入站主机转换的PIX防火墙在连接到L2L IPSec隧道的远程网络的配置示例

目录

简介

本文描述用于的步骤翻译来LAN到LAN IPSec隧道在两Cisco Secure PIX防火墙之间主机的来源IP。每个PIX防火墙有在它后的一个私有受保护的网络。当您翻译子网而不是单个主机，此原理也应用。

注意： 请使用这些步骤为了配置在PIX/ASA 7.x的同一个方案：

- 为了配置PIX/ASA的7.x一个站点到站点VPN通道，参考PIX/ASA 7.x ：简单的PIX间的VPN隧道配置示例。
- 用于入站通信的**static命令**为6.x和7.x是类似的正如此所描述文档。
- 用于本文的**显示**、**结算**和调试指令是类似的在PIX 6.x和7.x。

先决条件

要求

保证您配置PIX防火墙用在接口的IP地址并且有基本连通性，在您继续进行此配置示例前。

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 506E防火墙
- Cisco Secure PIX防火墙软件版本6.3(3)

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。

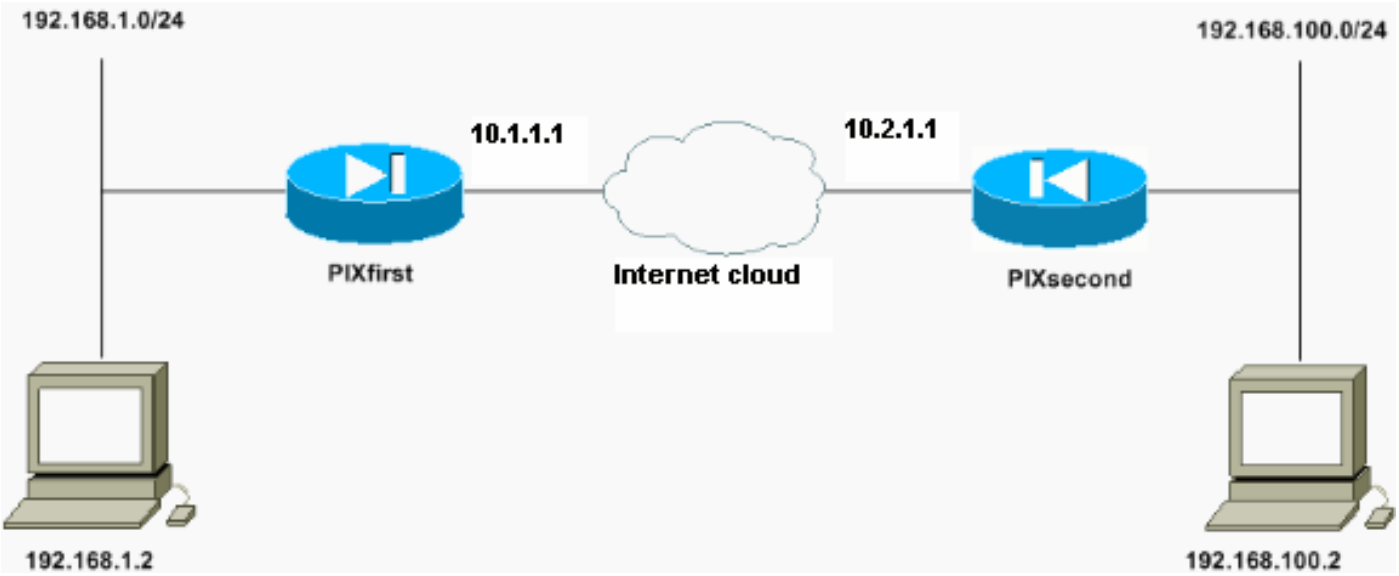
配置

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（仅限注册用户）可获取有关本部分所使用命令的详细信息。

网络图

本文档使用以下网络设置：



主机用192.168.100.2的IP地址翻译对在PIX防火墙的192.168.50.2与PIXfirst主机名。此转换是透明对主机和其目的地。

注意： 默认情况下，除非该应用程序的一修正启用，任何嵌入式IP地址没有翻译。嵌入式IP地址是应用程序在IP数据包内的数据负载部分包括的一个。网络地址转换(NAT)修改IP数据包的仅外面IP报头。它不修改内IP可以由某些应用程序嵌入原始信息包的数据负载在。这有时导致那些应用程序不正常运行。

