Ejemplo de Configuración de Router IOS para Pasar un Túnel IPSec de LAN a LAN a través de PAT

Contenido

Introducción

Este documento proporciona una configuración de ejemplo para Traducción de dirección de puerto (PAT) a fin de permitir el establecimiento de un túnel IPSec de LAN a LAN. Se aplica a escenarios que tienen solamente una dirección IP pública (utilizada en un router Cisco IOS® para realizar PAT en todo el tráfico) y necesitan pasar un túnel IPSec a través de él.

Para los gateways VPN que ejecutan las versiones del software Cisco IOS anteriores a la 12.2(13)T, se necesita la función de paso IPSec en el router que realiza PAT para permitir la carga de seguridad de encapsulación (ESP) a través de.

Nota: Esta función se conoce como compatibilidad con IPSec a través de la traducción de direcciones de red (NAT) en la asesoría de software (sólo clientes registrados).

Para iniciar el túnel desde el par (PATed) local, no se necesita ninguna configuración. Para iniciar el túnel desde el par remoto, se necesitan estos comandos:

- **ip nat inside source static *esp inside_ip* interface *interface***
- **ip nat inside source static udp inside_ip 500 interface interface 500**

En las gateways VPN que ejecutan una versión del software IOS de Cisco posterior a la 12.2(13)T, el tráfico IPSec se encuentra encapsulado en los paquetes del puerto 4500 del Protocolo de datos del usuario (UDP). Esta función se conoce como Transparencia NAT IPSec . Para iniciar el túnel desde el par (PATed) local, no se necesita ninguna configuración.

Para iniciar el túnel desde el par remoto, se necesitan estos comandos:

- **ip nat inside source static udp inside_ip 4500 interface interface 4500**
- **ip nat inside source static udp inside_ip 500 interface interface 500**

Ejecute el comando no crypto ipsec nat-transparency udp-encaps para desactivar la función IPSec NAT Transparency.

Prerequisites

Requirements

No hay requisitos específicos para este documento.

Componentes Utilizados

La información en este documento se basa en la versión 12.3(7)T1 del software del IOS de Cisco.

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Convenciones

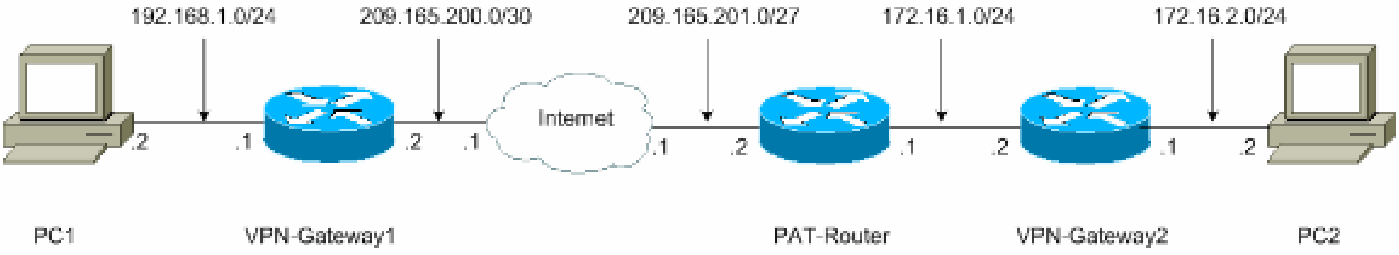
Para obtener más información sobre las convenciones del documento, consulte Convenciones de Consejos Técnicos de Cisco.

Configurar

En esta sección encontrará la información para configurar las funciones descritas en este documento.

Diagrama de la red

En este documento, se utiliza esta configuración de red:



Configuraciones con transparencia NAT IPSec

En este documento, se utilizan estas configuraciones:

- VPN-Gateway1
- Router PAT
- VPN-Gateway2

VPN-Gateway1

```

VPN-Gateway1#show running-config
Building configuration...

Current configuration : 1017 bytes
!
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname VPN-Gateway1
!

!--- VPN Gateway1 and VPN Gateway2 can be any devices
that !--- perform IPSec. For detailed information on
configuring IPSec !--- refer to IPSec Technology Support
Information. !--- IPSec configuration between VPN
Gateway1 and VPN Gateway2 !--- is beyond the scope of
this document. boot-start-marker boot-end-marker ! !
clock timezone EST 0 no aaa new-model ip subnet-zero ! !
ip audit po max-events 100 no ftp-server write-enable !
! ! ! ! !--- IKE policies (phase 1). crypto isakmp
policy 10
 authentication pre-share
crypto isakmp key cisco123 address 209.165.201.2
!
!
crypto ipsec transform-set basic esp-des esp-md5-hmac
!
!--- IPSec policies (phase 1). crypto map mymap 10
ipsec-isakmp
 set peer 209.165.201.2
 set transform-set basic
 match address 101
!
!
!
interface Ethernet0/0
 ip address 192.168.1.1 255.255.255.0
!
interface Serial1/0
 ip address 209.165.200.2 255.255.255.252
 serial restart-delay 0
 crypto map mymap
!
ip classless
ip route 0.0.0.0 0.0.0.0 209.165.200.1
no ip http server
no ip http secure-server
!
!
!
access-list 101 permit ip 192.168.1.0 0.0.0.255
```

```
172.16.2.0 0.0.0.255
access-list 101 remark Crypto ACL
!
!
!
control-plane
!
!
line con 0
line aux 0
line vty 0 4
!
!
end
```

Router PAT

```

PAT-Router#show running-config
Building configuration...

Current configuration : 971 bytes
!
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname PAT-Router
!
boot-start-marker
boot-end-marker
!
!
clock timezone EST 0
no aaa new-model
ip subnet-zero
!
!
ip audit po max-events 100
no ftp-server write-enable
!
!
!
!
no crypto isakmp enable
!
!
!
interface Ethernet0/0
 ip address 172.16.1.1 255.255.255.0
!--- This declares the interface as inside for NAT
purposes. ip nat inside
!
interface Serial1/0
 ip address 209.165.201.2 255.255.255.224
!--- This declares the interface as !--- outside for NAT
purposes. ip nat outside
 serial restart-delay 0
!
ip classless
ip route 0.0.0.0 0.0.0.0 209.165.201.1
ip route 172.16.0.0 255.255.0.0 172.16.1.2
no ip http server
no ip http secure-server
!
ip nat inside source list 1 interface Serial1/0 overload
!--- This allows PAT to be used for regular Internet
traffic. ip nat inside source static udp 172.16.1.2 4500
interface Serial1/0 4500
!--- This permits IPSec traffic destined for the
Serial1/0 !--- interface to be sent to the inside IP
address 172.16.1.2. ip nat inside source static udp
172.16.1.2 500 interface Serial1/0 500
!--- This allows UDP traffic for the Serial1/0 interface
to be !--- statically mapped to the inside IP address
172.16.1.2. !--- This is required for the Internet
Security Association !--- and Key Management Protocol
(ISAKMP) negotiation to be !--- initiated from VPN-
Gateway1 to VPN-Gateway2. ! ! access-list 1 permit
172.16.0.0 0.0.255.255
!
!
!
control-plane
!
!
line con 0
line aux 0
line vty 0 4
!
!
end
```

VPN-Gateway2

```

VPN-Gateway2#show running-config
Building configuration...

Current configuration : 986 bytes
!
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname VPN-Gateway2
!

!--- VPN Gateway1 and VPN Gateway2 can be any devices !-
-- that perform IPSec. For detailed information on !---
IPSec configuration refer to IPSec Technology Support
Information. !--- IPSec configuration between VPN
Gateway1 and VPN Gateway2 !--- is beyond the scope of
this document. boot-start-marker boot-end-marker ! !
clock timezone EST 0 no aaa new-model ip subnet-zero ! !
ip audit po max-events 100 no ftp-server write-enable !
! ! ! ! !--- IKE policies (phase 1). crypto isakmp
policy 10
 authentication pre-share
crypto isakmp key cisco123 address 209.165.200.2
!
!
crypto ipsec transform-set basic esp-des esp-md5-hmac
!
!--- IPSec policies (phase 1). crypto map mymap 10
ipsec-isakmp
```

```
 set peer 209.165.200.2
 set transform-set basic
 match address 101
!
!
!
interface Ethernet0/0
 ip address 172.16.1.2 255.255.255.0
 crypto map mymap
!
interface Ethernet1/0
 ip address 172.16.2.1 255.255.255.0
!
ip classless
ip route 0.0.0.0 0.0.0.0 172.16.1.1
no ip http server
no ip http secure-server
!
!
!
access-list 101 permit ip 172.16.2.0 0.0.0.255
192.168.1.0 0.0.0.255
access-list 101 remark Crypto ACL
!
!
!
control-plane
!
!
line con 0
line aux 0
line vty 0 4
!
!
end
```

Configuraciones sin Transparencia NAT IPSec

- VPN-Gateway1
- Router PAT
- VPN-Gateway2

VPN-Gateway1

```

VPN-Gateway1#show running-config
Building configuration...

Current configuration : 1017 bytes
!
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname VPN-Gateway1
!

!--- VPN Gateway1 and VPN Gateway2 can be any devices !-
-- that perform IPSec. For detailed information on !---
IPSec configuration refer to IPSec Technology Support
```

```
Information. !--- IPSec configuration between VPN
Gateway1 and VPN Gateway2 !--- is beyond the scope of
this document. boot-start-marker boot-end-marker ! !
clock timezone EST 0 no aaa new-model ip subnet-zero ! !
ip audit po max-events 100 no ftp-server write-enable !
! ! ! ! !--- IKE policies (phase 1). crypto isakmp
policy 10
 authentication pre-share
crypto isakmp key cisco123 address 209.165.201.2
!
!
crypto ipsec transform-set basic esp-des esp-md5-hmac
!
!--- IPSec policies (phase 1). crypto map mymap 10
ipsec-isakmp
 set peer 209.165.201.2
 set transform-set basic
 match address 101
!
!
!
interface Ethernet0/0
 ip address 192.168.1.1 255.255.255.0
!
interface Serial1/0
 ip address 209.165.200.2 255.255.255.252
 serial restart-delay 0
 crypto map mymap
!
ip classless
ip route 0.0.0.0 0.0.0.0 209.165.200.1
no ip http server
no ip http secure-server
!
!
!
access-list 101 permit ip 192.168.1.0 0.0.0.255
172.16.2.0 0.0.0.255
access-list 101 remark Crypto ACL
!
!
!
control-plane
!
!
line con 0
line aux 0
line vty 0 4
!
!
end
```

Router PAT

```
PAT-Router#show running-config
Building configuration...

Current configuration : 971 bytes
!
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
```

```
!
hostname PAT-Router
!
boot-start-marker
boot-end-marker
!
!
clock timezone EST 0
no aaa new-model
ip subnet-zero
!
!
ip audit po max-events 100
no ftp-server write-enable
!
!
!
!
no crypto isakmp enable
!
!
!
interface Ethernet0/0
 ip address 172.16.1.1 255.255.255.0
!--- This declares the interface as inside for NAT
purposes. ip nat inside
!
interface Serial1/0
 ip address 209.165.201.2 255.255.255.224
!--- This declares the interface as !--- outside for NAT
purposes. ip nat outside
 serial restart-delay 0
!
ip classless
ip route 0.0.0.0 0.0.0.0 209.165.201.1
ip route 172.16.0.0 255.255.0.0 172.16.1.2
no ip http server
no ip http secure-server
!
ip nat inside source list 1 interface Serial1/0 overload
!--- This allows PAT to be used for regular Internet
traffic. ip nat inside source static esp 172.16.1.2
interface Serial1/0
!--- This permits the IPSec ESP tunnel mode !---
destined for the Serial1/0 interface to be sent !--- to
the inside IP address 172.16.1.2. The "esp" !--- option
allows a single ESP tunnel-mode !--- VPN setup to be
possible. ip nat inside source static udp 172.16.1.2 500
interface Serial1/0 500
!--- This allows UDP traffic for the Serial1/0 !---
interface to be statically mapped to the inside !--- IP
address 172.16.1.2. This is required !--- for the ISAKMP
negotiation to be initiated !--- from VPN-Gateway1 to
VPN-Gateway2. ! ! access-list 1 permit 172.16.0.0
0.0.255.255
!
!
!
control-plane
!
!
line con 0
line aux 0
line vty 0 4
```

```
!
!
end
```

VPN-Gateway2

```

VPN-Gateway2#show running-config
Building configuration...

Current configuration : 986 bytes
!
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname VPN-Gateway2
!

!--- VPN Gateway1 and VPN Gateway2 can be any devices !-
-- that perform IPSec. For detailed information on !---
IPSec configuration refer to IPSec Technology Support
Information. !--- IPSec configuration between VPN
Gateway1 and VPN Gateway2 !--- is beyond the scope of
this document. boot-start-marker boot-end-marker ! !
clock timezone EST 0 no aaa new-model ip subnet-zero ! !
ip audit po max-events 100 no ftp-server write-enable !
! ! ! ! !--- IKE policies (phase 1). crypto isakmp
policy 10
 authentication pre-share
crypto isakmp key cisco123 address 209.165.200.2
!
!
crypto ipsec transform-set basic esp-des esp-md5-hmac
no crypto ipsec nat-transparency udp-encaps
!
!--- IPSec policies (phase 1). crypto map mymap 10
ipsec-isakmp
 set peer 209.165.200.2
 set transform-set basic
 match address 101
!
!
!
interface Ethernet0/0
 ip address 172.16.1.2 255.255.255.0
 crypto map mymap
!
interface Ethernet1/0
 ip address 172.16.2.1 255.255.255.0
!
ip classless
ip route 0.0.0.0 0.0.0.0 172.16.1.1
no ip http server
no ip http secure-server
!
!
!
access-list 101 permit ip 172.16.2.0 0.0.0.255
192.168.1.0 0.0.0.255
access-list 101 remark Crypto ACL
!
!
```

```
!
control-plane
!
!
line con 0
line aux 0
line vty 0 4
!
!
end
```

Verificación

Estas secciones proporcionan información que puede utilizar para corroborar si su configuración está funcionando correctamente.

