

# Configuring Multiple VPN Clients to a Cisco VPN 3000 Concentrator Using NAT–Traversal

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## Introduction

This document shows how to configure a Network Address Translation Traversal (NAT–T) between Cisco VPN Clients located behind a Port Address Translation (PAT)/NAT device and a remote Cisco VPN Concentrator. NAT–T can be used between VPN Clients and a VPN Concentrator, or between concentrators behind a NAT/PAT device. NAT–T can also be used when connecting to a Cisco router running Cisco IOS<sup>®</sup> Software and PIX Firewall; however, these configurations are not discussed in this document.

## Prerequisites

### Requirements

There are no specific requirements for this document.

### Components Used

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

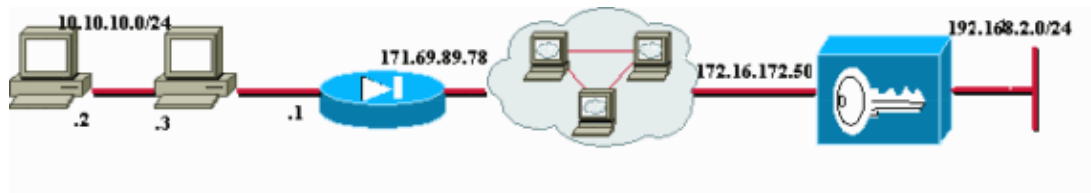
- Cisco VPN 3000 Concentrator 4.0(1)B
- Cisco VPN Clients: 3.6.1 and 4.0(3) Rel
- Cisco PIX Firewall (PAT device) version 6.3(3)

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, make sure

that you understand the potential impact of any command.

## Network Diagram

This document uses this network setup:



There are VPN Clients on the two PCs (10.10.10.2 and 10.10.10.3) behind the PIX Firewall. The PIX in this scenario is simply being used as a PAT device, and conducts PAT on these addresses to 171.69.89.78. Any device that is able to PAT multiple internal connections can be used here. The VPN 3000 Concentrator public address is 172.16.172.50. The following example demonstrates how to configure the clients and the concentrator so that NAT-T is used during the IKE negotiation.

## Conventions

For more information on document conventions, refer to the Cisco Technical Tips Conventions.

## Background Information

After NAT-T negotiation is completed, the initiator can use any random User Datagram Protocol (UDP) port (Y). The destination port must be UDP 4500, as in UDP (Y, 4500), and the responder uses UDP (4500, Y). All subsequent Internet Key Exchange (IKE) negotiations and rekeying are done on these ports. During NAT-T negotiations, both the IPsec peers negotiate the UDP ports and also determine if they are behind a NAT/PAT device. The IPsec peer behind the NAT/PAT device sends the IPsec-over-UDP NAT keepalive packet to the IPsec peer that is not behind a NAT/PAT device. NAT-T encapsulates IPsec traffic in UDP datagrams, using port 4500, thereby providing NAT devices with port information. NAT-T autodetects any NAT devices, and only encapsulates IPsec traffic when necessary.

When implementing IPsec over NAT translation on the VPN 3000 Concentrator, IPsec over TCP takes first precedence, then NAT-T, and then IPsec over UDP. By default, NAT-T is turned off. You need to enable NAT-T using a checkbox located in NAT Transparency, under the IPsec configuration located under Tunneling Protocols. Also, for a LAN-to-LAN tunnel, you have to turn NAT-T on under the LAN-to-LAN configurations IPsec NAT-T field.

To use NAT-T, you must complete these steps:

1. Open port 4500 on any firewall you have configured in front of a VPN Concentrator.
2. Reconfigure previous IPsec/UDP configurations using port 4500 to a different port.
3. Choose **Configuration > Interfaces > Ethernet**, and choose the second or third options for the Fragmentation Policy parameter.

These options allow traffic to travel across NAT devices that do not support IP fragmentation; they do not impede the operation of NAT devices that do support IP fragmentation.

## Configure the PIX

The relevant configuration output for the PIX is shown here:

## PIX Firewall

```
pix501(config)#
: Saved
:
PIX Version 6.3(3)
nameif ethernet0 outside security0
nameif ethernet1 inside security100
ip address outside 171.69.89.78 255.255.254.0
ip address inside 10.10.10.1 255.255.255.0
...
global (outside) 1 interface
nat (inside) 1 0.0.0.0 0.0.0.0 0 0
...
route outside 0.0.0.0 0.0.0.0 171.69.88.1 1
http server enable
http 10.10.10.2 255.255.255.255 inside
...
Cryptochecksum:6990adf6e0e2800ed409ae7364eccc9d
: end

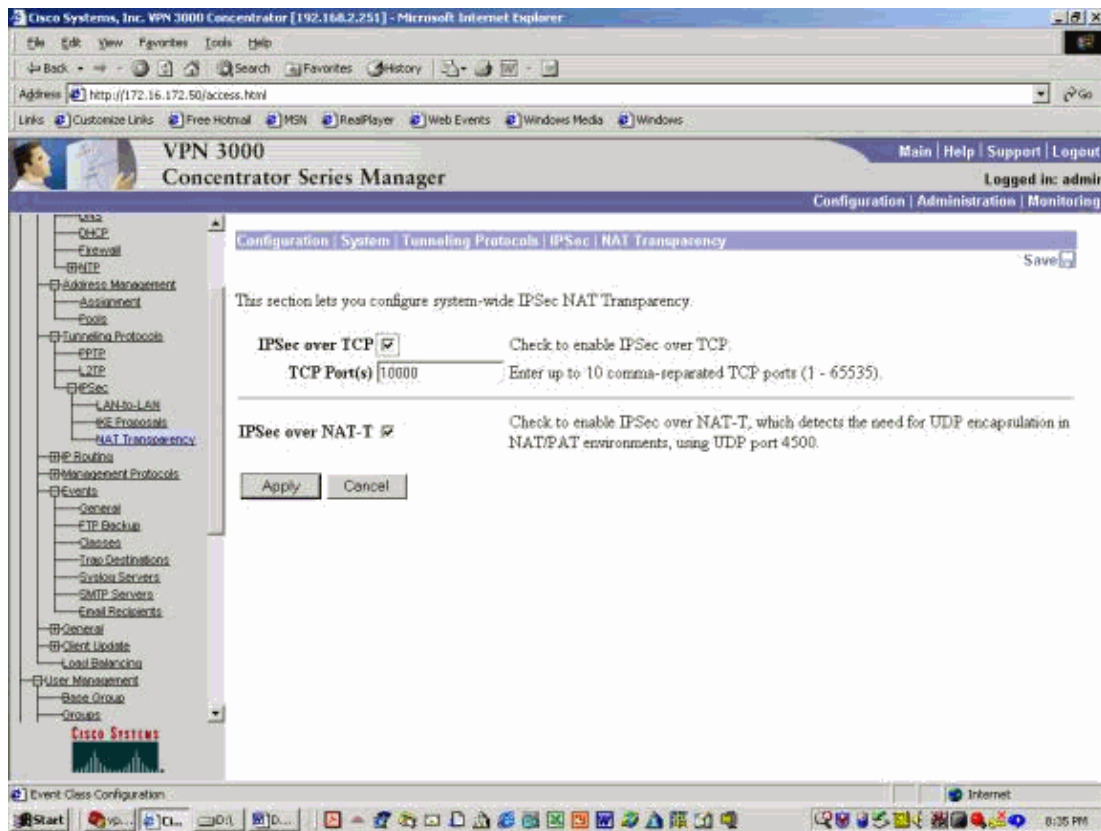
[OK]
```

## Configure the VPN 3000 Concentrator

This sample configuration assumes that the VPN 3000 Concentrator has already been configured for IP connectivity, and that standard (non-NAT-T) VPN connections have already been established.

To enable NAT-T on a VPN 3000 Concentrator release earlier than version 4.1, choose **Configurations > System > Tunneling protocols > IPSec > NAT Transparency**, then check the **IPSec over NAT-T** option on the concentrator as shown in the example below. The NAT-T option is off by default.

