Configuring Cisco VPN 3002 Hardware Client to Cisco IOS Router with EzVPN in Network Extension Mode

Document ID: 24226

Contents

Introduction

This document describes the configuration of a Cisco VPN 3002 Hardware Client that connects to a Cisco IOS® Router in Network Extension Mode with Cisco IOS Software Release 12.2(8)T and Easy VPN (EzVPN) server functionality. This allows Cisco IOS to terminate VPN tunnels that come from EzVPN Clients, such as VPN Clients, PIX, and Cisco IOS EzVPN Clients. There are a minium of five security associations (SAs) (one Internet Key Exchange [IKE] plus four IPSec) when the VPN Client connects to a headend device. This is due to the fact that when the VPN Client connects to the headend, it always negotiates two IPSec SAs with an IP address of a concentrator's public interface to the IP address of the headend. This tunnel is used for management purposes to connect to the VPN Client from the headend either via the GUI or the Command Line Interface (CLI). This is done automatically. The other two are for the data traffic between the networks behind the VPN Client and the Cisco IOS router.

Refer to Configuring the VPN 3002 Hardware Client to PIX 6.x in order to learn more about the same scenario where the VPN server is the PIX 6.x.

Refer to Configuring a Connection Between the VPN 3002 Hardware Client and a VPN 3000 Concentrator in Network Extension Mode in order to learn more about the same scenario where the VPN server is the Cisco VPN 3000 series concentrator.

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 3002 Hardware Client
- Cisco IOS Software Release 12.2(8)T and later

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.

Conventions

Refer to Cisco Technical Tips Conventions for more information on document conventions.

Configurations

In this section, you are presented with the information to configure the features described in this document.

Note: Use the Command Lookup Tool (registered customers only) to find more information on the commands used in this document.

Network Diagram

This document uses this network setup:

This document uses these configurations.

- Cisco IOS Router
- Cisco VPN 3002 Hardware Client

Cisco IOS Router

```
akim#show running
Current configuration : 1449 bytes
!
version 12.2
service config
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname akim
!

!--- Enable Authentication, Authorizing and Accounting (AAA)
!--- for user authentication and group authorization.
```

```
aaa new-model

!--- To enable X-Auth for user authentication,
!--- enable the AAA commands.

aaa authentication login userauthen local

!--- To enable group authorization,
!--- enable the AAA commands.

aaa authorization network groupauthor local
aaa session-id common
!

!--- Define the username and password to be used for X-Auth.

username fadi password 0 cisco
memory-size iomem 10
ip subnet-zero
!
!
!

!--- Create an Internet Security Association and
!--- Key Management Protocol (ISAKMP) policy for Phase 1 negotiations.

crypto isakmp policy 3
 encr 3des
 authentication pre-share
 group 2
!

!--- Create a group with the pre-shared key for IKE authentication.

crypto isakmp client configuration group fadigroup
 key cisco123
!
!

!--- Create the Phase 2 policy for actual data encryption.

crypto ipsec transform-set myset esp-3des esp-sha-hmac
!

!--- Create a dynamic map and
!--- apply the transform set that was created earlier.

crypto dynamic-map dynmap 10
 set transform-set myset
!

!--- Create the actual crypto map,
!--- and apply the AAA lists that were created earlier.
!--- These commands associate the AAA commands to the crypto map.

crypto map clientmap client authentication list userauthen
crypto map clientmap isakmp authorization list groupauthor
crypto map clientmap 10 ipsec-isakmp dynamic dynmap
!
!
!
!
!
!
!
```

```
!
fax interface-type fax-mail
mta receive maximum-recipients 0
!
!
!
!

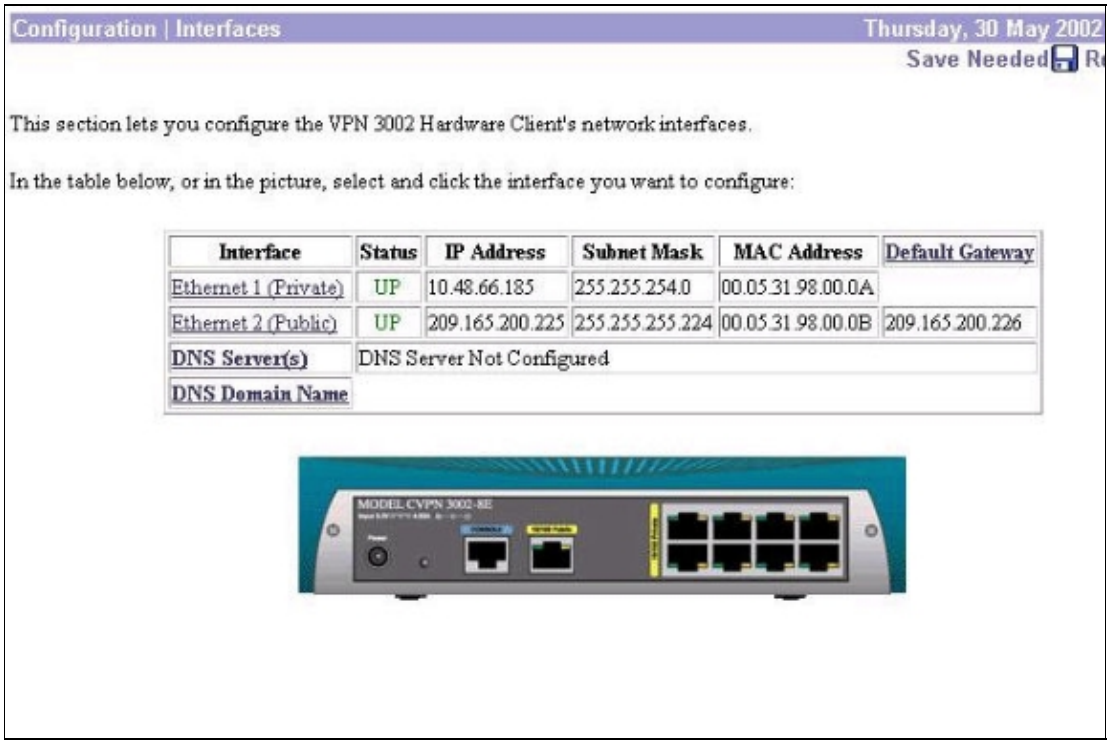
!--- Apply the crypto map on the interface where
!--- traffic leaves the router.

interface FastEthernet0/0
 ip address 209.165.202.129 255.255.255.224
duplex auto
 speed auto
 crypto map clientmap
!
interface Serial0/0
 no ip address
 shutdown
 no fair-queue
 clockrate 2000000
!
interface FastEthernet0/1
 ip address 10.48.220.1 255.255.254.0
duplex auto
 speed auto
!
interface Serial0/1
 no ip address
 shutdown
 clockrate 2000000
!
ip classless
ip route 0.0.0.0 0.0.0.0 209.165.202.130
ip http server
ip pim bidir-enable
!
!
!
!
call rsvp-sync
!
!
mgcp profile default
!
dial-peer cor custom
!
!
!
!
!
line con 0
 exec-timeout 0 0
line aux 0
line vty 0 4
!
!
end
```

