

Configure IKEv1 IPsec Site-to-Site Tunnels with the ASDM or CLI on the ASA

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Introduction

This document describes how to configure an Internet Key Exchange version 1 (IKEv1) IPsec site-to-site tunnel between a Cisco 5515-X Series Adaptive Security Appliance (ASA) that runs software version 9.2.x and a Cisco 5510 Series ASA that runs software version 8.2.x.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- The end-to-end IP connectivity must be established
- These protocols must be allowed:
User Datagram Protocol (UDP) 500 and 4500 for the IPsec control plane
Encapsulating Security Payload (ESP) IP Protocol 50 for the IPsec data plane

Components Used

The information in this document is based on these software and hardware versions:

- Cisco 5510 Series ASA that runs software version 8.2
- Cisco 5515-X ASA that runs the software version 9.2

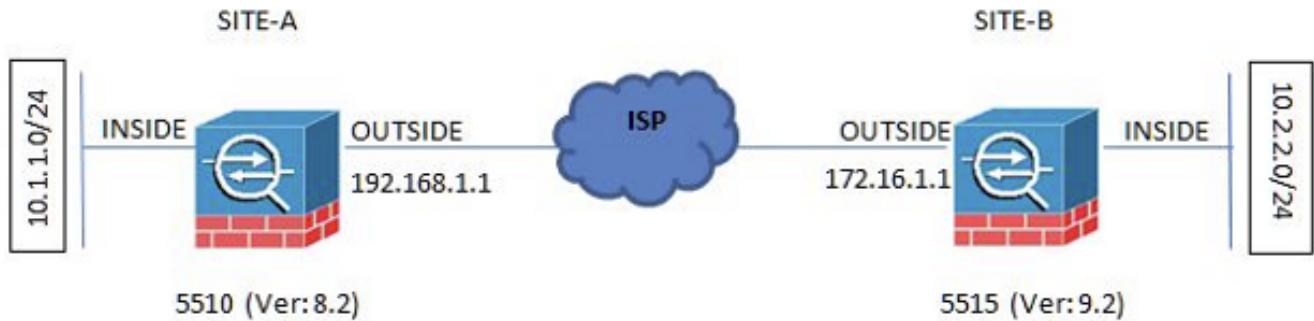
The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, ensure that you understand the potential impact of any command.

Configure

This section describes how to configure the site-to-site VPN tunnel via the Adaptive Security Device Manager (ASDM) VPN wizard or via the CLI.

Network Diagram

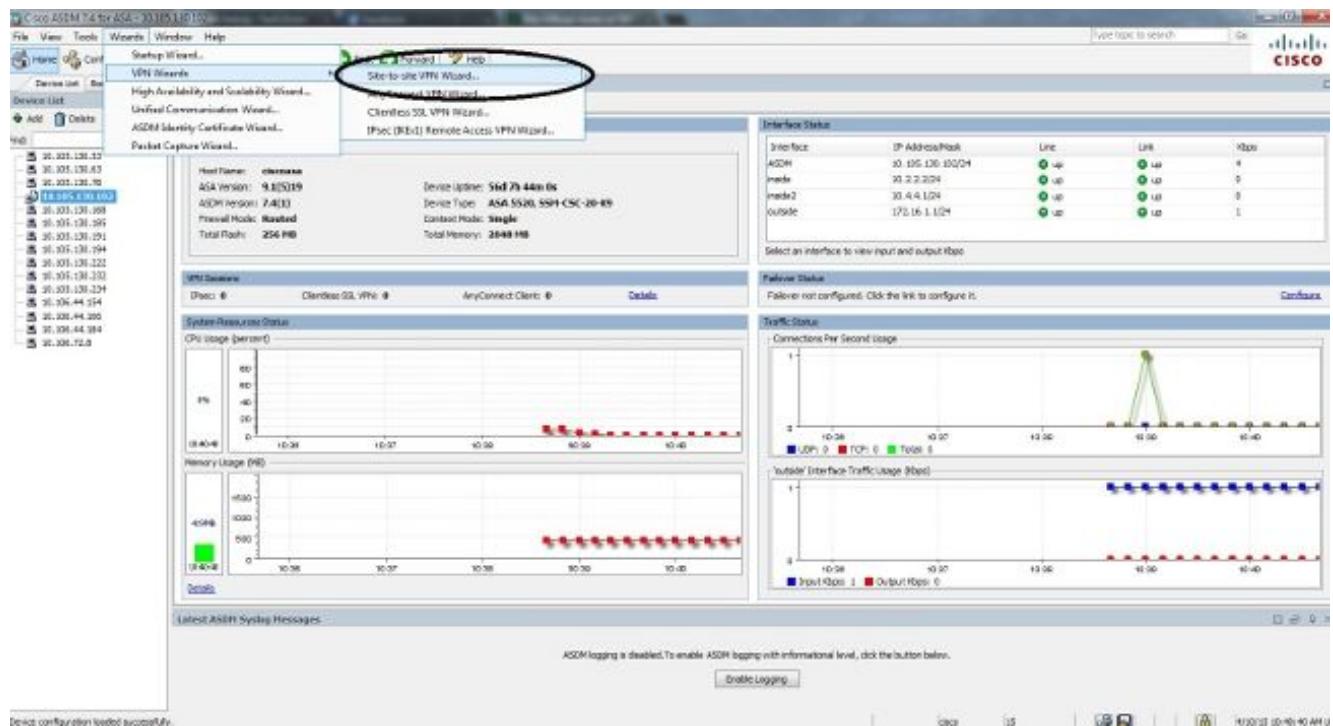
This topology is used for the examples throughout this document:



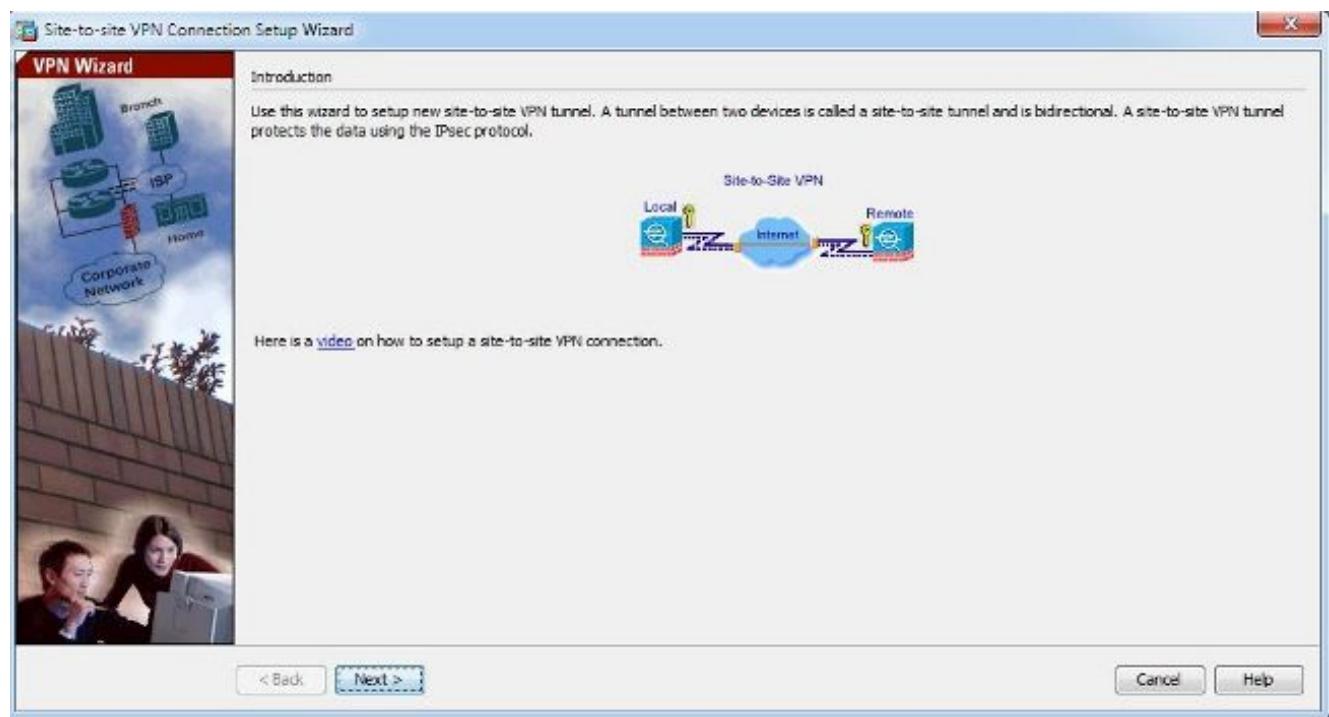
Configure Via the ASDM VPN Wizard

Complete these steps in order to set up the site-to-site VPN tunnel via the ASDM wizard:

