複数のルータ間のGRE Over IPSec を使用した動的マルチポイントVPN (DMVPN) 設定

内容

概要

Dynamic Multipoint VPN（DMVPN; ダイナミック マルチポイント VPN）機能を使用すると、Generic Routing Encapsulation（GRE; 総称ルーティング カプセル化）トンネル、IPSec カプセル化、Next Hop Resolution Protocol（NHRP）を組み合わせて、大規模および小規模の IPSec VPN のスケーリングがより適切に行われます。これにより、ユーザは暗号化プロファイルを使用した簡単な設定方法（静的暗号化マップを定義するための要件は無効になります）とトンネルのエンドポイントのダイナミック ディスカバリが利用できるようになります。

前提条件

要件

このドキュメントに特有の要件はありません。

使用するコンポーネント

このドキュメントの情報は、次のソフトウェアとハードウェアのバージョンに基づくものです。

- Cisco 2691 および 3725 ルータ

- Cisco IOS® Software リリース 12.3（3）

注：複数のIPSecパススルーは、Cisco IOSソフトウェアリリース12.2.(2)XKおよび12.2.(13)T以降でのみサポートされています。

ルータでの **show version コマンドからの出力を次に示します。**

```
sv9-4#show version
     Cisco Internetwork Operating System Software
     IOS (tm) 2600 Software (C2691-IK9S-M), Version 12.3(3),
        RELEASE SOFTWARE (fc2)
     Copyright (c) 1986-2003 by cisco Systems, Inc.
     Compiled Tue 19-Aug-03 05:52 by dchih
     Image text-base: 0x60008954, data-base: 0x61D08000

     ROM: System Bootstrap, Version 12.2(8r)T2,
        RELEASE SOFTWARE (fc1)

     sv9-4 uptime is 1 hour, 39 minutes
     System returned to ROM by reload
     System image file is "flash:c2691-ik9s-mz.123-3.bin"

     This product contains cryptographic features and is subject
     to United States and local country laws governing import,
     export, transfer and use. Delivery of Cisco cryptographic
     products does not imply third-party authority to import,
     export, distribute or use encryption. Importers, exporters,
     distributors and users are responsible for compliance with
     U.S. and local country laws. By using this product you agree
     to comply with applicable laws and regulations. If you are
     unable to comply with U.S. and local laws, return this product
     immediately.

     A summary of U.S. laws governing Cisco cryptographic products
     may be found at:
     http://www.cisco.com/wwl/export/crypto/tool/stqrg.html

     If you require further assistance please contact us by sending
     email to export@cisco.com.

     cisco 2691 (R7000) processor (revision 0.1)
        with 98304K/32768K bytes of memory.
     Processor board ID JMX0710L5CE
     R7000 CPU at 160Mhz, Implementation 39,
        Rev 3.3, 256KB L2 Cache
     Bridging software.
     X.25 software, Version 3.0.0.
     SuperLAT software (copyright 1990 by Meridian Technology Corp).
     2 FastEthernet/IEEE 802.3 interface(s)
     2 Serial(sync/async) network interface(s)
     1 ATM network interface(s)
     1 Virtual Private Network (VPN) Module(s)
     DRAM configuration is 64 bits wide with parity disabled.
     55K bytes of non-volatile configuration memory.
     125184K bytes of ATA System CompactFlash (Read/Write)

     Configuration register is 0x2102
```

このマニュアルの情報は、特定のラボ環境に置かれたデバイスに基づいて作成されました。このドキュメントで使用するすべてのデバイスは、初期（デフォルト）設定の状態から起動しています。実稼動中のネットワークで作業をしている場合、実際にコマンドを使用する前に、その潜在的な影響について理解しておく必要があります。

背景理論

この機能は次の規則に従って動作します。

- 各スポークには（ネットワーク内のほかのスポークではなく）ハブへの固定 IPSec トンネルがあります。各スポークは、NHRP サーバのクライアントとして登録します。
- あるスポークが別のスポーク上の宛先（プライベート）サブネットにパケットを送信する必要がある場合、宛先（ターゲット）スポークの実（外部）アドレスを NHRP サーバに照会します。
- 発信元スポークは、ターゲット スポークのピア アドレスを学習した後、ターゲット スポークへのダイナミック IPSec トンネルを開始できます。
- マルチポイント GRE（mGRE）インターフェイス上に、スポークツースポーク トンネルが構築されます。
- スポーク間にトラフィックがある場合は常に、スポークツースポーク リンクは、オンデマンドで確立されます。その後、パケットはハブをバイパスし、スポークツースポーク トンネルを使用できます。

ルールのセットには次の定義が適用されます。

- NHRP：ハブがサーバで、スポークがクライアントであるクライアントおよびサーバプロトコル。ハブでは、各スポークのパブリック インターフェイス アドレスの NHRP データベースが維持されます。各スポークは、ブート時や、直接トンネルを構築するために、宛先スポークの実アドレスを NHRP データベースに照会する際に、その実アドレスを登録します。
- mGREトンネルインターフェイス：1つのGREインターフェイスで複数のIPSecトンネルをサポートでき、設定のサイズと複雑さを簡素化します。

注：スポークツースポークトンネルで事前に設定された非アクティブ時間が経過すると、ルータはこれらのトンネルを切断してリソースを節約します(IPSecセキュリティアソシエーション(SA))。

注：トラフィックプロファイルは80 ～ 20 %のルールに従う必要があります。トラフィックの 80 % はスポークツーハブのトラフィックから構成され、トラフィックの 20 % はスポーツツースポークのトラフィックから構成される必要があります。

