配置IPSec隧道- Cisco路由器到Checkpoint防火墙4.1

目录

简介

本文档说明如何使用预共享密钥来构建 IPSec 隧道以加入两个专用网络：Cisco 路由器内的 192.168.1.x 专用网络和 Checkpoint 防火墙内的 10.32.50.x 专用网络。

先决条件

要求

此配置示例假设，在开始配置之前，流量从路由器和 Checkpoint 流到 Internet（此处由 172.18.124.x 网络来表示）。

使用的组件

本文档中的信息基于以下软件和硬件版本：

- Cisco 3600 路由器
- Cisco IOS® 软件 (C3640-JO3S56I-M)，版本 12.1(5)T，发布软件 (fc1)
- Checkpoint Firewall 4.1

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。

规则

有关文档规则的详细信息，请参阅 Cisco 技术提示规则。

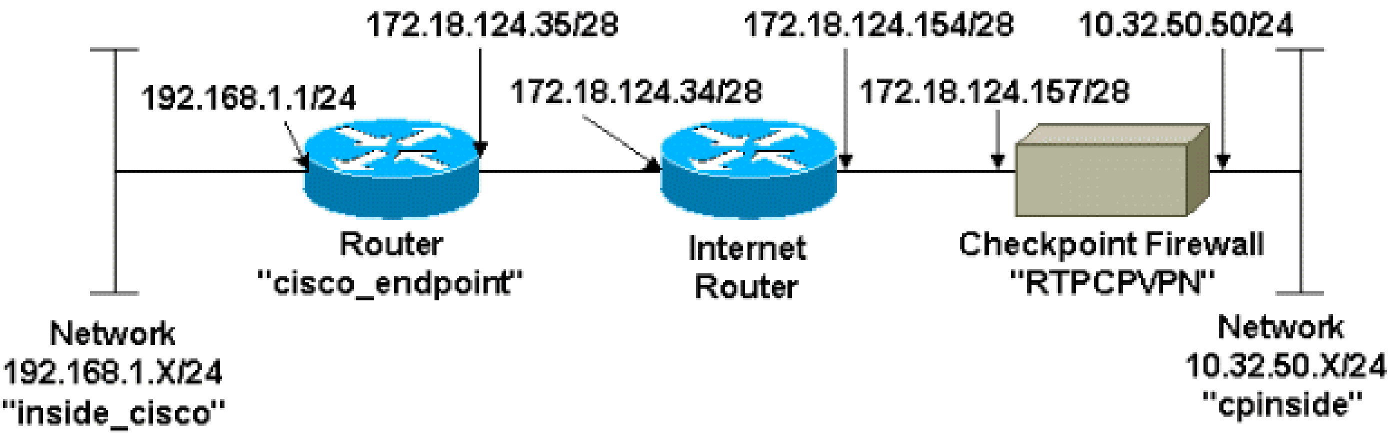
配置

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)可查找有关本文档中使用的命令的详细信息。

网络图

本文档使用以下网络设置：



配置

本文档使用以下配置。

- 路由器配置
- Checkpoint 防火墙配置

路由器配置

Cisco 3600 路由器配置

```
Current configuration : 1608 bytes
!
version 12.1
no service single-slot-reload-enable
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname cisco_endpoint
!
logging rate-limit console 10 except errors
!
```

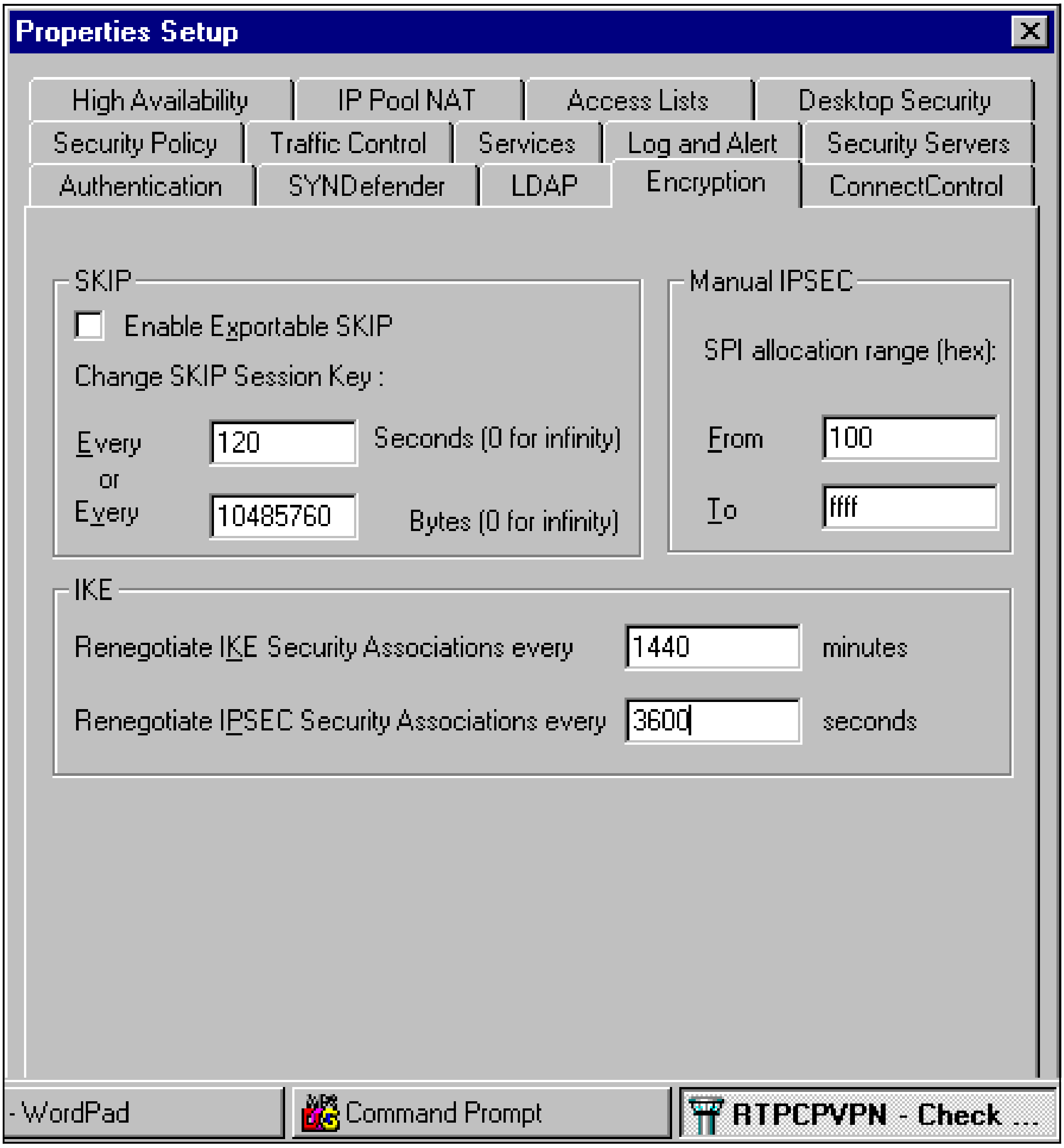
```
ip subnet-zero
!
no ip finger
!
ip audit notify log
ip audit po max-events 100
!
!--- Internet Key Exchange (IKE) configuration crypto
isakmp policy 1
authentication pre-share
crypto isakmp key ciscorules address 172.18.124.157
!
!--- IPsec configuration crypto ipsec transform-set
rtpset esp-des esp-sha-hmac
!
crypto map rtp 1 ipsec-isakmp
set peer 172.18.124.157
set transform-set rtpset
match address 115
!
call rsvp-sync
cns event-service server
!
controller T1 1/0
!
controller T1 1/1
!
interface Ethernet0/0
ip address 172.18.124.35 255.255.255.240
ip nat outside
no ip mroute-cache
half-duplex
crypto map rtp
!
interface Ethernet0/1
ip address 192.168.1.1 255.255.255.0
ip nat inside
half-duplex
!
interface FastEthernet1/0
no ip address
shutdown
duplex auto
speed auto
!
ip kerberos source-interface any
ip nat pool INTERNET 172.18.124.36 172.18.124.36 netmask
255.255.255.240
ip nat inside source route-map nonat pool INTERNET
ip classless
ip route 0.0.0.0 0.0.0.0 172.18.124.34
no ip http server
!
access-list 101 deny ip 192.168.1.0 0.0.0.255 10.32.50.0
0.0.0.255
access-list 101 permit ip 192.168.1.0 0.0.0.255 any
access-list 115 permit ip 192.168.1.0 0.0.0.255
10.32.50.0 0.0.0.255
access-list 115 deny ip 192.168.1.0 0.0.0.255 any
route-map nonat permit 10
match ip address 101
!
dial-peer cor custom
!
```

```
line con 0
transport input none
line aux 0
line vty 0 4
login
!
end
```

Checkpoint 防火墙配置

完成以下步骤以配置 Checkpoint 防火墙。

1. 由于各供应商之间的 IKE 和 IPSec 默认生存时间各不相同，因此请选择 **Properties > Encryption 以将 Checkpoint 生存时间设置为与 Cisco 默认设置一致。**Cisco 默认 IKE 生存时间为 86400 秒（即 1440 分钟），可通过以下命令进行修改：**crypto isakmp policy #lifetime #**可配置的 Cisco IKE 生存时间的范围为 60-86400 秒。Cisco 默认 IPSec 生存时间为 3600 秒，可通过 **crypto ipsec security-association lifetime seconds # 命令进行修改。**可配置的 Cisco IPSec 生存时间的范围为 120-86400 秒。



