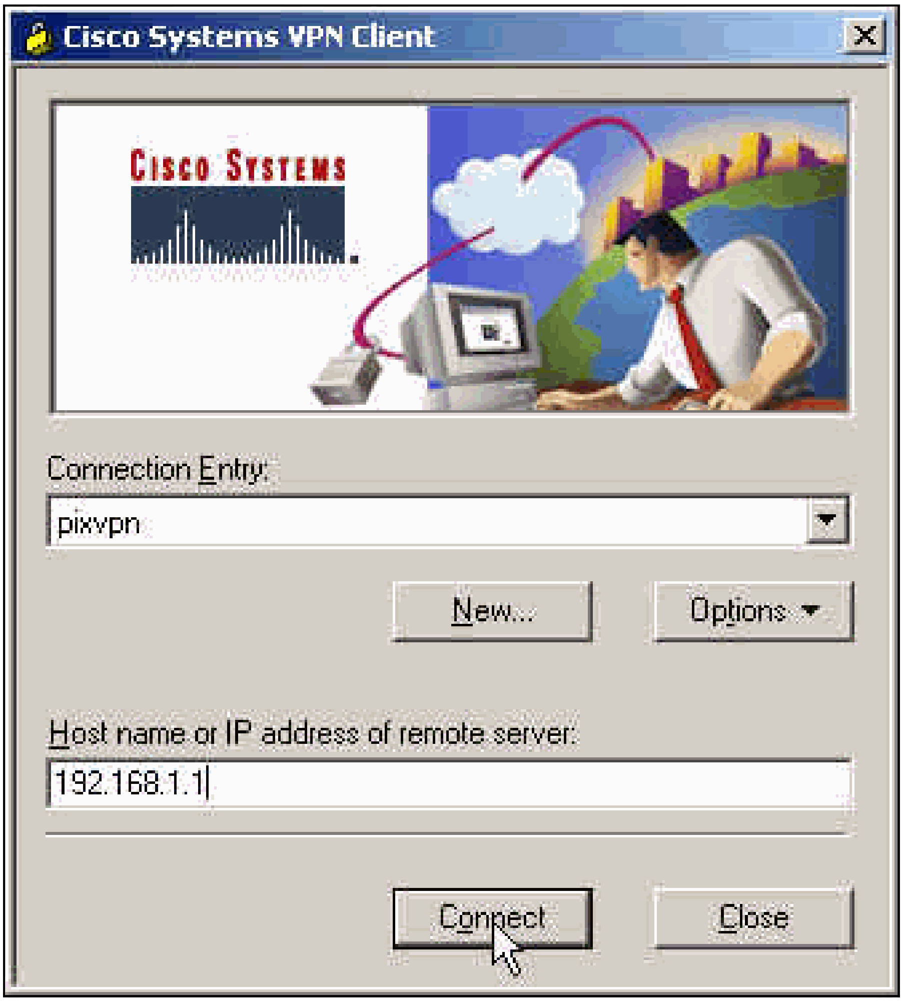
pixvpn

Click Finish to save this entry.

To connect to the remote network, select the Connect button from the main window.

To modify this connection entry, click Options on the main window and select Properties from the menu that appears.

