在Sonicwall产品和Cisco安全设备之间的VPN配置示例

目录

简介

本文档演示如何为 IPsec 隧道配置预共享密钥以在两个专用网络之间使用主动模式和主模式进行通信。在本示例中，进行通信的网络为 Cisco 安全设备 (PIX/ASA) 内部的 192.168.1.x 专用网络和 Sonicwall^{TM} TZ170 防火墙内部的 172.22.1.x 专用网络。

先决条件

要求

尝试进行此配置之前，请确保满足以下要求：

- 在开始此配置前，来自 Cisco 安全设备内部和 Sonicwall TZ170 内部的流量应流向 Internet（此处用 10.x.x.x 网络表示）。
- 用户应该熟悉 IPsec 协商。此过程可分为五个步骤，其中包括两个 Internet Key Exchange (IKE) 阶段。IPsec 隧道由相关数据流启动。如果数据流在 IPsec 对等体之间传输，则它会被认为是相关数据流。在 IKE 第 1 阶段中，IPsec 对等体对建立的 IKE 安全关联 (SA) 策略进行协商。对等体经过身份验证后，会使用 Internet 安全关联和密钥管理协议 (ISAKMP) 创建安全隧道。在 IKE 第 2 阶段中，IPsec 对等体使用经身份验证的安全隧道对 IPsec SA 转换进行协商。共享策略的协商决定建立 IPsec 隧道的方式。根据 IPsec 转换集中配置的 IPsec 参数，将在 IPsec 对等体之间创建 IPsec 隧道并传输数据。如果删除了 IPsec SA，或者 IPsec SA 的生存

时间到期，则 IPsec 隧道将终止。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- Cisco PIX 515E 版本 6.3(5)
- Cisco PIX 515 版本 7.0(2)
- Sonicwall TZ170、SonicOS Standard 2.2.0.1

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原始（默认）配置。如果您使用的是真实网络，请确保您已经了解所有命令的潜在影响。

相关产品

此配置也可用于以下硬件和软件版本：

- PIX 6.3(5) 配置可用于运行该软件版本的所有其他 Cisco PIX 防火墙产品（如 PIX 501、506 等）
- PIX/ASA 7.0(2) 配置只能在运行 PIX 7.0 软件系列的设备（不包括 501、506，并可能不包括某些较早的 515）和 Cisco 5500 系列 ASA 上使用。

规则

有关文档约定的更多信息，请参考 Cisco 技术提示约定。

配置

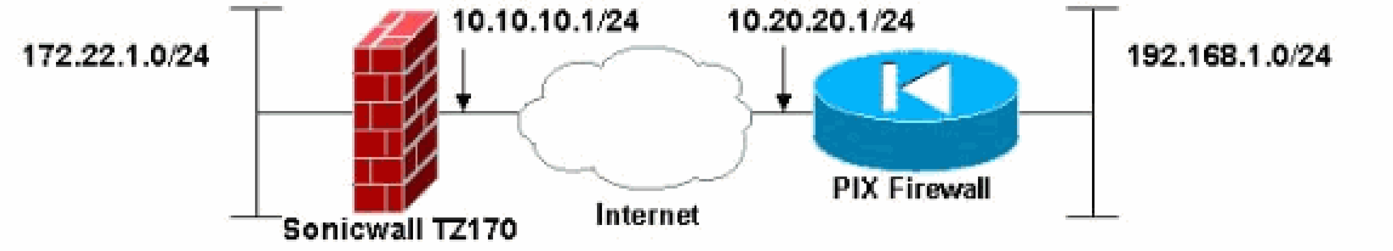
本部分提供有关如何配置本文档所述功能的信息。

注意：使用命令查找工具(仅限注册客户)可获取有关本节中使用的命令的详细信息。

注意：在IPsec Agressive模式下，Sonicwall必须启动到PIX的IPsec隧道。当您分析此配置的调试信息时，可以看到这一点。这是 IPsec 主动模式运行方式中所固有的。