Properties Setup

SKIP

□ Enable Exportable SKIP

Change SKIP Session Key :

Every 120 Seconds (0 for infinity)

or

Every 10485760 Bytes (0 for infinity)

Manual IPSEC

SPI allocation range (hex):

From 100

To ffff

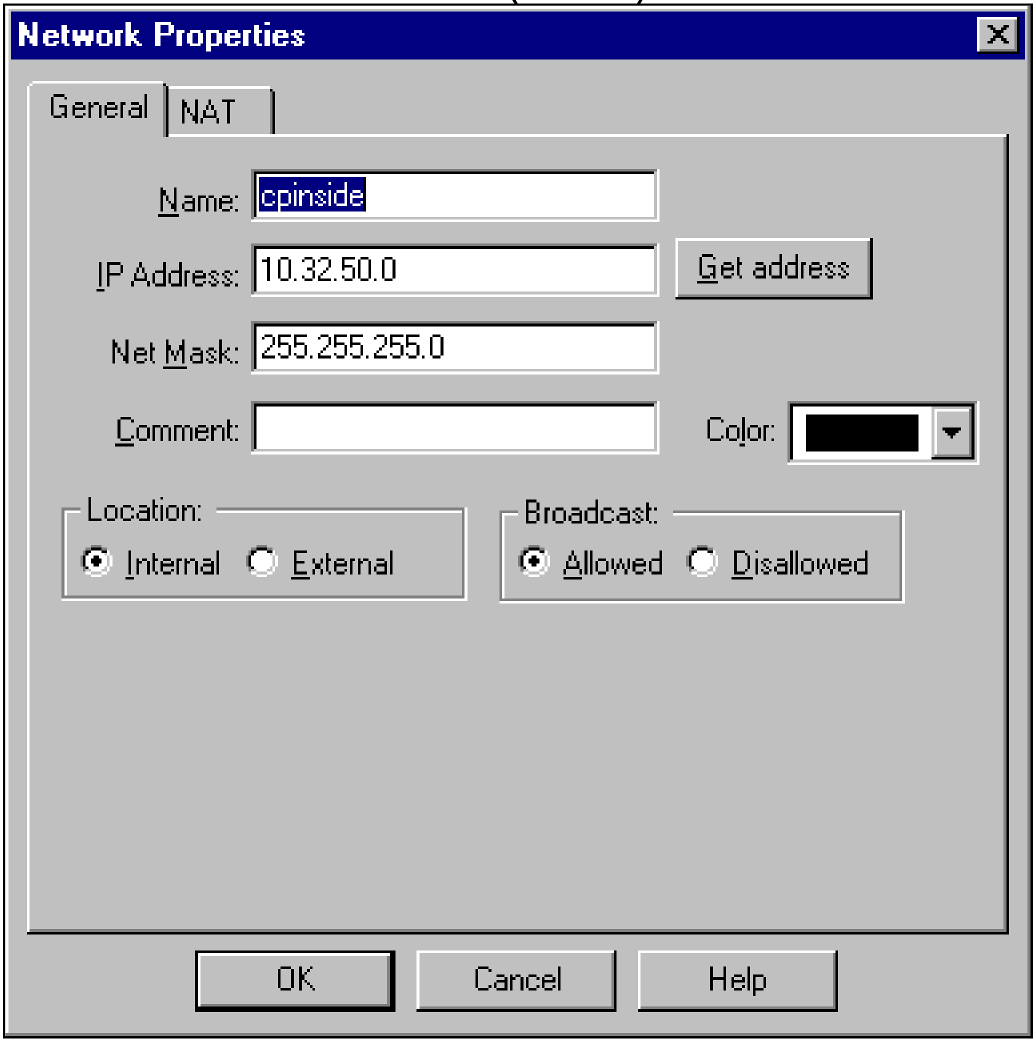
IKE

Renegotiate IKE Security Associations every 1440 minutes

Renegotiate IPSEC Security Associations every 3600 seconds

2. 选择 **Manage > Network objects > New（或 Edit）> Network，为 Checkpoint 后面的内部网**

络（称为“cpinside”）配置对象。这应与 Cisco **access-list 115 permit ip 192.168.1.0 0.0.0.255 10.32.50.0 0.0.0.255 命令中的目标（第二个）网络一致。**在“Location”下选择 **Internal。**



Name: cpinside

IP Address: 10.32.50.0

Net Mask: 255.255.255.0

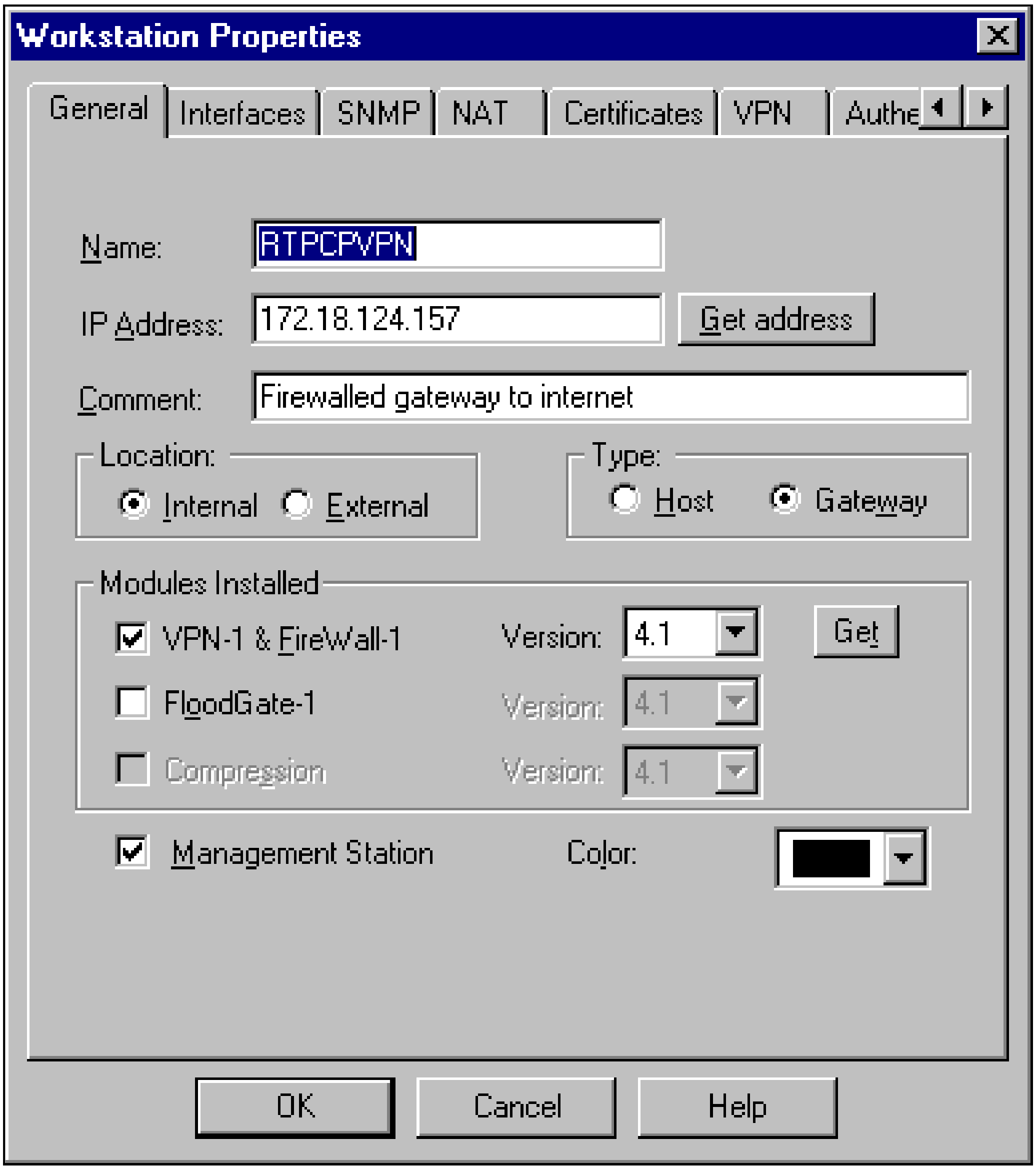
Comment:

Color: ■

Location: ● Internal ○ External

Broadcast: ● Allowed ○ Disallowed

3. 选择 **Manage > Network objects > Edit 以编辑 set peer 172.18.124.157 命令中 Cisco 路由器所指向的 RTPCPVPN Checkpoint（网关）端点的对象。**在“Location”下选择 **Internal。**对于“Type”，选择 **Gateway。**在安装的模块下，选择**VPN-1 & FireWall-1复选框，并选择 Management Station复选框**



