Debugs ASA IKEv2 para el VPN de sitio a sitio con PSKs

Contenido

Introducción

Este documento proporciona la información para entender los debugs IKEv2 en el dispositivo de seguridad adaptante (ASA) cuando se utiliza la clave del preshared (PSKs).

prerrequisitos

Requisitos

No hay requisitos específicos para este documento.

Componentes Utilizados

Este documento no tiene restricciones específicas en cuanto a versiones de software y de hardware.

La información que contiene este documento se creó a partir de los dispositivos en un ambiente de laboratorio específico. Todos los dispositivos que se utilizan en este documento se pusieron en funcionamiento con una configuración verificada (predeterminada). Si la red está funcionando,

asegúrese de haber comprendido el impacto que puede tener cualquier comando.

Convenciones

Consulte Convenciones de Consejos TécnicosCisco para obtener más información sobre las convenciones del documento.

Cuestión central

El intercambio de paquetes en IKEv2 es radicalmente diferente de cuáles estaba en IKEv1. Considerando que en IKEv1 había un intercambio claramente demarcado phase1 que consistió en 6 paquetes seguidos por un intercambio de la fase 2 que consistido en 3 paquetes, el intercambio IKEv2 es variable. Para información más detallada sobre las diferencias y una explicación del intercambio de paquetes, refiera al intercambio de paquetes IKEv2 y al debugging del nivel del protocolo.

Debugs usados

```
debug crypto ikev2 protocol 127
debug crypto ikev2 platform 127
```

Configuraciones ASA

ASA1

```
interface GigabitEthernet0/0
 nameif outside
 security-level 0
 ip address 10.0.0.1 255.255.255.0

interface GigabitEthernet0/2
 nameif inside
 security-level 100
 ip address 192.168.1.2 255.255.255.0

crypto ipsec ikev2 ipsec-proposal AES256
 protocol esp encryption aes-256
 protocol esp integrity sha-1 md5

access-list l2l_list extended permit ip host 192.168.1.1
   host  192.168.2.99
access-list l2l_list extended permit ip host
192.168.1.12
   host 192.168.2.99

crypto map outside_map 1 match address l2l_list
crypto map outside_map 1 set peer 10.0.0.2
crypto map outside_map 1 set ikev2 ipsec-proposal AES256
crypto map outside_map interface outside

crypto ikev2 policy 1
 encryption aes-256
 integrity sha
 group 2
 prf sha
 lifetime seconds 86400
```

```
crypto ikev2 enable outside

tunnel-group 10.0.0.2 type ipsec-l2l
tunnel-group 10.0.0.2 ipsec-attributes
 ikev2 remote-authentication pre-shared-key *****
 ikev2 local-authentication pre-shared-key *****
```

ASA2

```
interface GigabitEthernet0/1
nameif outside
security-level 0
ip address 10.0.0.2 255.255.255.0

interface GigabitEthernet0/2
 nameif inside
 security-level 100
 ip address 192.168.2.1 255.255.255.0

crypto ipsec ikev2 ipsec-proposal AES256
protocol esp encryption aes-256
protocol esp integrity sha-1 md5

access-list l2l_list extended permit ip host
192.168.2.99
   host 191.168.1.1
access-list l2l_list extended permit ip host
192.168.2.99
   host 191.168.1.12

crypto map outside_map 1 match address l2l_list
crypto map outside_map 1 set peer 10.0.0.1
crypto map outside_map 1 set ikev2 ipsec-proposal AES256
crypto map outside_map interface outside

crypto ikev2 policy 1
 encryption aes-256
 integrity sha
 group 2
 prf sha
 lifetime seconds 86400

crypto ikev2 enable outside
tunnel-group 10.0.0.1 type ipsec-l2l
tunnel-group 10.0.0.1 ipsec-attributes
 ikev2 remote-authentication pre-shared-key *****
 ikev2 local-authentication pre-shared-key *****
```

Depuraciones

Descripción del mensaje ASA1 (iniciador)	Depuraciones	Descripción del mensaje ASA2 (respondedor)
ASA1	`IKEv2-PLAT-3: attempting to find tunnel`	

recibe un paquete que haga juego el acl crypto para el par ASA 10.0.0.2. Creación iniciados SA.	group for IP: 10.0.0.2 IKEv2-PLAT-3: mapped to tunnel group 10.0.0.2 using peer IP IKEv2-PLAT-3: my_auth_method = 2 IKEv2-PLAT-3: supported_peers_auth_method = 2 IKEv2-PLAT-3: P1 ID = 0 IKEv2-PLAT-3: Translating IKE_ID_AUTO to = 255 IKEv2-PLAT-3: (16) tp_name set to: IKEv2-PLAT-3: (16) tg_name set to: 10.0.0.2 IKEv2-PLAT-3: (16) tunn grp type set to: L2L IKEv2-PLAT-5: New ikev2 sa request admitted **IKEv2-PLAT-5: Incrementing outgoing negotiating sa count by one**	
El primer par de mensajes es el intercambio IKE_SA_INIT. Estos mensajes negocian los algoritmos criptográficos, nonces del intercambio, y hacen a intercambio Diffie-Hellman. **Configuración pertinente:** crypto ikev2 policy 1	IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=0000000000000000 (I) MsgID = 00000000 CurState: IDLE Event: EV_INIT_SA IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=0000000000000000 (I) MsgID = 00000000 CurState: I_BLD_INIT Event: EV_GET_IKE_POLICY IKEv2-PROTO-3: (16): Getting configured policies IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=0000000000000000 (I) MsgID = 00000000 CurState: I_BLD_INIT Event: EV_SET_POLICY **IKEv2-PROTO-3: (16): Setting configured policies** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=0000000000000000 (I) MsgID = 00000000 CurState: I_BLD_INIT Event: EV_CHK_AUTH4PKI IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=0000000000000000 (I) MsgID = 00000000 CurState: I_BLD_INIT Event: EV_GEN_DH_KEY **IKEv2-PROTO-3: (16): Computing DH public key** IKEv2-PROTO-3: (16): IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=0000000000000000 (I) MsgID = 00000000 CurState: I_BLD_INIT Event: EV_NO_EVENT IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=0000000000000000 (I) MsgID = 00000000 CurState: I_BLD_INIT Event: EV_OK_RECD_DH_PUBKEY_RESP IKEv2-PROTO-5: (16): Action: Action_Null IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958	

encryption aes-256 integrity sha group 2 prf sha lifetime seconds 86400 crypto ikev2 enable outside Tunnel Group matching the identity name is present: tunnel-group 10.0.0.2 type ipsec-l2l tunnel-group 10.0.0.2 ipsec-attributes ikev2 remote- authentication pre-shared-key ***** ikev2 local- authentication pre-shared-key *****	R_SPI=0000000000000000 (I) MsgID = 00000000 CurState: I_BLD_INIT Event: EV_GET_CONFIG_MODE IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958	
El	R_SPI=0000000000000000 (I) MsgID =	

iniciador construye el paquete IKE_INIT_SA. Contiene: 1. Encabezado ISAKMP - SPI/version/flags 2. SAi1 - algoritmo criptográfico que el iniciador IKE soporo	00000000 CurState: I_BLD_INIT Event: EV_BLD_MSG IKEv2-PROTO-2: (16): **Sending initial message** IKEv2-PROTO-3: Tx [L 10.0.0.1:500/R 10.0.0.2:500/VRF i0:f0] m_id: 0x0 IKEv2-PROTO-3: HDR[i:DFA3B583A4369958 - r: 0000000000000000] IKEv2-PROTO-4: **IKEV2 HDR ispi: DFA3B583A4369958 - rspi: 0000000000000000** IKEv2-PROTO-4: Next payload: SA, version: 2.0 IKEv2-PROTO-4: **Exchange type: IKE_SA_INIT, flags: INITIATOR** IKEv2-PROTO-4: Message id: 0x0, length: 338 **SA** Next payload: KE, reserved: 0x0, length: 48 IKEv2-PROTO-4: last proposal: 0x0, reserved: 0x0, length: 44 Proposal: 1, Protocol id: IKE, SPI size: 0, #trans: 4 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 12 type: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 2, reserved: 0x0, id: SHA1 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4: last transform: 0x0, reserved: 0x0: length: 8 type: 4, reserved: 0x0, id: DH_GROUP_1024_MODP/Group 2 **KE** Next payload: N, reserved: 0x0, length: 136 DH group: 2, Reserved: 0x0 19 65 43 45 d2 72 a7 11 b8 a4 93 3f 44 95 6c b8 6d 5a f0 f8 1f f3 d4 b9 ff 41 7b 0d 13 90 82 cf 34 2e 74 e3 03 6e 9e 00 88 80 5d 86 2c 4c 79 35 ee e6 98 91 89 f3 48 83 75 09 02 f1 3c b1 7f f5 be 05 f1 fa 7e 8a 4c 43 eb a9 2c 3a 47 c0 68 40 f5 dd 02 9d a5 b5 a2 a6 90 64 95 fc 57 b5 69 e8 b2 4f 8e f2 a5 05 e3 c7 17 f9 c0 e0 c8 3e 91 ed c1 09 23 3e e5 09 4f be 1a 6a d4 d9 fb 65 44 1d **N** Next payload: VID, reserved: 0x0, length: 24 84 8b 80 c2 52 6c 4f c7 f8 08 b8 ed! 52 af a2 f4 d5 dd d4 f4 **VID** Next payload: VID, reserved: 0x0, length: 23 43 49 53 43 4f 2d 44 45 4c 45 54 45 2d 52 45 41 53 4f 4e VID Next payload: VID, reserved: 0x0, length: 59 43 49 53 43 4f 28 43 4f 50 59 52 49 47 48 54 29 26 43 6f 70 79 72 69 67 68 74 20 28 63 29 20 32 30 30 39 20 43 69 73 63 6f 20 53 79 73 74 65 6d 73 2c 20 49 6e 63 2e VID Next payload: NONE, reserved: 0x0, length: 20 40 48 b7 d5 6e bc e8 85 25 e7 de 7f 00 d6 c2 d3	

rta 3. KEi - Valor de clave pública DH del iniciador 4. Nonce del N-iniciador		
Se envía el iniciador.	`IKEv2-PLAT-4: SENT PKT [IKE_SA_INIT] [10.0.0.1]:500->[10.0.0.2]:500`	
---------- IKE_INIT_SA enviado iniciador ---------->		
	`IKEv2-PLAT-4: RECV PKT [IKE_SA_INIT] [10.0.0.1]:500->[10.0.0.2]:500 InitSPI=0xdfa3b583a4369958 RespSPI=0x0000000000000000 MID=00000000`	El respondedor recibe IKEV_INIT_SA.