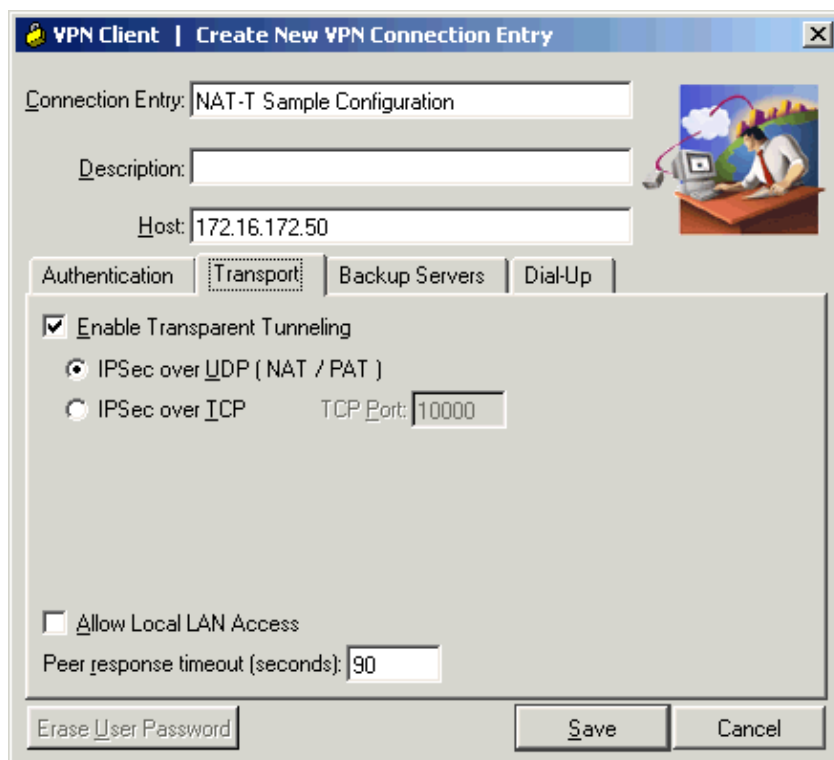
To enable NAT-T on a VPN Concentrator version 4.1 and later, navigate to the same NAT Transparency window by choosing **Configuration > Tunneling and Security > IPSec > NAT Transparency**.



## Configure the VPN Client

To use NAT-T, check **Enable Transparent Tunneling**. The following example demonstrates this on a VPN Client later than version 4.0.

**Note:** The same configuration option is available on VPN Client version 3.x.



# Verify

This section provides information you can use to confirm your configuration is working properly.

Certain **show** commands are supported by the Output Interpreter Tool (registered customers only) , which allows you to view an analysis of **show** command output.

Additional troubleshooting information can be found at IP Security Troubleshooting – Understanding and Using debug Commands.

## Verify the PIX Configuration

These commands are used to verify the PIX configuration:

- **show xlate** As shown in the output below, the PIX is using different source ports for the two VPN Clients, but the destination ports are the same. All IPsec data packets are wrapped using UDP port 4500. Subsequent rekeying negotiations also use the same source and destination ports.

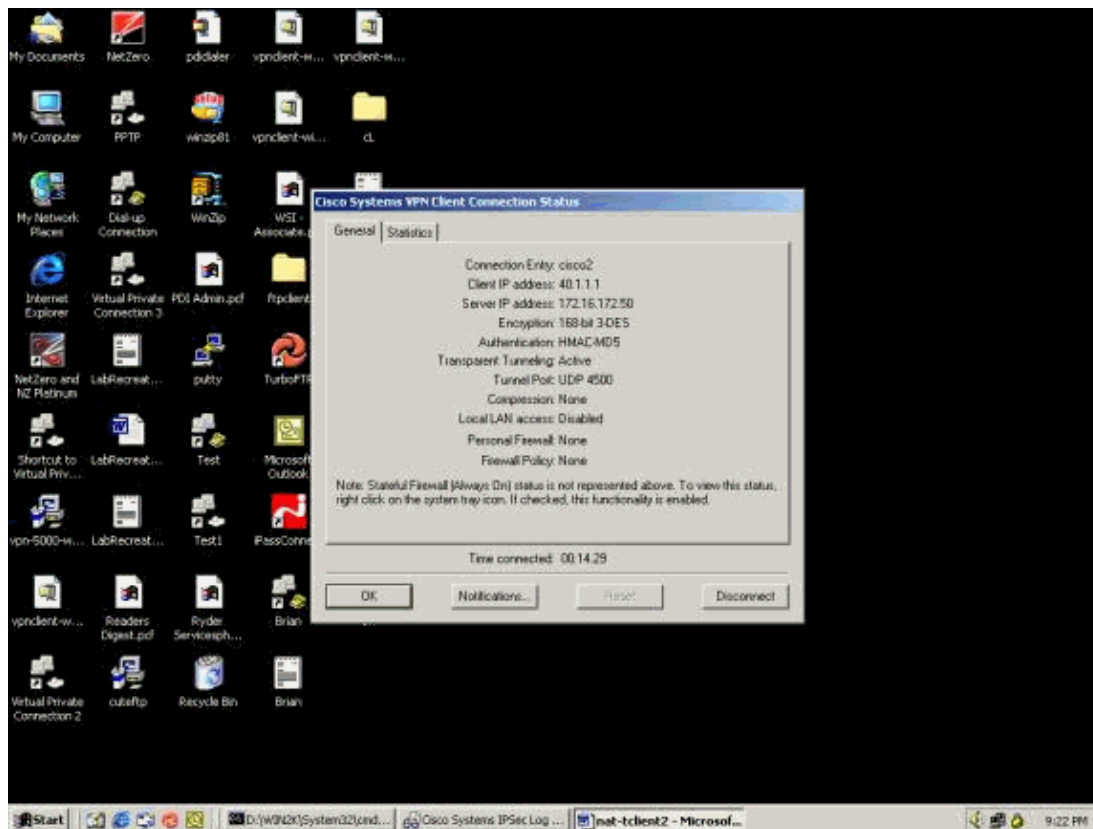
```
pix501(config)# show xlate
3 in use, 4 most used
PAT Global 171.69.89.78(1025) Local 10.10.10.3(4500)
PAT Global 171.69.89.78(1026) Local 10.10.10.2(4500)
PAT Global 171.69.89.78(4) Local 10.10.10.2(500)
```

- **show arp** Use this command to display the Address Resolution Protocol (ARP) table and determine if ARP requests are being processed.

```
pix501(config)# show arp
  outside 171.69.88.3 00d0.0132.e40a
  outside 171.69.88.2 00d0.0133.3c0a
  outside 171.69.88.1 0000.0c07.ac7b
  inside 10.10.10.3 0050.dabb.f093
  inside 10.10.10.2 0001.0267.55cc
pix501(config)#
```

## VPN Client Statistics

Once the VPN tunnel is established, right-click on the yellow lock and choose **Status**. A similar window is shown below. Note that the tunnel port is UDP 4500, which proves that you are using NAT-T.



## VPN Concentrator Statistics

Complete these steps:

1. On the VPN Concentrator, choose **Administration > Administrator Session**.

The VPN Client session can be seen under Remote Access Sessions. The example below shows the sessions of the two clients after they have established an IPsec tunnel to the VPN Concentrator. They are both using the public IP address 171.69.89.78 and were assigned 40.1.1.1 and 40.1.1.2, respectively.

The screenshot shows the Cisco VPN 3000 Concentrator Series Manager web interface. The left sidebar contains a navigation tree with categories like Administration, Monitoring, and User Management. The main content area displays session statistics for the 'Group' selected.

**Session Summary**

Active LAN-to-LAN Sessions	Active Remote Access Sessions	Active Management Sessions	Total Active Sessions	Peak Concurrent Sessions	Concurrent Sessions Limit	Total Cumulative Sessions
0	2	1	3	4	100	52

**LAN-to-LAN Sessions**

Connection Name	IP Address	Protocol	Encryption	Login Time	Duration	Bytes Tx	Bytes Rx	Actions
No LAN-to-LAN Sessions								

**Remote Access Sessions**

Username	Assigned IP Address Public IP Address	Group	Protocol Encryption	Login Time Duration	Client Type Version	Bytes Tx Bytes Rx	Actions
vpnclient1	40.1.1.1 171.69.89.78	ciscovpn	IPSec/NAT-T 3DES-168	Oct 20 20:13:35 0:04:04	WinNT 3.6.1 (Rel)	768 768	[Logout] [Ping]
vpnclient2	40.1.1.2 171.69.89.78	ciscovpn	IPSec/NAT-T 3DES-168	Oct 20 20:14:02 0:03:37	WinNT 3.6.2 (Rel)	512 512	[Logout] [Ping]

2. Double-click on a client user name.

The IPSec/IKE statistics are shown, as seen in the example below. The UDP source port used by the client is 1029, and the destination port used is 4500.

The screenshot shows the Cisco VPN 3000 Concentrator Series Manager web interface with detailed session statistics. The left sidebar is the same as in the previous screenshot. The main content area displays detailed statistics for three sessions.

**IKE Session**

Session ID	1	Encryption Algorithm	3DES-168
Hashing Algorithm	MD5	Diffie-Hellman Group	Group 2 (1024-bit)
Authentication Mode	Pre-Shared Keys (XAUTH)	IKE Negotiation Mode	Aggressive
Rekey Time Interval	86400 seconds		

**IPSec/NAT-T Session**

Session ID	2	Remote Address	40.1.1.1
Local Address	172.16.172.50	Encryption Algorithm	3DES-168
Hashing Algorithm	MD5	Idle Time	0:00:11
Encapsulation Mode	Tunnel		
UDP Source Port	1029	UDP Destination Port	4500
Rekey Time Interval	28800 seconds		
Bytes Received	256	Bytes Transmitted	256

**IPSec/NAT-T Session**

Session ID	3	Remote Address	40.1.1.1
Local Address	0.0.0.0/255.255.255.255	Encryption Algorithm	3DES-168
Hashing Algorithm	MD5	Idle Time	0:03:08
Encapsulation Mode	Tunnel		
UDP Source Port	1029	UDP Destination Port	4500
Rekey Time Interval	28800 seconds		
Bytes Received	512	Bytes Transmitted	512

# Troubleshoot

This section provides information you can use to troubleshoot your configuration.