Workstation Properties

Name: RTPCPVPN

IP Address: 172.18.124.157

Comment: Firewalled gateway to internet

Location: ● Internal ○ External

Type: ○ Host ● Gateway

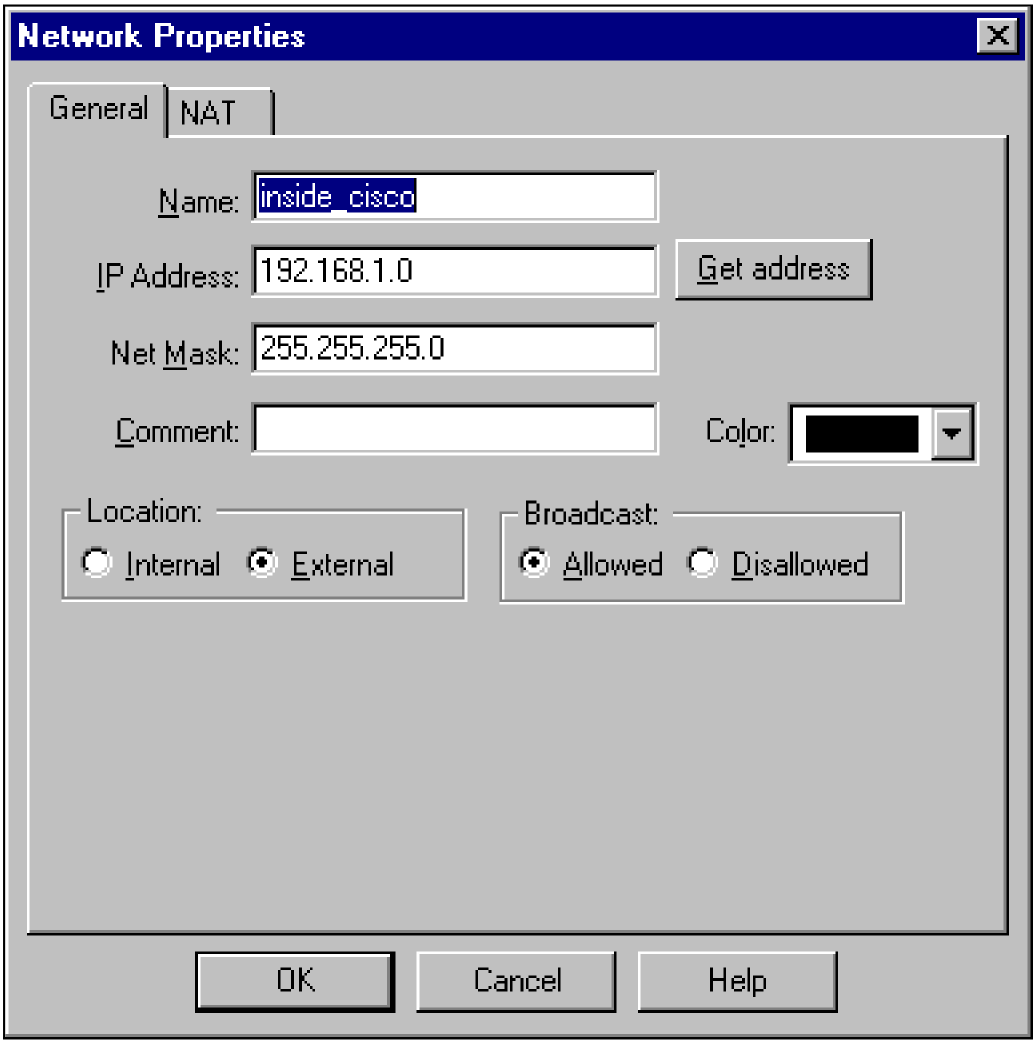
Modules Installed

- ☑ VPN-1 & FireWall-1 Version: 4.1
- □ FloodGate-1 Version: 4.1
- □ Compression Version: 4.1

☑ Management Station

:

4. 选择 **Manage > Network objects > New > Network，为 Cisco 路由器后面的外部网络（称为 "inside_cisco"）配置对象。**这应与 Cisco **access-list 115 permit ip 192.168.1.0 0.0.0.255 10.32.50.0 0.0.0.255 命令中的源（第一个）网络一致。**在"Location"下选择 **External。**



Network Properties

General | NAT

Name: inside_cisco

IP Address: 192.168.1.0

Net Mask: 255.255.255.0

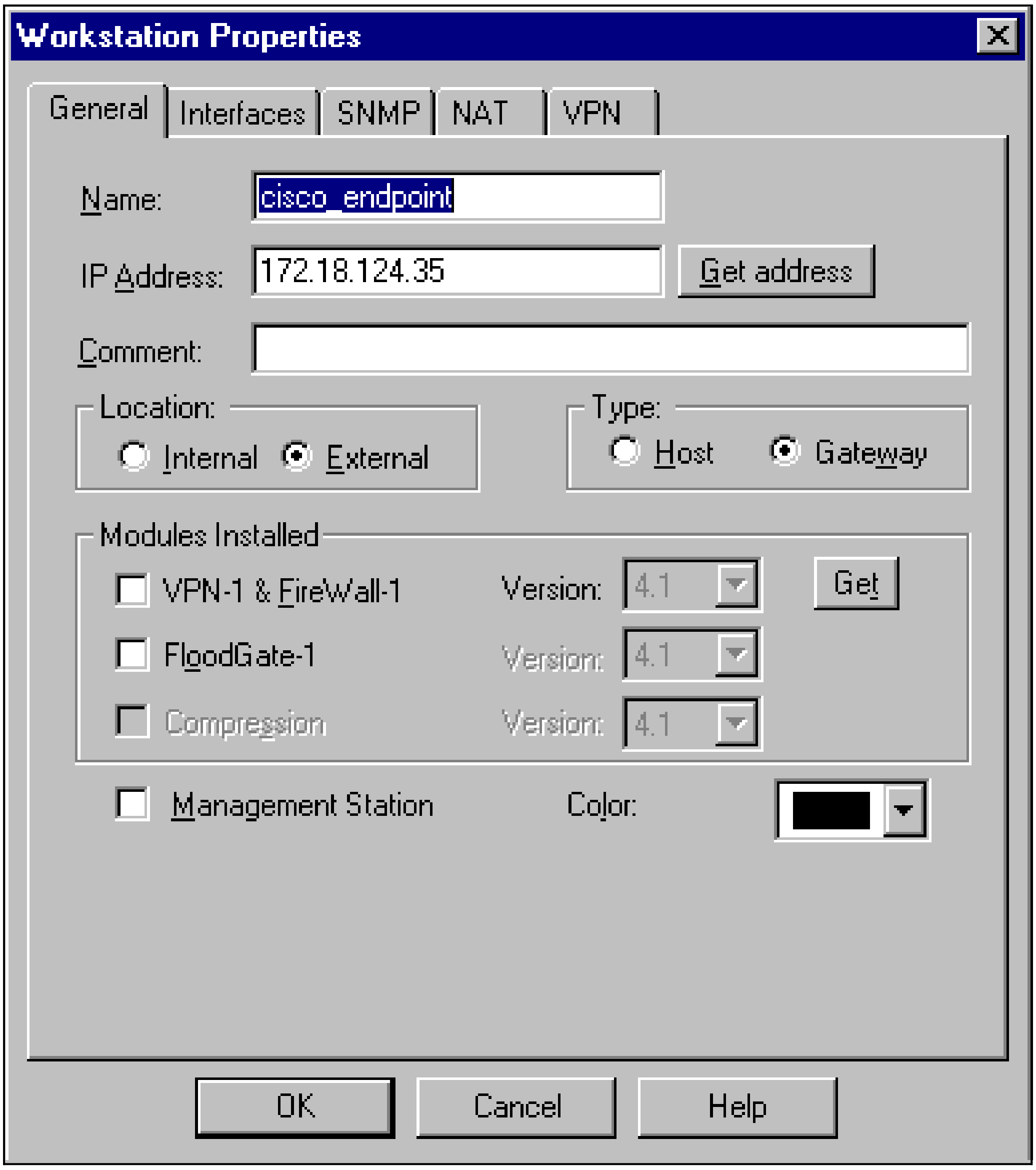
Comment:

Color: ■

Location: ○ Internal ● External

Broadcast: ● Allowed ○ Disallowed

5. 选择 **Manage > Network objects > New > Workstation 以添加外部 Cisco 路由器网关（称为 “cisco_endpoint”）的对象。** 这是应用 **crypto map name 命令的 Cisco 接口。**在“Location”下选择 **External。**对于“Type”，选择 **Gateway。注意：**请勿选中VPN-1/FireWall-1复选框。



Name: cisco_endpoint

IP Address: 172.18.124.35

Comment:

Location: ○ Internal ● External

Type: ○ Host ● Gateway

Modules Installed

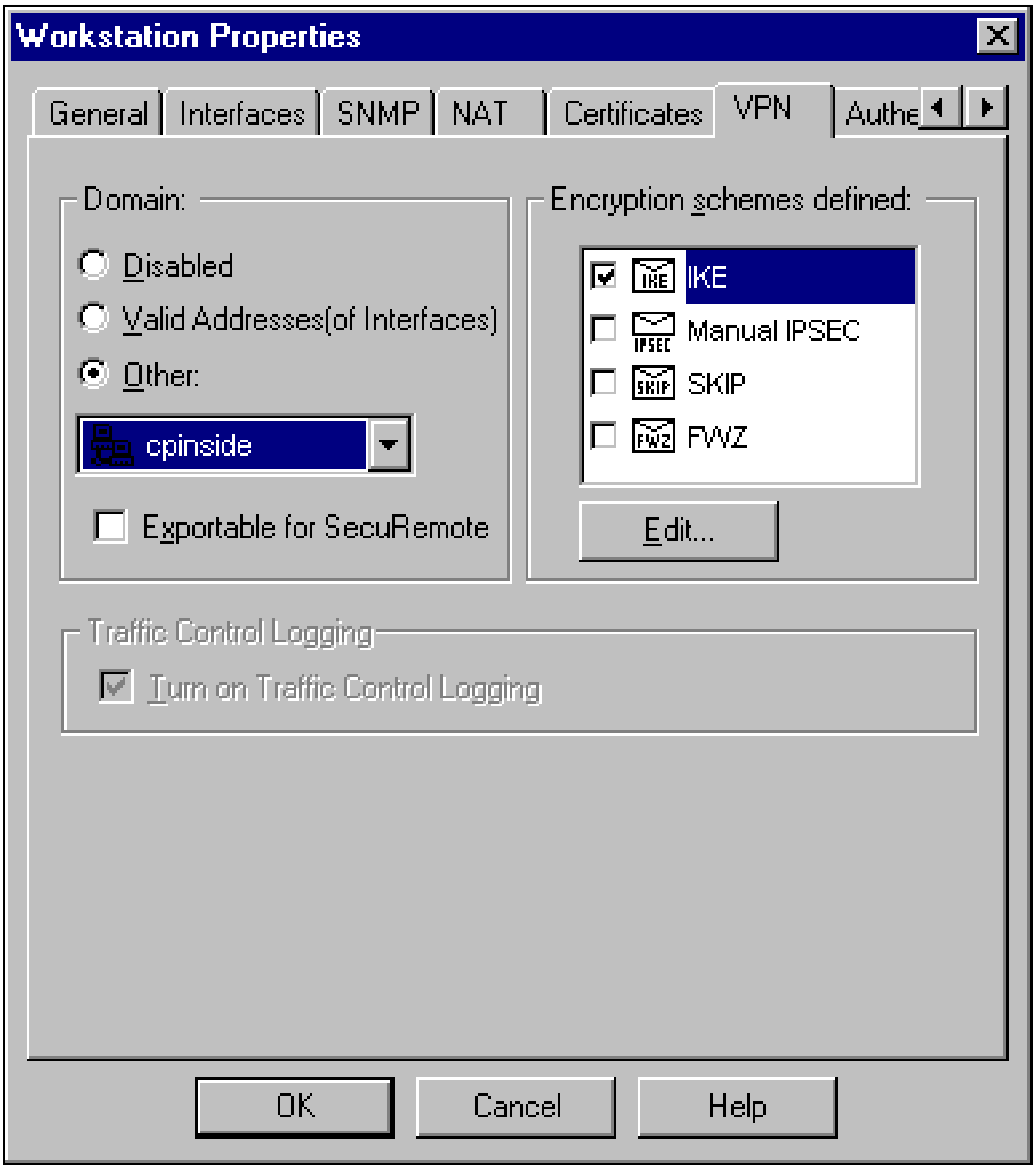
□ VPN-1 & FireWall-1 Version: 4.1

□ FloodGate-1 Version: 4.1

□ Compression Version: 4.1

□ Management Station Color: ■

6. 选择 **Manage > Network objects > Edit 以编辑 Checkpoint 网关端点（称为“RTPCPVPN”）VPN 选项卡。**在域下，请选择**其他然后从下拉列表中选择Checkpoint网络(称“cpinside”)。**在被定义的加密机制下，精选的**IKE**，然后点击**编辑**。



Domain:

○ Disabled

○ Valid Addresses(of Interfaces)

● Other:

cpinside

□ Exportable for SecuRemote

Encryption schemes defined:

☑ IKE

□ Manual IPSEC

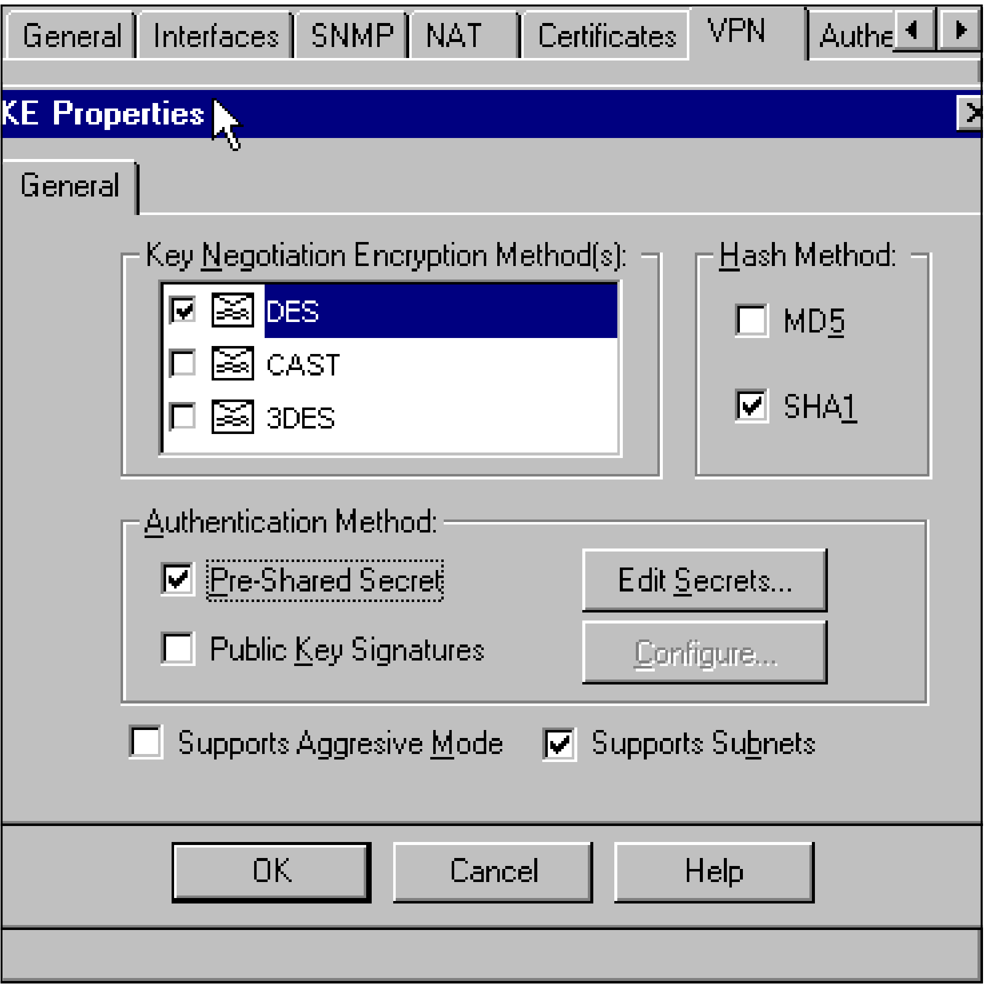
□ SKIP

□ FWZ

Traffic Control Logging

☑ Turn on Traffic Control Logging

7. 更改 DES 加密的 IKE 属性，以便与以下命令一致：**crypto isakmp policy #encryption des注意**：DES加密是默认值，因此在思科配置中不可见。
8. 更改 SHA1 散列的 IKE 属性，以便与以下命令一致：**crypto isakmp policy #hash sha注意**：SHA散列算法是默认算法，因此在Cisco配置中不可见。更改这些设置：取消选定积极模式。选中 **Supports Subnets**。在“Authentication Method”下，选中 **Pre-Shared Secret。**这与以下命令一致：**crypto isakmp policy #authentication pre-**



Key Negotiation Encryption Method(s):

☑ DES
□ CAST
□ 3DES

Hash Method:

□ MD5
☑ SHA1

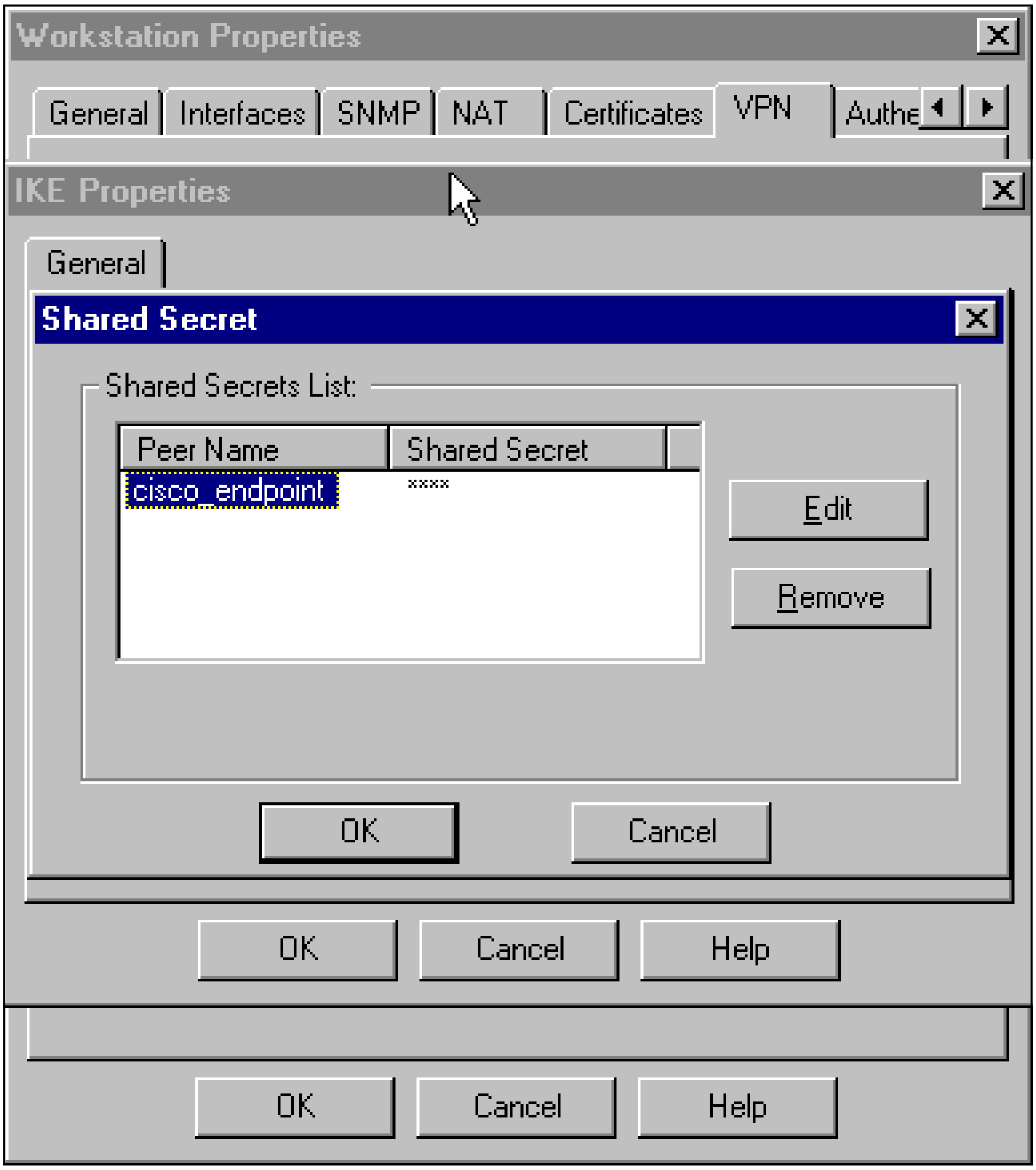
Authentication Method:

☑ Pre-Shared Secret
□ Public Key Signatures

□ Supports Aggresive Mode ☑ Supports Subnets

share

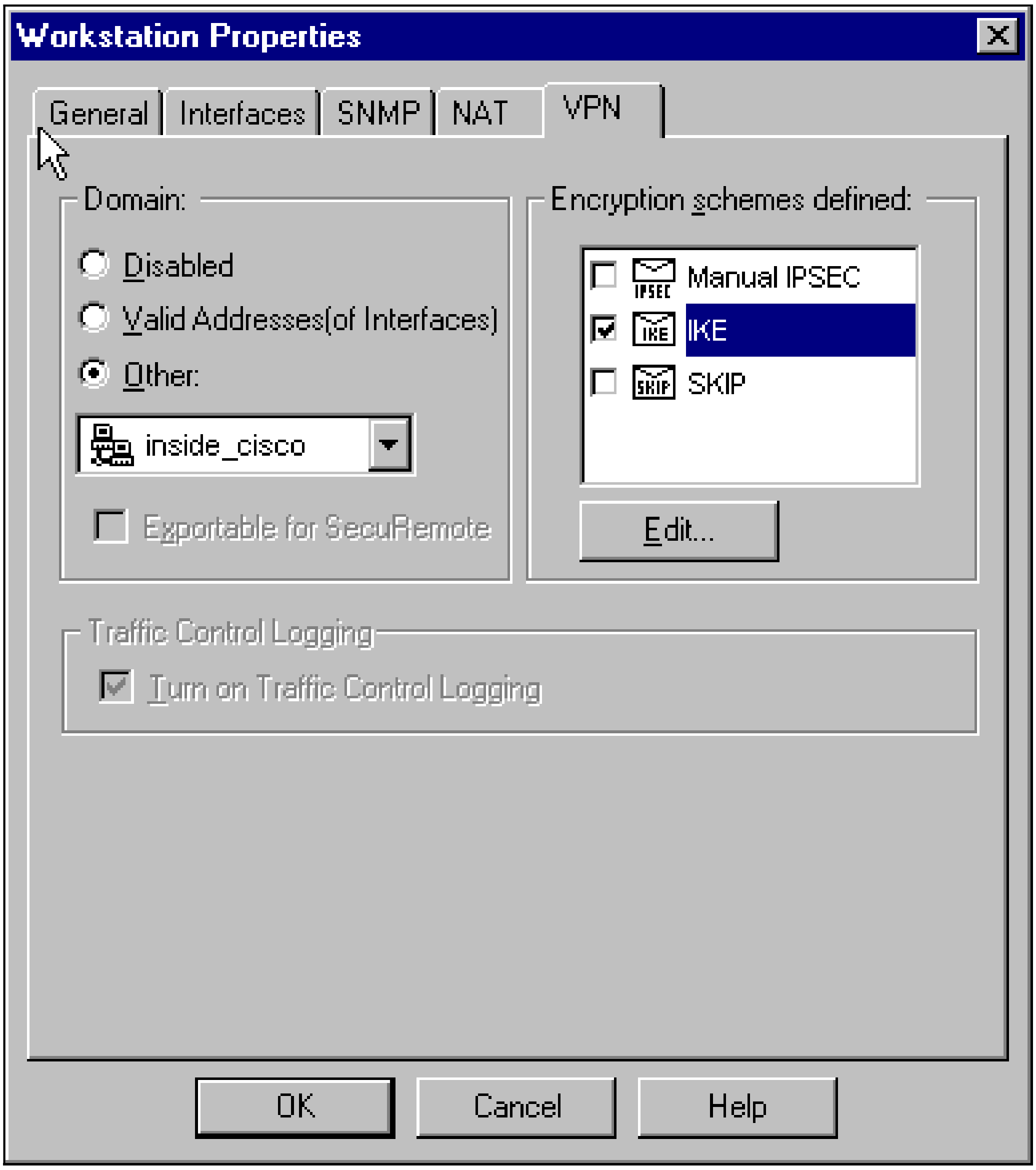
9. 单击 **Edit Secrets 设置预共享密钥，以便与 Cisco crypto isakmp key key address address 命**



Peer Name	Shared Secret
cisco_endpoint	****

令一致：

10. 选择 **Manage > Network objects > Edit 以编辑“cisco_endpoint”VPN 选项卡。**在“Domain”下，选择 **Other**，然后选择 Cisco 网络内部（称为“inside_cisco”）。 在被定义的加密机制下，精选的**IKE**，然后点击**编辑**。



Workstation Properties

General | Interfaces | SNMP | NAT | VPN

Domain:

○ Disabled

○ Valid Addresses(of Interfaces)

● Other:

inside_cisco

□ Exportable for SecuRemote

Encryption schemes defined:

□ Manual IPSEC

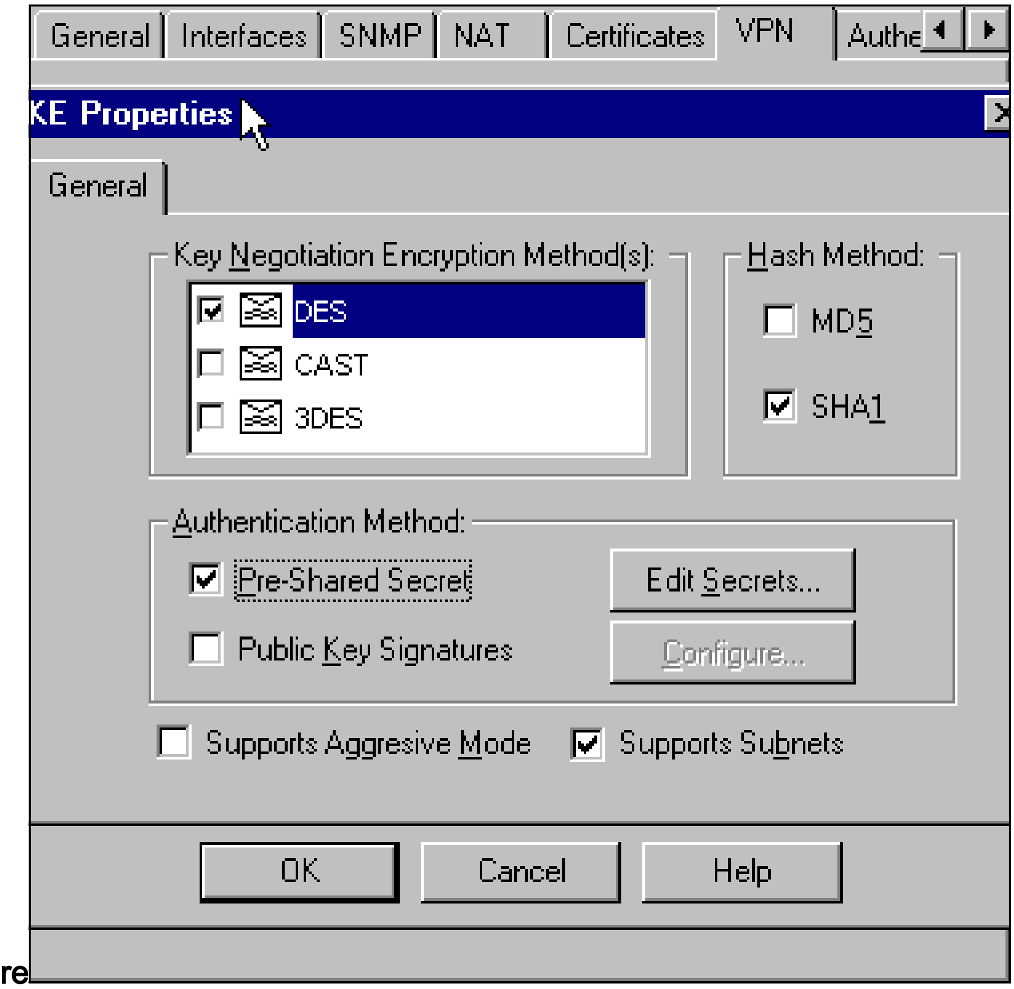
☑ IKE

□ SKIP

Traffic Control Logging

☑ Turn on Traffic Control Logging

11. 更改 DES 加密的 IKE 属性，以便与以下命令一致：**crypto isakmp policy #encryption des注意**：DES加密是默认值，因此在思科配置中不可见。
12. 更改 SHA1 散列的 IKE 属性，以便与以下命令一致：**crypto isakmp policy #hash sha注意**：SHA散列算法是默认算法，因此在Cisco配置中不可见。更改这些设置：取消选定积极模式。选中 **Supports Subnets**。在“Authentication Method”下，选中 **Pre-Shared Secret**。这与以下命令一致：**crypto isakmp policy #authentication pre-**