	`IKEv2-PROTO-3: Rx [L 10.0.0.2:500/R 10.0.0.1:500/VRF i0:f0] m_id: 0x0`
	`IKEv2-PROTO-3: HDR[i:DFA3B583A4369958 - r: 0000000000000000]`
	`IKEv2-PROTO-4: IKEV2 HDR ispi: DFA3B583A4369958 - rspi: 0000000000000000`
	`IKEv2-PROTO-4: Next payload: SA, version: 2.0`
		El respondedor inicia la creación SA para ese par.

	IKEv2-PROTO-4: Exchange type: IKE_SA_INIT, flags: INITIATOR IKEv2-PROTO-4: Message id: 0x0, length: 338 IKEv2-PLAT-5: New ikev2 sa request admitted **IKEv2-PLAT-5: Incrementing incoming negotiating sa count by one** SA Next payload: KE, reserved: 0x0, length: 48 IKEv2-PROTO-4: last proposal: 0x0, reserved: 0x0, length: 44 Proposal: 1, Protocol id: IKE, SPI size: 0, #trans: 4 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 12 type: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 2, reserved: 0x0, id: SHA1 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4: last transform: 0x0, reserved: 0x0: length: 8 type: 4, reserved: 0x0, id: DH_GROUP_1024_MODP/Group 2 KE Next payload: N, reserved: 0x0, length: 136 DH group: 2, Reserved: 0x0 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: IDLE Event: EV_RECV_INIT IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R)	
	MsgID = 00000000 CurState: R_INIT Event: EV_VERIFY_MSG IKEv2-PROTO-3: (16): **Verify SA init message** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_INIT Event: EV_INSERT_SA IKEv2-PROTO-3: (16): **Insert SA** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_INIT Event: EV_GET_IKE_POLICY IKEv2-PROTO-3: (16): **Getting configured policies** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_INIT Event:EV_PROC_MSG IKEv2-PROTO-2: (16): **Processing initial message** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_INIT Event: EV_DETECT_NAT IKEv2-PROTO-3: (16): **Process NAT discovery notify** IKEv2-PROTO-5: (16): No NAT found IKEv2-PROTO-5: (16): SM Trace-> SA:	El respondedor verifica y procesa el mensaje IKE_INIT: 1. Elige la habitación crypto de

	I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_INIT Event: EV_CHK_CONFIG_MODE IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_SET_POLICY IKEv2-PROTO-3: (16): Setting configured policies IKEv2- PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_CHK_AUTH4PKI IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_PKI_SESH_OPEN IKEv2-PROTO-3: (16): Opening a PKI session IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_GEN_DH_KEY IKEv2-PROTO-3: (16): **Computing DH public key** IKEv2-PROTO- 3: (16): IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_NO_EVENT IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_OK_RECD_DH_PUBKEY_RESP IKEv2- PROTO-5: (16): Action: Action_Null IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_GEN_DH_SECRET IKEv2-PROTO-3: (16): **Computing DH secret key** IKEv2-PROTO- 3: (16): IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_NO_EVENT IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_OK_RECD_DH_SECRET_RESP IKEv2- PROTO-5: (16): Action: Action_Null IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958_SPI=27C943C13F D94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_GEN_SKEYID IKEv2-PROTO-3: (16): **Generate skeyid** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_GET_CONFIG_MODE IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958	és as ofr eci da s po r el ini cia do r. 2. Co m pu ta su pr op ia cla ve se cr et a D H. 3. Ta m bi én co m pu ta un val or de l sk eyi d, de l

	R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_BLD_INIT Event: EV_BLD_MSG	cual todas las claves se pueden derivar para este IKE_SA. Se cifran y se autentican todos pero las encabezados

		de todos los mensajes que sigue n. Las claves usadas para la protección del cifrado y de la integridad se derivan de

		SKEYID y se conocen como: a. SK_e (cifrado). b. SK_a (autenticación). c. SK_d se deriva y se utiliza para

		la derivación del material de codificación adicional para CHILD_SAs. UnSK_ey unSK_a separados se compu

		ta pa ra ca da dir ec ció n. **Configu ración pertinen te:** crypto ikev2 policy 1 encrypti on aes- 256 integrit y sha group 2 prf sha lifetime seconds 86400 crypto ikev2 enable outside Tunnel Group matching the identity name is present: tunnel- group 10.0.0.1 type ipsec- l2l tunnel- group 10.0.0.1 ipsec-

		attributes ikev2 remote- authentication pre-shared-key ***** ikev2 local- authentication pre-shared-key *****
	IKEv2-PROTO-2: (16): **Sending initial message** IKEv2-PROTO-3: IKE Proposal: 1, SPI size: 0 (initial negotiation), Num. transforms: 4 AES-CBC SHA1 SHA96 DH_GROUP_1024_MODP/Group 2 IKEv2-PROTO-5: Construct Vendor Specific Payload: FRAGMENTATIONIKEv2-PROTO-3: Tx [L 10.0.0.2:500/R 10.0.0.1:500/VRFi0:f0] m_id: 0x0 IKEv2-PROTO-3: HDR[i:DFA3B583A4369958 - r: 27C943C13FD94665] IKEv2-PROTO-4: IKEV2 HDR ispi: DFA3B583A4369958 - rspi: 27C943C13FD94665 IKEv2-PROTO-4: Next payload: SA, version: 2.0 IKEv2-PROTO-4: Exchange type: IKE_SA_INIT, flags: RESPONDER MSG-RESPONSE IKEv2-PROTO-4: Message id: 0x0, length: 338 SA Next payload: KE, reserved: 0x0, length: 48 IKEv2-PROTO-4: last proposal: 0x0, reserved: 0x0, length: 44 Proposal: 1, Protocol id: IKE, SPI size: 0, #trans: 4 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 12 type: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 2, reserved: 0x0, id: SHA1 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4: last transform: 0x0, reserved: 0x0: length: 8 type: 4, reserved: 0x0, id: DH_GROUP_1024_MODP/Group 2 KE Next payload: N, reserved: 0x0, length: 136 DH group: 2, Reserved: 0x0	ASA2 construye el mensaje del respondedor para el intercambio IKE_SA_INIT, que es recibido por ASA1. Este paquete contiene: 1. Encabezado ISAKMP (versión/i

		ndicadores SPI/) 2. Algoritmo SAr1(criptographique el responde dor IKE eligе) 3. KEr(valor de clave pública

			D H de l re sp on de do r) 4. No nc e de l re sp on de do r
	IKEv2-PLAT-4: SENT PKT [IKE_SA_INIT] [10.0.0.2]:500->[10.0.0.1]:500 InitSPI=0xdfa3b583a4369958 RespSPI=0x27c943c13fd94665 MID=00000000		ASA2 envía el mensaje del respondedor a ASA1.
<---------- IKE_INIT_SA enviado respondedor ----------			
ASA1 recibe el paquete de respuesta IKE_SA_INIT de ASA2.	IKEv2-PLAT-4: RECV PKT [IKE_SA_INIT] [10.0.0.2]:500->[10.0.0.1]:500 InitSPI=0xdfa3b583a4369958 RespSPI=0x27c943c13fd94665 MID=00000000	IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: INIT_DONE Event: EV_DONE IKEv2-PROTO-3: (16): Fragmentation is enabled IKEv2-PROTO-3: (16): Cisco DeleteReason Notify	El respondedor comienza el temporizador para el proceso del auth.

		is enabled IKEv2-PROTO-3: (16): Complete SA init exchange IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: INIT_DONE Event: EV_CHK4_ROLE IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: INIT_DONE Event: EV_START_TMR IKEv2-PROTO-3: (16): **Starting timer to wait for auth message (30 sec)** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000000 CurState: R_WAIT_AUTH Event: EV_NO_EVENT	
ASA1 verifica y procesa la respuesta: 1. Se compu	IKEv2-PROTO-3: Rx [L 10.0.0.1:500/R 10.0.0.2:500/VRF i0:f0] m_id: 0x0 IKEv2-PROTO-3: HDR[i:DFA3B583A4369958 - r: 27C943C13FD94665] IKEv2-PROTO-4: IKEV2 HDR ispi: DFA3B583A4369958 - rspi: 27C943C13FD94665 IKEv2-PROTO-4: Next payload: SA, version: 2.0 IKEv2-PROTO-4: Exchange type: IKE_SA_INIT, flags: RESPONDER MSG-RESPONSE IKEv2-PROTO-4: Message id: 0x0,	