网络图

本文档使用以下网络设置：

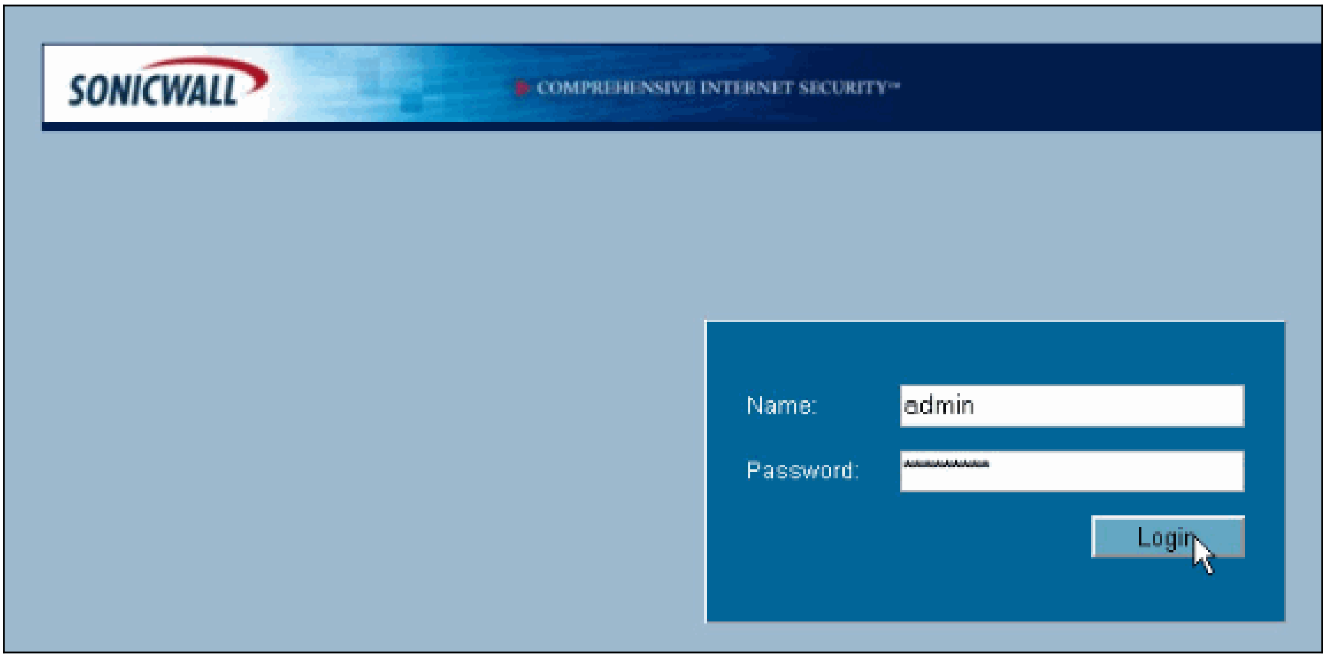


Sonicwall 配置

Sonicwall TZ170 的配置是通过基于 Web 的接口执行的。

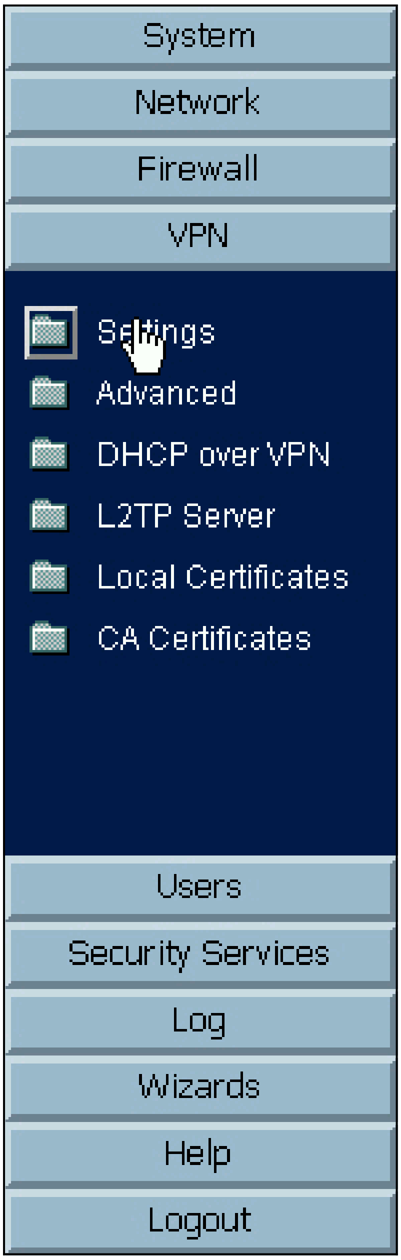
请完成以下步骤：

1. 使用标准 Web 浏览器，在其中一个内部接口上连接到路由器的 IP 地址。此时将出现登录窗口。



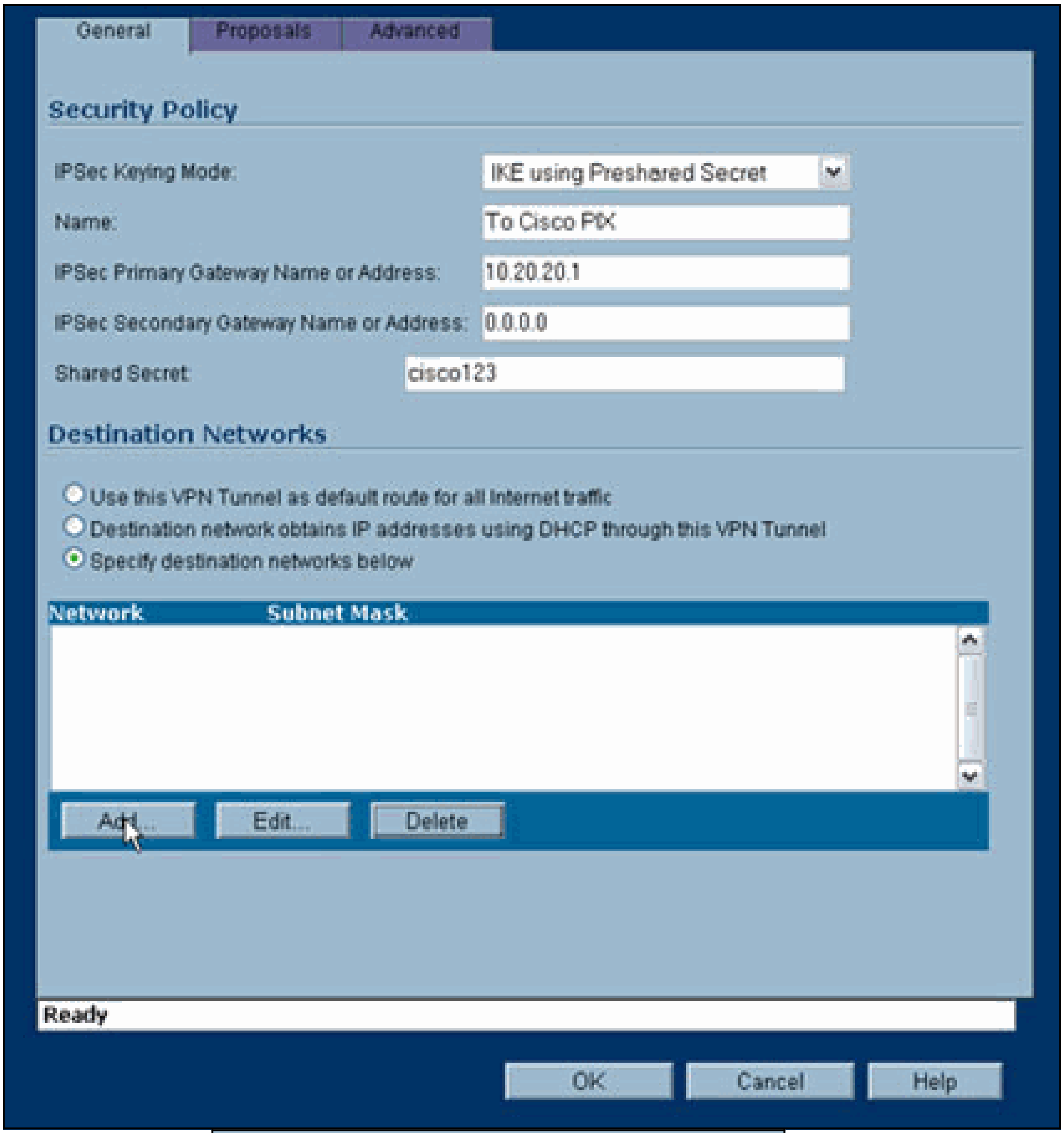
Name: admin

Password: ********



2. 登录 Sonicwall 设备，然后选择 **VPN > Settings。**

3. 输入 VPN 对等体的 IP 地址和要使用的预共享密钥。在 Destination Networks 下单击 **Add。**



Security Policy

IPSec Keying Mode: IKE using Preshared Secret

Name: To Cisco PIX

IPSec Primary Gateway Name or Address: 10.20.20.1

IPSec Secondary Gateway Name or Address: 0.0.0.0

Shared Secret: cisco123

Destination Networks

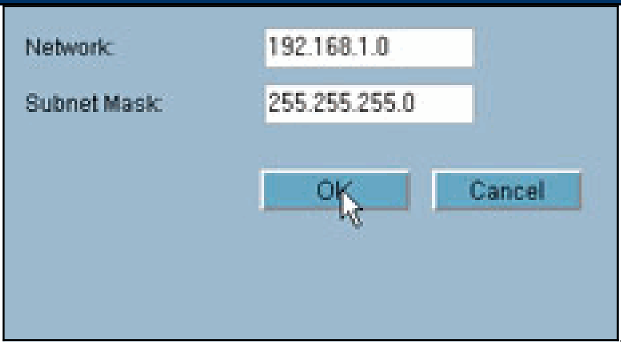
○ Use this VPN Tunnel as default route for all Internet traffic