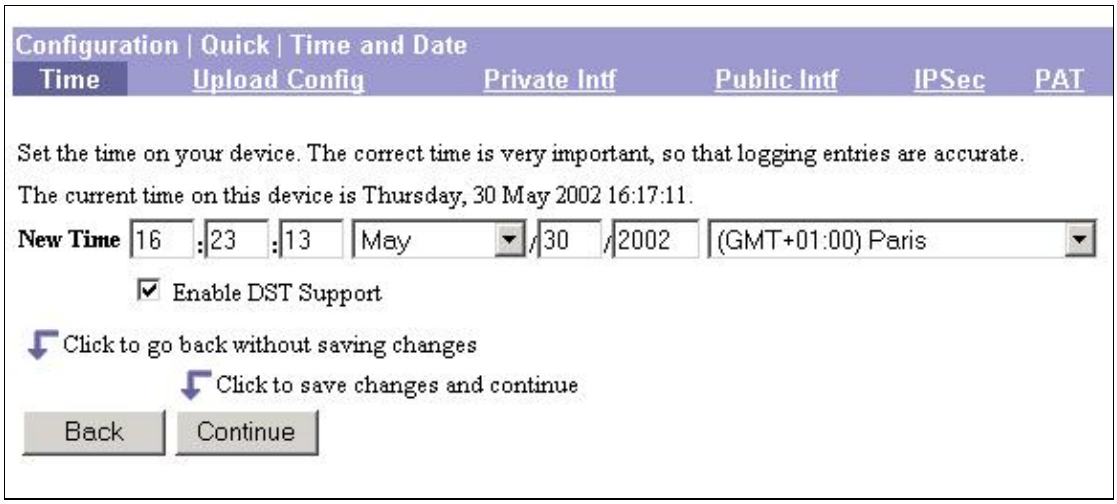
Configure the Cisco VPN 3002 Hardware Client

Complete these steps in order to configure the VPN Client:

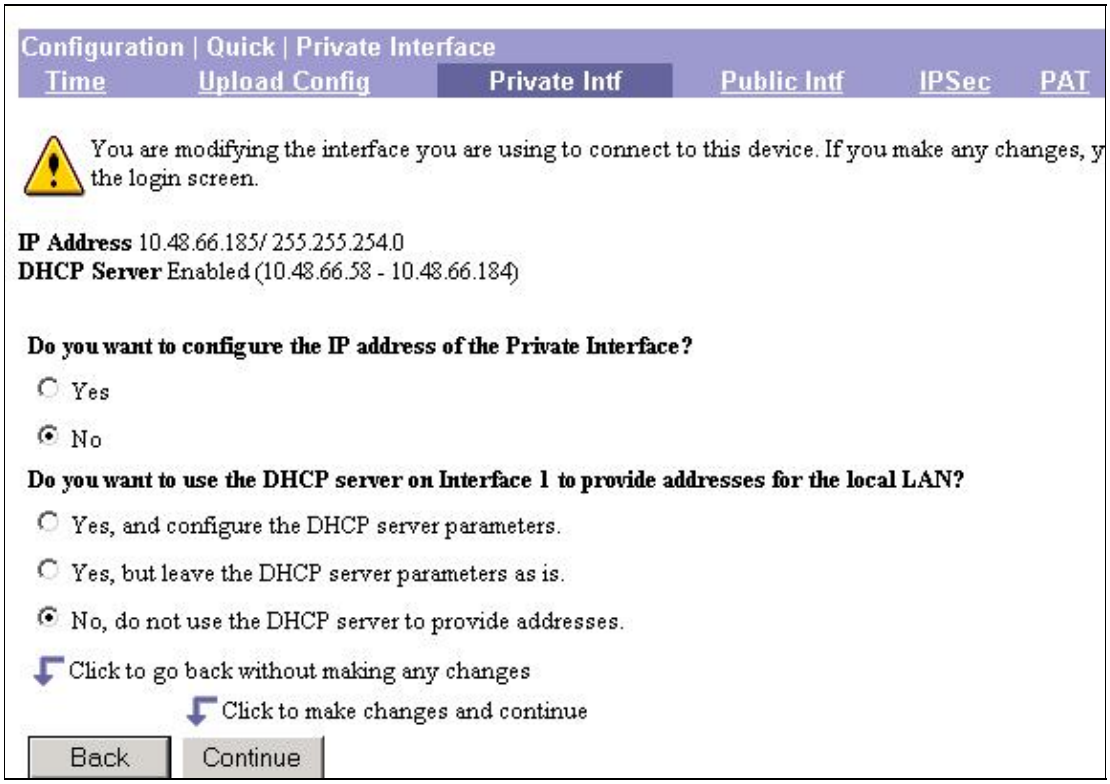
1. Select **Configuration** > **Interfaces** and check the IP address.



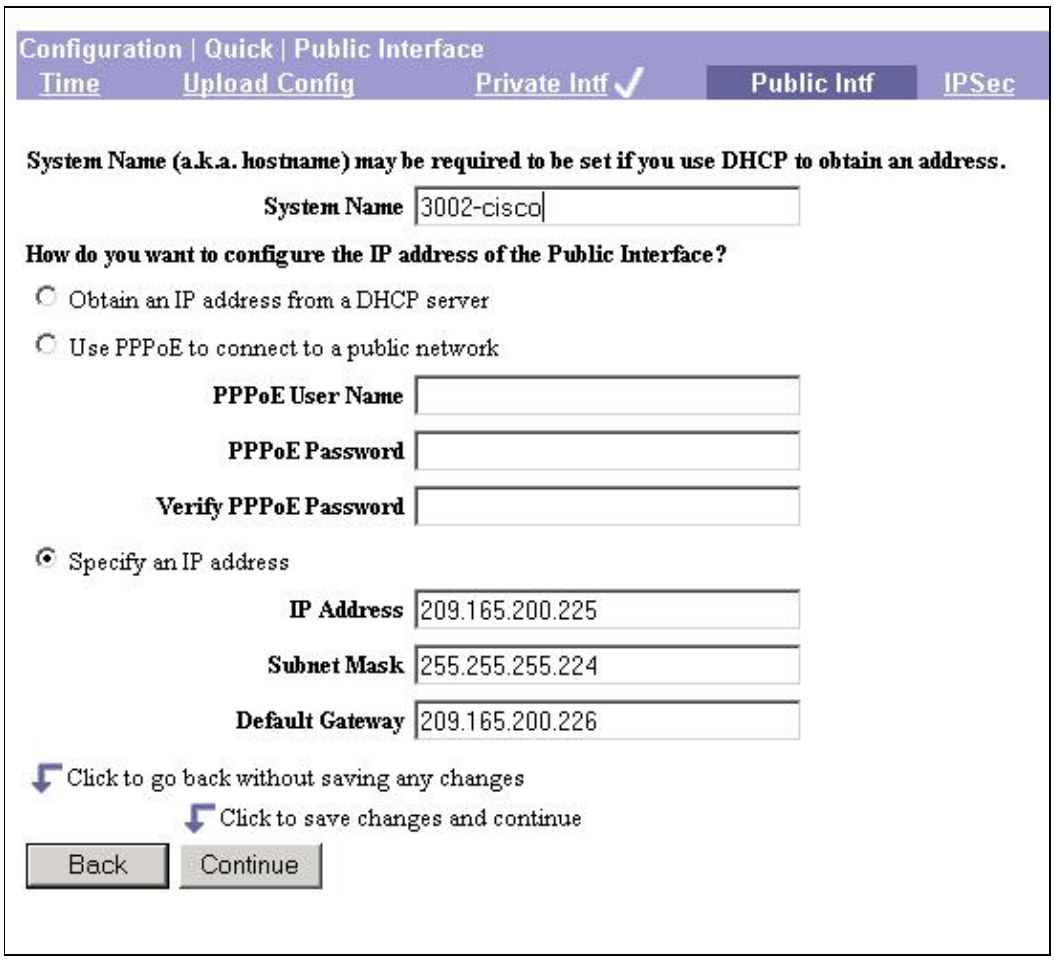
2. Select **Configuration** > **Quick** > **Time and Date** > **Time** to set and verify the time.