2. El skeyid del iniciador también se genera	length: 338 SA Next payload: KE, reserved: 0x0, length: 48 IKEv2-PROTO-4: last proposal: 0x0, reserved: 0x0, length: 44 Proposal: 1, Protocol id: IKE, SPI size: 0, #trans: 4 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 12 type: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 2, reserved: 0x0, id: SHA1 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4: last transform: 0x0, reserved: 0x0: length: 8 type: 4, reserved: 0x0, id: DH_GROUP_1024_MODP/Group 2 KE Next payload: N, reserved: 0x0, length: 136 DH group: 2, Reserved: 0x0 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: I_WAIT_INIT Event: EV_RECV_INIT IKEv2-PROTO-5: (16): **Processing initial message** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: I_PROC_INIT Event: EV_CHK4_NOTIFY IKEv2-PROTO-2: (16): Processing initial message IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: I_PROC_INIT Event: EV_VERIFY_MSG IKEv2-PROTO-3: (16): **Verify SA init message** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: I_PROC_INIT Event: EV_PROC_MSG IKEv2-PROTO-2: (16): **Processing initial message** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: I_PROC_INIT Event: EV_DETECT_NAT IKEv2-PROTO-3: (16): Process NAT discovery notify IKEv2-PROTO-3: (16): NAT-T is disabled IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID =	

	00000000 CurState: I_PROC_INIT Event: EV_CHK_NAT_T IKEv2-PROTO-3: (16): **Check NAT discovery** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: I_PROC_INIT Event: EV_CHK_CONFIG_MODE IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: INIT_DONE Event: EV_GEN_DH_SECRET IKEv2-PROTO-3: (16): **Computing DH secret key** IKEv2-PROTO-3: (16): IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: INIT_DONE Event: EV_NO_EVENT IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: INIT_DONE Event: EV_OK_RECD_DH_SECRET_RESP IKEv2-PROTO-5: (16): Action: Action_Null IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: INIT_DONE Event: EV_GEN_SKEYID IKEv2-PROTO-3: (16): **Generate skeyid** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: INIT_DONE Event: EV_DONE IKEv2-PROTO-3: (16): Fragmentation is enabled IKEv2-PROTO-3: (16): Cisco DeleteReason Notify is enabled	
El intercambio IKE_INIT_SA entre los ASAes completo ahora.	IKEv2-PROTO-3: (16): Complete SA init exchange	
El iniciador comienza el intercambio “IKE_AUTH” y comienza la generac	IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: I_BLD_AUTH Event: EV_GEN_AUTH IKEv2-PROTO-3: (16): Generate my authentication data IKEv2-PROTO-3: (16): Use preshared key for id 10.0.0.1, key len 5 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState:	

ión del payload de la autenticación. El paquete IKE_AUTH contiene: 1. Encabezado ISAKMP (versión/indicadores SPI/). 2. IDI (la identidad del iniciador). 3. Payload AUTH. 4. SA	I_BLD_AUTH Event: EV_CHK_AUTH_TYPE IKEv2-PROTO-3: (16): Get my authentication method IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: I_BLD_AUTH Event: EV_OK_AUTH_GEN IKEv2-PROTO-3: (16): **Check for EAP exchange** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000000 CurState: I_BLD_AUTH Event: EV_SEND_AUTH IKEv2-PROTO-2: (16): **Sending auth message** IKEv2-PROTO-5: Construct Vendor Specific Payload: CISCO-GRANITE IKEv2-PROTO-3: ESP Proposal: 1, SPI size: 4 (IPSec negotiation), Num. transforms: 4 AES-CBC SHA96 MD596 IKEv2-PROTO-5: Construct Notify Payload: INITIAL_CONTACT IKEv2-PROTO-5: Construct Notify Payload: ESP_TFC_NO_SUPPORT IKEv2-PROTO-5: Construct Notify Payload: NON_FIRST_FRAGS IKEv2-PROTO-3: (16): Building packet for encryption; contents are: VID Next payload: IDi, reserved: 0x0, length: 20 dd a3 b4 83 b7 01 6a 1f 3d b7 84 1a 75 e6 83 a6 **IDi** Next payload: AUTH, reserved: 0x0, length: 12 Id type: IPv4 address, Reserved: 0x0 0x0 47 01 01 01 **AUTH** Next payload: SA, reserved: 0x0, length: 28 Auth method PSK, reserved: 0x0, reserved 0x0 Auth data: 20 bytes **SA** Next payload: TSi, reserved: 0x0, length: 52 IKEv2-PROTO-4: last proposal: 0x0, reserved: 0x0, length: 48 Proposal: 1, Protocol id: ESP, SPI size: 4, #trans: 4 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 12 type: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: MD596 IKEv2-PROTO-4: last transform: 0x0, reserved: 0x0: length: 8 type: 5, reserved: 0x0, id: **TSi** Next payload: TSr, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.1.1, end addr: 192.168.1.1 **TSr** Next payload: NOTIFY, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type:	

i2 (inicia el SA - similar a la fase 2 transform an el intercambio del conjunto en IKEv1). 5. TSi y TSr (selectores del tráfico o	TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.2.99, end addr: 192.168.2.99 IKEv2-PROTO-3: Tx [L 10.0.0.1:500/R 10.0.0.2:500/VRF i0:f0] m_id: 0x1 IKEv2-PROTO-3: HDR[i:DFA3B583A4369958 - r: 27C943C13FD94665] IKEv2-PROTO-4: **IKEV2 HDR** ispi: DFA3B583A4369958 - rspi: 27C943C13FD94665 IKEv2-PROTO-4: Next payload: ENCR, **version: 2.0** IKEv2-PROTO-4: **Exchange type: IKE_AUTH, flags: INITIATOR** IKEv2-PROTO-4: Message id: 0x1, length: 284 ENCR Next payload: VID, reserved: 0x0, length: 256 Encrypted data: 252 bytes	

del iniciador y del respondedor): Contiene las direcciones de origen y de destino del iniciador y el respondedor respectiva		

mente a remitir/recibe el tráfico encriptado. El interval o de direcciones especifica que todo el tráfico a y desde ese		

rango será tunneled. Si la oferta es aceptable por el responde dor, devuelve las cargas útiles idénticas TS. El 1r CHILD_SA se crea		

para el par del proxy_ID que hace juego el paquete del activador. **Configuración pertinente:** `crypto ipsec ikev2 ipsec-proposal AES256 protocol esp encryption aes-256 protocol esp integrity sha-1 md5 access-list l2l_list extended permit ip host 10.0.0.2 host 10.0.0.1`		
ASA1 envía el paquete IKE_AUTH a ASA2.	`IKEv2-PLAT-4: SENT PKT [IKE_AUTH] [10.0.0.1]:500->[10.0.0.2]:500 InitSPI=0xdfa3b583a4369958 RespSPI=0x27c943c13fd94665 MID=00000001`	
---------- IKE_AUTH enviado iniciador		

---------->		
	IKEv2-PLAT-4: RECV PKT [IKE_AUTH] [10.0.0.1]:500->[10.0.0.2]:500 InitSPI=0xdfa3b583a4369958 RespSPI=0x27c943c13fd94665 MID=00000001	ASA2 recibe este paquete de ASA1.
	IKEv2-PROTO-3: Rx [L 10.0.0.2:500/R 10.0.0.1:500/VRF i0:f0] m_id: 0x1 IKEv2-PROTO-3: HDR[i:DFA3B583A4369958 - r: 27C943C13FD94665] IKEv2-PROTO-4: IKEV2 HDR ispi: DFA3B583A4369958 - rspi: 27C943C13FD94665 IKEv2-PROTO-4: Next payload: ENCR, version: 2.0 IKEv2-PROTO-4: Exchange type: IKE_AUTH, flags: INITIATOR IKEv2-PROTO-4: Message id: 0x1, length: 284 IKEv2-PROTO-5: (16): Request has mess_id 1; expected 1 through 1 REAL Decrypted packet: Data: 216 bytes IKEv2-PROTO-5: Parse Vendor Specific Payload: (CUSTOM) VID Next payload: IDi, reserved: 0x0, length: 20 dd a3 b4 83 b7 01 6a 1f 3d b7 84 1a 75 e6 83 a6 IDi Next payload: AUTH, reserved: 0x0, length: 12 Id type: IPv4 address, Reserved: 0x0 0x0 47 01 01 01 **AUTH** Next payload: SA, reserved: 0x0, length: 28 Auth method PSK, reserved: 0x0, reserved 0x0 Auth data: 20 bytes **SA** Next payload: TSi, reserved: 0x0, length: 52 IKEv2-PROTO-4: last proposal: 0x0, reserved: 0x0, length: 48 Proposal: 1, Protocol id: ESP, SPI size: 4, #trans: 4 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 12 type: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: MD596 IKEv2-PROTO-4: last transform: 0x0, reserved: 0x0: length: 8 type: 5, reserved: 0x0, id: **TSi** Next payload: TSr, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id:	ASA2 para el temporizador del auth y verifica los datos de autenticación recibidos de ASA1. Entonces, genera sus propios datos de autenticación, exactamente como ASA1 hizo. **Configuración pertinente:** crypto ipsec ikev2 ipsec- proposal AES256 protocol esp encryption

	0, length: 16 start port: 0, end port: 65535 start addr: 192.168.1.1, end addr: 192.168.1.1 **TSr** Next payload: NOTIFY, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.2.99, end addr: 192.168.2.99 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_WAIT_AUTH Event: EV_RECV_AUTH IKEv2-PROTO-3: (16): Stopping timer to wait for auth message IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_WAIT_AUTH Event: EV_CHK_NAT_T IKEv2-PROTO-3: (16): Check NAT discovery IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_WAIT_AUTH Event: EV_PROC_ID IKEv2-PROTO-2: (16): Recieved valid parameteres in process id IKEv2-PLAT-3: (16) peer auth method set to: 2 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_WAIT_AUTH Event: EV_CHK_IF_PEER_CERT_NEEDS_TO_BE_FETCHED_FOR_ PROF_SEL IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_WAIT_AUTH Event: EV_GET_POLICY_BY_PEERID IKEv2-PROTO-3: (16): Getting configured policies IKEv2-PLAT-3: attempting to find tunnel group for ID: 10.0.0.1 IKEv2-PLAT-3: mapped to tunnel group 10.0.0.1 using phase 1 ID IKEv2-PLAT-3: (16) tg_name set to: 10.0.0.1 IKEv2-PLAT-3: (16) tunn grp type set to: L2L IKEv2-PLAT-3: my_auth_method = 2 IKEv2-PLAT-3: supported_peers_auth_method = 2 IKEv2-PLAT-3: P1 ID = 0 IKEv2-PLAT-3: Translating IKE_ID_AUTO to = 255 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_WAIT_AUTH Event: EV_SET_POLICY IKEv2-PROTO-3: (16): Setting configured policies IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_WAIT_AUTH Event: EV_VERIFY_POLICY_BY_PEERID IKEv2-PROTO-3: (16): Verify peer's policy IKEv2-PROTO-5: (16): SM Trace-> SA:	aes-256 protocol esp integrity sha-1 md5