KE Properties

General

Key Negotiation Encryption Method(s):

☑ DES
□ CAST
□ 3DES

Hash Method:

□ MD5
☑ SHA1

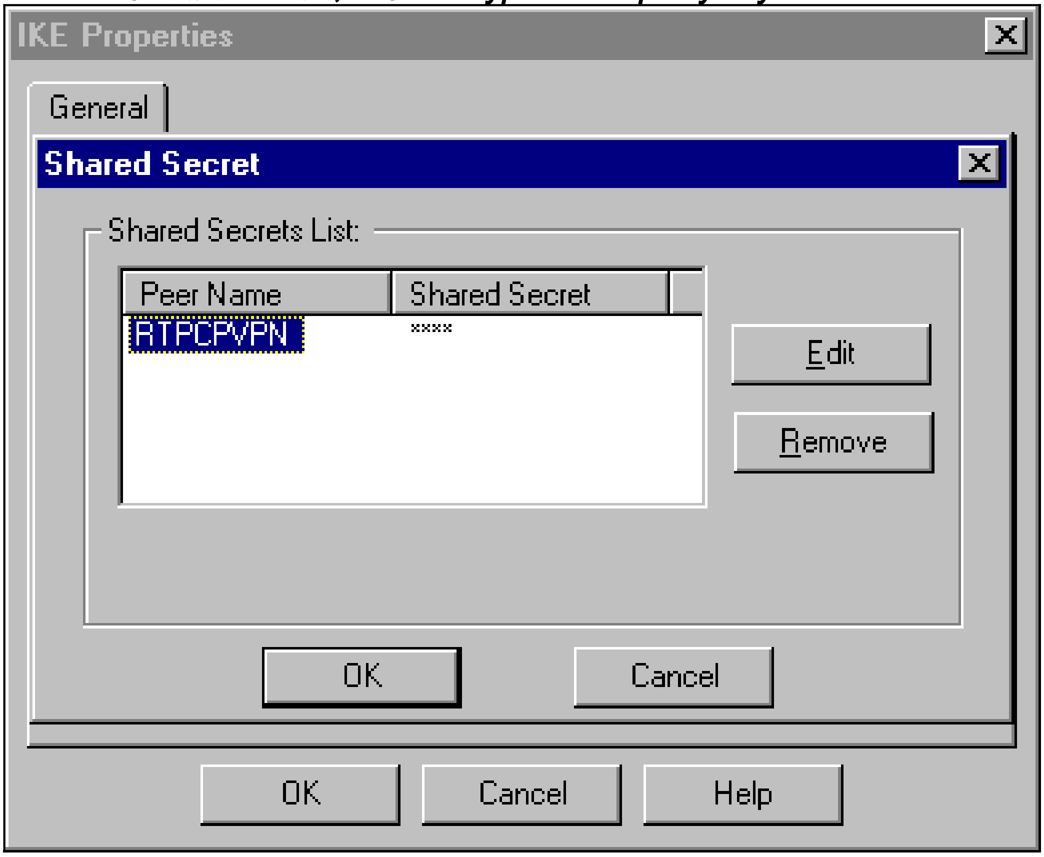
Authentication Method:

☑ Pre-Shared Secret
□ Public Key Signatures

□ Supports Aggresive Mode
☑ Supports Subnets

share

13. 单击 **Edit Secrets 设置预共享密钥，以便与 *crypto isakmp key key address address*** Cisco



IKE Properties

General

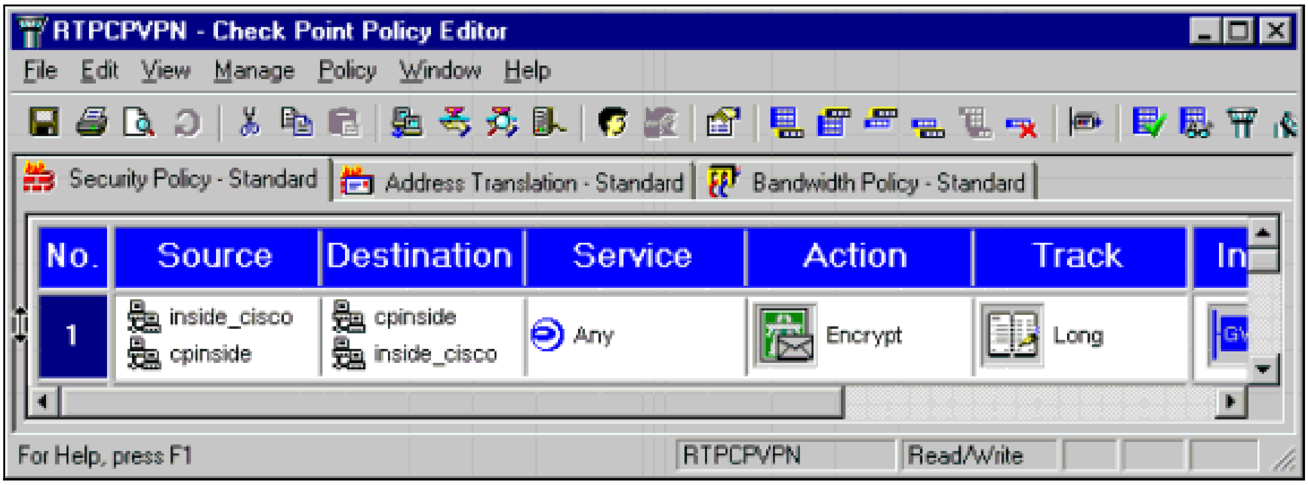
Shared Secret

Shared Secrets List:

Peer Name	Shared Secret
RTPCPVPN	****

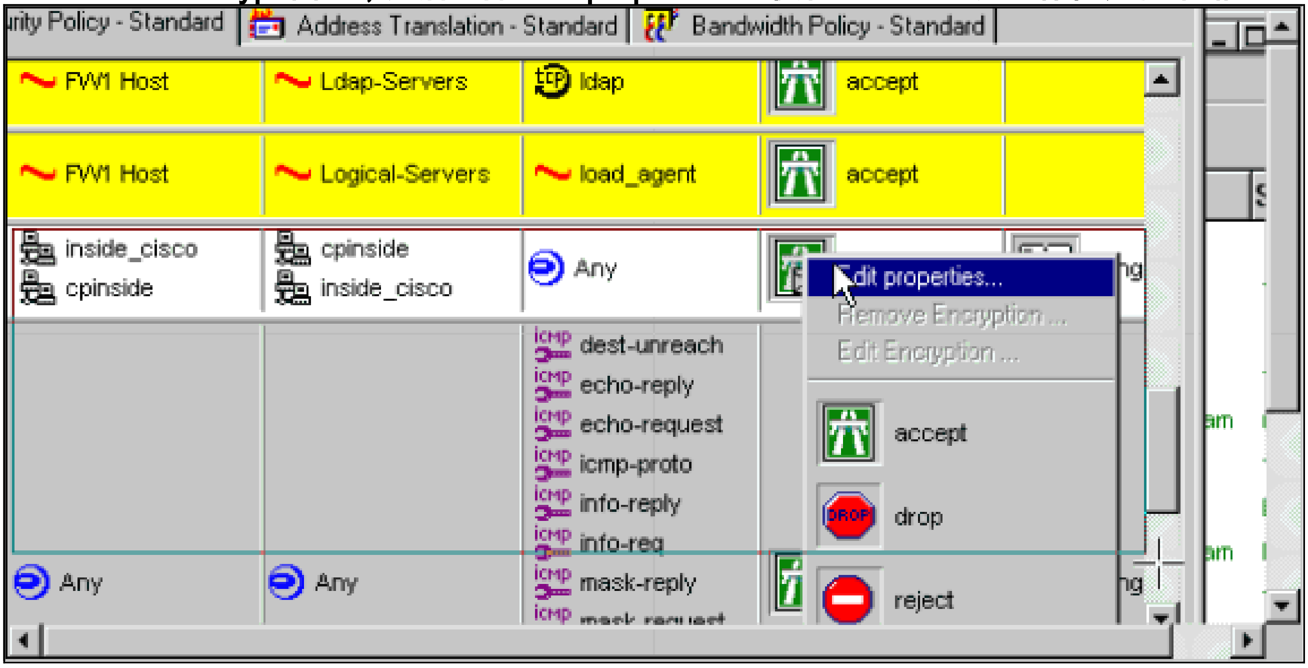
命令一致。

14. 在策略编辑器窗口，插入源和目的为“inside_cisco”和“cpinside”(双向)这一规则。 设置 **Service=Any**、**Action=Encrypt** 和 **Track=Long**。


