

IPSEC de router a router (claves RSA) en el túnel GRE con el ejemplo de la configuración de RIP

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Introducción

Este documento provee una configuración de ejemplo para routers con claves RSA. Ambos routers están configurados para claves RSA y el túnel IPSec/Generic Routing Encapsulation (GRE) con Routing Information Protocol (RIP).

prerrequisitos

Requisitos

No hay requisitos específicos para este documento.

Componentes Utilizados

La información que contiene este documento se basa en las siguientes versiones de software y hardware.

- Router Cisco que funciona con el Software Release 12.2 de Cisco IOS®

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

Para obtener más información sobre las convenciones del documento, consulte [Convenciones de Consejos Técnicos de Cisco](#).

Configurar

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

Note: Para obtener información adicional sobre los comandos que se utilizan en este documento, use la Command Lookup Tool (solo para clientes [registrados](#)).

Diagrama de la red

En este documento, se utiliza esta configuración de red:



Configuraciones

En este documento, se utilizan estas configuraciones:

- [Configuración de criptografía para el router 101](#)
- [Router 101](#)
- [Configuración de criptografía para el router 102](#)
- [Router 102](#)

Configuración de criptografía para el router 101

```
101(config)#crypto isakmp enable
101(config)#crypto isakmp identity hostname
101(config)#crypto isakmp policy 1
101(config-isakmp)#authentication rsa-encr
101(config)#access-list 101 permit gre host 20.1.1.1
host 20.1.1.2
101(config)#crypto ipsec transform-set test esp-des esp-
sha-hmac
101(cfg-crypto-trans)#mode transport
101(config)#crypto map test 10 ip
101(config)#crypto map test 10 ipsec-is
% NOTE: This new crypto map will remain disabled until a
peer
and a valid access list have been configured.
```

```
101(config-crypto-map)#set transform-set test
101(config-crypto-map)#match address 101
101(config-crypto-map)#set peer 20.1.1.2
101(config-crypto-map)#

101(config)#access-list 101 permit gre host 20.1.1.1
host 20.1.1.2

101(config)#interface Tunnel0
101(config-if)#crypto map test

101(config)#interface ethernet 1/0
101(config-if)#crypto map test
```

Router 101

```
101(config)#crypto isakmp enable
101(config)#crypto isakmp identity hostname
101(config)#crypto isakmp policy 1
101(config-isakmp)#authentication rsa-encr
101(config)#access-list 101 permit gre host 20.1.1.1
host 20.1.1.2
101(config)#crypto ipsec transform-set test esp-des esp-
sha-hmac
101(cfg-crypto-trans)#mode transport
101(config)#crypto map test 10 ip
101(config)#crypto map test 10 ipsec-is
% NOTE: This new crypto map will remain disabled until a
peer
and a valid access list have been configured.
101(config-crypto-map)#set transform-set test
101(config-crypto-map)#match address 101
101(config-crypto-map)#set peer 20.1.1.2
101(config-crypto-map)#

101(config)#access-list 101 permit gre host 20.1.1.1
host 20.1.1.2

101(config)#interface Tunnel0
101(config-if)#crypto map test

101(config)#interface ethernet 1/0
101(config-if)#crypto map test
```

Configuración de criptografía para el router 102

```
102(config)#crypto isakmp enable
102(config)#crypto isakmp identity hostname
102(config)#crypto isakmp policy 1
102(config-isakmp)#authentication rsa-encr
102(config)#access-list 101 permit gre host 20.1.1.2
host 20.1.1.1
102(config)#crypto ipsec transform-set test esp-des esp-
sha-hmac
102(cfg-crypto-trans)#mode transport
102(config)#crypto map test 10 ip
102(config)#crypto map test 10 ipsec-is
% NOTE: This new crypto map will remain disabled until a
peer
and a valid access list have been configured.
102(config-crypto-map)#set transform-set test
102(config-crypto-map)#match address 101
```

```
102(config-crypto-map)#set peer 20.1.1.1
102(config-crypto-map)#
```

```
102(config)#interface Tunnel0
102(config-if)#crypto map test
```

```
102(config)#interface ethernet 1/0
102(config-if)#crypto map test
```