	I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_WAIT_AUTH Event: EV_CHK_CONFIG_MODE IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_WAIT_AUTH Event: EV_CHK_AUTH4EAP IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_WAIT_AUTH Event: EV_CHK_POLREQEAP IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_VERIFY_AUTH Event: EV_CHK_AUTH_TYPE IKEv2-PROTO- 3: (16): Get peer authentication method IKEv2-PROTO-5: (16): SM Trace- > SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_VERIFY_AUTH Event: EV_GET_PRESHR_KEY IKEv2-PROTO- 3: (16): Get peer's preshared key for 10.0.0.1 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_VERIFY_AUTH Event: EV_VERIFY_AUTH IKEv2-PROTO-3: (16): Verify authentication data IKEv2-PROTO-3: (16): Use preshared key for id 10.0.0.1, key len 5 IKEv2- PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_VERIFY_AUTH Event: EV_GET_CONFIG_MODE IKEv2-PLAT- 2: Build config mode reply: no request stored IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_VERIFY_AUTH Event: EV_CHK4_IC IKEv2-PROTO-3: (16): Processing initial contact IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_VERIFY_AUTH Event: EV_CHK_REDIRECT IKEv2-PROTO-5: (16): Redirect check is not needed, skipping it IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_VERIFY_AUTH Event: EV_PROC_SA_TS IKEv2-PROTO-2: (16): Processing auth message IKEv2- PLAT-3: Selector received from peer is accepted **IKEv2-PLAT-3: PROXY MATCH on crypto map outside_map seq 1** IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_VERIFY_AUTH Event: EV_NO_EVENT IKEv2-PROTO-5:	

	(16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_VERIFY_AUTH Event: EV_OK_RECD_IPSEC_RESP IKEv2-PROTO-2: (16): Processing auth message	
	IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_BLD_AUTH Event: EV_MY_AUTH_METHOD IKEv2-PROTO-3: (16): Get my authentication method IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_BLD_AUTH Event: EV_GET_PRESHR_KEY IKEv2-PROTO-3: (16): Get peer's preshared key for 10.0.0.1 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_BLD_AUTH Event: EV_GEN_AUTH IKEv2-PROTO-3: (16): Generate my authentication data IKEv2-PROTO-3: (16): Use preshared key for id 10.0.0.2, key len 5 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_BLD_AUTH Event: EV_CHK4_SIGN IKEv2-PROTO-3: (16): Get my authentication method IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_BLD_AUTH Event: EV_OK_AUTH_GEN IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: R_BLD_AUTH Event: EV_SEND_AUTH IKEv2-PROTO-2: (16): Sending auth message IKEv2-PROTO-5: Construct Vendor Specific Payload: CISCO-GRANITE IKEv2-PROTO-3: ESP Proposal: 1, SPI size: 4 (IPSec negotiation), Num. transforms: 3	El paquete IKE_AUTH enviado de ASA2 contiene: 1. Encabezado ISAKMP (versión/indicadores SPI/). 2. IDR (la identidad del respon

	AES-CBC SHA96 IKEv2-PROTO-5: Construct Notify Payload: ESP_TFC_NO_SUPPORTIKEv2-PROTO-5: Construct Notify Payload: NON_FIRST_FRAGSIKEv2-PROTO-3: (16): Building packet for encryption; contents are: VID Next payload: IDr, reserved: 0x0, length: 20 25 c9 42 c1 2c ee b5 22 3d b7 84 1a 75 e6 83 a6 **IDr** Next payload: AUTH, reserved: 0x0, length: 12 Id type: IPv4 address, Reserved: 0x0 0x0 51 01 01 01 **AUTH** Next payload: SA, reserved: 0x0, length: 28 Auth method PSK, reserved: 0x0, reserved 0x0 Auth data: 20 bytes **SA** Next payload: TSi, reserved: 0x0, length: 44 IKEv2-PROTO-4: last proposal: 0x0, reserved: 0x0, length: 40 Proposal: 1, Protocol id: ESP, SPI size: 4, #trans: 3 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 12 type: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4: last transform: 0x0, reserved: 0x0: length: 8 type: 5, reserved: 0x0, id: **TSi** Next payload: TSr, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.1.1, end addr: 192.168.1.1 **TSr** Next payload: NOTIFY, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.2.99, end addr: 192.168.2.99 NOTIFY(ESP_TFC_NO_SUPPORT) Next payload: NOTIFY, reserved: 0x0, length: 8 Security protocol id: IKE, spi size: 0, type: ESP_TFC_NO_SUPPORT NOTIFY(NON_FIRST_FRAGS) Next payload: NONE, reserved: 0x0, length: 8 Security protocol id: IKE, spi size: 0, type: NON_FIRST_FRAGS IKEv2-PROTO-3: Tx [L 10.0.0.2:500/R 10.0.0.1:500/VRF i0:f0] m_id: 0x1 IKEv2-PROTO-3: HDR[i:DFA3B583A4369958 - r: 27C943C13FD94665] IKEv2-PROTO-4: IKEV2 HDR ispi: DFA3B583A4369958 - rspi: 27C943C13FD94665 IKEv2-PROTO-4: Next payload: ENCR, version: 2.0 IKEv2-PROTO-4: Exchange type: IKE_AUTH, flags: RESPONDER MSG-RESPONSE IKEv2-PROTO-4: Message id:	dedor). 3. PayloadAUTH. 4. SAr2 (inicia el SA-similar a la fase 2 transformanel intercambio del conjunto en IK

	0x1, length: 236 ENCR Next payload: VID, reserved: 0x0, length: 208 Encrypted data: 204 bytes	Ev 1). 5. TS i y TS r (s el ec tor es de l trá fic o de l ini cia do r y de l re sp on de do r): Co nti en en a las dir ec cio ne s de ori ge n y de

		destino del iniciador y el respondedor respectivamente a remitir/recibe el tráfico encriptado. El intervalo de dir

		ecciones especifica que todo el tráfico a y desde ese rango será tunneled. Estos parámetros son idénticos

			al que fue recibido de ASA1.
	IKEv2-PLAT-4: SENT PKT [IKE_AUTH] [10.0.0.2]:500->[10.0.0.1]:500 InitSPI=0xdfa3b583a4369958 RespSPI=0x27c943c13fd94665 MID=00000001		El respondedor envía la respuesta para IKE_AUTH.
<---------- Respondedor enviado ----------			
El iniciador recibe una respuesta del respondedor.	IKEv2-PLAT-4: RECV PKT [IKE_AUTH] [10.0.0.2]:500->[10.0.0.1]:500 InitSPI=0xdfa3b583a4369958 RespSPI=0x27c943c13fd94665 MID=00000001	IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: AUTH_DONE Event: EV_OK IKEv2-PROTO-5: (16): Action: Action_Null IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: AUTH_DONE Event: EV_PKI_SESH_CLOSE	El respondedor inserta una entrada en el TRISTE.

		IKEv2-PROTO-3: (16): Closing the PKI session IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: AUTH_DONE Event: EV_INSERT_IKE IKEv2-PROTO-2: (16): **SA created; inserting SA into database**	
ASA1 verifica y procesa los datos de autenticación en este paquete. ASA1 entonces inserta este SA en su TRISTE.	IKEv2-PROTO-3: Rx [L 10.0.0.1:500/R 10.0.0.2:500/VRF i0:f0] m_id: 0x1 IKEv2-PROTO-3: HDR[i:DFA3B583A4369958 - r: 27C943C13FD94665] IKEv2-PROTO-4: IKEV2 HDR ispi: DFA3B583A4369958 - rspi: 27C943C13FD94665 IKEv2-PROTO-4: Next payload: ENCR, version: 2.0 IKEv2-PROTO-4: Exchange type: IKE_AUTH, flags: RESPONDER MSG-RESPONSE IKEv2-PROTO-4: Message id: 0x1, length: 236 REAL Decrypted packet:Data: 168 bytes IKEv2-PROTO-5: Parse Vendor Specific Payload: (CUSTOM) VID Next payload: IDr, reserved: 0x0, length: 20 25 c9 42 c1 2c ee b5 22 3d b7 84 1a 75 e6 83 a6 IDr Next payload: AUTH, reserved: 0x0, length: 12 Id type: IPv4 address, Reserved: 0x0 0x0 51 01 01 01 AUTH Next payload: SA, reserved: 0x0, length: 28 Auth method PSK, reserved: 0x0, reserved 0x0 Auth data: 20 bytes SA Next payload: TSi, reserved: 0x0, length: 44 IKEv2-PROTO-4: last proposal: 0x0, reserved: 0x0, length: 40 Proposal: 1, Protocol id: ESP, SPI size: 4,	