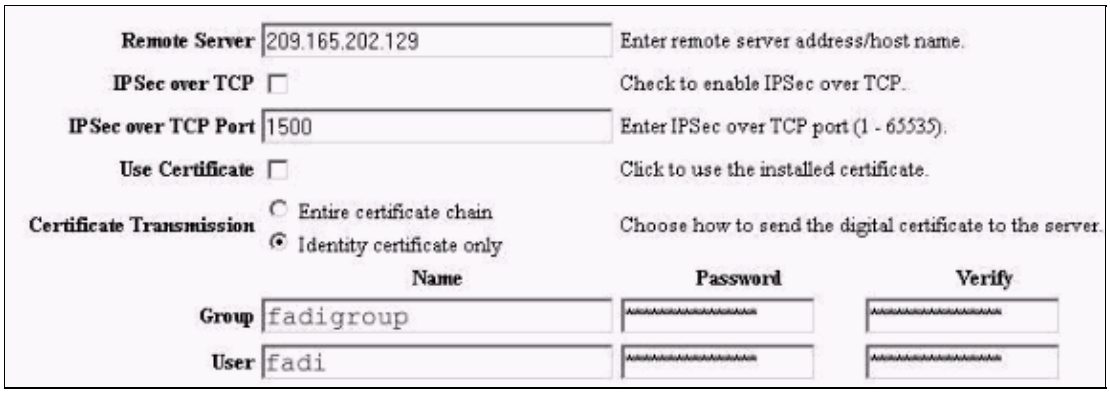
3. Select **Configuration** > **Quick** > **Private Interface** > **Private Intf** to configure the static IP addresses on the internal hosts (no DHCP).
4. Select **No** for "Do you want to configure the IP address of the Private Interface?".
5. Select **No, do not use the DHCP server to provide addresses** for "Do you want to use the DHCP server on Interface 1 to provide addresses for the local LAN?".



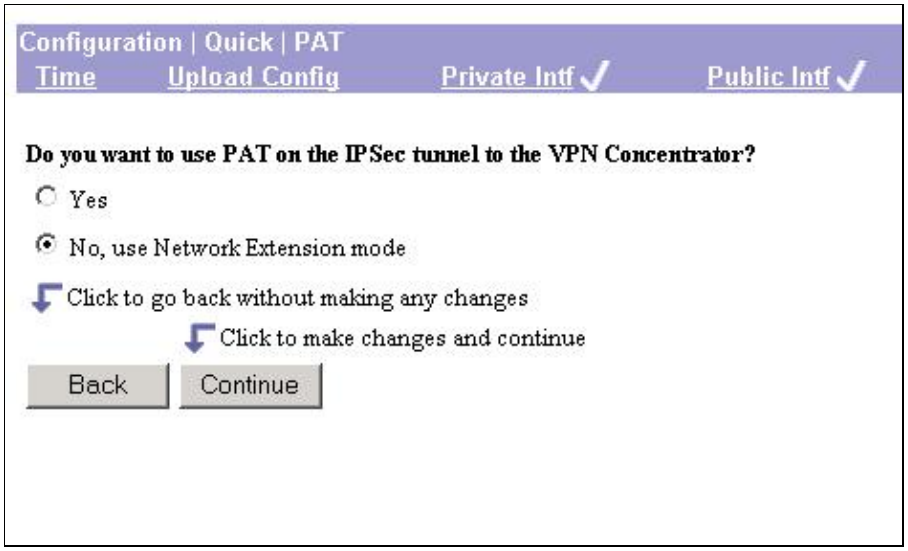
6. Specify IP address if you have static by selecting **Configuration** > **Quick** > **Public Interface** > **Public Intf**.
7. From the Public Interface window, select **Specify an IP address** and enter the appropriate IP address, Subnet Mask, and Default Gateway.



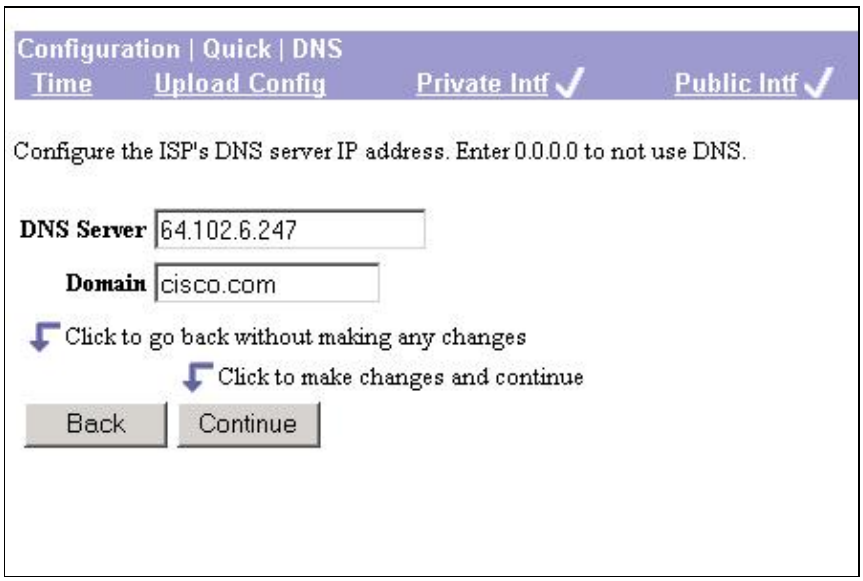
8. Configure the remote VPN peer (public IP address of router). In order to do this, select **Configuration** > **Quick** > **IPSec** and enter **fadigroup** for the Group Name, **cisco123** for the Group Password, **fadi** for the User Name, and **cisco** for the User Password.



