Índice

Introdução

Esta configuração mostra uma configuração de LAN a LAN entre dois roteadores em um ambiente de hub-spoke. Os Cisco VPN Clients também se conectam ao hub e usam a Autenticação Estendida (Xauth).

O roteador do spoke nesta encenação obtém seu endereço IP de Um ou Mais Servidores Cisco ICM NT dinamicamente através do DHCP. O uso do protocolo de configuração dinâmica host (DHCP) é comum nas situações onde o spoke é conectado ao Internet através de um DSL ou de um modem a cabo. Isto é porque o ISP provisions frequentemente os endereços IP de Um ou Mais Servidores Cisco ICM NT que usam dinamicamente o DHCP nestas conexões baratas.

Sem configuração mais adicional, o uso de uma chave pré-compartilhada curinga no roteador de hub não é possível nesta situação. Isto é porque o Xauth para as conexões de cliente de VPN quebra a conexão de LAN para LAN. Contudo, quando você desabilita o Xauth, reduz a capacidade para autenticar clientes VPN.

A introdução de perfis ISAKMP no Software Release 12.2(15)T de Cisco IOS® torna esta configuração possível desde que você pode combinar em outras propriedades da conexão (grupo do cliente VPN, endereço IP do peer, [FQDN] do nome de domínio totalmente qualificado, e assim por diante) um pouco do que apenas o endereço IP do peer. Os perfis ISAKMP são o assunto desta configuração.

Nota: Você pode igualmente usar a palavra-chave do nenhum-**Xauth** com o **comando crypto isakmp key** contornear o Xauth para pares do LAN para LAN. Refira o Ability to Disable Xauth for Static IPsec Peers e um IPsec configurar entre dois Roteadores e um Cisco VPN Client 4.x para mais informação.

A configuração de roteador do spoke neste documento pode ser replicated em todo Roteadores restante do spoke que conecta no mesmo hub. A única diferença entre o spokes é a lista de acesso que provê o tráfego a ser cifrado.

Refira o cliente ezvpn e o server no exemplo de configuração do mesmo roteador a fim aprender mais sobre a encenação onde você pode configurar um roteador como um cliente ezvpn e um server na mesma relação.

Refira túneis de LAN para LAN em um VPN 3000 concentrator com um PIX Firewall configurado para que o DHCP configure a Cisco VPN 3000 Concentrator Series para criar dinamicamente túneis de IPsec com os Firewall remotos de Cisco PIX que usam o DHCP para obter endereços IP de Um ou Mais Servidores Cisco ICM NT em suas interfaces públicas.

Refira o túnel de LAN para LAN de IPSec em um VPN 3000 concentrator com um roteador do Cisco IOS configurado para que o exemplo da configuração de DHCP configure a VPN 3000 Concentrator Series a fim criar dinamicamente túneis de IPsec com os dispositivos remotos VPN que recebem endereços IP dinâmicos em suas interfaces públicas.

Refira o IPsec entre um IOS Router estático e um PIX/ASA dinâmico 7.x com exemplo da configuração de NAT a fim permitir a ferramenta de segurança PIX/ASA de aceitar conexões de IPSec dinâmica do roteador IOS®.

Pré-requisitos

Requisitos

Não existem requisitos específicos para este documento.

Componentes Utilizados

Os perfis IPSec foram introduzidos no Cisco IOS Software Release 12.2(15)T. Devido à identificação de bug Cisco CSCea77140 (clientes registrados somente) que você precisa de executar o Cisco IOS Software Release 12.3(3) ou Mais Recente, ou ao Cisco IOS Software Release 12.3(2)T ou Mais Recente para que esta configuração trabalhe com sucesso. Estas configurações foram testadas usando estas versões de software:

- Cisco IOS Software Release 12.3(6a) no roteador de hub
- Cisco IOS Software Release 12.2(23a) no roteador do spoke (esta pode ser toda a versão de criptografia)
- Versão Cliente VPN Cisco 4.0(4) no Windows 2000

As informações neste documento foram criadas a partir de dispositivos em um ambiente de laboratório específico. Todos os dispositivos utilizados neste documento foram iniciados com uma configuração (padrão) inicial. Se a sua rede estiver ativa, certifique-se de que entende o impacto potencial de qualquer comando.

Convenções

Consulte as Convenções de Dicas Técnicas da Cisco para obter mais informações sobre convenções de documentos.