Router 102

```
102#write terminal
Building configuration...

Current configuration : 1484 bytes
!
version 12.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname 102
!
!
clock timezone PST -8
ip subnet-zero
ip domain name cisco.com
ip host 101.cisco.com 20.1.1.1
!
ip audit notify log
ip audit po max-events 100
!
crypto isakmp policy 1
 authentication rsa-encr
crypto isakmp identity hostname
crypto isakmp keepalive 20 5
!
!
crypto ipsec transform-set test esp-des esp-sha-hmac
 mode transport
!
crypto map test 10 ipsec-isakmp
 set peer 20.1.1.1
 set transform-set test
 match address 101
!
!
crypto key pubkey-chain rsa
 named-key 101.cisco.com
 address 20.1.1.1
 key-string
 305C300D 06092A86 4886F70D 01010105 00034B00 30480241
00A7D24F E6E15787
 5EE1434A A76A3DC1 ADE96A4D C6B4D0F3 A7DDAD10 446EF83A
89D1115F 0C517118
 ECAF418E F4C84823 2A017B97 F85690EF EBCF3414 AB3E81F6
A5020301 0001
 quit
!
!
!
```

```
interface Loopback1
ip address 172.16.1.1 255.255.255.0
!
interface Tunnel0
ip address 10.10.10.2 255.255.255.252
ip mtu 1420
tunnel source Ethernet0/0
tunnel destination 20.1.1.1
crypto map test
!
interface Ethernet0/0
ip address 20.1.1.2 255.255.255.0
crypto map test
!
interface Ethernet1/0
no ip address
!
interface Serial2/0
no ip address
shutdown
!
interface Serial3/0
no ip address
shutdown
!
router rip
version 2
passive-interface Ethernet0/0
network 10.0.0.0
network 172.16.0.0
!
ip classless
no ip http server
!
!
access-list 101 permit gre host 20.1.1.2 host 20.1.1.1
!
!
line con 0
line aux 0
line vty 0 4
login
!
end
102#
```

Verificación

En esta sección encontrará información que puede utilizar para confirmar que su configuración esté funcionando correctamente.

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

- **muestre el detalle crypto isakmp sa** — Visualiza todas las asociaciones de seguridad actuales del Internet Key Exchange (IKE) (SA) en un par.
- **show crypto ipsec sa** — Muestra la configuración actual utilizada por las SA actuales
- **active del show crypto engine connections** — Visualiza un resumen de la información de la

configuración para los motores de criptografía.

- show ip route – Muestra el estado actual de la tabla de ruteo.

Salida de comando del router 101

```
101#show crypto isakmp sa detail
```

```
*Dec 28 21:15:19.371: ISAKMP (0:14): purging node 543282640
```

```
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
```

```
Conn id Local          Remote          Encr Hash Auth DH Lifetime Capabilities
14      20.1.1.1          20.1.1.2      des sha rsig 1 23:59:06 D
```

```
101#show crypto ipsec sa
```

```
interface: Ethernet1/0
```

```
  Crypto map tag: test, local addr. 20.1.1.1
```

```
local ident (addr/mask/prot/port): (20.1.1.1/255.255.255.255/47/0)
```

```
remote ident (addr/mask/prot/port): (20.1.1.2/255.255.255.255/47/0)
```

```
current_peer: 20.1.1.2:500
```

```
  PERMIT, flags={origin_is_acl,}
```

```
#pkts encaps: 0, #pkts encrypt: 0, #pkts digest 0
```

```
#pkts decaps: 0, #pkts decrypt: 0, #pkts verify 0
```

```
#pkts compressed: 0, #pkts decompressed: 0
```

```
#pkts not compressed: 0, #pkts compr. failed: 0
```

```
#pkts not decompressed: 0, #pkts decompress failed: 0
```

```
#send errors 1, #recv errors 0
```

```
local crypto endpt.: 20.1.1.1, remote crypto endpt.: 20.1.1.2
```

```
path mtu 1420, media mtu 1420
```

```
current outbound spi: 7FB7A347
```

```
inbound esp sas:
```

```
  spi: 0x7221D7D2(1914820562)
```

```
    transform: esp-des esp-sha-hmac ,
```

```
    in use settings = {Transport, }
```

```
    slot: 0, conn id: 2000, flow_id: 1, crypto map: test
```

```
    sa timing: remaining key lifetime (k/sec): (4468975/3586)
```

```
    IV size: 8 bytes
```

```
    replay detection support: Y
```

```
inbound ah sas:
```

```
inbound pcp sas:
```

```
outbound esp sas:
```

```
  spi: 0x7FB7A347(2142741319)
```

```
    transform: esp-des esp-sha-hmac ,
```

```
    in use settings = {Transport, }
```

```
    slot: 0, conn id: 2001, flow_id: 2, crypto map: test
```

```
    sa timing: remaining key lifetime (k/sec): (4468975/3586)
```

```
    IV size: 8 bytes
```

```
    replay detection support: Y
```