表記法

ドキュメント表記の詳細は、『シスコ テクニカル ティップスの表記法』を参照してください。

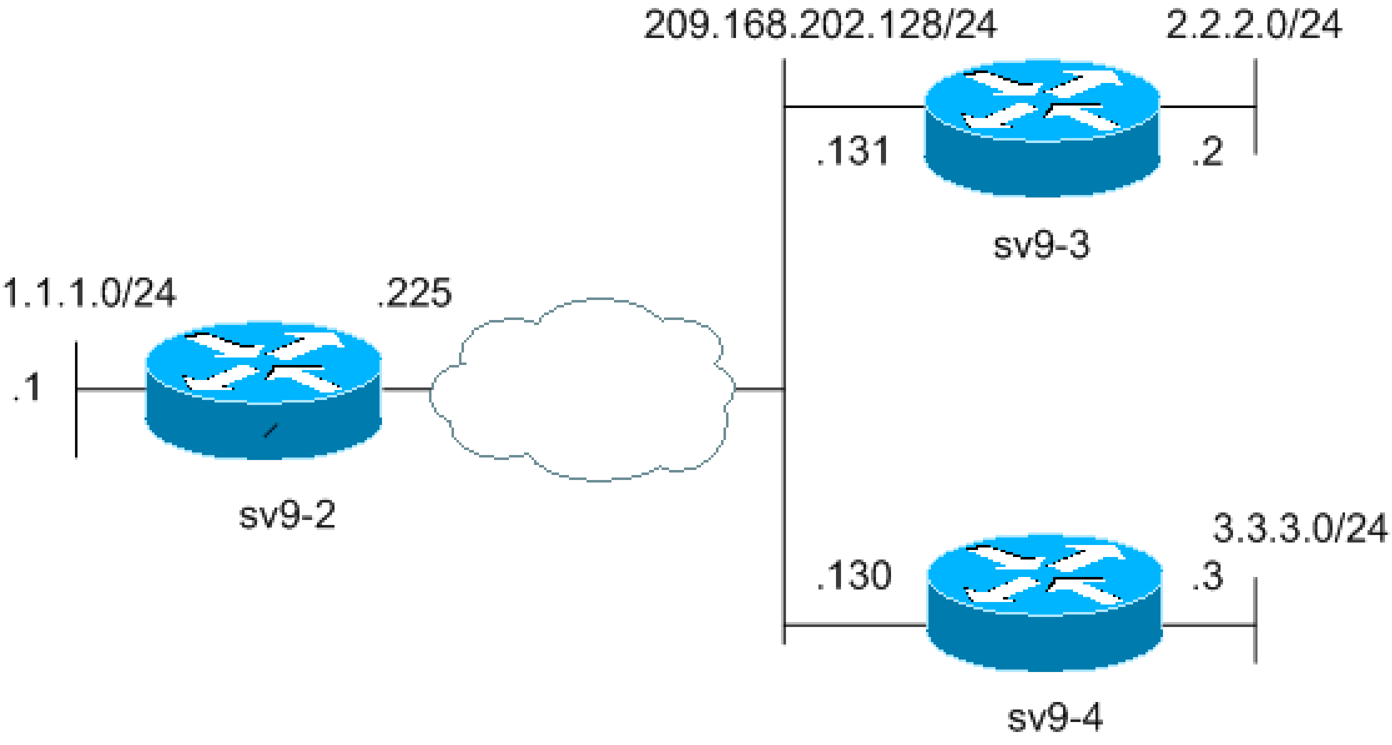
設定

このセクションでは、このドキュメントで説明する機能を設定するために必要な情報を提供しています。

注：この文書で使用されているコマンドの詳細を調べるには、「Command Lookup ツール」を使用してください（登録ユーザのみ）。

ネットワーク図

このドキュメントでは次の図に示すネットワーク構成を使用しています。



設定

このドキュメントでは、次に示す設定を使用しています。

- ハブ ルータ（sv9-2）の設定
- スポーク #1（sv9-3）の設定
- スポーク #2（sv9-4）の設定

ハブ ルータ（sv9-2）の設定

```
sv9-2#show run
Building configuration...

Current configuration : 1827 bytes
!
version 12.3
service config
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname sv9-2
!
boot-start-marker
boot-end-marker
!
enable password cisco
!
no aaa new-model
ip subnet-zero
!
!
no ip domain lookup
!
ip ssh break-string
```

```
!
!--- Create an Internet Security Association and Key
Management !--- Protocol (ISAKMP) policy for Phase 1
negotiations. ! crypto isakmp policy 10
hash md5
authentication pre-share
!--- Add dynamic pre-shared keys for all the remote VPN
!--- routers. crypto isakmp key cisco123 address 0.0.0.0
0.0.0.0
!
!--- Create the Phase 2 policy for actual data
encryption. crypto ipsec transform-set strong esp-3des
esp-md5-hmac
!
!--- Create an IPSec profile to be applied dynamically
to the !--- GRE over IPSec tunnels. crypto ipsec profile
cisco
set security-association lifetime seconds 120
set transform-set strong
!
!
!
!
!
!
!
!
!
!
!
no voice hpi capture buffer
no voice hpi capture destination
!
!
!
!
!
!
!
!--- Create a GRE tunnel template which will be applied
to !--- all the dynamically created GRE tunnels.
interface Tunnel0
ip address 192.168.1.1 255.255.255.0
no ip redirects
ip mtu 1440
ip nhrp authentication cisco123
ip nhrp map multicast dynamic
ip nhrp network-id 1
no ip split-horizon eigrp 90
no ip next-hop-self eigrp 90
tunnel source FastEthernet0/0
tunnel mode gre multipoint
tunnel key 0
tunnel protection ipsec profile cisco
!
!--- This is the outbound interface. interface
FastEthernet0/0 ip address 209.168.202.225 255.255.255.0
duplex auto speed auto ! !--- This is the inbound
interface. interface FastEthernet0/1 ip address 1.1.1.1
255.255.255.0 duplex auto speed auto ! interface BRI1/0
no ip address shutdown ! interface BRI1/1 no ip address
shutdown ! interface BRI1/2 no ip address shutdown !
interface BRI1/3 no ip address shutdown ! !--- Enable a
routing protocol to send and receive !--- dynamic
```

```
updates about the private networks. router eigrp 90
network 1.1.1.0 0.0.0.255
network 192.168.1.0
no auto-summary
!
ip http server
no ip http secure-server
ip classless
ip route 0.0.0.0 0.0.0.0 209.168.202.226
!
!
!
!
!
!
!
!
!
!
!
line con 0
exec-timeout 0 0
transport preferred all
transport output all
escape-character 27
line aux 0
transport preferred all
transport output all
line vty 0 4
password cisco
login
transport preferred all
transport input all
transport output all
!
!
end
```

スポーク #1（sv9-3）の設定

```

sv9-3#show run
Building configuration...

Current configuration : 1993 bytes
!
version 12.3
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname sv9-3
!
boot-start-marker
boot system flash:c3725-ik9s-mz.123-3.bin
boot-end-marker
!
!
no aaa new-model
ip subnet-zero
!
!
no ip domain lookup
!
```

```
ip ssh break-string
!
!
!--- Create an ISAKMP policy for Phase 1 negotiations.
crypto isakmp policy 10
hash md5
authentication pre-share
!--- Add dynamic pre-shared keys for all the remote VPN
!--- routers and the hub router. crypto isakmp key
cisco123 address 0.0.0.0 0.0.0.0
!
!
!--- Create the Phase 2 policy for actual data
encryption. crypto ipsec transform-set strong esp-3des
esp-md5-hmac
!
!--- Create an IPSec profile to be applied dynamically
to !--- the GRE over IPSec tunnels. crypto ipsec profile
cisco
set security-association lifetime seconds 120
set transform-set strong
!
!
!
!
!
!
!
!
!
!
!
no voice hpi capture buffer
no voice hpi capture destination
!
!
fax interface-type fax-mail
!
!
!
!
!
!--- Create a GRE tunnel template to be applied to !---
all the dynamically created GRE tunnels. interface
Tunnel0
ip address 192.168.1.2 255.255.255.0
no ip redirects
ip mtu 1440
ip nhrp authentication cisco123
ip nhrp map multicast dynamic
ip nhrp map 192.168.1.1 209.168.202.225
ip nhrp map multicast 209.168.202.225
ip nhrp network-id 1
ip nhrp nhs 192.168.1.1
tunnel source FastEthernet0/0
tunnel mode gre multipoint
tunnel key 0
tunnel protection ipsec profile cisco
!
!--- This is the outbound interface. interface
FastEthernet0/0 ip address 209.168.202.131 255.255.255.0
duplex auto speed auto ! !--- This is the inbound
interface. interface FastEthernet0/1 ip address 2.2.2.2
255.255.255.0 duplex auto speed auto ! interface BRI1/0
```

```
no ip address shutdown ! interface BRI1/1 no ip address
shutdown ! interface BRI1/2 no ip address shutdown !
interface BRI1/3 no ip address shutdown ! !--- Enable a
routing protocol to send and receive !--- dynamic
updates about the private networks. router eigrp 90
network 2.2.2.0 0.0.0.255
network 192.168.1.0
no auto-summary
!
ip http server
no ip http secure-server
ip classless
ip route 0.0.0.0 0.0.0.0 209.168.202.225
ip route 3.3.3.0 255.255.255.0 Tunnel0
!
!
!
!
!
!
!
!
dial-peer cor custom
!
!
!
!
!
line con 0
exec-timeout 0 0
transport preferred all
transport output all
escape-character 27
line aux 0
transport preferred all
transport output all
line vty 0 4
login
transport preferred all
transport input all
transport output all
!
!
end
```