7. 選擇撥號器中的Connection Entry，然後按一下**Connect**。

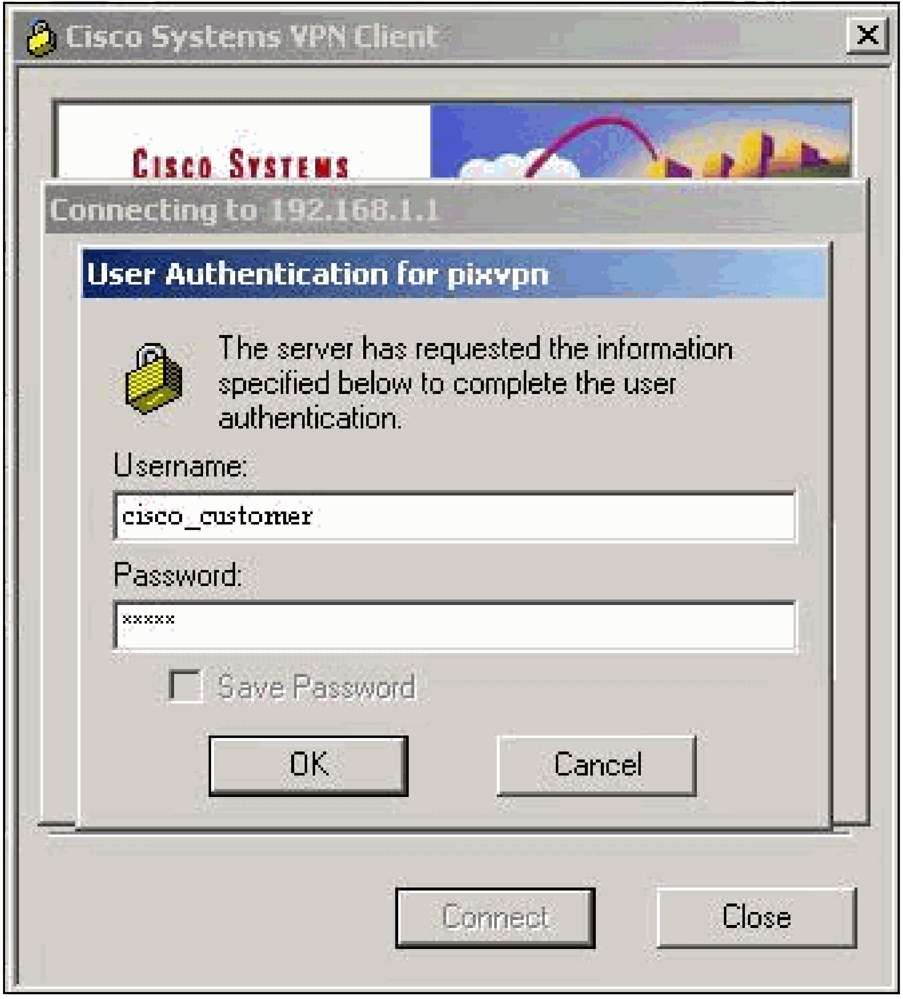


Cisco Systems VPN Client

Connection Entry: pixvpn

Host name or IP address of remote server: 192.168.1.1

8. 出現提示時，輸入Xauth的使用者名稱和密碼資訊，然後按一下**OK**連線到遠端網路。



Cisco Systems VPN Client

Connecting to 192.168.1.1

User Authentication for pixvpn

The server has requested the information specified below to complete the user authentication.

Username: cisco_customer

Password: *****

□ Save Password

VPN客戶端1.1配置

```
Network Security policy:
 1- TACconn
     My Identity
          Connection security: Secure
          Remote Party Identity and addressing
          ID Type: IP subnet
          10.89.129.128
          255.255.255.128
          Port all Protocol all


     Connect using secure tunnel

          ID Type: IP address
          192.168.1.1


     Pre-shared Key=cisco1234


     Authentication (Phase 1)

     Proposal 1
         Authentication method: pre-shared key
         Encryp Alg: DES
         Hash Alg: MD5
         SA life: Unspecified
         Key Group: DH 1

     Key exchange (Phase 2)

     Proposal 1
         Encapsulation ESP
         Encrypt Alg: DES
         Hash Alg: MD5
         Encap: tunnel
         SA life: Unspecified
         no AH

 2- Other Connections
        Connection security: Non-secure
        Local Network Interface
          Name: Any
          IP Addr: Any
          Port: All
```

新增記帳

要新增記帳的命令的語法為：

aaa accounting include *acctg_service* **inbound**|**outbound** *l_ip l_mask [f_ip f_mask] server_tag*

例如，在PIX配置中，新增以下命令：

aaa accounting include any inbound

```
0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 AuthInbound
```

注意：xauth記帳需要使用**sysopt connection permit-ipsec命令，而不是sysopt ipsec pl-compatible命令。**Xauth記帳不只與**sysopt ipsec pl-compatible**命令一起使用。Xauth記帳對TCP連線有效，而不是ICMP或UDP。