outbound ah sas:

outbound pcp sas:

interface: Tunnel0

Crypto map tag: test, local addr. 20.1.1.1

local ident (addr/mask/prot/port): (20.1.1.1/255.255.255.255/47/0)

remote ident (addr/mask/prot/port): (20.1.1.2/255.255.255.255/47/0)

current_peer: 20.1.1.2:500

PERMIT, flags={origin_is_acl,}

#pkts encaps: 0, #pkts encrypt: 0, #pkts digest 0

#pkts decaps: 0, #pkts decrypt: 0, #pkts verify 0

#pkts compressed: 0, #pkts decompressed: 0

#pkts not compressed: 0, #pkts compr. failed: 0

#pkts not decompressed: 0, #pkts decompress failed: 0

#send errors 1, #recv errors 0

local crypto endpt.: 20.1.1.1, remote crypto endpt.: 20.1.1.2

path mtu 1420, media mtu 1420

current outbound spi: 7FB7A347

inbound esp sas:

spi: 0x7221D7D2(1914820562)

transform: esp-des esp-sha-hmac ,

in use settings ={Transport, }

slot: 0, conn id: 2000, flow_id: 1, crypto map: test

sa timing: remaining key lifetime (k/sec): (4468975/3585)

IV size: 8 bytes

replay detection support: Y

inbound ah sas:

inbound pcp sas:

outbound esp sas:

spi: 0x7FB7A347(2142741319)

transform: esp-des esp-sha-hmac ,

in use settings ={Transport, }

slot: 0, conn id: 2001, flow_id: 2, crypto map: test

sa timing: remaining key lifetime (k/sec): (4468975/3584)

IV size: 8 bytes

replay detection support: Y

outbound ah sas:

outbound pcp sas:

101#show crypto engine connections active

ID	Interface	IP-Address	State	Algorithm	Encrypt	Decrypt
14	Ethernet1/0	20.1.1.1	set	HMAC_SHA+DES_56_CB	0	0
2000	Ethernet1/0	20.1.1.1	set	HMAC_SHA+DES_56_CB	0	6
2001	Ethernet1/0	20.1.1.1	set	HMAC_SHA+DES_56_CB	5	0

101#show ip route

Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP

D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area

N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2

E1 - OSPF external type 1, E2 - OSPF external type 2
i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
* - candidate default, U - per-user static route, o - ODR
P - periodic downloaded static route

Gateway of last resort is not set

```
20.0.0.0/24 is subnetted, 1 subnets
C    20.1.1.0 is directly connected, Ethernet1/0
R    172.16.0.0/16 [120/1] via 10.10.10.2, 00:00:08, Tunnel0
    10.0.0.0/30 is subnetted, 1 subnets
C    10.10.10.0 is directly connected, Tunnel0
C    192.168.1.0/24 is directly connected, Loopback1
101#
```