La herramienta Output Interpreter (sólo para clientes registrados) permite utilizar algunos comandos “show” y ver un análisis del resultado de estos comandos.

- Verificar mediante la función IPSec NAT Transparency
- Verificación sin transparencia NAT IPSec

Verificar mediante la función IPSec NAT Transparency

- **show crypto isakmp sa**: muestra todas las asociaciones de seguridad (SA) de Internet Key Exchange (IKE) actuales en un par.

```
VPN-Gateway1#show crypto isakmp sa
dst             src             state          conn-id slot
209.165.200.2   209.165.201.2   QM_IDLE              1    0


VPN-Gateway2#show crypto isakmp sa
dst             src             state          conn-id slot
209.165.200.2   172.16.1.2      QM_IDLE              1    0
```

- **show crypto ipsec sa — Muestra los IPSec SA construidos entre pares.**

```
VPN-Gateway1#show crypto ipsec sa

 !--- This command is issued after a ping !--- is attempted from PC2 to PC1. interface:
Serial1/0 Crypto map tag: mymap, local addr. 209.165.200.2 protected vrf: local ident
(addr/mask/prot/port): (192.168.1.0/255.255.255.0/0/0) remote ident (addr/mask/prot/port):
(172.16.2.0/255.255.255.0/0/0) current_peer: 209.165.201.2:4500 PERMIT,
flags={origin_is_acl,} #pkts encaps: 6, #pkts encrypt: 6, #pkts digest: 6 #pkts decaps: 6,
#pkts decrypt: 6, #pkts verify: 6 #pkts compressed: 0, #pkts decompressed: 0 #pkts not
compressed: 0, #pkts compr. failed: 0 #pkts not decompressed: 0, #pkts decompress failed: 0
#send errors 0, #recv errors 0 local crypto endpt.: 209.165.200.2, remote crypto endpt.:
209.165.201.2 path mtu 1500, media mtu 1500 current outbound spi: 9CCA0619 inbound esp sas:
spi: 0x4E6B990F(1315674383) transform: esp-des esp-md5-hmac , in use settings ={Tunnel UDP-
Encaps, } slot: 0, conn id: 2000, flow_id: 5, crypto map: mymap crypto engine type:
Software, engine_id: 1 sa timing: remaining key lifetime (k/sec): (4602622/3489)
ike_cookies: 8973C578 9C7DEB45 5C9BE6DC 7F737D09 IV size: 8 bytes replay detection support:
Y inbound ah sas: inbound pcp sas: outbound esp sas: spi: 0x9CCA0619(2630485529) transform:
esp-des esp-md5-hmac , in use settings ={Tunnel UDP-Encaps, } slot: 0, conn id: 2001,
flow_id: 6, crypto map: mymap crypto engine type: Software, engine_id: 1 sa timing:
remaining key lifetime (k/sec): (4602622/3489) ike_cookies: 8973C578 9C7DEB45 5C9BE6DC
7F737D09 IV size: 8 bytes replay detection support: Y outbound ah sas: outbound pcp sas:
VPN-Gateway2#show crypto ipsec sa

 !--- This command is issued after a ping !--- is attempted from PC2 to PC1. interface:
```

```
Ethernet0/0 Crypto map tag: mymap, local addr. 172.16.1.2 protected vrf: local ident
(addr/mask/prot/port): (172.16.2.0/255.255.255.0/0/0) remote ident (addr/mask/prot/port):
(192.168.1.0/255.255.255.0/0/0) current_peer: 209.165.200.2:4500 PERMIT,
flags={origin_is_acl,} #pkts encaps: 23, #pkts encrypt: 23, #pkts digest: 23 #pkts decaps:
16, #pkts decrypt: 16, #pkts verify: 16 #pkts compressed: 0, #pkts decompressed: 0 #pkts not
compressed: 0, #pkts compr. failed: 0 #pkts not decompressed: 0, #pkts decompress failed: 0
#send errors 7, #recv errors 0 local crypto endpt.: 172.16.1.2, remote crypto endpt.:
209.165.200.2 path mtu 1500, media mtu 1500 current outbound spi: 4E6B990F inbound esp sas:
spi: 0x9CCA0619(2630485529) transform: esp-des esp-md5-hmac , in use settings ={Tunnel UDP-
Encaps, } slot: 0, conn id: 2000, flow_id: 1, crypto map: mymap crypto engine type:
Software, engine_id: 1 sa timing: remaining key lifetime (k/sec): (4384024/3481)
ike_cookies: 5C9BE6DC 7F737D09 8973C578 9C7DEB45 IV size: 8 bytes replay detection support:
Y inbound ah sas: inbound pcp sas: outbound esp sas: spi: 0x4E6B990F(1315674383) transform:
esp-des esp-md5-hmac , in use settings ={Tunnel UDP-Encaps, } slot: 0, conn id: 2001,
flow_id: 2, crypto map: mymap crypto engine type: Software, engine_id: 1 sa timing:
remaining key lifetime (k/sec): (4384024/3481) ike_cookies: 5C9BE6DC 7F737D09 8973C578
9C7DEB45 IV size: 8 bytes replay detection support: Y outbound ah sas: outbound pcp sas:
```

- **show ip nat translations**—Muestra las traducciones NAT activas.

```
PAT-Router#show ip nat translations
Pro Inside global       Inside local       Outside local      Outside global
udp 209.165.201.2:500  172.16.1.2:500     ---                ---
udp 209.165.201.2:4500 172.16.1.2:4500    ---                ---
```

Verificación sin transparencia NAT IPSec

- **show crypto isakmp sa — Muestra todas las asociaciones actuales de seguridad (SA) IKE de un par.**

```
VPN-Gateway1#show crypto isakmp sa
dst             src             state          conn-id slot
209.165.200.2   209.165.201.2   QM_IDLE              1    0


VPN-Gateway2#show crypto isakmp sa
dst             src             state          conn-id slot
209.165.200.2   172.16.1.2      QM_IDLE              1    0
```

- **show crypto ipsec sa — Muestra los IPSec SA construidos entre pares.**

```
VPN-Gateway1#show crypto ipsec sa

 !--- This command is issued after a ping !--- is attempted from PC2 to PC1. interface:
Serial1/0 Crypto map tag: mymap, local addr. 209.165.200.2 protected vrf: local ident
(addr/mask/prot/port): (192.168.1.0/255.255.255.0/0/0) remote ident (addr/mask/prot/port):
(172.16.2.0/255.255.255.0/0/0) current_peer: 209.165.201.2:500 PERMIT,
flags={origin_is_acl,} #pkts encaps: 21, #pkts encrypt: 21, #pkts digest: 21 #pkts decaps:
15, #pkts decrypt: 15, #pkts verify: 15 #pkts compressed: 0, #pkts decompressed: 0 #pkts not
compressed: 0, #pkts compr. failed: 0 #pkts not decompressed: 0, #pkts decompress failed: 0
#send errors 4, #recv errors 0 local crypto endpt.: 209.165.200.2, remote crypto endpt.:
209.165.201.2 path mtu 1500, media mtu 1500 current outbound spi: E89A0245 inbound esp sas:
spi: 0xB5F867BC(3052955580) transform: esp-des esp-md5-hmac , in use settings ={Tunnel, }
slot: 0, conn id: 2000, flow_id: 7, crypto map: mymap crypto engine type: Software,
engine_id: 1 sa timing: remaining key lifetime (k/sec): (4538665/3553) ike_cookies: 8973C578
DD91CB42 5C9BE6DC 63813771 IV size: 8 bytes replay detection support: Y inbound ah sas:
inbound pcp sas: outbound esp sas: spi: 0xE89A0245(3902407237) transform: esp-des esp-md5-
hmac , in use settings ={Tunnel, } slot: 0, conn id: 2001, flow_id: 8, crypto map: mymap
crypto engine type: Software, engine_id: 1 sa timing: remaining key lifetime (k/sec):
(4538665/3553) ike_cookies: 8973C578 DD91CB42 5C9BE6DC 63813771 IV size: 8 bytes replay
detection support: Y outbound ah sas: outbound pcp sas: VPN-Gateway2#show crypto ipsec sa

 !--- This command is issued after a ping !--- is attempted from PC2 to PC1. interface:
Ethernet0/0 Crypto map tag: mymap, local addr. 172.16.1.2 protected vrf: local ident
(addr/mask/prot/port): (172.16.2.0/255.255.255.0/0/0) remote ident (addr/mask/prot/port):
(192.168.1.0/255.255.255.0/0/0) current_peer: 209.165.200.2:500 PERMIT,
flags={origin_is_acl,} #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 compr. failed: 0 #pkts not decompressed: 0, #pkts decompress failed: 0
#send errors 1, #recv errors 0 local crypto endpt.: 172.16.1.2, remote crypto endpt.:
209.165.200.2 path mtu 1500, media mtu 1500 current outbound spi: B5F867BC inbound esp sas:
spi: 0xE89A0245(3902407237) transform: esp-des esp-md5-hmac , in use settings ={Tunnel, }
slot: 0, conn id: 2000, flow_id: 3, crypto map: mymap crypto engine type: Software,
engine_id: 1 sa timing: remaining key lifetime (k/sec): (4572084/3561) ike_cookies: 5C9BE6DC
63813771 8973C578 DD91CB42 IV size: 8 bytes replay detection support: Y inbound ah sas:
inbound pcp sas: outbound esp sas: spi: 0xB5F867BC(3052955580) transform: esp-des esp-md5-
hmac , in use settings ={Tunnel, } slot: 0, conn id: 2001, flow_id: 4, crypto map: mymap
crypto engine type: Software, engine_id: 1 sa timing: remaining key lifetime (k/sec):
(4572084/3561) ike_cookies: 5C9BE6DC 63813771 8973C578 DD91CB42 IV size: 8 bytes replay
detection support: Y outbound ah sas: outbound pcp sas:
```

- **show ip nat translations**—Muestra las traducciones NAT activas.

```
PAT-Router#show ip nat translations
Pro Inside global       Inside local       Outside local      Outside global
udp 209.165.201.2:500  172.16.1.2:500     ---                ---
esp 209.165.201.2:0    172.16.1.2:0       ---                ---
```

Troubleshoot

En esta sección encontrará información que puede utilizar para solucionar problemas de configuración.

Si ha configurado un túnel IPSec de LAN a LAN que involucre PAT (como se describe en este documento) y continúa experimentando problemas, recopile el resultado **debug** de cada dispositivo y el resultado de los comandos **show** para que el Soporte Técnico de Cisco lo analice.

Esta es información importante para la resolución de problemas en esta configuración. Para obtener información adicional sobre la resolución de problemas, consulte Solución de problemas de seguridad IP - Introducción y uso de los comandos debug y Verificación del Funcionamiento de NAT y Troubleshooting básico de NAT.

En estas secciones se muestran los comandos **debug** y la salida de ejemplo.

- Resolución de problemas en la función IPSec NAT Transparency
- Solución de problemas sin transparencia NAT IPSec

Nota: Antes de ejecutar un comando **debug**, consulte Información Importante sobre Comandos Debug.

Resolución de problemas en la función IPSec NAT Transparency

- **debug crypto ipsec — Muestra los IPSec Negotiations de la Fase 2.**
- **debug crypto isakmp — Muestra las negociaciones ISAKMP para la fase 1.**
- **debug ip nat detail**: examina la NAT que realiza el router.