1. Open the ASDM and navigate to Wizards > VPN Wizards > Site-to-site VPN Wizard.

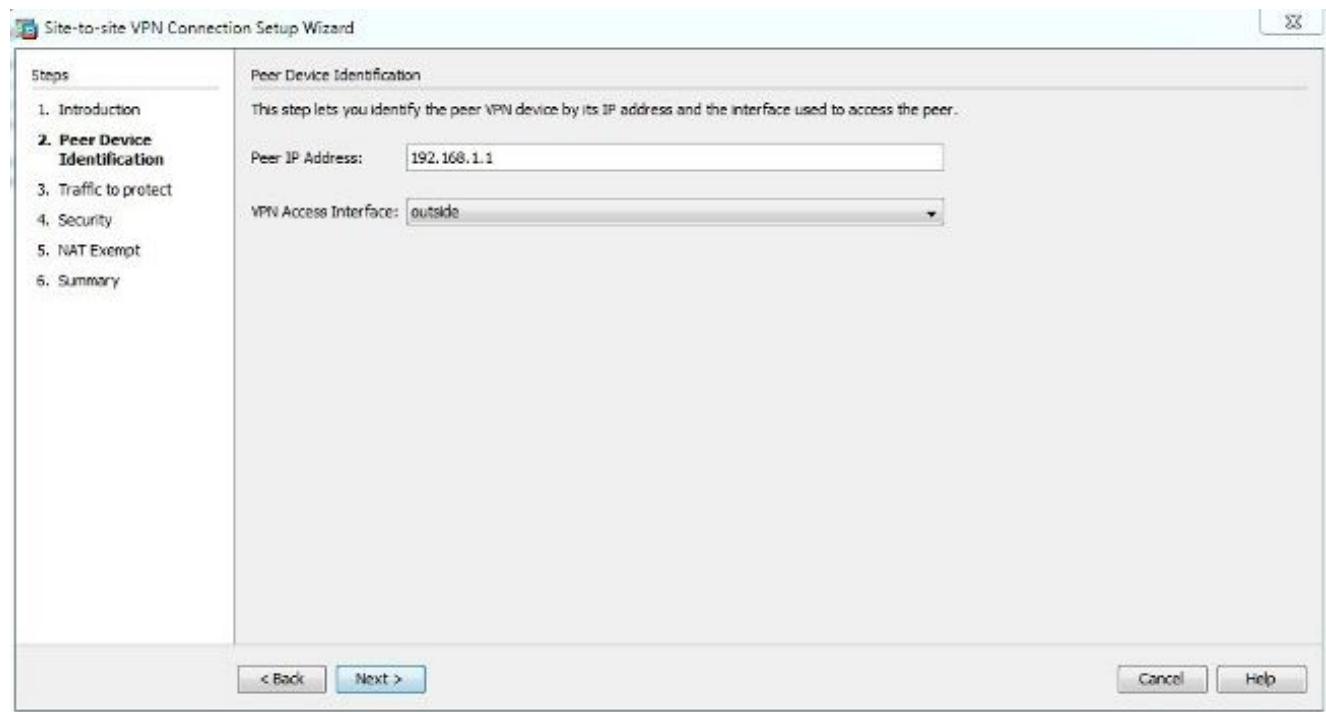


2. Click Next once you reach the wizard home page.

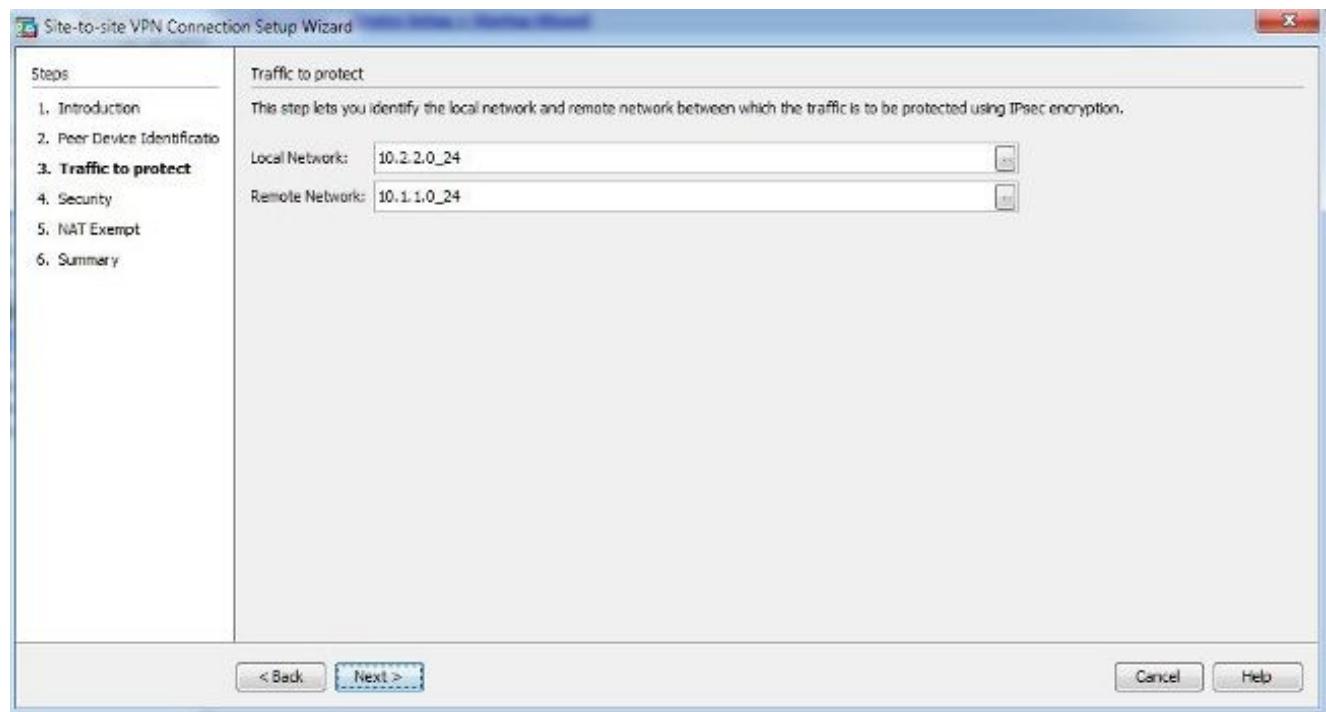


Note: The most recent ASDM versions provide a link to a video that explains this configuration.

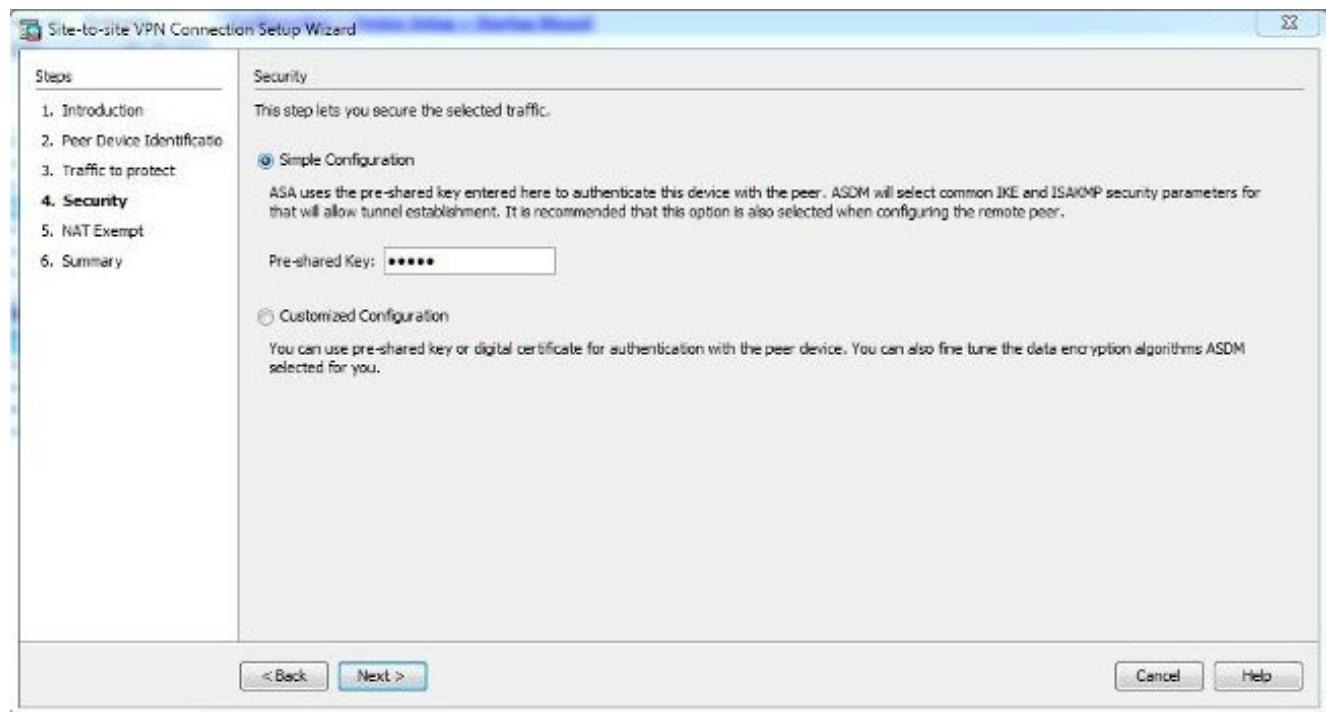
3. Configure the peer IP address. In this example, the peer IP address is set to 192.168.1.1 on Site B. If you configure the peer IP address on Site A, it must be changed to 172.16.1.1. The interface through which the remote end can be reached is also specified. Click Next once complete.