以下輸出是TACACS+記帳記錄的示例：

```
07/27/2004 15:17:54 cisco_customer Default Group 10.89.129.200 stop 15 .. 99 1879 .. ..
   0x5 .. PIX 10.89.129.194 telnet
07/27/2004 15:17:39 cisco_customer Default Group 10.89.129.200 start .. .. .. .. .. ..
   0x5 .. PIX 10.89.129.194 telnet
```

驗證

使用本節內容，確認您的組態是否正常運作。

輸出直譯器工具(僅供已註冊客戶使用)(OIT)支援某些**show**命令。使用OIT檢視**show**命令輸出的分析。

附註：使用 **debug** 指令之前，請先參閱有關 Debug 指令的重要資訊。

啟用思科安全日誌檢視器以檢視客戶端調試。

- **debug crypto ipsec** — 用於檢視階段2的IPsec協商。
- **debug crypto isakmp** — 用於檢視階段1的ISAKMP協商。

疑難排解

本節提供的資訊可用於對組態進行疑難排解。還顯示了調試輸出示例。

疑難排解指令

輸出直譯器工具(僅供已註冊客戶使用)(OIT)支援某些**show**命令。使用OIT檢視**show**命令輸出的分析。

附註：使用 **debug** 指令之前，請先參閱有關 Debug 指令的重要資訊。

- **debug crypto engine** — 用於調試加密引擎進程。

PIX調試示例

```
pixfirewall#show debug
debug crypto ipsec 1
debug crypto isakmp 1
debug crypto engine
debug fover status
     tx       Off
     rx       Off
     open     Off
     cable    Off
     txdmp   Off
     rxdmp   Off
     ifc     Off
     rxip    Off
     txip    Off
     get     Off
     put     Off
     verify  Off
     switch  Off
     fail    Off
     fmsg    Off
```