配置

本文档使用以下配置：

- PIXfirst配置

- PIXsecond配置

PIXfirst配置

```
PIXfirst(config)#write terminal Building
configuration... : Saved : PIX Version 6.3(3) interface
ethernet0 auto interface ethernet1 auto nameif ethernet0
outside security0 nameif ethernet1 inside security100
enable password 2KFQnbNIdI.2KYOU encrypted passwd
2KFQnbNIdI.2KYOU encrypted hostname PIXfirst 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 !--- Define encryption domain
(interesting traffic) !--- for the IPsec tunnel. access-
list 110 permit ip host 192.168.1.2 host 192.168.100.2
!--- Accept the private network traffic from the NAT
process. access-list 120 permit ip host 192.168.1.2 host
192.168.50.2 pager lines 24 mtu outside 1500 mtu inside
1500 ip address outside 10.1.1.1 255.255.255.0 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 !--- Bypass translation for
traffic that goes over the IPsec tunnel. nat (inside) 0
access-list 120 !--- Inbound translation for the host
located on the remote network. static (outside,inside)
192.168.50.2 192.168.100.2 netmask 255.255.255.255 0 0
route outside 0.0.0.0 0.0.0.0 10.1.1.2 1 timeout xlate
3:00:00 timeout conn 1:00:00 half-closed 0:10:00 udp
0:02:00 rpc 0:10:00 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 no snmp-server location no snmp-server
contact snmp-server community public no snmp-server
enable traps floodguard enable !--- Accept traffic that
comes over the IPsec tunnel from !--- Adaptive Security
Algorithm (ASA) rules and !--- access control lists
(ACLs) configured on the outside interface. sysopt
connection permit-ipsec !--- Create the Phase 2 policy
for actual data encryption. crypto ipsec transform-set
chevelle esp-des esp-md5-hmac crypto map transam 1
ipsec-isakmp crypto map transam 1 match address 110
crypto map transam 1 set peer 10.2.1.1 crypto map
transam 1 set transform-set chevelle crypto map transam
interface outside isakmp enable outside !--- Pre-shared
key for the IPsec peer. isakmp key ******** address
10.2.1.1 netmask 255.255.255.255 !--- Create the Phase 1
policy. isakmp identity address isakmp policy 1
authentication pre-share isakmp policy 1 encryption des
isakmp policy 1 hash md5 isakmp policy 1 group 1 isakmp
policy 1 lifetime 1000 telnet timeout 5 ssh timeout 5
console timeout 0 terminal width 80
Cryptochecksum:778f934d42c037a978b8b5236a93b5f4 : end
[OK] PIXfirst(config)#
```

PIXsecond配置

```
PIXsecond(config)#write terminal Building
configuration... : Saved : PIX Version 6.3(3) interface
ethernet0 auto interface ethernet1 auto nameif ethernet0
outside security0 nameif ethernet1 inside security100
```

```
enable password 2KFQnbNIdI.2KYOU encrypted passwd
2KFQnbNIdI.2KYOU encrypted hostname PIXsecond 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 !--- Accept the private network
traffic from the NAT process. access-list nonat permit
ip host 192.168.100.2 host 192.168.1.2 !--- Define
encryption domain (interesting traffic) for the IPsec
tunnel. access-list 110 permit ip host 192.168.100.2
host 192.168.1.2 pager lines 24 mtu outside 1500 mtu
inside 1500 ip address outside 10.2.1.1 255.255.255.0 ip
address inside 192.168.100.1 255.255.255.0 ip audit info
action alarm ip audit attack action alarm pdm history
enable arp timeout 14400 !--- Bypass translation for
traffic that goes over the IPsec tunnel. nat (inside) 0
access-list nonat route outside 0.0.0.0 0.0.0.0 10.2.1.2
1 timeout xlate 3:00:00 timeout conn 1:00:00 half-closed
0:10:00 udp 0:02:00 rpc 0:10:00 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 no snmp-server location no
snmp-server contact snmp-server community public no
snmp-server enable traps floodguard enable !--- Accept
traffic that comes over the IPsec tunnel from ASA rules
and !--- ACLs configured on the outside interface.
sysopt connection permit-ipsec !--- Create the Phase 2
policy for actual data encryption. crypto ipsec
transform-set chevelle esp-des esp-md5-hmac crypto map
transam 1 ipsec-isakmp crypto map transam 1 match
address 110 crypto map transam 1 set peer 10.1.1.1
crypto map transam 1 set transform-set chevelle crypto
map transam interface outside isakmp enable outside !---
Pre-shared key for the IPsec peer. isakmp key ********
address 10.1.1.1 netmask 255.255.255.255 !--- Create the
Phase 1 policy. isakmp identity address isakmp policy 1
authentication pre-share isakmp policy 1 encryption des
isakmp policy 1 hash md5 isakmp policy 1 group 1 isakmp
policy 1 lifetime 1000 telnet timeout 5 ssh timeout 5
console timeout 0 terminal width 80
Cryptochecksum:a686f71a023d1cd7078728a38acf529e : end
[OK] PIXsecond(config)#
```