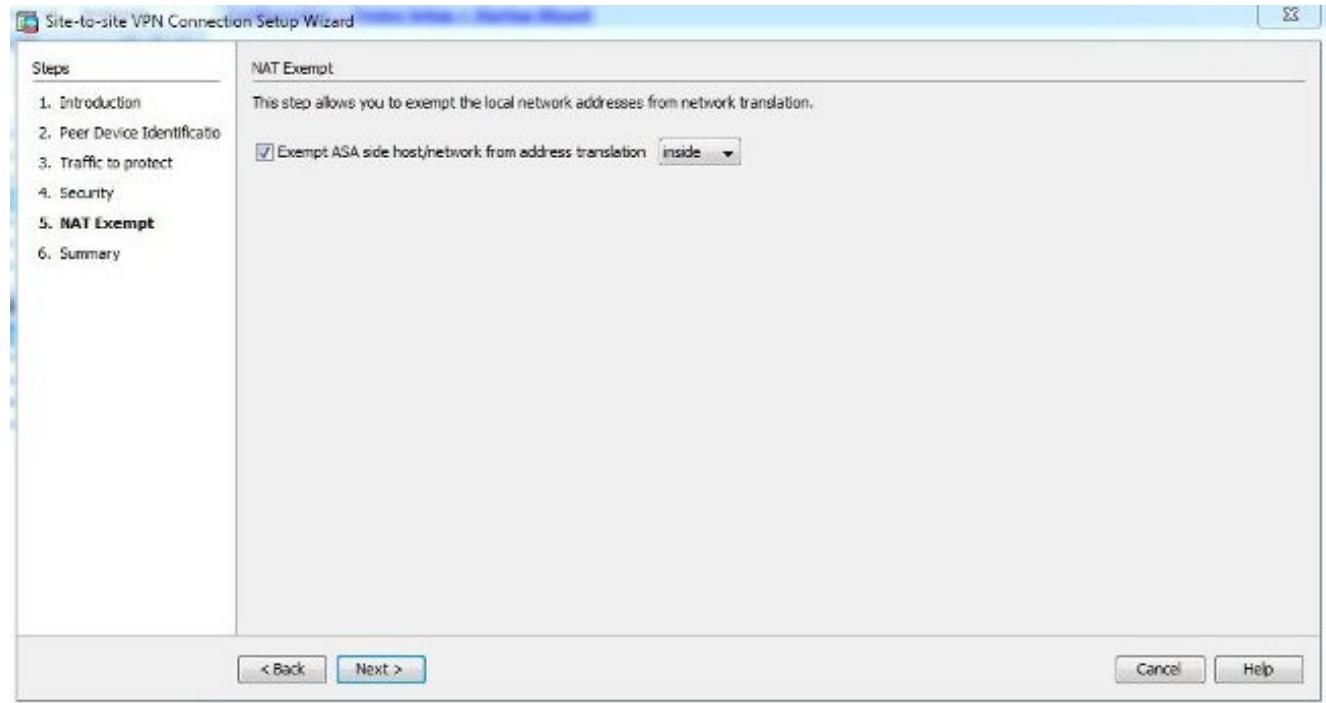
4. Configure the local and remote networks (traffic source and destination). This image shows the configuration for Site B (the reverse applies to Site A).



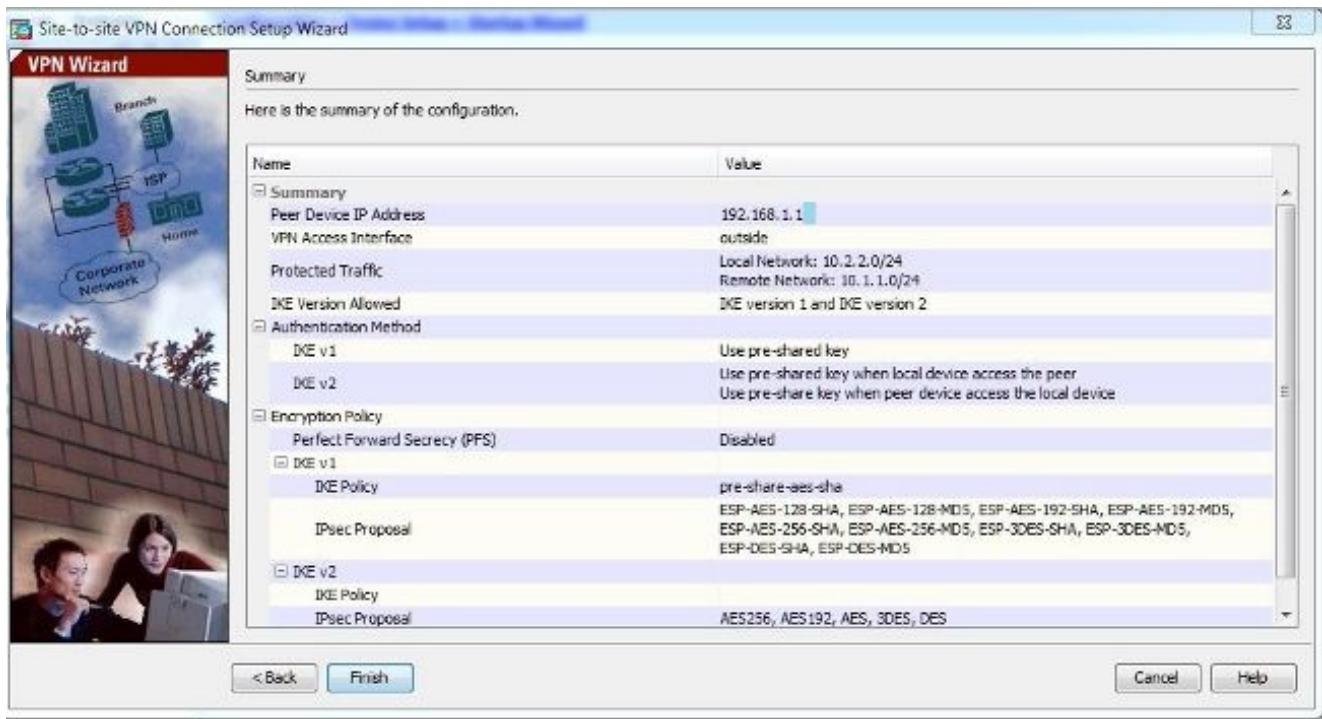
5. On the Security page, configure the pre-shared key (it must match on both ends).
Click **Next** once complete.



6. Configure the source interface for the traffic on the ASA. The ASDM automatically creates the Network Address Translation (NAT) rule based on the ASA version and pushes it with the rest of the configuration in the final step. **Note:** For the example that is used in this document, 'inside' is the source of the traffic.



7. The wizard now provides a summary of the configuration that is pushed to the ASA. Review and verify the configuration settings, and then click Finish.



Configure Via the CLI

This section describes how to configure the IKEv1 IPsec site-to-site tunnel via the CLI.

Configure Site B for ASA Versions 8.4 and Later

In ASA versions 8.4 and later, support for both IKEv1 and Internet Key Exchange version 2 (IKEv2) was introduced.

Tip: For more information about the differences between the two versions, refer to [Why migrate to IKEv2?](#) section of the Swift Migration of IKEv1 to IKEv2 L2L Tunnel Configuration on ASA 8.4 Code Cisco document.

Tip: For an IKEv2 configuration example with the ASA, take a look at the [Site-to-Site IKEv2 Tunnel between ASA and Router Configuration Examples](#) Cisco document.

Phase 1 (IKEv1)

Complete these steps for the Phase 1 configuration:

1. Enter this command into the CLI in order to enable IKEv1 on the outside interface:

```
crypto ikev1 enable outside
```

2. Create an IKEv1 policy that defines the algorithms/methods to be used for hashing, authentication, Diffie-Hellman group, lifetime, and encryption:

```
crypto ikev1 policy 1
!The 1 in the above command refers to the Policy suite priority
(1 highest, 65535 lowest)
```

```
authentication pre-share
encryption aes
hash sha
group 2
lifetime 86400
```

3. Create a tunnel group under the IPsec attributes and configure the peer IP address and the tunnel pre-shared key:

```
tunnel-group 192.168.1.1 type ipsec-121
tunnel-group 192.168.1.1 ipsec-attributes
ikev1 pre-shared-key cisco
! Note the IKEv1 keyword at the beginning of the pre-shared-key command.
```

Phase 2 (IPsec)

Complete these steps for the Phase 2 configuration:

1. Create an access list that defines the traffic to be encrypted and tunneled. In this example, the traffic of interest is the traffic from the tunnel that is sourced from the 10.2.2.0 subnet to 10.1.1.0. It can contain multiple entries if there are multiple subnets involved between the sites.

