ASA/PIX 7.x und höher: LAN-zu-LAN- und EasyVPN-IPsec-Tunnel enden an demselben Schnittstellenkonfigurationsbeispiel

Inhalt

Einführung

Dieses Dokument enthält eine Beispielkonfiguration, wie die HUB ASA die Annahme des Site-to-Site-Tunnels und der Easy VPN-IPsec-Verbindungen über dieselbe Schnittstelle ermöglichen kann. Die IPsec zwischen einer Cisco ASA 5520 und der Cisco Adaptive Security Appliance (ASA) 5505 verwendet Easy VPN mit Network Extension Mode (NEM).

Voraussetzungen

Anforderungen

Für dieses Dokument bestehen keine speziellen Anforderungen.

Verwendete Komponenten

Die Informationen in diesem Dokument basieren auf den folgenden Software- und Hardwareversionen:

- ASA 5500-Serie mit Version 7.x und höher (Hub)**Hinweis:** Die HUB-ASA-Konfiguration kann auch mit der PIX Security Appliance 515, 515E, 525 und 535 verwendet werden, die Version 7.x und höher ausführt.
- Easy VPN ASA 5505 mit Version 7.x und höher

- PIX Security Appliance 515, 515E, 525 und 535 mit Version 7.x und höher

Die Informationen in diesem Dokument wurden von den Geräten in einer bestimmten Laborumgebung erstellt. Alle in diesem Dokument verwendeten Geräte haben mit einer leeren (Standard-)Konfiguration begonnen. Wenn Ihr Netzwerk in Betrieb ist, stellen Sie sicher, dass Sie die potenziellen Auswirkungen eines Befehls verstehen.

Konventionen

Weitere Informationen zu Dokumentkonventionen finden Sie in den Cisco Technical Tips Conventions (Technische Tipps zu Konventionen von Cisco).

