Het configureren van een router-to-router LAN-to-LAN tunnel met een router die IKE agressief start

Inhoud

Inleiding

Cisco IOS® softwarerelease 12.2(8)T introduceert de functionaliteit van de router om Internet Key Exchange (IKE) te initiëren in agressieve modus. Zie Bug-id CSCdt30808 (alleen geregistreerde klanten) in de toolkit van de buis voor meer informatie. Vroeger kon de router reageren op een verzoek om tunnelonderhandeling van agressieve modus, maar hij kon het nooit initiëren.

Voorwaarden

Vereisten

Er zijn geen specifieke voorwaarden van toepassing op dit document.

Gebruikte componenten

De informatie in dit document is gebaseerd op de onderstaande software- en hardwareversies.

- Cisco IOS 12.2(8)T werd gebruikt op beide routers, hoewel het niet nodig is om deze op de ontvangende router te hebben.

Opmerking: Deze configuratie is getest met Cisco IOS-softwarerelease 12.2(13)T1. Alle aspecten van de configuratie blijven hetzelfde.

De informatie in dit document is gebaseerd op apparaten in een specifieke laboratoriumomgeving. Alle apparaten die in dit document worden beschreven, hadden een opgeschoonde (standaard)configuratie. Als u in een levend netwerk werkt, zorg er dan voor dat u de potentiële impact van om het even welke opdracht begrijpt alvorens het te gebruiken.

Conventies

Raadpleeg voor meer informatie over documentconventies de technische Tips van Cisco.

Achtergrondinformatie

Opmerking: de nieuwe opdrachten van de opdrachtregel interface (CLI) zijn als volgt:

- **crypto isakmp peer < adres <*x.x.x*> | hostname <*name*>**
- **Stel een agressief-mode client-eindpunt < fqdn in <*naam*> | ipv4-adres <*x.x.x*> | user-fqdn <*name*> >**
- **Wachtwoord voor agressieve modus instellen <*wachtwoord*>**

In de voorbeeldconfiguratie hieronder, hebben RouterA en RouterB een LAN-to-LAN tunnel tussen hen. RouterA zal altijd de tunnelinitiatiefnemende router zijn, en het is in dit voorbeeld gevormd om in agressieve modus te initiëren. RouterB heeft eenvoudigweg een dynamische crypto kaart om de tunnelparameters van RouterA te accepteren, alhoewel het ook een standaard LAN-to-LAN tunnelconfiguratie kon hebben toegepast.

Opmerking: In dit voorbeeld hoeft RouterB geen Cisco IOS-softwarerelease 12.2(8)T uit te voeren om de tunnelparameters van RouterA te aanvaarden. Zoals hierboven vermeld hebben de routers altijd een agressief mode verzoek geaccepteerd, maar zijn ze nog nooit in staat geweest om het initiatief te nemen.

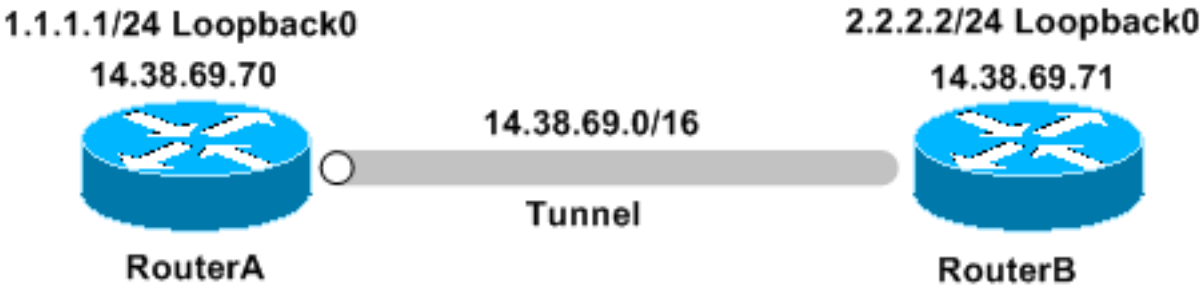
Configureren

Deze sectie bevat informatie over het configureren van de functies die in dit document worden beschreven.

N.B.: Als u aanvullende informatie wilt vinden over de opdrachten in dit document, gebruikt u het Opdrachtplanningprogramma (alleen geregistreerd klanten).

Netwerkdiagram

Dit document gebruikt de netwerkinstellingen die in het onderstaande schema zijn weergegeven.