スポーク #2 (sv9-4) の設定

```
sv9-4#show run
Building configuration...

Current configuration : 1994 bytes
!
version 12.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname sv9-4
!
boot-start-marker
boot system flash:c2691-ik9s-mz.123-3.bin
boot-end-marker
!
```

```
!
no aaa new-model
ip subnet-zero
!
!
no ip domain lookup
!
ip ssh break-string
!
!
!
!--- Create an ISAKMP policy for Phase 1 negotiations.
crypto isakmp policy 10
hash md5
authentication pre-share
!--- Add dynamic pre-shared keys for all the remote VPN
!--- routers and the hub router. crypto isakmp key
cisco123 address 0.0.0.0 0.0.0.0
!
!
!--- Create the Phase 2 policy for actual data
encryption. crypto ipsec transform-set strong esp-3des
esp-md5-hmac
!
!--- Create an IPSec profile to be applied dynamically
to !--- the GRE over IPSec tunnels. crypto ipsec profile
cisco
set security-association lifetime seconds 120
set transform-set strong
!
!
!
!
!
!
!
!
!
!
!
no voice hpi capture buffer
no voice hpi capture destination
!
!
!
!
!
!
!
!--- Create a GRE tunnel template to be applied to !---
all the dynamically created GRE tunnels. interface
Tunnel0
ip address 192.168.1.3 255.255.255.0
no ip redirects
ip mtu 1440
ip nhrp authentication cisco123
ip nhrp map multicast dynamic
ip nhrp map 192.168.1.1 209.168.202.225
ip nhrp map multicast 209.168.202.225
ip nhrp network-id 1
ip nhrp nhs 192.168.1.1
tunnel source FastEthernet0/0
tunnel mode gre multipoint
tunnel key 0
tunnel protection ipsec profile cisco
!
!--- This is the outbound interface. interface
FastEthernet0/0 ip address 209.168.202.130 255.255.255.0
duplex auto speed auto ! interface Serial0/0 no ip
address shutdown clockrate 2000000 no fair-queue ! !---
This is the inbound interface. interface FastEthernet0/1
ip address 3.3.3.3 255.255.255.0 duplex auto speed auto
! interface Serial0/1 no ip address shutdown clockrate
2000000 ! interface ATM1/0 no ip address shutdown no atm
ilmi-keepalive ! !--- Enable a routing protocol to send
and receive !--- dynamic updates about the private
networks. router eigrp 90
network 3.3.3.0 0.0.0.255
network 192.168.1.0
no auto-summary
!
ip http server
no ip http secure-server
ip classless
ip route 2.2.2.0 255.255.255.0 Tunnel0
ip route 0.0.0.0 0.0.0.0 209.168.202.225
!
!
!
!
!
!
!
!
dial-peer cor custom
!
!
!
!
!
line con 0
exec-timeout 0 0
transport preferred all
transport output all
escape-character 27
line aux 0
transport preferred all
transport output all
line vty 0 4
password cisco
login
transport preferred all
transport input all
transport output all
!
!
end
```

確認

このセクションでは、設定が正しく動作していることを確認する方法について説明します。

一部の show コマンドはアウトプット インタープリタ ツールによってサポートされています（登録ユーザ専用）。このツールを使用することによって、show コマンド出力の分析結果を表示できます。

- **show crypto engine connection active：SA ごとの合計の暗号化/復号化を表示します。**
- **show crypto ipsec sa：アクティブなトンネルの統計情報を表示します。**
- **show crypto isakmp sa：ISAKMP SA の状態を表示します。**

トラブルシュート

ここでは、設定のトラブルシューティングに使用できる情報を示します。

DMVPN トンネルが断続的にフラップする

問題

DMVPN トンネルが断続的にフラップします。

解決方法

ルータ間の隣接関係の形成の問題によって、DMVPN トンネルがフラップすることがあるため、DMVPN トンネルがフラップする場合はルータ間の隣接関係を確認します。この問題を解決するには、ルータ間の隣接関係が常にアップ状態であるようにします。

トラブルシューティングのためのコマンド

注：debug コマンドを使用する前に、「debug コマンドに関する重要な情報」を参照してください。

- **debug crypto ipsec**：IPsec イベントを表示します。
- **debug crypto isakmp：インターネット キー エクスチェンジ（IKE）イベントに関するメッセージを表示します。**
- **debug crypto engine**：暗号エンジンからの情報を表示します。