如果创建超过指定接口的一加密映射项，您需要使用每个条目序号分级它。更低序号，越高优先级。在有加密映射集的接口，安全工具首先评估流量更加高优先级的地图条目。

请创建指定接口的多加密映射项，如果或者不同的对等体处理不同的数据流或，如果要应用另外IPSec安全到不同类型的流量(对同样或分离对等体)。另一套的例如，如果希望一套的流量子网之间验证和流量子网之间验证和加密。在这种情况下，请定义在两不同访问列表的不同类型的流量，并且创建每crypto访问列表的一分开的加密映射项。

清除安全关联 (SA)

在PIX的特权模式，请使用这些命令：

- **clear [crypto] ipsec sa** - 删除活动 IPsec SA。关键字 **crypto** 是可选的。
- **clear [crypto] isakmp sa** - 删除活动 IKE SA。关键字 **crypto** 是可选的。

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** —显示阶段1安全关联(SA)。
- **show crypto ipsec sa** —显示第2阶段SAS。
- **ping** - 诊断基本网络连接。从一个PIX的一ping到其他验证两PIXes之间的连接。ping可能从主机也运行在对主机的PIXsecond后在PIXfirst后调用IPSec隧道。
- **show local-host <ip_address>** —显示有其指定的IP地址的本地主机的转换和连接slot。
- **show xlate详细信息**—显示转换插槽的内容。这用于验证主机翻译。

验证PIXfirst

这是输出**ping命令**。

```
PIXfirst(config)#ping 10.2.1.1 !--- PIX pings the outside interface of the peer. !--- This implies that connectivity between peers is available. 10.2.1.1 response received -- 0ms 10.2.1.1 response received -- 0ms 10.2.1.1 response received -- 0ms PIXfirst(config)#
```

这是输出**show crypto isakmp sa命令**。

```
PIXfirst(config)#show crypto isakmp sa Total : 1 Embryonic : 0 !--- Phase 1 SA is authenticated and established. dst src state pending created 10.1.1.1 10.2.1.1 QM_IDLE 0 1
```