Configuraties

Dit document gebruikt deze configuraties:

- routerA
- routerB

routerA

```
Building configuration...

Current configuration : 1253 bytes
!
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname RouterA
!
!
memory-size iomem 10
ip subnet-zero
!
!
!
!
crypto isakmp policy 1
 hash md5
 authentication pre-share
crypto isakmp keepalive 30 5
!
crypto isakmp peer address 14.38.69.71
 set aggressive-mode password cisco123
 set aggressive-mode client-endpoint ipv4-address
14.38.69.70
!
!
crypto ipsec transform-set myset esp-3des esp-md5-hmac
!
crypto map mymap 1 ipsec-isakmp
 set peer 14.38.69.71
 set transform-set myset
 match address 100
!
!
!
interface Loopback0
 ip address 1.1.1.1 255.255.255.0
!
```

```
interface Ethernet0/0
 ip address 14.38.69.70 255.255.0.0
 half-duplex
 crypto map mymap
!
interface BRI0/0
 no ip address
 shutdown
!
interface Ethernet0/1
 no ip address
 shutdown
 half-duplex
!
ip classless
ip route 0.0.0.0 0.0.0.0 14.38.69.71
ip http server
!
!
access-list 100 permit ip 1.1.1.0 0.0.0.255 2.2.2.0
0.0.0.255
!
call rsvp-sync
!
!
mgcp profile default
!
dial-peer cor custom
!
!
line con 0
 exec-timeout 0 0
line aux 0
line vty 0 4
 login
!
!
end
```

routerB

```
Building configuration...

Current configuration : 1147 bytes
!
version 12.2
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname RouterB
!
!
ip subnet-zero
!
!
!
!
crypto isakmp policy 1
 hash md5
 authentication pre-share
crypto isakmp key cisco123 address 14.38.69.70
crypto isakmp keepalive 30 5
```

```
!
!
crypto ipsec transform-set myset esp-3des esp-md5-hmac
!
crypto dynamic-map mymap 10
 set transform-set myset
!
!
crypto map mainmap 1 ipsec-isakmp dynamic mymap
!
!
!
interface Loopback0
 ip address 2.2.2.2 255.255.255.0
!
interface FastEthernet0/0
 ip address 14.38.69.71 255.255.0.0
 duplex auto
 speed auto
 crypto map mainmap
!
interface Serial0/0
 no ip address
 shutdown
 no fair-queue
!
interface FastEthernet0/1
 no ip address
 shutdown
 duplex auto
 speed auto
!
ip classless
ip route 0.0.0.0 0.0.0.0 14.38.69.70
no ip http server
!
!
call rsvp-sync
!
!
mgcp profile default
!
dial-peer cor custom
!
!
line con 0
 exec-timeout 0 0
 speed 115200
line aux 0
line vty 0 4
 login
!
!
end
```

Verifiëren

Deze sectie verschaft informatie die u kunt gebruiken om te bevestigen dat uw configuratie correct werkt.

Bepaalde opdrachten met **show worden ondersteund door de tool** Output Interpreter (alleen voor

geregistreerde klanten). Hiermee kunt u een analyse van de output van opdrachten met **show genereren.**

- **toon crypto ipsec sa**-shows the fase 2 security associaties.
- **toon crypto isakmp sa** - toont fase 1 veiligheidsassociaties

Problemen oplossen

Deze sectie bevat informatie waarmee u problemen met de configuratie kunt oplossen.

Opdrachten voor probleemoplossing

Opmerking: Voordat u **debug-**opdrachten afgeeft, raadpleegt u Belangrijke informatie over debug-opdrachten.

- **debug crypto ipsec** — toont de IPSec onderhandelingen van fase 2.
- **debug crypto isakmp** — toont de ISAKMP-onderhandelingen over fase 1.
- **debug crypto motor** - toont het verkeer dat wordt versleuteld.