使用VPN客戶端4.x調試

```
pixfirewall#
crypto_isakmp_process_block: src 192.168.1.2, dest 192.168.1.1
VPN Peer: ISAKMP: Added new peer: ip:192.168.1.2
Total VPN Peers:1
VPN Peer: ISAKMP: Peer ip:192.168.1.2 Ref cnt incremented
to:1 Total VPN Peers:1
OAK_AG exchange
ISAKMP (0): processing SA payload. message ID = 0

ISAKMP (0): Checking ISAKMP transform 1 against priority 10 policy
ISAKMP:    encryption 3DES-CBC
ISAKMP:      hash SHA
ISAKMP:      default group 2
ISAKMP:      extended auth pre-share
ISAKMP:      life type in seconds
ISAKMP:      life duration (VPI) of 0x0 0x20 0xc4 0x9b
ISAKMP (0): atts are not acceptable. Next payload is 3
ISAKMP (0): Checking ISAKMP transform 2 against priority 10 policy
ISAKMP:      encryption 3DES-CBC
ISAKMP:      hash MD5
ISAKMP:      default group 2
ISAKMP:      extended auth pre-share
ISAKMP:      life type in seconds
ISAKMP:      life duration (VPI) of 0x0 0x20 0xc4 0x9b
ISAKMP (0): atts are not acceptable. Next payload is 3
ISAKMP (0): Checking ISAKMP transform 3 against priority 10 policy
ISAKMP:      encryption 3DES-CBC
ISAKMP:      hash SHA
ISAKMP:      default group 2
ISAKMP:      auth pre-shared
ISAKMP:      life type in seconds
ISAKMP:      life duration (VPI) of 0x0 0x20 0xc4 0x9b
ISAKMP (0): atts are not acceptable. Next payload is 3
ISAKMP (0): Checking ISAKMP transform 4 against priority 10 policy
ISAKMP:      encryption 3DES-CBC
ISAKMP:      hash MD5
ISAKMP:      default group 2
ISAKMP:      auth pre-share
ISAKMP:      life type in seconds
ISAKMP:      life duration (VPI) of 0x0 0x20 0xc4 0x9b
ISAKMP (0): atts are not acceptable. Next payload is 3
ISAKMP (0): Checking ISAKMP transform 5 against priority 10 policy
ISAKMP:      encryption DES-CBC
ISAKMP:      hash SHA
ISAKMP:      default group 2
ISAKMP:      extended auth pre-share
ISAKMP:      life type in seconds
ISAKMP:      life duration (VPI) of 0x0 0x20 0xc4 0x9b
ISAKMP (0): atts are not acceptable. Next payload is 3
ISAKMP (0): Checking ISAKMP transform 6 against priority 10 policy
ISAKMP:      encryption DES-CBC
ISAKMP:      hash MD5
ISAKMP:      default group 2
ISAKMP:      extended auth pre-share
ISAKMP:      life type in seconds
ISAKMP:      life duration (VPI) of 0x0 0x20 0xc4 0x9b
ISAKMP (0): atts are acceptable. Next payload is 3
!--- Attributes offered by the VPN Client are accepted by the PIX. 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 vendor id payload ISAKMP (0):
processing vendor id payload ISAKMP (0): remote peer supports dead peer detection ISAKMP (0):
processing vendor id payload ISAKMP (0): speaking to a Unity client ISAKMP (0): ID payload next-
payload: 10 type : 1 protocol : 17 port : 500 length : 8 ISAKMP (0) : Total payload length: 12
return status is IKMP_NO_ERROR crypto_isakmp_process_block: src 192.168.1.2, dest 192.168.1.1
OAK_AG exchange ISAKMP (0): processing HASH payload. message ID = 0 ISAKMP (0): processing
NOTIFY payload 24578 protocol 1 spi 0, message ID = 0 ISAKMP (0): processing notify
INITIAL_CONTACT IPSEC(key_engine): got a queue event... IPSEC(key_engine_delete_sas): rec'd
delete notify from ISAKMP IPSEC(key_engine_delete_sas): delete all SAs shared with 192.168.1.2
ISAKMP (0): SA has been authenticated return status is IKMP_NO_ERROR ISAKMP/xauth: request
attribute XAUTH_TYPE ISAKMP/xauth: request attribute XAUTH_USER_NAME ISAKMP/xauth: request
attribute XAUTH_USER_PASSWORD ISAKMP (0:0): initiating peer config to 192.168.1.2. ID =
1623347510 (0x60c25136) crypto_isakmp_process_block: src 192.168.1.2, dest 192.168.1.1
ISAKMP_TRANSACTION exchange ISAKMP (0:0): processing transaction payload from 192.168.1.2.
message ID = 84 ISAKMP: Config payload CFG_REPLY return status is IKMP_ERR_NO_RETRANS ISAKMP
(0:0): initiating peer config to 192.168.1.2. ID = 2620656926 (0x9c340d1e)
crypto_isakmp_process_block: src 192.168.1.2, dest 192.168.1.1 ISAKMP_TRANSACTION exchange