	#trans: 3 IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 12 type: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4: last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4: last transform: 0x0, reserved: 0x0: length: 8 type: 5, reserved: 0x0, id: **TSi** Next payload: TSr, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.1.1, end addr: 192.168.1.1 **TSr** Next payload: NOTIFY, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.2.99, end addr: 192.168.2.99 IKEv2-PROTO-5: Parse Notify Payload: ESP_TFC_NO_SUPPORT NOTIFY(ESP_TFC_NO_SUPPORT) Next payload: NOTIFY, reserved: 0x0, length: 8 Security protocol id: IKE, spi size: 0, type: ESP_TFC_NO_SUPPORT IKEv2-PROTO-5: Parse Notify Payload: NON_FIRST_FRAGS NOTIFY(NON_FIRST_FRAGS) Next payload: NONE, reserved: 0x0, length: 8 Security protocol id: IKE, spi size: 0, type: NON_FIRST_FRAGS Decrypted packet:Data: 236 bytes IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_WAIT_AUTH Event: EV_RECV_AUTH IKEv2-PROTO-5: (16): Action: Action_Null IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_CHK4_NOTIFY IKEv2-PROTO-2: (16): Process auth response notify IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_PROC_MSG IKEv2-PLAT-3: (16) peer auth method set to: 2 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_CHK_IF_PEER_CERT_NEEDS_TO_BE_FETCHED_ FOR_PROF_SEL IKEv2-PROTO-5: (16):	

	SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_GET_POLICY_BY_PEERID IKEv2-PROTO-3: (16): Getting configured policies IKEv2-PLAT-3: connection initiated with tunnel group 10.0.0.2 IKEv2-PLAT-3: (16) tg_name set to: 10.0.0.2 IKEv2-PLAT-3: (16) tunn grp type set to: L2L IKEv2-PLAT-3: my_auth_method = 2 IKEv2-PLAT-3: supported_peers_auth_method = 2 IKEv2-PLAT-3: P1 ID = 0 IKEv2-PLAT-3: Translating IKE_ID_AUTO to = 255 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_VERIFY_POLICY_BY_PEERID IKEv2-PROTO-3: (16): Verify peer's policy IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_CHK_AUTH_TYPE IKEv2-PROTO-3: (16): Get peer authentication method IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_GET_PRESHR_KEY IKEv2-PROTO-3: (16): Get peer's preshared key for 10.0.0.2 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_VERIFY_AUTH IKEv2-PROTO-3: (16): Verify authentication data IKEv2-PROTO-3: (16): Use preshared key for id 10.0.0.2, key len 5 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_CHK_EAP IKEv2-PROTO-3: (16): Check for EAP exchange IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_CHK_CONFIG_MODE IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_CHK_IKE_ONLY IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: I_PROC_AUTH Event: EV_PROC_SA_TS IKEv2-PROTO-2: (16): Processing auth message IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: AUTH_DONE Event:	

	EV_OK IKEv2-PROTO-5: (16): Action: Action_Null IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: AUTH_DONE Event: EV_PKI_SESH_CLOSE IKEv2-PROTO-3: (16): Closing the PKI session IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: AUTH_DONE Event: EV_INSERT_IKE IKEv2-PROTO-2: (16): **SA created; inserting SA into database**		
El túnel está para arriba en el iniciador.	**CONNECTION STATUS: UP...** peer: 10.0.0.2:500, phase1_id: 10.0.0.2 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: AUTH_DONE Event: EV_REGISTER_SESSION	**CONNECTION STATUS: UP...** peer: 10.0.0.1:500, phase1_id: 10.0.0.1 IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: AUTH_DONE Event: EV_REGISTER_SESSION	El túnel está para arriba en el respondedor. El túnel del respondedor sube generalmente antes del iniciador.
Proceso de inscripción IKEv2.	IKEv2-PLAT-3: (16) connection auth hdl set to 15 IKEv2-PLAT-3: AAA conn attribute retrieval successfully queued for register session request. IKEv2-PROTO-3: (16): IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (I) MsgID = 00000001 CurState: AUTH_DONE Event:	IKEv2-PLAT-3: (16) connection auth hdl set to 15 IKEv2-PLAT-3: AAA conn attribute retrieval successfully queued for register session request. IKEv2-PROTO-3: (16): IKEv2-PROTO-5: (16): SM Trace-> SA: I_SPI=DFA3B583A4369958 R_SPI=27C943C13FD94665 (R) MsgID = 00000001 CurState: AUTH_DONE Event: EV_NO_EVENT	Proceso de inscripción IKEv2.

	EV_NO_EVENT IKEv2-PLAT-3: (16) idle timeout set to: 30 IKEv2-PLAT-3: (16) session timeout set to: 0 IKEv2-PLAT-3: (16) group policy set to DfltGrpPolicy IKEv2-PLAT-3: (16) class attr set IKEv2-PLAT-3: (16) tunnel protocol set to: 0x5c IKEv2-PLAT-3: IPv4 filter ID not configured for connection IKEv2-PLAT-3: (16) group lock set to: none IKEv2-PLAT-3: IPv6 filter ID not configured for connection IKEv2-PLAT-3: (16) connection attribues set valid to TRUE IKEv2-PLAT-3: Successfully retrieved conn attrs IKEv2-PLAT-3: Session registration after conn attr retrieval PASSED, No error **IKEv2-PLAT-3: CONNECTION STATUS: REGISTERED...** peer: 10.0.0.2:500, phase1_id: 10.0.0.2	IKEv2-PLAT-3: (16) idle timeout set to: 30 IKEv2-PLAT-3: (16) session timeout set to: 0 IKEv2-PLAT-3: (16) group policy set to DfltGrpPolicy IKEv2-PLAT-3: (16) class attr set IKEv2-PLAT-3: (16) tunnel protocol set to: 0x5c IKEv2-PLAT-3: IPv4 filter ID not configured for connection IKEv2-PLAT-3: (16) group lock set to: none IKEv2-PLAT-3: IPv6 filter ID not configured for connection attribues set valid to TRUE IKEv2-PLAT-3: Successfully retrieved conn attrs IKEv2-PLAT-3: Session registration after conn attr retrieval PASSED, No error IKEv2-PLAT-3: **CONNECTION STATUS: REGISTERED...** peer: 10.0.0.1:500, phase1_id: 10.0.0.1	

Debugs de la asociación de seguridad del niño

Este intercambio consiste en un solo par de la petición/de la respuesta, y fue referido como un intercambio de la fase 2 en IKEv1. PUEDE SER QUE sea iniciado por cualquier final del IKE_SA

después de que se completen los intercambios iniciales.

Descripción del mensaje ASA1 CHILD_SA	Depuraciones	Descripción del mensaje ASA2 CHILD_SA
	IKEv2-PLAT-5: INVALID PSH HANDLE IKEv2-PLAT-3: attempting to find tunnel group for IP: 10.0.0.1 IKEv2-PLAT-3: mapped to tunnel group 10.0.0.1 using peer IP IKEv2-PLAT-3: my_auth_method = 2 IKEv2-PLAT-3: supported_peers_auth_method = 2 IKEv2-PLAT-3: P1 ID = 0 IKEv2-PLAT-3: Translating IKE_ID_AUTO to = 255 IKEv2-PLAT-3: (226) tp_name set to: IKEv2-PLAT-3: (226) tg_name set to: 10.0.0.1 IKEv2-PLAT-3: (226) tunn grp type set to: L2L IKEv2-PLAT-3: PSH cleanup IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000001 CurState: READY Event: EV_**INIT_CREATE_CHILD** IKEv2-PROTO-5: (225): Action: Action_Null IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000001 CurState: **CHILD_I_INIT** Event: EV_INIT_CREATE_CHILD IKEv2-PROTO-5: (225): Action: Action_Null IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000001 CurState: CHILD_I_IPSEC Event: EV_INIT_CREATE_CHILD IKEv2-PROTO-3: (225): Check for IPSEC rekey IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000001 CurState: CHILD_I_IPSEC Event: EV_SET_IPSEC_DH_GRP IKEv2-PROTO-3: (225): **Set IPSEC DH group** IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000001 CurState: CHILD_I_IPSEC Event: EV_CHK4_PFS IKEv2-PROTO-3: (225): Checking for PFS configuration IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000001 CurState: CHILD_I_IPSEC	ASA2 inicia el intercambio CHILD_SA. Ésta es la petición CREATE_CHILD_SA. El paquete CHILD_SA contiene típicamente: 1. **SAHDR** (version.flags/tipo del intercambio) 2. **Ni**

	Event: EV_BLD_MSG IKEv2-PROTO-2: (225): **Sending child SA exchange** IKEv2-PROTO-3:?ESP Proposal: 1, SPI size: 4 (IPSec negotiation), num. transforms: 4 AES-CBC?SHA96?MD596 IKEv2-PROTO-3: (225): Building packet for encryption; contents are: **SA**?Next payload: N, reserved: 0x0, length: 52 IKEv2-PROTO-4:?last proposal: 0x0, reserved: 0x0, length: 48 Proposal: 1, Protocol id: ESP, SPI size: 4, #trans: 4 IKEv2-PROTO-4:?last transform: 0x3, reserved: 0x0: length: 12 type: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4:?last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4:?last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: MD596 IKEv2-PROTO-4:?last transform: 0x0, reserved: 0x0: length: 8 type: 5, reserved: 0x0, id: **N** Next payload: TSi, reserved: 0x0, length: 24 2d 3e ec 11 e0 c7 5d 67 d5 23 25 76 1d 50 0d 05 fa b7 f0 48 **TSi**?Next payload: TSr, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.2.99, end addr: 192.168.2.99 TSr?Next payload: NONE, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.1.12, end addr: 192.168.1.12 IKEv2-PROTO-3: (225): Checking if request will fit in peer window IKEv2-PROTO-3: Tx [L 10.0.0.2:500/R 10.0.0.1:500/VRF i0:f0] m_id: 0x6 IKEv2-PROTO-3: **HDR**[i:FD366326E1FED6FE - r: A75B9B2582AAECB7] IKEv2-PROTO-4: IKEV2 HDR ispi: FD366326E1FED6FE - rspi: A75B9B2582AAECB7 IKEv2-PROTO-4: Next payload: ENCR, version: 2.0 IKEv2-PROTO-4: **Exchange type: CREATE_CHILD_SA**, flags: INITIATOR IKEv2-PROTO-4: Message id: 0x6, length: 180 ENCR?Next payload: SA, reserved: 0x0, length: 152 Encrypted data: 148 bytes	**de l no nc e** (o pci on al): Si el C HI LD _S A se cr ea co m o pa rte de l int er ca m bi o ini cia l, un se gu nd o pa ylo ad y el no

		nce KE NO DE BE N ser en via do s. 3. **Pa ylo ad S A K Ei** 4. (Cl av e- op cio na l): ¿L a pe tici ón C R E AT E_ C HI LD _S A P