Ésta es una salida del comando de ejemplo:

```
VPN-Gateway1#debug crypto ipsec
Crypto IPSEC debugging is on
VPN-Gateway1#debug crypto isakmp
Crypto ISAKMP debugging is on
VPN-Gateway1#show debug
```

```
Cryptographic Subsystem:
  Crypto ISAKMP debugging is on
  Crypto IPSEC debugging is on

 !--- These debugs appeared after a ping !--- was attempted from PC2 to PC1. *Jun 27
09:31:36.159: ISAKMP (0:0): received packet from 209.165.201.2 dport 500 sport 500 Global (N)
NEW SA *Jun 27 09:31:36.159: ISAKMP: Created a peer struct for 209.165.201.2, peer port 500 *Jun
27 09:31:36.159: ISAKMP: Locking peer struct 0x2C50610, IKE refcount 1 for
crypto_isakmp_process_block *Jun 27 09:31:36.159: ISAKMP: local port 500, remote port 500 *Jun
27 09:31:36.559: insert sa successfully sa = 290B720 *Jun 27 09:31:36.559:
ISAKMP:(0:1:SW:1):Input = IKE_MESG_FROM_PEER, IKE_MM_EXCH *Jun 27 09:31:36.559:
ISAKMP:(0:1:SW:1):Old State = IKE_READY New State = IKE_R_MM1 *Jun 27 09:31:36.619:
ISAKMP:(0:1:SW:1): processing SA payload. message ID = 0 *Jun 27 09:31:36.619:
ISAKMP:(0:1:SW:1): processing vendor id payload *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1): vendor
ID seems Unity/DPD but major 157 mismatch *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1): vendor ID is
NAT-T v3 *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1): processing vendor id payload *Jun 27
09:31:36.619: ISAKMP:(0:1:SW:1): vendor ID seems Unity/DPD but major 123 mismatch *Jun 27
09:31:36.619: ISAKMP:(0:1:SW:1): vendor ID is NAT-T v2 *Jun 27 09:31:36.619: ISAKMP: Looking for
a matching key for 209.165.201.2 in default : success *Jun 27 09:31:36.619:
ISAKMP:(0:1:SW:1):found peer pre-shared key matching 209.165.201.2 *Jun 27 09:31:36.619:
ISAKMP:(0:1:SW:1): local preshared key found *Jun 27 09:31:36.619: ISAKMP : Scanning profiles
for xauth ... *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1):Checking ISAKMP transform 1 against
priority 10 policy *Jun 27 09:31:36.619: ISAKMP: encryption DES-CBC *Jun 27 09:31:36.619:
ISAKMP: hash SHA *Jun 27 09:31:36.619: ISAKMP: default group 1 *Jun 27 09:31:36.619: ISAKMP:
auth pre-share *Jun 27 09:31:36.619: ISAKMP: life type in seconds *Jun 27 09:31:36.619: ISAKMP:
life duration (VPI) of 0x0 0x1 0x51 0x80 *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1):atts are
acceptable. Next payload is 0 *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1): processing vendor id
payload *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1): vendor ID seems Unity/DPD but major 157
mismatch *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1): vendor ID is NAT-T v3 *Jun 27 09:31:36.619:
ISAKMP:(0:1:SW:1): processing vendor id payload *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1): vendor
ID seems Unity/DPD but major 123 mismatch *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1): vendor ID is
NAT-T v2 *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PROCESS_MAIN_MODE *Jun 27 09:31:36.619: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM1 New State =
IKE_R_MM1 *Jun 27 09:31:36.771: ISAKMP:(0:1:SW:1): constructed NAT-T vendor-03 ID *Jun 27
09:31:36.771: ISAKMP:(0:1:SW:1): sending packet to 209.165.201.2 my_port 500 peer_port 500 (R)
MM_SA_SETUP *Jun 27 09:31:36.771: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PROCESS_COMPLETE *Jun 27 09:31:36.771: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM1 New State =
IKE_R_MM2 *Jun 27 09:31:37.179: ISAKMP (0:134217729): received packet from 209.165.201.2 dport
500 sport 500 Global (R) MM_SA_SETUP *Jun 27 09:31:37.179: ISAKMP:(0:1:SW:1):Input =
IKE_MESG_FROM_PEER, IKE_MM_EXCH *Jun 27 09:31:37.179: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM2
New State = IKE_R_MM3 *Jun 27 09:31:38.199: ISAKMP:(0:1:SW:1): processing KE payload. message ID
= 0 *Jun 27 09:31:38.199: ISAKMP:(0:1:SW:1): processing NONCE payload. message ID = 0 *Jun 27
09:31:38.759: ISAKMP: Looking for a matching key for 209.165.201.2 in default : success *Jun 27
09:31:38.759: ISAKMP:(0:1:SW:1):found peer pre-shared key matching 209.165.201.2 *Jun 27
09:31:38.759: ISAKMP:(0:1:SW:1):SKEYID state generated *Jun 27 09:31:38.759: ISAKMP:(0:1:SW:1):
processing vendor id payload *Jun 27 09:31:38.759: ISAKMP:(0:1:SW:1): vendor ID is Unity *Jun 27
09:31:38.759: ISAKMP:(0:1:SW:1): processing vendor id payload *Jun 27 09:31:38.759:
ISAKMP:(0:1:SW:1): vendor ID is DPD *Jun 27 09:31:38.759: ISAKMP:(0:1:SW:1): processing vendor
id payload *Jun 27 09:31:38.759: ISAKMP:(0:1:SW:1): speaking to another IOS box! *Jun 27
09:31:38.759: ISAKMP:received payload type 17 *Jun 27 09:31:38.759: ISAKMP:received payload type
17 *Jun 27 09:31:38.759: ISAKMP (0:134217729): NAT found, the node outside NAT *Jun 27
09:31:38.759: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODE *Jun 27
09:31:38.759: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM3 New State = IKE_R_MM3 *Jun 27
09:31:38.891: ISAKMP:(0:1:SW:1): sending packet to 209.165.201.2 my_port 500 peer_port 500 (R)
MM_KEY_EXCH *Jun 27 09:31:38.891: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PROCESS_COMPLETE *Jun 27 09:31:38.891: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM3 New State =
IKE_R_MM4 *Jun 27 09:31:40.071: ISAKMP (0:134217729): received packet from 209.165.201.2 dport
4500 sport 4500 Global (R) MM_KEY_EXCH *Jun 27 09:31:40.071: ISAKMP:(0:1:SW:1):Input =
IKE_MESG_FROM_PEER, IKE_MM_EXCH *Jun 27 09:31:40.071: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM4
New State = IKE_R_MM5 *Jun 27 09:31:40.199: ISAKMP:(0:1:SW:1): processing ID payload. message ID
= 0 *Jun 27 09:31:40.199: ISAKMP (0:134217729): ID payload next-payload : 8 type : 1 address :
172.16.1.2 protocol : 17 port : 0 length : 12 *Jun 27 09:31:40.199: ISAKMP:(0:1:SW:1):: peer
matches *none* of the profiles *Jun 27 09:31:40.199: ISAKMP:(0:1:SW:1): processing HASH payload.
message ID = 0 *Jun 27 09:31:40.199: ISAKMP:(0:1:SW:1): processing NOTIFY INITIAL_CONTACT
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protocol 1 spi 0, message ID = 0, sa = 290B720 *Jun 27 09:31:40.199: ISAKMP:(0:1:SW:1):SA
authentication status: authenticated *Jun 27 09:31:40.199: ISAKMP:(0:1:SW:1): Process initial
contact, bring down existing phase 1 and 2 SA's with local 209.165.200.2 remote 209.165.201.2
remote port 4500 *Jun 27 09:31:40.231: IPSEC(key_engine): got a queue event with 1 kei messages
*Jun 27 09:31:40.399: ISAKMP:(0:1:SW:1):SA authentication status: authenticated *Jun 27
09:31:40.399: ISAKMP:(0:1:SW:1):SA has been authenticated with 209.165.201.2 *Jun 27
09:31:40.399: ISAKMP:(0:1:SW:1):Detected port floating to port = 4500 *Jun 27 09:31:40.399:
ISAKMP: Trying to insert a peer 209.165.200.2/209.165.201.2/4500/, and inserted successfully.
*Jun 27 09:31:40.399: ISAKMP:(0:1:SW:1):: peer matches *none* of the profiles *Jun 27
09:31:40.399: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODE *Jun 27
09:31:40.399: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM5 New State = IKE_R_MM5 *Jun 27
09:31:40.459: ISAKMP:(0:1:SW:1):SA is doing pre-shared key authentication using id type
ID_IPV4_ADDR *Jun 27 09:31:40.459: ISAKMP (0:134217729): ID payload next-payload : 8 type : 1
address : 209.165.200.2 protocol : 17 port : 0 length : 12 *Jun 27 09:31:40.459:
ISAKMP:(0:1:SW:1):Total payload length: 12 *Jun 27 09:31:40.459: ISAKMP:(0:1:SW:1): sending
packet to 209.165.201.2 my_port 4500 peer_port 4500 (R) MM_KEY_EXCH *Jun 27 09:31:40.459:
ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_COMPLETE *Jun 27 09:31:40.459:
ISAKMP:(0:1:SW:1):Old State = IKE_R_MM5 New State = IKE_P1_COMPLETE *Jun 27 09:31:40.539:
ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PHASE1_COMPLETE *Jun 27 09:31:40.539:
ISAKMP:(0:1:SW:1):Old State = IKE_P1_COMPLETE New State = IKE_P1_COMPLETE *Jun 27 09:31:40.999:
ISAKMP (0:134217729): received packet from 209.165.201.2 dport 4500 sport 4500 Global (R)
QM_IDLE *Jun 27 09:31:40.999: ISAKMP: set new node 1546295295 to QM_IDLE *Jun 27 09:31:40.999:
ISAKMP:(0:1:SW:1): processing HASH payload. message ID = 1546295295 *Jun 27 09:31:40.999:
ISAKMP:(0:1:SW:1): processing SA payload. message ID = 1546295295 *Jun 27 09:31:40.999:
ISAKMP:(0:1:SW:1):Checking IPSec proposal 1 *Jun 27 09:31:40.999: ISAKMP: transform 1, ESP_DES
*Jun 27 09:31:40.999: ISAKMP: attributes in transform: *Jun 27 09:31:40.999: ISAKMP: encaps is
61443 (Tunnel-UDP) *Jun 27 09:31:40.999: ISAKMP: SA life type in seconds *Jun 27 09:31:40.999:
ISAKMP: SA life duration (basic) of 3600 *Jun 27 09:31:40.999: ISAKMP: SA life type in kilobytes
*Jun 27 09:31:40.999: ISAKMP: SA life duration (VPI) of 0x0 0x46 0x50 0x0 *Jun 27 09:31:40.999:
ISAKMP: authenticator is HMAC-MD5 *Jun 27 09:31:40.999: ISAKMP:(0:1:SW:1):atts are acceptable.
*Jun 27 09:31:40.999: IPSEC(validate_proposal_request): proposal part #1, (key eng. msg.)
INBOUND local= 209.165.200.2, remote= 209.165.201.2, local_proxy= 192.168.1.0/255.255.255.0/0/0
(type=4), remote_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4), protocol= ESP, transform= esp-des
esp-md5-hmac (Tunnel-UDP), lifedur= 0s and 0kb, spi= 0x0(0), conn_id= 0, keysize= 0, flags=
0x400 *Jun 27 09:31:40.999: IPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = *Jun 27
09:31:40.999: ISAKMP:(0:1:SW:1): processing NONCE payload. message ID = 1546295295 *Jun 27
09:31:40.999: ISAKMP:(0:1:SW:1): processing ID payload. message ID = 1546295295 *Jun 27
09:31:40.999: ISAKMP:(0:1:SW:1): processing ID payload. message ID = 1546295295 *Jun 27
09:31:40.999: ISAKMP:(0:1:SW:1): asking for 1 spis from ipsec *Jun 27 09:31:40.999:
ISAKMP:(0:1:SW:1):Node 1546295295, Input = IKE_MESG_FROM_PEER, IKE_QM_EXCH *Jun 27 09:31:40.999:
ISAKMP:(0:1:SW:1):Old State = IKE_QM_READY New State = IKE_QM_SPI_STARVE *Jun 27 09:31:41.031:
IPSEC(key_engine): got a queue event with 1 kei messages *Jun 27 09:31:41.031:
IPSEC(spi_response): getting spi 1315674383 for SA from 209.165.200.2 to 209.165.201.2 for prot
3 *Jun 27 09:31:41.079: ISAKMP: received ike message (2/1) *Jun 27 09:31:42.039:
ISAKMP:(0:1:SW:1): sending packet to 209.165.201.2 my_port 4500 peer_port 4500 (R) QM_IDLE *Jun
27 09:31:42.039: ISAKMP:(0:1:SW:1):Node 1546295295, Input = IKE_MESG_FROM_IPSEC, IKE_SPI_REPLY
*Jun 27 09:31:42.039: ISAKMP:(0:1:SW:1):Old State = IKE_QM_SPI_STARVE New State = IKE_QM_R_QM2
*Jun 27 09:31:42.311: ISAKMP (0:134217729): received packet from 209.165.201.2 dport 4500 sport
4500 Global (R) QM_IDLE *Jun 27 09:31:42.311: IPSec: Flow_switching Allocated flow for flow_id
134217733 *Jun 27 09:31:42.311: IPSec: Flow_switching Allocated flow for flow_id 134217734 *Jun
27 09:31:43.339: %CRYPTO-5-SESSION_STATUS: Crypto tunnel is UP . Peer 209.165.201.2:4500 Id:
172.16.1.2 *Jun 27 09:31:43.339: ISAKMP: Locking peer struct 0x2C50610, IPSEC refcount 1 for for
stuff_ke *Jun 27 09:31:43.339: ISAKMP:(0:1:SW:1): Creating IPSec SAs *Jun 27 09:31:43.339:
inbound SA from 209.165.201.2 to 209.165.200.2 (f/i) 0/ 0 (proxy 172.16.2.0 to 192.168.1.0) *Jun
27 09:31:43.339: has spi 0x4E6B990F and conn_id 2000 and flags 400 *Jun 27 09:31:43.339:
lifetime of 3600 seconds *Jun 27 09:31:43.339: lifetime of 4608000 kilobytes *Jun 27
09:31:43.339: has client flags 0x10 *Jun 27 09:31:43.339: outbound SA from 209.165.200.2 to
209.165.201.2 (f/i) 0/0 (proxy 192.168.1.0 to 172.16.2.0) *Jun 27 09:31:43.339: has spi -
1664481767 and conn_id 2001 and flags 408 *Jun 27 09:31:43.339: lifetime of 3600 seconds *Jun 27
09:31:43.339: lifetime of 4608000 kilobytes *Jun 27 09:31:43.339: has client flags 0x10 *Jun 27