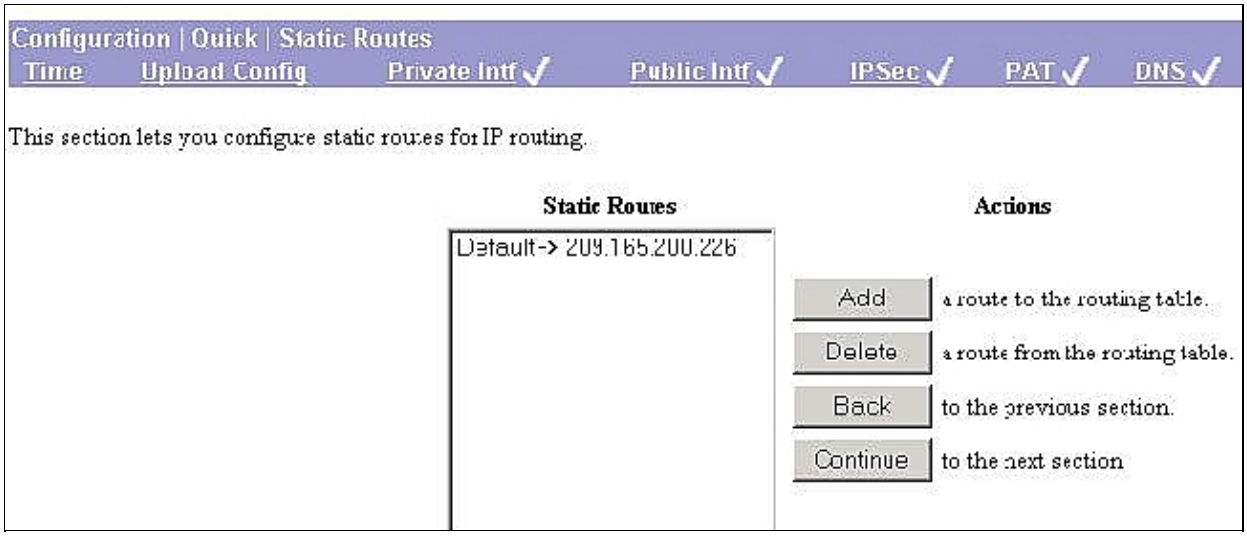
9. Select **Configuration** > **Quick** > **PAT** and choose **No, use Network Extension mode** from the PAT window to configure Network Extension mode.



10. Select **Configuration** > **Quick** > **DNS** and enter the ISP's DNS Server and Domain name to configure DNS.



11. Select **Configuration** > **Quick** > **Static Routes** and click **Add** to add a static route to the routing table to configure the default gateway of the VPN Client.



Verify

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

The Output Interpreter Tool (registered customers only) (OIT) supports certain **show** commands. Use the OIT to view an analysis of **show** command output.

Refer to IP Security Troubleshooting − Understanding and Using **debug** Commands for pertinent **show** commands.

Troubleshoot

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

Note: If PAT Enabled is used in Cisco VPN 3002 client, the reload removes the username and password that exists. You have to configure the new username and password for the client.

Note: If PAT Disabled (NEM) is used, the reload retains the username and password provided that the head end is configured for saving the username and password.

Troubleshooting Procedure

This is troubleshooting information relevant to this configuration. For additional information on troubleshooting, refer to IP Security Troubleshooting − Understanding and Using **debug** Commands . Complete these steps to troubleshoot your configuration:

1. Ensure that you see the Phase 1 and Phase 2 SA establishment. Use the **debug** baseline in the Troubleshooting Commands section.
2. Once you see the SAs, send traffic between the protected networks to test the connectivity.

Troubleshooting Commands

The Output Interpreter Tool (registered customers only) (OIT) supports certain **show** commands. Use the OIT to view an analysis of **show** command output.

Note: Refer to Important Information on Debug Commands before you use **debug** commands.