RTPCPVPN - Check Point Policy Editor
File Edit View Manage Policy Window Help
Security Policy - Standard
Address Translation - Standard
Bandwidth Policy - Standard
For Help, press F1
RTPCPVPN
Read/Write

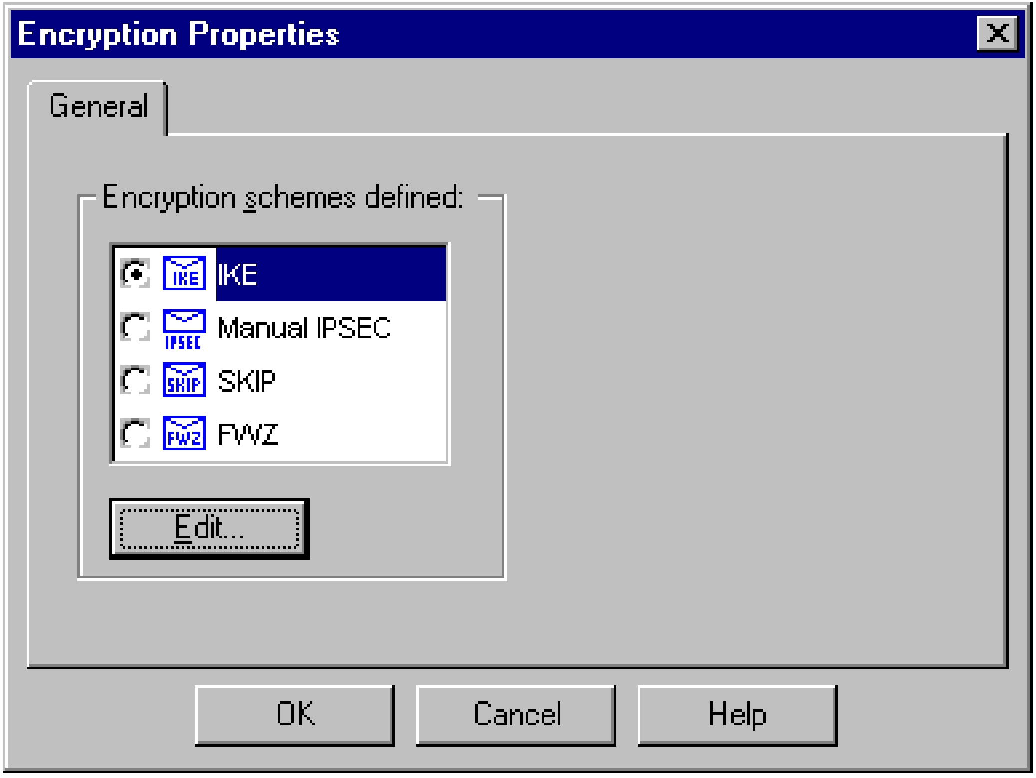
No.	Source	Destination	Service	Action	Track	In
1	inside_cisco cpinside	cpinside inside_cisco	Any	Encrypt	Long	GV

15. 单击绿色的 **Encrypt 图标，然后选择 Edit properties 以便在“Action”标题下配置加密策略。**



FW1 Host	Ldap-Servers	ldap	accept
FW1 Host	Logical-Servers	load_agent	accept
inside_cisco cpinside	cpinside inside_cisco	Any	
Any	Any	dest-unreach echo-reply echo-request icmp-proto info-reply info-req mask-reply mask-request	

16. 选择 **IKE**，然后单击 **Edit**。

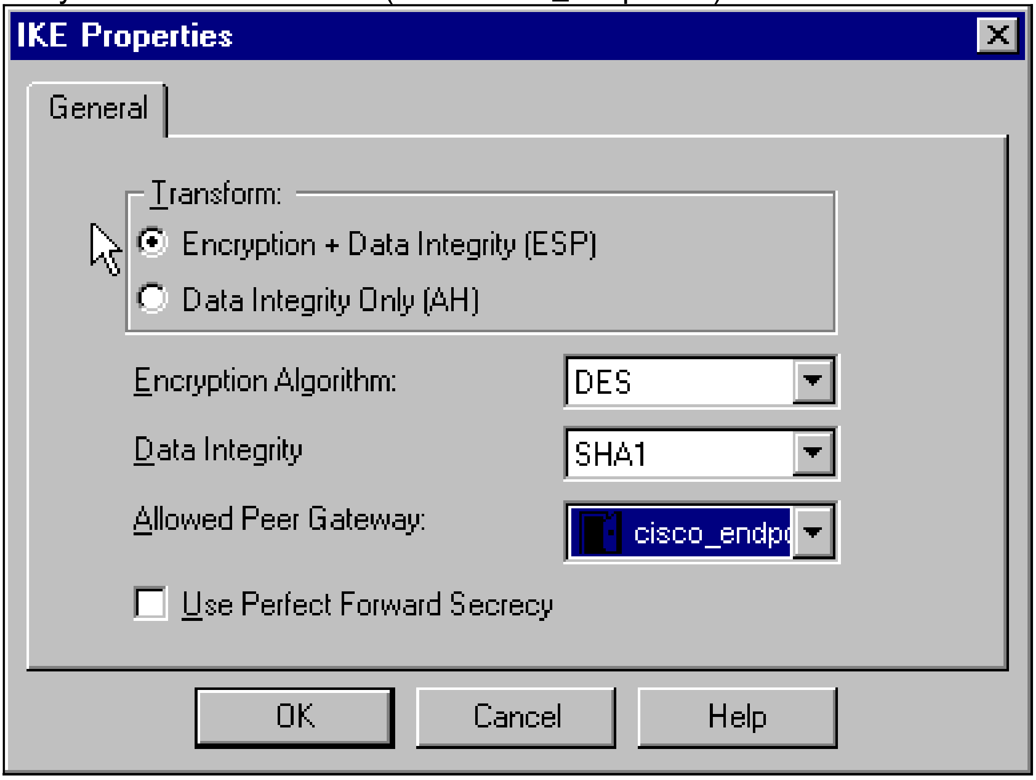


Encryption schemes defined:

● IKE
○ Manual IPSEC
○ SKIP
○ FWZ

17. 在“IKE Properties”窗口中更改以下属性，以便与 **crypto ipsec transform-set rtpset esp-des**

esp-sha-hmac 命令中的 Cisco IPSec 转换一致：下面请变换，选择**加密+数据完整性 (ESP)**。 “Encryption Algorithm”应为 **DES**，“Data Integrity”应为 **SHA1**，“Allowed Peer Gateway”应为外部路由器网关（称为“cisco_endpoint”）。 Click


IKE Properties

General

Transform:

● Encryption + Data Integrity (ESP)

○ Data Integrity Only (AH)

Encryption Algorithm: DES

Data Integrity: SHA1

Allowed Peer Gateway: cisco_endp

☐ Use Perfect Forward Secrecy

OK.

18. 配置 Checkpoint 之后，在 Checkpoint 菜单上选择 **Policy > Install，使所做的更改生效。**

验证

本部分所提供的信息可用于确认您的配置是否正常工作。

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 - 查看对等体上的所有当前 IKE 安全关联 (SA)。**
- **show crypto ipsec sa - 查看当前 SA 使用的设置。**

故障排除

本部分提供的信息可用于对配置进行故障排除。

故障排除命令

注意：在使用debug命令之前，请参阅有关Debug命令**的**重要信息。

- **debug crypto engine - 显示有关执行加密和解密的加密引擎的 debug 消息。**
- **debug crypto isakmp — 显示关于 IKE 事件的消息。**
- **debug crypto ipsec — 显示 IPSec 事件。**
- **clear crypto isakmp - 清除所有活动的 IKE 连接。**
- **clear crypto sa - 清除所有 IPSec SA。**

网络汇总

当多个相邻网络内部在检查点的时加密域配置，设备也许自动地总结他们关于关注数据流的情况。如果路由器未配置为匹配，则隧道可能会出现故障。例如，如果 10.0.0.0/24 和 10.0.1.0/24 的内部网络已配置为包含在隧道中，则它们可能将汇总到 10.0.0.0/23。

检查点

由于已在“Policy Editor”窗口中将“Tracking”设置为“Long”，因此拒绝的流量应 Log Viewer 中显示为红色。可通过以下命令获取更详细的调试：

```
C:\WINNT\FW1\4.1\fwstop
C:\WINNT\FW1\4.1\fw d -d
```

并且在另一个窗口：

```
C:\WINNT\FW1\4.1\fwstart
```

注意：这是Microsoft Windows NT安装。

发出以下命令以清除 Checkpoint 上的 SA：

```
fw tab -t IKE_SA_table -x
fw tab -t ISAKMP_ESP_table -x
fw tab -t inbound_SPI -x
fw tab -t ISAKMP_AH_table -x
```