09:31:43.339: ISAKMP:(0:1:SW:1):deleting node 1546295295 error FALSE reason "quick mode done
(await)" *Jun 27 09:31:43.339: ISAKMP:(0:1:SW:1):Node 1546295295, Input = IKE_MESG_FROM_PEER,
IKE_QM_EXCH *Jun 27 09:31:43.339: ISAKMP:(0:1:SW:1):Old State = IKE_QM_R_QM2 New State =
IKE_QM_PHASE2_COMPLETE *Jun 27 09:31:43.359: IPSEC(key_engine): got a queue event with 2 kei
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messages *Jun 27 09:31:43.359: IPSEC(initialize_sas): , (key eng. msg.) INBOUND local=
209.165.200.2, remote= 209.165.201.2, local_proxy= 192.168.1.0/255.255.255.0/0/0 (type=4),
remote_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4), protocol= ESP, transform= esp-des esp-md5-
hmac (Tunnel-UDP), lifedur= 3600s and 4608000kb, spi= 0x4E6B990F(1315674383), conn_id=
134219728, keysize= 0, flags= 0x400 *Jun 27 09:31:43.359: IPSEC(initialize_sas): , (key eng.
msg.) OUTBOUND local= 209.165.200.2, remote= 209.165.201.2, local_proxy=
192.168.1.0/255.255.255.0/0/0 (type=4), remote_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4),
protocol= ESP, transform= esp-des esp-md5-hmac (Tunnel-UDP), lifedur= 3600s and 4608000kb, spi=
0x9CCA0619(2630485529), conn_id= 134219729, keysize= 0, flags= 0x408 *Jun 27 09:31:43.359:
IPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = *Jun 27 09:31:43.359:
IPSEC(crypto_ipsec_sa_find_ident_head): reconnecting with the same proxies and 209.165.201.2
*Jun 27 09:31:43.359: IPSEC(mtree_add_ident): src 192.168.1.0, dest 172.16.2.0, dest_port 0 *Jun
27 09:31:43.359: IPSEC(create_sa): sa created, (sa) sa_dest= 209.165.200.2, sa_prot= 50, sa_spi=
0x4E6B990F(1315674383), sa_trans= esp-des esp-md5-hmac , sa_conn_id= 134219728 *Jun 27
09:31:43.359: IPSEC(create_sa): sa created, (sa) sa_dest= 209.165.201.2, sa_prot= 50, sa_spi=
0x9CCA0619(2630485529), sa_trans= esp-des esp-md5-hmac , sa_conn_id= 134219729 *Jun 27
09:32:33.359: ISAKMP:(0:1:SW:1):purging node 1546295295 VPN-Gateway2#debug crypto ipsec
Crypto IPSEC debugging is on
VPN-Gateway2#debug crypto isakmp
Crypto ISAKMP debugging is on
VPN-Gateway2#show debug
Cryptographic Subsystem:
  Crypto ISAKMP debugging is on
  Crypto IPSEC debugging is on
VPN-Gateway2#

!--- These debugs appeared after a ping !--- was attempted from PC2 to PC1. *Jun 27
09:31:35.447: IPSEC(sa_request): , (key eng. msg.) OUTBOUND local= 172.16.1.2, remote=
209.165.200.2, local_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4), remote_proxy=
192.168.1.0/255.255.255.0/0/0 (type=4), protocol= ESP, transform= esp-des esp-md5-hmac (Tunnel),
lifedur= 3600s and 4608000kb, spi= 0x9CCA0619(2630485529), conn_id= 0, keysize= 0, flags= 0x400A
*Jun 27 09:31:35.455: ISAKMP: received ke message (1/1) *Jun 27 09:31:35.455:
ISAKMP:(0:0:N/A:0): SA request profile is (NULL) *Jun 27 09:31:35.455: ISAKMP: Created a peer
struct for 209.165.200.2, peer port 500 *Jun 27 09:31:35.455: ISAKMP: Locking peer struct
0x2C42438, IKE refcount 1 for isakmp_initiator *Jun 27 09:31:35.455: ISAKMP: local port 500,
remote port 500 *Jun 27 09:31:35.487: ISAKMP: set new node 0 to QM_IDLE *Jun 27 09:31:35.487:
insert sa successfully sa = 2CB1E80 *Jun 27 09:31:35.487: ISAKMP:(0:1:SW:1):Can not start
Aggressive mode, trying Main mode. *Jun 27 09:31:35.487: ISAKMP: Looking for a matching key for
209.165.200.2 in default : success *Jun 27 09:31:35.487: ISAKMP:(0:1:SW:1):found peer pre-shared
key matching 209.165.200.2 *Jun 27 09:31:35.487: ISAKMP:(0:1:SW:1): constructed NAT-T vendor-03
ID *Jun 27 09:31:35.487: ISAKMP:(0:1:SW:1): constructed NAT-T vendor-02 ID *Jun 27 09:31:35.487:
ISAKMP:(0:1:SW:1):Input = IKE_MESG_FROM_IPSEC, IKE_SA_REQ_MM *Jun 27 09:31:35.487:
ISAKMP:(0:1:SW:1):Old State = IKE_READY New State = IKE_I_MM1 *Jun 27 09:31:35.487:
ISAKMP:(0:1:SW:1): beginning Main Mode exchange *Jun 27 09:31:35.487: ISAKMP:(0:1:SW:1): sending
packet to 209.165.200.2 my_port 500 peer_port 500 (I) MM_NO_STATE *Jun 27 09:31:36.607: ISAKMP
(0:134217729): received packet from 209.165.200.2 dport 500 sport 500 Global (I) MM_NO_STATE
*Jun 27 09:31:36.607: ISAKMP:(0:1:SW:1):Input = IKE_MESG_FROM_PEER, IKE_MM_EXCH *Jun 27
09:31:36.607: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM1 New State = IKE_I_MM2 *Jun 27
09:31:36.687: ISAKMP:(0:1:SW:1): processing SA payload. message ID = 0 *Jun 27 09:31:36.687:
ISAKMP:(0:1:SW:1): processing vendor id payload *Jun 27 09:31:36.687: ISAKMP:(0:1:SW:1): vendor
ID seems Unity/DPD but major 157 mismatch *Jun 27 09:31:36.687: ISAKMP:(0:1:SW:1): vendor ID is
NAT-T v3 *Jun 27 09:31:36.687: ISAKMP: Looking for a matching key for 209.165.200.2 in default :
success *Jun 27 09:31:36.687: ISAKMP:(0:1:SW:1):found peer pre-shared key matching 209.165.200.2
*Jun 27 09:31:36.687: ISAKMP:(0:1:SW:1): local preshared key found *Jun 27 09:31:36.687: ISAKMP
: Scanning profiles for xauth ... *Jun 27 09:31:36.687: ISAKMP:(0:1:SW:1):Checking ISAKMP
transform 1 against priority 10 policy *Jun 27 09:31:36.687: ISAKMP: encryption DES-CBC *Jun 27
09:31:36.687: ISAKMP: hash SHA *Jun 27 09:31:36.687: ISAKMP: default group 1 *Jun 27
09:31:36.687: ISAKMP: auth pre-share *Jun 27 09:31:36.687: ISAKMP: life type in seconds *Jun 27
09:31:36.687: ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80 *Jun 27 09:31:36.687:
ISAKMP:(0:1:SW:1):atts are acceptable. Next payload is 0 *Jun 27 09:31:36.687:
ISAKMP:(0:1:SW:1): processing vendor id payload *Jun 27 09:31:36.687: ISAKMP:(0:1:SW:1): vendor
ID seems Unity/DPD but major 157 mismatch *Jun 27 09:31:36.687: ISAKMP:(0:1:SW:1): vendor ID is
NAT-T v3 *Jun 27 09:31:36.687: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PROCESS_MAIN_MODE *Jun 27 09:31:36.687: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM2 New State =
IKE_I_MM2 *Jun 27 09:31:36.795: ISAKMP:(0:1:SW:1): sending packet to 209.165.200.2 my_port 500
peer_port 500 (I) MM_SA_SETUP *Jun 27 09:31:36.795: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PROCESS_COMPLETE *Jun 27 09:31:36.795: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM2 New State =
IKE_I_MM3 *Jun 27 09:31:38.727: ISAKMP (0:134217729): received packet from 209.165.200.2 dport
500 sport 500 Global (I) MM_SA_SETUP *Jun 27 09:31:38.727: ISAKMP:(0:1:SW:1):Input =
IKE_MESG_FROM_PEER, IKE_MM_EXCH *Jun 27 09:31:38.727: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM3
New State = IKE_I_MM4 *Jun 27 09:31:38.807: ISAKMP:(0:1:SW:1): processing KE payload. message ID
= 0 *Jun 27 09:31:38.807: ISAKMP:(0:1:SW:1): processing NONCE payload. message ID = 0 *Jun 27
09:31:38.807: ISAKMP: Looking for a matching key for 209.165.200.2 in default : success *Jun 27
09:31:38.807: ISAKMP:(0:1:SW:1):found peer pre-shared key matching 209.165.200.2 *Jun 27
09:31:38.807: ISAKMP:(0:1:SW:1):SKEYID state generated *Jun 27 09:31:38.807: ISAKMP:(0:1:SW:1):
processing vendor id payload *Jun 27 09:31:38.807: ISAKMP:(0:1:SW:1): vendor ID is Unity *Jun 27
09:31:38.807: ISAKMP:(0:1:SW:1): processing vendor id payload *Jun 27 09:31:38.807:
ISAKMP:(0:1:SW:1): vendor ID is DPD *Jun 27 09:31:38.807: ISAKMP:(0:1:SW:1): processing vendor
id payload *Jun 27 09:31:38.807: ISAKMP:(0:1:SW:1): speaking to another IOS box! *Jun 27
09:31:38.807: ISAKMP:received payload type 17 *Jun 27 09:31:38.807: ISAKMP (0:134217729): NAT
found, the node inside NAT *Jun 27 09:31:38.807: ISAKMP:received payload type 17 *Jun 27
09:31:38.807: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODE *Jun 27
09:31:38.807: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM4 New State = IKE_I_MM4 *Jun 27
09:31:38.935: ISAKMP:(0:1:SW:1):Send initial contact *Jun 27 09:31:38.935: ISAKMP:(0:1:SW:1):SA
is doing pre-shared key authentication using id type ID_IPV4_ADDR *Jun 27 09:31:38.935: ISAKMP
(0:134217729): ID payload next-payload : 8 type : 1 address : 172.16.1.2 protocol : 17 port : 0
length : 12 *Jun 27 09:31:38.935: ISAKMP:(0:1:SW:1):Total payload length: 12 *Jun 27
09:31:38.935: ISAKMP:(0:1:SW:1): sending packet to 209.165.200.2 my_port 4500 peer_port 4500 (I)
MM_KEY_EXCH *Jun 27 09:31:38.935: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PROCESS_COMPLETE *Jun 27 09:31:38.935: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM4 New State =
IKE_I_MM5 *Jun 27 09:31:40.307: ISAKMP (0:134217729): received packet from 209.165.200.2 dport
4500 sport 4500 Global (I) MM_KEY_EXCH *Jun 27 09:31:40.307: ISAKMP:(0:1:SW:1):Input =
IKE_MESG_FROM_PEER, IKE_MM_EXCH *Jun 27 09:31:40.307: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM5
New State = IKE_I_MM6 *Jun 27 09:31:40.367: ISAKMP:(0:1:SW:1): processing ID payload. message ID
= 0 *Jun 27 09:31:40.367: ISAKMP (0:134217729): ID payload next-payload : 8 type : 1 address :
209.165.200.2 protocol : 17 port : 0 length : 12 *Jun 27 09:31:40.367: ISAKMP:(0:1:SW:1):
processing HASH payload. message ID = 0 *Jun 27 09:31:40.367: ISAKMP:(0:1:SW:1):SA
authentication status: authenticated *Jun 27 09:31:40.367: ISAKMP:(0:1:SW:1):SA has been
authenticated with 209.165.200.2 *Jun 27 09:31:40.367: ISAKMP:(0:1:SW:1):: peer matches *none*
of the profiles *Jun 27 09:31:40.367: ISAKMP:(0:1:SW:1):Setting UDP ENC peer struct 0x2940710
sa= 0x2CB1E80 *Jun 27 09:31:40.367: ISAKMP: Trying to insert a peer
172.16.1.2/209.165.200.2/4500/, and inserted successfully. *Jun 27 09:31:40.367:
ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODE *Jun 27 09:31:40.367:
ISAKMP:(0:1:SW:1):Old State = IKE_I_MM6 New State = IKE_I_MM6 *Jun 27 09:31:40.367: ISAKMP:
sending nat keepalive packet to 209.165.200.2(4500) *Jun 27 09:31:40.395:
ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_COMPLETE *Jun 27 09:31:40.395:
ISAKMP:(0:1:SW:1):Old State = IKE_I_MM6 New State = IKE_P1_COMPLETE *Jun 27 09:31:40.475:
ISAKMP:(0:1:SW:1):beginning Quick Mode exchange, M-ID of 1546295295 *Jun 27 09:31:40.507:
ISAKMP:(0:1:SW:1): sending packet to 209.165.200.2 my_port 4500 peer_port 4500 (I) QM_IDLE *Jun
27 09:31:40.507: ISAKMP:(0:1:SW:1):Node 1546295295, Input = IKE_MESG_INTERNAL, IKE_INIT_QM *Jun
27 09:31:40.507: ISAKMP:(0:1:SW:1):Old State = IKE_QM_READY New State = IKE_QM_I_QM1 *Jun 27
09:31:40.507: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PHASE1_COMPLETE *Jun 27
09:31:40.507: ISAKMP:(0:1:SW:1):Old State = IKE_P1_COMPLETE New State = IKE_P1_COMPLETE *Jun 27
09:31:41.887: ISAKMP (0:134217729): received packet from 209.165.200.2 dport 4500 sport 4500
Global (I) QM_IDLE *Jun 27 09:31:41.887: ISAKMP:(0:1:SW:1): processing HASH payload. message ID
= 1546295295 *Jun 27 09:31:41.887: ISAKMP:(0:1:SW:1): processing SA payload. message ID =
1546295295 *Jun 27 09:31:41.887: ISAKMP:(0:1:SW:1):Checking IPSec proposal 1 *Jun 27
09:31:41.887: ISAKMP: transform 1, ESP_DES *Jun 27 09:31:41.887: ISAKMP: attributes in
transform: *Jun 27 09:31:41.887: ISAKMP: encaps is 61443 (Tunnel-UDP) *Jun 27 09:31:41.887:
ISAKMP: SA life type in seconds *Jun 27 09:31:41.887: ISAKMP: SA life duration (basic) of 3600
*Jun 27 09:31:41.887: ISAKMP: SA life type in kilobytes *Jun 27 09:31:41.887: ISAKMP: SA life
duration (VPI) of 0x0 0x46 0x50 0x0 *Jun 27 09:31:41.887: ISAKMP: authenticator is HMAC-MD5 *Jun
27 09:31:41.887: ISAKMP:(0:1:SW:1):atts are acceptable. *Jun 27 09:31:41.887:
IPSEC(validate_proposal_request): proposal part #1, (key eng. msg.) INBOUND local= 172.16.1.2,
remote= 209.165.200.2, local_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4), remote_proxy=
192.168.1.0/255.255.255.0/0/0 (type=4), protocol= ESP, transform= esp-des esp-md5-hmac (Tunnel-
UDP), lifedur= 0s and 0kb, spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x400 *Jun 27
09:31:41.887: IPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = *Jun 27 09:31:41.887:
```