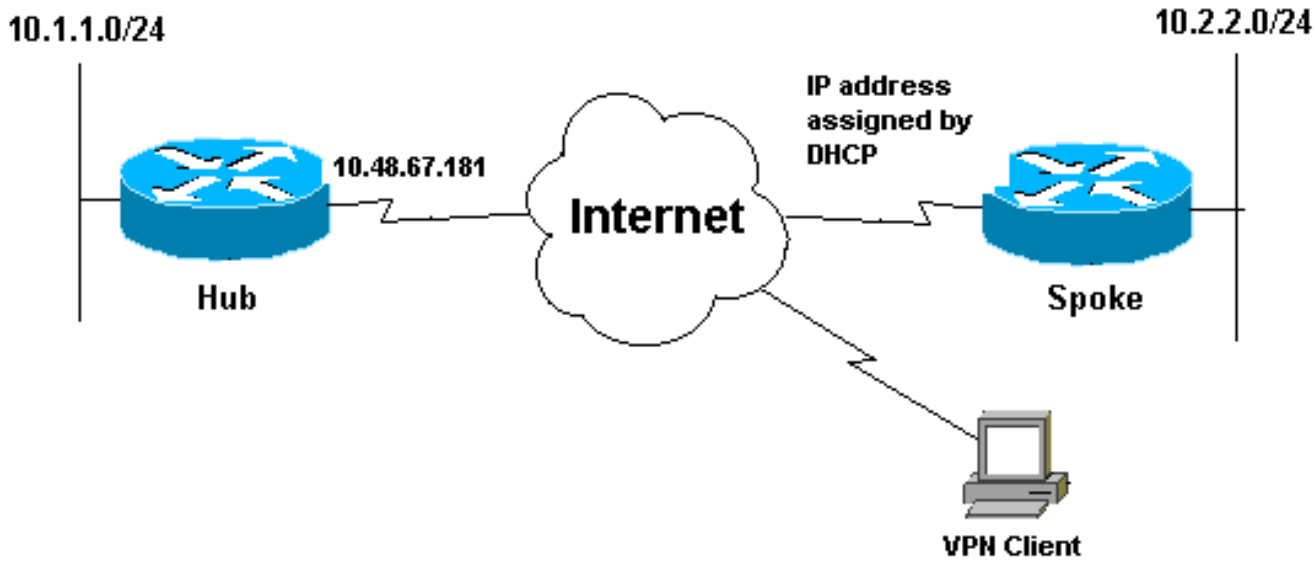
Configurar

Nesta seção, você encontrará informações para configurar os recursos descritos neste documento.

Nota: Use a ferramenta Command Lookup Tool (apenas para clientes registrados) para obter mais informações sobre os comandos usados neste documento.

Diagrama de Rede

Este documento utiliza a configuração de rede mostrada neste diagrama.



Configurações

Este documento utiliza a seguinte configuração de rede:

- Configuração do hub
- Configuração de raio

Configuração do hub

```
version 12.3 service timestamps debug datetime msec service
timestamps log datetime msec service password-encryption !
hostname Hub ! no logging on ! username gfullage password 7
0201024E070A0E2649 aaa new-model ! ! aaa authentication login
clientauth local aaa authorization network groupauthor local
aaa session-id common ip subnet-zero ! ! no ip domain lookup
!  !  !--- Keyring that defines wildcard pre-shared key.
crypto keyring spokes   pre-shared-key address 0.0.0.0
0.0.0.0 key cisco123 !  crypto isakmp policy 10  encr 3des
authentication pre-share  group 2  !  !--- VPN Client
configuration for group "testgroup" !--- (this name is
configured in the VPN Client). crypto isakmp client
configuration group testgroup  key cisco321  dns 1.1.1.1
2.2.2.2  wins 3.3.3.3 4.4.4.4  domain cisco.com  pool ippool
! !--- Profile for LAN-to-LAN connection, that references !--
- the wildcard pre-shared key and a wildcard !--- identity
(this is what is broken in !--- Cisco bug ID CSCea77140) and
no Xauth. crypto isakmp profile L2L   description LAN-to-LAN
for spoke router(s) connection   keyring spokes   match
identity address 0.0.0.0  !--- Profile for VPN Client
connections, that matches !--- the "testgroup" group and
defines the Xauth properties. crypto isakmp profile VPNclient
description VPN clients profile   match identity group
testgroup   client authentication list clientauth   isakmp
authorization list groupauthor   client configuration
address respond !  !  crypto ipsec transform-set myset esp-
3des esp-sha-hmac !  !--- Two instances of the dynamic crypto
```

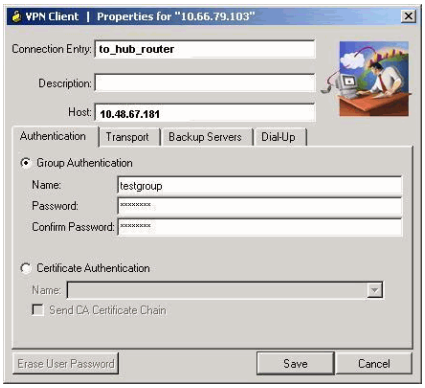
```
map !--- reference the two previous IPsec profiles. crypto
dynamic-map dynmap 5  set transform-set myset   set isakmp-
profile VPNclient crypto dynamic-map dynmap 10  set
transform-set myset   set isakmp-profile L2L !  !  !---
Crypto-map only references the two !--- instances of the
previous dynamic crypto map. crypto map mymap 10 ipsec-isakmp
dynamic dynmap  !  !  !  interface FastEthernet0/0
description Outside interface  ip address 10.48.67.181
255.255.255.224  no ip mroute-cache  duplex auto  speed auto
crypto map mymap !  interface FastEthernet0/1  description
Inside interface  ip address 10.1.1.1 255.255.254.0  duplex
auto  speed auto  no keepalive !  ip local pool ippool
10.5.5.1 10.5.5.254 no ip http server no ip http secure-
server ip classless ip route 0.0.0.0 0.0.0.0 10.48.66.181  !
!  call rsvp-sync !  !  dial-peer cor custom !  !  line con 0
exec-timeout 0 0  escape-character 27 line aux 0 line vty 0 4
password 7 121A0C041104 ! ! end
```

Configuração de raio

```
version 12.2 service timestamps debug datetime msec service
timestamps log datetime msec no service password-encryption !
hostname Spoke ! no logging on ! ip subnet-zero no ip domain
lookup ! ip cef ! ! crypto isakmp policy 10  encr 3des
authentication pre-share  group 2 crypto isakmp key cisco123
address 10.48.67.181 ! ! crypto ipsec transform-set myset
esp-3des esp-sha-hmac ! !--- Standard crypto map on the spoke
router !--- that references the known hub IP address. crypto
map mymap 10 ipsec-isakmp   set peer 10.48.67.181 set
transform-set myset   match address 100 ! ! controller ISA
5/1 ! ! interface FastEthernet0/0  description Outside
interface   ip address dhcp  duplex auto  speed auto  crypto
map mymap ! interface FastEthernet0/1  description Inside
interface  ip address 10.2.2.2 255.255.255.0  duplex auto
speed auto  no keepalive ! interface ATM1/0  no ip address
shutdown  no atm ilmi-keepalive ! ip classless ip route
0.0.0.0 0.0.0.0 10.100.2.3 no ip http server no ip http
secure-server ! ! !--- Standard access-list that references
traffic to be !--- encrypted. This is the only thing that
needs !--- to be changed between different spoke
routers.access-list 100 permit ip 10.2.0.0 0.0.255.255
10.1.0.0 0.0.255.255 ! ! call rsvp-sync ! ! mgcp profile
default ! ! line con 0  exec-timeout 0 0 line aux 0 line vty
0 4  password cisco  login ! ! end
```

Cliente de VPN

Crie uma entrada da nova conexão que proveja o endereço IP de Um ou Mais Servidores Cisco ICM NT do roteador de hub. O nome do grupo neste exemplo é “testgroup” e a senha é "cisco321". Isto pode ser visto na configuração do roteador de hub.