In versions 8.4 and later, objects or object groups can be created that serve as containers for the networks, subnets, host IP addresses, or multiple objects. Create two objects that have the local and remote subnets and use them for both the crypto Access Control List (ACL) and the NAT statements.

```
object network 10.2.2.0_24
subnet 10.2.2.0 255.255.255.0
object network 10.1.1.0_24
subnet 10.1.1.0 255.255.255.0

access-list 100 extended permit ip object 10.2.2.0_24 object 10.1.1.0_24
```

2. Configure the Transform Set (TS), which must involve the keyword `IKEv1`. An identical TS must be created on the remote end as well.

```
crypto ipsec ikev1 transform-set myset esp-aes esp-sha-hmac
```

3. Configure the crypto map, which contains these components:

The peer IP address
The defined access list that contains the traffic of interest
The TSA
An optional Perfect Forward Secrecy (PFS) setting, which creates a new pair of Diffie-Hellman keys that are used in order to protect the data (both sides must be PFS-enabled before Phase 2 comes up)

4. Apply the crypto map on the outside interface:

```
crypto map outside_map 20 match address 100
crypto map outside_map 20 set peer 192.168.1.1
crypto map outside_map 20 set ikev1 transform-set myset
crypto map outside_map 20 set pfs
crypto map outside_map interface outside
```

NAT Exemption

Ensure that the VPN traffic is not subjected to any other NAT rule. This is the NAT rule that is used:

```
nat (inside,outside) 1 source static 10.2.2.0_24 10.2.2.0_24 destination static  
10.1.1.0_24 10.1.1.0_24 no-proxy-arp route-lookup
```

Note: When multiple subnets are used, you must create object groups with all of the source and destination subnets and use them in the NAT rule.

```
object-group network 10.x.x.x_SOURCE  
network-object 10.4.4.0 255.255.255.0  
network-object 10.2.2.0 255.255.255.0  
  
object network 10.x.x.x_DESTINATION  
network-object 10.3.3.0 255.255.255.0  
network-object 10.1.1.0 255.255.255.0  
  
nat (inside,outside) 1 source static 10.x.x.x_SOURCE 10.x.x.x_SOURCE destination  
static 10.x.x.x_DESTINATION 10.x.x.x_DESTINATION no-proxy-arp route-lookup
```

Complete Sample Configuration

Here is the complete configuration for Site B:

```
crypto ikev1 enable outside  
  
crypto ikev1 policy 10  
authentication pre-share  
encryption aes  
hash sha  
group 2  
lifetime 86400  
  
tunnel-group 192.168.1.1 type ipsec-l2l  
tunnel-group 192.168.1.1 ipsec-attributes  
ikev1 pre-shared-key cisco  
!Note the IKEv1 keyword at the beginning of the pre-shared-key command.  
  
object network 10.2.2.0_24  
subnet 10.2.2.0 255.255.255.0  
object network 10.1.1.0_24  
subnet 10.1.1.0 255.255.255.0  
  
access-list 100 extended permit ip object 10.2.2.0_24 object 10.1.1.0_24  
  
crypto ipsec ikev1 transform-set myset esp-aes esp-sha-hmac  
  
crypto map outside_map 20 match address 100  
crypto map outside_map 20 set peer 192.168.1.1
```

```
crypto map outside_map 20 set ikev1 transform-set myset
crypto map outside_map 20 set pfs
crypto map outside_map interface outside

nat (inside,outside) 1 source static 10.2.2.0_24 10.2.2.0_24 destination static
10.1.1.0_24 10.1.1.0_24 no-proxy-arp route-lookup
```

Configure Site A for ASA Versions 8.2 and Earlier

This section describes how to configure Site A for ASA versions 8.2 and earlier.

Phase 1 (ISAKMP)

Complete these steps for the Phase 1 configuration:

1. Enter this command into the CLI in order to enable Internet Security Association and Key Management Protocol (ISAKMP) on the outside interface:

```
crypto isakmp enable outside
```

Note: Since multiple versions of IKE (IKEv1 and IKEv2) are not supported any longer, the ISAKMP is used in order to refer to Phase 1.

2. Create an ISAKMP policy that defines the algorithms/methods to be used in order to build Phase 1.

Note: In this example configuration, the keyword `IKEv1` from version 9.x is replaced with ISAKMP.

```
crypto isakmp policy 1
authentication pre-share
encryption aes
hash sha
group 2
lifetime 86400
```

3. Create a tunnel group for the peer IP address (external IP address of 5515) with the pre-shared key:

```
tunnel-group 172.16.1.1 type ipsec-121
tunnel-group 172.16.1.1 ipsec-attributes
pre-shared-key cisco
```

Phase 2 (IPsec)

Complete these steps for the Phase 2 configuration:

1. Similar to the configuration in version 9.x, you must create an extended access list in order to define the traffic of interest.

```
access-list 100 extended permit ip 10.1.1.0 255.255.255.0
10.2.2.0 255.255.255.0
```

2. Define a TS that contains all of the available encryption and hashing algorithms (offered issues have a question mark). Ensure that it is identical to that which was configured on the

other side.

```
crypto ipsec transform-set myset esp-aes esp-sha-hmac
```

3. Configure a crypto map, which contains these components:

The peer IP address
The defined access list that contains the traffic of interest
The TSG
An optional PFS setting, which creates a new pair of Diffie-Hellman keys that are used in order to protect the data (both sides must be PFS-enabled so that Phase 2 comes up)

4. Apply the crypto map on the outside interface:

```
crypto map outside_map 20 set peer 172.16.1.1
crypto map outside_map 20 match address 100
crypto map outside_map 20 set transform-set myset
crypto map outside_map 20 set pfs
crypto map outside_map interface outside
```

NAT Exemption

Create an access list that defines the traffic to be exempted from the NAT checks. In this version, it appears similar to the access list that you defined for the traffic of interest:

```
access-list nonat line 1 extended permit ip 10.1.1.0 255.255.255.0
10.2.2.0 255.255.255.0
```

When multiple subnets are used, add another line to the same access list:

```
access-list nonat line 1 extended permit ip 10.3.3.0 255.255.255.0
10.4.4.0 255.255.255.0
```

The access list is used with the NAT, as shown here:

```
nat (inside) 0 access-list nonat
```

Note: The 'inside' here refers to the name of the inside interface on which the ASA receives the traffic that matches the access list.

Complete Sample Configuration

Here is the complete configuration for Site A:

```
crypto isakmp enable outside
crypto isakmp policy 10
authentication pre-share
encryption aes
hash sha group 2
lifetime 86400

tunnel-group 172.16.1.1 type ipsec-l2l
```

```

tunnel-group 172.16.1.1 ipsec-attributes
pre-shared-key cisco

access-list 100 extended permit ip 10.1.1.0 255.255.255.0
10.2.2.0 255.255.255.0
crypto ipsec transform-set myset esp-aes esp-sha-hmac

crypto map outside_map 20 set peer
crypto map outside_map 20 match address 100
crypto map outside_map 20 set transform-set myset
crypto map outside_map 20 set pfs
crypto map outside_map interface outside

access-list nonat line 1 extended permit ip 10.1.1.0 255.255.255.0
10.2.2.0 255.255.255.0

nat (inside) 0 access-list nonat

```

Group Policy

Group policies are used in order to define specific settings that apply to the tunnel. These policies are used in conjunction with the tunnel group.

The group policy can be defined as either internal, which means that the attributes are pulled from that which is defined on the ASA, or it can be defined as external, where the attributes are queried from an external server. This is the command that is used in order to define the group policy:

```
group-policy SITE_A internal
```

Note: You can define multiple attributes in the group policy. For a list of all possible attributes, refer to the [Configuring Group Policies](#) section of the Selected ASDM VPN Configuration Procedures for the Cisco ASA 5500 Series, version 5.2.

Group Policy Optional Attributes

The `vpn-tunnel-protocol` attribute determines the tunnel type to which these settings must be applied. In this example, IPsec is used:

```

vpn-tunnel-protocol ?
group-policy mode commands/options:
IPSec IP Security Protocol l2tp-ipsec L2TP using IPSec for security
svc SSL VPN Client
webvpn WebVPN

vpn-tunnel-protocol ipsec - Versions 8.2 and prior
vpn-tunnel-protocol ikev1 - Version 8.4 and later

```

You have the option to configure the tunnel so that it stays idle (no traffic) and does not go down. In order to configure this option, the `vpn-idle-timeout` attribute value must use minutes, or you can set the value to `none`, which means that the tunnel never goes down.