		UDO contener opcionalmente un payload KE para que un intercambio adicional DH habilite garantías más fuert

		esdelsecretodelanteroparaelCHILD_SA.?¿Silasofertas SA incluyenadiversosgruposDH,KEiDEB

		Ser un elemento del grupo que el iniciador espera que el responde dor valide. ? Si conj etur a mal, el int

		ercambio CREATE_CHILD_SA fallará, y tendrá que revisar con un diverso KEi. 5. **N** (notifique payload - opciona

		l): El payload de la notificación, se utiliza para transmitir los datos informativos, tales como condiciones de error y transi

		ciones de estado, a un par IKE. Un payload de la notificación puede aparecer en un mensaje de respuesta (que especifi

		cageneralmentepor qué una petición fue rechazada), en un intercambio INFORMATIVO (señalar un error no en

		una petición IKE), o en cualquier otro mensaje para indicar las capacidades del remitente o para modificar el signifi

		cadodelapetición.¿SiesteintercambioCREATE_CHILD_SAestáreintroduciendounSAexistenteconexce

		pción del IKE_SA, el payload principal N del tipo REKEY_SA DEBE identificar el SA se reintroduce que.

		? Si este intercambio CREATE_CHILD_SA no está reintroduciendo un SA existente, el payload NDEBEser

		omitido. 6. TSi y TSr(optional): Esto muestra los selectores del tráfico para los cual es se ha creado el SA. En este caso

			, está entre los host 192.168.1.12 y 192.168.2.99.
ASA1 recibe este paquete.	IKEv2-PLAT-4: **RECV PKT [CREATE_CHILD_SA]** [10.0.0.2]:500-> [10.0.0.1]:500 InitSPI=0xfd366326e1fed6fe RespSPI=0xa75b9b2582aaecb7 MID=00000006 IKEv2-PROTO-3: Rx [L 10.0.0.1:500/R 10.0.0.2:500/VRFi0:f0] m_id: 0x6	**IKEv2-PLAT-4: SENT PKT [CREATE_CHILD_SA]** [10.0.0.2]:500-> [10.0.0.1]:500 InitSPI=0xfd366326e1fed6fe RespSPI=0xa75b9b2582aaecb7 MID=00000006 IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000006 CurState: CHILD_I_WAIT Event: EV_NO_EVENT	ASA2 manda este paquete y espera la respuesta.
ASA1 recibe este paquete exacto de ASA2 y lo verifica.	IKEv2-PROTO-3: HDR[i:FD366326E1FED6FE - r: A75B9B2582AAECB7] IKEv2-PROTO-4: IKEV2 HDR ispi: FD366326E1FED6FE - rspi: A75B9B2582AAECB7 IKEv2-PROTO-4: Next payload: ENCR, version: 2.0 IKEv2-PROTO-4: Exchange type: CREATE_CHILD_SA, flags: INITIATOR IKEv2-PROTO-4: Message id: 0x6,		

	length: 180 IKEv2-PROTO-5: (225): Request has mess_id 6; expected 6 through 6 REAL Decrypted packet:Data: 124 bytes SA?Next payload: N, reserved: 0x0, length: 52 IKEv2-PROTO-4:?last proposal: 0x0, reserved: 0x0, length: 48 Proposal: 1, Protocol id: ESP, SPI size: 4, #trans: 4 IKEv2-PROTO-4:?last transform: 0x3, reserved: 0x0: length: 12 ype: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4:?last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4:?last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: MD596 IKEv2-PROTO-4:?last transform: 0x0, reserved: 0x0: length: 8 type: 5, reserved: 0x0, id: **N** Next payload: TSi, reserved: 0x0, length: 24 2d 3e ec 11 e0 c7 5d 67 d5 23 25 76 1d 50 0d 05 fa b7 f0 48 **TSi** Next payload: TSr, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.2.99, end addr: 192.168.2.99 **TSr**?Next payload: NONE, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.1.12, end addr: 192.168.1.12 Decrypted packet:Data: 180 bytes IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: READY Event: EV_RECV_CREATE_CHILD IKEv2-PROTO-5: (225): Action: Action_Null IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: CHILD_R_INIT Event: EV_RECV_CREATE_CHILD IKEv2-PROTO-5: (225): Action: Action_Null IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: CHILD_R_INIT Event: EV_VERIFY_MSG IKEv2-PROTO-3:	

	(225): Validating create child message IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 urState: CHILD_R_INIT Event: EV_CHK_CC_TYPE	
ASA1 ahora construye la contestación para el intercambio CHILD_SA. Ésta es la **respuesta CREATE_CHILD_SA**. El paquete CHILD_SA contiene típicamente: 1. **SA** 2. **HDR** (version.flags/tipo del intercambio) 2. **Nidel**	IKEv2-PROTO-3: (225): Check for create child response message type IKEv2-PROTO-5: (225): SM Trace-> SA:I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: CHILD_R_IPSEC Event: EV_PROC_MSG IKEv2-PROTO-2: (225): **Processing child SA exchange** IKEv2-PLAT-3: Selector received from peer is accepted IKEv2-PLAT-3: PROXY MATCH on crypto map outside_map seq 1 IKEv2-PROTO-5: (225): SM Trace-> SA:I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: **CHILD_R_IPSEC** Event: EV_NO_EVENT IKEv2-PROTO-5: (225): SM Trace-> SA:I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000005 CurState: EXIT Event: EV_FREE_NEG IKEv2-PROTO-5: (225): Deleting negotiation context for peer message ID: 0x5 IKEv2-PROTO-5: (225): SM Trace-> SA:I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: CHILD_R_IPSEC Event: EV_OK_RECD_IPSEC_RESP IKEv2-PROTO-5: (225): Action: Action_Null IKEv2-PROTO-5: (225): SM Trace-> SA:I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: CHILD_R_IPSEC Event: EV_PROC_MSG IKEv2-PROTO-2: (225): **Processing child SA exchange** IKEv2-PROTO-5: (225): SM Trace-> SA:I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: CHILD_R_IPSEC Event: EV_SET_IPSEC_DH_GRP IKEv2-PROTO-3: (225): **Set IPSEC DH group** IKEv2-PROTO-5: (225): SM Trace-> SA:I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: CHILD_R_IPSEC Event: EV_OK IKEv2-PROTO-3: (225): Requesting SPI from IPSec IKEv2-PROTO-5: (225): SM Trace-> SA:I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: CHILD_R_WAIT_SPI Event: EV_OK_GOT_SPI IKEv2-PROTO-5: (225): Action: Action_Null IKEv2-PROTO-5: (225): SM Trace-> SA:I_SPI=FD366326E1FED6FE	

nonce (opcional): Si el CHILD_SA se crea como parte del intercambio inicial, un segundo payload y el nonce KEN	R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: CHILD_R_BLD_MSG Event: EV_CHK4_PFS IKEv2-PROTO-3: (225): Checking for PFS configuration IKEv2-PROTO-5: (225): SM Trace-> SA:I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: CHILD_R_BLD_MSG Event: EV_BLD_MSG IKEv2-PROTO-2: (225): **Sending child SA exchange** IKEv2-PROTO-3:?ESP Proposal: 1, SPI size: 4 (IPSec negotiation), Num. transforms: 3 AES-CBC?SHA96? IKEv2-PROTO-3: (225): Building packet for encryption; contents are: SA Next payload: N, reserved: 0x0, length: 44 IKEv2-PROTO-4:?last proposal: 0x0, reserved: 0x0, length: 40 Proposal: 1, Protocol id: ESP, SPI size: 4, #trans: 3 IKEv2-PROTO-4:?last transform: 0x3, reserved: 0x0: length: 12 type: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4:?last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4:?last transform: 0x0, reserved: 0x0: length: 8 type: 5, reserved: 0x0, id: **N**?Next payload: TSi, reserved: 0x0, length: 24 b7 6a c6 75 53 55 99 5a df ee 05 18 1a 27 a6 cb 01 56 22 ad **TSi** Next payload: TSr, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.2.99, end addr: 192.168.2.99 **TSr**?Next payload: NONE, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.1.12, end addr: 192.168.1.12 IKEv2-PROTO-3: Tx [L 10.0.0.1:500/R 10.0.0.2:500/VRF i0:f0] m_id: 0x6 IKEv2-PROTO-3: HDR[i:FD366326E1FED6FE - r: A75B9B2582AAECB7] IKEv2-PROTO-4: **IKEV2 HDR** ispi: FD366326E1FED6FE - rspi: A75B9B2582AAECB7 IKEv2-PROTO-4: Next payload: ENCR, version: 2.0 IKEv2-PROTO-4: **Exchange type: CREATE_CHILD_SA, flags: RESPONDER MSG-RESPONSE** IKEv2-PROTO-4: Message id: 0x6, length: 172 ENCR?Next payload: SA, reserved: 0x0, length: 144 Encrypted data: 140 bytes	