○ Destination network obtains IP addresses using DHCP through this VPN Tunnel

● Specify destination networks below

Network	Subnet Mask

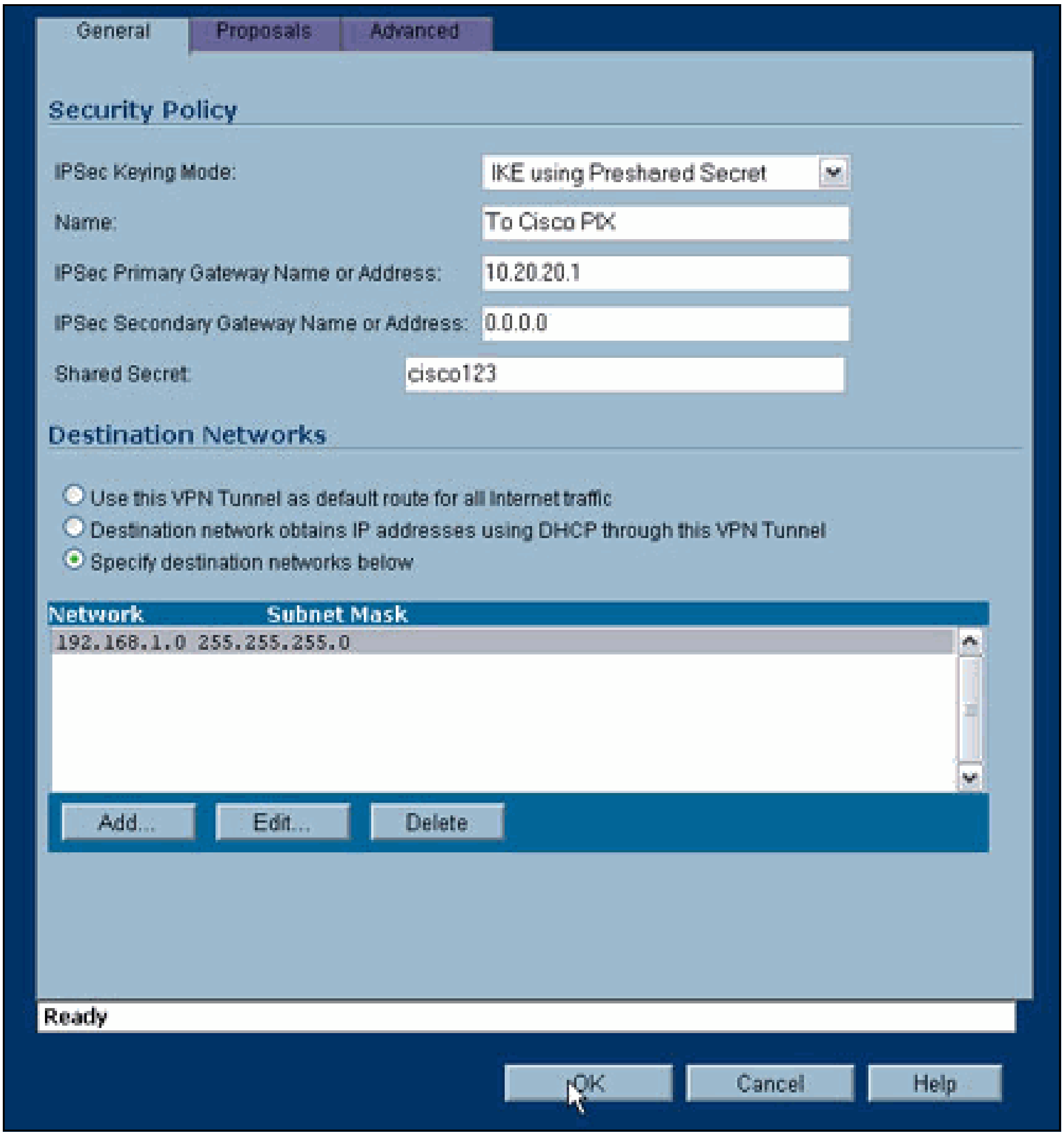
Ready



Network: 192.168.1.0

Subnet Mask: 255.255.255.0

4. 输入目标网络。此时将出现 Settings 窗口。



Security Policy

IPSec Keying Mode: IKE using Preshared Secret

Name: To Cisco PIX

IPSec Primary Gateway Name or Address: 10.20.20.1

IPSec Secondary Gateway Name or Address: 0.0.0.0

Shared Secret: cisco123

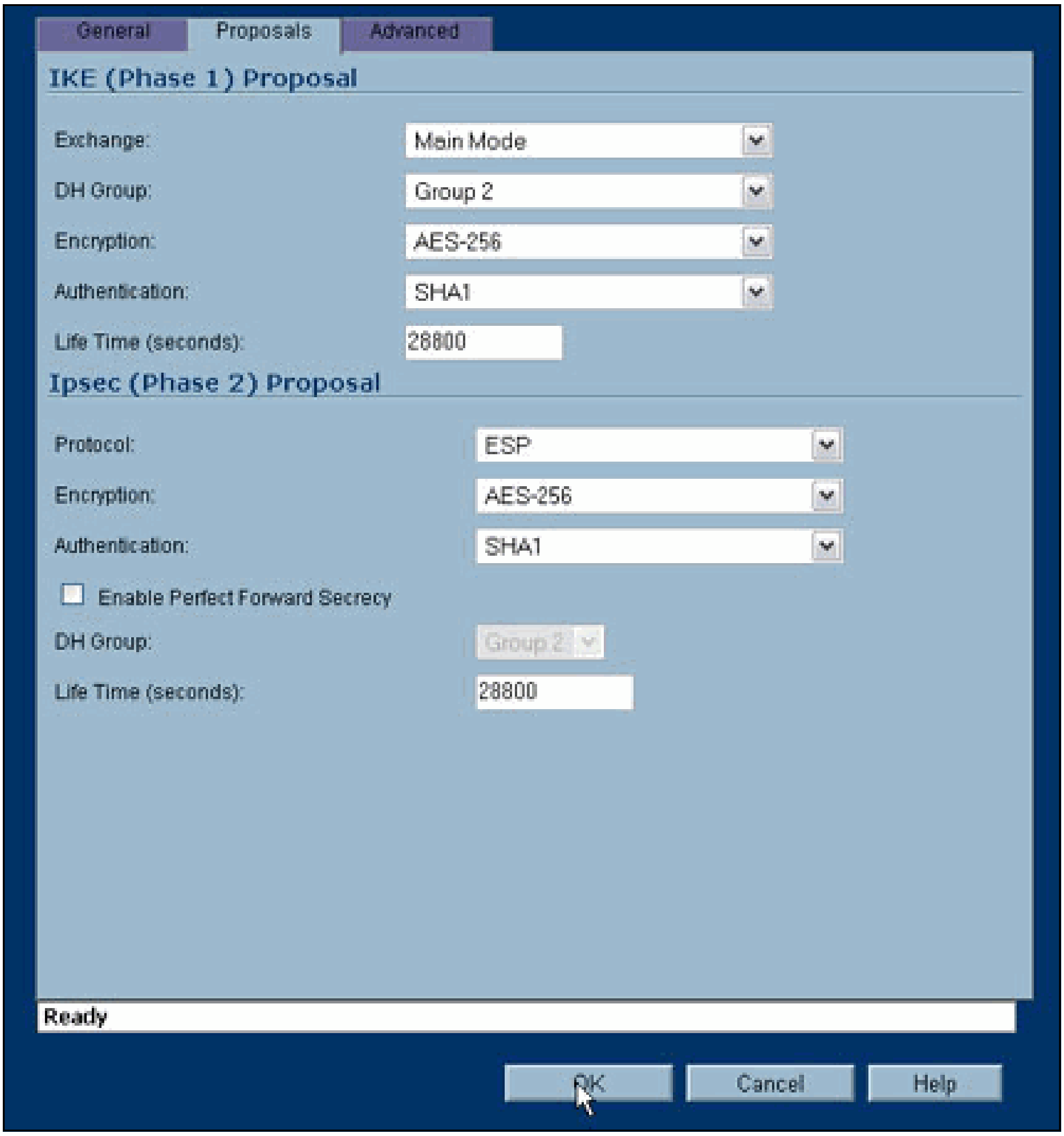
Destination Networks

○ Use this VPN Tunnel as default route for all Internet traffic
○ Destination network obtains IP addresses using DHCP through this VPN Tunnel
● Specify destination networks below

Network	Subnet Mask
192.168.1.0	255.255.255.0

Ready

5. 单击 Settings 窗口顶部的 Proposals 选项卡。
6. 选择您计划用于此配置的交换（主模式或主动模式）以及阶段 1 和阶段 2 的其余设置。此示例配置对两个阶段都使用 AES-256 加密，其中将 SHA1 哈希算法用于身份验证，而将 1024 位 Diffie-Hellman 组 2 用作 IKE 策略。