Here is an example:

```
group-policy SITE_A attributes
vpn-idle-timeout ?
group-policy mode commands/options:
<1-35791394> Number of minutes
none IPsec VPN: Disable timeout and allow an unlimited idle period;
```

The `default-group-policy` command under the general attributes of the tunnel group defines the group policy that is used in order to push certain policy settings for the tunnel that is established. The default settings for the options that you did not define in the group policy are taken from a global default group policy:

```
tunnel-group 172.16.1.1 general-attributes
default-group-policy SITE_A
```

Verify

Use the information that is provided in this section in order to verify that your configuration works properly.

ASDM

In order to view the tunnel status from the ASDM, navigate to `Monitoring > VPN`. This information is provided:

- The peer IP address
- The protocol that is used in order to build the tunnel
- The encryption algorithm that is used
- The time at which the tunnel came up and the up-time
- The number of packets that are received and transferred

Tip: Click `Refresh` in order to view the latest values, as the data does not update in real time.

The screenshot shows the Cisco ASA 5505 Management Interface. The left sidebar lists various device configurations like Firewall, Routing, and Services. The main pane displays the 'SSL VPN' session statistics. A table titled 'SSL VPN' shows the following data:

Type	Active	Cumulative	Peak Concurrent	Inactive
Site-to-Site (S2S)	1	1	41	1
HDx S (Hdcs)	1	1	41	1

Below the table, a message says: "To sort VPN sessions, right-click on the above table and select Table Sort Order from popup menu." There are buttons for 'Logout' and 'Ping'. The status bar at the bottom indicates "Data Refreshed Successfully" and "Last Updated: 4/30/15 9:45 AM UTC".

This screenshot shows the same ASA interface but with a different configuration selected in the sidebar. The main pane displays the 'IPsec Site-to-Site' session statistics. A table titled 'IPsec Site-to-Site' shows the following data:

Type	Active	Cumulative	Peak Concurrent	Inactive
IPsec Site-to-Site (S2S)	1	1	41	1

Below the table, a message says: "To sort IPsec sessions, right-click on the above table and select Table Sort Order from popup menu." There are buttons for 'Logout' and 'Ping'. The status bar at the bottom indicates "Data Refreshed Successfully" and "Last Updated: 4/30/15 9:45 AM UTC".

CLI

This section describes how to verify your configuration via the CLI.

Phase 1

Enter this command into the CLI in order to verify the Phase 1 configuration on the Site B (5515) side:

```

show crypto ikev1 sa

Active SA: 1
Rekey SA: 0 (A tunnel will report 1 Active and 1 Rekey SA during rekey)
Total IKE SA: 1

1 IKE Peer: 192.168.1.1
Type : L2L Role : initiator
Rekey : no State : MM_ACTIVE

```

Enter this command into the CLI in order to verify the Phase 1 configuration on the Site A (5510) side:

```

show crypto isakmp sa

Active SA: 1
Rekey SA: 0 (A tunnel will report 1 Active and 1 Rekey SA during rekey)
Total IKE SA: 1

1 IKE Peer: 172.16.1.1
Type : L2L Role : initiator
Rekey : no State : MM_ACTIVE

```

Phase 2

The `show crypto ipsec sa` command shows the IPsec SAs that are built between the peers. The encrypted tunnel is built between IP addresses 192.168.1.1 and 172.16.1.1 for the traffic that flows between the networks 10.1.1.0 and 10.2.2.0. You can see the two ESP SAs built for the inbound and outbound traffic. The Authentication Header (AH) is not used because there are no AH SAs.

Enter this command into the CLI in order to verify the Phase 2 configuration on the Site B (5515) side:

```

interface: FastEthernet0
Crypto map tag: outside_map, local addr. 172.16.1.1
  local ident (addr/mask/prot/port): (10.2.2.0/255.255.255.0/0/0)
  remote ident (addr/mask/prot/port): (10.1.1.0/255.255.255.0/0/0)
  current_peer: 192.168.1.1
  PERMIT, flags={origin_is_acl,}
#pkts encaps: 20, #pkts encrypt: 20, #pkts digest 20
#pkts decaps: 20, #pkts decrypt: 20, #pkts verify 20
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 0, #pkts compr. failed: 0,
#pkts decompress failed: 0, #send errors 0, #recv errors 0
  local crypto endpt.: 172.16.1.1, remote crypto endpt.: 172.16.1.1
path mtu 1500, media mtu 1500
current outbound spi: 3D3
inbound esp sas:
  spi: 0x136A010F(325714191)
    transform: esp-aes esp-sha-hmac ,
  in use settings ={Tunnel, }
  slot: 0, conn id: 3442, flow_id: 1443, crypto map: outside_map
    sa timing: remaining key lifetime (k/sec): (4608000/52)
IV size: 8 bytes

```

```

replay detection support: Y
inbound ah sas:
inbound pcp sas:
inbound pcp sas:
outbound esp sas:
spi: 0x3D3(979)
    transform: esp-aes esp-sha-hmac ,
in use settings ={Tunnel, }
slot: 0, conn id: 3443, flow_id: 1444, crypto map: outside_map
    sa timing: remaining key lifetime (k/sec): (4608000/52)
IV size: 8 bytes
replay detection support: Y
outbound ah sas:
outbound pcp sas

```

Enter this command into the CLI in order to verify the Phase 2 configuration on the Site A (5510) side:

```

interface: FastEthernet0
Crypto map tag: outside_map, local addr. 192.168.1.1
    local ident (addr/mask/prot/port): (10.1.1.0/255.255.255.0/0/0)
remote ident (addr/mask/prot/port): (10.2.2.0/255.255.255.0/0/0)
    current_peer: 172.16.1.1
PERMIT, flags={origin_is_acl,}
    #pkts encaps: 20, #pkts encrypt: 20, #pkts digest 20
#pkts decaps: 20, #pkts decrypt: 20, #pkts verify 20
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 0, #pkts compr. failed: 0,
#pkts decompress failed: 0, #send errors 0, #recv errors 0
    local crypto endpt.: 192.168.1.1, remote crypto endpt.: 172.16.1.1
path mtu 1500, media mtu 1500
current outbound spi: 3D3
inbound esp sas:
spi: 0x136A010F(325714191)
    transform: esp-aes esp-sha-hmac ,
in use settings ={Tunnel, }
slot: 0, conn id: 3442, flow_id: 1443, crypto map: outside_map
    sa timing: remaining key lifetime (k/sec): (4608000/52)
IV size: 8 bytes
replay detection support: Y
inbound ah sas:
inbound pcp sas:
inbound pcp sas:
outbound esp sas:
spi: 0x3D3(979)
    transform: esp-aes esp-sha-hmac ,
in use settings ={Tunnel, }
slot: 0, conn id: 3443, flow_id: 1444, crypto map: outside_map
    sa timing: remaining key lifetime (k/sec): (4608000/52)
IV size: 8 bytes
replay detection support: Y
outbound ah sas:
outbound pcp sas

```

Troubleshoot

Use the information that is provided in this section in order to troubleshoot configuration issues.

ASA Versions 8.4 and Later

Enter these debug commands in order to determine the location of the tunnel failure:

- debug crypto ikev1 127 (Phase 1)
- debug crypto ipsec 127 (Phase 2)

Here is a complete example of debug output:

```
IPSEC(crypto_map_check)-3: Looking for crypto map matching 5-tuple: Prot=1,
saddr=10.2.2.1, sport=19038, daddr=10.1.1.1, dport=19038
IPSEC(crypto_map_check)-3: Checking crypto map outside_map 20: matched.
Feb 13 23:48:56 [IKEv1 DEBUG]Pitcher: received a key acquire message, spi 0x0
IPSEC(crypto_map_check)-3: Looking for crypto map matching 5-tuple: Prot=1,
saddr=10.2.2.1, sport=19038, daddr=10.1.1.1, dport=19038
IPSEC(crypto_map_check)-3: Checking crypto map outside_map 20: matched.
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, IKE Initiator: New Phase 1, Intf NP
Identity Ifc, IKE Peer 192.168.1.1 local Proxy Address 10.2.2.0, remote Proxy
Address 10.1.1.0, Crypto map (outside_map) Feb 13 23:48:56 [IKEv1 DEBUG]IP =
192.168.1.1, constructing ISAKMP SA payload Feb 13 23:48:56 [IKEv1 DEBUG]IP =
192.168.1.1, constructing NAT-Traversal VID ver 02 payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, constructing NAT-Traversal VID
ver 03 payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, constructing NAT-Traversal VID
ver RFC payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, constructing Fragmentation VID +
extended capabilities payload
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, IKE_DECODE SENDING Message (msgid=0)
with payloads : HDR + SA (1) + VENDOR (13) + VENDOR (13) + VENDOR (13) + VENDOR
(13) + NONE (0) total length : 172
Feb 13 23:48:56 [IKEv1]IKE Receiver: Packet received on 172.16.1.1:500
from 192.168.1.1:500
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, IKE_DECODE RECEIVED Message (msgid=0)
with payloads : HDR + SA (1) + VENDOR (13) + VENDOR (13) + NONE (0) total
length : 132
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, processing SA payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Oakley proposal is acceptable
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, processing VID payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Received NAT-Traversal ver 02 VID
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, processing VID payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Received Fragmentation VID
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, IKE Peer included IKE
fragmentation capability flags: Main Mode: True Aggressive Mode: True
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, constructing ke payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, constructing nonce payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, constructing Cisco Unity
VID payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, constructing xauth V6
VID payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Send IOS VID
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Constructing ASA spoofing IOS
Vendor ID payload (version: 1.0.0, capabilities: 20000001)
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, constructing VID payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Send Altiga/Cisco VPN3000/Cisco
ASA GW VID
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, constructing NAT-Discovery payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, computing NAT Discovery hash
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, constructing NAT-Discovery payload
```