Verificar

Use esta seção para confirmar se a sua configuração funciona corretamente.

Os comandos Debug que são executado no roteador de hub podem confirmar que os parâmetros corretos estão combinados para o spoke e as conexões de cliente de VPN.

A Output Interpreter Tool (apenas para clientes registrados) (OIT) suporta determinados comandos show. Use a OIT para exibir uma análise da saída do comando show.

Nota: Consulte Informações Importantes sobre Comandos de Depuração antes de usar comandos **debug**.

- **mostre a relação IP**? Indica a atribuição do endereço IP de Um ou Mais Servidores Cisco ICM NT ao roteador do spoke.
- **mostre o detalhe cripto isakmp sa**? Indica o IKE SA, que setup entre os iniciadores do IPsec. Por exemplo, o roteador do spoke e o cliente VPN, e o roteador de hub.
- **mostre IPsec cripto sa**? Indica o sas de IPSec, que setup entre os iniciadores do IPsec. Por exemplo, o roteador do spoke e o cliente VPN, e o roteador de hub.
- **isakmp do debug crypto**? Indica mensagens sobre eventos do Internet Key Exchange (IKE).
- **IPsec do debug crypto**? Eventos de IPSec dos indicadores.
- **motor do debug crypto**? Indica eventos da crypto-engine.

Esta é a saída do **comando show ip interface f0/0**.

```
spoke#show ip interface f0/0FastEthernet0/1 is up, line protocol is upInternet address is
10.100.2.102/24Broadcast address is 255.255.255.255Address determined by DHCP
```

Esta é a saída do **comando show crypto isakmp sa detail**.

```
hub#show crypto isakmp sa detail Codes: C - IKE configuration mode, D - Dead Peer Detection       K -
Keepalives, N - NAT-traversal       X - IKE Extended Authentication       psk - Preshared key, rsig - RSA
signature       renc - RSA encryption C-id  Local           Remote          I-VRF    Encr Hash Auth DH
Lifetime Cap.1     10.48.67.181    10.100.2.102             3des sha  psk  2    04:15:43     2
10.48.67.181    10.51.82.100             3des sha          2    05:31:58 CX
```

Esta é a saída do **comando show crypto ipsec sa**.

```
hub#show crypto ipsec sa interface: FastEthernet0/0Crypto map tag: mymap, local addr.
10.48.67.181protected vrf: local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)remote ident
(addr/mask/prot/port): (10.5.5.1/255.255.255.255/0/0)current_peer: 10.51.82.100:500PERMIT, flags={}#pkts
encaps: 8, #pkts encrypt: 8, #pkts digest 8#pkts decaps: 189, #pkts decrypt: 189, #pkts verify 189#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 0local crypto endpt.:
10.48.67.181, remote crypto endpt.: 10.51.82.100path mtu 1500, ip mtu 1500current outbound spi:
B0C0F4ACinbound esp sas:spi: 0x7A1AB8F3(2048571635)transform: esp-3des esp-sha-hmac ,in use settings
={Tunnel, }slot: 0, conn id: 2004, flow_id: 5, crypto map: mymapsa timing: remaining key lifetime
(k/sec): (4602415/3169)IV size: 8 bytesreplay detection support: Yinbound ah sas:inbound pcp sas:outbound
esp sas:spi: 0xB0C0F4AC(2965435564)transform: esp-3des esp-sha-hmac ,in use settings ={Tunnel, }slot: 0,
conn id: 2005, flow_id: 6, crypto map: mymapsa timing: remaining key lifetime (k/sec): (4602445/3169)IV
size: 8 bytesreplay detection support: Youtbound ah sas:outbound pcp sas:protected vrf: local ident
(addr/mask/prot/port): (10.1.0.0/255.255.0.0/0/0)remote ident (addr/mask/prot/port):
(10.2.0.0/255.255.0.0/0/0)current_peer: 10.100.2.102:500PERMIT, flags={}#pkts encaps: 19, #pkts encrypt:
19, #pkts digest 19#pkts decaps: 19, #pkts decrypt: 19, #pkts verify 19#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 0local crypto endpt.: 10.48.67.181, remote crypto endpt.:
10.100.2.102path mtu 1500, ip mtu 1500current outbound spi: 5FBE5408inbound esp sas:spi:
0x9CD7288C(2631346316)transform: esp-3des esp-sha-hmac ,in use settings ={Tunnel, }slot: 0, conn id:
```

2002, flow_id: 3, crypto map: mymapsa timing: remaining key lifetime (k/sec): (4569060/2071)IV size: 8 bytesreplay detection support: Yinbound ah sas:inbound pcp sas:**outbound esp sas:**spi: 0x5FBE5408(1606308872)transform: esp-3des esp-sha-hmac ,in use settings ={Tunnel, }slot: 0, conn id: 2003, flow_id: 4, crypto map: mymapsa timing: remaining key lifetime (k/sec): (4569060/2070)IV size: 8 bytesreplay detection support: Youtbound ah sas:outbound pcp sas:

Este resultado do debug esteve recolhido no roteador de hub, quando o roteador do spoke inicia o IKE e o sas de IPSec.