以下是 **show crypto ipsec sa** 命令的输出。

```
!--- Shows Phase 2 SAs. PIXfirst(config)#show crypto ipsec sa interface: outside Crypto map tag: transam, local addr. 10.1.1.1 !--- Shows addresses of hosts that !--- communicate over this tunnel. local ident (addr/mask/prot/port): (192.168.1.2/255.255.255.255/0/0) remote ident (addr/mask/prot/port): (192.168.100.2/255.255.255.255/0/0) current_peer: 10.2.1.1:500 PERMIT, flags={origin_is_acl,} !--- Shows if traffic passes over the tunnel or not. !--- Encapsulated packets translate to packets that are sent. !--- Decapsulated packets translate to packets that are received. #pkts encaps: 21, #pkts encrypt: 21, #pkts digest 21 #pkts decaps: 21, #pkts decrypt: 21, #pkts verify 21 #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.: 10.1.1.1, remote crypto endpt.: 10.2.1.1 path mtu 1500, ipsec overhead 56, media mtu 1500 current outbound spi: 6ef53756 !--- If an inbound Encapsulating Security Payload (ESP) !--- SA and outbound ESP SA exists with a !--- security parameter index (SPI) !--- number, it implies that the Phase 2 SAs !--- are established successfully. inbound esp sas: spi: 0x1cf45b9f(485776287) transform: esp-des esp-md5-hmac , in use settings ={Tunnel, } slot: 0, conn id: 2, crypto map: transam sa timing: remaining key lifetime (k/sec): (4607998/28756) IV size: 8 bytes replay detection support: Y inbound ah sas: inbound pcp sas: outbound esp sas: spi: 0x6ef53756(1861564246) transform: esp-des esp-md5-hmac , in use settings ={Tunnel, } slot: 0, conn id: 1, crypto map: transam sa timing: remaining key lifetime (k/sec): (4607998/28756) IV size: 8 bytes replay detection support: Y outbound ah sas: outbound pcp sas:
```

这是输出**show local-host命令**。

```
!--- Shows translation for the host on a remote network. PIXfirst(config)#show local-host 192.168.100.2 Interface outside: 1 active, 1 maximum active, 0 denied local host:
```

```
<192.168.100.2>, TCP connection count/limit = 0/unlimited TCP embryonic count = 0 TCP intercept
watermark = unlimited UDP connection count/limit = 0/unlimited AAA: Xlate(s): Global
192.168.50.2 Local 192.168.100.2 Conn(s):
```

这是输出**show xlate detail命令**。

```
!--- Shows translation for the host on a remote network. PIXfirst(config)#show xlate detail 1 in
use, 1 most used Flags: D - DNS, d - dump, I - identity, i - inside, n - no random, o - outside,
r - portmap, s - static NAT from outside:192.168.100.2 to inside:192.168.50.2 flags s
PIXfirst(config)#
```

验证PIXsecond

这是输出**ping命令**。

```
PIXsecond(config)#ping 10.1.1.1 !--- PIX can ping the outside interface of the peer. !--- This
implies that connectivity between peers is available. 10.1.1.1 response received -- 0ms 10.1.1.1
response received -- 0ms 10.1.1.1 response received -- 0ms PIXsecond(config)#
```

这是输出**show crypto isakmp sa命令**。

```
PIXsecond(config)#show crypto isakmp sa Total : 1 Embryonic : 0 !--- Phase 1 SA is authenticated
and established. dst src state pending created 10.1.1.1 10.2.1.1 QM_IDLE 0 1
```

以下是 **show crypto ipsec sa** 命令的输出。

```
!--- Shows Phase 2 SAs. PIXsecond(config)#show crypto ipsec sa interface: outside Crypto map
tag: transam, local addr. 10.2.1.1 !--- Shows addresses of hosts that communicate !--- over this
tunnel. local ident (addr/mask/prot/port): (192.168.100.2/255.255.255.255/0/0) remote ident
(addr/mask/prot/port): (192.168.1.2/255.255.255.255/0/0) current_peer: 10.1.1.1:500 PERMIT,
flags={origin_is_acl,} !--- Shows if traffic passes over the tunnel or not. !--- Encapsulated
packets translate to packets that are sent. !--- Decapsulated packets translate to packets that
are received. #pkts encaps: 21, #pkts encrypt: 21, #pkts digest 21 #pkts decaps: 21, #pkts
decrypt: 21, #pkts verify 21 #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.: 10.2.1.1, remote crypto endpt.: 10.1.1.1 path mtu 1500, ipsec overhead 56, media mtu
1500 current outbound spi: 1cf45b9f !--- If an inbound ESP SA and outbound ESP SA exists with an
SPI !--- number, it implies that the Phase 2 SAs are established successfully. inbound esp sas:
spi: 0x6ef53756(1861564246) transform: esp-des esp-md5-hmac , in use settings ={Tunnel, } slot:
0, conn id: 2, crypto map: transam sa timing: remaining key lifetime (k/sec): (4607990/28646) IV
size: 8 bytes replay detection support: Y inbound ah sas: inbound pcp sas: outbound esp sas:
spi: 0x1cf45b9f(485776287) transform: esp-des esp-md5-hmac , in use settings ={Tunnel, } slot:
0, conn id: 1, crypto map: transam sa timing: remaining key lifetime (k/sec): (4607993/28645) IV
size: 8 bytes replay detection support: Y outbound ah sas: outbound pcp sas: PIXsecond(config)#
```