**Note:** Before issuing **debug** commands, refer to Important Information on Debug Commands.

**Note:** Additional PIX troubleshooting information can be found at IP Security Troubleshooting – Understanding and Using debug Commands.

## VPN Client Logs

On the PC on which the VPN Client is installed, open the Log Viewer before establishing a connection to the VPN Concentrator. This log output highlights the NAT-T-specific messages:

```
1      21:06:48.208 10/18/02 Sev=Info/6   DIALER/0x63300002
Initiating connection.
2      21:06:48.218 10/18/02 Sev=Info/4   CM/0x63100002
Begin connection process
3      21:06:48.218 10/18/02 Sev=Info/4   CM/0x63100004
Establish secure connection using Ethernet
4      21:06:48.218 10/18/02 Sev=Info/4   CM/0x63100026
Attempt connection with server "172.16.172.50"
42     21:07:42.326 10/18/02 Sev=Info/6   IKE/0x6300003B
Attempting to establish a connection with 172.16.172.50.
43     21:07:42.366 10/18/02 Sev=Info/4   IKE/0x63000013
SENDING >>> ISAKMP OAK AG (SA, KE, NON, ID, VID, VID, VID, VID)
to 172.16.172.50
44     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x6300002F
Received ISAKMP packet: peer = 172.16.172.50
45     21:07:42.716 10/18/02 Sev=Info/4   IKE/0x63000014
RECEIVING <<< ISAKMP OAK AG (SA, KE, NON, ID, HASH, VID, VID, VID,
VID, NAT-D, NAT-D, VID, VID) from 172.16.172.50
46     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x63000059
Vendor ID payload = 12F5F28C457168A9702D9FE274CC0100
47     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x63000001
Peer is a Cisco-Unity compliant peer
48     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x63000059
Vendor ID payload = 09002689DFD6B712
49     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x63000001
Peer supports XAUTH
50     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x63000059
Vendor ID payload = AFCAD71368A1F1C96B8696FC77570100
51     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x63000001
Peer supports DPD
52     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x63000059
Vendor ID payload = 90CB80913EBB696E086381B5EC427B1F
53     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x63000001
Peer supports NAT-T
54     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x63000059
Vendor ID payload = 4048B7D56EBCE88525E7DE7F00D6C2D3C0000000
55     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x63000001
Peer supports IKE fragmentation payloads
56     21:07:42.716 10/18/02 Sev=Info/5   IKE/0x63000059
Vendor ID payload = 1F07F70EAA6514D3B0FA96542A500306
57     21:07:42.757 10/18/02 Sev=Info/4   IKE/0x63000013
SENDING >>> ISAKMP OAK AG *(HASH, NOTIFY:STATUS_INITIAL_CONTACT, NAT-D,
NAT-D) to 172.16.172.50
58     21:07:42.767 10/18/02 Sev=Info/5   IKE/0x6300002F
Received ISAKMP packet: peer = 172.16.172.50
59     21:07:42.767 10/18/02 Sev=Info/4   IKE/0x63000014
RECEIVING <<< ISAKMP OAK TRANS *(HASH, ATTR) from 172.16.172.50
60     21:07:42.767 10/18/02 Sev=Info/4   CM/0x63100015
```



**Launch xAuth application**

61 21:07:42.967 10/18/02 Sev=Info/4 IPSEC/0x63700014  
Deleted all keys  
62 21:07:59.801 10/18/02 Sev=Info/4 CM/0x63100017  
xAuth application returned  
63 21:07:59.801 10/18/02 Sev=Info/4 IKE/0x63000013  
SENDING >>> ISAKMP OAK TRANS \*(HASH, ATTR) to 172.16.172.50  
64 21:08:00.101 10/18/02 Sev=Info/5 IKE/0x6300002F  
Received ISAKMP packet: peer = 172.16.172.50  
65 21:08:00.101 10/18/02 Sev=Info/4 IKE/0x63000014  
RECEIVING <<< ISAKMP OAK TRANS \*(HASH, ATTR) from 172.16.172.50  
66 21:08:00.101 10/18/02 Sev=Info/5 IKE/0x63000071

**Automatic NAT Detection Status:**

Remote end is NOT behind a NAT device

This end IS behind a NAT device

67 21:08:00.101 10/18/02 Sev=Info/4 CM/0x6310000E  
**Established Phase 1 SA. 1 Phase 1 SA in the system**  
68 21:08:00.111 10/18/02 Sev=Info/4 IKE/0x63000013  
SENDING >>> ISAKMP OAK TRANS \*(HASH, ATTR) to 172.16.172.50  
69 21:08:00.111 10/18/02 Sev=Info/5 IKE/0x6300005D  
Client sending a firewall request to concentrator  
70 21:08:00.111 10/18/02 Sev=Info/5 IKE/0x6300005C  
Firewall Policy: Product=Cisco Integrated Client, Capability=  
(Centralized Protection Policy).  
71 21:08:00.111 10/18/02 Sev=Info/4 IKE/0x63000013  
SENDING >>> ISAKMP OAK TRANS \*(HASH, ATTR) to 172.16.172.50  
72 21:08:00.122 10/18/02 Sev=Info/5 IKE/0x6300002F  
Received ISAKMP packet: peer = 172.16.172.50  
73 21:08:00.122 10/18/02 Sev=Info/4 IKE/0x63000014  
RECEIVING <<< ISAKMP OAK TRANS \*(HASH, ATTR) from 172.16.172.50  
74 21:08:00.122 10/18/02 Sev=Info/5 IKE/0x63000010  
MODE\_CFG\_REPLY: Attribute = INTERNAL\_IPV4\_ADDRESS: , value = 40.1.1.1  
75 21:08:00.122 10/18/02 Sev=Info/5 IKE/0x6300000D  
MODE\_CFG\_REPLY: Attribute = MODECFG\_UNITY\_SAVEPWD: , value = 0x00000000  
76 21:08:00.122 10/18/02 Sev=Info/5 IKE/0x6300000D  
MODE\_CFG\_REPLY: Attribute = MODECFG\_UNITY\_PFS: , value = 0x00000000  
77 21:08:00.122 10/18/02 Sev=Info/5 IKE/0x6300000E  
MODE\_CFG\_REPLY: Attribute = APPLICATION\_VERSION, value = Cisco Systems, Inc.  
/VPN 3000 Concentrator Version 3.6.1.Rel built by vmurphy on Aug 29 2002  
18:34:44  
78 21:08:00.122 10/18/02 Sev=Info/5 IKE/0x6300000D  
**MODE\_CFG\_REPLY: Attribute = Recieved and using NAT-T port number , value =  
0x00001194**  
79 21:08:00.132 10/18/02 Sev=Info/4 CM/0x63100019  
Mode Config data received  
80 21:08:00.142 10/18/02 Sev=Info/5 IKE/0x63000055  
Received a key request from Driver for IP address 172.16.172.50, GW IP =  
172.16.172.50  
81 21:08:00.142 10/18/02 Sev=Info/4 IKE/0x63000013  
SENDING >>> ISAKMP OAK QM \*(HASH, SA, NON, ID, ID) to 172.16.172.50  
82 21:08:00.142 10/18/02 Sev=Info/5 IKE/0x63000055  
Received a key request from Driver for IP address 10.10.10.255, GW IP =  
172.16.172.50  
83 21:08:00.142 10/18/02 Sev=Info/4 IKE/0x63000013  
SENDING >>> ISAKMP OAK QM \*(HASH, SA, NON, ID, ID) to 172.16.172.50  
84 21:08:00.172 10/18/02 Sev=Info/5 IKE/0x6300002F  
Received ISAKMP packet: peer = 172.16.172.50  
85 21:08:00.172 10/18/02 Sev=Info/4 IKE/0x63000014  
RECEIVING <<< ISAKMP OAK INFO \*(HASH, NOTIFY:STATUS\_RESP\_LIFETIME) from  
172.16.172.50  
86 21:08:00.172 10/18/02 Sev=Info/5 IKE/0x63000044  
RESPONDER-LIFETIME notify has value of 86400 seconds  
87 21:08:00.172 10/18/02 Sev=Info/5 IKE/0x63000046  
This SA has already been alive for 18 seconds, setting expiry to 86382  
seconds from now  
88 21:08:00.182 10/18/02 Sev=Info/5 IKE/0x6300002F