Routers voor debug-uitvoer

```
00:08:26: IPSEC(sa_request): ,
  (key eng. msg.) OUTBOUND local= 14.38.69.70, remote= 14.38.69.71,
    local_proxy= 1.1.1.0/255.255.255.0/0/0 (type=4),
    remote_proxy= 2.2.2.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-3des esp-md5-hmac ,
    lifedur= 3600s and 4608000kb,
    spi= 0x4B68058A(1265108362), conn_id= 0, keysize= 0, flags= 0x400C
00:08:26: ISAKMP: received ke message (1/1)
00:08:26: ISAKMP: local port 500, remote port 500
00:08:26: ISAKMP (0:1): SA has tunnel attributes set.
00:08:26: ISAKMP (0:1): SA is doing unknown authentication!
00:08:26: ISAKMP (1): ID payload
        next-payload : 13
        type         : 1
        protocol     : 17
        port         : 500
        length       : 8
00:08:26: ISAKMP (1): Total payload length: 12
00:08:26: ISAKMP (0:1): Input = IKE_MESG_FROM_IPSEC, IKE_SA_REQ_AM
Old State = IKE_READY  New State = IKE_I_AM1

00:08:26: ISAKMP (0:1): beginning Aggressive Mode exchange
00:08:26: ISAKMP (0:1): sending packet to 14.38.69.71 (I) AG_INIT_E.XCH....
Success rate is 0 percent (0/5)
vpn-2611a1#
00:08:36: ISAKMP (0:1): retransmitting phase 1 AG_INIT_EXCH...
00:08:36: ISAKMP (0:1): incrementing error counter on sa: retransmit phase 1
00:08:36: ISAKMP (0:1): retransmitting phase 1 AG_INIT_EXCH
00:08:36: ISAKMP (0:1): sending packet to 14.38.69.71 (I) AG_INIT_EXCH
00:08:37: ISAKMP (0:1): received packet from 14.38.69.71 (I) AG_INIT_EXCH
00:08:37: ISAKMP (0:1): processing SA payload. message ID = 0
00:08:37: ISAKMP (0:1): SA using tunnel password as pre-shared key.
00:08:37: ISAKMP (0:1): Checking ISAKMP transform 1 against priority 1 policy
00:08:37: ISAKMP:      encryption DES-CBC
```

```
00:08:37: ISAKMP:      hash MD5
00:08:37: ISAKMP:      default group 1
00:08:37: ISAKMP:      auth pre-share
00:08:37: ISAKMP:      life type in seconds
00:08:37: ISAKMP:      life duration (VPI) of  0x0 0x1 0x51 0x80
00:08:37: ISAKMP (0:1): atts are acceptable. Next payload is 0
00:08:37: ISAKMP (0:1): processing vendor id payload
00:08:37: ISAKMP (0:1): vendor ID is Unity
00:08:37: ISAKMP (0:1): processing vendor id payload
00:08:37: ISAKMP (0:1): vendor ID is DPD
00:08:37: ISAKMP (0:1): processing vendor id payload
00:08:37: ISAKMP (0:1): speaking to another IOS box!
00:08:37: ISAKMP (0:1): processing vendor id payload
00:08:37: ISAKMP (0:1): processing KE payload. message ID = 0
00:08:37: ISAKMP (0:1): processing ID payload. message ID = 0
00:08:37: ISAKMP (0:1): processing NONCE payload. message ID = 0
00:08:37: ISAKMP (0:1): SA using tunnel password as pre-shared key.
00:08:37: ISAKMP (0:1): SKEYID state generated
00:08:37: ISAKMP (0:1): processing HASH payload. message ID = 0
00:08:37: ISAKMP (0:1): SA has been authenticated with 14.38.69.71
00:08:37: ISAKMP (0:1): IKE_DPD is enabled, initializing timers
00:08:37: ISAKMP: Locking DPD struct 0x82702444
    from crypto_ikmp_dpd_ike_init, count 1
00:08:37: ISAKMP (0:1): sending packet to 14.38.69.71 (I) QM_IDLE
00:08:37: ISAKMP (0:1): Input = IKE_MESG_FROM_PEER, IKE_AM_EXCH
Old State = IKE_I_AM1  New State = IKE_P1_COMPLETE

00:08:37: IPSEC(key_engine): got a queue event...
00:08:37: IPSec: Key engine got KEYENG_IKMP_MORE_SAS message
00:08:37: ISAKMP: received ke message (6/1)
00:08:37: ISAKMP: received KEYENG_IKMP_MORE_SAS message
00:08:37: ISAKMP (0:1): sending packet to 14.38.69.71 (I) QM_IDLE
00:08:37: ISAKMP (0:1): purging node -1844394438
00:08:37: ISAKMP (0:1): Sending initial contact.

00:08:37: ISAKMP (0:1): received packet from 14.38.69.71 (I) QM_IDLE
00:08:37: ISAKMP (0:1): processing HASH payload. message ID = 133381228
00:08:37: ISAKMP (0:1): processing NOTIFY RESPONDER_LIFETIME protocol 1
        spi 0, message ID = 133381228, sa = 82701CDC
00:08:37: ISAKMP (0:1): processing responder lifetime
00:08:37: ISAKMP (0:1): deleting node 133381228 error
    FALSE reason "informational (in) state 1"
00:08:37: ISAKMP (0:1): Input = IKE_MESG_FROM_PEER, IKE_INFO_NOTIFY