IKE (Phase 1) Proposal

Exchange: Main Mode

DH Group: Group 2

Encryption: AES-256

Authentication: SHA1

Life Time (seconds): 28800

Ipsec (Phase 2) Proposal

Protocol: ESP

Encryption: AES-256

Authentication: SHA1

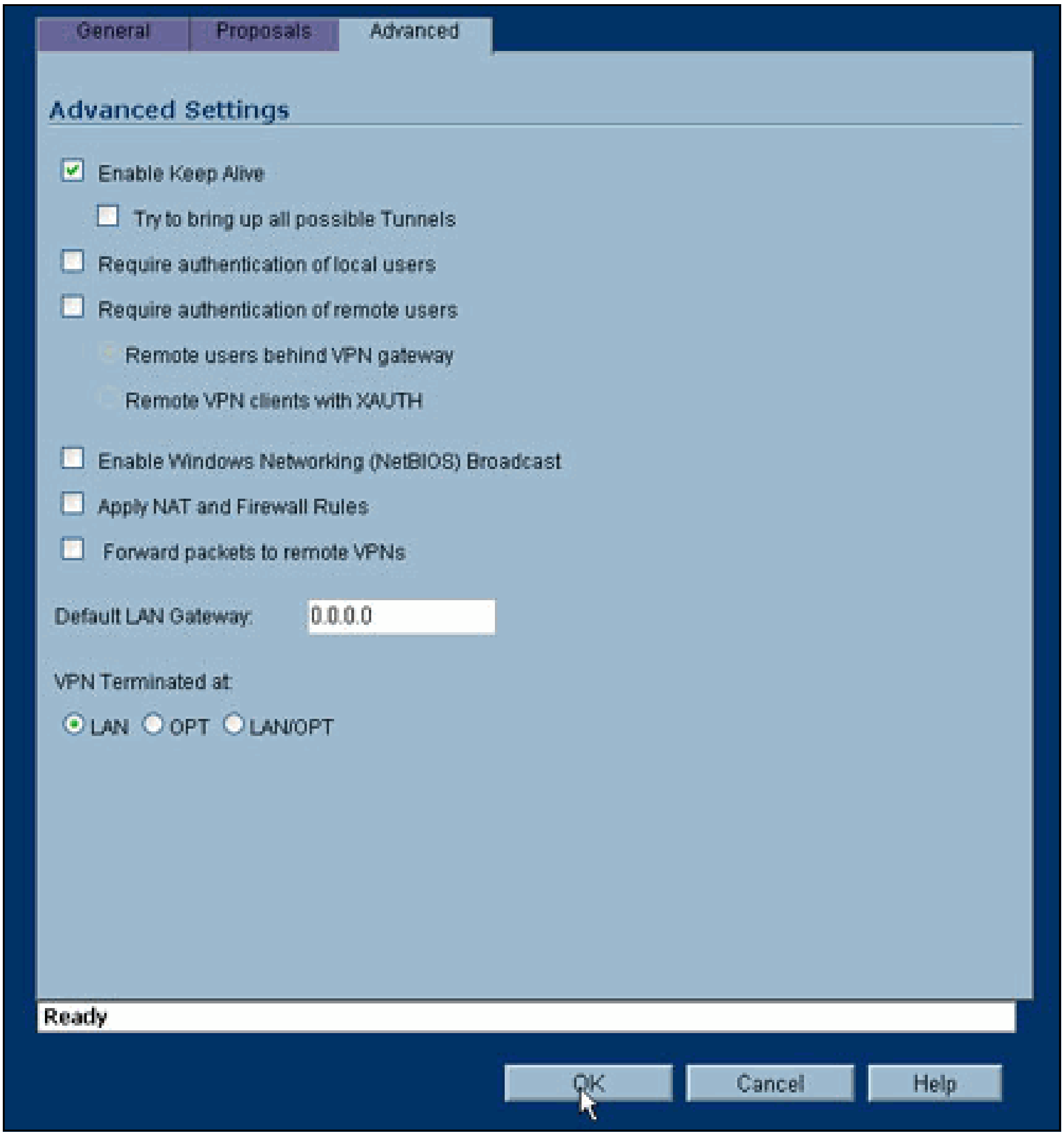
□ Enable Perfect Forward Secrecy

DH Group: Group 2

Life Time (seconds): 28800

Ready

7. 单击 Advanced 选项卡。在此选项卡中可能有您希望配置的其他选项。这些是用于此示例配置



Advanced Settings

☑ Enable Keep Alive

□ Try to bring up all possible Tunnels

□ Require authentication of local users

□ Require authentication of remote users

● Remote users behind VPN gateway

○ Remote VPN clients with XAUTH

□ Enable Windows Networking (NetBIOS) Broadcast

□ Apply NAT and Firewall Rules

□ Forward packets to remote VPNs

Default LAN Gateway: 0.0.0.0

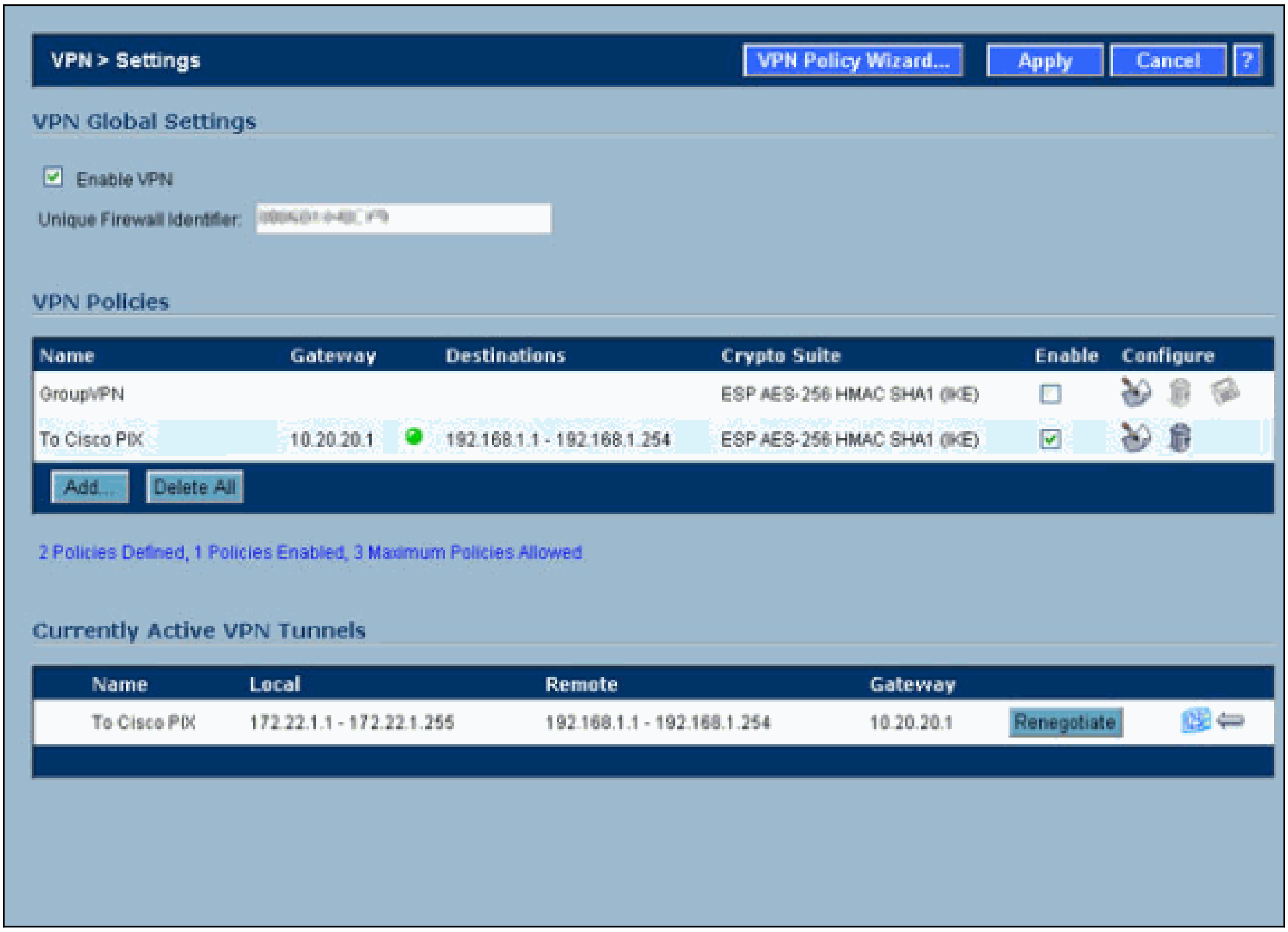
VPN Terminated at:

● LAN ○ OPT ○ LAN/OPT

Ready

的设置。

8. Click **OK**.完成此配置以及远程 PIX 上的配置后，显示的 Settings 窗口应该类似于此示例 Settings 窗口。



VPN > Settings

VPN Global Settings

☑ Enable VPN

Unique Firewall Identifier: [redacted]

VPN Policies

Name	Gateway	Destinations	Crypto Suite	Enable	Configure
GroupVPN			ESP AES-256 HMAC SHA1 (IKE)	□	
To Cisco PIX	10.20.20.1	● 192.168.1.1 - 192.168.1.254	ESP AES-256 HMAC SHA1 (IKE)	☑	

2 Policies Defined, 1 Policies Enabled, 3 Maximum Policies Allowed

Currently Active VPN Tunnels

Name	Local	Remote	Gateway	
To Cisco PIX	172.22.1.1 - 172.22.1.255	192.168.1.1 - 192.168.1.254	10.20.20.1	Renegotiate

IPsec 主模式配置

本部分使用以下配置：

- Cisco PIX 515e 版本 6.3(5)
- Cisco PIX 515 版本 7.0(2)