ISAKMP (0:0): received packet from 10.100.2.102 dport 500 sport 500 Global (N) NEW SAISAKMP: local port 500, remote port 500ISAKMP: insert sa successfully sa = 63D5BE0CISAKMP (0:1): Input = IKE_MESG_FROM_PEER, IKE_MM_EXCHISAKMP (0:1): Old State = IKE_READY New State = IKE_R_MM1 ISAKMP (0:1): processing SA payload. message ID = 0ISAKMP: Looking for a matching key for 10.100.2.102 in default**ISAKMP: Looking for a matching key for 10.100.2.102 in spokes : successISAKMP (0:1): found peer pre-shared key matching 10.100.2.102**ISAKMP (0:1) local preshared key foundISAKMP : Scanning profiles for xauth ... L2L VPNclientISAKMP (0:1) Authentication by xauth presharedISAKMP (0:1): Checking ISAKMP transform 1 against priority 10 policyISAKMP: encryption 3DES-CBCISAKMP: hash SHAISAKMP: default group 2ISAKMP: auth pre-shareISAKMP: life type in secondsISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80 **ISAKMP (0:1): atts are acceptable. Next payload is 0**CryptoEngine0: generate alg parameterCRYPTO_ENGINE: Dh phase 1 status: 0CRYPTO_ENGINE: Dh phase 1 status: 0ISAKMP (0:1): Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODEISAKMP (0:1): Old State = IKE_R_MM1 New State = IKE_R_MM1 ISAKMP (0:1): sending packet to 10.100.2.102 my_port 500 peer_port 500 (R) MM_SA_SETUPISAKMP (0:1): Input = IKE_MESG_INTERNAL, IKE_PROCESS_COMPLETEISAKMP (0:1): Old State = IKE_R_MM1 New State = IKE_R_MM2 ISAKMP (0:1): received packet from 10.100.2.102 dport 500 sport 500 Global (R) MM_SA_SETUPISAKMP (0:1): Input = IKE_MESG_FROM_PEER, IKE_MM_EXCHISAKMP (0:1): Old State = IKE_R_MM2 New State = IKE_R_MM3 ISAKMP (0:1): processing KE payload. message ID = 0CryptoEngine0: generate alg parameterISAKMP (0:1): processing NONCE payload. message ID = 0ISAKMP: Looking for a matching key for 10.100.2.102 in defaultISAKMP: Looking for a matching key for 10.100.2.102 in spokes : successISAKMP (0:1): found peer pre-shared key matching 10.100.2.102CryptoEngine0: create ISAKMP SKEYID for conn id 1ISAKMP (0:1): SKEYID state generatedISAKMP (0:1): processing vendor id payloadISAKMP (0:1): speaking to another IOS box!ISAKMP (0:1): Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODEISAKMP (0:1): Old State = IKE_R_MM3 New State = IKE_R_MM3 ISAKMP (0:1): sending packet to 10.100.2.102 my_port 500 peer_port 500 (R) MM_KEY_EXCHISAKMP (0:1): Input = IKE_MESG_INTERNAL, IKE_PROCESS_COMPLETEISAKMP (0:1): Old State = IKE_R_MM3 New State = IKE_R_MM4 ISAKMP (0:1): received packet from 10.100.2.102 dport 500 sport 500 Global (R) MM_KEY_EXCHISAKMP (0:1): Input = IKE_MESG_FROM_PEER, IKE_MM_EXCHISAKMP (0:1): Old State = IKE_R_MM4 New State = IKE_R_MM5 ISAKMP (0:1): processing ID payload. message ID = 0ISAKMP (0:1): ID payload next-payload : 8type : 1 address : 10.100.2.102 protocol : 17 port : 500 length : 12**ISAKMP (0:1): peer matches L2L profile**ISAKMP: Looking for a matching key for 10.100.2.102 in defaultISAKMP: Looking for a matching key for 10.100.2.102 in spokes : success**ISAKMP (0:1): Found ADDRESS key in keyring spokes**ISAKMP (0:1): processing HASH payload. message ID = 0CryptoEngine0: generate hmac context for conn id 1**ISAKMP (0:1): SA authentication status: authenticatedISAKMP (0:1): SA has been authenticated with 10.100.2.102**ISAKMP (0:1): Input = IKE_MESG_INTERNAL, IKE_PROCESS_MAIN_MODEISAKMP (0:1): Old State = IKE_R_MM5 New State = IKE_R_MM5 ISAKMP (0:1): SA is doing pre-shared key authentication using id type ID_IPV4_ADDRISAKMP (0:1): ID payload next-payload : 8type : 1 address : 10.48.67.181 protocol : 17 port : 500 length : 12ISAKMP (1): Total payload length: 12CryptoEngine0: generate hmac context for conn id 1CryptoEngine0: clear dh number for conn id 1ISAKMP (0:1): sending packet to 10.100.2.102 my_port 500 peer_port 500 (R) MM_KEY_EXCHISAKMP (0:1): Input = IKE_MESG_INTERNAL, IKE_PROCESS_COMPLETEISAKMP (0:1): Old State = IKE_R_MM5 New State = IKE_P1_COMPLETE ISAKMP (0:1): Input = IKE_MESG_INTERNAL, IKE_PHASE1_COMPLETEISAKMP (0:1): Old State = IKE_P1_COMPLETE New State = IKE_P1_COMPLETE *!--- IKE phase 1 is complete.*ISAKMP (0:1): received packet from 10.100.2.102 dport 500 sport 500 Global (R) QM_IDLE ISAKMP: set new node 904613356 to QM_IDLE CryptoEngine0: generate hmac context for conn id 1ISAKMP (0:1): processing HASH payload. message ID = 904613356ISAKMP (0:1): processing SA payload. message ID = 904613356ISAKMP (0:1): Checking IPSec proposal 1ISAKMP: transform 1, ESP_3DESISAKMP: attributes in transform:ISAKMP: encaps is 1 (Tunnel)ISAKMP: SA life type in secondsISAKMP: SA life duration (basic) of 3600ISAKMP: SA life type in kilobytesISAKMP: SA life duration (VPI) of 0x0 0x46 0x50 0x0 ISAKMP: authenticator is HMAC-SHACryptoEngine0: validate proposal**ISAKMP (0:1): atts are acceptable.**IPSEC(validate_proposal_request): proposal part #1,(key eng. msg.) INBOUND local= 10.48.67.181, remote= 10.100.2.102, **local_proxy= 10.1.0.0/255.255.0.0/0/0 (type=4), remote_proxy= 10.2.0.0/255.255.0.0/0/0 (type=4),protocol= ESP, transform= esp-3des esp-sha-hmac (Tunnel),** lifedur= 0s and 0kb, spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x2CryptoEngine0: validate proposal requestIPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = IPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = ISAKMP (0:1): processing NONCE payload. message ID = 904613356ISAKMP (0:1): processing ID payload. message ID = 904613356ISAKMP (0:1): processing ID payload. message ID = 904613356ISAKMP (0:1): asking for 1 spis from ipsecISAKMP (0:1): Node 904613356, Input =