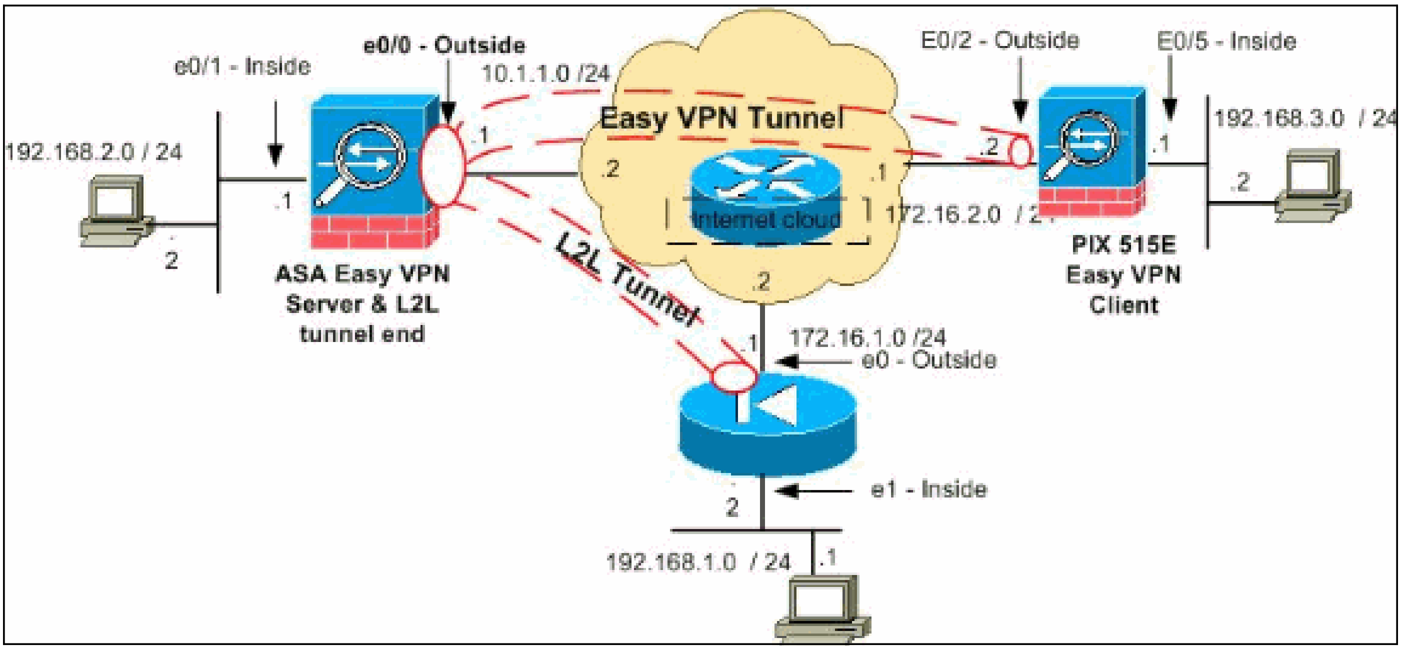
Konfigurieren

In diesem Abschnitt werden die Informationen vorgestellt, die Sie zum Konfigurieren der in diesem Dokument beschriebenen Funktionen verwenden können.

Hinweis: Verwenden Sie das Command Lookup Tool (nur registrierte Kunden), um weitere Informationen zu den in diesem Abschnitt verwendeten Befehlen zu erhalten.

Netzwerkdiagramm

In diesem Dokument wird die folgende Netzwerkeinrichtung verwendet:



Hinweis: Die in dieser Konfiguration verwendeten IP-Adressierungsschemata sind im Internet nicht rechtlich routbar. Sie sind RFC 1918 -Adressen, die in einer Laborumgebung verwendet werden.

Konfigurationen

In diesem Dokument werden folgende Konfigurationen verwendet:

- HUB-ASA
- Easy VPN-Client ASA 5505

- PIX

HUB-ASA

```
ASA Version 8.0(2)
!
hostname ciscoasa
enable password 8Ry2YjIyt7RRXU24 encrypted
names
!
interface Ethernet0/0
 nameif outside
 security-level 0
 ip address 10.1.1.1 255.255.255.0
!
interface Ethernet0/1
 nameif inside
 security-level 100
 ip address 192.168.2.1 255.255.255.0
!
!--- Output Suppressed. !--- Access-list for interesting
traffic (Site to Site) to be !--- encrypted between hub
ASA and spoke (PIX) networks. access-list
outside_cryptomap_20 extended permit ip 192.168.2.0
255.255.255.0 192.168.1.0 255.255.255.0 !--- Access-list
for interesting traffic to be !--- encrypted between hub
ASA and spoke easy vpn client ASA networks. access-list
ezvpn1 extended permit ip 192.168.2.0 255.255.255.0
192.168.3.0 255.255.255.0 !--- Access-list for traffic
to bypass the network address !--- translation (NAT)
process. access-list nonat extended permit ip
192.168.2.0 255.255.255.0 192.168.1.0 255.255.255.0
access-list nonat extended permit ip 192.168.2.0
255.255.255.0 192.168.3.0 255.255.255.0 !--- Output
Suppressed. !--- Specify the NAT configuration. !--- NAT
0 prevents NAT for the ACL defined in this
configuration. !--- The nat 1 command specifies NAT for
all other traffic. nat-control global (outside) 1
interface nat (inside) 0 access-list nonat nat (inside)
1 0.0.0.0 0.0.0.0 route outside 0.0.0.0 0.0.0.0 10.1.1.2
1 !--- Output Suppressed. !--- Configuration of IPsec
Phase 2 crypto ipsec transform-set myset esp-3des esp-
sha-hmac !--- IPsec configuration for the dynamic LAN-
to-LAN tunnel crypto dynamic-map ezvpn 30 set transform-
set myset !--- IPsec configuration for the static LAN-
to-LAN tunnel crypto map outside_map 20 match address
outside_cryptomap_20 crypto map outside_map 20 set peer
172.16.1.1 crypto map outside_map 20 set transform-set
myset !--- IPsec configuration that binds dynamic map to
crypto map crypto map outside_map 65535 ipsec-isakmp
dynamic ezvpn !--- Crypto map applied to the outside
interface of the ASA crypto map outside_map interface
outside isakmp enable outside !--- PHASE 1 CONFIGURATION
---! !--- This configuration uses isakmp policy 1. !---
These configuration commands !--- define the Phase 1
policies that are used. crypto isakmp policy 10
authentication pre-share encryption 3des hash sha group
2 lifetime 86400 !--- Output Suppressed. !--- This
defines the group policy you use with Easy VPN. !---
Specify the networks that can pass through !--- the
tunnel and that you want to !--- use network extension
mode. group-policy tunnel internal group-policy tunnel
```

```
attributes nem enable !--- The username and password
associated with !--- this VPN connection are defined
here. You !--- can also use AAA for this function.
username cisco password ffIRPGpDSOJh9YLq encrypted
tunnel-group 172.16.1.1 type ipsec-l2l tunnel-group
172.16.1.1 ipsec-attributes pre-shared-key * !--- The
tunnel-group commands bind the configurations !---
defined in this configuration to the tunnel that is !---
used for Easy VPN. This tunnel name is the one !---
specified on the remote side. tunnel-group mytunnel type
remote-access tunnel-group mytunnel general-attributes
default-group-policy tunnel !--- Defines the pre-shared
key used for !--- IKE authentication for the dynamic
tunnel. tunnel-group mytunnel ipsec-attributes pre-
shared-key * prompt hostname context
Cryptochecksum:e148bf43d04906f5db41fc6f90c52d34 : end
```