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Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, computing NAT Discovery hash
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, IKE_DECODE SENDING Message (msgid=0)
with payloads : HDR + KE (4) + NONCE (10) + VENDOR (13) + VENDOR (13) + VENDOR
(13) + VENDOR (13) + NAT-D (130) + NAT-D (130) + NONE (0) total length : 304
Feb 13 23:48:56 [IKEv1]IKE Receiver: Packet received on 172.16.1.1:500
from 192.168.1.1:500
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, IKE_DECODE RECEIVED Message (msgid=0)
with payloads : HDR + KE (4) + NONCE (10) + VENDOR (13) + VENDOR (13) + VENDOR
(13) + VENDOR (13) + NAT-D (130) + NAT-D (130) + NONE (0) total length : 304
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, processing ke payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, processing ISA_KE payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, processing nonce payload
Feb 13 23:48:56 [IKEv1 DEBUG]?IP = 192.168.1.1, processing VID payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Received Cisco Unity client VID
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, processing VID payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Received xauth V6 VID
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, processing VID payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Processing VPN3000/ASA spoofing
IOS Vendor ID payload (version: 1.0.0, capabilities: 20000001)
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, processing VID payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Received Altiga/Cisco
VPN3000/Cisco ASA GW VID
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, processing NAT-Discovery payload
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, computing NAT Discovery hash
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, processing NAT-Discovery payload
!
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, computing NAT Discovery hash
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, Connection landed on tunnel_group
192.168.1.1
Feb 13 23:48:56 [IKEv1 DEBUG]!Group = 192.168.1.1, IP = 192.168.1.1, Generating
keys for Initiator...
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, constructing
ID payload
Feb 13 23:48:56 [IKEv1 DEBUG]!Group = 192.168.1.1, IP = 192.168.1.1, constructing
hash payload
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, Computing
hash for ISAKMP
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Constructing IOS keep alive
payload: proposal=32767/32767 sec.
!
Success rate is 80 percent (4/5), round-trip min/avg/max = 1/3/10 ms
ciscoasa# Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
constructing dpd vid payload
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, IKE_DECODE SENDING Message (msgid=0)
with payloads : HDR + ID (5) + HASH (8) + IOS KEEPALIVE (128) + VENDOR (13) +
NONE (0) total length : 96
Feb 13 23:48:56 [IKEv1]Group = 192.168.1.1, IP = 192.168.1.1, Automatic NAT
Detection Status: Remote end is NOT behind a NAT device This end is NOT behind
a NAT device
Feb 13 23:48:56 [IKEv1]IKE Receiver: Packet received on 172.16.1.1:500
from 192.168.1.1:500
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, IKE_DECODE RECEIVED Message (msgid=0)
with payloads : HDR + ID (5) + HASH (8) + IOS KEEPALIVE (128) + VENDOR (13) +
NONE (0) total length : 96
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, processing
ID payload
Feb 13 23:48:56 [IKEv1 DECODE]Group = 192.168.1.1, IP = 192.168.1.1,
ID_IPV4_ADDR ID received 192.168.1.1
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
processing hash payload
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, Computing
hash for ISAKMP
Feb 13 23:48:56 [IKEv1 DEBUG]IP = 192.168.1.1, Processing IOS keep alive payload:
proposal=32767/32767 sec.
```

```
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, processing
VID payload
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, Received
DPD VID
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, Connection landed on tunnel_group
192.168.1.1
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, Oakley
begin quick mode
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, IKE
Initiator starting QM: msg id = 4c073b21
Feb 13 23:48:56 [IKEv1]Group = 192.168.1.1, IP = 192.168.1.1, PHASE 1 COMPLETED
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, Keep-alive type for this connection: DPD
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, Starting P1
rekey timer: 73440 seconds.
IPSEC: New embryonic SA created @ 0x75298588,
SCB: 0x75C34F18,
Direction: inbound
SPI : 0x03FC9DB7
Session ID: 0x000004000
VPIF num : 0x00000002
Tunnel type: 121
Protocol : esp
Lifetime : 240 seconds
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
IKE got SPI from key engine: SPI = 0x03fc9db7
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
oakley constucting quick mode
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
constructing blank hash payload
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
constructing IPSec SA payload
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
constructing IPSec nonce payload
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
constructing proxy ID
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
Transmitting Proxy Id:
Local subnet: 10.2.2.0 mask 255.255.255.0 Protocol 0 Port 0
Remote subnet: 10.1.1.0 Mask 255.255.255.0 Protocol 0 Port 0
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
IKE Initiator sending Initial Contact
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1,
IP = 192.168.1.1, constructing qm hash payload
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1,
IP = 192.168.1.1, IKE Initiator sending 1st QM pkt: msg id = 4c073b21
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, IKE_DECODE SENDING Message (msgid=4c073b21)
with payloads : HDR + HASH (8) + SA (1) + NONCE (10) + ID (5) + ID (5) +
NOTIFY (11) + NONE (0) total length : 200
Feb 13 23:48:56 [IKEv1]IKE Receiver: Packet received on 172.16.1.1:500
from 192.168.1.1:500
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, IKE_DECODE RECEIVED Message (msgid=4c073b21)
with payloads : HDR + HASH (8) + SA (1) + NONCE (10) + ID (5) + ID (5) + NONE (0)
total length : 172
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
processing hash payload
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
processing SA payload
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
processing nonce payload
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
processing ID payload
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
ID_IPV4_ADDR_SUBNET ID received--10.2.2.0--255.255.255.0
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
```

```
processing ID payload
Feb 13 23:48:56 [IKEv1 DECODE]Group = 192.168.1.1, IP = 192.168.1.1,
ID_IPV4_ADDR_SUBNET ID received--10.1.1.0--255.255.255.0
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
loading all IPSEC SAs
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
Generating Quick Mode Key!
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
NP encrypt rule look up for crypto map outside_map 20 matching ACL
100: returned cs_id=6ef246d0; encrypt_rule=752972d0;
tunnelFlow_rule=75ac8020
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1,
Generating Quick Mode Key!
IPSEC: New embryonic SA created @ 0x6f0e03f0,
SCB: 0x75B6DD00,
Direction: outbound
SPI : 0x1BA0C55C
Session ID: 0x00004000
VPIF num : 0x00000002
Tunnel type: 121
Protocol : esp
Lifetime : 240 seconds
IPSEC: Completed host ODSA update, SPI 0x1BA0C55C
IPSEC: Creating outbound VPN context, SPI 0x1BA0C55C
Flags: 0x00000005
SA : 0x6f0e03f0
SPI : 0x1BA0C55C
MTU : 1500 bytes
VCID : 0x00000000
Peer : 0x00000000
SCB : 0xB47D387
Channel: 0x6ef0a5c0
IPSEC: Completed outbound VPN context, SPI 0x1BA0C55C
VPN handle: 0x0000f614
IPSEC: New outbound encrypt rule, SPI 0x1BA0C55C
Src addr: 10.2.2.0
Src mask: 255.255.255.0
Dst addr: 10.1.1.0
Dst mask: 255.255.255.0
Src ports
Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
Lower: 0
Op : ignore
Protocol: 0
Use protocol: false
SPI: 0x00000000
Use SPI: false
IPSEC: Completed outbound encrypt rule, SPI 0x1BA0C55C
Rule ID: 0x74e1c558
IPSEC: New outbound permit rule, SPI 0x1BA0C55C
Src addr: 172.16.1.1
Src mask: 255.255.255.255
Dst addr: 192.168.1.1
Dst mask: 255.255.255.255
Src ports
Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
```

Lower: 0
Op : ignore
Protocol: 50
Use protocol: true
SPI: 0x1BA0C55C
Use SPI: true
IPSEC: Completed outbound permit rule, SPI 0x1BA0C55C
Rule ID: 0x6f0dec80
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, NP encrypt rule look up for crypto map outside_map 20 matching ACL 100: returned cs_id=6ef246d0; encrypt_rule=752972d0; tunnelFlow_rule=75ac8020
Feb 13 23:48:56 [IKEv1]Group = 192.168.1.1, IP = 192.168.1.1, Security negotiation complete for LAN-to-LAN Group (192.168.1.1) Initiator, Inbound SPI = 0x03fc9db7, Outbound SPI = 0x1ba0c55c
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, oakley constructing final quick mode
Feb 13 23:48:56 [IKEv1 DECODE]Group = 192.168.1.1, IP = 192.168.1.1, IKE Initiator sending 3rd QM pkt: msg id = 4c073b21
Feb 13 23:48:56 [IKEv1]IP = 192.168.1.1, IKE_DECODE SENDING Message (msgid=4c073b21) with payloads : HDR + HASH (8) + NONE (0) total length : 76
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, IKE got a KEY_ADD msg for SA: SPI = 0x1ba0c55c
IPSEC: New embryonic SA created @ 0x75298588,
SCB: 0x75C34F18,
Direction: inbound
SPI : 0x03FC9DB7
Session ID: 0x00004000
VPIF num : 0x00000002
Tunnel type: l2l
Protocol : esp
Lifetime : 240 seconds
IPSEC: Completed host IBSA update, SPI 0x03FC9DB7
IPSEC: Creating inbound VPN context, SPI 0x03FC9DB7
Flags: 0x00000006
SA : 0x75298588
SPI : 0x03FC9DB7
MTU : 0 bytes
VCID : 0x00000000
Peer : 0x0000F614
SCB : 0xB4707C7
Channel: 0x6ef0a5c0
IPSEC: Completed inbound VPN context, SPI 0x03FC9DB7
VPN handle: 0x00011f6c
IPSEC: Updating outbound VPN context 0x0000F614, SPI 0x1BA0C55C
Flags: 0x00000005
SA : 0x6f0e03f0
SPI : 0x1BA0C55C
MTU : 1500 bytes
VCID : 0x00000000
Peer : 0x00011F6C
SCB : 0xB47D387
Channel: 0x6ef0a5c0
IPSEC: Completed outbound VPN context, SPI 0x1BA0C55C
VPN handle: 0x0000f614
IPSEC: Completed outbound inner rule, SPI 0x1BA0C55C
Rule ID: 0x74e1c558
IPSEC: Completed outbound outer SPD rule, SPI 0x1BA0C55C
Rule ID: 0x6f0dec80
IPSEC: New inbound tunnel flow rule, SPI 0x03FC9DB7
Src addr: 10.1.1.0
Src mask: 255.255.255.0
Dst addr: 10.2.2.0
Dst mask: 255.255.255.0
Src ports