Salida de comando del router 102

102#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

Conn id	Local	Remote	Encr	Hash	Auth	DH	Lifetime	Capabilities
15	20.1.1.2	20.1.1.1	des	sha	rsig	1	23:58:44	D

102#show crypto ipsec sa

interface: Ethernet0/0

Crypto map tag: test, local addr. 20.1.1.2

local ident (addr/mask/prot/port): (20.1.1.2/255.255.255.255/47/0)
remote ident (addr/mask/prot/port): (20.1.1.1/255.255.255.255/47/0)
current_peer: 20.1.1.1:500

PERMIT, flags={origin_is_acl,}

#pkts encaps: 4, #pkts encrypt: 4, #pkts digest 4

#pkts decaps: 3, #pkts decrypt: 3, #pkts verify 3

#pkts compressed: 0, #pkts decompressed: 0

#pkts not compressed: 0, #pkts compr. failed: 0

#pkts not decompressed: 0, #pkts decompress failed: 0

#send errors 0, #recv errors 0

local crypto endpt.: 20.1.1.2, remote crypto endpt.: 20.1.1.1

path mtu 1420, media mtu 1420

current outbound spi: 92F52EF2

inbound esp sas:

spi: 0x1D25013E(488964414)

transform: esp-des esp-sha-hmac ,

in use settings = {Transport, }

slot: 0, conn id: 2000, flow_id: 1, crypto map: test

sa timing: remaining key lifetime (k/sec): (4596388/3494)

IV size: 8 bytes

replay detection support: Y

inbound ah sas:

inbound pcp sas:

outbound esp sas:

spi: 0x92F52EF2(2465541874)


```
transform: esp-des esp-sha-hmac ,
in use settings ={Transport, }
slot: 0, conn id: 2001, flow_id: 2, crypto map: test
sa timing: remaining key lifetime (k/sec): (4596388/3494)
IV size: 8 bytes
replay detection support: Y
```

outbound ah sas:

outbound pcp sas:

interface: Tunnel0

Crypto map tag: test, local addr. 20.1.1.2

local ident (addr/mask/prot/port): (20.1.1.2/255.255.255.255/47/0)

remote ident (addr/mask/prot/port): (20.1.1.1/255.255.255.255/47/0)

current_peer: 20.1.1.1:500

PERMIT, flags={origin_is_acl,}

#pkts encaps: 4, #pkts encrypt: 4, #pkts digest 4

#pkts decaps: 3, #pkts decrypt: 3, #pkts verify 3

#pkts compressed: 0, #pkts decompressed: 0

#pkts not compressed: 0, #pkts compr. failed: 0

#pkts not decompressed: 0, #pkts decompress failed: 0

#send errors 0, #recv errors 0

local crypto endpt.: 20.1.1.2, remote crypto endpt.: 20.1.1.1

path mtu 1420, media mtu 1420

current outbound spi: 92F52EF2

inbound esp sas:

spi: 0x1D25013E(488964414)

transform: esp-des esp-sha-hmac ,

in use settings ={Transport, }

slot: 0, conn id: 2000, flow_id: 1, crypto map: test

sa timing: remaining key lifetime (k/sec): (4596388/3493)

IV size: 8 bytes

replay detection support: Y

inbound ah sas:

inbound pcp sas:

outbound esp sas:

spi: 0x92F52EF2(2465541874)

transform: esp-des esp-sha-hmac ,

in use settings ={Transport, }

slot: 0, conn id: 2001, flow_id: 2, crypto map: test

sa timing: remaining key lifetime (k/sec): (4596388/3493)

IV size: 8 bytes

replay detection support: Y

outbound ah sas:

outbound pcp sas:

102#show crypto engine connections active

ID	Interface	IP-Address	State	Algorithm	Encrypt	Decrypt
15	Ethernet0/0	20.1.1.2	set	HMAC_SHA+DES_56_CB	0	0
2000	Ethernet0/0	20.1.1.2	set	HMAC_SHA+DES_56_CB	0	3

```
2001 Ethernet0/0      20.1.1.2      set      HMAC_SHA+DES_56_CB      4      0
```

```
102#
102#show ip route
Codes: C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route
```

```
Gateway of last resort is not set
```

```
      20.0.0.0/24 is subnetted, 1 subnets
C      20.1.1.0 is directly connected, Ethernet0/0
      172.16.0.0/24 is subnetted, 1 subnets
C      172.16.1.0 is directly connected, Loopback1
      10.0.0.0/30 is subnetted, 1 subnets
C      10.10.10.0 is directly connected, Tunnel0
R      192.168.1.0/24 [120/1] via 10.10.10.1, 00:00:08, Tunnel0
```

Troubleshooting

En esta sección encontrará información que puede utilizar para solucionar problemas de configuración. Para más información sobre el troubleshooting, vea por favor el [Troubleshooting de IP Security - Entendiendo y con los comandos debug](#).

Procedimiento de Troubleshooting

Sigue estas instrucciones de resolver problemas su configuración.

1. Genere las claves RSA en el router 101.

```
101#show crypto key mypubkey rsa
101#
101#
101#conf t
101(config)#ip domain-name cisco.com
101(config)#crypto key generate rsa ?
  general-keys  Generate a general purpose RSA key pair for signing and
                  encryption
  usage-keys    Generate separate RSA key pairs for signing and encryption
```

```
101(config)#crypto key generate rsa
The name for the keys will be: 101.cisco.com
Choose the size of the key modulus in the range of 360 to 2048 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.
```

```
How many bits in the modulus [512]:
% Generating 512 bit RSA keys ...[OK]
```

```
101#show crypto key mypubkey rsa
% Key pair was generated at: 12:02:08 PST Dec 28 2002
Key name: 101.cisco.com
Usage: General Purpose Key
Key Data:
  305C300D 06092A86 4886F70D 01010105 00034B00 30480241 00A7D24F E6E15787
  5EE1434A A76A3DC1 ADE96A4D C6B4D0F3 A7DDAD10 446EF83A 89D1115F 0C517118
  ECAF418E F4C84823 2A017B97 F85690EF EBCF3414 AB3E81F6 A5020301 0001
```

```

% Key pair was generated at: 12:02:12 PST Dec 28 2002
Key name: 101.cisco.com.server
Usage: Encryption Key
Key Data:
 307C300D 06092A86 4886F70D 01010105 00036B00 30680261 00B2092A 86483641
 EB09900B BA0CD88A BE915C5E 05C1496B 70093D8B BC277A88 0E256BBE 4DB7EF92
 8FE93C61 710309A3 451DAB72 93F35CD0 1CAD15AC B904B2B4 73B7A9F5 65A79E66
 8D145427 F06DD89C 862B88BB 4C671508 AB3443BB 6270388C A7020301 0001
101#

```

2. Genere las claves RSA en el router 102.

```

102#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
102(config)#ip domain-name cisco.com
102(config)#crypto key gen rsa
The name for the keys will be: 102.cisco.com
Choose the size of the key modulus in the range of 360 to 2048 for your
  General Purpose Keys. Choosing a key modulus greater than 512 may take
  a few minutes.

How many bits in the modulus [512]:
% Generating 512 bit RSA keys ...[OK]