IKE_MESG_FROM_PEER, IKE_QM_EXCHISAKMP (0:1): Old State = IKE_QM_READY New State = IKE_QM_SPI_STARVEIPSEC(key_engine): got a queue event...IPSEC(spi_response): **getting spi 4172528328 for SA from 10.48.67.181 to 10.100.2.102 for prot 3**ISAKMP: received ke message (2/1)CryptoEngine0: generate hmac context for conn id 1ISAKMP (0:1): sending packet to 10.100.2.102 my_port 500 peer_port 500 (R) QM_IDLE ISAKMP (0:1): Node 904613356, Input = IKE_MESG_FROM_IPSEC, IKE_SPI_REPLYISAKMP (0:1): Old State = IKE_QM_SPI_STARVE New State = IKE_QM_R_QM2ISAKMP (0:1): received packet from 10.100.2.102 dport 500 sport 500 Global (R) QM_IDLE CryptoEngine0: generate hmac context for conn id 1CryptoEngine0: ipsec allocate flowCryptoEngine0: ipsec allocate flow**ISAKMP (0:1): Creating IPSec SAsinbound SA from 10.100.2.102 to 10.48.67.181 (f/i) 0/ 0**(proxy 10.2.0.0 to 10.1.0.0)has spi 0xF8B3BAC8 and conn_id 2000 and flags 2lifetime of 3600 secondslifetime of 4608000 kilobyteshas client flags 0x0**outbound SA from 10.48.67.181 to 10.100.2.102 (f/i) 0/ 0 (proxy 10.1.0.0 to 10.2.0.0)**has spi 1757151497 and conn_id 2001 and flags Alifetime of 3600 secondslifetime of 4608000 kilobyteshas client flags 0x0ISAKMP (0:1): deleting node 904613356 error FALSE reason "quick mode done (await)"ISAKMP (0:1): Node 904613356, Input = IKE_MESG_FROM_PEER, IKE_QM_EXCHISAKMP (0:1): Old State = IKE_QM_R_QM2 New State = IKE_QM_PHASE2_COMPLETEIPSEC(key_engine): got a queue event...IPSEC(initialize_sas): ,(key eng. msg.) INBOUND local= 10.48.67.181, remote= 10.100.2.102, local_proxy= 10.1.0.0/255.255.0.0/0/0 (type=4), remote_proxy= 10.2.0.0/255.255.0.0/0/0 (type=4),protocol= ESP, transform= esp-3des esp-sha-hmac (Tunnel), lifedur= 3600s and 4608000kb, spi= 0xF8B3BAC8(4172528328), conn_id= 2000, keysize= 0, flags= 0x2IPSEC(initialize_sas): ,(key eng. msg.) OUTBOUND local= 10.48.67.181, remote= 10.100.2.102, local_proxy= 10.1.0.0/255.255.0.0/0/0 (type=4), remote_proxy= 10.2.0.0/255.255.0.0/0/0 (type=4),protocol= ESP, transform= esp-3des esp-sha-hmac (Tunnel), lifedur= 3600s and 4608000kb, spi= 0x68BC0109(1757151497), conn_id= 2001, keysize= 0, flags= 0xAIPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = IPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = IPSEC(add mtree): src 10.1.0.0, dest 10.2.0.0, dest_port 0**IPSEC(create_sa): sa created,**(sa) sa_dest= 10.48.67.181, sa_prot= 50, sa_spi= 0xF8B3BAC8(4172528328), sa_trans= esp-3des esp-sha-hmac , sa_conn_id= 2000**IPSEC(create_sa): sa created,**(sa) sa_dest= 10.100.2.102, sa_prot= 50, sa_spi= 0x68BC0109(1757151497), sa_trans= esp-3des esp-sha-hmac , sa_conn_id= 2001

Este resultado do debug esteve recolhido no roteador de hub, quando o cliente VPN inicia o IKE e o sas de IPSec.