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ISAKMP:(0:1:SW:1): processing NONCE payload. message ID = 1546295295 *Jun 27 09:31:41.887:
ISAKMP:(0:1:SW:1): processing ID payload. message ID = 1546295295 *Jun 27 09:31:41.887:
ISAKMP:(0:1:SW:1): processing ID payload. message ID = 1546295295 *Jun 27 09:31:41.887: IPSec:
Flow_switching Allocated flow for flow_id 134217729 *Jun 27 09:31:41.887: IPSec: Flow_switching
Allocated flow for flow_id 134217730 *Jun 27 09:31:41.947: %CRYPTO-5-SESSION_STATUS: Crypto
tunnel is UP . Peer 209.165.200.2:4500 Id: 209.165.200.2 *Jun 27 09:31:41.947: ISAKMP: Locking
peer struct 0x2C42438, IPSEC refcount 1 for for stuff_ke *Jun 27 09:31:41.947:
ISAKMP:(0:1:SW:1): Creating IPSec SAs *Jun 27 09:31:41.947: inbound SA from 209.165.200.2 to
172.16.1.2 (f/i) 0/ 0 (proxy 192.168.1.0 to 172.16.2.0) *Jun 27 09:31:41.947: has spi 0x9CCA0619
and conn_id 2000 and flags 400 *Jun 27 09:31:41.947: lifetime of 3600 seconds *Jun 27
09:31:41.947: lifetime of 4608000 kilobytes *Jun 27 09:31:41.947: has client flags 0x10 *Jun 27
09:31:41.947: outbound SA from 172.16.1.2 to 209.165.200.2 (f/i) 0/0 (proxy 172.16.2.0 to
192.168.1.0) *Jun 27 09:31:41.947: has spi 1315674383 and conn_id 2001 and flags 408 *Jun 27
09:31:41.947: lifetime of 3600 seconds *Jun 27 09:31:41.947: lifetime of 4608000 kilobytes *Jun
27 09:31:41.947: has client flags 0x10 *Jun 27 09:31:41.947: ISAKMP:(0:1:SW:1): sending packet
to 209.165.200.2 my_port 4500 peer_port 4500 (I) QM_IDLE *Jun 27 09:31:41.947:
ISAKMP:(0:1:SW:1):deleting node 1546295295 error FALSE reason "" *Jun 27 09:31:41.947:
ISAKMP:(0:1:SW:1):Node 1546295295, Input = IKE_MESG_FROM_PEER, IKE_QM_EXCH *Jun 27 09:31:41.947:
ISAKMP:(0:1:SW:1):Old State = IKE_QM_I_QM1 New State = IKE_QM_PHASE2_COMPLETE *Jun 27
09:31:41.955: IPSEC(key_engine): got a queue event with 2 kei messages *Jun 27 09:31:41.955:
IPSEC(initialize_sas): , (key eng. msg.) INBOUND local= 172.16.1.2, remote= 209.165.200.2,
local_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4), remote_proxy= 192.168.1.0/255.255.255.0/0/0
(type=4), protocol= ESP, transform= esp-des esp-md5-hmac (Tunnel-UDP), lifedur= 3600s and
4608000kb, spi= 0x9CCA0619(2630485529), conn_id= 134219728, keysize= 0, flags= 0x400 *Jun 27
09:31:41.955: IPSEC(initialize_sas): , (key eng. msg.) OUTBOUND local= 172.16.1.2, remote=
209.165.200.2, local_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4), remote_proxy=
192.168.1.0/255.255.255.0/0/0 (type=4), protocol= ESP, transform= esp-des esp-md5-hmac (Tunnel-
UDP), lifedur= 3600s and 4608000kb, spi= 0x4E6B990F(1315674383), conn_id= 134219729, keysize= 0,
flags= 0x408 *Jun 27 09:31:41.955: IPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf =
*Jun 27 09:31:41.955: IPSEC(crypto_ipsec_sa_find_ident_head): reconnecting with the same proxies
and 209.165.200.2 *Jun 27 09:31:41.955: IPSEC(mtree_add_ident): src 172.16.2.0, dest
192.168.1.0, dest_port 0 *Jun 27 09:31:41.955: IPSEC(create_sa): sa created, (sa) sa_dest=
172.16.1.2, sa_prot= 50, sa_spi= 0x9CCA0619(2630485529), sa_trans= esp-des esp-md5-hmac ,
sa_conn_id= 134219728 *Jun 27 09:31:41.955: IPSEC(create_sa): sa created, (sa) sa_dest=
209.165.200.2, sa_prot= 50, sa_spi= 0x4E6B990F(1315674383), sa_trans= esp-des esp-md5-hmac ,
sa_conn_id= 134219729 VPN-Gateway2# *Jun 27 09:32:31.979: ISAKMP:(0:1:SW:1):purging node
1546295295 PAT-Router#debug ip nat detail
IP NAT detailed debugging is on
PAT-Router#show debug
Generic IP:
  IP NAT detailed debugging is on
PAT-Router#
!--- The "i" in this line indicates the packet is traveling from the !--- inside to the outside
(from a NAT perspective) interface. The number in !--- the brackets is the identification number
in the IP packet. This is !--- useful when correlating information with sniffer traces taken
with a !--- network analyzer while troubleshooting problems. *Jun 27 09:31:35.375: NAT*: i: udp
(172.16.1.2, 500) -> (209.165.200.2, 500) [66] !--- The "s" in this next line shows the source
address of the packet and how it is !--- being translated. *Jun 27 09:31:35.375: NAT*:
s=172.16.1.2->209.165.201.2, d=209.165.200.2 [66] *Jun 27 09:31:36.475: NAT*: o: udp
(209.165.200.2, 500) -> (209.165.201.2, 500) [66] *Jun 27 09:31:36.475: NAT*: s=209.165.200.2,
d=209.165.201.2->172.16.1.2 [66] *Jun 27 09:31:36.683: NAT*: i: udp (172.16.1.2, 500) ->
(209.165.200.2, 500) [67] *Jun 27 09:31:36.683: NAT*: s=172.16.1.2->209.165.201.2,
d=209.165.200.2 [67] *Jun 27 09:31:38.595: NAT*: o: udp (209.165.200.2, 500) -> (209.165.201.2,
500) [67] *Jun 27 09:31:38.595: NAT*: s=209.165.200.2, d=209.165.201.2->172.16.1.2 [67] *Jun 27
09:31:38.823: NAT*: i: udp (172.16.1.2, 4500) -> (209.165.200.2, 4500) [68] *Jun 27
09:31:38.823: NAT*: s=172.16.1.2->209.165.201.2, d=209.165.200.2 [68] *Jun 27 09:31:40.163:
NAT*: o: udp (209.165.200.2, 4500) -> (209.165.201.2, 4500) [68] *Jun 27 09:31:40.163: NAT*:
s=209.165.200.2, d=209.165.201.2->172.16.1.2 [68] *Jun 27 09:31:40.255: NAT*: i: udp
(172.16.1.2, 4500) -> (209.165.200.2, 4500) [69] *Jun 27 09:31:40.255: NAT*: s=172.16.1.2-
>209.165.201.2, d=209.165.200.2 [69] *Jun 27 09:31:40.395: NAT*: i: udp (172.16.1.2, 4500) ->
(209.165.200.2, 4500) [70] *Jun 27 09:31:40.395: NAT*: s=172.16.1.2->209.165.201.2,
d=209.165.200.2 [70] *Jun 27 09:31:41.747: NAT*: o: udp (209.165.200.2, 4500) -> (209.165.201.2,
4500) [69] *Jun 27 09:31:41.747: NAT*: s=209.165.200.2, d=209.165.201.2->172.16.1.2 [69] *Jun 27
09:31:41.839: NAT*: i: udp (172.16.1.2, 4500) -> (209.165.200.2, 4500) [71] *Jun 27
```

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09:31:41.839: NAT*: s=172.16.1.2->209.165.201.2, d=209.165.200.2 [71] *Jun 27 09:31:43.463:
NAT*: i: udp (172.16.1.2, 4500) -> (209.165.200.2, 4500) [72] *Jun 27 09:31:43.463: NAT*:
s=172.16.1.2->209.165.201.2, d=209.165.200.2 [72] *Jun 27 09:31:43.523: NAT*: o: udp
(209.165.200.2, 4500) -> (209.165.201.2, 4500) [70] *Jun 27 09:31:43.523: NAT*: s=209.165.200.2,
d=209.165.201.2->172.16.1.2 [70] *Jun 27 09:33:27.975: NAT*: i: udp (172.16.1.2, 4500) ->
(209.165.200.2, 4500) [73] *Jun 27 09:33:27.975: NAT*: s=172.16.1.2->209.165.201.2,
d=209.165.200.2 [73] *Jun 27 09:33:28.067: NAT*: o: udp (209.165.200.2, 4500) -> (209.165.201.2,
4500) [71] *Jun 27 09:33:28.067: NAT*: s=209.165.200.2, d=209.165.201.2->172.16.1.2 [71] *Jun 27
09:33:28.115: NAT*: i: udp (172.16.1.2, 4500) -> (209.165.200.2, 4500) [74] *Jun 27
09:33:28.115: NAT*: s=172.16.1.2->209.165.201.2, d=209.165.200.2 [74] *Jun 27 09:33:28.167:
NAT*: o: udp (209.165.200.2, 4500) -> (209.165.201.2, 4500) [72] *Jun 27 09:33:28.167: NAT*:
s=209.165.200.2, d=209.165.201.2->172.16.1.2 [72] *Jun 27 09:33:28.227: NAT*: i: udp
(172.16.1.2, 4500) -> (209.165.200.2, 4500) [75] *Jun 27 09:33:28.227: NAT*: s=172.16.1.2-
>209.165.201.2, d=209.165.200.2 [75] *Jun 27 09:33:28.283: NAT*: o: udp (209.165.200.2, 4500) ->
(209.165.201.2, 4500) [73] *Jun 27 09:33:28.283: NAT*: s=209.165.200.2, d=209.165.201.2-
>172.16.1.2 [73] *Jun 27 09:33:28.355: NAT*: i: udp (172.16.1.2, 4500) -> (209.165.200.2, 4500)
[76] *Jun 27 09:33:28.355: NAT*: s=172.16.1.2->209.165.201.2, d=209.165.200.2 [76] *Jun 27
09:33:28.407: NAT*: o: udp (209.165.200.2, 4500) -> (209.165.201.2, 4500) [74] *Jun 27
09:33:28.407: NAT*: s=209.165.200.2, d=209.165.201.2->172.16.1.2 [74] *Jun 27 09:33:28.455:
NAT*: i: udp (172.16.1.2, 4500) -> (209.165.200.2, 4500) [77] *Jun 27 09:33:28.455: NAT*:
s=172.16.1.2->209.165.201.2, d=209.165.200.2 [77] *Jun 27 09:33:28.487: NAT*: o: udp
(209.165.200.2, 4500) -> (209.165.201.2, 4500) [75] *Jun 27 09:33:28.487: NAT*: s=209.165.200.2,
d=209.165.201.2->172.16.1.2 [75]
```