故障排除

此部分提供信息故障排除您的配置。

故障排除命令

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。

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

- **debug crypto ipsec** - 显示有关 IPsec 事件的信息。
- **debug crypto isakmp** — 显示有关 Internet 密钥交换 (IKE) 事件的消息。

- **调试数据包if_name [src source_ip [netmask mask]] [dst dest_ip [netmask mask]] [[proto icmp]|[proto tcp [sport src_port] [dport dest_port]]|[proto udp [sport src_port] [dport dest_port]] [rx|tx|两个]** —显示押指定的接口的数据包。当您确定在PIXfirst时，内部接口的流量类型此命令是有用的。此命令也用于验证打算的转换发生。
- **logging buffered成水平**—传送系统消息到用**show logging命令**查看的内部缓冲器。请使用**clear logging命令**清楚信息缓冲器。新的消息添附对缓冲区的末端。此命令用于查看被建立的转换。必须启用对缓冲区的记录日志在，当要求。请勿启用记录缓冲的没有**操作日志缓冲区级别**并且/或者**注册**。
- **debug icmp trace** —显示互联网控制消息协议(ICMP)数据包信息、源IP地址和请到达，离去从，并且横断PIX防火墙数据包的目的地址。这包括ping对PIX防火墙单元的自己的接口。请勿请使用**debug icmp trace**关闭**debug icmp trace**。

这是**debug crypto isakmp**和**debug crypto ipsec**命令的输出。

```
PIXfirst(config)#debug crypto isakmp PIXfirst(config)#debug crypto ipsec PIXfirst(config)#debug
crypto engine PIXfirst(config)#show debug debug crypto ipsec 1 debug crypto isakmp 1 debug
crypto engine PIXfirst(config)# PIXfirst(config)# crypto_isakmp_process_block:src:10.2.1.1,
dest:10.1.1.1 spt:500 dpt:500 OAK_QM exchange oakley_process_quick_mode: OAK_QM_IDLE ISAKMP (0):
processing SA payload. message ID = 137660894 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 !--- Phase 1
policy accepted. ISAKMP (0): atts are acceptable. IPSEC(validate_proposal_request): proposal
part #1, (key eng. msg.) dest= 10.1.1.1, src= 10.2.1.1, !--- Encryption domain (interesting
traffic) that invokes the tunnel. dest_proxy= 192.168.1.2/255.255.255.255/0/0 (type=1),
src_proxy= 192.168.100.2/255.255.255.255/0/0 (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 = 137660894 ISAKMP (0): processing ID payload. message ID =
137660894 ISAKMP (0): ID_IPV4_ADDR src 192.168.100.2 prot 0 port 0 ISAKMP (0): processing ID
payload. message ID = 137660894 ISAKMP (0): ID_IPV4_ADDR dst 192.168.1.2 prot 0 port
0IPSEC(key_engine): got a queue event... IPSEC(spi_response): getting spi 0x15ee92d9(367956697)
for SA from 10.2.1.1 to 10.1.1.1 for prot 3 return status is IKMP_NO_ERROR
crypto_isakmp_process_block:src:10.2.1.1, dest:10.1.1.1 spt:500 dpt:500 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 10.2.1.1 to 10.1.1.1 (proxy
192.168.100.2 to 192.168.1.2) has spi 367956697 and conn_id 2 and flags 4 lifetime of 28800
seconds lifetime of 4608000 kilobytes outbound SA from 10.1.1.1 to 10.2.1.1 (proxy 192.168.1.2
to 192.168.100.2) has spi 1056204195 and conn_id 1 and flags 4 lifetime of 28800 seconds
lifetime of 4608000 kilobytesIPSEC(key_engine): got a queue event... IPSEC(initialize_sas): ,
(key eng. msg.) dest= 10.1.1.1, src= 10.2.1.1, dest_proxy= 192.168.1.2/0.0.0.0/0/0 (type=1),
src_proxy= 192.168.100.2/0.0.0.0/0/0 (type=1), protocol= ESP, transform= esp-des esp-md5-hmac ,
lifedur= 28800s and 4608000kb, spi= 0x15ee92d9(367956697), conn_id= 2, keysize= 0, flags= 0x4
IPSEC(initialize_sas): , (key eng. msg.) src= 10.1.1.1, dest= 10.2.1.1, src_proxy=
192.168.1.2/0.0.0.0/0/0 (type=1), dest_proxy= 192.168.100.2/0.0.0.0/0/0 (type=1), protocol= ESP,
transform= esp-des esp-md5-hmac , lifedur= 28800s and 4608000kb, spi= 0x3ef465a3(1056204195),
conn_id= 1, keysize= 0, flags= 0x4 VPN Peer: IPSEC: Peer ip:10.2.1.1/500 Ref cnt incremented
to:2 Total VPN Peers:1 VPN Peer: IPSEC: Peer ip:10.2.1.1/500 Ref cnt incremented to:3 Total VPN
Peers:1 return status is IKMP_NO_ERROR PIXfirst(config)#
```