ISAKMP (0:0): processing transaction payload from 192.168.1.2. message ID = 60 ISAKMP: Config
payload CFG_ACK return status is IKMP_NO_ERROR crypto_isakmp_process_block: src 192.168.1.2,
dest 192.168.1.1 ISAKMP_TRANSACTION exchange ISAKMP (0:0): processing transaction payload from
192.168.1.2. message ID = 0 ISAKMP: Config payload CFG_REQUEST ISAKMP (0:0): checking request:
ISAKMP: attribute IP4_ADDRESS (1) ISAKMP: attribute IP4_NETMASK (2) ISAKMP: attribute IP4_DNS
(3) ISAKMP: attribute IP4_NBNS (4) ISAKMP: attribute ADDRESS_EXPIRY (5) Unsupported Attr: 5
ISAKMP: attribute APPLICATION_VERSION (7) Unsupported Attr: 7 ISAKMP: attribute UNKNOWN (28672)
Unsupported Attr: 28672 ISAKMP: attribute UNKNOWN (28673) Unsupported Attr: 28673 ISAKMP:
attribute UNKNOWN (28674) ISAKMP: attribute UNKNOWN (28676) ISAKMP: attribute UNKNOWN (28679)
Unsupported Attr: 28679 ISAKMP: attribute UNKNOWN (28680) Unsupported Attr: 28680 ISAKMP:
attribute UNKNOWN (28677) Unsupported Attr: 28677 ISAKMP (0:0): responding to peer config from
192.168.1.2. ID = 177917346 return status is IKMP_NO_ERROR crypto_isakmp_process_block: src
192.168.1.2, dest 192.168.1.1 OAK_QM exchange oakley_process_quick_mode: OAK_QM_IDLE ISAKMP (0):
processing SA payload. message ID = 942875080 ISAKMP : Checking IPSec proposal 1 ISAKMP:
transform 1, ESP_3DES ISAKMP: attributes in transform: ISAKMP: authenticator is HMAC-MD5 ISAKMP:
encaps is 1 ISAKMP: SA life type in seconds ISAKMP: SA life duration (VPI) of 0x0 0x20 0xc4 0x9b
IPSEC(validate_proposal): transform proposal (prot 3, trans 3, hmac_alg 1) not supported ISAKMP
(0): atts not acceptable. Next payload is 0 ISAKMP (0): skipping next ANDed proposal (1) ISAKMP
: Checking IPSec proposal 2 ISAKMP: transform 1, ESP_3DES ISAKMP: attributes in transform:
ISAKMP: authenticator is HMAC-SHA ISAKMP: encaps is 1 ISAKMP: SA life type in seconds ISAKMP: SA
life duration (VPI) of 0x0 0x20 0xc4 0x9b IPSEC(validate_proposal): transform proposal (prot 3,
trans 3, hmac_alg 2) not supported ISAKMP (0): atts not acceptable. Next payload is 0 ISAKMP
(0): skipping next ANDed proposal (2) ISAKMP: Checking IPSec proposal 3 ISAKMP: transform 1,
ESP_3DES ISAKMP: attributes in transform: ISAKMP: authenticator is HMAC-MD5 ISAKMP: encaps is 1
ISAKMP: SA life type in seconds ISAKMP: SA life duration (VPI) of 0x0 0x20 0xc4 0x9b
IPSEC(validate_proposal): transform proposal (prot 3, trans 3, hmac_alg 1) not supported ISAKMP
(0): atts not acceptable. Next payload is 0 ISAKMP: Checking IPSec proposal 4 ISAKMP: transform
1, ESP_3DES ISAKMP: attributes in transform: ISAKMP: authenticator is HMAC-SHA ISAKMP: encaps is
1 ISAKMP: SA life type in seconds ISAKMP: SA life duration (VPI) of 0x0 0x20 0xc4 0x9b
IPSEC(validate_proposal): transform proposal (prot 3, trans 3, hmac_alg 2) not supported ISAKMP
(0): atts not acceptable. Next payload is 0 ISAKMP : Checking IPSec proposal 5 ISAKMP: transform
1, ESP_DES ISAKMP: attributes in transform: ISAKMP: authenticator is HMAC-MD5 ISAKMP: encaps is
1 ISAKMP: SA life type in seconds ISAKMP: SA life duration (VPI) of 0x0 0x20 0xc4 0x9b ISAKMP
(0): atts are acceptable. ISAKMP (0): bad SPI size of 2 octets! ISAKMP: Checking IPSec proposal
6 ISAKMP: transform 1, ESP_DES ISAKMP: attributes in transform: ISAKMP: authenticator is HMAC-
SHA ISAKMP: encaps is 1 ISAKMP: SA life type in seconds ISAKMP: SA life duration (VPI) of 0x0
0x20 0xc4 0x9b IPSEC(validate_proposal): transform proposal (prot 3, trans 2, hmac_alg 2) not
```

```
supported ISAKMP (0): atts not acceptable. Next payload is 0 ISAKMP (0): skipping next ANDed
proposal (6) ISAKMP : Checking IPSec proposal 7 ISAKMP: transform 1, ESP_DES ISAKMP: attributes
in transform: ISAKMP: authenticator is HMAC-MD5 ISAKMP: encaps is 1 ISAKMP: SA life type in
seconds ISAKMP: SA life duration (VPI) of 0x0 0x20 0xc4 0x9b ISAKMP (0): atts are
acceptable.IPSEC(validate_proposal_request): proposal part #1, (key eng. msg.) dest=