ODEBEN ser enviados. 3. **PayloadSAKEi** (Clave-opcional): ¿La peticiónCREATE_CHILD_SAPUEDEcontener		

opcionalmente un payload KE para que un intercambio adicional DH habilite garantías más fuertes del secreto del anterior		

para el CHILD_SA. ? ¿Si las ofertas SA incluyen a diversos grupos DH, KEi DEBE ser un elemento del grupo que		

el iniciador espera que el responde dor valide.? Si conjetura mal, el intercambio CREATE_CHILD_SA falla, y tend		

rá qu e re vis ar co n un div er so KE i. 5. **N** (n otif iqu e pa ylo ad - op cio nal): ¿E l pa ylo ad de la no tifi ca ció n se util iza pa ra tra ns mit		

ir los da tos inf or m ati vo s, tal es co m o err or ? ¿c on dic ion es y tra nsi cio ne s de est ad o, a un pa r IK E. ? Un pa ylo ad de la no		

tificación pudo aparecer en un mensaje de respuesta (especifica generalmente porqué una petición fue rechazada),		

en un intercambio INFORMATIVO (señalar un error no en una petición IKE), o en cualquier otro mensaje para indica		

r las ca pa cid ad es del re mit en te o pa ra m odi fic ar el sig nifi ca do de la pe tici ón . ¿S i est e int er ca m bio C R EA TE _C HI LD _S		

A está reintroduciendo un SA existente con excepción del IKE_SA, el payload principal N del tipo REKEY_SA DEBE identifica		

r el SA se rei ntr od uc e qu e. ? Si est e int er ca m bio C R EA TE _C HI LD _S A no est á rei ntr od uci en do un SA exi ste nt e, el pa ylo		

adNDEBEseromitido. 6. TSi y TSr (opcionales): Esto muestra los selectores del tráfico para los cuales se ha creado el		

SA. En este caso, está entre los host 192.168.1.12 y 192.168.2.99.			
ASA1 manda la respuesta.	IKEv2-PLAT-4: **SENT PKT [CREATE_CHILD_SA]** [10.0.0.1]:500-> [10.0.0.2]:500 InitSPI=0xfd366326e1fed6fe RespSPI=0xa75b9b2582aaecb7 MID=00000006	**IKEv2-PLAT-4: RECV PKT [CREATE_CHILD_SA]** [10.0.0.1]:500-> [10.0.0.2]:500 InitSPI=0xfd366326e1fed6fe RespSPI=0xa75b9b2582aaecb7 MID=00000006 IKEv2-PROTO-3: **Rx** [L 10.0.0.2:500/R 10.0.0.1:500/VRF i0:f0] m_id: 0x6	ASA2 recibe este paquete.
	IKEv2-PROTO-3: **HDR**[i:FD366326E1FED6FE - r: A75B9B2582AAECB7] IKEv2-PROTO-4: IKEV2 HDR ispi: FD366326E1FED6FE - rspi: A75B9B2582AAECB7 IKEv2-PROTO-4: Next payload: ENCR, version: 2.0 IKEv2-PROTO-4: **Exchange type: CREATE_CHILD_SA, flags: RESPONDER MSG-RESPONSE** IKEv2-PROTO-4: Message id: 0x6, length: 172 REAL Decrypted packet:Data: 116 bytes **SA** Next		ASA2 ahora verifica el paquete

	payload: N, reserved: 0x0, length: 44 IKEv2-PROTO-4:?last proposal: 0x0, reserved: 0x0, length: 40 Proposal: 1, Protocol id: ESP, SPI size: 4, #trans: 3 IKEv2-PROTO-4:?last transform: 0x3, reserved: 0x0: length: 12 type: 1, reserved: 0x0, id: AES-CBC IKEv2-PROTO-4:?last transform: 0x3, reserved: 0x0: length: 8 type: 3, reserved: 0x0, id: SHA96 IKEv2-PROTO-4:?last transform: 0x0, reserved: 0x0: length: 8 type: 5, reserved: 0x0, id: N?Next payload: TSi, reserved: 0x0, length: 24 b7 6a c6 75 53 55 99 5a df ee 05 18 1a 27 a6 cb 01 56 22 ad **TSi**?Next payload: TSr, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.2.99, end addr: 192.168.2.99 **TSr** Next payload: NONE, reserved: 0x0, length: 24 Num of TSs: 1, reserved 0x0, reserved 0x0 TS type: TS_IPV4_ADDR_RANGE, proto id: 0, length: 16 start port: 0, end port: 65535 start addr: 192.168.1.12, end addr: 192.168.1.12 Decrypted packet:Data: 172 bytes IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000006 CurState: CHILD_I_WAIT Event: **EV_RECV_CREATE_CHILD** IKEv2-PROTO-5: (225): Action: Action_Null IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000006 CurState: **CHILD_I_PROC** Event: EV_CHK4_NOTIFY IKEv2-PROTO-2: (225): Processing any notify-messages in child SA exchange IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000006 CurState: CHILD_I_PROC Event: EV_VERIFY_MSG IKEv2-PROTO-3: (225): Validating create child message IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000006 CurState: CHILD_I_PROC Event: EV_PROC_MSG IKEv2-PROTO-2: (225): Processing child SA exchange IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000006 CurState: CHILD_I_PROC Event: EV_CHK4_PFS IKEv2-PROTO-3: (225): Checking for PFS configuration IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID =	

	00000006 CurState: CHILD_I_PROC Event: EV_CHK_IKE_REKEY IKEv2-PROTO-3: (225): Checking if IKE SA rekey IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000006 CurState: CHILD_I_PROC Event: EV_GEN_LOAD_IPSEC IKEv2-PROTO-3: (225): Load IPSEC key material IKEv2-PLAT-3: PROXY MATCH on crypto map outside_map seq 1 IKEv2-PLAT-3: (225) DPD Max Time will be: 10 IKEv2-PLAT-3: (225) DPD Max Time will be: 10		
ASA1 inserta esta entrada niño SA en la base de datos de la asociación de seguridad.	IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: **CHILD_R_DONE** Event: EV_OK IKEv2-PROTO-2: (225): **SA created; inserting SA into database** IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (R) MsgID = 00000006 CurState: **CHILD_R_DONE** Event: EV_START_DEL_NEG_TMR	IKEv2-PROTO-5: (225): SM Trace-> SA: I_SPI=FD366326E1FED6FE R_SPI=A75B9B2582AAECB7 (I) MsgID = 00000006 CurState: **CHILD_I_DONE** Event: EV_OK IKEv2-PROTO-2: (225): SA created; inserting SA into database	ASA2 inserta esta entrada niño SA en la base de datos de la asociación de seguridad.

Verificación del túnel

ISAKMP

Comando

show crypto isakmp sa det

Resultado

ASA1

```
ASA1(config)#sh cry isa sa det There are no IKEv1 SAs
IKEv2 SAs:Session-id:99220, Status:UP-ACTIVE, IKE
count:1, CHILD count:2 Tunnel-id Local Remote Status
```

```
Role 1889403559 10.0.0.1/500 10.0.0.2/500 READY
RESPONDER Encr: 3DES, Hash: MD596, DH Grp:2, Auth sign:
PSK, Auth verify: PSK Life/Active Time: 86400/195 sec
Session-id: 99220 Status Description: Negotiation done
Local spi: A75B9B2582AAECB7 Remote spi: FD366326E1FED6FE
Local id: 10.0.0.1 Remote id: 10.0.0.2 Local req mess
id: 14 Remote req mess id: 16 Local next mess id: 14
Remote next mess id: 16 Local req queued: 14 Remote req
queued: 16 Local window: 1 Remote window: 1 DPD
configured for 10 seconds, retry 2 NAT-T is not detected
Child sa: local selector 192.168.1.12/0 -
192.168.1.12/65535 remote selector 192.168.2.99/0 -
192.168.2.99/65535 ESP spi in/out: 0x8564387d/0x8717a5a
AH spi in/out: 0x0/0x0 CPI in/out: 0x0/0x0 Encr: AES-
CBC, keysize: 256, esp_hmac: SHA96 ah_hmac: None, comp:
IPCOMP_NONE, mode tunnel Child sa: local selector
192.168.1.1/0 - 192.168.1.1/65535 remote selector
192.168.2.99/0 - 192.168.2.99/65535 ESP spi in/out:
0x74756292/0xf0d97b2a AH spi in/out: 0x0/0x0 CPI in/out:
0x0/0x0 Encr: AES-CBC, keysize: 256, esp_hmac: SHA96
ah_hmac: None, comp: IPCOMP_NONE, mode tunnel
```

ASA2

```
ASA2(config)#sh cry isa sa det There are no IKEv1 SAs
IKEv2 SAs: Session-id:99220, Status:UP-ACTIVE, IKE
count:1, CHILD count:2 Tunnel-id??????????????
Local????????????? Remote??? Status??????? Role
472237395???????? 10.0.0.2/500???????? 10.0.0.1/500????
READY?? INITIATOR ????? Encr: 3DES, Hash: MD596, DH
Grp:2, Auth sign: PSK, Auth verify: PSK ?????
Life/Active Time: 86400/190 sec ????? Session-id: 99220
????? Status Description: Negotiation done ????? Local
spi: FD366326E1FED6FE?????? Remote spi: A75B9B2582AAECB7
????? Local id: 10.0.0.2 ????? Remote id: 10.0.0.1 ?????
Local req mess id: 16???????????? Remote req mess id: 13
????? Local next mess id: 16??????????? Remote next mess
id: 13 ????? Local req queued: 16????????????? Remote
req queued: 13 ????? Local window: 1???????????????????
Remote window: 1 ????? DPD configured for 10 seconds,
retry 2 ????? NAT-T is not detected ? Child sa: local
selector? 192.168.2.99/0 - 192.168.2.99/65535 ?????????
remote selector 192.168.1.12/0 - 192.168.1.12/65535
????????? ESP spi in/out: 0x8717a5a/0x8564387d ?
????????? AH spi in/out: 0x0/0x0 ? ????????? CPI in/out:
0x0/0x0 ? ????????? Encr: AES-CBC, keysize: 256,
esp_hmac: SHA96 ????????? ah_hmac: None, comp:
IPCOMP_NONE, mode tunnel Child sa: local selector?
192.168.2.99/0 - 192.168.2.99/65535 ????????? remote
selector 192.168.1.1/0 - 192.168.1.1/65535 ????????? ESP
spi in/out: 0xf0d97b2a/0x74756292 ? ????????? AH spi
in/out: 0x0/0x0 ? ????????? CPI in/out: 0x0/0x0 ?
????????? Encr: AES-CBC, keysize: 256, esp_hmac: SHA96
????????? ah_hmac: None, comp: IPCOMP_NONE, mode tunnel
```