Cisco PIX 515e 版本 6.3(5)

```
pix515e-635#show running-config
: Saved
:
PIX Version 6.3(5)
!--- Sets the hardware speed to auto on both interfaces.
interface ethernet0 auto interface ethernet1 auto !---
Specifies the inside and outside interfaces. nameif
ethernet0 outside security0 nameif ethernet1 inside
security100 enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted hostname pix515e-635
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 !--- Specifies the traffic that
can pass through the IPsec tunnel. access-list pixtosw
permit ip 192.168.1.0 255.255.255.0 172.22.1.0
255.255.255.0 pager lines 24 mtu outside 1500 mtu inside
1500 !--- Sets the inside and outside IP addresses and
```

```
subnet masks. ip address outside 10.20.20.1
255.255.255.0 ip address inside 192.168.1.1
255.255.255.0 ip audit info action alarm ip audit attack
action alarm pdm history enable arp timeout 14400 !---
Instructs PIX to perform PAT on the IP address on the
outside interface. global (outside) 1 interface !---
Specifies addresses to be exempt from NAT (traffic to be
tunneled). nat (inside) 0 access-list pixtosw !---
Specifies which addresses should use NAT (all except
those exempted). nat (inside) 1 0.0.0.0 0.0.0.0 0 0 !---
Specifies the default route on the outside interface.
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 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 !--- Implicit permit for all packets that come
from IPsec tunnels. sysopt connection permit-ipsec !---
PHASE 2 CONFIGURATION: !--- Defines the transform set
for Phase 2 encryption and authentication. !---
Austinlab is the name of the transform set that uses
aes-256 encryption !--- as well as the SHA1 hash
algorithm for authentication.

crypto ipsec transform-set austinlab esp-aes-256 esp-
sha-hmac

!--- Specifies IKE is used to establish the IPsec SAs
for the map "maptosw". crypto map maptosw 67 ipsec-
isakmp !--- Specifies the ACL "pixtosw" to use with this
map . crypto map maptosw 67 match address pixtosw !---
Specifies the IPsec peer for this map. crypto map
maptosw 67 set peer 10.10.10.1 !--- Specifies the
transform set to use. crypto map maptosw 67 set
transform-set austinlab !--- Specifies the interface to
use with this map. crypto map maptosw interface outside
!--- PHASE 1 CONFIGURATION !--- Specifies the interface
to use for the IPsec tunnel.

isakmp enable outside

!--- Specifies the preshared key and the addresses to
use with that key. !--- In this case only one address is
used with the preshared key cisco123. isakmp key
******** address 10.10.10.1 netmask 255.255.255.255 !---
Defines how the PIX identifies itself in !--- IKE
negotiations (IP address in this case). isakmp identity
address !--- These five commands specify the Phase 1
configuration settings !--- specific to this sample
configuration. isakmp policy 13 authentication pre-share
isakmp policy 13 encryption aes-256 isakmp policy 13
hash sha isakmp policy 13 group 2 isakmp policy 13
lifetime 28800 telnet timeout 5 ssh timeout 5 console
timeout 0 terminal width 80
Cryptochecksum:07a3815d59db9965b72c7d8a7aaf7f5f : end
pix515e-635#
```

Cisco PIX 515 版本 7.0(2)

```
pix515-702#show running-config
: Saved
:
PIX Version 7.0(2)
names
!

!--- PIX 7 uses an interface configuration mode similar
to Cisco IOS®. !--- This output configures the IP
address, interface name, !--- and security level for
interfaces Ethernet0 and Ethernet1. interface Ethernet0
nameif outside security-level 0 ip address 10.20.20.1
255.255.255.0 ! interface Ethernet1 nameif inside
security-level 100 ip address 192.168.1.1 255.255.255.0
! interface Ethernet2 shutdown no nameif no security-
level no ip address ! interface Ethernet3 shutdown no
nameif no security-level no ip address ! interface
Ethernet4 shutdown no nameif no security-level no ip
address ! interface Ethernet5 shutdown no nameif no
security-level no ip address ! enable password
8Ry2YjIyt7RRXU24 encrypted passwd 2KFQnbNIdI.2KYOU
encrypted hostname pix515-702 domain-name cisco.com ftp
mode passive !--- Specifies the traffic that can pass
through the IPsec tunnel. access-list pixtosw extended
permit ip 192.168.1.0 255.255.255.0 172.22.1.0
255.255.255.0 pager lines 24 mtu inside 1500 mtu outside
1500 no failover monitor-interface inside monitor-
interface outside no asdm history enable arp timeout
14400 !--- Instructs PIX to perform PAT on the IP
address on the outside interface. global (outside) 1
interface !--- Specifies addresses to be exempt from NAT
(traffic to be tunneled). nat (inside) 0 access-list
pixtosw !--- Specifies which addresses should use NAT
(all except those exempted). nat (inside) 1 0.0.0.0
0.0.0.0 !--- Specifies the default route on the outside
interface. 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 no snmp-server location no snmp-server
contact snmp-server enable traps snmp !--- Implicit
permit for all packets that come from IPsec tunnels.
sysopt connection permit-ipsec !--- PHASE 2
CONFIGURATION !--- Defines the transform set for Phase 2
encryption and authentication. !--- Austinlab is the
name of the transform set that uses aes-256 encryption
!--- as well as the SHA1 hash algorithm for
authentication.

crypto ipsec transform-set austinlab esp-aes-256 esp-
sha-hmac

!--- Specifies the ACL pixtosw to use with this map.
crypto map maptosw 67 match address pixtosw !---
Specifies the IPsec peer for this map. crypto map
maptosw 67 set peer 10.10.10.1 !--- Specifies the
transform set to use. crypto map maptosw 67 set
transform-set austinlab !--- Specifies the interface to
use with this map . crypto map maptosw interface outside
!--- PHASE 1 CONFIGURATION !--- Defines how the PIX
```

```
identifies itself in !--- IKE negotiations (IP address
in this case).

isakmp identity address

!--- Specifies the interface to use for the IPsec
tunnel. isakmp enable outside !--- These five commands
specify the Phase 1 configuration !--- settings specific
to this sample configuration. isakmp policy 13
authentication pre-share isakmp policy 13 encryption
aes-256 isakmp policy 13 hash sha isakmp policy 13 group
2 isakmp policy 13 lifetime 28800 telnet timeout 5 ssh
timeout 5 console timeout 0 !--- These three lines set
the IPsec attributes for the tunnel to the !--- remote
peer. This is where the preshared key is defined for
Phase 1 and the !--- IPsec tunnel type is set to site-
to-site. tunnel-group 10.10.10.1 type ipsec-l2l tunnel-
group 10.10.10.1 ipsec-attributes pre-shared-key *
Cryptochecksum:092b6fc5370e2ef0cf07c2bc10f1d44a : end
pix515-702#
```

IPsec 主动模式配置

本部分使用以下配置：

- Cisco PIX 515e 版本 6.3(5)
- Cisco PIX 515 版本 7.0(2)