192.168.1.1, src= 192.168.1.2, dest_proxy= 192.168.1.1/255.255.255.255/0/0 (type=1), src_proxy=
10.89.129.200/255.255.255.255/0/0 (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 = 942875080 ISAKMP (0): processing ID payload. message ID = 942875080
ISAKMP (0): ID_IPV4_ADDR src 10.89.129.200 prot 0 port 0 ISAKMP (0): processing ID payload.
message ID = 942875080 ISAKMP (0): ID_IPV4_ADDR dst 192.168.1.1 prot 0 port 0IPSEC(key_engine):
got a queue event... IPSEC(spi_response): getting spi 0x64d7a518(1691854104) for SA from
192.168.1.2 to 192.168.1.1 for prot 3 return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 192.168.1.2, dest 192.168.1.1 OAK_QM exchange
oakley_process_quick_mode: OAK_QM_IDLE ISAKMP (0): processing SA payload. message ID =
3008609960 ISAKMP: Checking IPSec proposal 1 ISAKMP: transform 1, ESP_3DES ISAKMP: attributes in
transform: ISAKMP: authenticator is HMAC-MD5 crypto_isakmp_process_block: src 192.168.1.2, dest
192.168.1.1 OAK_QM exchange oakley_process_quick_mode: OAK_QM_AUTH_AWAITmap_alloc_entry:
allocating entry 2 map_alloc_entry: allocating entry 1 ISAKMP (0): Creating IPSec SAs inbound SA
from 192.168.1.2 to 192.168.1.1 (proxy 10.89.129.200 to 192.168.1.1) has spi 1691854104 and
conn_id 2 and flags 4 lifetime of 2147483 seconds outbound SA from 192.168.1.1 to 192.168.1.2
(proxy 192.168.1.1 to 10.89.129.200) has spi 1025193431 and conn_id 1 and flags 4 lifetime of
2147483 seconds IPSEC(key_engine): got a queue event... IPSEC(initialize_sas): ,(key eng. msg.)
dest= 192.168.1.1, src= 192.168.1.2, dest_proxy= 192.168.1.1/0.0.0.0/0/0 (type=1), src_proxy=
10.89.129.200/0.0.0.0/0/0 (type=1), protocol= ESP, transform= esp-des esp-md5-hmac , lifedur=
2147483s and 0kb, spi= 0x64d7a518(1691854104),conn_id= 2, keysize= 0, flags= 0x4
IPSEC(initialize_sas): , (key eng. msg.) src= 192.168.1.1, dest=192.168.1.2, src_proxy=
192.168.1.1/0.0.0.0/0/0 (type=1), dest_proxy= 10.89.129.200/0.0.0.0/0/0 (type=1), protocol= ESP,
transform=esp-des esp-md5-hmac , lifedur= 2147483s and 0kb, spi= 0x3d1b35d7(1025193431),conn_id=
1, keysize= 0, flags= 0x4 VPN Peer: IPSEC: Peer ip:192.168.1.2 Ref cnt incremented to:2 Total
VPN Peers:1 VPN Peer: IPSEC: Peer ip:192.168.1.2 Ref cnt incremented to:3 Total VPN Peers:1
return status is IKMP_NO_ERROR crypto_isakmp_process_block: src 192.168.1.2, dest 192.168.1.1
OAK_QM exchange oakley_process_quick_mode: OAK_QM_AUTH_AWAITmap_alloc_entry: allocating entry 4
map_alloc_entry: allocating entry 3 ISAKMP (0): Creating IPSec SAs inbound SA from 192.168.1.2
to 192.168.1.1 (proxy 10.89.129.200 to 0.0.0.0) has spi 3415657865 and conn_id 4 and flags 4
lifetime of 2147483 seconds outbound SA from 192.168.1.1 to 192.168.1.2 (proxy 0.0.0.0 to
10.89.129.200) has spi 2383969893 and conn_id 3 and flags 4 lifetime of 2147483
secondsIPSEC(key_engine): got a queue event... IPSEC(initialize_sas): , (key eng. msg.) dest=
192.168.1.1, src=192.168.1.2, dest_proxy= 0.0.0.0/0.0.0.0/0/0 (type=4), src_proxy=
10.89.129.200/0.0.0.0/0/0 (type=1), protocol= ESP, transform=esp-des esp-md5-hmac , lifedur=
2147483s and 0kb, spi= 0xcb96cd89(3415657865),conn_id= 4, keysize= 0, flags= 0x4
IPSEC(initialize_sas): , (key eng. msg.) src= 192.168.1.1, dest=192.168.1.2, src_proxy=
0.0.0.0/0.0.0.0/0/0 (type=4), dest_proxy= 10.89.129.200/0.0.0.0/0/0 (type=1), protocol= ESP,
transform=esp-des esp-md5-hmac , lifedur= 2147483s and 0kb, spi= 0x8e187e65(2383969893),conn_id=
3, keysize= 0, flags= 0x4 VPN Peer: IPSEC: Peer ip:192.168.1.2 Ref cnt incremented to:4 Total
VPN Peers:1 VPN Peer: IPSEC: Peer ip:192.168.1.2 Ref cnt incremented to:5 Total VPN Peers:1
return status is IKMP_NO_ERROR pixfirewall#show uauth
Current      Most Seen
Authenticated Users
1             1
Authen In Progress
0             1
ipsec user 'cisco_customer' at 10.89.129.200, authenticated
pixfirewall#
```