Received ISAKMP packet: peer = 172.16.172.50  
89 21:08:00.182 10/18/02 Sev=Info/4 IKE/0x63000014  
RECEIVING <<< ISAKMP OAK QM \*(HASH, SA, NON, ID, ID, NOTIFY:STATUS\_RESP\_LIFETIME)  
from 172.16.172.50  
90 21:08:00.182 10/18/02 Sev=Info/5 IKE/0x63000044  
RESPONDER-LIFETIME notify has value of 28800 seconds  
91 21:08:00.182 10/18/02 Sev=Info/4 IKE/0x63000013  
SENDING >>> ISAKMP OAK QM \*(HASH) to 172.16.172.50  
92 21:08:00.182 10/18/02 Sev=Info/5 IKE/0x63000058  
**Loading IPsec SA (Message ID = 0x347A7363 OUTBOUND SPI = 0x02CC3526 INBOUND  
SPI = 0x5BEEBB4C)**  
93 21:08:00.182 10/18/02 Sev=Info/5 IKE/0x63000025  
**Loaded OUTBOUND ESP SPI: 0x02CC3526**  
94 21:08:00.182 10/18/02 Sev=Info/5 IKE/0x63000026  
**Loaded INBOUND ESP SPI: 0x5BEEBB4C**  
95 21:08:00.182 10/18/02 Sev=Info/4 CM/0x6310001A  
**One secure connection established**  
96 21:08:00.192 10/18/02 Sev=Info/6 DIALER/0x63300003  
**Connection established.**  
97 21:08:00.332 10/18/02 Sev=Info/5 IKE/0x6300002F  
Received ISAKMP packet: peer = 172.16.172.50  
98 21:08:00.332 10/18/02 Sev=Info/4 IKE/0x63000014  
RECEIVING <<< ISAKMP OAK QM \*(HASH, SA, NON, ID, ID, NOTIFY:STATUS\_RESP\_LIFETIME)  
from 172.16.172.50  
99 21:08:00.332 10/18/02 Sev=Info/5 IKE/0x63000044  
RESPONDER-LIFETIME notify has value of 28800 seconds  
100 21:08:00.332 10/18/02 Sev=Info/4 IKE/0x63000013  
SENDING >>> ISAKMP OAK QM \*(HASH) to 172.16.172.50  
101 21:08:00.342 10/18/02 Sev=Info/5 IKE/0x63000058  
Loading IPsec SA (Message ID = 0x2F81FB2D OUTBOUND SPI = 0x3316C6C9 INBOUND  
SPI = 0x6B96ED76)  
102 21:08:00.342 10/18/02 Sev=Info/5 IKE/0x63000025  
**Loaded OUTBOUND ESP SPI: 0x3316C6C9**  
103 21:08:00.342 10/18/02 Sev=Info/5 IKE/0x63000026  
**Loaded INBOUND ESP SPI: 0x6B96ED76**  
104 21:08:00.342 10/18/02 Sev=Info/4 CM/0x63100022  
**Additional Phase 2 SA established.**  
105 21:08:01.203 10/18/02 Sev=Info/4 IPSEC/0x63700014  
Deleted all keys  
106 21:08:01.203 10/18/02 Sev=Info/4 IPSEC/0x63700010  
Created a new key structure  
107 21:08:01.203 10/18/02 Sev=Info/4 IPSEC/0x6370000F  
Added key with SPI=0x2635cc02 into key list  
108 21:08:01.203 10/18/02 Sev=Info/4 IPSEC/0x63700010  
Created a new key structure  
109 21:08:01.203 10/18/02 Sev=Info/4 IPSEC/0x6370000F  
Added key with SPI=0x4cbbee5b into key list  
110 21:08:01.203 10/18/02 Sev=Info/4 IPSEC/0x63700010  
Created a new key structure  
111 21:08:01.203 10/18/02 Sev=Info/4 IPSEC/0x6370000F  
Added key with SPI=0xc9c61633 into key list  
112 21:08:01.203 10/18/02 Sev=Info/4 IPSEC/0x63700010  
Created a new key structure  
113 21:08:01.203 10/18/02 Sev=Info/4 IPSEC/0x6370000F  
Added key with SPI=0x76ed966b into key list  
114 21:08:10.216 10/18/02 Sev=Info/6 IKE/0x63000054  
Sent a ping on the Public IPsec SA  
115 21:08:20.381 10/18/02 Sev=Info/4 IKE/0x63000013  
SENDING >>> ISAKMP OAK INFO \*(HASH, NOTIFY:HEARTBEAT) to 172.16.172.50  
116 21:08:20.381 10/18/02 Sev=Info/6 IKE/0x63000052  
Sent a ping on the IKE SA

## VPN Concentrator Logs

To view the logs on the VPN Concentrator, choose **Monitoring > Filterable Event Log**, and select **Event Classes IKE, IKEDBG, IKEDECODE**, and **IPSECDBG** with Severities 1 through 13.

```
2835 10/20/2002 20:22:42.390 SEV=8 IKEDECODE/0 RPT=8190 171.69.89.78
  Exchange Type :      Oakley Quick Mode
  Flags          :      1 (ENCRYPT )
  Message ID    :      1b050792
  Length        :      52
2838 10/20/2002 20:22:42.390 SEV=8 IKEDBG/0 RPT=9197 171.69.89.78
RECEIVED Message (msgid=1b050792) with payloads :
HDR + HASH (8) + NONE (0)
total length : 48
2840 10/20/2002 20:22:42.390 SEV=9 IKEDBG/0 RPT=9198 171.69.89.78
Group [ciscovpn] User [vpnclient2]
processing hash
2841 10/20/2002 20:22:42.390 SEV=9 IKEDBG/0 RPT=9199 171.69.89.78
Group [ciscovpn] User [vpnclient2]
loading all IPSEC SAs
 2842 10/20/2002 20:22:42.390 SEV=9 IKEDBG/1 RPT=793 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Generating Quick Mode Key!
2843 10/20/2002 20:22:42.390 SEV=9 IKEDBG/1 RPT=794 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Generating Quick Mode Key!
2844 10/20/2002 20:22:42.400 SEV=4 IKE/173 RPT=41 171.69.89.78
Group [ciscovpn] User [vpnclient2]
NAT-Traversal successfully negotiated!
IPSec traffic will be encapsulated to pass through NAT devices.
2847 10/20/2002 20:22:42.400 SEV=7 IKEDBG/0 RPT=9200 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Loading host:
  Dst: 172.16.172.50
  Src: 40.1.1.2
2849 10/20/2002 20:22:42.400 SEV=4 IKE/49 RPT=63 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Security negotiation complete for User (vpnclient2)
Responder, Inbound SPI = 0x350f3cb1, Outbound SPI = 0xc74e30e5
2852 10/20/2002 20:22:42.400 SEV=9 IPSECDBG/6 RPT=309
IPSEC key message parse - msgtype 1, Len 704, vers 1, pid 00000000, seq 0, err 0
, type 2, mode 1, state 320, label 0, pad 0, spi c74e30e5, encrKeyLen 24, hashKey
yLen 16, ivlen 8, alg 2, hmacAlg 3, lifetype 0, lifetime1 21, lifetime2 0, dsId
0
2856 10/20/2002 20:22:42.400 SEV=9 IPSECDBG/1 RPT=1137
Processing KEY_ADD msg!
2857 10/20/2002 20:22:42.400 SEV=9 IPSECDBG/1 RPT=1138
key_msghdr2secassoc(): Enter
2858 10/20/2002 20:22:42.400 SEV=7 IPSECDBG/1 RPT=1139
No USER filter configured
2859 10/20/2002 20:22:42.400 SEV=9 IPSECDBG/1 RPT=1140
KeyProcessAdd: Enter
2860 10/20/2002 20:22:42.400 SEV=8 IPSECDBG/1 RPT=1141
KeyProcessAdd: Adding outbound SA
2861 10/20/2002 20:22:42.400 SEV=8 IPSECDBG/1 RPT=1142
KeyProcessAdd: src 172.16.172.50 mask 0.0.0.0, DST 40.1.1.2 mask 0.0.0.0
2862 10/20/2002 20:22:42.400 SEV=8 IPSECDBG/1 RPT=1143
KeyProcessAdd: FilterIpsecAddIkeSa success
2863 10/20/2002 20:22:42.400 SEV=9 IPSECDBG/6 RPT=310
IPSEC key message parse - msgtype 3, Len 376, vers 1, pid 00000000, seq 0, err 0
, type 2, mode 1, state 32, label 0, pad 0, spi 350f3cb1, encrKeyLen 24, hashKey
Len 16, ivlen 8, alg 2, hmacAlg 3, lifetype 0, lifetime1 21, lifetime2 0, dsId 0
2866 10/20/2002 20:22:42.400 SEV=9 IPSECDBG/1 RPT=1144
Processing KEY_UPDATE MSG!
2867 10/20/2002 20:22:42.400 SEV=9 IPSECDBG/1 RPT=1145
```

```
Update inbound SA addresses
2868 10/20/2002 20:22:42.400 SEV=9 IPSECDBG/1 RPT=1146
key_msghdr2secassoc(): Enter
2869 10/20/2002 20:22:42.400 SEV=7 IPSECDBG/1 RPT=1147
No USER filter configured
2870 10/20/2002 20:22:42.400 SEV=9 IPSECDBG/1 RPT=1148
KeyProcessUpdate: Enter
2871 10/20/2002 20:22:42.400 SEV=8 IPSECDBG/1 RPT=1149
KeyProcessUpdate: success
2872 10/20/2002 20:22:42.400 SEV=8 IKEDBG/7 RPT=63
IKE got a KEY_ADD MSG for SA: SPI = 0xc74e30e5
2873 10/20/2002 20:22:42.400 SEV=8 IKEDBG/0 RPT=9201
pitcher: rcv KEY_UPDATE, spi 0x350f3cb1
2874 10/20/2002 20:22:42.400 SEV=4 IKE/120 RPT=63 171.69.89.78
Group [ciscovpn] User [vpnclient2]
PHASE 2 COMPLETED (msgid=1b050792)
2875 10/20/2002 20:22:42.430 SEV=8 IKEDCODE/0 RPT=8191 171.69.89.78
ISAKMP HEADER : ( Version 1.0 )
  Initiator Cookie(8): C5 A0 F0 8B 69 60 D7 47
  Responder Cookie(8): 48 65 B1 6F 36 1F 9D 3A
  Next Payload : HASH (8)
  Exchange Type : Oakley Quick Mode
  Flags : 1 (ENCRYPT )
  Message ID : cf9d1420
  Length : 52
2882 10/20/2002 20:22:42.430 SEV=8 IKEDBG/0 RPT=9202 171.69.89.78
RECEIVED Message (msgid=cf9d1420) with payloads :
HDR + HASH (8) + NONE (0)
total length : 48
2884 10/20/2002 20:22:42.430 SEV=9 IKEDBG/0 RPT=9203 171.69.89.78
Group [ciscovpn] User [vpnclient2]
processing hash

2885 10/20/2002 20:22:42.430 SEV=9 IKEDBG/0 RPT=9204 171.69.89.78
Group [ciscovpn] User [vpnclient2]
loading all IPSEC SAs
2886 10/20/2002 20:22:42.430 SEV=9 IKEDBG/1 RPT=795 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Generating Quick Mode Key!
2887 10/20/2002 20:22:42.440 SEV=9 IKEDBG/1 RPT=796 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Generating Quick Mode Key!
2888 10/20/2002 20:22:42.440 SEV=4 IKE/173 RPT=42 171.69.89.78
Group [ciscovpn] User [vpnclient2]
NAT-Traversal successfully negotiated!
IPsec traffic will be encapsulated to pass through NAT devices.
2891 10/20/2002 20:22:42.440 SEV=7 IKEDBG/0 RPT=9205 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Loading subnet:
  DST: 0.0.0.0 mask: 0.0.0.0
  Src: 40.1.1.2
2893 10/20/2002 20:22:42.440 SEV=4 IKE/49 RPT=64 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Security negotiation complete for User (vpnclient2)
Responder, Inbound SPI = 0x2a2e2dcd, Outbound SPI = 0xf1f4d328
2896 10/20/2002 20:22:42.440 SEV=9 IPSECDBG/6 RPT=311
IPSEC key message parse - msgtype 1, Len 704, vers 1, pid 00000000, seq 0, err 0
, type 2, mode 1, state 320, label 0, pad 0, spi f1f4d328, encrKeyLen 24, hashKe
yLen 16, ivlen 8, alg 2, hmacAlg 3, lifetype 0, lifetime1 21, lifetime2 0, dsId
0
2900 10/20/2002 20:22:42.440 SEV=9 IPSECDBG/1 RPT=1150
Processing KEY_ADD MSG!
2901 10/20/2002 20:22:42.440 SEV=9 IPSECDBG/1 RPT=1151
key_msghdr2secassoc(): Enter
2902 10/20/2002 20:22:42.440 SEV=7 IPSECDBG/1 RPT=1152
No USER filter configured
```