- **debug crypto ipsec** Displays IPSec events.
- **debug crypto isakmp** Displays messages about IKE events.
- **debug crypto engine** Displays debug messages about crypto engines, which perform encryption and decryption.

```
!--- Cisco IOS has received a request for new SA from the VPN Client.

03:36:19: ISAKMP (0:0): received packet from 209.165.200.225 (N) NEW SA
03:36:19: ISAKMP: local port 500, remote port 500
03:36:19: ISAKMP (0:1): (Re)Setting client xauth list userauthen and state
03:36:19: ISAKMP: Locking CONFIG struct 0x631B752C from crypto_ikmp_config_initialize_sa,
count 1
03:36:19: ISAKMP (0:1): processing SA payload. message ID = 0
03:36:19: ISAKMP (0:1): processing ID payload. message ID = 0
03:36:19: ISAKMP (0:1): processing vendor id payload
03:36:19: ISAKMP (0:1): vendor ID seems Unity/DPD but bad major
03:36:19: ISAKMP (0:1): vendor ID is XAUTH
03:36:19: ISAKMP (0:1): processing vendor id payload
03:36:19: ISAKMP (0:1): vendor ID is Unity

!--- Cisco IOS checks the incoming ISAKMP proposal with the policy
!--- defined in Cisco IOS.

03:36:19: ISAKMP (0:1): Checking ISAKMP transform 1 against priority 3 policy
03:36:19: ISAKMP:      default group 2
03:36:19: ISAKMP:      encryption 3DES-CBC
03:36:19: ISAKMP:      hash SHA
03:36:19: ISAKMP:      auth XAUTHInitPreShared
03:36:19: ISAKMP:      life type in seconds
03:36:19: ISAKMP:      life duration (VPI) of  0x7F 0xFF 0xFF 0xFF
03:36:19: ISAKMP (0:1): atts are acceptable. Next payload is 3
03:36:19: CryptoEngine0: generate alg parameter
03:36:19: CRYPTO_ENGINE: Dh phase 1 status: 0
03:36:19: CRYPTO_ENGINE: Dh phase 1 status: 0
03:36:19: ISAKMP (0:1): processing KE payload. message ID = 0
03:36:19: CryptoEngine0: generate alg parameter
03:36:19: ISAKMP (0:1): processing NONCE payload. message ID = 0
03:36:19: ISAKMP (0:1): processing vendor id payload
03:36:19: ISAKMP (0:1): vendor ID seems Unity/DPD but bad major
03:36:19: ISAKMP (0:1): vendor ID is XAUTH
03:36:19: ISAKMP (0:1): processing vendor id payload
03:36:19: ISAKMP (0:1): vendor ID is Unity
03:36:19: ISAKMP (0:1): Input = IKE_MESG_FROM_PEER, IKE_AM_EXCH
Old State = IKE_READY  New State = IKE_R_AM_AAA_AWAIT
03:36:19: ISAKMP: got callback 1
03:36:19: CryptoEngine0: create ISAKMP SKEYID for conn id 1
03:36:19: ISAKMP (0:1): SKEYID state generated
03:36:19: ISAKMP (0:1): SA is doing pre-shared key authentication plux
XAUTH using id type ID_IPV4_ADDR
03:36:19: ISAKMP (1): ID payload
        next-payload : 10
        type         : 1
        protocol     : 17
        port         : 500
        length       : 8
03:36:19: ISAKMP (1): Total payload length: 12
03:36:19: CryptoEngine0: generate hmac context for conn id 1
03:36:19: ISAKMP (0:1): sending packet to 209.165.200.225
(R) AG_INIT_EXCH
03:36:19: ISAKMP (0:1): Input = IKE_MESG_FROM_AAA, PRESHARED_KEY_REPLY
Old State = IKE_R_AM_AAA_AWAIT  New State = IKE_R_AM2
03:36:27: ISAKMP (0:1): received packet from 209.165.200.225
(R) AG_INIT_EXCH
03:36:28: ISAKMP (0:1): sending packet to 209.165.200.225 (R) AG_INIT_EXCH
```

```
03:36:28: ISAKMP (0:1): received packet from 209.165.200.225
(R) AG_INIT_EXCH
03:36:28: ISAKMP (0:1): processing HASH payload. message ID = 0
03:36:28: CryptoEngine0: generate hmac context for conn id 1
03:36:28: ISAKMP (0:1): processing NOTIFY INITIAL_CONTACT protocol 1
        spi 0, message ID = 0, sa = 63393F7C
03:36:28: ISAKMP (0:1): Process initial contact, bring down
existing phase 1 and 2 SA's
03:36:28: ISAKMP (0:1): returning IP addr to the address pool
03:36:28: ISAKMP (0:1): peer does not do paranoid keepalives.
03:36:28: ISAKMP (0:1): processing vendor id payload
03:36:28: ISAKMP (0:1): vendor ID is DPD

!--- Phase 1 is now complete and ISAKMP SA is negoitated.

03:36:28: ISAKMP (0:1): SA has been authenticated with
209.165.200.225


03:36:28: CryptoEngine0: clear dh number for conn id 1
03:36:28: CryptoEngine0: generate hmac context for conn id 1
03:36:28: ISAKMP (0:1): sending packet to 209.165.200.225 (R) QM_IDLE
03:36:28: ISAKMP (0:1): purging node -2033367886
03:36:28: ISAKMP: Sending phase 1 responder lifetime 86400
03:36:28: ISAKMP (0:1): Input = IKE_MESG_FROM_PEER, IKE_AM_EXCH
Old State = IKE_R_AM2  New State = IKE_P1_COMPLETE
03:36:28: IPSEC(key_engine): got a queue event...
03:36:28: IPSEC(key_engine_delete_sas): rec'd delete notify from ISAKMP
03:36:28: IPSEC(key_engine_delete_sas): delete all SAs shared
with 209.165.200.225

!--- Proceed to the Extended Authentication.
!--- Remember that XAUTH is done before Phase 2 and after Phase 1.

03:36:28: ISAKMP (0:1): Need XAUTH
03:36:28: ISAKMP (0:1): Input = IKE_MESG_INTERNAL, IKE_PHASE1_COMPLETE
Old State = IKE_P1_COMPLETE  New State = IKE_XAUTH_AAA_START_LOGIN_AWAIT
03:36:28: ISAKMP: got callback 1
03:36:28: ISAKMP/xauth: request attribute XAUTH_TYPE_V2
03:36:28: ISAKMP/xauth: request attribute XAUTH_MESSAGE_V2
03:36:28: ISAKMP/xauth: request attribute XAUTH_USER_NAME_V2
03:36:28: ISAKMP/xauth: request attribute XAUTH_USER_PASSWORD_V2
03:36:28: CryptoEngine0: generate hmac context for conn id 1
03:36:28: ISAKMP (0:1): initiating peer config to
209.165.200.225. ID = 1189186805
03:36:28: ISAKMP (0:1): sending packet to 209.165.200.225 (R) CONF_XAUTH
03:36:28: ISAKMP (0:1): Input = IKE_MESG_FROM_AAA, IKE_AAA_START_LOGIN
Old State = IKE_XAUTH_AAA_START_LOGIN_AWAIT  New State = IKE_XAUTH_REQ_SENT
03:36:28: ISAKMP (0:1): received packet from 209.165.200.225 (R) CONF_XAUTH
03:36:28: ISAKMP (0:1): processing transaction payload from 209.165.200.225.
message ID = 1189186805
03:36:28: CryptoEngine0: generate hmac context for conn id 1
03:36:28: ISAKMP: Config payload REPLY
03:36:28: ISAKMP/xauth: reply attribute XAUTH_USER_NAME_V2
03:36:28: ISAKMP/xauth: reply attribute XAUTH_USER_PASSWORD_V2
03:36:28: ISAKMP (0:1): deleting node 1189186805 error FALSE reason
"done with xauth request/reply exchange"
03:36:28: ISAKMP (0:1): Input = IKE_MESG_FROM_PEER, IKE_CFG_REPLY
Old State = IKE_XAUTH_REQ_SENT  New State = IKE_XAUTH_AAA_CONT_LOGIN_AWAIT
03:36:28: ISAKMP: got callback 1
03:36:28: CryptoEngine0: generate hmac context for conn id 1
03:36:28: ISAKMP (0:1): initiating peer config to 209.165.200.225.
ID = 1490194005
03:36:28: ISAKMP (0:1): sending packet to 209.165.200.225 (R) CONF_XAUTH