使用VPN客戶端1.1調試

```
crypto_isakmp_process_block: src 192.168.1.3, dest 192.168.1.1
VPN Peer: ISAKMP: Added new peer: ip:192.168.1.3
Total VPN Peers:1
VPN Peer: ISAKMP: Peer ip:192.168.1.3 Ref cnt incremented to:1
Total VPN Peers:1
OAK_MM exchange
```

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

ISAKMP (0): Checking ISAKMP transform 1 against priority 10 policy
      encryption DES-CBC
ISAKMP:      hash MD5
ISAKMP:      default group 1
ISAKMP:      auth pre-share
ISAKMP (0): atts are not acceptable. Next payload is 0
ISAKMP (0): Checking ISAKMP transform 1 against priority 20 policy
ISAKMP:      encryption DES-CBC
ISAKMP:      hash MD5
ISAKMP:      default group 1
ISAKMP:      auth pre-share
ISAKMP (0): atts are acceptable. Next payload is 0
ISAKMP (0): SA is doing pre-shared key authentication
using id type ID_IPV4_ADDR
return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 192.168.1.3, dest 192.168.1.1
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

return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 192.168.1.3, dest 192.168.1.1
OAK_MM exchange
ISAKMP (0): processing ID payload. message ID = 0
ISAKMP (0): processing HASH payload. message ID = 0
ISAKMP (0): processing NOTIFY payload 24578 protocol 1
 spi 0, message ID = 0
ISAKMP (0): SA has been authenticated

ISAKMP (0): ID payload
 next-payload : 8
 type         : 1
 protocol     : 17
 port         : 500
 length       : 8
ISAKMP (0): Total payload length: 12
return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 192.168.1.3, dest 192.168.1.1
ISAKMP: Created a peer node for 192.168.1.3
OAK_QM exchange
ISAKMP (0:0): Need XAUTH
ISAKMP/xauth: request attribute XAUTH_TYPE
ISAKMP/xauth: request attribute XAUTH_USER_NAME
ISAKMP/xauth: request attribute XAUTH_USER_PASSWORD
ISAKMP (0:0): initiating peer config to 192.168.1.3.
ID = 3196940891 (0xbe8d725b)
return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 192.168.1.3, dest 192.168.1.1
ISAKMP_TRANSACTION exchange
ISAKMP (0:0): processing transaction payload
from 192.168.1.3. message ID = 84
ISAKMP: Config payload CFG_REPLY
return status is IKMP_ERR_NO_RETRANS
ISAKMP (0:0): initiating peer config to 192.168.1.3.
ID = 3196940891 (0xbe8d725b)
crypto_isakmp_process_block: src 192.168.1.3, dest 192.168.1.1
ISAKMP_TRANSACTION exchange
```