```

Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
Lower: 0
Op : ignore
Protocol: 0
Use protocol: false
SPI: 0x00000000
Use SPI: false
IPSEC: Completed inbound tunnel flow rule, SPI 0x03FC9DB7
Rule ID: 0x74e1b4a0
IPSEC: New inbound decrypt rule, SPI 0x03FC9DB7
Src addr: 192.168.1.1
Src mask: 255.255.255.255
Dst addr: 172.16.1.1
Dst mask: 255.255.255.255
Src ports
Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
Lower: 0
Op : ignore
Protocol: 50
Use protocol: true
SPI: 0x03FC9DB7
Use SPI: true
IPSEC: Completed inbound decrypt rule, SPI 0x03FC9DB7
Rule ID: 0x6f0de830
IPSEC: New inbound permit rule, SPI 0x03FC9DB7
Src addr: 192.168.1.1
Src mask: 255.255.255.255
Dst addr: 172.16.1.1
Dst mask: 255.255.255.255
Src ports
Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
Lower: 0
Op : ignore
Protocol: 50
Use protocol: true
SPI: 0x03FC9DB7
Use SPI: true
IPSEC: Completed inbound permit rule, SPI 0x03FC9DB7
Rule ID: 0x6f0de8d8
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, Pitcher:
received KEY_UPDATE, spi 0x3fc9db7
Feb 13 23:48:56 [IKEv1 DEBUG]Group = 192.168.1.1, IP = 192.168.1.1, Starting
P2 rekey timer: 24480 seconds.
Feb 13 23:48:56 [IKEv1]Group = 192.168.1.1, IP = 192.168.1.1, PHASE 2
COMPLETED (msgid=4c073b21)

```

ASA Versions 8.3 and Earlier

Enter these debug commands in order to determine the location of the tunnel failure:

- debug crypto isakmp 127 (Phase 1)
- debug crypto ipsec 127 (Phase 2)

Here is a complete example of debug output:

```

Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, IKE_DECODE RECEIVED Message (msgid=0) with
payloads : HDR + SA (1) + VENDOR (13) + VENDOR (13) + VENDOR (13) + VENDOR (13) +
NONE (0) total length : 172
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing SA payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Oakley proposal is acceptable
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Received NAT-Traversal ver 02 VID
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Received NAT-Traversal ver 03 VID
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Received NAT-Traversal RFC VID
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Received Fragmentation VID
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, IKE Peer included IKE fragmentation
capability flags: Main Mode: True Aggressive Mode: True
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing IKE SA payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, IKE SA Proposal # 1, Transform # 1
acceptable Matches global IKE entry # 1
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, constructing ISAKMP SA payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, constructing NAT-Traversal VID ver
02 payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, constructing Fragmentation VID +
extended capabilities payload
Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, IKE_DECODE SENDING Message (msgid=0) with
payloads : HDR + SA (1) + VENDOR (13) + VENDOR (13) + NONE (0) total length : 132
Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, IKE_DECODE RECEIVED Message (msgid=0) with
payloads : HDR + KE (4) + NONCE (10) + VENDOR (13) + VENDOR (13) + VENDOR (13) +
VENDOR (13) + NAT-D (130) + NAT-D (130) + NONE (0) total length : 304
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing ke payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing ISA_KE payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing nonce payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Received Cisco Unity client VID
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Received xauth V6 VID
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Processing VPN3000/ASA spoofing IOS
Vendor ID payload (version: 1.0.0, capabilities: 20000001)
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Received Altiga/Cisco VPN3000/Cisco
ASA GW VID
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing NAT-Discovery payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, computing NAT Discovery hash
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, processing NAT-Discovery payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, computing NAT Discovery hash
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, constructing ke payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, constructing nonce payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, constructing Cisco Unity VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, constructing xauth V6 VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Send IOS VID
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Constructing ASA spoofing IOS Vendor
ID payload (version: 1.0.0, capabilities: 20000001)
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, constructing VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Send Altiga/Cisco VPN3000/Cisco
ASA GW VID
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, constructing NAT-Discovery payload

```

```
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, computing NAT Discovery hash
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, constructing NAT-Discovery payload
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, computing NAT Discovery hash
Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, Connection landed on tunnel_group 172.16.1.1
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, Generating keys
for Responder...
Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, IKE_DECODE SENDING Message (msgid=0) with
payloads : HDR + KE (4) + NONCE (10) + VENDOR (13) + VENDOR (13) + VENDOR (13) +
VENDOR (13) + NAT-D (130) + NAT-D (130) + NONE (0) total length : 304
Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, IKE_DECODE RECEIVED Message (msgid=0) with
payloads : HDR + ID (5) + HASH (8) + IOS KEEPALIVE (128) + VENDOR (13) + NONE (0)
total length : 96
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, processing
ID payload
Feb 13 04:19:53 [IKEv1 DECODE]: Group = 172.16.1.1, IP = 172.16.1.1, ID_IPV4_ADDR
ID received 172.16.1.1
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, processing
hash payload
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, Computing
hash for ISAKMP
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Processing IOS keep alive payload:
proposal=32767/32767 sec.
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, processing
VID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, Received DPD VID
Feb 13 04:19:53 [IKEv1]: Group = 172.16.1.1, IP = 172.16.1.1, Automatic NAT Detection
Status: Remote end is NOT behind a NAT device This end is NOT behind
a NAT device
Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, Connection landed on tunnel_group 172.16.1.1
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1,
constructing ID payload
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1,
constructing hash payload
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1,
Computing hash for ISAKMP
Feb 13 04:19:53 [IKEv1 DEBUG]: IP = 172.16.1.1, Constructing IOS keep alive payload:
proposal=32767/32767 sec.
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1,
constructing dpd vid payload
Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, IKE_DECODE SENDING Message (msgid=0) with
payloads : HDR + ID (5) + HASH (8) + IOS KEEPALIVE (128) + VENDOR (13) + NONE (0)
total length : 96
Feb 13 04:19:53 [IKEv1]: Group = 172.16.1.1, IP = 172.16.1.1, PHASE 1 COMPLETED
Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, Keep-alive type for this connection: DPD
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, Starting P1
rekey timer: 82080 seconds.
Feb 13 04:19:53 [IKEv1 DECODE]: IP = 172.16.1.1, IKE Responder starting QM: msg id =
4c073b21
Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, IKE_DECODE RECEIVED Message
(msgid=4c073b21) with payloads : HDR + HASH (8) + SA (1) + NONCE (10) + ID (5) +
ID (5) + NOTIFY (11) + NONE (0) total length : 200
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1,
processing hash payload
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1,
processing SA payload
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1,
processing nonce payload
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1,
processing ID payload
Feb 13 04:19:53 [IKEv1 DECODE]: Group = 172.16.1.1, IP = 172.16.1.1,
ID_IPV4_ADDR_SUBNET ID received--10.2.2.0--255.255.255.0
Feb 13 04:19:53 [IKEv1]: Group = 172.16.1.1, IP = 172.16.1.1, Received remote IP
Proxy Subnet data in ID Payload: Address 10.2.2.0, Mask 255.255.255.0,
Protocol 0, Port 0
```