Easy VPN-Client - ASA 5505

```
ASA Version 7.2(2)
!
hostname ciscoasa
domain-name default.domain.invalid
enable password 8Ry2YjIyt7RRXU24 encrypted
names
!
interface Vlan1
 nameif outside
 security-level 0
 ip address 172.16.2.2 255.255.255.0
!
interface Vlan2
 nameif inside
 security-level 100
 ip address 192.168.3.1 255.255.255.0
!
interface Ethernet0/0
!
interface Ethernet0/1
 shutdown
!
interface Ethernet0/2
!
interface Ethernet0/3
!
interface Ethernet0/4
 switchport access vlan 2

!--- Output Suppressed. ! route outside 0.0.0.0 0.0.0.0
172.16.2.1 1 !--- Output Suppressed. !--- Easy VPN
Client Configuration ---! !--- Specify the IP address of
the VPN server. vpnclient server 10.1.1.1 !--- This
example uses network extension mode. vpnclient mode
network-extension-mode !--- Specify the group name and
the pre-shared key. vpnclient vpngroup mytunnel password
******** !--- Specify the authentication username and
password. vpnclient username cisco password ******** !--
- In order to enable the device as hardware vpnclient,
use this command. vpnclient enable ! !--- Output
Suppressed.
Cryptochecksum:0458ce7a08e6b7f9417b17bc254eb4e2 : end
```