03:36:28: ISAKMP (0:1): Input = IKE_MESG_FROM_AAA, IKE_AAA_CONT_LOGIN
Old State = IKE_XAUTH_AAA_CONT_LOGIN_AWAIT  New State = IKE_XAUTH_SET_SENT
```

```
03:36:28: ISAKMP (0:1): received packet from 209.165.200.225 (R) CONF_XAUTH
03:36:28: ISAKMP (0:1): processing transaction payload from
209.165.200.225. message ID = 1490194005
03:36:28: CryptoEngine0: generate hmac context for conn id 1
03:36:28: ISAKMP: Config payload ACK
03:36:28: ISAKMP (0:1):        XAUTH ACK Processed
03:36:28: ISAKMP (0:1): deleting node 1490194005 error
FALSE reason "done with transaction"
03:36:28: ISAKMP (0:1): Input = IKE_MESG_FROM_PEER, IKE_CFG_ACK
Old State = IKE_XAUTH_SET_SENT  New State = IKE_P1_COMPLETE
03:36:28: ISAKMP (0:1): received packet from 209.165.200.225 (R) QM_IDLE
03:36:28: ISAKMP (0:1): processing transaction payload from
209.165.200.225. message ID = 113305927
03:36:28: CryptoEngine0: generate hmac context for conn id 1
03:36:28: ISAKMP: Config payload REQUEST
03:36:28: ISAKMP (0:1): checking request:
03:36:28: ISAKMP:    IP4_DNS
03:36:28: ISAKMP:    IP4_DNS
03:36:28: ISAKMP:    IP4_NBNS
03:36:28: ISAKMP:    IP4_NBNS
03:36:28: ISAKMP:    SPLIT_INCLUDE
03:36:28: ISAKMP:    DEFAULT_DOMAIN
03:36:28: ISAKMP:    UNKNOWN Unknown Attr: 0x7005
03:36:28: ISAKMP:    UNKNOWN Unknown Attr: 0x7007
03:36:28: ISAKMP:    UNKNOWN Unknown Attr: 0x7800
03:36:28: ISAKMP:    UNKNOWN Unknown Attr: 0x7801
03:36:28: ISAKMP:    UNKNOWN Unknown Attr: 0x7802
03:36:28: ISAKMP:    UNKNOWN Unknown Attr: 0x7803
03:36:28: ISAKMP:    UNKNOWN Unknown Attr: 0x7804
03:36:28: ISAKMP:    UNKNOWN Unknown Attr: 0x7805
03:36:28: ISAKMP:    UNKNOWN Unknown Attr: 0x7806
03:36:28: ISAKMP:    UNKNOWN Unknown Attr: 0x7009
03:36:28: ISAKMP:    APPLICATION_VERSION
03:36:28: ISAKMP (0:1): Input = IKE_MESG_FROM_PEER, IKE_CFG_REQUEST
Old State = IKE_P1_COMPLETE  New State = IKE_CONFIG_AUTHOR_AAA_AWAIT
03:36:28: ISAKMP (0:1): Unknown Input: state = IKE_CONFIG_AUTHOR_AAA_AWAIT,
major, minor = IKE_MESG_INTERNAL, IKE_PHASE1_COMPLETE
03:36:28: ISAKMP: got callback 1
03:36:28: ISAKMP (0:1): Config attributes requested butconfig attributes
 not in crypto map.  Sending empty reply.
03:36:28: ISAKMP (0:1): attributes sent in message:
03:36:28: ISAKMP: Unknown Attr: UNKNOWN (0x7005)
03:36:28: ISAKMP: Unknown Attr: UNKNOWN (0x7007)
03:36:28: ISAKMP: Unknown Attr: UNKNOWN (0x7800)
03:36:28: ISAKMP: Unknown Attr: UNKNOWN (0x7801)
03:36:28: ISAKMP: Unknown Attr: UNKNOWN (0x7802)
03:36:28: ISAKMP: Unknown Attr: UNKNOWN (0x7803)
03:36:28: ISAKMP: Unknown Attr: UNKNOWN (0x7804)
03:36:28: ISAKMP: Unknown Attr: UNKNOWN (0x7805)
03:36:28: ISAKMP: Unknown Attr: UNKNOWN (0x7806)
03:36:28: ISAKMP: Unknown Attr: UNKNOWN (0x7009)
03:36:28: ISAKMP: Sending APPLICATION_VERSION string: Cisco
Internetwork Operating System Software
IOS (tm) 3600 Software (C3640-JK9S-M), Version 12.2(8)T1,
RELEASE SOFTWARE (fc2)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2002 by cisco Systems, Inc.
Compiled Sun 31-Mar-02 03:30 by ccai
03:36:28: CryptoEngine0: generate hmac context for conn id 1
03:36:28: ISAKMP (0:1): responding to peer config from
209.165.200.225. ID = 113305927
03:36:28: ISAKMP (0:1): sending packet to 209.165.200.225 (R) CONF_ADDR
03:36:28: ISAKMP (0:1): deleting node 113305927 error FALSE reason ""
03:36:28: ISAKMP (0:1): Input = IKE_MESG_FROM_AAA, IKE_AAA_GROUP_ATTR
Old State = IKE_CONFIG_AUTHOR_AAA_AWAIT  New State = IKE_P1_COMPLETE
03:36:28: ISAKMP (0:1): received packet from 209.165.200.225 (R) QM_IDLE
```

```
03:36:28: CryptoEngine0: generate hmac context for conn id 1
03:36:28: ISAKMP (0:1): processing HASH payload. message ID = 1022849755
03:36:28: ISAKMP (0:1): processing SA payload. message ID = 1022849755

!--- ISAKMP now verifies the IPSec proposal
!--- to see if it is acceptable.

03:36:28: ISAKMP (0:1): Checking IPSec proposal 1
03:36:28: ISAKMP: transform 1, ESP_3DES
03:36:28: ISAKMP:   attributes in transform:
03:36:28: ISAKMP:      SA life type in seconds
03:36:28: ISAKMP:      SA life duration (VPI) of  0x7F 0xFF 0xFF 0xFF
03:36:28: ISAKMP:      encaps is 1
03:36:28: ISAKMP:      authenticator is HMAC-SHA
03:36:28: validate proposal 0
03:36:28: ISAKMP (0:1): atts are acceptable.

!--- As the attributes are acceptable, ISAKMP asks
!--- IPSec to validate the proposal.

03:36:28: IPSEC(validate_proposal_request): proposal part #1,
  (key eng. msg.) INBOUND local= 209.165.202.129, remote= 209.165.200.225,
    local_proxy= 209.165.202.129/255.255.255.255/0/0 (type=1),
    remote_proxy= 209.165.200.225/255.255.255.255/0/0 (type=1),
    protocol= ESP, transform= esp-3des esp-sha-hmac ,
    lifedur= 0s and 0kb,
    spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x4
03:36:28: validate proposal request 0
03:36:28: ISAKMP (0:1): processing NONCE payload. message ID = 1022849755
03:36:28: ISAKMP (0:1): processing ID payload. message ID = 1022849755
03:36:28: ISAKMP (0:1): processing ID payload. message ID = 1022849755
03:36:28: ISAKMP (0:1): asking for 1 spis from ipsec
03:36:28: ISAKMP (0:1): Node 1022849755, Input = IKE_MESG_FROM_PEER, IKE_QM_EXCH
Old State = IKE_QM_READY  New State = IKE_QM_SPI_STARVE
03:36:28: IPSEC(key_engine): got a queue event...
03:36:28: IPSEC(spi_response): getting spi 1910172102 for SA
        from 209.165.202.129 to 209.165.200.225 for prot 3
03:36:28: ISAKMP: received ke message (2/1)
03:36:28: CryptoEngine0: generate hmac context for conn id 1
03:36:28: ISAKMP (0:1): sending packet to 209.165.200.225 (R) QM_IDLE
03:36:28: ISAKMP (0:1): Node 1022849755, Input = IKE_MESG_FROM_IPSEC, IKE_SPI_REPLY
Old State = IKE_QM_SPI_STARVE  New State = IKE_QM_R_QM2
03:36:28: ISAKMP (0:1): received packet from 209.165.200.225 (R) QM_IDLE
03:36:28: CryptoEngine0: generate hmac context for conn id 1
03:36:28: ipsec allocate flow 0
03:36:28: ipsec allocate flow 0

!--- After IPSec validates the proposal,
!--- IPSec proceeds to create the IPSec SAs.

03:36:28: ISAKMP (0:1): Creating IPSec SAs
03:36:28:         inbound SA from 209.165.200.225 to 209.165.202.129
        (proxy 209.165.200.225 to 209.165.202.129)
03:36:28:         has spi 0x71DAE9C6 and conn_id 2000 and flags 4
03:36:28:         lifetime of 2147483647 seconds