IPSec のトラブルシューティングに関する詳細については、IP セキュリティのトラブルシューティング：デバッグ コマンドの詳細と使用法を参照してください。

debug 出力例

- NHRP デバッグ
- ISAKMP および IPSec ネゴシエーションのデバッグ

NHRP デバッグ

次のデバッグ出力は、NHRP 要求と NHRP 解決応答を示しています。このデバッグは、スポーク sv9-4 と sv9-3、およびハブ sv9-2 からキャプチャされたものです。

```
sv9-4#show debug
NHRP:
NHRP protocol debugging is on

sv9-4#ping 2.2.2.2

Type escape sequence to abort.
```

```
Sending 5, 100-byte ICMP Echos to 2.2.2.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 4/4/4 ms
sv9-4#
*Mar 1 02:06:01.667: NHRP: Sending packet to NHS 192.168.1.1 on Tunnel0
*Mar 1 02:06:01.671: NHRP: Sending packet to NHS 192.168.1.1 on Tunnel0
*Mar 1 02:06:01.675: NHRP: Sending packet to NHS 192.168.1.1 on Tunnel0
*Mar 1 02:06:01.679: NHRP: Encapsulation succeeded.
   Tunnel IP addr 209.168.202.225
*Mar 1 02:06:01.679: NHRP: Send Resolution Request via Tunnel0,
   packet size: 84
*Mar 1 02:06:01.679: src: 192.168.1.3, dst: 192.168.1.1
*Mar 1 02:06:01.679: NHRP: 84 bytes out Tunnel0
*Mar 1 02:06:01.679: NHRP: Sending packet to NHS 192.168.1.1 on Tunnel0
*Mar 1 02:06:01.683: NHRP: Sending packet to NHS 192.168.1.1 on Tunnel0
*Mar 1 02:06:03.507: NHRP: Encapsulation succeeded.
   Tunnel IP addr 209.168.202.225
*Mar 1 02:06:03.507: NHRP: Send Resolution Request via Tunnel0,
   packet size: 84
*Mar 1 02:06:03.507: src: 192.168.1.3, dst: 192.168.1.1
*Mar 1 02:06:03.507: NHRP: 84 bytes out Tunnel0
*Mar 1 02:06:03.511: NHRP: Receive Resolution Reply via Tunnel0,
   packet size: 132
*Mar 1 02:06:03.511: NHRP: netid_in = 0, to_us = 1
*Mar 1 02:06:03.511: NHRP: No need to delay processing of resolution
   event nbma src:209.168.202.130 nbma dst:209.168.202.131

sv9-3#
05:31:12: NHRP: Sending packet to NHS 192.168.1.1 on Tunnel0
05:31:12: NHRP: Sending packet to NHS 192.168.1.1 on Tunnel0
05:31:12: NHRP: Sending packet to NHS 192.168.1.1 on Tunnel0
05:31:12: NHRP: Encapsulation succeeded. Tunnel IP addr 209.168.202.225
05:31:12: NHRP: Send Resolution Request via Tunnel0, packet size: 84
05:31:12: src: 192.168.1.2, dst: 192.168.1.1
05:31:12: NHRP: 84 bytes out Tunnel0
05:31:12: NHRP: Sending packet to NHS 192.168.1.1 on Tunnel0
05:31:12: NHRP: Receive Resolution Request via Tunnel0, packet size: 104
05:31:12: NHRP: netid_in = 1, to_us = 0
05:31:12: NHRP: Delaying resolution request nbma src:209.168.202.131
   nbma dst:209.168.202.130 reason:IPSEC-IFC: need to wait for IPsec SAs.
05:31:12: NHRP: Receive Resolution Reply via Tunnel0, packet size: 112
05:31:12: NHRP: netid_in = 0, to_us = 1
05:31:12: NHRP: Resolution request is already being processed (delayed).
05:31:12: NHRP: Resolution Request not queued.
   Already being processed (delayed).
05:31:12: NHRP: Sending packet to NHS 192.168.1.1 on Tunnel0
05:31:13: NHRP: Process delayed resolution request src:192.168.1.3
   dst:2.2.2.2
05:31:13: NHRP: No need to delay processing of resolution event
   nbma src:209.168.202.131 nbma dst:209.168.202.130

sv9-2#
*Mar 1 06:03:40.174: NHRP: Forwarding packet within same fabric
   Tunnel0 -> Tunnel0
*Mar 1 06:03:40.174: NHRP: Forwarding packet within same fabric
   Tunnel0 -> Tunnel0
*Mar 1 06:03:40.178: NHRP: Forwarding packet within same fabric
   Tunnel0 -> Tunnel0
*Mar 1 06:03:40.182: NHRP: Receive Resolution Request via Tunnel0,
   packet size: 84
*Mar 1 06:03:40.182: NHRP: netid_in = 1, to_us = 0
*Mar 1 06:03:40.182: NHRP: No need to delay processing of resolution
   event nbma src:209.168.202.225 nbma dst:209.168.202.130
*Mar 1 06:03:40.182: NHRP: nhrp_rtlookup yielded Tunnel0
```

```
*Mar 1 06:03:40.182: NHRP: netid_out 1, netid_in 1
*Mar 1 06:03:40.182: NHRP: nhrp_cache_lookup_comp returned 0x0
*Mar 1 06:03:40.182: NHRP: calling nhrp_forward
*Mar 1 06:03:40.182: NHRP: Encapsulation succeeded.
   Tunnel IP addr 209.168.202.131
*Mar 1 06:03:40.182: NHRP: Forwarding Resolution Request via Tunnel0,
   packet size: 104
*Mar 1 06:03:40.182: src: 192.168.1.1, dst: 2.2.2.2
*Mar 1 06:03:40.182: NHRP: 104 bytes out Tunnel0
*Mar 1 06:03:40.182: NHRP: Forwarding packet within same fabric
   Tunnel0 -> Tunnel0
*Mar 1 06:03:40.182: NHRP: Receive Resolution Request via Tunnel0,
   packet size: 84
*Mar 1 06:03:40.182: NHRP: netid_in = 1, to_us = 0
*Mar 1 06:03:40.182: NHRP: No need to delay processing of resolution
   event nbma src:209.168.202.225 nbma dst:209.168.202.131
*Mar 1 06:03:40.182: NHRP: nhrp_rtlookup yielded Tunnel0
*Mar 1 06:03:40.182: NHRP: netid_out 1, netid_in 1
*Mar 1 06:03:40.182: NHRP: nhrp_cache_lookup_comp returned 0x63DE9498
*Mar 1 06:03:40.182: NHRP: Encapsulation succeeded.
   Tunnel IP addr 209.168.202.131
*Mar 1 06:03:40.182: NHRP: Send Resolution Reply via Tunnel0,
   packet size: 112
*Mar 1 06:03:40.186: src: 192.168.1.1, dst: 192.168.1.2
*Mar 1 06:03:40.186: NHRP: 112 bytes out Tunnel0
*Mar 1 06:03:40.186: NHRP: Forwarding packet within same fabric
   Tunnel0 -> Tunnel0
*Mar 1 06:03:42.010: NHRP: Receive Resolution Request via Tunnel0,
   packet size: 84
*Mar 1 06:03:42.010: NHRP: netid_in = 1, to_us = 0
*Mar 1 06:03:42.010: NHRP: No need to delay processing of resolution
   event nbma src:209.168.202.225 nbma dst:209.168.202.130
```