2903 10/20/2002 20:22:42.440 SEV=9 IPSECDBG/1 RPT=1153  
KeyProcessAdd: Enter  
2904 10/20/2002 20:22:42.440 SEV=8 IPSECDBG/1 RPT=1154  
KeyProcessAdd: Adding outbound SA  
2905 10/20/2002 20:22:42.440 SEV=8 IPSECDBG/1 RPT=1155  
KeyProcessAdd: src 0.0.0.0 mask 255.255.255.255, DST 40.1.1.2 mask 0.0.0.0  
2906 10/20/2002 20:22:42.440 SEV=8 IPSECDBG/1 RPT=1156  
KeyProcessAdd: FilterIpssecAddIkeSa success  
2907 10/20/2002 20:22:42.440 SEV=9 IPSECDBG/6 RPT=312  
IPSEC key message parse - msgtype 3, Len 376, vers 1, pid 00000000, seq 0, err 0  
, type 2, mode 1, state 32, label 0, pad 0, spi 2a2e2dcd, encrKeyLen 24, hashKey  
Len 16, ivlen 8, alg 2, hmacAlg 3, lifetype 0, lifetime1 21, lifetime2 0, dsId 0  
2910 10/20/2002 20:22:42.440 SEV=9 IPSECDBG/1 RPT=1157  
Processing KEY\_UPDATE MSG!  
2911 10/20/2002 20:22:42.440 SEV=9 IPSECDBG/1 RPT=1158  
Update inbound SA addresses  
2912 10/20/2002 20:22:42.440 SEV=9 IPSECDBG/1 RPT=1159  
key\_msghdr2secassoc(): Enter  
2913 10/20/2002 20:22:42.440 SEV=7 IPSECDBG/1 RPT=1160  
No USER filter configured  
2914 10/20/2002 20:22:42.440 SEV=9 IPSECDBG/1 RPT=1161  
KeyProcessUpdate: Enter  
2915 10/20/2002 20:22:42.440 SEV=8 IPSECDBG/1 RPT=1162  
KeyProcessUpdate: success  
2916 10/20/2002 20:22:42.440 SEV=8 IKEDBG/7 RPT=64  
IKE got a KEY\_ADD MSG for SA: SPI = 0xf1f4d328  
2917 10/20/2002 20:22:42.440 SEV=8 IKEDBG/0 RPT=9206  
pitcher: rcv KEY\_UPDATE, spi 0x2a2e2dcd  
2918 10/20/2002 20:22:42.440 SEV=4 IKE/120 RPT=64 171.69.89.78  
Group [ciscovpn] User [vpnclient2]  
PHASE 2 COMPLETED (msgid=cf9d1420)  
2919 10/20/2002 20:22:44.680 SEV=7 IPSECDBG/1 RPT=1163  
IPSec Inbound SA has received data!  
2920 10/20/2002 20:22:44.680 SEV=8 IKEDBG/0 RPT=9207  
pitcher: rcv KEY\_SA\_ACTIVE spi 0x2a2e2dcd  
2921 10/20/2002 20:22:44.680 SEV=8 IKEDBG/0 RPT=9208  
KEY\_SA\_ACTIVE no old rekey centry found with new spi 0x2a2e2dcd, mess\_id 0x0  
2922 10/20/2002 20:22:47.530 SEV=9 IPSECDBG/18 RPT=828 171.69.89.78  
Xmit IPSEC-over-UDP NAT keepalive packet: success  
2923 10/20/2002 20:22:47.530 SEV=9 IPSECDBG/18 RPT=829 171.69.89.78  
Xmit IPSEC-over-UDP NAT keepalive packet: success  
2924 10/20/2002 20:22:48.280 SEV=9 IPSECDBG/17 RPT=668  
Received an IPSEC-over-NAT-T NAT keepalive packet  
2925 10/20/2002 20:22:52.390 SEV=9 IPSECDBG/17 RPT=669  
**Received an IPSEC-over-NAT-T NAT keepalive packet**  
2926 10/20/2002 20:22:52.720 SEV=7 IPSECDBG/1 RPT=1164  
IPSec Inbound SA has received data!  
2927 10/20/2002 20:22:52.720 SEV=8 IKEDBG/0 RPT=9209  
pitcher: rcv KEY\_SA\_ACTIVE spi 0x19fb2d12  
2928 10/20/2002 20:22:52.720 SEV=8 IKEDBG/0 RPT=9210  
KEY\_SA\_ACTIVE no old rekey centry found with new spi 0x19fb2d12, mess\_id 0x0  
2929 10/20/2002 20:22:56.530 SEV=9 IPSECDBG/18 RPT=830 171.69.89.78  
Xmit IPSEC-over-UDP NAT keepalive packet: success  
2930 10/20/2002 20:22:56.530 SEV=9 IPSECDBG/18 RPT=831 171.69.89.78  
Xmit IPSEC-over-UDP NAT keepalive packet: success  
2931 10/20/2002 20:22:58.300 SEV=8 IKEDECODE/0 RPT=8192 171.69.89.78  
ISAKMP HEADER : ( Version 1.0 )  
Initiator Cookie(8): B6 92 24 F4 96 0A 2D 9E  
Responder Cookie(8): 76 FE F6 55 1F 9D 49 F3  
Next Payload : HASH (8)  
Exchange Type : Oakley Informational  
Flags : 1 (ENCRYPT )  
Message ID : d4a0ec25  
Length : 76  
2938 10/20/2002 20:22:58.300 SEV=8 IKEDBG/0 RPT=9211 171.69.89.78  
RECEIVED Message (msgid=d4a0ec25) with payloads :

