使用路由器啟動IKE主動模式配置路由器到路由器LAN到LAN隧道

目錄

簡介

Cisco IOS®軟體版本12.2(8)T引入了路由器在主動模式下啟動網際網路金鑰交換(IKE)的功能。如需更多資訊，請參閱Bug工具組中的Bug ID CSCdt30808(僅限註冊客戶)。以前，路由器能夠響應主動模式的隧道協商請求，但始終無法啟動它。

必要條件

需求

本文件沒有特定先決條件。

採用元件

本檔案中的資訊是根據以下軟體和硬體版本。

- 兩台路由器上都使用了Cisco IOS 12.2(8)T，但接收路由器上無需使用Cisco IOS 12.2(8)T。

注意：此配置已使用Cisco IOS軟體版本12.2(13)T1進行測試。配置的所有方面保持不變。

本文中的資訊是根據特定實驗室環境內的裝置所建立。文中使用到的所有裝置皆從已清除（預設）的組態來啟動。如果您在即時網路中工作，請確保在使用任何命令之前瞭解其潛在影響。

慣例

如需文件慣例的詳細資訊，請參閱思科技術提示慣例。

背景資訊

注意：新的命令列介面(CLI)命令如下所示：

- **crypto isakmp peer <地址<*x.x.x.x*> | hostname <*name*> >**
- **set aggressive-mode client-endpoint < fqdn <*name*> | ipv4-address <*x.x.x.x*> | user-fqdn <*name*> >**
- **set aggressive-mode password <*password*>**

在下面的配置示例中，路由器A和路由器B之間有一個LAN到LAN隧道。路由器A始終是發起路由器的隧道，在本示例中將其配置為在主動模式下啟動。RouterB只有一個動態密碼編譯對應來接受來自RouterA的通道引數，不過也可能已套用標準LAN到LAN通道組態。

注意：在本例中，RouterB不必運行Cisco IOS軟體版本12.2(8)T，即可接受來自RouterA的通道引數。如上所述，路由器始終接受主動模式請求，只是無法啟動它。

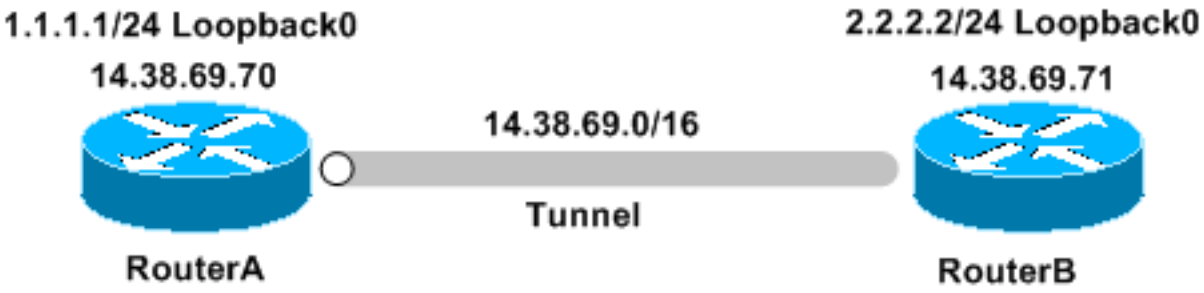
設定

本節提供用於設定本文件中所述功能的資訊。

注意：要查詢有關本文檔中使用的命令的其他資訊，請使用命令查詢工具(僅限註冊客戶)。

網路圖表

本文檔使用下圖所示的網路設定。



組態

本檔案會使用以下設定：

- 路由器 A
- 路由器 B

路由器 A
`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
```

路由器 B

```
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
```

驗證

本節提供的資訊可用於確認您的組態是否正常運作。

輸出直譯器工具(僅供註冊客戶使用)支援某些**show**命令，此工具可讓您檢視show命令輸出的分析。

- **show crypto ipsec sa** — 顯示第2階段安全關聯。
- **show crypto isakmp sa** — 顯示第1階段安全關聯

疑難排解

本節提供的資訊可用於對組態進行疑難排解。

疑難排解指令

注意：發出debug指令之前，請先參閱有關Debug指令的重要資訊。

- **debug crypto ipsec** — 顯示第2階段的IPSec協商。
- **debug crypto isakmp** — 顯示第1階段的ISAKMP協商。
- **debug crypto engine** — 顯示加密的流量。

RouterA偵錯輸出

```
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
```

相關資訊

- IPSec支援頁面
- 技術支援 - Cisco Systems