ISAKMP および IPSec ネゴシエーションのデバッグ

次のデバッグ出力は、ISAKMP と IPSec ネゴシエーションを示しています。このデバッグは、スポーク sv9-4 と sv9-3 からキャプチャされたものです。

```
sv9-4#ping 2.2.2.2

Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2.2.2.2, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/2/4 ms
sv9-4#
*Mar 1 02:25:37.107: ISAKMP (0:0): received packet from 209.168.202.131
   dport 500 sport 500 Global (N) NEW SA
*Mar 1 02:25:37.107: ISAKMP: local port 500, remote port 500
*Mar 1 02:25:37.107: ISAKMP: insert sa successfully sa = 63B38288
*Mar 1 02:25:37.107: ISAKMP (0:12): Input = IKE_MESG_FROM_PEER,
   IKE_MM_EXCH
*Mar 1 02:25:37.107: ISAKMP (0:12): Old State = IKE_READY
   New State = IKE_R_MM1

*Mar 1 02:25:37.107: ISAKMP (0:12): processing SA payload.
   message ID = 0
*Mar 1 02:25:37.107: ISAKMP (0:12): processing vendor id payload
*Mar 1 02:25:37.107: ISAKMP (0:12): vendor ID seems Unity/DPD but
   major 157 mismatch
*Mar 1 02:25:37.107: ISAKMP (0:12): vendor ID is NAT-T v3
```

```
*Mar 1 02:25:37.107: ISAKMP (0:12): processing vendor id payload
*Mar 1 02:25:37.107: ISAKMP (0:12): vendor ID seems Unity/DPD but
   major 123 mismatch
*Mar 1 02:25:37.107: ISAKMP (0:12): vendor ID is NAT-T v2
*Mar 1 02:25:37.107: ISAKMP: Looking for a matching key for
   209.168.202.131 in default : success
*Mar 1 02:25:37.107: ISAKMP (0:12): found peer pre-shared key
   matching 209.168.202.131
*Mar 1 02:25:37.107: ISAKMP (0:12) local preshared key found
*Mar 1 02:25:37.107: ISAKMP : Scanning profiles for xauth ...
*Mar 1 02:25:37.107: ISAKMP (0:12): Checking ISAKMP transform 1
   against priority 10 policy
*Mar 1 02:25:37.107: ISAKMP: encryption DES-CBC
*Mar 1 02:25:37.107: ISAKMP: hash MD5
*Mar 1 02:25:37.107: ISAKMP: default group 1
*Mar 1 02:25:37.107: ISAKMP: auth pre-share
*Mar 1 02:25:37.107: ISAKMP: life type in seconds
*Mar 1 02:25:37.107: ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80
*Mar 1 02:25:37.107: ISAKMP (0:12): atts are acceptable.
   Next payload is 0
*Mar 1 02:25:37.115: ISAKMP (0:12): processing vendor id payload
*Mar 1 02:25:37.115: ISAKMP (0:12): vendor ID seems Unity/DPD but
   major 157 mismatch
*Mar 1 02:25:37.115: ISAKMP (0:12): vendor ID is NAT-T v3
*Mar 1 02:25:37.115: ISAKMP (0:12): processing vendor id payload
*Mar 1 02:25:37.115: ISAKMP (0:12): vendor ID seems Unity/DPD but
   major 123 mismatch
*Mar 1 02:25:37.115: ISAKMP (0:12): vendor ID is NAT-T v2
*Mar 1 02:25:37.115: ISAKMP (0:12): Input = IKE_MESG_INTERNAL,
   IKE_PROCESS_MAIN_MODE
*Mar 1 02:25:37.115: ISAKMP (0:12): Old State = IKE_R_MM1
   New State = IKE_R_MM1

*Mar 1 02:25:37.115: ISAKMP (0:12): constructed NAT-T vendor-03 ID
*Mar 1 02:25:37.115: ISAKMP (0:12): sending packet to 209.168.202.131
   my_port 500 peer_port 500 (R) MM_SA_SETUP
*Mar 1 02:25:37.115: ISAKMP (0:12): Input = IKE_MESG_INTERNAL,
   IKE_PROCESS_COMPLETE
*Mar 1 02:25:37.115: ISAKMP (0:12): Old State = IKE_R_MM1
   New State = IKE_R_MM2

*Mar 1 02:25:37.123: ISAKMP (0:12): received packet from 209.168.202.131
   dport 500 sport 500 Global (R) MM_SA_SETUP
*Mar 1 02:25:37.123: ISAKMP (0:12): Input = IKE_MESG_FROM_PEER,
   IKE_MM_EXCH
*Mar 1 02:25:37.123: ISAKMP (0:12): Old State = IKE_R_MM2
   New State = IKE_R_MM3

*Mar 1 02:25:37.123: ISAKMP (0:12): processing KE payload.
   message ID = 0
*Mar 1 02:25:37.131: ISAKMP (0:12): processing NONCE payload.
   message ID = 0
*Mar 1 02:25:37.131: ISAKMP: Looking for a matching key for
   209.168.202.131 in default : success
*Mar 1 02:25:37.131: ISAKMP (0:12): found peer pre-shared key matching
   209.168.202.131
*Mar 1 02:25:37.131: ISAKMP: Looking for a matching key for
   209.168.202.131 in default : success
*Mar 1 02:25:37.131: ISAKMP (0:12): found peer pre-shared key
   matching 209.168.202.131
*Mar 1 02:25:37.135: ISAKMP (0:12): SKEYID state generated
*Mar 1 02:25:37.135: ISAKMP (0:12): processing vendor id payload
*Mar 1 02:25:37.135: ISAKMP (0:12): vendor ID is Unity
*Mar 1 02:25:37.135: ISAKMP (0:12): processing vendor id payload
```

```
*Mar 1 02:25:37.135: ISAKMP (0:12): vendor ID is DPD
*Mar 1 02:25:37.135: ISAKMP (0:12): processing vendor id payload
*Mar 1 02:25:37.135: ISAKMP (0:12): speaking to another IOS box!
*Mar 1 02:25:37.135: ISAKMP:received payload type 17
*Mar 1 02:25:37.135: ISAKMP:received payload type 17
*Mar 1 02:25:37.135: ISAKMP (0:12): Input = IKE_MESG_INTERNAL,
   IKE_PROCESS_MAIN_MODE
*Mar 1 02:25:37.135: ISAKMP (0:12): Old State = IKE_R_MM3
   New State = IKE_R_MM3

*Mar 1 02:25:37.135: ISAKMP (0:12): sending packet to 209.168.202.131
   my_port 500 peer_port 500 (R) MM_KEY_EXCH
*Mar 1 02:25:37.135: ISAKMP (0:12): Input = IKE_MESG_INTERNAL,
   IKE_PROCESS_COMPLETE
*Mar 1 02:25:37.135: ISAKMP (0:12): Old State = IKE_R_MM3
   New State = IKE_R_MM4

*Mar 1 02:25:37.147: ISAKMP (0:12): received packet from 209.168.202.131
   dport 500 sport 500 Global (R) MM_KEY_EXCH
*Mar 1 02:25:37.151: ISAKMP (0:12): Input = IKE_MESG_FROM_PEER,
   IKE_MM_EXCH
*Mar 1 02:25:37.151: ISAKMP (0:12): Old State = IKE_R_MM4
   New State = IKE_R_MM5

*Mar 1 02:25:37.151: ISAKMP (0:12): processing ID payload.
   message ID = 0
*Mar 1 02:25:37.151: ISAKMP (0:12): peer matches *none* of the profiles
*Mar 1 02:25:37.151: ISAKMP (0:12): processing HASH payload.
   message ID = 0
*Mar 1 02:25:37.151: ISAKMP (0:12): processing NOTIFY INITIAL_CONTACT
   protocol 1 spi 0, message ID = 0, sa = 63B38288
*Mar 1 02:25:37.151: ISAKMP (0:12): Process initial contact,