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HDR + HASH (8) + NOTIFY (11) + NONE (0)
total length : 76
2940 10/20/2002 20:22:58.300 SEV=9 IKEDBG/0 RPT=9212 171.69.89.78
Group [ciscovpn] User [vpnclient1]
processing hash
2941 10/20/2002 20:22:58.300 SEV=9 IKEDBG/0 RPT=9213 171.69.89.78
Group [ciscovpn] User [vpnclient1]
Processing Notify payload
2942 10/20/2002 20:22:58.300 SEV=8 IKEDECODE/0 RPT=8193 171.69.89.78
Notify Payload Decode :
  DOI          :      IPSEC (1)
  Protocol     :      ISAKMP (1)
  Message      :      Altiga keep-alive (40500)
  Spi         :      B6 92 24 F4 96 0A 2D 9E 76 FE F6 55 1F 9D 49 F3
  Length      :      28
2948 10/20/2002 20:22:58.300 SEV=9 IKEDBG/41 RPT=336 171.69.89.78
Group [ciscovpn] User [vpnclient1]
Received keep-alive of type Altiga keep-alive, not the negotiated type
2950 10/20/2002 20:22:58.310 SEV=8 IKEDECODE/0 RPT=8194 171.69.89.78
ISAKMP HEADER :      ( Version 1.0 )
  Initiator Cookie(8): B6 92 24 F4 96 0A 2D 9E
  Responder Cookie(8): 76 FE F6 55 1F 9D 49 F3
  Next Payload      :      HASH (8)
  Exchange Type     :      Oakley Informational
  Flags             :      1 (ENCRYPT )
  Message ID        :      d196c721
  Length           :      84
2957 10/20/2002 20:22:58.310 SEV=8 IKEDBG/0 RPT=9214 171.69.89.78
RECEIVED Message (msgid=d196c721) with payloads :
HDR + HASH (8) + NOTIFY (11) + NONE (0)
total length : 80
2959 10/20/2002 20:22:58.310 SEV=9 IKEDBG/0 RPT=9215 171.69.89.78
Group [ciscovpn] User [vpnclient1]
processing hash
2960 10/20/2002 20:22:58.310 SEV=9 IKEDBG/0 RPT=9216 171.69.89.78
Group [ciscovpn] User [vpnclient1]
Processing Notify payload
2961 10/20/2002 20:22:58.310 SEV=8 IKEDECODE/0 RPT=8195 171.69.89.78
Notify Payload Decode :
  DOI          :      IPSEC (1)
  Protocol     :      ISAKMP (1)
  Message      :      DPD R-U-THERE (36136)
  Spi         :      B6 92 24 F4 96 0A 2D 9E 76 FE F6 55 1F 9D 49 F3
  Length      :      32
2967 10/20/2002 20:22:58.310 SEV=9 IKEDBG/36 RPT=92 171.69.89.78
Group [ciscovpn] User [vpnclient1]
Sending keep-alive of type DPD R-U-THERE-ACK (seq number 0x2d932552)
2969 10/20/2002 20:22:58.310 SEV=9 IKEDBG/0 RPT=9217 171.69.89.78
Group [ciscovpn] User [vpnclient1]
constructing blank hash
2970 10/20/2002 20:22:58.310 SEV=9 IKEDBG/0 RPT=9218 171.69.89.78
Group [ciscovpn] User [vpnclient1]
constructing qm hash
2971 10/20/2002 20:22:58.310 SEV=8 IKEDBG/0 RPT=9219 171.69.89.78
SENDING Message (msgid=d678099) with payloads :
HDR + HASH (8) + NOTIFY (11)
total length : 80
2973 10/20/2002 20:23:02.400 SEV=8 IKEDECODE/0 RPT=8196 171.69.89.78
ISAKMP HEADER :      ( Version 1.0 )
  Initiator Cookie(8): C5 A0 F0 8B 69 60 D7 47
  Responder Cookie(8): 48 65 B1 6F 36 1F 9D 3A
  Next Payload      :      HASH (8)
  Exchange Type     :      Oakley Informational
  Flags             :      1 (ENCRYPT )
  Message ID        :      317b646a
  Length           :      76
```

2980 10/20/2002 20:23:02.400 SEV=8 IKEDBG/0 RPT=9220 171.69.89.78  
RECEIVED Message (msgid=317b646a) with payloads :  
HDR + HASH (8) + NOTIFY (11) + NONE (0)  
total length : 76  
2982 10/20/2002 20:23:02.400 SEV=9 IKEDBG/0 RPT=9221 171.69.89.78  
Group [ciscovpn] User [vpnclient2]  
processing hash  
2983 10/20/2002 20:23:02.400 SEV=9 IKEDBG/0 RPT=9222 171.69.89.78  
Group [ciscovpn] User [vpnclient2]  
Processing Notify payload  
2984 10/20/2002 20:23:02.400 SEV=8 IKEDECODE/0 RPT=8197 171.69.89.78  
Notify Payload Decode :  
DOI : IPSEC (1)  
Protocol : ISAKMP (1)  
Message : Altiga keep-alive (40500)  
Spi : C5 A0 F0 8B 69 60 D7 47 48 65 B1 6F 36 1F 9D 3A  
Length : 28  
2990 10/20/2002 20:23:02.400 SEV=9 IKEDBG/41 RPT=337 171.69.89.78  
Group [ciscovpn] User [vpnclient2]  
Received keep-alive of type Altiga keep-alive, not the negotiated type  
2992 10/20/2002 20:23:02.410 SEV=9 IPSECDBG/17 RPT=670  
Received an IPSEC-over-NAT-T NAT keepalive packet  
2993 10/20/2002 20:23:05.530 SEV=9 IPSECDBG/18 RPT=832 171.69.89.78  
Xmit IPSEC-over-UDP NAT keepalive packet: success  
2994 10/20/2002 20:23:05.530 SEV=9 IPSECDBG/18 RPT=833 171.69.89.78  
Xmit IPSEC-over-UDP NAT keepalive packet: success  
2995 10/20/2002 20:23:08.310 SEV=9 IPSECDBG/17 RPT=671  
Received an IPSEC-over-NAT-T NAT keepalive packet  
2996 10/20/2002 20:23:12.420 SEV=9 IPSECDBG/17 RPT=672  
Received an IPSEC-over-NAT-T NAT keepalive packet  
2997 10/20/2002 20:23:14.530 SEV=9 IPSECDBG/18 RPT=834 171.69.89.78  
Xmit IPSEC-over-UDP NAT keepalive packet: success  
2998 10/20/2002 20:23:14.530 SEV=9 IPSECDBG/18 RPT=835 171.69.89.78  
Xmit IPSEC-over-UDP NAT keepalive packet: success  
2999 10/20/2002 20:23:18.330 SEV=8 IKEDECODE/0 RPT=8198 171.69.89.78  
ISAKMP HEADER : ( Version 1.0 )  
Initiator Cookie(8): B6 92 24 F4 96 0A 2D 9E  
Responder Cookie(8): 76 FE F6 55 1F 9D 49 F3  
Next Payload : HASH (8)  
Exchange Type : Oakley Informational  
Flags : 1 (ENCRYPT )  
Message ID : f6457474  
Length : 76  
3006 10/20/2002 20:23:18.330 SEV=8 IKEDBG/0 RPT=9223 171.69.89.78  
RECEIVED Message (msgid=f6457474) with payloads :  
HDR + HASH (8) + NOTIFY (11) + NONE (0)  
total length : 76  
3008 10/20/2002 20:23:18.330 SEV=9 IKEDBG/0 RPT=9224 171.69.89.78  
Group [ciscovpn] User [vpnclient1]  
processing hash  
3009 10/20/2002 20:23:18.330 SEV=9 IKEDBG/0 RPT=9225 171.69.89.78  
Group [ciscovpn] User [vpnclient1]  
Processing Notify payload  
3010 10/20/2002 20:23:18.330 SEV=8 IKEDECODE/0 RPT=8199 171.69.89.78  
Notify Payload Decode :  
DOI : IPSEC (1)  
Protocol : ISAKMP (1)  
Message : Altiga keep-alive (40500)  
Spi : B6 92 24 F4 96 0A 2D 9E 76 FE F6 55 1F 9D 49 F3  
Length : 28  
3016 10/20/2002 20:23:18.330 SEV=9 IKEDBG/41 RPT=338 171.69.89.78  
Group [ciscovpn] User [vpnclient1]  
Received keep-alive of type Altiga keep-alive, not the negotiated type  
3018 10/20/2002 20:23:18.330 SEV=9 IPSECDBG/17 RPT=673  
Received an IPSEC-over-NAT-T NAT keepalive packet  
3019 10/20/2002 20:23:22.430 SEV=8 IKEDECODE/0 RPT=8200 171.69.89.78

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ISAKMP HEADER :      ( Version 1.0 )
  Initiator Cookie(8): C5 A0 F0 8B 69 60 D7 47
  Responder Cookie(8): 48 65 B1 6F 36 1F 9D 3A
  Next Payload      :      HASH (8)
  Exchange Type     :      Oakley Informational
  Flags              :      1 (ENCRYPT )
  Message ID        :      358ae39e
  Length            :      76
3026 10/20/2002 20:23:22.430 SEV=8 IKEDBG/0 RPT=9226 171.69.89.78
RECEIVED Message (msgid=358ae39e) with payloads :
HDR + HASH (8) + NOTIFY (11) + NONE (0)
total length : 76
3028 10/20/2002 20:23:22.430 SEV=9 IKEDBG/0 RPT=9227 171.69.89.78
Group [ciscovpn] User [vpnclient2]