Resolución de problemas sin transparencia IPSec NAT

- **debug crypto ipsec — Muestra los IPSec Negotiations de la Fase 2.**
- **debug crypto isakmp — Muestra las negociaciones ISAKMP para la fase 1.**
- **debug ip nat detail**: examina la NAT que realiza el router.

Ésta es una salida del comando de ejemplo:

```
VPN-Gateway1#debug crypto ipsec
Crypto IPSEC debugging is on
VPN-Gateway1#debug crypto isakmp
Crypto ISAKMP debugging is on
VPN-Gateway1#show debug
Cryptographic Subsystem:
  Crypto ISAKMP debugging is on
  Crypto IPSEC debugging is on

 !--- These debugs appeared after a ping !--- was attempted from PC2 to PC1. *Jun 27
09:49:58.351: ISAKMP (0:0): received packet from 209.165.201.2 dport 500 sport 500 Global (N)
NEW SA *Jun 27 09:49:58.351: ISAKMP: Created a peer struct for 209.165.201.2, peer port 500 *Jun
27 09:49:58.351: ISAKMP: Locking peer struct 0x2C50328, IKE refcount 1 for
crypto_isakmp_process_block *Jun 27 09:49:58.351: ISAKMP: local port 500, remote port 500 *Jun
27 09:49:58.991: insert sa successfully sa = 29D2E80 *Jun 27 09:49:58.991:
ISAKMP:(0:1:SW:1):Input = IKE_MESG_FROM_PEER, IKE_MM_EXCH *Jun 27 09:49:58.991:
ISAKMP:(0:1:SW:1):Old State = IKE_READY New State = IKE_R_MM1 *Jun 27 09:49:59.151:
ISAKMP:(0:1:SW:1): processing SA payload. message ID = 0 *Jun 27 09:49:59.151: ISAKMP: Looking
for a matching key for 209.165.201.2 in default : success *Jun 27 09:49:59.151:
ISAKMP:(0:1:SW:1):found peer pre-shared key matching 209.165.201.2 *Jun 27 09:49:59.151:
ISAKMP:(0:1:SW:1): local preshared key found *Jun 27 09:49:59.151: ISAKMP : Scanning profiles
for xauth ... *Jun 27 09:49:59.151: ISAKMP:(0:1:SW:1):Checking ISAKMP transform 1 against
priority 10 policy *Jun 27 09:49:59.151: ISAKMP: encryption DES-CBC *Jun 27 09:49:59.151:
ISAKMP: hash SHA *Jun 27 09:49:59.151: ISAKMP: default group 1 *Jun 27 09:49:59.151: ISAKMP:
auth pre-share *Jun 27 09:49:59.151: ISAKMP: life type in seconds *Jun 27 09:49:59.151: ISAKMP:
life duration (VPI) of 0x0 0x1 0x51 0x80 *Jun 27 09:49:59.151: ISAKMP:(0:1:SW:1):atts are
acceptable. Next payload is 0 *Jun 27 09:49:59.151: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PROCESS_MAIN_MODE *Jun 27 09:49:59.151: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM1 New State =
IKE_R_MM1 *Jun 27 09:49:59.223: ISAKMP:(0:1:SW:1): sending packet to 209.165.201.2 my_port 500
peer_port 500 (R) MM_SA_SETUP *Jun 27 09:49:59.223: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PROCESS_COMPLETE *Jun 27 09:49:59.223: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM1 New State =
IKE_R_MM2 *Jun 27 09:49:59.711: ISAKMP (0:134217729): received packet from 209.165.201.2 dport
500 sport 500 Global (R) MM_SA_SETUP *Jun 27 09:49:59.711: ISAKMP:(0:1:SW:1):Input =
IKE_MESG_FROM_PEER, IKE_MM_EXCH *Jun 27 09:49:59.711: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM2
New State = IKE_R_MM3 *Jun 27 09:49:59.763: ISAKMP:(0:1:SW:1): processing KE payload. message ID
= 0 *Jun 27 09:49:59.763: ISAKMP:(0:1:SW:1): processing NONCE payload. message ID = 0 *Jun 27
09:49:59.911: ISAKMP: Looking for a matching key for 209.165.201.2 in default : success *Jun 27
09:49:59.911: ISAKMP:(0:1:SW:1):found peer pre-shared key matching 209.165.201.2 *Jun 27
09:49:59.911: ISAKMP:(0:1:SW:1):SKEYID state generated *Jun 27 09:49:59.911: ISAKMP:(0:1:SW:1):
processing vendor id payload *Jun 27 09:49:59.911: ISAKMP:(0:1:SW:1): vendor ID is Unity *Jun 27
09:49:59.911: ISAKMP:(0:1:SW:1): processing vendor id payload *Jun 27 09:49:59.911:
ISAKMP:(0:1:SW:1): vendor ID is DPD *Jun 27 09:49:59.911: ISAKMP:(0:1:SW:1): processing vendor
id payload *Jun 27 09:49:59.911: ISAKMP:(0:1:SW:1): speaking to another IOS box! *Jun 27
09:49:59.911: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODE *Jun 27
09:49:59.911: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM3 New State = IKE_R_MM3 *Jun 27
09:50:00.051: ISAKMP:(0:1:SW:1): sending packet to 209.165.201.2 my_port 500 peer_port 500 (R)
MM_KEY_EXCH *Jun 27 09:50:00.051: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PROCESS_COMPLETE *Jun 27 09:50:00.051: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM3 New State =
IKE_R_MM4 *Jun 27 09:50:00.743: ISAKMP (0:134217729): received packet from 209.165.201.2 dport
500 sport 500 Global (R) MM_KEY_EXCH *Jun 27 09:50:00.743: ISAKMP:(0:1:SW:1):Input =
IKE_MESG_FROM_PEER, IKE_MM_EXCH *Jun 27 09:50:00.743: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM4
New State = IKE_R_MM5 *Jun 27 09:50:00.811: ISAKMP:(0:1:SW:1): processing ID payload. message ID
= 0 *Jun 27 09:50:00.811: ISAKMP (0:134217729): ID payload next-payload : 8 type : 1 address :
172.16.1.2 protocol : 17 port : 500 length : 12 *Jun 27 09:50:00.811: ISAKMP:(0:1:SW:1):: peer
matches *none* of the profiles *Jun 27 09:50:00.811: ISAKMP:(0:1:SW:1): processing HASH payload.
message ID = 0 *Jun 27 09:50:00.811: ISAKMP:(0:1:SW:1): processing NOTIFY INITIAL_CONTACT
protocol 1 spi 0, message ID = 0, sa = 29D2E80 *Jun 27 09:50:00.811: ISAKMP:(0:1:SW:1):SA
authentication status: authenticated *Jun 27 09:50:00.811: ISAKMP:(0:1:SW:1): Process initial
contact, bring down existing phase 1 and 2 SA's with local 209.165.200.2 remote 209.165.201.2
remote port 500 *Jun 27 09:50:00.811: ISAKMP:(0:1:SW:1):SA authentication status: authenticated
*Jun 27 09:50:00.811: ISAKMP:(0:1:SW:1):SA has been authenticated with 209.165.201.2 *Jun 27
09:50:00.811: ISAKMP: Trying to insert a peer 209.165.200.2/209.165.201.2/500/, and inserted
successfully. *Jun 27 09:50:00.811: ISAKMP:(0:1:SW:1):: peer matches *none* of the profiles *Jun
27 09:50:00.811: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODE *Jun 27
09:50:00.811: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM5 New State = IKE_R_MM5 *Jun 27
09:50:00.851: IPSEC(key_engine): got a queue event with 1 kei messages *Jun 27 09:50:00.963:
ISAKMP:(0:1:SW:1):SA is doing pre-shared key authentication using id type ID_IPV4_ADDR *Jun 27
09:50:00.963: ISAKMP (0:134217729): ID payload next-payload : 8 type : 1 address : 209.165.200.2
protocol : 17 port : 500 length : 12 *Jun 27 09:50:00.963: ISAKMP:(0:1:SW:1):Total payload
length: 12 *Jun 27 09:50:00.963: ISAKMP:(0:1:SW:1): sending packet to 209.165.201.2 my_port 500
peer_port 500 (R) MM_KEY_EXCH *Jun 27 09:50:00.963: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PROCESS_COMPLETE *Jun 27 09:50:00.963: ISAKMP:(0:1:SW:1):Old State = IKE_R_MM5 New State =
IKE_P1_COMPLETE *Jun 27 09:50:01.043: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PHASE1_COMPLETE *Jun 27 09:50:01.043: ISAKMP:(0:1:SW:1):Old State = IKE_P1_COMPLETE New
State = IKE_P1_COMPLETE *Jun 27 09:50:01.403: ISAKMP (0:134217729): received packet from
209.165.201.2 dport 500 sport 500 Global (R) QM_IDLE *Jun 27 09:50:01.403: ISAKMP: set new node
1689610294 to QM_IDLE *Jun 27 09:50:01.403: ISAKMP:(0:1:SW:1): processing HASH payload. message
ID = 1689610294 *Jun 27 09:50:01.403: ISAKMP:(0:1:SW:1): processing SA payload. message ID =
1689610294 *Jun 27 09:50:01.403: ISAKMP:(0:1:SW:1):Checking IPSec proposal 1 *Jun 27
09:50:01.403: ISAKMP: transform 1, ESP_DES *Jun 27 09:50:01.403: ISAKMP: attributes in
transform: *Jun 27 09:50:01.403: ISAKMP: encaps is 1 (Tunnel) *Jun 27 09:50:01.403: ISAKMP: SA
life type in seconds *Jun 27 09:50:01.403: ISAKMP: SA life duration (basic) of 3600 *Jun 27
09:50:01.403: ISAKMP: SA life type in kilobytes *Jun 27 09:50:01.403: ISAKMP: SA life duration
(VPI) of 0x0 0x46 0x50 0x0 *Jun 27 09:50:01.403: ISAKMP: authenticator is HMAC-MD5 *Jun 27
09:50:01.403: ISAKMP:(0:1:SW:1):atts are acceptable. *Jun 27 09:50:01.403:
IPSEC(validate_proposal_request): proposal part #1, (key eng. msg.) INBOUND local=
209.165.200.2, remote= 209.165.201.2, local_proxy= 192.168.1.0/255.255.255.0/0/0 (type=4),
remote_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4), protocol= ESP, transform= esp-des esp-md5-
hmac (Tunnel), lifedur= 0s and 0kb, spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x2 *Jun 27
09:50:01.403: IPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = *Jun 27 09:50:01.403:
ISAKMP:(0:1:SW:1): processing NONCE payload. message ID = 1689610294 *Jun 27 09:50:01.403:
ISAKMP:(0:1:SW:1): processing ID payload. message ID = 1689610294 *Jun 27 09:50:01.403:
ISAKMP:(0:1:SW:1): processing ID payload. message ID = 1689610294 *Jun 27 09:50:01.403:
ISAKMP:(0:1:SW:1): asking for 1 spis from ipsec *Jun 27 09:50:01.403: ISAKMP:(0:1:SW:1):Node
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1689610294, Input = IKE_MESG_FROM_PEER, IKE_QM_EXCH *Jun 27 09:50:01.403: ISAKMP:(0:1:SW:1):Old
State = IKE_QM_READY New State = IKE_QM_SPI_STARVE *Jun 27 09:50:01.443: IPSEC(key_engine): got
a queue event with 1 kei messages *Jun 27 09:50:01.443: IPSEC(spi_response): getting spi
3052955580 for SA from 209.165.200.2 to 209.165.201.2 for prot 3 *Jun 27 09:50:01.463: ISAKMP:
received ke message (2/1) *Jun 27 09:50:01.971: ISAKMP:(0:1:SW:1): sending packet to
209.165.201.2 my_port 500 peer_port 500 (R) QM_IDLE *Jun 27 09:50:01.971: ISAKMP:(0:1:SW:1):Node
1689610294, Input = IKE_MESG_FROM_IPSEC, IKE_SPI_REPLY *Jun 27 09:50:01.971:
ISAKMP:(0:1:SW:1):Old State = IKE_QM_SPI_STARVE New State = IKE_QM_R_QM2 *Jun 27 09:50:02.303:
ISAKMP (0:134217729): received packet from 209.165.201.2 dport 500 sport 500 Global (R) QM_IDLE