   bring down existing phase 1 and 2 SA's with local 209.168.202.130
   remote 209.168.202.131 remote port 500
*Mar 1 02:25:37.151: ISAKMP (0:12): SA has been authenticated with
   209.168.202.131
*Mar 1 02:25:37.151: ISAKMP (0:12): peer matches *none* of the profiles
*Mar 1 02:25:37.151: ISAKMP (0:12): Input = IKE_MESG_INTERNAL,
   IKE_PROCESS_MAIN_MODE
*Mar 1 02:25:37.151: ISAKMP (0:12): Old State = IKE_R_MM5
   New State = IKE_R_MM5

*Mar 1 02:25:37.151: IPSEC(key_engine): got a queue event...
*Mar 1 02:25:37.151: ISAKMP (0:12): SA is doing pre-shared key
   authentication using id type ID_IPV4_ADDR
*Mar 1 02:25:37.151: ISAKMP (12): ID payload
next-payload : 8
type : 1
addr : 209.168.202.130
protocol : 17
port : 500
length : 8
*Mar 1 02:25:37.151: ISAKMP (12): Total payload length: 12
*Mar 1 02:25:37.155: ISAKMP (0:12): sending packet to 209.168.202.131
   my_port 500 peer_port 500 (R) MM_KEY_EXCH
*Mar 1 02:25:37.155: ISAKMP (0:12): Input = IKE_MESG_INTERNAL,
   IKE_PROCESS_COMPLETE
*Mar 1 02:25:37.155: ISAKMP (0:12): Old State = IKE_R_MM5
   New State = IKE_P1_COMPLETE

*Mar 1 02:25:37.155: ISAKMP (0:12): Input = IKE_MESG_INTERNAL,
   IKE_PHASE1_COMPLETE
*Mar 1 02:25:37.155: ISAKMP (0:12): Old State = IKE_P1_COMPLETE
   New State = IKE_P1_COMPLETE
```

```
*Mar 1 02:25:37.159: ISAKMP (0:12): received packet from 209.168.202.131
   dport 500 sport 500 Global (R) QM_IDLE
*Mar 1 02:25:37.159: ISAKMP: set new node -1682446278 to QM_IDLE
*Mar 1 02:25:37.159: ISAKMP (0:12): processing HASH payload.
   message ID = -1682446278
*Mar 1 02:25:37.159: ISAKMP (0:12): processing SA payload.
   message ID = -1682446278
*Mar 1 02:25:37.159: ISAKMP (0:12): Checking IPSec proposal 1
*Mar 1 02:25:37.159: ISAKMP: transform 1, ESP_3DES
*Mar 1 02:25:37.159: ISAKMP: attributes in transform:
*Mar 1 02:25:37.159: ISAKMP: encaps is 1
*Mar 1 02:25:37.159: ISAKMP: SA life type in seconds
*Mar 1 02:25:37.159: ISAKMP: SA life duration (basic) of 120
*Mar 1 02:25:37.159: ISAKMP: SA life type in kilobytes
*Mar 1 02:25:37.159: ISAKMP: SA life duration (VPI) of 0x0 0x46 0x50 0x0
*Mar 1 02:25:37.159: ISAKMP: authenticator is HMAC-MD5
*Mar 1 02:25:37.159: ISAKMP (0:12): atts are acceptable.
*Mar 1 02:25:37.163: IPSEC(validate_proposal_request): proposal part #1,
(key eng. msg.) INBOUND local= 209.168.202.130, remote= 209.168.202.131,
local_proxy= 209.168.202.130/255.255.255.255/47/0 (type=1),
remote_proxy= 209.168.202.131/255.255.255.255/47/0 (type=1),
protocol= ESP, transform= esp-3des esp-md5-hmac ,
lifedur= 0s and 0kb,
spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x2
*Mar 1 02:25:37.163: IPSEC(kei_proxy): head = Tunnel0-head-0,
   map->ivrf = , kei->ivrf =
*Mar 1 02:25:37.163: IPSEC(kei_proxy): head = Tunnel0-head-0,
   map->ivrf = , kei->ivrf =
*Mar 1 02:25:37.163: ISAKMP (0:12): processing NONCE payload.
   message ID = -1682446278
*Mar 1 02:25:37.163: ISAKMP (0:12): processing ID payload.
   message ID = -1682446278
*Mar 1 02:25:37.163: ISAKMP (0:12): processing ID payload.
   message ID = -1682446278
*Mar 1 02:25:37.163: ISAKMP (0:12): asking for 1 spis from ipsec
*Mar 1 02:25:37.163: ISAKMP (0:12): Node -1682446278,
   Input = IKE_MESG_FROM_PEER, IKE_QM_EXCH
*Mar 1 02:25:37.163: ISAKMP (0:12): Old State = IKE_QM_READY
   New State = IKE_QM_SPI_STARVE
*Mar 1 02:25:37.163: IPSEC(key_engine): got a queue event...
*Mar 1 02:25:37.163: IPSEC(spi_response): getting spi 3935077313
   for SA from 209.168.202.130 to 209.168.202.131 for prot 3
*Mar 1 02:25:37.163: ISAKMP: received ke message (2/1)
*Mar 1 02:25:37.415: ISAKMP (0:12): sending packet to 209.168.202.131
   my_port 500 peer_port 500 (R) QM_IDLE
*Mar 1 02:25:37.415: ISAKMP (0:12): Node -1682446278,
   Input = IKE_MESG_FROM_IPSEC, IKE_SPI_REPLY
*Mar 1 02:25:37.415: ISAKMP (0:12): Old State = IKE_QM_SPI_STARVE
   New State = IKE_QM_R_QM2
*Mar 1 02:25:37.427: ISAKMP (0:12): received packet from
   209.168.202.131 dport 500 sport 500 Global (R) QM_IDLE
*Mar 1 02:25:37.439: ISAKMP (0:12): Creating IPSec SAs
*Mar 1 02:25:37.439: inbound SA from 209.168.202.131 to
   209.168.202.130 (f/i) 0/ 0
(proxy 209.168.202.131 to 209.168.202.130)
*Mar 1 02:25:37.439: has spi 0xEA8C83C1 and conn_id 5361 and flags 2
*Mar 1 02:25:37.439: lifetime of 120 seconds
*Mar 1 02:25:37.439: lifetime of 4608000 kilobytes
*Mar 1 02:25:37.439: has client flags 0x0
*Mar 1 02:25:37.439: outbound SA from 209.168.202.130 to
   209.168.202.131 (f/i) 0/ 0 (proxy 209.168.202.130 to 209.168.202.131)
*Mar 1 02:25:37.439: has spi 1849847934 and conn_id 5362 and flags A
*Mar 1 02:25:37.439: lifetime of 120 seconds
```

```
*Mar 1 02:25:37.439: lifetime of 4608000 kilobytes
*Mar 1 02:25:37.439: has client flags 0x0
*Mar 1 02:25:37.439: ISAKMP (0:12): deleting node -1682446278 error
   FALSE reason "quick mode done (await)"
*Mar 1 02:25:37.439: ISAKMP (0:12): Node -1682446278,
   Input = IKE_MESG_FROM_PEER, IKE_QM_EXCH
*Mar 1 02:25:37.439: ISAKMP (0:12): Old State = IKE_QM_R_QM2
   New State = IKE_QM_PHASE2_COMPLETE
*Mar 1 02:25:37.439: IPSEC(key_engine): got a queue event...
*Mar 1 02:25:37.439: IPSEC(initialize_sas): ,
(key eng. msg.) INBOUND local= 209.168.202.130, remote= 209.168.202.131,
local_proxy= 209.168.202.130/0.0.0.0/47/0 (type=1),
remote_proxy= 209.168.202.131/0.0.0.0/47/0 (type=1),
protocol= ESP, transform= esp-3des esp-md5-hmac ,
lifedur= 120s and 4608000kb,
spi= 0xEA8C83C1(3935077313), conn_id= 5361, keysize= 0, flags= 0x2
*Mar 1 02:25:37.439: IPSEC(initialize_sas): ,