这是输出**debug packet inside src命令**。

```
!--- Shows that the remote host packet is translated. PIXfirst(config)#debug packet inside src
192.168.50.2 dst 192.168.1.2 PIXfirst(config)# show debug debug packet inside src 192.168.50.2
dst 192.168.1.2 both --------- PACKET --------- -- IP -- !--- Source IP is translated to
192.168.50.2. 192.168.50.2 ==> 192.168.1.2 ver = 0x4 hlen = 0x5 tos = 0x0 tlen = 0x3c id = 0x82
flags = 0x0 frag off=0x0 ttl = 0x80 proto=0x1 chksum = 0x85ea !--- ICMP echo packet, as
expected. -- ICMP -- type = 0x8 code = 0x0 checksum=0x425c identifier = 0x200 seq = 0x900 --
DATA -- 0000001c: 61 62 63 64 65 66 67 68 69 6a 6b 6c 6d 6e 6f 70 | abcdefghijklmnop 0000002c:
71 72 73 74 75 76 77 61 62 63 64 65 66 67 68 69 | qrstuvwabcdefghi 0000003c: 01 | . ---------
END OF PACKET --------- --------- PACKET --------- -- IP -- 192.168.50.2 ==> 192.168.1.2 ver =
```

```
0x4 hlen = 0x5 tos = 0x0 tlen = 0x3c id = 0x83 flags = 0x0 frag off=0x0 ttl = 0x80 proto=0x1
chksum = 0x85e9 -- ICMP -- type = 0x8 code = 0x0 checksum=0x415c identifier = 0x200 seq = 0xa00
-- DATA -- 0000001c: 61 62 63 64 65 66 67 68 69 6a 6b 6c 6d 6e 6f 70 | abcdefghijklmnop
0000002c: 71 72 73 74 75 76 77 61 62 63 64 65 66 67 68 69 | qrstuvwabcdefghi 0000003c: 01 | . --
------- END OF PACKET --------- --------- PACKET --------- -- IP -- 192.168.50.2 ==> 192.168.1.2
ver = 0x4 hlen = 0x5 tos = 0x0 tlen = 0x3c id = 0x84 flags = 0x0 frag off=0x0 ttl = 0x80
proto=0x1 chksum = 0x85e8 -- ICMP -- type = 0x8 code = 0x0 checksum=0x405c identifier = 0x200
seq = 0xb00 -- DATA -- 0000001c: 61 62 63 64 65 66 67 68 69 6a 6b 6c 6d 6e 6f 70 |
abcdefghijklmnop 0000002c: 71 72 73 74 75 76 77 61 62 63 64 65 66 67 68 69 | qrstuvwabcdefghi
0000003c: 01 | . --------- END OF PACKET --------- --------- PACKET --------- -- IP --
192.168.50.2 ==> 192.168.1.2 ver = 0x4 hlen = 0x5 tos = 0x0 tlen = 0x3c id = 0x85 flags = 0x0
frag off=0x0 ttl = 0x80 proto=0x1 chksum = 0x85e7 -- ICMP -- type = 0x8 code = 0x0
checksum=0x3f5c identifier = 0x200 seq = 0xc00 -- DATA -- 0000001c: 61 62 63 64 65 66 67 68 69
6a 6b 6c 6d 6e 6f 70 | abcdefghijklmnop 0000002c: 71 72 73 74 75 76 77 61 62 63 64 65 66 67 68
69 | qrstuvwabcdefghi 0000003c: 01 | . --------- END OF PACKET --------- PIXfirst(config)#
```