PIX

```
PIX Version 8.0(2)
!
hostname pixfirewall
enable password 8Ry2YjIyt7RRXU24 encrypted
names
!
interface Ethernet0
 nameif outside
 security-level 0
 ip address 172.16.1.1 255.255.255.0
!
interface Ethernet1
 nameif inside
 security-level 100
 ip address 192.168.1.2 255.255.255.0
!
passwd 2KFQnbNIdI.2KYOU encrypted
ftp mode passive
!--- This access list (inside_nat0_outbound) is used
with the nat zero command. !--- This prevents traffic
which matches the access list from undergoing !---
network address translation (NAT). access-list
inside_nat0_outbound extended permit ip 192.168.1.0
255.255.255.0 192.168.2.0 255.255.255.0 !--- The traffic
specified by this ACL is !--- traffic that is to be
encrypted and !--- sent across the VPN tunnel. This ACL
is intentionally !--- the same as
(inside_nat0_outbound). !--- Two separate access lists
must always be used in this configuration. access-list
outside_cryptomap_20 extended permit ip 192.168.1.0
255.255.255.0 192.168.2.0 255.255.255.0 !--- NAT 0
prevents NAT for networks specified in the ACL
inside_nat0_outbound. nat (inside) 0 access-list
inside_nat0_outbound !--- Output Suppressed. route
outside 0.0.0.0 0.0.0.0 172.16.1.2 1 !--- Output
Suppressed. !--- PHASE 2 CONFIGURATION ---! !--- The
encryption types for Phase 2 are defined here. !---
Define the transform set for Phase 2. crypto ipsec
transform-set myset esp-3des esp-sha-hmac !--- Define
which traffic can be sent to the IPsec peer. crypto map
outside_map 20 match address outside_cryptomap_20 !---
Sets the IPsec peer. crypto map outside_map 20 set peer
10.1.1.1 !--- Sets the IPsec transform set "myset" !---
to be used with the crypto map entry "outside_map".
crypto map outside_map 20 set transform-set myset !---
Specifies the interface to be used with !--- the
settings defined in this configuration. crypto map
outside_map interface outside !--- PHASE 1 CONFIGURATION
---! !--- This configuration uses isakmp policy 10. !---
Policy 65535 is included in the config by default. !---
The configuration commands here define the Phase !--- 1
policy parameters that are used. crypto isakmp enable
outside crypto isakmp policy 10 authentication pre-share
encryption 3des hash sha group 2 lifetime 86400 crypto
isakmp policy 65535 authentication pre-share encryption
3des hash sha group 2 lifetime 86400 !--- Output
Suppressed. !--- In order to create and manage the
database of connection-specific records !--- for ipsec-
l2l—IPsec (LAN-to-LAN) tunnels, use the tunnel-group !--
- command in global configuration mode. !--- For L2L
connections the name of the tunnel group MUST be the IP
!--- address of the IPsec peer. tunnel-group 10.1.1.1
```

```
type ipsec-l2l !--- Enter the pre-shared-key in order to
configure the authentication method. tunnel-group
10.1.1.1 ipsec-attributes pre-shared-key * prompt
hostname context
Cryptochecksum:4a2c70f2102113315de795f13f25c2aa : end
```

Überprüfen

Dieser Abschnitt enthält Informationen, die Sie verwenden können, um zu überprüfen, ob Ihre Konfiguration ordnungsgemäß funktioniert.

Das Output Interpreter Tool (nur registrierte Kunden) (OIT) unterstützt bestimmte **show**-Befehle. Verwenden Sie das OIT, um eine Analyse der **Ausgabe des** Befehls **show anzuzeigen**.

- **show crypto isakmp sa**: Zeigt alle aktuellen IKE-Sicherheitszuordnungen (SAs) in einem Peer an.
- **show crypto ipsec sa**: Zeigt alle aktuellen SAs an.

In diesem Abschnitt werden Beispielkonfigurationen für die Überprüfung dargestellt:

- HUB-ASA
- Easy VPN-Client ASA 5505
- PIX

HUB-ASA

```
ciscoasa #show crypto isakmp sa

   Active SA: 2
    Rekey SA: 0 (A tunnel will report 1 Active and 1
Rekey SA during rekey)
Total IKE SA: 2
!--- Dynamic LAN-to-LAN tunnel establishment 1 IKE Peer:
172.16.2.2 Type : user Role : responder Rekey : no State
: AM_ACTIVE !--- Static LAN-to-LAN tunnel establishment
2 IKE Peer: 172.16.1.1 Type : L2L Role : initiator Rekey
: no State : MM_ACTIVE ciscoasa #show crypto ipsec sa
ciscoasa(config)#sh crypto ipsec sa
interface: outside
    Crypto map tag: outside_map, seq num: 20, local
addr: 10.1.1.1


      access-list outside_cryptomap_20 permit ip
192.168.2.0 255.255.255.0
 192.168.1.0 255.255.255.0
      local ident (addr/mask/prot/port):
(192.168.2.0/255.255.255.0/0/0)
      remote ident (addr/mask/prot/port):
(192.168.1.0/255.255.255.0/0/0)
      current_peer: 172.16.1.1

      #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: 4, #pkts comp failed: 0,
#pkts decomp failed: 0
      #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0
      #PMTUs sent: 0, #PMTUs rcvd: 0, #decapsulated frgs
needing reassembly: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 10.1.1.1, remote crypto
endpt.: 172.16.1.1

      path mtu 1500, ipsec overhead 58, media mtu 1500
      current outbound spi: E4312E13

    inbound esp sas:
      spi: 0x9ABAC3DD (2595931101)
         transform: esp-3des esp-sha-hmac none
         in use settings ={L2L, Tunnel, }
         slot: 0, conn_id: 741376, crypto-map:
outside_map
         sa timing: remaining key lifetime (kB/sec):
(4274999/28783)
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0xE4312E13 (3828428307)
         transform: esp-3des esp-sha-hmac none
         in use settings ={L2L, Tunnel, }
         slot: 0, conn_id: 741376, crypto-map:
outside_map
         sa timing: remaining key lifetime (kB/sec):
(4274999/28783)
         IV size: 8 bytes
         replay detection support: Y

   Crypto map tag: ezvpn, seq num: 30, local addr:
10.1.1.1

     local ident (addr/mask/prot/port):
(10.1.1.1/255.255.255.255/0/0)
      remote ident (addr/mask/prot/port):
(172.16.2.2/255.255.255.255/0/0)
      current_peer: 172.16.2.2, username: cisco
      dynamic allocated peer ip: 0.0.0.0

      #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 comp failed: 0,
#pkts decomp failed: 0
      #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0
      #PMTUs sent: 0, #PMTUs rcvd: 0, #decapsulated frgs
needing reassembly: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 10.1.1.1, remote crypto
endpt.: 172.16.2.2

      path mtu 1500, ipsec overhead 58, media mtu 1500
      current outbound spi: 2647B59C

    inbound esp sas:
      spi: 0x21685AF8 (560487160)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 737280, crypto-map: ezvpn
         sa timing: remaining key lifetime (sec): 28146
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0x2647B59C (642233756)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 737280, crypto-map: ezvpn
         sa timing: remaining key lifetime (sec): 28146
         IV size: 8 bytes
         replay detection support: Y

    Crypto map tag: ezvpn, seq num: 30, local addr:
10.1.1.1

      local ident (addr/mask/prot/port):
(0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port):
(192.168.3.0/255.255.255.0/0/0)
      current_peer: 172.16.2.2, username: cisco
      dynamic allocated peer ip: 0.0.0.0

      #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
      #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0
      #PMTUs sent: 0, #PMTUs rcvd: 0, #decapsulated frgs
needing reassembly: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 10.1.1.1, remote crypto
endpt.: 172.16.2.2

      path mtu 1500, ipsec overhead 58, media mtu 1500
      current outbound spi: 07997B21

    inbound esp sas:
      spi: 0xB5B6013D (3048603965)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 737280, crypto-map: ezvpn
         sa timing: remaining key lifetime (sec): 28145
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0x07997B21 (127499041)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 737280, crypto-map: ezvpn
         sa timing: remaining key lifetime (sec): 28145
         IV size: 8 bytes
         replay detection support: Y

    Crypto map tag: ezvpn, seq num: 30, local addr:
10.1.1.1

      local ident (addr/mask/prot/port):
(0.0.0.0/0.0.0.0/0/0)
      remote ident (addr/mask/prot/port):
(172.16.2.2/255.255.255.255/0/0)
      current_peer: 172.16.2.2, username: cisco
      dynamic allocated peer ip: 0.0.0.0

      #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 comp failed: 0,
#pkts decomp failed: 0
      #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0
      #PMTUs sent: 0, #PMTUs rcvd: 0, #decapsulated frgs
needing reassembly: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 10.1.1.1, remote crypto
endpt.: 172.16.2.2

      path mtu 1500, ipsec overhead 58, media mtu 1500
      current outbound spi: 0F0B1A75

    inbound esp sas:
      spi: 0x68B0EA75 (1756424821)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 737280, crypto-map: ezvpn
         sa timing: remaining key lifetime (sec): 28143
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0x0F0B1A75 (252385909)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 737280, crypto-map: ezvpn
         sa timing: remaining key lifetime (sec): 28143
         IV size: 8 bytes
         replay detection support: Y
```