(key eng. msg.) OUTBOUND local= 209.168.202.130, remote= 209.168.202.131,
local_proxy= 209.168.202.130/0.0.0.0/47/0 (type=1),
remote_proxy= 209.168.202.131/0.0.0.0/47/0 (type=1),
protocol= ESP, transform= esp-3des esp-md5-hmac ,
lifedur= 120s and 4608000kb,
spi= 0x6E42707E(1849847934), conn_id= 5362, keysize= 0, flags= 0xA
*Mar 1 02:25:37.439: IPSEC(kei_proxy): head = Tunnel0-head-0,
   map->ivrf = , kei->ivrf =
*Mar 1 02:25:37.439: IPSEC(kei_proxy): head = Tunnel0-head-0,
   map->ivrf = , kei->ivrf =
*Mar 1 02:25:37.439: IPSEC(add mtree): src 209.168.202.130,
   dest 209.168.202.131, dest_port 0

*Mar 1 02:25:37.439: IPSEC(create_sa): sa created,
(sa) sa_dest= 209.168.202.130, sa_prot= 50,
sa_spi= 0xEA8C83C1(3935077313),
sa_trans= esp-3des esp-md5-hmac , sa_conn_id= 5361
*Mar 1 02:25:37.439: IPSEC(create_sa): sa created,
(sa) sa_dest= 209.168.202.131, sa_prot= 50,
sa_spi= 0x6E42707E(1849847934),
sa_trans= esp-3des esp-md5-hmac , sa_conn_id= 5362
sv9-4#
*Mar 1 02:25:55.183: ISAKMP (0:10): purging node 180238748
*Mar 1 02:25:55.323: ISAKMP (0:10): purging node -1355110639
sv9-4#

sv9-3#

05:50:48: ISAKMP: received ke message (1/1)
05:50:48: ISAKMP (0:0): SA request profile is (NULL)
05:50:48: ISAKMP: local port 500, remote port 500
05:50:48: ISAKMP: set new node 0 to QM_IDLE
05:50:48: ISAKMP: insert sa successfully sa = 62DB93D0
05:50:48: ISAKMP (0:26): Can not start Aggressive mode, trying Main mode.
05:50:48: ISAKMP: Looking for a matching key for 209.168.202.130
   in default : success
05:50:48: ISAKMP (0:26): found peer pre-shared key
   matching 209.168.202.130
05:50:48: ISAKMP (0:26): constructed NAT-T vendor-03 ID
05:50:48: ISAKMP (0:26): constructed NAT-T vendor-02 ID
05:50:48: ISAKMP (0:26): Input = IKE_MESG_FROM_IPSEC, IKE_SA_REQ_MM
05:50:48: ISAKMP (0:26): Old State = IKE_READY New State = IKE_I_MM1

05:50:48: ISAKMP (0:26): beginning Main Mode exchange
05:50:48: ISAKMP (0:26): sending packet to 209.168.202.130 my_port 500
   peer_port 500 (I) MM_NO_STATE
05:50:48: ISAKMP (0:26): received packet from 209.168.202.130 dport 500
```

```
   sport 500 Global (I) MM_NO_STATE
05:50:48: ISAKMP (0:26): Input = IKE_MESG_FROM_PEER, IKE_MM_EXCH
05:50:48: ISAKMP (0:26): Old State = IKE_I_MM1 New State = IKE_I_MM2

05:50:48: ISAKMP (0:26): processing SA payload. message ID = 0
05:50:48: ISAKMP (0:26): processing vendor id payload
05:50:48: ISAKMP (0:26): vendor ID seems Unity/DPD
   but major 157 mismatch
05:50:48: ISAKMP (0:26): vendor ID is NAT-T v3
05:50:48: ISAKMP: Looking for a matching key for 209.168.202.130
   in default : success
05:50:48: ISAKMP (0:26): found peer pre-shared key
   matching 209.168.202.130
05:50:48: ISAKMP (0:26) local preshared key found
05:50:48: ISAKMP : Scanning profiles for xauth ...
05:50:48: ISAKMP (0:26): Checking ISAKMP transform 1 against
   priority 10 policy
05:50:48: ISAKMP: encryption DES-CBC
05:50:48: ISAKMP: hash MD5
05:50:48: ISAKMP: default group 1
05:50:48: ISAKMP: auth pre-share
05:50:48: ISAKMP: life type in seconds
05:50:48: ISAKMP: life duration (VPI) of 0x0 0x1 0x51 0x80
05:50:48: ISAKMP (0:26): atts are acceptable. Next payload is 0
05:50:48: ISAKMP (0:26): processing vendor id payload
05:50:48: ISAKMP (0:26): vendor ID seems Unity/DPD
   but major 157 mismatch
05:50:48: ISAKMP (0:26): vendor ID is NAT-T v3
05:50:48: ISAKMP (0:26): Input = IKE_MESG_INTERNAL,
   IKE_PROCESS_MAIN_MODE
05:50:48: ISAKMP (0:26): Old State = IKE_I_MM2
   New State = IKE_I_MM2

05:50:48: ISAKMP (0:26): sending packet to 209.168.202.130 my_port 500
   peer_port 500 (I) MM_SA_SETUP
05:50:48: ISAKMP (0:26): Input = IKE_MESG_INTERNAL, IKE_PROCESS_COMPLETE
05:50:48: ISAKMP (0:26): Old State = IKE_I_MM2 New State = IKE_I_MM3

05:50:48: ISAKMP (0:26): received packet from 209.168.202.130 dport 500
   sport 500 Global (I) MM_SA_SETUP
05:50:48: ISAKMP (0:26): Input = IKE_MESG_FROM_PEER, IKE_MM_EXCH
05:50:48: ISAKMP (0:26): Old State = IKE_I_MM3 New State = IKE_I_MM4

05:50:48: ISAKMP (0:26): processing KE payload. message ID = 0
05:50:48: ISAKMP (0:26): processing NONCE payload. message ID = 0
05:50:48: ISAKMP: Looking for a matching key for 209.168.202.130
   in default : success
05:50:48: ISAKMP (0:26): found peer pre-shared key
   matching 209.168.202.130
05:50:48: ISAKMP: Looking for a matching key for 209.168.202.130
   in default : success
05:50:48: ISAKMP (0:26): found peer pre-shared key
   matching 209.168.202.130
05:50:48: ISAKMP (0:26): SKEYID state generated
05:50:48: ISAKMP (0:26): processing vendor id payload
05:50:48: ISAKMP (0:26): vendor ID is Unity
05:50:48: ISAKMP (0:26): processing vendor id payload
05:50:48: ISAKMP (0:26): vendor ID is DPD
05:50:48: ISAKMP (0:26): processing vendor id payload
05:50:48: ISAKMP (0:26): speaking to another IOS box!
05:50:48: ISAKMP:received payload type 17
05:50:48: ISAKMP:received payload type 17
05:50:48: ISAKMP (0:26): Input = IKE_MESG_INTERNAL,
   IKE_PROCESS_MAIN_MODE
```

```
05:50:48: ISAKMP (0:26): Old State = IKE_I_MM4
   New State = IKE_I_MM4

05:50:48: ISAKMP (0:26): Send initial contact
05:50:48: ISAKMP (0:26): SA is doing pre-shared key authentication
   using id type ID_IPV4_ADDR
05:50:48: ISAKMP (26): ID payload
next-payload : 8
type : 1
addr : 209.168.202.131
protocol : 17
port : 500
length : 8
05:50:48: ISAKMP (26): Total payload length: 12
05:50:48: ISAKMP (0:26): sending packet to 209.168.202.130 my_port 500
   peer_port 500 (I) MM_KEY_EXCH