这是输出logging buffer命令。

```
!--- Logs show translation is built. PIXfirst(config)#logging buffer 7 PIXfirst(config)#logging
on PIXfirst(config)#show logging Syslog logging: enabled Facility: 20 Timestamp logging:
disabled Standby logging: disabled Console logging: disabled Monitor logging: disabled Buffer
logging: level debugging, 53 messages logged Trap logging: disabled History logging: disabled
Device ID: disabled 111009: User 'enable_15' executed cmd: show logging 602301: sa created, (sa)
sa_dest= 10.1.1.1, sa_prot= 50, sa_spi= 0xb1274c19(2972142617), sa_trans= esp-des esp-md5-hmac ,
sa_conn_id= 2 602301: sa created, (sa) sa_dest= 10.2.1.1, sa_prot= 50, sa_spi=
0x892de1df(2301485535), sa_trans= esp-des esp-md5-hmac , sa_conn_id= 1 !--- Translation is
built. 609001: Built local-host outside:192.168.100.2 305009: Built static translation from
outside:192.168.100.2 to inside:192.168.50.2 PIXfirst(config)#
```

这是输出debug icmp trace命令。

```
!--- Shows ICMP echo and echo-reply with translations !--- that take place.
PIXfirst(config)#debug icmp trace ICMP trace on Warning: this may cause problems on busy
networks PIXfirst(config)# 5: ICMP echo-request from outside:192.168.100.2 to 192.168.1.2
ID=1024 seq=1280 length=40 6: ICMP echo-request: translating outside:192.168.100.2 to
inside:192.168.50.2 7: ICMP echo-reply from inside:192.168.1.2 to 192.168.50.2 ID=1024 seq=1280
length=40 8: ICMP echo-reply: untranslating inside:192.168.50.2 to outside:192.168.100.2 9: ICMP
echo-request from outside:192.168.100.2 to 192.168.1.2 ID=1024 seq=1536 length=40 10: ICMP echo-
request: translating outside:192.168.100.2 to inside:192.168.50.2 11: ICMP echo-reply from
inside:192.168.1.2 to 192.168.50.2 ID=1024 seq=1536 length=40 12: ICMP echo-reply: untranslating
inside:192.168.50.2 to outside:192.168.100.2 13: ICMP echo-request from outside:192.168.100.2 to
192.168.1.2 ID=1024 seq=1792 length=40 14: ICMP echo-request: translating outside:192.168.100.2
to inside:192.168.50.2 15: ICMP echo-reply from inside:192.168.1.2 to 192.168.50.2 ID=1024
seq=1792 length=40 16: ICMP echo-reply: untranslating inside:192.168.50.2 to
outside:192.168.100.2 17: ICMP echo-request from outside:192.168.100.2 to 192.168.1.2 ID=1024
seq=2048 length=40 18: ICMP echo-request: translating outside:192.168.100.2 to
inside:192.168.50.2 19: ICMP echo-reply from inside:192.168.1.2 to 192.168.50.2 ID=1024 seq=2048
length=40 20: ICMP echo-reply: untranslating inside:192.168.50.2 to outside:192.168.100.2
PIXfirst(config)#
```

相关信息

- PIX 500 系列安全设备支持页
- PIX 命令参考
- 请求注解 (RFC)
- IPsec 协商/IKE 协议支持页
- 技术支持和文档 - Cisco Systems