03:36:28:         outbound SA from 209.165.202.129 to 209.165.200.225
(proxy 209.165.202.129 to 209.165.200.225)
03:36:28:         has spi 101033821 and conn_id 2001 and flags C
03:36:28:         lifetime of 2147483647 seconds
03:36:28: ISAKMP (0:1): deleting node 1022849755 error FALSE
reason "quick mode done (await()"
03:36:28: ISAKMP (0:1): Node 1022849755, Input = IKE_MESG_FROM_PEER, IKE_QM_EXCH
Old State = IKE_QM_R_QM2  New State = IKE_QM_PHASE2_COMPLETE
03:36:28: IPSEC(key_engine): got a queue event...
03:36:28: IPSEC(initialize_sas): ,
  (key eng. msg.) INBOUND local= 209.165.202.129, remote= 209.165.200.225,
```

```
!--- This is the management tunnel.

    local_proxy= 209.165.202.129/0.0.0.0/0/0 (type=1),
    remote_proxy= 209.165.200.225/0.0.0.0/0/0 (type=1),
protocol= ESP, transform= esp-3des esp-sha-hmac ,
    lifedur= 2147483647s and 0kb,
    spi= 0x71DAE9C6(1910172102), conn_id= 2000, keysize= 0, flags= 0x4
03:36:28: IPSEC(initialize_sas): ,
  (key eng. msg.) OUTBOUND local= 209.165.202.129, remote= 209.165.200.225,
    local_proxy= 209.165.202.129/0.0.0.0/0/0 (type=1),
    remote_proxy= 209.165.200.225/0.0.0.0/0/0 (type=1),
    protocol= ESP, transform= esp-3des esp-sha-hmac,
    lifedur= 2147483647s and 0kb,
    spi= 0x605A75D(101033821), conn_id= 2001, keysize= 0, flags= 0xC
03:36:28: IPSEC(create_sa): sa created,
  (sa) sa_dest= 209.165.202.129, sa_prot= 50,
    sa_spi= 0x71DAE9C6(1910172102),
    sa_trans= esp-3des esp-sha-hmac , sa_conn_id= 2000
03:36:28: IPSEC(create_sa): sa created,
  (sa) sa_dest= 209.165.200.225, sa_prot= 50,
    sa_spi= 0x605A75D(101033821),
    sa_trans= esp-3des esp-sha-hmac , sa_conn_id= 2001
03:36:28: ISAKMP: received ke message (4/1)
03:36:28: ISAKMP: Locking CONFIG struct 0x631B752C for
crypto_ikmp_config_handle_kei_mess, count 2
03:36:32: ISAKMP (0:1): received packet from 209.165.200.225 (R) QM_IDLE
03:36:32: CryptoEngine0: generate hmac context for conn id 1
03:36:32: ISAKMP (0:1): processing HASH payload. message ID = 852253052
03:36:32: ISAKMP (0:1): processing SA payload. message ID = 852253052
03:36:32: ISAKMP (0:1): Checking IPSec proposal 1
03:36:32: ISAKMP: transform 1, ESP_3DES
03:36:32: ISAKMP:   attributes in transform:
03:36:32: ISAKMP:      SA life type in seconds
03:36:32: ISAKMP:      SA life duration (VPI) of  0x7F 0xFF 0xFF 0xFF
03:36:32: ISAKMP:      encaps is 1
03:36:32: ISAKMP:      authenticator is HMAC-SHA
03:36:32: validate proposal 0
03:36:32: ISAKMP (0:1): atts are acceptable.
03:36:32: IPSEC(validate_proposal_request): proposal part #1,
  (key eng. msg.) INBOUND local= 209.165.202.129, remote= 209.165.200.225,
    local_proxy= 0.0.0.0/0.0.0.0/0/0 (type=4),
    remote_proxy= 10.48.66.0/255.255.254.0/0/0 (type=4),
    protocol= ESP, transform= esp-3des esp-sha-hmac ,
    lifedur= 0s and 0kb,
    spi= 0x0(0), conn_id= 0, keysize= 0, flags= 0x4
03:36:32: validate proposal request 0
03:36:32: ISAKMP (0:1): processing NONCE payload. message ID = 852253052
03:36:32: ISAKMP (0:1): processing ID payload. message ID = 852253052
03:36:32: ISAKMP (0:1): processing ID payload. message ID = 852253052
03:36:32: ISAKMP (0:1): asking for 1 spis from ipsec
03:36:32: ISAKMP (0:1): Node 852253052, Input = IKE_MESG_FROM_PEER, IKE_QM_EXCH
Old State = IKE_QM_READY  New State = IKE_QM_SPI_STARVE
03:36:32: IPSEC(key_engine): got a queue event...
03:36:32: IPSEC(spi_response): getting spi 3997625134 for SA
        from 209.165.202.129 to 209.165.200.225 for prot 3
03:36:32: ISAKMP: received ke message (2/1)
03:36:32: CryptoEngine0: generate hmac context for conn id 1
03:36:32: ISAKMP (0:1): sending packet to 209.165.200.225 (R) QM_IDLE
03:36:32: ISAKMP (0:1): Node 852253052, Input = IKE_MESG_FROM_IPSEC, IKE_SPI_REPLY
Old State = IKE_QM_SPI_STARVE  New State = IKE_QM_R_QM2
03:36:32: ISAKMP (0:1): received packet from 209.165.200.225 (R) QM_IDLE
03:36:32: CryptoEngine0: generate hmac context for conn id 1
03:36:32: ipsec allocate flow 0
03:36:32: ipsec allocate flow 0
03:36:32: ISAKMP (0:1): Creating IPSec SAs
```

```
03:36:32:         inbound SA from 209.165.200.225 to 209.165.202.129
        (proxy 10.48.66.0 to 0.0.0.0)
03:36:32:         has spi 0xEE46EB2E and conn_id 2002 and flags 4
03:36:32:         lifetime of 2147483647 seconds
03:36:32:         outbound SA from 209.165.202.129 to 209.165.200.225
(proxy 0.0.0.0 to 10.48.66.0)
03:36:32:         has spi 674305339 and conn_id 2003 and flags C
03:36:32:         lifetime of 2147483647 seconds
03:36:32: ISAKMP (0:1): deleting node 852253052 error FALSE reason "quick mode done (await
03:36:32: ISAKMP (0:1): Node 852253052, Input = IKE_MESG_FROM_PEER, IKE_QM_EXCH
Old State = IKE_QM_R_QM2  New State = IKE_QM_PHASE2_COMPLETE
03:36:32: IPSEC(key_engine): got a queue event...

!--- IPSec now initializes the SAs as these are
!--- stored in the SA Database.

03:36:32: IPSEC(initialize_sas): ,
  (key eng. msg.) INBOUND local= 209.165.202.129, remote= 209.165.200.225,

!--- This SA is for the actual data traffic between the
!--- networks behind the VPN Client and the Cisco IOS router.

    local_proxy= 0.0.0.0/0.0.0.0/0/0 (type=4),
    remote_proxy= 10.48.66.0/255.255.254.0/0/0 (type=4),
protocol= ESP, transform= esp-3des esp-sha-hmac ,
    lifedur= 2147483647s and 0kb,
    spi= 0xEE46EB2E(3997625134), conn_id= 2002, keysize= 0, flags= 0x4
03:36:32: IPSEC(initialize_sas): ,
  (key eng. msg.) OUTBOUND local= 209.165.202.129, remote= 209.165.200.225,
    local_proxy= 0.0.0.0/0.0.0.0/0/0 (type=4),
    remote_proxy= 10.48.66.0/255.255.254.0/0/0 (type=4),
    protocol= ESP, transform= esp-3des esp-sha-hmac ,
    lifedur= 2147483647s and 0kb,
    spi= 0x2831153B(674305339), conn_id= 2003, keysize= 0, flags= 0xC
03:36:32: IPSEC(create_sa): sa created,
  (sa) sa_dest= 209.165.202.129, sa_prot= 50,
    sa_spi= 0xEE46EB2E(3997625134),
    sa_trans= esp-3des esp-sha-hmac , sa_conn_id= 2002
03:36:32: IPSEC(create_sa): sa created,
  (sa) sa_dest= 209.165.200.225, sa_prot= 50,
    sa_spi= 0x2831153B(674305339),
    sa_trans= esp-3des esp-sha-hmac , sa_conn_id= 2003
03:36:32: ISAKMP: received ke message (4/1)
03:36:32: ISAKMP: Locking CONFIG struct 0x631B752C for
 crypto_ikmp_config_handle_kei_mess, count 3
```