ISAKMP (0:0): received packet from 10.51.82.100 dport 500 sport 500 Global (N) NEW SAISAKMP: local port 500, remote port 500ISAKMP: insert sa successfully sa = 63D3D804ISAKMP (0:2): processing SA payload. message ID = 0ISAKMP (0:2): processing ID payload. message ID = 0ISAKMP (0:2): ID payload next-payload : 13type : 11 group id : testgroup protocol : 17 port : 500 length : 17**ISAKMP (0:2): peer matches VPNclient profile**ISAKMP: Looking for a matching key for 10.51.82.100 in defaultISAKMP: Looking for a matching key for 10.51.82.100 in spokes : successISAKMP: Created a peer struct for 10.51.82.100, peer port 500ISAKMP: Locking peer struct 0x644AFC7C, IKE refcount 1 for crypto_ikmp_config_initialize_saISAKMP (0:2): Setting client config settings 644AFCF8**ISAKMP (0:2): (Re)Setting client xauth list and state**ISAKMP (0:2): processing vendor id payloadISAKMP (0:2): vendor ID seems Unity/DPD but major 215 mismatchISAKMP (0:2): vendor ID is XauthISAKMP (0:2): processing vendor id payloadISAKMP (0:2): vendor ID is DPDISAKMP (0:2): processing vendor id payloadISAKMP (0:2): vendor ID seems Unity/DPD but major 123 mismatchISAKMP (0:2): vendor ID is NAT-T v2ISAKMP (0:2): processing vendor id payloadISAKMP (0:2): vendor ID seems Unity/DPD but major 194 mismatchISAKMP (0:2): processing vendor id payloadISAKMP (0:2): vendor ID is UnityISAKMP (0:2) Authentication by xauth preshared*!--- Check of ISAKMP transforms against the configured ISAKMP policy.*ISAKMP (0:2): Checking ISAKMP transform 9 against priority 10 policyISAKMP: encryption 3DES-CBCISAKMP: hash SHAISAKMP: default group 2ISAKMP: auth XAUTHInitPreSharedISAKMP: life type in secondsISAKMP: life duration (VPI) of 0x0 0x20 0xC4 0x9B ISAKMP (0:2): **atts are acceptable.** Next payload is 3CryptoEngine0: generate alg parameterCRYPTO_ENGINE: Dh phase 1 status: 0CRYPTO_ENGINE: Dh phase 1 status: 0ISAKMP (0:2): processing KE payload. message ID = 0CryptoEngine0: generate alg parameterISAKMP (0:2): processing NONCE payload. message ID = 0ISAKMP (0:2): vendor ID is NAT-T v2ISAKMP (0:2): Input = IKE_MESG_FROM_PEER, IKE_AM_EXCHISAKMP (0:2): Old State = IKE_READY New State = IKE_R_AM_AAA_AWAIT ISAKMP: got callback 1CryptoEngine0: create ISAKMP SKEYID for conn id 2ISAKMP (0:2): SKEYID state generatedISAKMP (0:2): constructed NAT-T vendor-02 IDISAKMP (0:2): SA is doing pre-shared key authentication plus XAUTH using id type ID_IPV4_ADDRISAKMP (0:2): ID payload next-payload : 10type : 1 address : 10.48.67.181 protocol : 17 port : 0 length : 12ISAKMP (2): Total payload length: 12CryptoEngine0: generate hmac context for conn id 2ISAKMP (0:2): sending packet to 10.51.82.100 my_port 500 peer_port 500 (R) AG_INIT_EXCHISAKMP (0:2): Input = IKE_MESG_FROM_AAA, PRESHARED_KEY_REPLYISAKMP (0:2): Old State = IKE_R_AM_AAA_AWAIT New State = IKE_R_AM2 ISAKMP (0:2): received packet from 10.51.82.100 dport 500 sport 500 Global (R) AG_INIT_EXCHISAKMP (0:2): processing HASH payload. message ID = 0CryptoEngine0: generate hmac context for conn id 2ISAKMP (0:2): processing NOTIFY INITIAL_CONTACT protocol 1spi 0, message ID = 0, sa = 63D3D804ISAKMP (0:2): SA authentication status: authenticatedISAKMP (0:2): Process initial contact,bring down existing phase 1 and 2 SA's with local 10.48.67.181 remote 10.51.82.100 remote port