```
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1,  
processing ID payload  
Feb 13 04:19:53 [IKEv1 DECODE]: Group = 172.16.1.1, IP = 172.16.1.1,  
ID_IPV4_ADDR_SUBNET ID received--10.1.1.0--255.255.255.0  
Feb 13 04:19:53 [IKEv1]: Group = 172.16.1.1, IP = 172.16.1.1, Received local IP  
Proxy Subnet data in ID Payload: Address 10.1.1.0, Mask 255.255.255.0,  
Protocol 0, Port 0  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, processing  
notify payload  
Feb 13 04:19:53 [IKEv1]: Group = 172.16.1.1, IP = 172.16.1.1, QM IsRekeyed old sa  
not found by addr  
Feb 13 04:19:53 [IKEv1]: Group = 172.16.1.1, IP = 172.16.1.1, Static Crypto Map  
check, checking map = outside_map, seq = 20...  
Feb 13 04:19:53 [IKEv1]: Group = 172.16.1.1, IP = 172.16.1.1, Static Crypto Map  
check, map outside_map, seq = 20 is a successful match  
Feb 13 04:19:53 [IKEv1]: Group = 172.16.1.1, IP = 172.16.1.1, IKE Remote Peer  
configured for crypto map: outside_map  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, processing  
IPSec SA payload  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, IPSec SA  
Proposal # 1, Transform # 1 acceptable Matches global IPSec SA entry # 20  
Feb 13 04:19:53 [IKEv1]: Group = 172.16.1.1, IP = 172.16.1.1, IKE: requesting SPI!  
IPSEC: New embryonic SA created @ 0xAB5C63A8,  
SCB: 0xABD54E98,  
Direction: inbound  
SPI : 0x1BA0C55C  
Session ID: 0x00004000  
VPIF num : 0x00000001  
Tunnel type: 121  
Protocol : esp  
Lifetime : 240 seconds  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, IKE got SPI  
from key engine: SPI = 0x1ba0c55c  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, oakley  
constructing quick mode  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, constructing  
blank hash payload  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, constructing  
IPSec SA payload  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, constructing  
IPSec nonce payload  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, constructing  
proxy ID  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, Transmitting  
Proxy Id:  
Remote subnet: 10.2.2.0 Mask 255.255.255.0 Protocol 0 Port 0  
Local subnet: 10.1.1.0 mask 255.255.255.0 Protocol 0 Port 0  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, constructing  
qm hash payload  
Feb 13 04:19:53 [IKEv1 DECODE]: Group = 172.16.1.1, IP = 172.16.1.1, IKE Responder  
sending 2nd QM pkt: msg id = 4c073b21  
Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, IKE_DECODE SENDING Message  
(msgid=4c073b21) with payloads : HDR + HASH (8) + SA (1) + NONCE (10) + ID (5) +  
ID (5) + NONE (0) total length : 172  
Feb 13 04:19:53 [IKEv1]: IP = 172.16.1.1, IKE_DECODE RECEIVED Message  
(msgid=4c073b21) with payloads : HDR + HASH (8) + NONE (0) total length : 52  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, processing  
hash payload  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, loading all  
IPSEC SAs  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, Generating  
Quick Mode Key!  
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, NP encrypt  
rule look up for crypto map outside_map 20 matching ACL 100: returned
```

```
cs_id=ab9302f0; rule=ab9309b0
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, Generating
Quick Mode Key!
IPSEC: New embryonic SA created @ 0xAB570B58,
SCB: 0xABD55378,
Direction: outbound
SPI : 0x03FC9DB7
Session ID: 0x00004000
VPIF num : 0x00000001
Tunnel type: 121
Protocol : esp
Lifetime : 240 seconds
IPSEC: Completed host ODSA update, SPI 0x03FC9DB7
IPSEC: Creating outbound VPN context, SPI 0x03FC9DB7
Flags: 0x00000005
SA : 0xAB570B58
SPI : 0x03FC9DB7
MTU : 1500 bytes
VCID : 0x00000000
Peer : 0x00000000
SCB : 0x01512E71
Channel: 0xA7A98400
IPSEC: Completed outbound VPN context, SPI 0x03FC9DB7
VPN handle: 0x0000F99C
IPSEC: New outbound encrypt rule, SPI 0x03FC9DB7
Src addr: 10.1.1.0
Src mask: 255.255.255.0
Dst addr: 10.2.2.0
Dst mask: 255.255.255.0
Src ports
Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
Lower: 0
Op : ignore
Protocol: 0
Use protocol: false
SPI: 0x00000000
Use SPI: false
IPSEC: Completed outbound encrypt rule, SPI 0x03FC9DB7
Rule ID: 0xABD557B0
IPSEC: New outbound permit rule, SPI 0x03FC9DB7
Src addr: 192.168.1.1
Src mask: 255.255.255.255
Dst addr: 172.16.1.1
Dst mask: 255.255.255.255
Src ports
Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
Lower: 0
Op : ignore
Protocol: 50
Use protocol: true
SPI: 0x03FC9DB7
Use SPI: true
IPSEC: Completed outbound permit rule, SPI 0x03FC9DB7
Rule ID: 0xABD55848
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, NP encrypt rule
look up for crypto map outside_map 20 matching ACL 100: returned cs_id=ab9302f0;
```

rule=ab9309b0
Feb 13 04:19:53 [IKEv1]: Group = 172.16.1.1, IP = 172.16.1.1, Security negotiation complete for LAN-to-LAN Group (172.16.1.1) Responder, Inbound SPI = 0x1ba0c55c, Outbound SPI = 0x03fc9db7
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, IKE got a KEY_ADD msg for SA: SPI = 0x03fc9db7
IPSEC: Completed host IBSA update, SPI 0x1BA0C55C
IPSEC: Creating inbound VPN context, SPI 0x1BA0C55C
Flags: 0x00000006
SA : 0xAB5C63A8
SPI : 0x1BA0C55C
MTU : 0 bytes
VCID : 0x00000000
Peer : 0x0000F99C
SCB : 0x0150B419
Channel: 0xA7A98400
IPSEC: Completed inbound VPN context, SPI 0x1BA0C55C
VPN handle: 0x0001169C
IPSEC: Updating outbound VPN context 0x0000F99C, SPI 0x03FC9DB7
Flags: 0x00000005
SA : 0xAB570B58
SPI : 0x03FC9DB7
MTU : 1500 bytes
VCID : 0x00000000
Peer : 0x0001169C
SCB : 0x01512E71
Channel: 0xA7A98400
IPSEC: Completed outbound VPN context, SPI 0x03FC9DB7
VPN handle: 0x0000F99C
IPSEC: Completed outbound inner rule, SPI 0x03FC9DB7
Rule ID: 0xABD557B0
IPSEC: Completed outbound outer SPD rule, SPI 0x03FC9DB7
Rule ID: 0xABD55848
IPSEC: New inbound tunnel flow rule, SPI 0x1BA0C55C
Src addr: 10.2.2.0
Src mask: 255.255.255.0
Dst addr: 10.1.1.0
Dst mask: 255.255.255.0
Src ports
Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
Lower: 0
Op : ignore
Protocol: 0
Use protocol: false
SPI: 0x00000000
Use SPI: false
IPSEC: Completed inbound tunnel flow rule, SPI 0x1BA0C55C
Rule ID: 0xAB8D98A8
IPSEC: New inbound decrypt rule, SPI 0x1BA0C55C
Src addr: 172.16.1.1
Src mask: 255.255.255.255
Dst addr: 192.168.1.1
Dst mask: 255.255.255.255
Src ports
Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
Lower: 0

```
Op : ignore
Protocol: 50
Use protocol: true
SPI: 0x1BA0C55C
Use SPI: true
IPSEC: Completed inbound decrypt rule, SPI 0x1BA0C55C
Rule ID: 0xABD55CB0
IPSEC: New inbound permit rule, SPI 0x1BA0C55C
Src addr: 172.16.1.1
Src mask: 255.255.255.255
Dst addr: 192.168.1.1
Dst mask: 255.255.255.255
Src ports
Upper: 0
Lower: 0
Op : ignore
Dst ports
Upper: 0
Lower: 0
Op : ignore
Protocol: 50
Use protocol: true
SPI: 0x1BA0C55C
Use SPI: true
IPSEC: Completed inbound permit rule, SPI 0x1BA0C55C
Rule ID: 0xABD55D48
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, Pitcher: received
KEY_UPDATE, spi 0x1ba0c55c
Feb 13 04:19:53 [IKEv1 DEBUG]: Group = 172.16.1.1, IP = 172.16.1.1, Starting P2 rekey
timer: 27360 seconds.
Feb 13 04:19:53 [IKEv1]: Group = 172.16.1.1, IP = 172.16.1.1, PHASE 2 COMPLETED
(msgid=4c073b21)
```