```
ISAKMP (0:0): processing transaction payload
from 192.168.1.3. message ID = 60
ISAKMP: Config payload CFG_ACK
ISAKMP (0:0): initiating peer config to 192.168.1.3.
ID = 1647424595 (0x6231b453)
return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 192.168.1.3, dest 192.168.1.1
ISAKMP_TRANSACTION exchange
ISAKMP (0:0): processing transaction payload
from 192.168.1.3. message ID = 60
ISAKMP: Config payload CFG_ACK
ISAKMP (0:0): peer accepted the address!
return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 192.168.1.3, dest 192.168.1.1
OAK_QM exchange
oakley_process_quick_mode:
OAK_QM_IDLE
ISAKMP (0): processing SA payload. message ID = 802013669

ISAKMP : Checking IPSec proposal 1

ISAKMP: transform 1, ESP_DES
ISAKMP:   attributes in transform:
ISAKMP:      authenticator is HMAC-MD5
ISAKMP:      encaps is 1
ISAKMP (0): atts are acceptable.IPSEC(validate_proposal_request)
:proposal part #1,
  (key eng. msg.) dest= 192.168.1.1, src = 192.168.1.3,
    dest_proxy= 10.89.129.128/255.255.255.128/0/0 (type=4),
    src_proxy= 10.89.129.200/255.255.255.255/0/0 (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 = 802013669

ISAKMP (0): processing ID payload. message ID = 802013669
ISAKMP (0): ID_IPV4_ADDR src 10.89.129.200 prot 0 port 0
ISAKMP (0): processing ID payload. message ID = 802013669
ISAKMP (0): ID_IPV4_ADDR_SUBNET dst 10.89.129.128/255.255.255.128
prot 0 port 0IPSEC(key_engine): got a queue event...
IPSEC(spi_response): getting spi 0xd7cef5ba(3620664762)for SA
 from 192.168.1.3 to 192.168.1.1 for prot 3

return status is IKMP_NO_ERROR
crypto_isakmp_process_block: src 192.168.1.3, dest 192.168.1.1
OAK_QM exchange
oakley_process_quick_mode:
OAK_QM_AUTH_AWAITmap_alloc_entry: allocating entry 1
map_alloc_entry: allocating entry 2

ISAKMP (0): Creating IPSec SAs
        inbound SA from 192.168.1.3 to 192.168.1.1
          (proxy 10.89.129.200 to 10.89.129.128)
        has spi 3620664762 and conn_id 1 and flags 4
        outbound SA from 192.168.1.1 to 192.168.1.3
          (proxy 10.89.129.128 to 10.89.129.200)
        has spi 541375266 and conn_id 2 and flags 4
IPSEC(key_engine): got a queue event...

IPSEC(initialize_sas): ,
  (key eng. msg.) dest= 192.168.1.1, src=192.168.1.3,
    dest_proxy= 10.89.129.128/255.255.255.128/0/0 (type=4),
    src_proxy= 10.89.129.200/0.0.0.0/0/0 (type=1),
    protocol= ESP, transform=esp-des esp-md5-hmac ,
    lifedur= 0s and 0kb,
    spi= 0xd7cef5ba(3620664762),conn_id= 1, keysize= 0, flags= 0x4
IPSEC(initialize_sas): ,
  (key eng. msg.) src= 192.168.1.1, dest=192.168.1.3,
    src_proxy= 10.89.129.128/255.255.255.128/0/0 (type=4),
    dest_proxy= 10.89.129.200/0.0.0.0/0/0 (type=1),
    protocol= ESP, transform=esp-des esp-md5-hmac ,
    lifedur= 0s and 0kb,
    spi= 0x2044bb22(541375266),conn_id= 2, keysize= 0, flags= 0x4

VPN Peer: IPSEC: Peer ip:192.168.1.3 Ref cnt incremented
to:2 Total VPN Peers:1
VPN Peer: IPSEC: Peer ip:192.168.1.3 Ref cnt incremented
to:3 Total VPN Peers:1
return status is IKMP_NO_ERROR
```

相關資訊

- PIX 500系列安全裝置
- PIX命令參考
- IPSec 協商/IKE 通訊協定
- IPSec簡介
- 通過Cisco PIX防火牆建立連線
- 要求建議 (RFC)
- 技術支援與文件 - Cisco Systems