IPSec

Comando

show crypto ipsec sa

Resultado

ASA1

```
ASA1(config)#sh cry ipsec sa interface: outside Crypto
map tag: outside_map, seq num: 1, local addr: 10.0.0.1
access-list l2l_list extended permit ip host 192.168.1.1
host 192.168.2.99 local ident (addr/mask/prot/port):
(192.168.1.1/255.255.255.255/0/0) remote ident
(addr/mask/prot/port): (
192.168.2.99/255.255.255.255/0/0) current_peer: 10.0.0.2
#pkts encaps: 3, #pkts encrypt: 3, #pkts digest: 3 #pkts
decaps: 3, #pkts decrypt: 3, #pkts verify: 3 #pkts
compressed: 0, #pkts decompressed: 0 #pkts not
compressed: 3, #pkts comp failed: 0, #pkts decomp
failed: 0 #pre-frag successes: 0, #pre-frag failures: 0,
#fragments created: 0 #PMTUs sent: 0, #PMTUs rcvd: 0,
#decapsulated frgs needing reassembly: 0 #send errors:
0, #recv errors: 0 local crypto endpt.: 10.0.0.1/500,
remote crypto endpt.: 10.0.0.2/500 path mtu 1500, ipsec
overhead 74, media mtu 1500 current outbound spi:
F0D97B2A current inbound spi : 74756292 inbound esp sas:
spi: 0x74756292 (1953850002) transform: esp-aes-256 esp-
sha-hmac no compression in use settings ={L2L, Tunnel, }
slot: 0, conn_id: 137990144, crypto-map: outside_map sa
timing: remaining key lifetime (kB/sec): (4008959/28628)
IV size: 16 bytes replay detection support: Y Anti
replay bitmap: 0x00000000 0x0000000F outbound esp sas:
spi: 0xF0D97B2A (4040784682) transform: esp-aes-256 esp-
sha-hmac no compression in use settings ={L2L, Tunnel, }
slot: 0, conn_id: 137990144, crypto-map: outside_map sa
timing: remaining key lifetime (kB/sec): (4147199/28628)
IV size: 16 bytes replay detection support: Y Anti
replay bitmap: 0x00000000 0x00000001 Crypto map tag:
outside_map, seq num: 1, local addr: 10.0.0.1 access-
list l2l_list extended permit ip host 192.168.1.12 host
192.168.2.99 local ident (addr/mask/prot/port): (
192.168.1.12/255.255.255.255/0/0) remote ident
(addr/mask/prot/port):
(192.168.2.99/255.255.255.255/0/0) current_peer:
10.0.0.2 #pkts encaps: 3, #pkts encrypt: 3, #pkts
digest: 3 #pkts decaps: 3, #pkts decrypt: 3, #pkts
verify: 3 #pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 3, #pkts comp failed: 0, #pkts
decomp failed: 0 #pre-frag successes: 0, #pre-frag
failures: 0, #fragments created: 0 #PMTUs sent: 0,
#PMTUs rcvd: 0, #decapsulated frgs needing reassembly: 0
#send errors: 0, #recv errors: 0 local crypto endpt.:
10.0.0.1/500, remote crypto endpt.: 10.0.0.2/500 path
mtu 1500, ipsec overhead 74, media mtu 1500 current
outbound spi: 08717A5A current inbound spi : 8564387D
inbound esp sas: spi: 0x8564387D (2237937789) transform:
esp-aes-256 esp-sha-hmac no compression in use settings
={L2L, Tunnel, } slot: 0, conn_id: 137990144, crypto-
map: outside_map sa timing: remaining key lifetime
(kB/sec): (4285439/28734) IV size: 16 bytes replay
detection support: Y Anti replay bitmap: 0x00000000
0x0000000F outbound esp sas: spi: 0x08717A5A (141654618)
transform: esp-aes-256 esp-sha-hmac no compression in
use settings ={L2L, Tunnel, } slot: 0, conn_id:
137990144, crypto-map: outside_map sa timing: remaining
key lifetime (kB/sec): (4055039/28734) IV size: 16 bytes
replay detection support: Y Anti replay bitmap:
```

```
0x00000000 0x00000001
```

ASA2

```
ASA2(config)#sh cry ipsec sa interface: outside Crypto
map tag: outside_map, seq num: 1, local addr: 10.0.0.2
access-list l2l_list extended permit ip host
192.168.2.99 host 192.168.1.12 local ident
(addr/mask/prot/port):
(192.168.2.99/255.255.255.255/0/0) remote ident
(addr/mask/prot/port):
(192.168.1.12/255.255.255.255/0/0) current_peer:
10.0.0.1 #pkts encaps: 3, #pkts encrypt: 3, #pkts
digest: 3 #pkts decaps: 3, #pkts decrypt: 3, #pkts
verify: 3 #pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 3, #pkts comp failed: 0, #pkts
decomp failed: 0 #pre-frag successes: 0, #pre-frag
failures: 0, #fragments created: 0 #PMTUs sent: 0,
#PMTUs rcvd: 0, #decapsulated frgs needing reassembly: 0
#send errors: 0, #recv errors: 0 local crypto endpt.:
10.0.0.2/500, remote crypto endpt.: 10.0.0.1/500 path
mtu 1500, ipsec overhead 74, media mtu 1500 current
outbound spi: 8564387D current inbound spi : 08717A5A
inbound esp sas: spi: 0x08717A5A (141654618) transform:
esp-aes-256 esp-sha-hmac no compression in use settings
={L2L, Tunnel, } slot: 0, conn_id: 137973760, crypto-
map: outside_map sa timing: remaining key lifetime
(kB/sec): (4193279/28770) IV size: 16 bytes replay
detection support: Y Anti replay bitmap: 0x00000000
0x0000000F outbound esp sas: spi: 0x8564387D
(2237937789) transform: esp-aes-256 esp-sha-hmac no
compression in use settings ={L2L, Tunnel, } slot: 0,
conn_id: 137973760, crypto-map: outside_map sa timing:
remaining key lifetime (kB/sec): (4055039/28770) IV
size: 16 bytes replay detection support: Y Anti replay
bitmap: 0x00000000 0x00000001 Crypto map tag:
outside_map, seq num: 1, local addr: 10.0.0.2 access-
list l2l_list extended permit ip host 192.168.2.99 host
192.168.1.1 local ident (addr/mask/prot/port): (
192.168.2.99/255.255.255.255/0/0) remote ident
(addr/mask/prot/port): (192.168.1.1/255.255.255.255/0/0)
current_peer: 10.0.0.1 #pkts encaps: 3, #pkts encrypt:
3, #pkts digest: 3 #pkts decaps: 3, #pkts decrypt: 3,
#pkts verify: 3 #pkts compressed: 0, #pkts decompressed:
0 #pkts not compressed: 3, #pkts comp failed: 0, #pkts
decomp failed: 0 #pre-frag successes: 0, #pre-frag
failures: 0, #fragments created: 0 #PMTUs sent: 0,
#PMTUs rcvd: 0, #decapsulated frgs needing reassembly: 0
#send errors: 0, #recv errors: 0 local crypto endpt.:
10.0.0.2/500, remote crypto endpt.: 10.0.0.1/500 path
mtu 1500, ipsec overhead 74, media mtu 1500 current
outbound spi: 74756292 current inbound spi : F0D97B2A
inbound esp sas: spi: 0xF0D97B2A (4040784682) transform:
esp-aes-256 esp-sha-hmac no compression in use settings
={L2L, Tunnel, } slot: 0, conn_id: 137973760, crypto-
map: outside_map sa timing: remaining key lifetime
(kB/sec): (4285439/28663) IV size: 16 bytes replay
detection support: Y Anti replay bitmap: 0x00000000
0x0000000F outbound esp sas: spi: 0x74756292
(1953850002) transform: esp-aes-256 esp-sha-hmac no
compression in use settings ={L2L, Tunnel, } slot: 0,
conn_id: 137973760, crypto-map: outside_map sa timing:
remaining key lifetime (kB/sec): (4331519/28663) IV
```

```
size: 16 bytes replay detection support: Y Anti replay
bitmap: 0x00000000 0x00000001
```

Usted puede también marcar la salida del comando **crypto ikev2 sa de la demostración**. Esto da una salida idéntica a la salida del **comando show crypto isakmp sa**:

```
IKEv2 SAs:

Session-id:99220, Status:UP-ACTIVE, IKE count:1, CHILD count:2

Tunnel-id                Local                Remote    Status         Role
1889403559          10.0.0.1/500          10.0.0.2/500     READY    RESPONDER
      Encr: 3DES, Hash: MD596, DH Grp:2, Auth sign: PSK, Auth verify: PSK
      Life/Active Time: 86400/179 sec
Child sa: local selector  192.168.1.12/0 - 192.168.1.12/65535
          remote selector 192.168.2.99/0 - 192.168.2.99/65535
          ESP spi in/out: 0x8564387d/0x8717a5a
Child sa: local selector  192.168.1.1/0 - 192.168.1.1/65535
          remote selector 192.168.2.99/0 - 192.168.2.99/65535
          ESP spi in/out: 0x74756292/0xf0d97b2a
```

Información Relacionada

- Soporte Técnico y Documentación - Cisco Systems