05:50:48: ISAKMP (0:26): Input = IKE_MESG_INTERNAL,
   IKE_PROCESS_COMPLETE
05:50:48: ISAKMP (0:26): Old State = IKE_I_MM4
   New State = IKE_I_MM5

05:50:48: ISAKMP (0:26): received packet from 209.168.202.130 dport 500
   sport 500 Global (I) MM_KEY_EXCH
05:50:48: ISAKMP (0:26): Input = IKE_MESG_FROM_PEER,
   IKE_MM_EXCH
05:50:48: ISAKMP (0:26): Old State = IKE_I_MM5
   New State = IKE_I_MM6

05:50:48: ISAKMP (0:26): processing ID payload. message ID = 0
05:50:48: ISAKMP (0:26): processing HASH payload. message ID = 0
05:50:48: ISAKMP (0:26): SA has been authenticated with 209.168.202.130
05:50:48: ISAKMP (0:26): peer matches *none* of the profiles
05:50:48: ISAKMP (0:26): Input = IKE_MESG_INTERNAL,
   IKE_PROCESS_MAIN_MODE
05:50:48: ISAKMP (0:26): Old State = IKE_I_MM6
   New State = IKE_I_MM6

05:50:48: ISAKMP (0:26): Input = IKE_MESG_INTERNAL,
   IKE_PROCESS_COMPLETE
05:50:48: ISAKMP (0:26): Old State = IKE_I_MM6
   New State = IKE_P1_COMPLETE

05:50:48: ISAKMP (0:26): beginning Quick Mode exchange,
   M-ID of -1682446278
05:50:48: ISAKMP (0:26): sending packet to 209.168.202.130 my_port 500
   peer_port 500 (I) QM_IDLE
05:50:48: ISAKMP (0:26): Node -1682446278, Input = IKE_MESG_INTERNAL,
   IKE_INIT_QM
05:50:48: ISAKMP (0:26): Old State = IKE_QM_READY
   New State = IKE_QM_I_QM1
05:50:48: ISAKMP (0:26): Input = IKE_MESG_INTERNAL,
   IKE_PHASE1_COMPLETE
05:50:48: ISAKMP (0:26): Old State = IKE_P1_COMPLETE
   New State = IKE_P1_COMPLETE

05:50:48: ISAKMP (0:26): received packet from 209.168.202.130 dport 500
   sport 500 Global (I) QM_IDLE
05:50:48: ISAKMP (0:26): processing HASH payload.
   message ID = -1682446278
05:50:48: ISAKMP (0:26): processing SA payload.
   message ID = -1682446278
05:50:48: ISAKMP (0:26): Checking IPSec proposal 1
05:50:48: ISAKMP: transform 1, ESP_3DES
05:50:48: ISAKMP: attributes in transform:
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05:50:48: ISAKMP: encaps is 1
05:50:48: ISAKMP: SA life type in seconds
05:50:48: ISAKMP: SA life duration (basic) of 120
05:50:48: ISAKMP: SA life type in kilobytes
05:50:48: ISAKMP: SA life duration (VPI) of 0x0 0x46 0x50 0x0
05:50:48: ISAKMP: authenticator is HMAC-MD5
05:50:48: ISAKMP (0:26): atts are acceptable.
05:50:48: IPSEC(validate_proposal_request): proposal part #1,
(key eng. msg.) INBOUND local= 209.168.202.131,
   remote= 209.168.202.130,
local_proxy= 209.168.202.131/255.255.255.255/47/0 (type=1),
remote_proxy= 209.168.202.130/255.255.255.255/47/0 (type=1),
protocol= ESP, transform= esp-3des esp-md5-hmac ,
lifedur= 0s and 0kb,
spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x2
05:50:48: IPSEC(kei_proxy): head = Tunnel0-head-0,
   map->ivrf = , kei->ivrf =
05:50:48: IPSEC(kei_proxy): head = Tunnel0-head-0,
   map->ivrf = , kei->ivrf =
05:50:48: ISAKMP (0:26): processing NONCE payload.
   message ID = -1682446278
05:50:48: ISAKMP (0:26): processing ID payload.
   message ID = -1682446278
05:50:48: ISAKMP (0:26): processing ID payload.
   message ID = -1682446278
05:50:48: ISAKMP (0:26): Creating IPSec SAs
05:50:48: inbound SA from 209.168.202.130 to
   209.168.202.131 (f/i) 0/ 0
(proxy 209.168.202.130 to 209.168.202.131)
05:50:48: has spi 0x6E42707E and conn_id 5547 and flags 2
05:50:48: lifetime of 120 seconds
05:50:48: lifetime of 4608000 kilobytes
05:50:48: has client flags 0x0
05:50:48: outbound SA from 209.168.202.131 to 209.168.202.130
   (f/i) 0/ 0 (proxy 209.168.202.131 to 209.168.202.130)
05:50:48: has spi -359889983 and conn_id 5548 and flags A
05:50:48: lifetime of 120 seconds
05:50:48: lifetime of 4608000 kilobytes
05:50:48: has client flags 0x0
05:50:48: IPSEC(key_engine): got a queue event...
05:50:48: IPSEC(initialize_sas): ,
(key eng. msg.) INBOUND local= 209.168.202.131,
   remote= 209.168.202.130,
local_proxy= 209.168.202.131/0.0.0.0/47/0 (type=1),
remote_proxy= 209.168.202.130/0.0.0.0/47/0 (type=1),
protocol= ESP, transform= esp-3des esp-md5-hmac ,
lifedur= 120s and 4608000kb,
spi= 0x6E42707E(1849847934), conn_id= 5547, keysize= 0, flags= 0x2
05:50:48: IPSEC(initialize_sas): ,
(key eng. msg.) OUTBOUND local= 209.168.202.131,
   remote= 209.168.202.130,
local_proxy= 209.168.202.131/0.0.0.0/47/0 (type=1),
remote_proxy= 209.168.202.130/0.0.0.0/47/0 (type=1),
protocol= ESP, transform= esp-3des esp-md5-hmac ,
lifedur= 120s and 4608000kb,
spi= 0xEA8C83C1(3935077313), conn_id= 5548, keysize= 0, flags= 0xA
05:50:48: IPSEC(kei_proxy): head = Tunnel0-head-0,
   map->ivrf = , kei->ivrf =
05:50:48: IPSEC(kei_proxy): head = Tunnel0-head-0,
   map->ivrf = , kei->ivrf =
05:50:48: IPSEC(add mtree): src 209.168.202.131, dest 209.168.202.130,
   dest_port 0

05:50:48: IPSEC(create_sa): sa created,
(sa) sa_dest= 209.168.202.131, sa_prot= 50,
sa_spi= 0x6E42707E(1849847934),
sa_trans= esp-3des esp-md5-hmac , sa_conn_id= 5547
05:50:48: IPSEC(create_sa): sa created,
(sa) sa_dest= 209.168.202.130, sa_prot= 50,
sa_spi= 0xEA8C83C1(3935077313),
sa_trans= esp-3des esp-md5-hmac , sa_conn_id= 5548
05:50:48: ISAKMP (0:26): sending packet to 209.168.202.130 my_port 500
   peer_port 500 (I) QM_IDLE
05:50:48: ISAKMP (0:26): deleting node -1682446278 error FALSE reason ""
05:50:48: ISAKMP (0:26): Node -1682446278, Input = IKE_MESG_FROM_PEER,
   IKE_QM_EXCH
05:50:48: ISAKMP (0:26): Old State = IKE_QM_I_QM1
   New State = IKE_QM_PHASE2_COMPLETE
05:50:49: ISAKMP (0:21): purging node 334570133
sv9-3#
```

関連情報

- IPSec ネゴシエーション/IKE プロトコル
- テクニカルサポート - Cisco Systems