```

```

102#show crypto key mypubkey rsa
% Key pair was generated at: 12:03:45 PST Dec 28 2002
Key name: 102.cisco.com
Usage: General Purpose Key
Key Data:
 305C300D 06092A86 4886F70D 01010105 00034B00 30480241 00DB4FEB EF0C0D3D
 72FC5BD3 29C8E94B 726161BC F1AF337C E5F2D11D FBFC2245 95EA2AB7 9D09156C
 08A5A7CD 36E43D94 F1E3C978 37A79379 384D2A72 CE575E91 3F020301 0001
% Key pair was generated at: 12:03:48 PST Dec 28 2002
Key name: 102.cisco.com.server
Usage: Encryption Key
Key Data:
 307C300D 06092A86 4886F70D 01010105 00036B00 30680261 00BFD36E A1642BFC
 77C88F89 8A260840 213E122E E1AF1E24 AF39B984 DACA06BC C303AD77 95BB6B6C
 89CC6D13 B16CC4E3 45C101E4 61A13924 5559891A AB59B40D 826A5066 231B48D6
 AEB2B367 94F6C492 016F8778 74B368A2 BFD1424D 79C63C94 5F020301 0001
102#

```

3. Resuelva el nombre de host.

```

102(config)#ip host 101.cisco.com 20.1.1.1

```

4. Intercambie las claves de fines generales en el router 101.

```

101(config)#crypto key pubkey-chain rsa
101(config-pubkey-chain)#named-key 102.cisco.com
% Named public key resolved to ip address: 20.1.1.2
101(config-pubkey-key)#key-string ?
Enter a public key as a hexadecimal number ....

101(config-pubkey)#$6F70D 01010105 00034B00 30480241 00DB4FEB EF0C0D3D
101(config-pubkey)#$26161BC F1AF337C E5F2D11D FBFC2245 95EA2AB7 9D09156C
101(config-pubkey)#$1E3C978 37A79379 384D2A72 CE575E91 3F020301 0001
101(config-pubkey)#quit
101(config-pubkey-key)#exit

```

5. Intercambie las claves de fines generales en el router 102.

```

102(config)#crypto key pubkey-chain rsa
102(config-pubkey-chain)#named-key 101.cisco.com
% Named public key resolved to ip address: 20.1.1.1
102(config-pubkey-key)#key-string

```

```
Enter a public key as a hexadecimal number ....
```

```
102(config-pubkey)#$6F70D 01010105 00034B00 30480241 00A7D24F E6E15787
102(config-pubkey)#$DE96A4D C6B4D0F3 A7DDAD10 446EF83A 89D1115F 0C517118
102(config-pubkey)#$A017B97 F85690EF EBCF3414 AB3E81F6 A5020301 0001
102(config-pubkey)#quit
102(config-pubkey-key)#exit
102(config-pubkey-chain)#exit
102(config)#exit
```

[Comandos para resolución de problemas](#)

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

Note: [Antes de ejecutar un comando de depuración, consulte Información importante sobre comandos de depuración.](#)

Debug del router 101:

```
102(config)#crypto key pubkey-chain rsa
102(config-pubkey-chain)#named-key 101.cisco.com
% Named public key resolved to ip address: 20.1.1.1
102(config-pubkey-key)#key-string
Enter a public key as a hexadecimal number ....

102(config-pubkey)#$6F70D 01010105 00034B00 30480241 00A7D24F E6E15787
102(config-pubkey)#$DE96A4D C6B4D0F3 A7DDAD10 446EF83A 89D1115F 0C517118
102(config-pubkey)#$A017B97 F85690EF EBCF3414 AB3E81F6 A5020301 0001
102(config-pubkey)#quit
102(config-pubkey-key)#exit
102(config-pubkey-chain)#exit
102(config)#exit
```

Debug del router 102:

```
102(config)#crypto key pubkey-chain rsa
102(config-pubkey-chain)#named-key 101.cisco.com
% Named public key resolved to ip address: 20.1.1.1
102(config-pubkey-key)#key-string
Enter a public key as a hexadecimal number ....

102(config-pubkey)#$6F70D 01010105 00034B00 30480241 00A7D24F E6E15787
102(config-pubkey)#$DE96A4D C6B4D0F3 A7DDAD10 446EF83A 89D1115F 0C517118
102(config-pubkey)#$A017B97 F85690EF EBCF3414 AB3E81F6 A5020301 0001
102(config-pubkey)#quit
102(config-pubkey-key)#exit
102(config-pubkey-chain)#exit
102(config)#exit
```

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