Old State = IKE_P1_COMPLETE  New State = IKE_P1_COMPLETE

00:08:38: ISAKMP: quick mode timer expired.
00:08:38: ISAKMP (0:1): src 14.38.69.70 dst 14.38.69.71
00:08:38: ISAKMP (0:1): beginning Quick Mode exchange, M-ID of -1119238561
00:08:38: ISAKMP (0:1): sending packet to 14.38.69.71 (I) QM_IDLE
00:08:38: ISAKMP (0:1): Node -1119238561, Input = IKE_MESG_INTERNAL,
    IKE_INIT_QM Old State = IKE_QM_READY  New State = IKE_QM_I_QM1

00:08:38: ISAKMP (0:1): received packet from 14.38.69.71 (I) QM_IDLE
00:08:38: ISAKMP (0:1): processing HASH payload. message ID = -1119238561
00:08:38: ISAKMP (0:1): processing SA payload. message ID = -1119238561
00:08:38: ISAKMP (0:1): Checking IPSec proposal 1
00:08:38: ISAKMP: transform 1, ESP_3DES
00:08:38: ISAKMP:   attributes in transform:
00:08:38: ISAKMP:      encaps is 1
00:08:38: ISAKMP:      SA life type in seconds
00:08:38: ISAKMP:      SA life duration (basic) of 3600
00:08:38: ISAKMP:      SA life type in kilobytes
00:08:38: ISAKMP:      SA life duration (VPI) of  0x0 0x46 0x50 0x0
00:08:38: ISAKMP:      authenticator is HMAC-MD5
```

```
00:08:38: ISAKMP (0:1): atts are acceptable.
00:08:38: IPSEC(validate_proposal_request): proposal part #1,
  (key eng. msg.) INBOUND local= 14.38.69.70, remote= 14.38.69.71,
    local_proxy= 1.1.1.0/255.255.255.0/0/0 (type=4),
    remote_proxy= 2.2.2.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-3des esp-md5-hmac ,
    lifedur= 0s and 0kb,
    spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x4
00:08:38: ISAKMP (0:1): processing NONCE payload. message ID = -1119238561
00:08:38: ISAKMP (0:1): processing ID payload. message ID = -1119238561
00:08:38: ISAKMP (0:1): processing ID payload. message ID = -1119238561
00:08:38: ISAKMP (0:1): Creating IPSec SAs
00:08:38:         inbound SA from 14.38.69.71 to 14.38.69.70
        (proxy 2.2.2.0 to 1.1.1.0)
00:08:38:         has spi 0x4B68058A and conn_id 2000 and flags 4
00:08:38:         lifetime of 3600 seconds
00:08:38:         lifetime of 4608000 kilobytes
00:08:38:         outbound SA from 14.38.69.70 to 14.38.69.71
        (proxy 1.1.1.0 to 2.2.2.0)
00:08:38:         has spi 1503230765 and conn_id 2001 and flags C
00:08:38:         lifetime of 3600 seconds
00:08:38:         lifetime of 4608000 kilobytes
00:08:38: ISAKMP (0:1): sending packet to 14.38.69.71 (I) QM_IDLE
00:08:38: ISAKMP (0:1): deleting node -1119238561 error FALSE reason ""
00:08:38: ISAKMP (0:1): Node -1119238561, Input = IKE_MESG_FROM_PEER,
    IKE_QM_EXCH Old State = IKE_QM_I_QM1
    New State = IKE_QM_PHASE2_COMPLETE

00:08:38: IPSEC(key_engine): got a queue event...
00:08:38: IPSEC(initialize_sas): ,
  (key eng. msg.) INBOUND local= 14.38.69.70, remote= 14.38.69.71,
    local_proxy= 1.1.1.0/255.255.255.0/0/0 (type=4),
    remote_proxy= 2.2.2.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-3des esp-md5-hmac ,
    lifedur= 3600s and 4608000kb,
    spi= 0x4B68058A(1265108362), conn_id= 2000, keysize= 0, flags= 0x4
00:08:38: IPSEC(initialize_sas): ,
  (key eng. msg.) OUTBOUND local= 14.38.69.70, remote= 14.38.69.71,
    local_proxy= 1.1.1.0/255.255.255.0/0/0 (type=4),
    remote_proxy= 2.2.2.0/255.255.255.0/0/0 (type=4),
    protocol= ESP, transform= esp-3des esp-md5-hmac ,
    lifedur= 3600s and 4608000kb,
    spi= 0x59997B2D(1503230765), conn_id= 2001, keysize= 0, flags= 0xC
00:08:38: IPSEC(create_sa): sa created,
  (sa) sa_dest= 14.38.69.70, sa_prot= 50,
    sa_spi= 0x4B68058A(1265108362),
    sa_trans= esp-3des esp-md5-hmac , sa_conn_id= 2000
00:08:38: IPSEC(create_sa): sa created,
  (sa) sa_dest= 14.38.69.71, sa_prot= 50,
    sa_spi= 0x59997B2D(1503230765),
    sa_trans= esp-3des esp-md5-hmac , sa_conn_id= 2001
00:08:38: ISAKMP: received ke message (7/1)
00:08:38: ISAKMP: DPD received kei with flags 0x10
00:08:38: ISAKMP: Locking DPD struct 0x82702444 from
    crypto_ikmp_dpd_handle_kei_mess, count 2
```

Gerelateerde informatie

- IPsec-ondersteuningspagina
- Technische ondersteuning - Cisco-systemen