Cisco PIX 515e 版本 6.3(5)

```
pix515e-635#show running-config
: Saved
:
PIX Version 6.3(5)
!--- Sets the hardware speed to auto on both interfaces.
interface ethernet0 auto interface ethernet1 auto !---
Specifies the inside and outside interfaces. nameif
ethernet0 outside security0 nameif ethernet1 inside
security100 enable password 8Ry2YjIyt7RRXU24 encrypted
passwd 2KFQnbNIdI.2KYOU encrypted hostname pix515e-635
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 !--- Specifies the traffic that
can pass through the IPsec tunnel. access-list pixtosw
permit ip 192.168.1.0 255.255.255.0 172.22.1.0
255.255.255.0 pager lines 24 mtu outside 1500 mtu inside
1500 !--- Sets the inside and outside IP addresses and
subnet masks. ip address outside 10.20.20.1
255.255.255.0 ip address inside 192.168.1.1
255.255.255.0 ip audit info action alarm ip audit attack
action alarm pdm history enable arp timeout 14400 !---
Instructs PIX to perform PAT on the IP address on the
outside interface. global (outside) 1 interface !---
Specifies addresses to be exempt from NAT (traffic to be
tunneled). nat (inside) 0 access-list pixtosw !---
Specifies which addresses should use NAT (all except
those exempted). nat (inside) 1 0.0.0.0 0.0.0.0 0 0 !---
Specifies the default route on the outside interface.
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 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 !--- Implicit permit for all packets that come
from IPsec tunnels. sysopt connection permit-ipsec !---
PHASE 2 CONFIGURATION !--- Defines the transform set for
Phase 2 encryption and authentication. !--- Austinlab is
the name of the transform set that uses aes-256
encryption !--- as well as the SHA1 hash algorithm for
authentication.

crypto ipsec transform-set austinlab esp-aes-256 esp-
sha-hmac

!--- Creates the dynamic map ciscopix for the transform
set. crypto dynamic-map ciscopix 1 set transform-set
austinlab !--- Specifies the IKE that should be used to
establish SAs !--- for the dynamic map. crypto map
dynmaptosw 66 ipsec-isakmp dynamic ciscopix !--- Applies
the settings above to the outside interface. crypto map
dynmaptosw interface outside !--- PHASE 1 CONFIGURATION
!--- Specifies the interface to use for the IPsec tunnel
.
isakmp enable outside

!--- Specifies the preshared key and the addresses to
use with that key. !--- In this case only one address is
used as the preshared key "cisco123". isakmp key
******** address 10.10.10.1 netmask 255.255.255.255 !---
Defines how the PIX identifies itself in !--- IKE
negotiations (IP address in this case). isakmp identity
address !--- These five commands specify the Phase 1
configuration settings !--- specific to this sample
configuration. isakmp policy 13 authentication pre-share
isakmp policy 13 encryption aes-256 isakmp policy 13
hash sha isakmp policy 13 group 2 isakmp policy 13
lifetime 28800 telnet timeout 5 ssh timeout 5 console
timeout 0 terminal width 80
Cryptochecksum:07a3815d59db9965b72c7d8a7aaf7f5f : end
pix515e-635#
```

Cisco PIX 515 版本 7.0(2)

```

pix515-702#show running-config
: Saved
:
PIX Version 7.0(2)
names
!

!--- PIX 7 uses an interface configuration mode similar
to Cisco IOS. !--- This output configures the IP
```

```
address, interface name, and security level for !---
interfaces Ethernet0 and Ethernet1. interface Ethernet0
nameif outside security-level 0 ip address 10.20.20.1
255.255.255.0 ! interface Ethernet1 nameif inside
security-level 100 ip address 192.168.1.1 255.255.255.0
! interface Ethernet2 shutdown no nameif no security-
level no ip address ! interface Ethernet3 shutdown no
nameif no security-level no ip address ! interface
Ethernet4 shutdown no nameif no security-level no ip
address ! interface Ethernet5 shutdown no nameif no
security-level no ip address ! enable password
8Ry2YjIyt7RRXU24 encrypted passwd 2KFQnbNIdI.2KYOU
encrypted hostname pix515-702 domain-name cisco.com ftp
mode passive !--- Specifies the traffic that can pass
through the IPsec tunnel. access-list pixtosw extended
permit ip 192.168.1.0 255.255.255.0 172.22.1.0
255.255.255.0 pager lines 24 mtu inside 1500 mtu outside
1500 no failover monitor-interface inside monitor-
interface outside no asdm history enable arp timeout
14400 !--- Instructs PIX to perform PAT on the IP
address on the outside interface. global (outside) 1
interface !--- Specifies addresses to be exempt from NAT
(traffic to be tunneled). nat (inside) 0 access-list
pixtosw !--- Specifies which addresses should use NAT
(all except those exempted). nat (inside) 1 0.0.0.0
0.0.0.0 !--- Specifies the default route on the outside
interface. 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 no snmp-server location no snmp-server
contact snmp-server enable traps snmp !--- Implicit
permit for all packets that come from IPsec tunnels.
sysopt connection permit-ipsec !--- PHASE 2
CONFIGURATION !--- Defines the transform set for Phase 2
encryption and authentication. !--- Austinlab is the
name of the transform set that uses aes-256 encryption
!--- as well as the SHA1 hash algorithm for
authentication.

crypto ipsec transform-set austinlab esp-aes-256 esp-
sha-hmac

!--- Creates the dynamic map "ciscopix" for the defined
transform set. crypto dynamic-map ciscopix 1 set
transform-set austinlab !--- Specifies that IKE should
be used to establish SAs !--- for the defined dynamic
map. crypto map dynmaptosw 66 ipsec-isakmp dynamic
ciscopix !--- Applies the settings to the outside
interface. crypto map dynmaptosw interface outside !---
PHASE 1 CONFIGURATION !--- Defines how the PIX
identifies itself in !--- IKE negotiations (IP address
in this case).

isakmp identity address

!--- Specifies the interface to use for the IPsec
tunnel. isakmp enable outside !--- These five commands
specify the Phase 1 configuration settings !--- specific
to this sample configuration. isakmp policy 13
authentication pre-share isakmp policy 13 encryption
aes-256 isakmp policy 13 hash sha isakmp policy 13 group
2 isakmp policy 13 lifetime 28800 telnet timeout 5 ssh
```

```
timeout 5 console timeout 0 !--- These three lines set
the IPsec attributes for the tunnel to the !--- remote
peer. This is where the preshared key is defined for
Phase 1 and the !--- IPsec tunnel type is set to site-
to-site. tunnel-group 10.10.10.1 type ipsec-l2l tunnel-
group 10.10.10.1 ipsec-attributes pre-shared-key *
Cryptochecksum:092b6fc5370e2ef0cf07c2bc10f1d44a : end
pix515-702#
```

验证

使用本部分可确认配置能否正常运行。

命令输出解释程序（仅限注册用户）(OIT) 支持某些 show 命令。使用 OIT 可查看对 show 命令输出的分析。

- **show crypto isakmp sa - 显示对等体上的所有当前 IKE SA。**
- **show crypto ipsec sa - 显示当前 SA 使用的设置。**

这些表显示完全建立隧道后 PIX 6.3(5) 和 PIX 7.0(2) 中主模式和主动模式的一些调试输出。

注意：这应该是足够的信息，以便在这两种类型的硬件之间建立IPsec隧道。如果您有任何意见，请使用本文档左侧的反馈表。

- Cisco PIX 515e 版本 6.3(5) - 主模式
- Cisco PIX 515 版本 7.0(2) - 主模式
- Cisco PIX 515e 版本 6.3(5) - 主动模式
- Cisco PIX 515 版本 7.0(2) - 主动模式