在出现“Are you sure?”提示时，回答 **yes**提示。

调试输出示例

```
Configuration register is 0x2102

cisco_endpoint#debug crypto isakmp
Crypto ISAKMP debugging is on
cisco_endpoint#debug crypto isakmp
Crypto IPSEC debugging is on
cisco_endpoint#debug crypto engine
Crypto Engine debugging is on
cisco_endpoint#
20:54:06: IPSEC(sa_request): ,
  (key eng. msg.) src= 172.18.124.35, dest= 172.18.124.157,
    src_proxy= 192.168.1.0/255.255.255.0/0/0 (type=4),
    dest_proxy= 10.32.50.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-des esp-sha-hmac ,
    lifedur= 3600s and 4608000kb,
    spi= 0xA29984CA(2727969994), conn_id= 0, keysize= 0, flags= 0x4004
20:54:06: ISAKMP: received ke message (1/1)
20:54:06: ISAKMP: local port 500, remote port 500
20:54:06: ISAKMP (0:1): beginning Main Mode exchange
20:54:06: ISAKMP (0:1): sending packet to 172.18.124.157 (I) MM_NO_STATE
20:54:06: ISAKMP (0:1): received packet from 172.18.124.157 (I) MM_NO_STATE
20:54:06: ISAKMP (0:1): processing SA payload. message ID = 0
20:54:06: ISAKMP (0:1): found peer pre-shared key matching 172.18.124.157
20:54:06: ISAKMP (0:1): Checking ISAKMP transform 1 against priority 1 policy
20:54:06: ISAKMP:      encryption DES-CBC
```

```
20:54:06: ISAKMP:      hash SHA
20:54:06: ISAKMP:      default group 1
20:54:06: ISAKMP:      auth pre-share
20:54:06: ISAKMP (0:1): atts are acceptable. Next payload is 0
20:54:06: CryptoEngine0: generate alg parameter
20:54:06: CRYPTO_ENGINE: Dh phase 1 status: 0
20:54:06: CRYPTO_ENGINE: Dh phase 1 status: 0
20:54:06: ISAKMP (0:1): SA is doing pre-shared key authentication
   using id type ID_IPV4_ADDR
20:54:06: ISAKMP (0:1): sending packet to 172.18.124.157 (I) MM_SA_SETUP
20:54:06: ISAKMP (0:1): received packet from 172.18.124.157 (I) MM_SA_SETUP
20:54:06: ISAKMP (0:1): processing KE payload. message ID = 0
20:54:06: CryptoEngine0: generate alg parameter
20:54:06: ISAKMP (0:1): processing NONCE payload. message ID = 0
20:54:06: ISAKMP (0:1): found peer pre-shared key matching 172.18.124.157
20:54:06: CryptoEngine0: create ISAKMP SKEYID for conn id 1
20:54:06: ISAKMP (0:1): SKEYID state generated
20:54:06: ISAKMP (1): ID payload
        next-payload : 8
        type         : 1
        protocol     : 17
        port         : 500
        length       : 8
20:54:06: ISAKMP (1): Total payload length: 12
20:54:06: CryptoEngine0: generate hmac context for conn id 1
20:54:06: ISAKMP (0:1): sending packet to 172.18.124.157 (I) MM_KEY_EXCH
20:54:06: ISAKMP (0:1): received packet from 172.18.124.157 (I) MM_KEY_EXCH
20:54:06: ISAKMP (0:1): processing ID payload. message ID = 0
20:54:06: ISAKMP (0:1): processing HASH payload. message ID = 0
20:54:06: CryptoEngine0: generate hmac context for conn id 1
20:54:06: ISAKMP (0:1): SA has been authenticated with 172.18.124.157
20:54:06: ISAKMP (0:1): beginning Quick Mode exchange, M-ID of 1855173267
20:54:06: CryptoEngine0: generate hmac context for conn id 1
20:54:06: ISAKMP (0:1): sending packet to 172.18.124.157 (I) QM_IDLE
20:54:06: CryptoEngine0: clear dh number for conn id 1
20:54:06: ISAKMP (0:1): received packet from 172.18.124.157 (I) QM_IDLE
20:54:06: CryptoEngine0: generate hmac context for conn id 1
20:54:06: ISAKMP (0:1): processing HASH payload. message ID = 1855173267
20:54:06: ISAKMP (0:1): processing SA payload. message ID = 1855173267
20:54:06: ISAKMP (0:1): Checking IPSec proposal 1
20:54:06: ISAKMP: transform 1, ESP_DES
20:54:06: ISAKMP:   attributes in transform:
20:54:06: ISAKMP:      encaps is 1
20:54:06: ISAKMP:      SA life type in seconds
20:54:06: ISAKMP:      SA life duration (basic) of 3600
20:54:06: ISAKMP:      SA life type in kilobytes
20:54:06: ISAKMP:      SA life duration (VPI) of  0x0 0x46 0x50 0x0
20:54:06: ISAKMP:      authenticator is HMAC-SHA
20:54:06: validate proposal 0
20:54:06: ISAKMP (0:1): atts are acceptable.
20:54:06: IPSEC(validate_proposal_request): proposal part #1,
  (key eng. msg.) dest= 172.18.124.157, src= 172.18.124.35,
    dest_proxy= 10.32.50.0/255.255.255.0/0/0 (type=4),
    src_proxy= 192.168.1.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-des esp-sha-hmac ,
    lifedur= 0s and 0kb,
    spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x4
20:54:06: validate proposal request 0
20:54:06: ISAKMP (0:1): processing NONCE payload. message ID = 1855173267
20:54:06: ISAKMP (0:1): processing ID payload. message ID = 1855173267
20:54:06: ISAKMP (0:1): processing ID payload. message ID = 1855173267
20:54:06: CryptoEngine0: generate hmac context for conn id 1
20:54:06: ipsec allocate flow 0
20:54:06: ipsec allocate flow 0
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20:54:06: ISAKMP (0:1): Creating IPSec SAs
20:54:06:         inbound SA from 172.18.124.157 to 172.18.124.35
        (proxy 10.32.50.0 to 192.168.1.0)
20:54:06:         has spi 0xA29984CA and conn_id 2000 and flags 4
20:54:06:         lifetime of 3600 seconds
20:54:06:         lifetime of 4608000 kilobytes
20:54:06:         outbound SA from 172.18.124.35   to 172.18.124.157
   (proxy 192.168.1.0 to 10.32.50.0)
20:54:06:         has spi 404516441 and conn_id 2001 and flags 4
20:54:06:         lifetime of 3600 seconds
20:54:06:         lifetime of 4608000 kilobytes
20:54:06: ISAKMP (0:1): sending packet to 172.18.124.157 (I) QM_IDLE
20:54:06: ISAKMP (0:1): deleting node 1855173267 error FALSE reason ""
20:54:06: IPSEC(key_engine): got a queue event...
20:54:06: IPSEC(initialize_sas): ,
  (key eng. msg.) dest= 172.18.124.35, src= 172.18.124.157,
    dest_proxy= 192.168.1.0/255.255.255.0/0/0 (type=4),
    src_proxy= 10.32.50.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-des esp-sha-hmac ,
    lifedur= 3600s and 4608000kb,
    spi= 0xA29984CA(2727969994), conn_id= 2000, keysize= 0, flags= 0x4
20:54:06: IPSEC(initialize_sas): ,
  (key eng. msg.) src= 172.18.124.35, dest= 172.18.124.157,
    src_proxy= 192.168.1.0/255.255.255.0/0/0 (type=4),
    dest_proxy= 10.32.50.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-des esp-sha-hmac ,
    lifedur= 3600s and 4608000kb,
    spi= 0x181C6E59(404516441), conn_id= 2001, keysize= 0, flags= 0x4
20:54:06: IPSEC(create_sa): sa created,
  (sa) sa_dest= 172.18.124.35, sa_prot= 50,
    sa_spi= 0xA29984CA(2727969994),
    sa_trans= esp-des esp-sha-hmac , sa_conn_id= 2000
20:54:06: IPSEC(create_sa): sa created,
  (sa) sa_dest= 172.18.124.157, sa_prot= 50,
    sa_spi= 0x181C6E59(404516441),
    sa_trans= esp-des esp-sha-hmac , sa_conn_id= 2001
cisco_endpoint#sho cry ips sa

interface: Ethernet0/0
    Crypto map tag: rtp, local addr. 172.18.124.35

   local  ident (addr/mask/prot/port): (192.168.1.0/255.255.255.0/0/0)
   remote ident (addr/mask/prot/port): (10.32.50.0/255.255.255.0/0/0)
   current_peer: 172.18.124.157
     PERMIT, flags={origin_is_acl,}
    #pkts encaps: 14, #pkts encrypt: 14, #pkts digest 14
    #pkts decaps: 14, #pkts decrypt: 14, #pkts verify 14
    #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.: 172.18.124.35, remote crypto endpt.: 172.18.124.157
     path mtu 1500, media mtu 1500
     current outbound spi: 181C6E59

     inbound esp sas:
      spi: 0xA29984CA(2727969994)
        transform: esp-des esp-sha-hmac ,
        in use settings ={Tunnel, }
        slot: 0, conn id: 2000, flow_id: 1, crypto map: rtp
 --More--                 sa timing: remaining key lifetime (k/sec):
    (4607998/3447)
        IV size: 8 bytes
        replay detection support: Y
     inbound ah sas:

     inbound pcp sas:

     outbound esp sas:
      spi: 0x181C6E59(404516441)
        transform: esp-des esp-sha-hmac ,
        in use settings ={Tunnel, }
        slot: 0, conn id: 2001, flow_id: 2, crypto map: rtp
        sa timing: remaining key lifetime (k/sec): (4607997/3447)
        IV size: 8 bytes
        replay detection support: Y

     outbound ah sas:

     outbound pcp sas:


cisco_endpoint#show crypto isakmp sa
    dst              src            state         conn-id    slot
172.18.124.157 172.18.124.35   QM_IDLE             1        0

cisco_endpoint#exit
```

相关信息

- IPsec 协商/IKE 协议
- 配置 IPSec 网络安全
- 配置 Internet 密钥交换安全协议
- 技术支持和文档 - Cisco Systems