processing hash
3029 10/20/2002 20:23:22.430 SEV=9 IKEDBG/0 RPT=9228 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Processing Notify payload
3030 10/20/2002 20:23:22.430 SEV=8 IKEDECODE/0 RPT=8201 171.69.89.78
Notify Payload Decode :
  DOI                :      IPSEC (1)
  Protocol           :      ISAKMP (1)
  Message            :      Altiga keep-alive (40500)
  Spi                :      C5 A0 F0 8B 69 60 D7 47 48 65 B1 6F 36 1F 9D 3A
  Length             :      28
3036 10/20/2002 20:23:22.430 SEV=9 IKEDBG/41 RPT=339 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Received keep-alive of type Altiga keep-alive, not the negotiated type
3038 10/20/2002 20:23:22.430 SEV=9 IPSECDBG/17 RPT=674
Received an IPSEC-over-NAT-T NAT keepalive packet
3039 10/20/2002 20:23:23.530 SEV=9 IPSECDBG/18 RPT=836 171.69.89.78
Xmit IPSEC-over-UDP NAT keepalive packet: success
3040 10/20/2002 20:23:23.530 SEV=9 IPSECDBG/18 RPT=837 171.69.89.78
Xmit IPSEC-over-UDP NAT keepalive packet: success
3041 10/20/2002 20:23:28.340 SEV=9 IPSECDBG/17 RPT=675
Received an IPSEC-over-NAT-T NAT keepalive packet
3042 10/20/2002 20:23:32.440 SEV=9 IPSECDBG/17 RPT=676
Received an IPSEC-over-NAT-T NAT keepalive packet
3043 10/20/2002 20:23:32.530 SEV=9 IPSECDBG/18 RPT=838 171.69.89.78
Xmit IPSEC-over-UDP NAT keepalive packet: success
3044 10/20/2002 20:23:32.530 SEV=9 IPSECDBG/18 RPT=839 171.69.89.78
Xmit IPSEC-over-UDP NAT keepalive packet: success
3045 10/20/2002 20:23:38.360 SEV=8 IKEDECODE/0 RPT=8202 171.69.89.78
ISAKMP HEADER :      ( Version 1.0 )
  Initiator Cookie(8): B6 92 24 F4 96 0A 2D 9E
  Responder Cookie(8): 76 FE F6 55 1F 9D 49 F3
  Next Payload      :      HASH (8)
  Exchange Type     :      Oakley Informational
  Flags              :      1 (ENCRYPT )
  Message ID        :      fa8597e6
  Length            :      76
3052 10/20/2002 20:23:38.360 SEV=8 IKEDBG/0 RPT=9229 171.69.89.78
RECEIVED Message (msgid=fa8597e6) with payloads :
HDR + HASH (8) + NOTIFY (11) + NONE (0)
total length : 76
3054 10/20/2002 20:23:38.360 SEV=9 IKEDBG/0 RPT=9230 171.69.89.78
Group [ciscovpn] User [vpnclient1]
processing hash
3055 10/20/2002 20:23:38.360 SEV=9 IKEDBG/0 RPT=9231 171.69.89.78
Group [ciscovpn] User [vpnclient1]
Processing Notify payload
3056 10/20/2002 20:23:38.360 SEV=8 IKEDECODE/0 RPT=8203 171.69.89.78
Notify Payload Decode :
  DOI                :      IPSEC (1)
  Protocol           :      ISAKMP (1)
  Message            :      Altiga keep-alive (40500)

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Spi          :          B6 92 24 F4 96 0A 2D 9E 76 FE F6 55 1F 9D 49 F3
Length      :          28
3062 10/20/2002 20:23:38.360 SEV=9 IKEDBG/41 RPT=340 171.69.89.78
Group [ciscovpn] User [vpnclient1]
Received keep-alive of type Altiga keep-alive, not the negotiated type
3064 10/20/2002 20:23:38.360 SEV=9 IPSECDBG/17 RPT=677
Received an IPSEC-over-NAT-T NAT keepalive packet
3065 10/20/2002 20:23:41.530 SEV=9 IPSECDBG/18 RPT=840 171.69.89.78
Xmit IPSEC-over-UDP NAT keepalive packet: success
3066 10/20/2002 20:23:41.530 SEV=9 IPSECDBG/18 RPT=841 171.69.89.78
Xmit IPSEC-over-UDP NAT keepalive packet: success
3067 10/20/2002 20:23:42.470 SEV=8 IKEDECODE/0 RPT=8204 171.69.89.78
ISAKMP HEADER :          ( Version 1.0 )
  Initiator Cookie(8):  C5 A0 F0 8B 69 60 D7 47
  Responder Cookie(8):  48 65 B1 6F 36 1F 9D 3A
  Next Payload      :    HASH (8)
  Exchange Type    :    Oakley Informational
  Flags            :    1 (ENCRYPT )
3073 10/20/2002 20:23:42.470 SEV=8 IKEDECODE/0 RPT=8204 171.69.89.78
  Message ID       :    c892dd4c
  Length          :    76
RECEIVED Message (msgid=c892dd4c) with payloads :
HDR + HASH (8) + NOTIFY (11) + NONE (0)
total length : 76
3076 10/20/2002 20:23:42.470 SEV=9 IKEDBG/0 RPT=9233 171.69.89.78
Group [ciscovpn] User [vpnclient2]
processing hash
3077 10/20/2002 20:23:42.470 SEV=9 IKEDBG/0 RPT=9234 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Processing Notify payload
3078 10/20/2002 20:23:42.470 SEV=8 IKEDECODE/0 RPT=8205 171.69.89.78
Notify Payload Decode :
  DOI              :    IPSEC (1)
  Protocol         :    ISAKMP (1)
  Message         :    Altiga keep-alive (40500)
  Spi             :    C5 A0 F0 8B 69 60 D7 47 48 65 B1 6F 36 1F 9D 3A
  Length          :    28
3084 10/20/2002 20:23:42.470 SEV=9 IKEDBG/41 RPT=341 171.69.89.78
Group [ciscovpn] User [vpnclient2]
Received keep-alive of type Altiga keep-alive, not the negotiated type
3086 10/20/2002 20:23:42.470 SEV=9 IPSECDBG/17 RPT=678
Received an IPSEC-over-NAT-T NAT keepalive packet
3087 10/20/2002 20:23:48.370 SEV=9 IPSECDBG/17 RPT=679
Received an IPSEC-over-NAT-T NAT keepalive packet
3088 10/20/2002 20:23:50.530 SEV=9 IPSECDBG/18 RPT=842 171.69.89.78
Xmit IPSEC-over-UDP NAT keepalive packet: success
3089 10/20/2002 20:23:50.530 SEV=9 IPSECDBG/18 RPT=843 171.69.89.78
Xmit IPSEC-over-UDP NAT keepalive packet: success
3090 10/20/2002 20:23:52.470 SEV=9 IPSECDBG/17 RPT=680
Received an IPSEC-over-NAT-T NAT keepalive packet
3091 10/20/2002 20:23:58.380 SEV=8 IKEDECODE/0 RPT=8206 171.69.89.78
ISAKMP HEADER :          ( Version 1.0 )
  Initiator Cookie(8):  B6 92 24 F4 96 0A 2D 9E
  Responder Cookie(8):  76 FE F6 55 1F 9D 49 F3
  Next Payload      :    HASH (8)
  Exchange Type    :    Oakley Informational
  Flags            :    1 (ENCRYPT )
  Message ID       :    943c7d99
  Length          :    76
3098 10/20/2002 20:23:58.390 SEV=8 IKEDBG/0 RPT=9235 171.69.89.78
RECEIVED Message (msgid=943c7d99) with payloads :
HDR + HASH (8) + NOTIFY (11) + NONE (0)
total length : 76
3100 10/20/2002 20:23:58.390 SEV=9 IKEDBG/0 RPT=9236 171.69.89.78
Group [ciscovpn] User [vpnclient1]
processing hash
```

```

3101 10/20/2002 20:23:58.390 SEV=9 IKEDBG/0 RPT=9237 171.69.89.78
Group [ciscovpn] User [vpnclient1]
Processing Notify payload
3102 10/20/2002 20:23:58.390 SEV=8 IKEDECODE/0 RPT=8207 171.69.89.78
Notify Payload Decode :
  DOI      :      IPSEC (1)
  Protocol :      ISAKMP (1)
  Message  :      Altiga keep-alive (40500)
  Spi      :      B6 92 24 F4 96 0A 2D 9E 76 FE F6 55 1F 9D 49 F3
  Length   :      28
3108 10/20/2002 20:23:58.390 SEV=9 IKEDBG/41 RPT=342 171.69.89.78
Group [ciscovpn] User [vpnclient1]
Received keep-alive of type Altiga keep-alive, not the negotiated type
3110 10/20/2002 20:23:58.390 SEV=9 IPSECDBG/17 RPT=681
Received an IPSEC-over-NAT-T NAT keepalive packet
3111 10/20/2002 20:23:59.530 SEV=9 IPSECDBG/18 RPT=844 171.69.89.78
Xmit IPSEC-over-UDP NAT keepalive packet: success
3112 10/20/2002 20:23:59.530 SEV=9 IPSECDBG/18 RPT=845 171.69.89.78
Xmit IPSEC-over-UDP NAT keepalive packet: success