500ISAKMP (0:2): returning IP addr to the address poolIPSEC(key_engine): got a queue event...ISAKMP:received payload type 17ISAKMP:received payload type 17**ISAKMP (0:2): SA authentication status: authenticatedISAKMP (0:2): SA has been authenticated with 10.51.82.100**CryptoEngine0: clear dh number for conn id 1ISAKMP: Trying to insert a peer 10.48.67.181/10.51.82.100/500/, and inserted successfully.ISAKMP: set new node 1257790711 to CONF_XAUTH CryptoEngine0: generate hmac context for conn id 2ISAKMP (0:2): sending packet to 10.51.82.100 my_port 500 peer_port 500 (R) QM_IDLE ISAKMP (0:2): purging node 1257790711ISAKMP: Sending phase 1 responder lifetime 86400ISAKMP (0:2): Input = IKE_MESG_FROM_PEER, IKE_AM_EXCHISAKMP (0:2): Old State = IKE_R_AM2 New State = IKE_P1_COMPLETE ISAKMP (0:2): Need XAUTHISAKMP (0:2): Input = IKE_MESG_INTERNAL, IKE_PHASE1_COMPLETEISAKMP (0:2): Old State = IKE_P1_COMPLETE New State = IKE_XAUTH_AAA_START_LOGIN_AWAIT ISAKMP: got callback 1ISAKMP: set new node 955647754 to CONF_XAUTH *!--- Extended authentication begins.***ISAKMP/xauth: request attribute XAUTH_USER_NAME_V2ISAKMP/xauth: request attribute XAUTH_USER_PASSWORD_V2**CryptoEngine0: generate hmac context for conn id 2ISAKMP (0:2): initiating peer config to 10.51.82.100. ID = 955647754ISAKMP (0:2): sending packet to 10.51.82.100 my_port 500 peer_port 500 (R) CONF_XAUTH ISAKMP (0:2): Input = IKE_MESG_FROM_AAA, IKE_AAA_START_LOGINISAKMP (0:2): Old State = IKE_XAUTH_AAA_START_LOGIN_AWAIT New State = IKE_XAUTH_REQ_SENT ISAKMP (0:2): received packet from 10.51.82.100 dport 500 sport 500 Global (R) CONF_XAUTH ISAKMP (0:2): processing transaction payload from 10.51.82.100. message ID = 955647754CryptoEngine0: generate hmac context for conn id 2ISAKMP: Config payload REPLY*!--- Username/password received from the VPN Client.***ISAKMP/xauth: reply attribute XAUTH_USER_NAME_V2ISAKMP/xauth: reply attribute XAUTH_USER_PASSWORD_V2**ISAKMP (0:2): deleting node 955647754 error FALSE reason "done with xauth request/reply exchange"ISAKMP (0:2): Input = IKE_MESG_FROM_PEER, IKE_CFG_REPLYISAKMP (0:2): Old State = IKE_XAUTH_REQ_SENT New State = IKE_XAUTH_AAA_CONT_LOGIN_AWAIT ISAKMP: got callback 1ISAKMP: set new node -1118110738 to CONF_XAUTH CryptoEngine0: generate hmac context for conn id 2ISAKMP (0:2): initiating peer config to 10.51.82.100. ID = -1118110738ISAKMP (0:2): sending packet to 10.51.82.100 my_port 500 peer_port 500 (R) CONF_XAUTH ISAKMP (0:2): Input = IKE_MESG_FROM_AAA, IKE_AAA_CONT_LOGINISAKMP (0:2): Old State = IKE_XAUTH_AAA_CONT_LOGIN_AWAIT New State = IKE_XAUTH_SET_SENT ISAKMP (0:2): received packet from 10.51.82.100 dport 500 sport 500 Global (R) CONF_XAUTH ISAKMP (0:2): processing transaction payload from 10.51.82.100. message ID = -1118110738CryptoEngine0: generate hmac context for conn id 2*!--- Success* ISAKMP: Config payload ACK**ISAKMP (0:2): XAUTH ACK Processed**ISAKMP (0:2): deleting node -1118110738 error FALSE reason "done with transaction"ISAKMP (0:2): Input = IKE_MESG_FROM_PEER, IKE_CFG_ACKISAKMP (0:2): Old State = IKE_XAUTH_SET_SENT New State = IKE_P1_COMPLETE ISAKMP (0:2): Input = IKE_MESG_INTERNAL, IKE_PHASE1_COMPLETEISAKMP (0:2): Old State = IKE_P1_COMPLETE New State = IKE_P1_COMPLETE ISAKMP (0:2): received packet from 10.51.82.100 dport 500 sport 500 Global (R) QM_IDLE ISAKMP: set new node -798495444 to QM_IDLE ISAKMP (0:2): processing transaction payload from 10.51.82.100. message ID = -798495444CryptoEngine0: generate hmac context for conn id 2ISAKMP: Config payload REQUESTISAKMP (0:2): checking request:ISAKMP: IP4_ADDRESSISAKMP: IP4_NETMASKISAKMP: IP4_DNSISAKMP: IP4_NBNSISAKMP: ADDRESS_EXPIRYISAKMP: UNKNOWN Unknown Attr: 0x7000ISAKMP: UNKNOWN Unknown Attr: 0x7001ISAKMP: DEFAULT_DOMAINISAKMP: SPLIT_INCLUDEISAKMP: UNKNOWN Unknown Attr: 0x7003ISAKMP: UNKNOWN Unknown Attr: 0x7007ISAKMP: UNKNOWN Unknown Attr: 0x7009ISAKMP: APPLICATION_VERSIONISAKMP: UNKNOWN Unknown Attr: 0x7008ISAKMP: UNKNOWN Unknown Attr: 0x700AISAKMP: UNKNOWN Unknown Attr: 0x7005ISAKMP (0:2): Input = IKE_MESG_FROM_PEER, IKE_CFG_REQUESTISAKMP (0:2): Old State = IKE_P1_COMPLETE New State = IKE_CONFIG_AUTHOR_AAA_AWAIT ISAKMP: got callback 1ISAKMP (0:2): attributes sent in message:Address: 0.2.0.0**ISAKMP (0:2): allocating address 10.5.5.1ISAKMP: Sending private address: 10.5.5.1ISAKMP: Sending IP4_DNS server address: 1.1.1.1ISAKMP: Sending IP4_DNS server address: 2.2.2.2ISAKMP: Sending IP4_NBNS server address: 3.3.3.3ISAKMP: Sending IP4_NBNS server address: 4.4.4.4**ISAKMP: Sending ADDRESS_EXPIRY seconds left to use the address: 86386ISAKMP (0/2): Unknown Attr: UNKNOWN (0x7000)ISAKMP (0/2): Unknown Attr: UNKNOWN (0x7001)ISAKMP: Sending DEFAULT_DOMAIN default domain name: cisco.comISAKMP (0/2): Unknown Attr: UNKNOWN (0x7003)ISAKMP (0/2): Unknown Attr: UNKNOWN (0x7007)ISAKMP (0/2): Unknown Attr: UNKNOWN (0x7009)ISAKMP: Sending APPLICATION_VERSION string: Cisco Internetwork Operating System Software IOS (tm) 7200 Software (C7200-IK9S-M), Version 12.3(6a), RELEASE SOFTWARE (fc4)Copyright (c) 1986-2004 by cisco Systems, Inc.Compiled Fri 02-Apr-04 15:52 by kellythwISAKMP (0/2): Unknown Attr: UNKNOWN (0x7008)ISAKMP (0/2): Unknown Attr: UNKNOWN (0x700A)ISAKMP (0/2): Unknown Attr: UNKNOWN (0x7005)CryptoEngine0: generate hmac context for conn id 2ISAKMP (0:2): responding to peer config from 10.51.82.100. ID = -798495444ISAKMP (0:2): sending packet to 10.51.82.100 my_port 500 peer_port 500 (R) CONF_ADDR ISAKMP (0:2): deleting node -798495444 error FALSE reason ""ISAKMP (0:2): Input = IKE_MESG_FROM_AAA, IKE_AAA_GROUP_ATTRISAKMP (0:2): Old State = IKE_CONFIG_AUTHOR_AAA_AWAIT New State = IKE_P1_COMPLETE ISAKMP (0:2): Input = IKE_MESG_INTERNAL, IKE_PHASE1_COMPLETEISAKMP (0:2): Old State = IKE_P1_COMPLETE New State = IKE_P1_COMPLETE *!--- IKE phase 1 and Config Mode complete. !--- Check of IPsec proposals against configured transform set(s).*ISAKMP (0:2): Checking IPSec proposal 12ISAKMP: transform 1, ESP_3DESISAKMP: attributes in transform:ISAKMP: authenticator is HMAC-SHAISAKMP: encaps is 1 (Tunnel)ISAKMP: SA life type in secondsISAKMP: SA life duration (VPI) of 0x0 0x20 0xC4 0x9B CryptoEngine0: validate proposalISAKMP (0:2): atts are acceptable.IPSEC(validate_proposal_request): proposal part #1,(key eng. msg.) INBOUND local=

```
10.48.67.181, remote= 10.51.82.100, local_proxy= 0.0.0.0/0.0.0.0/0/0 (type=4), remote_proxy=
10.5.5.1/255.255.255.255/0/0 (type=1),protocol= ESP, transform= esp-3des esp-sha-hmac (Tunnel), lifedur=
0s and 0kb, spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x2CryptoEngine0: validate proposal
requestIPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = IPSEC(kei_proxy): head = mymap, map-
>ivrf = , kei->ivrf = ISAKMP (0:2): processing NONCE payload. message ID = 381726614ISAKMP (0:2):
processing ID payload. message ID = 381726614ISAKMP (0:2): processing ID payload. message ID =
381726614ISAKMP (0:2): asking for 1 spis from ipsecISAKMP (0:2): Node 381726614, Input =
IKE_MESG_FROM_PEER, IKE_QM_EXCHISAKMP (0:2): Old State = IKE_QM_READY New State =
IKE_QM_SPI_STARVEIPSEC(key_engine): got a queue event...IPSEC(spi_response): getting spi 2048571635 for
SA from 10.48.67.181 to 10.51.82.100 for prot 3ISAKMP: received ke message (2/1)CryptoEngine0: generate
hmac context for conn id 2ISAKMP (0:2): sending packet to 10.51.82.100 my_port 500 peer_port 500 (R)
QM_IDLE ISAKMP (0:2): Node 381726614, Input = IKE_MESG_FROM_IPSEC, IKE_SPI_REPLYISAKMP (0:2): Old State =
IKE_QM_SPI_STARVE New State = IKE_QM_R_QM2ISAKMP (0:2): received packet from 10.51.82.100 dport 500 sport
500 Global (R) QM_IDLE CryptoEngine0: generate hmac context for conn id 2CryptoEngine0: ipsec allocate
flowCryptoEngine0: ipsec allocate flowISAKMP: Locking peer struct 0x644AFC7C, IPSEC refcount 1 for for
stuff_keISAKMP (0:2): Creating IPSec SAsinbound SA from 10.51.82.100 to 10.48.67.181 (f/i) 0/ 0(proxy
10.5.5.1 to 0.0.0.0)has spi 0x7A1AB8F3 and conn_id 2004 and flags 2lifetime of 2147483 secondshas client
flags 0x0outbound SA from 10.48.67.181 to 10.51.82.100 (f/i) 0/ 0 (proxy 0.0.0.0 to 10.5.5.1 )has spi -
1329531732 and conn_id 2005 and flags Alifetime of 2147483 secondshas client flags 0x0ISAKMP (0:2):
deleting node 381726614 error FALSE reason "quick mode done (await)"ISAKMP (0:2): Node 381726614, Input =
IKE_MESG_FROM_PEER, IKE_QM_EXCHISAKMP (0:2): Old State = IKE_QM_R_QM2 New State =
IKE_QM_PHASE2_COMPLETEIPSEC(key_engine): got a queue event...IPSEC(initialize_sas): ,(key eng. msg.)
INBOUND local= 10.48.67.181, remote= 10.51.82.100, local_proxy= 0.0.0.0/0.0.0.0/0/0 (type=4),
remote_proxy= 10.5.5.1/0.0.0.0/0/0 (type=1),protocol= ESP, transform= esp-3des esp-sha-hmac (Tunnel),
lifedur= 2147483s and 0kb, spi= 0x7A1AB8F3(2048571635), conn_id= 2004, keysize= 0, flags=
0x2IPSEC(initialize_sas): ,(key eng. msg.) OUTBOUND local= 10.48.67.181, remote= 10.51.82.100,
local_proxy= 0.0.0.0/0.0.0.0/0/0 (type=4), remote_proxy= 10.5.5.1/0.0.0.0/0/0 (type=1),protocol= ESP,
transform= esp-3des esp-sha-hmac (Tunnel), lifedur= 2147483s and 0kb, spi= 0xB0C0F4AC(2965435564),
conn_id= 2005, keysize= 0, flags= 0xAIPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf =
IPSEC(kei_proxy): head = mymap, map->ivrf = , kei->ivrf = IPSEC(add mtree): src 0.0.0.0, dest 10.5.5.1,
dest_port 0IPSEC(create_sa): sa created,(sa) sa_dest= 10.48.67.181, sa_prot= 50, sa_spi=
0x7A1AB8F3(2048571635), sa_trans= esp-3des esp-sha-hmac , sa_conn_id= 2004IPSEC(create_sa): sa
created,(sa) sa_dest= 10.51.82.100, sa_prot= 50, sa_spi= 0xB0C0F4AC(2965435564), sa_trans= esp-3des esp-
sha-hmac , sa_conn_id= 2005
```