Easy VPN-Client ASA 5505

```


ciscoasa(config)# sh 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: 10.1.1.1
    Type    : user            Role    : initiator
    Rekey   : no              State   : AM_ACTIVE



ciscoasa(config)# sh crypto ipsec sa
interface: outside
    Crypto map tag: _vpnc_cm, seq num: 10, local addr:
172.16.2.2

      access-list _vpnc_acl permit ip host 172.16.2.2
host 10.1.1.1
      local ident (addr/mask/prot/port):
(172.16.2.2/255.255.255.255/0/0)
      remote ident (addr/mask/prot/port):
```

```
(10.1.1.1/255.255.255.255/0/0)
      current_peer: 10.1.1.1, username: 10.1.1.1
      dynamic allocated peer ip: 0.0.0.0

      #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 comp failed: 0,
#pkts decomp failed: 0
      #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0
      #PMTUs sent: 0, #PMTUs rcvd: 0, #decapsulated frgs
needing reassembly: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.16.2.2, remote crypto
endpt.: 10.1.1.1

      path mtu 1500, ipsec overhead 58, media mtu 1500
      current outbound spi: 21685AF8

    inbound esp sas:
      spi: 0x2647B59C (642233756)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 178, crypto-map: _vpnc_cm
         sa timing: remaining key lifetime (sec): 28298
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0x21685AF8 (560487160)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 178, crypto-map: _vpnc_cm
         sa timing: remaining key lifetime (sec): 28298
         IV size: 8 bytes
         replay detection support: Y

    Crypto map tag: _vpnc_cm, seq num: 10, local addr:
172.16.2.2

      access-list _vpnc_acl permit ip host 172.16.2.2
any
      local ident (addr/mask/prot/port):
(172.16.2.2/255.255.255.255/0/0)
      remote ident (addr/mask/prot/port):
(0.0.0.0/0.0.0.0/0/0)
      current_peer: 10.1.1.1, username: 10.1.1.1
      dynamic allocated peer ip: 0.0.0.0

      #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 comp failed: 0,
#pkts decomp failed: 0
      #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0
      #PMTUs sent: 0, #PMTUs rcvd: 0, #decapsulated frgs
needing reassembly: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.16.2.2, remote crypto
endpt.: 10.1.1.1
```

```
      path mtu 1500, ipsec overhead 58, media mtu 1500
      current outbound spi: 68B0EA75

    inbound esp sas:
      spi: 0x0F0B1A75 (252385909)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 178, crypto-map: _vpnc_cm
         sa timing: remaining key lifetime (sec): 28298
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0x68B0EA75 (1756424821)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 178, crypto-map: _vpnc_cm
         sa timing: remaining key lifetime (sec): 28298
         IV size: 8 bytes
         replay detection support: Y

    Crypto map tag: _vpnc_cm, seq num: 10, local addr:
172.16.2.2

      access-list _vpnc_acl permit ip 192.168.3.0
255.255.255.0 any
      local ident (addr/mask/prot/port):
(192.168.3.0/255.255.255.0/0/0)
      remote ident (addr/mask/prot/port):
(0.0.0.0/0.0.0.0/0/0)
      current_peer: 10.1.1.1, username: 10.1.1.1
      dynamic allocated peer ip: 0.0.0.0

      #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: 0, #pkts comp failed: 0,
#pkts decomp failed: 0
      #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0
      #PMTUs sent: 0, #PMTUs rcvd: 0, #decapsulated frgs
needing reassembly: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.16.2.2, remote crypto
endpt.: 10.1.1.1

      path mtu 1500, ipsec overhead 58, media mtu 1500
      current outbound spi: B5B6013D

    inbound esp sas:
      spi: 0x07997B21 (127499041)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 178, crypto-map: _vpnc_cm
         sa timing: remaining key lifetime (sec): 28294
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0xB5B6013D (3048603965)
         transform: esp-3des esp-sha-hmac none
         in use settings ={RA, Tunnel, }
         slot: 0, conn_id: 178, crypto-map: _vpnc_cm
         sa timing: remaining key lifetime (sec): 28294
         IV size: 8 bytes
         replay detection support: Y
```