*Jun 27 09:50:02.303: IPSec: Flow_switching Allocated flow for flow_id 134217735 *Jun 27
09:50:02.303: IPSec: Flow_switching Allocated flow for flow_id 134217736 *Jun 27 09:50:03.203:
%CRYPTO-5-SESSION_STATUS: Crypto tunnel is UP . Peer 209.165.201.2:500 Id: 172.16.1.2 *Jun 27
09:50:03.203: ISAKMP: Locking peer struct 0x2C50328, IPSEC refcount 1 for for stuff_ke *Jun 27
09:50:03.203: ISAKMP:(0:1:SW:1): Creating IPSec SAs *Jun 27 09:50:03.203: inbound SA from
209.165.201.2 to 209.165.200.2 (f/i) 0/ 0 (proxy 172.16.2.0 to 192.168.1.0) *Jun 27
09:50:03.203: has spi 0xB5F867BC and conn_id 2000 and flags 2 *Jun 27 09:50:03.203: lifetime of
3600 seconds *Jun 27 09:50:03.203: lifetime of 4608000 kilobytes *Jun 27 09:50:03.203: has
client flags 0x0 *Jun 27 09:50:03.203: outbound SA from 209.165.200.2 to 209.165.201.2 (f/i) 0/0
(proxy 192.168.1.0 to 172.16.2.0) *Jun 27 09:50:03.203: has spi -392560059 and conn_id 2001 and
flags A *Jun 27 09:50:03.203: lifetime of 3600 seconds *Jun 27 09:50:03.203: lifetime of 4608000
kilobytes *Jun 27 09:50:03.203: has client flags 0x0 *Jun 27 09:50:03.203:
ISAKMP:(0:1:SW:1):deleting node 1689610294 error FALSE reason "quick mode done (await)" *Jun 27
09:50:03.203: ISAKMP:(0:1:SW:1):Node 1689610294, Input = IKE_MESG_FROM_PEER, IKE_QM_EXCH *Jun 27
09:50:03.203: ISAKMP:(0:1:SW:1):Old State = IKE_QM_R_QM2 New State = IKE_QM_PHASE2_COMPLETE *Jun
27 09:50:03.231: IPSEC(key_engine): got a queue event with 2 kei messages *Jun 27 09:50:03.231:
IPSEC(initialize_sas): , (key eng. msg.) INBOUND local= 209.165.200.2, remote= 209.165.201.2,
local_proxy= 192.168.1.0/255.255.255.0/0/0 (type=4), remote_proxy= 172.16.2.0/255.255.255.0/0/0
(type=4), protocol= ESP, transform= esp-des esp-md5-hmac (Tunnel), lifedur= 3600s and 4608000kb,
spi= 0xB5F867BC(3052955580), conn_id= 134219728, keysize= 0, flags= 0x2 *Jun 27 09:50:03.231:
IPSEC(initialize_sas): , (key eng. msg.) OUTBOUND local= 209.165.200.2, remote= 209.165.201.2,
local_proxy= 192.168.1.0/255.255.255.0/0/0 (type=4), remote_proxy= 172.16.2.0/255.255.255.0/0/0
(type=4), protocol= ESP, transform= esp-des esp-md5-hmac (Tunnel), lifedur= 3600s and 4608000kb,
spi= 0xE89A0245(3902407237), conn_id= 134219729, keysize= 0, flags= 0xA *Jun 27 09:50:03.231:
IPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = *Jun 27 09:50:03.231:
IPSEC(crypto_ipsec_sa_find_ident_head): reconnecting with the same proxies and 209.165.201.2
*Jun 27 09:50:03.231: IPSEC(mtree_add_ident): src 192.168.1.0, dest 172.16.2.0, dest_port 0 *Jun
27 09:50:03.231: IPSEC(create_sa): sa created, (sa) sa_dest= 209.165.200.2, sa_prot= 50, sa_spi=
0xB5F867BC(3052955580), sa_trans= esp-des esp-md5-hmac , sa_conn_id= 134219728 *Jun 27
09:50:03.231: IPSEC(create_sa): sa created, (sa) sa_dest= 209.165.201.2, sa_prot= 50, sa_spi=
0xE89A0245(3902407237), sa_trans= esp-des esp-md5-hmac , sa_conn_id= 134219729 *Jun 27
09:50:53.231: ISAKMP:(0:1:SW:1):purging node 1689610294 VPN-Gateway2#debug crypto ipsec
Crypto IPSEC debugging is on
VPN-Gateway2#debug crypto isakmp
Crypto ISAKMP debugging is on
VPN-Gateway2#show debug
Cryptographic Subsystem:
  Crypto ISAKMP debugging is on
  Crypto IPSEC debugging is on
VPN-Gateway2#

 !--- These debugs appeared after a ping !--- was attempted from PC2 to PC1. *Jun 27
09:49:57.799: IPSEC(sa_request): , (key eng. msg.) OUTBOUND local= 172.16.1.2, remote=
209.165.200.2, local_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4), remote_proxy=
192.168.1.0/255.255.255.0/0/0 (type=4), protocol= ESP, transform= esp-des esp-md5-hmac (Tunnel),
lifedur= 3600s and 4608000kb, spi= 0xE89A0245(3902407237), conn_id= 0, keysize= 0, flags= 0x400A
*Jun 27 09:49:57.807: ISAKMP: received ke message (1/1) *Jun 27 09:49:57.807:
ISAKMP:(0:0:N/A:0): SA request profile is (NULL) *Jun 27 09:49:57.807: ISAKMP: Created a peer
struct for 209.165.200.2, peer port 500 *Jun 27 09:49:57.807: ISAKMP: Locking peer struct
0x2BEDC78, IKE refcount 1 for isakmp_initiator *Jun 27 09:49:57.807: ISAKMP: local port 500,
remote port 500 *Jun 27 09:49:57.839: ISAKMP: set new node 0 to QM_IDLE *Jun 27 09:49:57.839:
insert sa successfully sa = 2CB1E80 *Jun 27 09:49:57.839: ISAKMP:(0:1:SW:1):Can not start
Aggressive mode, trying Main mode. *Jun 27 09:49:57.839: ISAKMP: Looking for a matching key for
209.165.200.2 in default : success *Jun 27 09:49:57.839: ISAKMP:(0:1:SW:1):found peer pre-shared
key matching 209.165.200.2 *Jun 27 09:49:57.839: ISAKMP:(0:1:SW:1):Input = IKE_MESG_FROM_IPSEC,
IKE_SA_REQ_MM *Jun 27 09:49:57.839: ISAKMP:(0:1:SW:1):Old State = IKE_READY New State =
IKE_I_MM1 *Jun 27 09:49:57.839: ISAKMP:(0:1:SW:1): beginning Main Mode exchange *Jun 27
09:49:57.839: ISAKMP:(0:1:SW:1): sending packet to 209.165.200.2 my_port 500 peer_port 500 (I)
MM_NO_STATE *Jun 27 09:49:59.099: ISAKMP (0:134217729): received packet from 209.165.200.2 dport
500 sport 500 Global (I) MM_NO_STATE *Jun 27 09:49:59.099: ISAKMP:(0:1:SW:1):Input =
IKE_MESG_FROM_PEER, IKE_MM_EXCH *Jun 27 09:49:59.099: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM1
New State = IKE_I_MM2 *Jun 27 09:49:59.139: ISAKMP:(0:1:SW:1): processing SA payload. message ID
= 0 *Jun 27 09:49:59.139: ISAKMP: Looking for a matching key for 209.165.200.2 in default :
success *Jun 27 09:49:59.139: ISAKMP:(0:1:SW:1):found peer pre-shared key matching 209.165.200.2
*Jun 27 09:49:59.139: ISAKMP:(0:1:SW:1): local preshared key found *Jun 27 09:49:59.139: ISAKMP
: Scanning profiles for xauth ... *Jun 27 09:49:59.139: ISAKMP:(0:1:SW:1):Checking ISAKMP
transform 1 against priority 10 policy *Jun 27 09:49:59.139: ISAKMP: encryption DES-CBC *Jun 27
09:49:59.139: ISAKMP: hash SHA *Jun 27 09:49:59.139: ISAKMP: default group 1 *Jun 27
09:49:59.139: ISAKMP: auth pre-share *Jun 27 09:49:59.139: ISAKMP: life type in seconds *Jun 27
09:49:59.139: ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80 *Jun 27 09:49:59.139:
ISAKMP:(0:1:SW:1):atts are acceptable. Next payload is 0 *Jun 27 09:49:59.139:
ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODE *Jun 27 09:49:59.139:
ISAKMP:(0:1:SW:1):Old State = IKE_I_MM2 New State = IKE_I_MM2 *Jun 27 09:49:59.259:
ISAKMP:(0:1:SW:1): sending packet to 209.165.200.2 my_port 500 peer_port 500 (I) MM_SA_SETUP
*Jun 27 09:49:59.259: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_COMPLETE *Jun 27
09:49:59.259: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM2 New State = IKE_I_MM3 *Jun 27
09:49:59.919: ISAKMP (0:134217729): received packet from 209.165.200.2 dport 500 sport 500
Global (I) MM_SA_SETUP *Jun 27 09:49:59.919: ISAKMP:(0:1:SW:1):Input = IKE_MESG_FROM_PEER,
IKE_MM_EXCH *Jun 27 09:49:59.919: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM3 New State = IKE_I_MM4
*Jun 27 09:49:59.947: ISAKMP:(0:1:SW:1): processing KE payload. message ID = 0 *Jun 27
09:49:59.947: ISAKMP:(0:1:SW:1): processing NONCE payload. message ID = 0 *Jun 27 09:49:59.947:
ISAKMP: Looking for a matching key for 209.165.200.2 in default : success *Jun 27 09:49:59.947:
ISAKMP:(0:1:SW:1):found peer pre-shared key matching 209.165.200.2 *Jun 27 09:49:59.947:
ISAKMP:(0:1:SW:1):SKEYID state generated *Jun 27 09:49:59.947: ISAKMP:(0:1:SW:1): processing
vendor id payload *Jun 27 09:49:59.947: ISAKMP:(0:1:SW:1): vendor ID is Unity *Jun 27
09:49:59.947: ISAKMP:(0:1:SW:1): processing vendor id payload *Jun 27 09:49:59.947:
ISAKMP:(0:1:SW:1): vendor ID is DPD *Jun 27 09:49:59.947: ISAKMP:(0:1:SW:1): processing vendor
id payload *Jun 27 09:49:59.947: ISAKMP:(0:1:SW:1): speaking to another IOS box! *Jun 27
09:49:59.947: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODE *Jun 27
09:49:59.947: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM4 New State = IKE_I_MM4 *Jun 27
09:50:00.059: ISAKMP:(0:1:SW:1):Send initial contact *Jun 27 09:50:00.059: ISAKMP:(0:1:SW:1):SA
is doing pre-shared key authentication using id type ID_IPV4_ADDR *Jun 27 09:50:00.059: ISAKMP
(0:134217729): ID payload next-payload : 8 type : 1 address : 172.16.1.2 protocol : 17 port :
500 length : 12 *Jun 27 09:50:00.059: ISAKMP:(0:1:SW:1):Total payload length: 12 *Jun 27
09:50:00.059: ISAKMP:(0:1:SW:1): sending packet to 209.165.200.2 my_port 500 peer_port 500 (I)
MM_KEY_EXCH *Jun 27 09:50:00.059: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL,
IKE_PROCESS_COMPLETE *Jun 27 09:50:00.059: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM4 New State =
IKE_I_MM5 *Jun 27 09:50:00.827: ISAKMP (0:134217729): received packet from 209.165.200.2 dport
500 sport 500 Global (I) MM_KEY_EXCH *Jun 27 09:50:00.827: ISAKMP:(0:1:SW:1):Input =
IKE_MESG_FROM_PEER, IKE_MM_EXCH *Jun 27 09:50:00.827: ISAKMP:(0:1:SW:1):Old State = IKE_I_MM5
New State = IKE_I_MM6 *Jun 27 09:50:00.859: ISAKMP:(0:1:SW:1): processing ID payload. message ID
= 0 *Jun 27 09:50:00.859: ISAKMP (0:134217729): ID payload next-payload : 8 type : 1 address :
209.165.200.2 protocol : 17 port : 500 length : 12 *Jun 27 09:50:00.859: ISAKMP:(0:1:SW:1):
processing HASH payload. message ID = 0 *Jun 27 09:50:00.859: ISAKMP:(0:1:SW:1):SA
authentication status: authenticated *Jun 27 09:50:00.859: ISAKMP:(0:1:SW:1):SA has been
authenticated with 209.165.200.2 *Jun 27 09:50:00.859: ISAKMP:(0:1:SW:1):: peer matches *none*
of the profiles *Jun 27 09:50:00.859: ISAKMP: Trying to insert a peer
172.16.1.2/209.165.200.2/500/, and inserted successfully. *Jun 27 09:50:00.859:
ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODE *Jun 27 09:50:00.859:
ISAKMP:(0:1:SW:1):Old State = IKE_I_MM6 New State = IKE_I_MM6 *Jun 27 09:50:00.919:
ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PROCESS_COMPLETE *Jun 27 09:50:00.919:
ISAKMP:(0:1:SW:1):Old State = IKE_I_MM6 New State = IKE_P1_COMPLETE *Jun 27 09:50:00.959:
ISAKMP:(0:1:SW:1):beginning Quick Mode exchange, M-ID of 1689610294 *Jun 27 09:50:01.007:
ISAKMP:(0:1:SW:1): sending packet to 209.165.200.2 my_port 500 peer_port 500 (I) QM_IDLE *Jun 27
09:50:01.007: ISAKMP:(0:1:SW:1):Node 1689610294, Input = IKE_MESG_INTERNAL, IKE_INIT_QM *Jun 27
09:50:01.007: ISAKMP:(0:1:SW:1):Old State = IKE_QM_READY New State = IKE_QM_I_QM1 *Jun 27
09:50:01.007: ISAKMP:(0:1:SW:1):Input = IKE_MESG_INTERNAL, IKE_PHASE1_COMPLETE *Jun 27
09:50:01.007: ISAKMP:(0:1:SW:1):Old State = IKE_P1_COMPLETE New State = IKE_P1_COMPLETE *Jun 27
09:50:01.839: ISAKMP (0:134217729): received packet from 209.165.200.2 dport 500 sport 500
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Global (I) QM_IDLE *Jun 27 09:50:01.839: ISAKMP:(0:1:SW:1): processing HASH payload. message ID
= 1689610294 *Jun 27 09:50:01.839: ISAKMP:(0:1:SW:1): processing SA payload. message ID =
1689610294 *Jun 27 09:50:01.839: ISAKMP:(0:1:SW:1):Checking IPSec proposal 1 *Jun 27
09:50:01.839: ISAKMP: transform 1, ESP_DES *Jun 27 09:50:01.839: ISAKMP: attributes in
transform: *Jun 27 09:50:01.839: ISAKMP: encaps is 1 (Tunnel) *Jun 27 09:50:01.839: ISAKMP: SA
life type in seconds *Jun 27 09:50:01.839: ISAKMP: SA life duration (basic) of 3600 *Jun 27
09:50:01.839: ISAKMP: SA life type in kilobytes *Jun 27 09:50:01.839: ISAKMP: SA life duration
(VPI) of 0x0 0x46 0x50 0x0 *Jun 27 09:50:01.839: ISAKMP: authenticator is HMAC-MD5 *Jun 27
09:50:01.839: ISAKMP:(0:1:SW:1):atts are acceptable. *Jun 27 09:50:01.839:
IPSEC(validate_proposal_request): proposal part #1, (key eng. msg.) INBOUND local= 172.16.1.2,
remote= 209.165.200.2, local_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4), remote_proxy=
192.168.1.0/255.255.255.0/0/0 (type=4), protocol= ESP, transform= esp-des esp-md5-hmac (Tunnel),
lifedur= 0s and 0kb, spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x2 *Jun 27 09:50:01.839:
IPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = *Jun 27 09:50:01.839:
ISAKMP:(0:1:SW:1): processing NONCE payload. message ID = 1689610294 *Jun 27 09:50:01.839:
ISAKMP:(0:1:SW:1): processing ID payload. message ID = 1689610294 *Jun 27 09:50:01.839:
ISAKMP:(0:1:SW:1): processing ID payload. message ID = 1689610294 *Jun 27 09:50:01.839: IPSec:
Flow_switching Allocated flow for flow_id 134217731 *Jun 27 09:50:01.839: IPSec: Flow_switching
Allocated flow for flow_id 134217732 *Jun 27 09:50:01.899: %CRYPTO-5-SESSION_STATUS: Crypto
tunnel is UP . Peer 209.165.200.2:500 Id: 209.165.200.2 *Jun 27 09:50:01.899: ISAKMP: Locking
peer struct 0x2BEDC78, IPSEC refcount 1 for for stuff_ke *Jun 27 09:50:01.899:
ISAKMP:(0:1:SW:1): Creating IPSec SAs *Jun 27 09:50:01.899: inbound SA from 209.165.200.2 to
172.16.1.2 (f/i) 0/ 0 (proxy 192.168.1.0 to 172.16.2.0) *Jun 27 09:50:01.899: has spi 0xE89A0245
and conn_id 2000 and flags 2 *Jun 27 09:50:01.899: lifetime of 3600 seconds *Jun 27
09:50:01.899: lifetime of 4608000 kilobytes *Jun 27 09:50:01.899: has client flags 0x0 *Jun 27
09:50:01.899: outbound SA from 172.16.1.2 to 209.165.200.2 (f/i) 0/0 (proxy 172.16.2.0 to
192.168.1.0) *Jun 27 09:50:01.899: has spi -1242011716 and conn_id 2001 and flags A *Jun 27
09:50:01.899: lifetime of 3600 seconds *Jun 27 09:50:01.899: lifetime of 4608000 kilobytes *Jun
27 09:50:01.899: has client flags 0x0 *Jun 27 09:50:01.899: ISAKMP:(0:1:SW:1): sending packet to
209.165.200.2 my_port 500 peer_port 500 (I) QM_IDLE *Jun 27 09:50:01.899:
ISAKMP:(0:1:SW:1):deleting node 1689610294 error FALSE reason "" *Jun 27 09:50:01.899:
ISAKMP:(0:1:SW:1):Node 1689610294, Input = IKE_MESG_FROM_PEER, IKE_QM_EXCH *Jun 27 09:50:01.899:
ISAKMP:(0:1:SW:1):Old State = IKE_QM_I_QM1 New State = IKE_QM_PHASE2_COMPLETE *Jun 27
09:50:01.907: IPSEC(key_engine): got a queue event with 2 kei messages *Jun 27 09:50:01.907:
IPSEC(initialize_sas): , (key eng. msg.) INBOUND local= 172.16.1.2, remote= 209.165.200.2,
local_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4), remote_proxy= 192.168.1.0/255.255.255.0/0/0
(type=4), protocol= ESP, transform= esp-des esp-md5-hmac (Tunnel), lifedur= 3600s and 4608000kb,
spi= 0xE89A0245(3902407237), conn_id= 134219728, keysize= 0, flags= 0x2 *Jun 27 09:50:01.907:
IPSEC(initialize_sas): , (key eng. msg.) OUTBOUND local= 172.16.1.2, remote= 209.165.200.2,
local_proxy= 172.16.2.0/255.255.255.0/0/0 (type=4), remote_proxy= 192.168.1.0/255.255.255.0/0/0
(type=4), protocol= ESP, transform= esp-des esp-md5-hmac (Tunnel), lifedur= 3600s and 4608000kb,
spi= 0xB5F867BC(3052955580), conn_id= 134219729, keysize= 0,flags= 0xA *Jun 27 09:50:01.907:
IPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = *Jun 27 09:50:01.907:
IPSEC(crypto_ipsec_sa_find_ident_head): reconnecting with the same proxies and 209.165.200.2
*Jun 27 09:50:01.907: IPSEC(mtree_add_ident): src 172.16.2.0, dest 192.168.1.0, dest_port 0 *Jun
27 09:50:01.907: IPSEC(create_sa): sa created, (sa) sa_dest= 172.16.1.2, sa_prot= 50, sa_spi=
0xE89A0245(3902407237), sa_trans= esp-des esp-md5-hmac , sa_conn_id= 134219728 *Jun 27
09:50:01.907: IPSEC(create_sa): sa created, (sa) sa_dest= 209.165.200.2, sa_prot= 50, sa_spi=
0xB5F867BC(3052955580), sa_trans= esp-des esp-md5-hmac , sa_conn_id= 134219729 *Jun 27
09:50:51.927: ISAKMP:(0:1:SW:1):purging node 1689610294 PAT-Router#debug ip nat detail
IP NAT detailed debugging is on
PAT-Router#show debug
Generic IP:
  IP NAT detailed debugging is on
PAT-Router#
!--- The "i" in this line indicates the packet is traveling from the !--- inside to the outside
(from a NAT perspective) interface. The number in !--- the brackets is the identification number
in the IP packet. This is !--- useful when correlating information with sniffer traces taken
with a !--- network analyzer while troubleshooting problems. *Jun 27 09:49:57.727: NAT*: i: udp
(172.16.1.2, 500) -> (209.165.200.2, 500) [94] !--- The "s" in this line shows the source
address of the packet and how it is !--- being translated. *Jun 27 09:49:57.727: NAT*:
s=172.16.1.2->209.165.201.2, d=209.165.200.2 [94] *Jun 27 09:49:58.927: NAT*: o: udp
(209.165.200.2, 500) -> (209.165.201.2, 500) [100] *Jun 27 09:49:58.927: NAT*: s=209.165.200.2,
d=209.165.201.2->172.16.1.2 [100] *Jun 27 09:49:59.147: NAT*: i: udp (172.16.1.2, 500) ->
```

```
(209.165.200.2, 500) [95] *Jun 27 09:49:59.147: NAT*: s=172.16.1.2->209.165.201.2,
d=209.165.200.2 [95] *Jun 27 09:49:59.755: NAT*: o: udp (209.165.200.2, 500) -> (209.165.201.2,
500) [101] *Jun 27 09:49:59.755: NAT*: s=209.165.200.2, d=209.165.201.2->172.16.1.2 [101] *Jun
27 09:49:59.947: NAT*: i: udp (172.16.1.2, 500) -> (209.165.200.2, 500) [96] *Jun 27
09:49:59.947: NAT*: s=172.16.1.2->209.165.201.2, d=209.165.200.2 [96] *Jun 27 09:50:00.667:
NAT*: o: udp (209.165.200.2, 500) -> (209.165.201.2, 500) [102] *Jun 27 09:50:00.667: NAT*:
s=209.165.200.2, d=209.165.201.2->172.16.1.2 [102] *Jun 27 09:50:00.895: NAT*: i: udp
(172.16.1.2, 500) -> (209.165.200.2, 500) [97] *Jun 27 09:50:00.895: NAT*: s=172.16.1.2-
>209.165.201.2, d=209.165.200.2 [97] *Jun 27 09:50:01.679: NAT*: o: udp (209.165.200.2, 500) ->
(209.165.201.2, 500) [103] *Jun 27 09:50:01.679: NAT*: s=209.165.200.2, d=209.165.201.2-
>172.16.1.2 [103] *Jun 27 09:50:01.787: NAT*: i: udp (172.16.1.2, 500) -> (209.165.200.2, 500)
[98] *Jun 27 09:50:01.787: NAT*: s=172.16.1.2->209.165.201.2, d=209.165.200.2 [98] *Jun 27
09:50:23.667: NAT*: i: esp (172.16.1.2, 26556) -> (209.165.200.2, 0) [99] *Jun 27 09:50:23.667:
NAT*: s=172.16.1.2->209.165.201.2, d=209.165.200.2 [99] *Jun 27 09:50:23.715: NAT*: o: esp
(209.165.200.2, -392560059) -> (209.165.201.2, 0) [104] *Jun 27 09:50:23.715: NAT*:
s=209.165.200.2, d=209.165.201.2->172.16.1.2 [104] *Jun 27 09:50:23.787: NAT*: i: esp
(172.16.1.2, 26556) -> (209.165.200.2, 0) [100] *Jun 27 09:50:23.787: NAT*: s=172.16.1.2-
>209.165.201.2, d=209.165.200.2 [100] *Jun 27 09:50:23.847: NAT*: o: esp (209.165.200.2, 581) ->
(209.165.201.2, 0) [105] *Jun 27 09:50:23.847: NAT*: s=209.165.200.2, d=209.165.201.2-
>172.16.1.2 [105] *Jun 27 09:50:23.915: NAT*: i: esp (172.16.1.2, 26556) -> (209.165.200.2, 0)
[101] *Jun 27 09:50:23.915: NAT*: s=172.16.1.2->209.165.201.2, d=209.165.200.2 [101] *Jun 27
09:50:23.967: NAT*: o: esp (209.165.200.2, 581) -> (209.165.201.2, 0) [106] *Jun 27
09:50:23.967: NAT*: s=209.165.200.2, d=209.165.201.2->172.16.1.2 [106] *Jun 27 09:50:24.047:
NAT*: i: esp (172.16.1.2, 26556) -> (209.165.200.2, 0) [102] *Jun 27 09:50:24.047: NAT*:
s=172.16.1.2->209.165.201.2, d=209.165.200.2 [102] *Jun 27 09:50:24.095: NAT*: o: esp
(209.165.200.2, 581) -> (209.165.201.2, 0) [107] *Jun 27 09:50:24.095: NAT*: s=209.165.200.2,
d=209.165.201.2->172.16.1.2 [107] *Jun 27 09:50:24.207: NAT*: i: esp (172.16.1.2, 26556) ->
(209.165.200.2, 0) [103] *Jun 27 09:50:24.207: NAT*: s=172.16.1.2->209.165.201.2,
d=209.165.200.2 [103] *Jun 27 09:50:24.267: NAT*: o: esp (209.165.200.2, 581) -> (209.165.201.2,
0) [108] *Jun 27 09:50:24.267: NAT*: s=209.165.200.2, d=209.165.201.2->172.16.1.2 [108]
```

Información Relacionada

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