Verifique números de sequência do crypto map

Se os pares estáticos e dinâmicos são configurados no mesmo mapa de criptografia, a ordem das entradas do mapa de criptografia é muito importante. O número de seqüência da entrada do mapa de criptografia dinâmico **deve ser** mais alto do que todas as outras entradas do mapa estático de criptografia. Se as entradas estáticas são numeradas mais altamente do que a entrada dinâmica, as conexões com aqueles pares falham.

Aqui está um exemplo de um mapa de criptografia numerado corretamente que contenha uma entrada estática e uma entrada dinâmica. Note que a entrada dinâmica tem o número de seqüência mais alto e a sala foi adicionada à entrada adicional estática:

```
crypto dynamic-map dynmap 20 set transform-set mysetcrypto map mymap 10 ipsec-isakmpmatch address 100set
peer 172.16.77.10 set transform-set myset
```**crypto map mymap 60000 ipsec-isakmp dynamic dynmap**

Troubleshooting

Atualmente, não existem informações disponíveis específicas sobre Troubleshooting para esta configuração.

Informações Relacionadas

- Configuração do perfil IPSec

- Novos recursos do Cisco IOS Software Release 12.2(15)T
- Página do suporte de protocolo do IPsec Negotiation/IKE
- Suporte Técnico e Documentação - Cisco Systems