PIX

```
pixfirewall(config)# sh 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: 10.1.1.1
    Type    : L2L             Role    : responder
    Rekey   : no              State   : MM_ACTIVE



pixfirewall(config)# sh crypto ipsec sa
interface: outside
    Crypto map tag: outside_map, seq num: 20, local
addr: 172.16.1.1

     access-list outside_cryptomap_20 permit ip
192.168.1.0 255.255.255.0
    192.168.2.0 255.255.255.0
      local ident (addr/mask/prot/port):
(192.168.1.0/255.255.255.0/0/0)
      remote ident (addr/mask/prot/port):
(192.168.2.0/255.255.255.0/0/0)
      current_peer: 10.1.1.1

      #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 comp failed: 0,
#pkts decomp failed: 0
      #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0
      #PMTUs sent: 0, #PMTUs rcvd: 0, #decapsulated frgs
needing reassembly: 0
      #send errors: 0, #recv errors: 0

      local crypto endpt.: 172.16.1.1, remote crypto
endpt.: 10.1.1.1

      path mtu 1500, ipsec overhead 58, media mtu 1500
      current outbound spi: 9ABAC3DD

    inbound esp sas:
      spi: 0xE4312E13 (3828428307)
         transform: esp-3des esp-sha-hmac none
         in use settings ={L2L, Tunnel, }
         slot: 0, conn_id: 12288, crypto-map:
outside_map
         sa timing: remaining key lifetime (kB/sec):
(3824999/28628)
         IV size: 8 bytes
         replay detection support: Y
    outbound esp sas:
      spi: 0x9ABAC3DD (2595931101)
         transform: esp-3des esp-sha-hmac none
         in use settings ={L2L, Tunnel, }
         slot: 0, conn_id: 12288, crypto-map:
```

```
outside_map
         sa timing: remaining key lifetime (kB/sec):
(3824999/28628)
         IV size: 8 bytes
         replay detection support: Y
```

Fehlerbehebung

Dieser Abschnitt enthält Informationen, die Sie zur Fehlerbehebung bei Ihrer Konfiguration verwenden können.

Befehle zur Fehlerbehebung

Bestimmte **show**-Befehle werden vom Output Interpreter Tool unterstützt (nur registrierte Kunden), mit dem Sie eine Analyse der **show**-Befehlsausgabe anzeigen können.

Hinweis: Lesen Sie vor dem Ausgabe von **Debug-**Befehlen unter Wichtige Informationen zu Debug-Befehlen nach.

PIX-Befehle im Konfigurationsmodus ausgeben:

- **clear crypto isakmp sa** - Löscht die SAs der Phase 1
- **clear crypto ipsec sa** - Löscht die SAs der Phase 2

Die **Debug-**Befehle für VPN-Tunnel:

- **debug crypto isakmp sa** - Debuggen von ISAKMP SA-Verhandlungen
- **debug crypto ipsec sa** - Debuggt IPSec SA-Verhandlungen

Zugehörige Informationen

- Cisco PIX Security Appliances der Serie 500 - Einführung
- Häufigste L2L- und Remote Access IPSec VPN-Lösungen zur Fehlerbehebung
- Cisco Adaptive Security Appliances der Serie ASA 5500 - Produktsupport
- IPsec-Aushandlung/IKE-Protokolle
- Technischer Support und Dokumentation - Cisco Systems