```

## Additional Troubleshooting

NAT-T encapsulates IPsec traffic in UDP datagrams using port 4500. If NAT-T is not checked on the VPN Concentrator or if NAT transparency is not checked on the VPN Client, the IPsec tunnel is established; however, you are not able to pass any data. For NAT-T to work, you must have the NAT-T checked on the concentrator and NAT transparency (over UDP) checked on the client.

The example below shows such a case in which NAT-T was not checked on the concentrator. On the client, Transparent Tunneling was checked. In this case, an IPsec tunnel is established between the client and the concentrator. However since the IPsec tunnel port negotiations failed, no data passes between the client and the concentrator. As such, the bytes transmitted and received are zero for the remote access sessions.

The screenshot shows the Cisco VPN 3000 Concentrator Series Manager web interface. The left sidebar contains a navigation tree with categories like Administration and Monitoring. The main content area displays session statistics and active sessions.

**Session Summary**

Active LAN-to-LAN Sessions	Active Remote Access Sessions	Active Management Sessions	Total Active Sessions	Peak Concurrent Sessions	Concurrent Sessions Limit	Total Cumulative Sessions
0	2	1	3	4	100	69

**LAN-to-LAN Sessions** [ Remote Access Sessions | Management Sessions ]

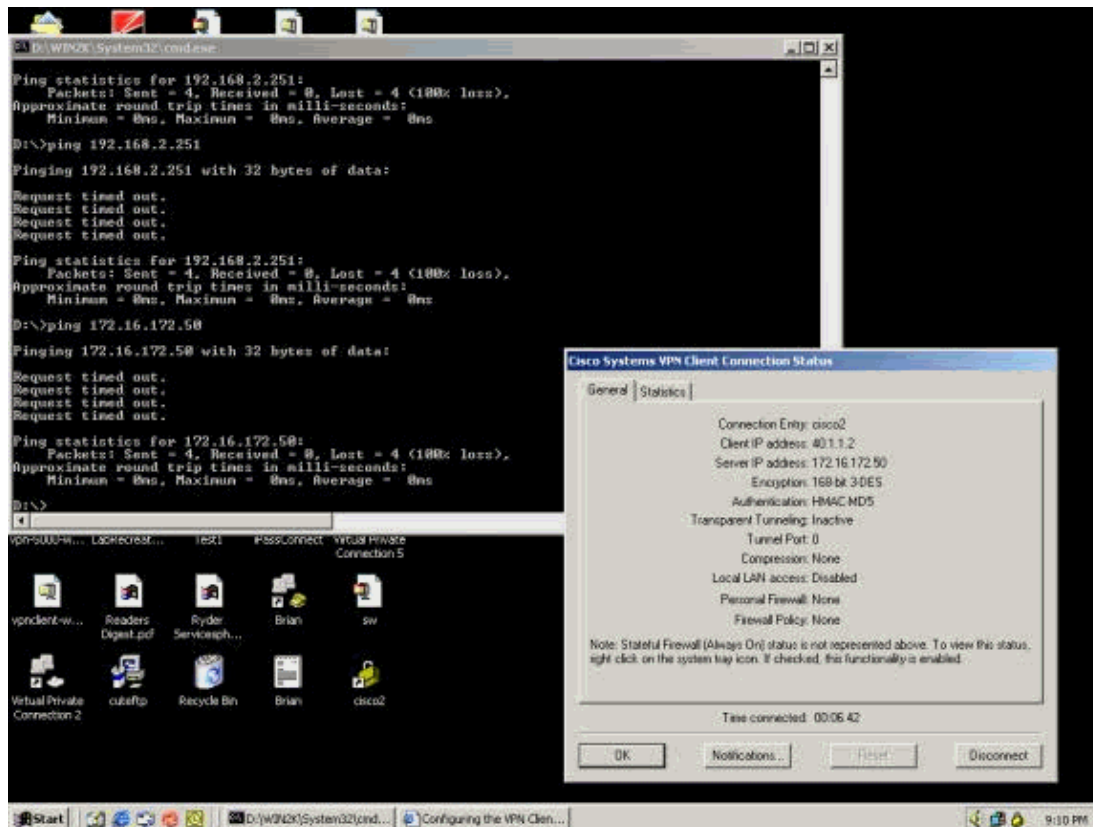
Connection Name	IP Address	Protocol	Encryption	Login Time	Duration	Bytes Tx	Bytes Rx	Actions
No LAN-to-LAN Sessions								

**Remote Access Sessions** [ LAN-to-LAN Sessions | Management Sessions ]

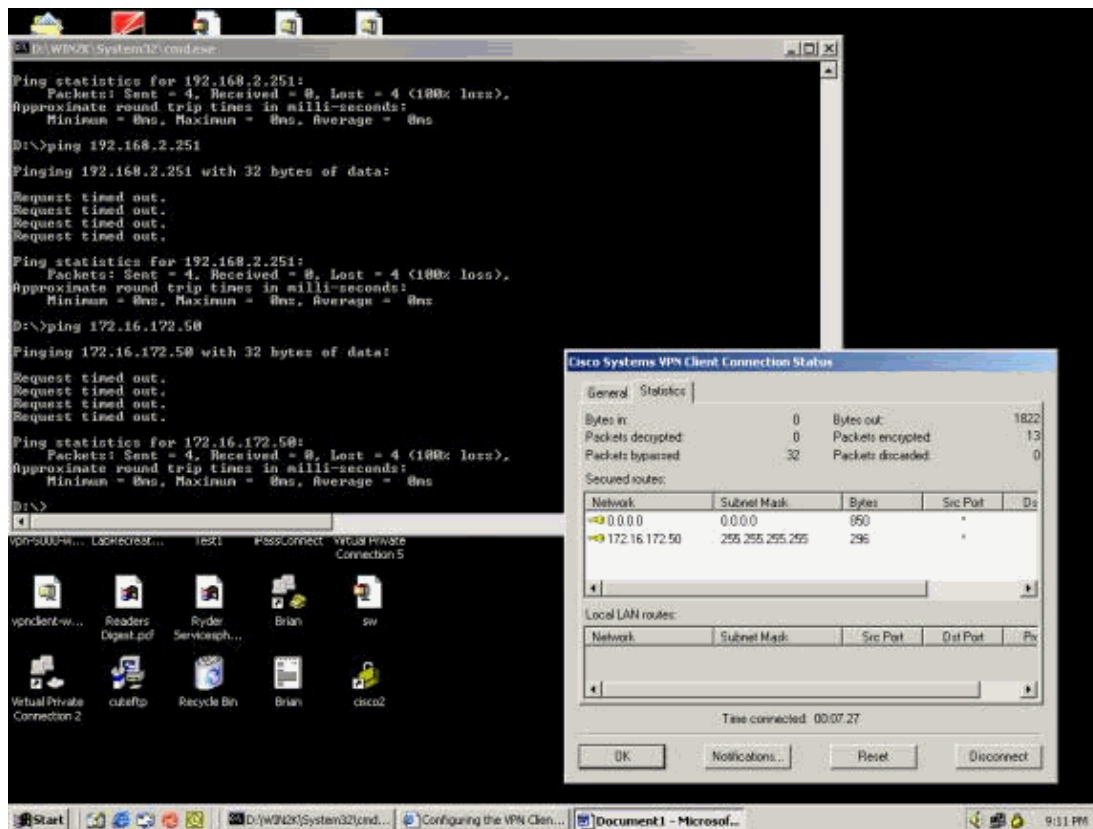
Username	Assigned IP Address	Group	Protocol	Login Time	Client Type	Bytes Tx	Bytes Rx	Actions
vpnclient2	40.1.1.1	ciscovpn	IPSec	Oct 20 20:57:15	WinNT	0	0	[Logout   Ping]
	171.69.89.78							
vpnclient1	40.1.1.2	ciscovpn	IPSec	Oct 20 20:58:38	WinNT	0	0	[Logout   Ping]
	171.69.89.78							

**Management Sessions** [ LAN-to-LAN Sessions | Remote Access Sessions ]

The example below shows the statistics of the VPN Client. Notice that the tunnel port negotiated is 0. There is an attempt to ping 192.168.2.251 (private interface of the VPN 3000 Concentrator) and 172.16.172.50 from a DOS prompt. However, these pings are failing because no tunnel port has been negotiated and, thus, the IPSec data is being discarded on the remote VPN server.



The example below shows that the VPN Client is sending encrypted data (13 packets). But the number of decrypted packets is zero for the remote VPN server, and it has not sent any encrypted data back. Since no tunnel port has been negotiated, the remote VPN server discards the packets and sends no reply data.



## Related Information

- [Cisco VPN 3000 Series Concentrator Support Page](#)
- [Cisco VPN 3000 Series Client Support Page](#)
- [IPSec Support Page](#)
- [Technical Support & Documentation – Cisco Systems](#)

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