Cisco PIX 515e 版本 6.3(5) - 主模式

```

pix515e-635#show crypto isakmp sa
Total     : 1
Embryonic : 0
        dst               src        state     pending
created
      10.10.10.1       10.20.20.1     QM_IDLE         0
1
pix515e-635#



pix515e-635#show crypto ipsec sa


           interface: outside
           Crypto map tag: maptosw, local addr.
10.20.20.1

 local ident (addr/mask/prot/port):
(192.168.1.0/255.255.255.0/0/0)
           remote ident (addr/mask/prot/port):
(172.22.1.0/255.255.255.0/0/0)
           current_peer: 10.10.10.1:500
           PERMIT, flags={origin_is_acl,}
           #pkts encaps: 4, #pkts encrypt: 4, #pkts
digest 4
```

```
           #pkts decaps: 4, #pkts decrypt: 4, #pkts
verify 4
           #pkts compressed: 0, #pkts decompressed: 0
           #pkts not compressed: 0, #pkts compr. failed:
0, #pkts decompress failed: 0
           #send errors 1, #recv errors 0

 local crypto endpt.: 10.20.20.1, remote crypto endpt.:
10.10.10.1
           path mtu 1500, ipsec overhead 72, media mtu
1500
           current outbound spi: ed0afa33

 inbound esp sas:
           spi: 0xac624692(2892121746)
           transform: esp-aes-256 esp-sha-hmac ,
           in use settings ={Tunnel, }
           slot: 0, conn id: 1, crypto map: maptosw
           sa timing: remaining key lifetime (k/sec):
(4607999/28718)
           IV size: 16 bytes
           replay detection support: Y


           inbound ah sas:


           inbound pcp sas:


           outbound esp sas:
           spi: 0xed0afa33(3976919603)
           transform: esp-aes-256 esp-sha-hmac ,
           in use settings ={Tunnel, }
           slot: 0, conn id: 2, crypto map: maptosw
           sa timing: remaining key lifetime (k/sec):
(4607999/28718)
           IV size: 16 bytes
           replay detection support: Y


           outbound ah sas:


           outbound pcp sas:

pix515e-635#
```

Cisco PIX 515 版本 7.0(2) - 主模式

```
pix515-702#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 : L2L Role : initiator
           Rekey : no State : MM_ACTIVE
           pix515-702#

pix515-702#show crypto ipsec sa
```

```
interface: outside
    Crypto map tag: maptosw, local addr: 10.20.20.1

 local ident (addr/mask/prot/port):
(192.168.1.0/255.255.255.0/0/0)
           remote ident (addr/mask/prot/port):
(172.22.1.0/255.255.255.0/0/0)
           current_peer: 10.10.10.1

 #pkts encaps: 5, #pkts encrypt: 5, #pkts digest: 5
           #pkts decaps: 5, #pkts decrypt: 5, #pkts
verify: 5
           #pkts compressed: 0, #pkts decompressed: 0
           #pkts not compressed: 5, #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 76, media mtu 1500
           current outbound spi: 2D006547

 inbound esp sas:
           spi: 0x309F7A33 (815757875)
           transform: esp-aes-256 esp-sha-hmac
           in use settings ={L2L, Tunnel, }
           slot: 0, conn_id: 1, crypto-map: maptosw
           sa timing: remaining key lifetime (kB/sec):
(4274999/28739)
           IV size: 16 bytes
           replay detection support: Y
           outbound esp sas:
           spi: 0x2D006547 (755000647)
           transform: esp-aes-256 esp-sha-hmac
           in use settings ={L2L, Tunnel, }
           slot: 0, conn_id: 1, crypto-map: maptosw
           sa timing: remaining key lifetime (kB/sec):
(4274999/28737)
           IV size: 16 bytes
           replay detection support: Y

pix515-702#
```

Cisco PIX 515e 版本 6.3(5) - 主动模式

```

pix515e-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
1

pix515e-635#show crypto ipsec sa



           interface: outside
           Crypto map tag: dynmaptosw, local addr.
10.20.20.1

 local ident (addr/mask/prot/port):
(192.168.1.0/255.255.255.0/0/0)
```

```
           remote ident (addr/mask/prot/port):
(172.22.1.0/255.255.255.0/0/0)
           current_peer: 10.10.10.1:500
           PERMIT, flags={}
           #pkts encaps: 0, #pkts encrypt: 0, #pkts
digest 0
           #pkts decaps: 0, #pkts decrypt: 0, #pkts
verify 0
           #pkts compressed: 0, #pkts decompressed: 0
           #pkts not compressed: 0, #pkts compr. failed:
0, #pkts decompress 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 72, media mtu
1500
           current outbound spi: efb1149d

 inbound esp sas:
           spi: 0x2ad2c13c(718455100)
           transform: esp-aes-256 esp-sha-hmac ,
           in use settings ={Tunnel, }
           slot: 0, conn id: 2, crypto map: dynmaptosw
           sa timing: remaining key lifetime (k/sec):
(4608000/28736)
           IV size: 16 bytes
           replay detection support: Y


           inbound ah sas:


           inbound pcp sas:


           outbound esp sas:
           spi: 0xefb1149d(4021359773)
           transform: esp-aes-256 esp-sha-hmac ,
           in use settings ={Tunnel, }
           slot: 0, conn id: 1, crypto map: dynmaptosw
           sa timing: remaining key lifetime (k/sec):
(4608000/28727)
           IV size: 16 bytes
           replay detection support: Y


           outbound ah sas:


           outbound pcp sas:

pix515e-635#
```

Cisco PIX 515 版本 7.0(2) - 主动模式

```

pix515-702#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 : L2L Role : responder
           Rekey : no State : AM_ACTIVE
           pix515-702#

pix515-702#show crypto ipsec sa
           interface: outside
           Crypto map tag: ciscopix, local addr:
10.20.20.1

 local ident (addr/mask/prot/port):
(192.168.1.0/255.255.255.0/0/0)
           remote ident (addr/mask/prot/port):
(172.22.1.0/255.255.255.0/0/0)
           current_peer: 10.10.10.1

 #pkts encaps: 5, #pkts encrypt: 5, #pkts digest: 5
           #pkts decaps: 5, #pkts decrypt: 5, #pkts
verify: 5
           #pkts compressed: 0, #pkts decompressed: 0
           #pkts not compressed: 5, #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 76, media mtu 1500
           current outbound spi: D7E2F5FD

 inbound esp sas:
           spi: 0xDCBF6AD3 (3703532243)
           transform: esp-aes-256 esp-sha-hmac
           in use settings ={L2L, Tunnel, }
           slot: 0, conn_id: 1, crypto-map: ciscopix
           sa timing: remaining key lifetime (sec):
28703
           IV size: 16 bytes
           replay detection support: Y
           outbound esp sas:
           spi: 0xD7E2F5FD (3621975549)
           transform: esp-aes-256 esp-sha-hmac
           in use settings ={L2L, Tunnel, }
           slot: 0, conn_id: 1, crypto-map: ciscopix
           sa timing: remaining key lifetime (sec):
28701
           IV size: 16 bytes
           replay detection support: Y

pix515-702#
```

故障排除

目前没有针对此配置的故障排除信息。

相关信息

- Cisco PIX 防火墙软件
- Cisco Secure PIX 防火墙命令参考

- 安全产品 Field Notices（包括 PIX）
- 请求注解 (RFC)
- 技术支持和文档 - Cisco Systems