VPN 3002 Hardware Client Debugs

From the VPN Client GUI, select **Configuration** > **System** > **Events** > **Classes** and enable **IKE**, **IKEDBG**, **IPSEC**, and **IPSECDBG** at level **13** to the **SYSLOG**. Remember to disable the debugs after your testing is complete.

VPN 3002 Hardware Client Debugs

```
297 06/03/2002 11:02:30.100 SEV=7 IPSECDBG/14 RPT=3

!--- The VPN Client attempts to connect to the headend.
!--- In this case, it is Cisco IOS.

Sending KEY_ACQUIRE to IKE for src 209.165.200.225, dst 209.165.202.129
298 06/03/2002 11:02:30.100 SEV=8 IKEDBG/0 RPT=108
pitcher: received a key acquire message!
299 06/03/2002 11:02:30.100 SEV=4 IKE/41 RPT=135 209.165.202.129
IKE Initiator: New Phase 1, Intf 2, IKE Peer 209.165.202.129
```

```
local Proxy Address 209.165.200.225, remote Proxy Address 209.165.202.129,
SA (ESP-3DES-MD5)
302 06/03/2002 11:02:30.100 SEV=9 IKEDBG/0 RPT=109 209.165.202.129
constructing ISA_SA for isakmp
303 06/03/2002 11:02:30.230 SEV=9 IKEDBG/0 RPT=110 209.165.202.129
constructing ke payload
304 06/03/2002 11:02:30.230 SEV=9 IKEDBG/1 RPT=30 209.165.202.129
constructing nonce payload
305 06/03/2002 11:02:30.230 SEV=9 IKEDBG/1 RPT=31 209.165.202.129
constructing ID
306 06/03/2002 11:02:30.230 SEV=9 IKEDBG/46 RPT=4 209.165.202.129
constructing xauth V6 VID payload
307 06/03/2002 11:02:30.230 SEV=9 IKEDBG/46 RPT=5 209.165.202.129
constructing VID payload
308 06/03/2002 11:02:30.230 SEV=9 IKEDBG/48 RPT=2 209.165.202.129
Send Cisco Unity client VID
309 06/03/2002 11:02:30.230 SEV=8 IKEDBG/0 RPT=111 209.165.202.129
SENDING Message (msgid=0) with payloads :
HDR + SA (1) + KE (4) + NONCE (10) + ID (5) + VENDOR (13) + VENDOR (13) + NONE (
0) ... total length : 541
312 06/03/2002 11:02:30.520 SEV=8 IKEDBG/0 RPT=112 209.165.202.129
RECEIVED Message (msgid=0) with payloads :
HDR + SA (1) + VENDOR (13) + VENDOR (13) + VENDOR (13) + VENDOR (13) + KE (4) +
ID (5) + NONCE (10) + HASH (8) + NONE (0) ... total length : 348
315 06/03/2002 11:02:30.530 SEV=8 IKEDBG/0 RPT=113 209.165.202.129
RECEIVED Message (msgid=0) with payloads :
HDR + SA (1) + VENDOR (13) + VENDOR (13) + VENDOR (13) + VENDOR (13) + KE (4) +
ID (5) + NONCE (10) + HASH (8) + NONE (0) ... total length : 348
318 06/03/2002 11:02:30.530 SEV=9 IKEDBG/0 RPT=114 209.165.202.129
processing SA payload
319 06/03/2002 11:02:30.530 SEV=7 IKEDBG/0 RPT=115 209.165.202.129
Oakley proposal is acceptable
320 06/03/2002 11:02:30.530 SEV=9 IKEDBG/47 RPT=5 209.165.202.129
processing VID payload
321 06/03/2002 11:02:30.530 SEV=9 IKEDBG/49 RPT=4 209.165.202.129
Received Cisco Unity client VID
322 06/03/2002 11:02:30.530 SEV=9 IKEDBG/47 RPT=6 209.165.202.129
processing VID payload
323 06/03/2002 11:02:30.530 SEV=9 IKEDBG/49 RPT=5 209.165.202.129
Received DPD VID
324 06/03/2002 11:02:30.530 SEV=9 IKEDBG/47 RPT=7 209.165.202.129
processing VID payload
325 06/03/2002 11:02:30.530 SEV=9 IKEDBG/38 RPT=2 209.165.202.129
Processing IOS/PIX Vendor ID payload (version: 1.0.0, capabilities: 0000007f)
326 06/03/2002 11:02:30.530 SEV=9 IKEDBG/47 RPT=8 209.165.202.129
processing VID payload
327 06/03/2002 11:02:30.530 SEV=9 IKEDBG/49 RPT=6 209.165.202.129

!--- The VPN Client understands that it needs
!--- to go through Extended authentication to
!--- bring the tunnel up.

Received xauth V6 VID
328 06/03/2002 11:02:30.530 SEV=9 IKEDBG/0 RPT=116 209.165.202.129
processing ke payload
329 06/03/2002 11:02:30.530 SEV=9 IKEDBG/0 RPT=117 209.165.202.129
processing ISA_KE
330 06/03/2002 11:02:30.530 SEV=9 IKEDBG/1 RPT=32 209.165.202.129
Processing ID
331 06/03/2002 11:02:30.530 SEV=9 IKEDBG/1 RPT=33 209.165.202.129
processing nonce payload
332 06/03/2002 11:02:30.660 SEV=9 IKEDBG/0 RPT=118 209.165.202.129
Generating keys for Initiator...
333 06/03/2002 11:02:30.670 SEV=9 IKEDBG/0 RPT=119 209.165.202.129
Group [209.165.202.129]
processing hash
```

```
334 06/03/2002 11:02:30.670 SEV=9 IKEDBG/0 RPT=120 209.165.202.129
Group [209.165.202.129]
computing hash
335 06/03/2002 11:02:30.680 SEV=9 IKEDBG/0 RPT=121
Group [209.165.202.129]
construct hash payload
336 06/03/2002 11:02:30.680 SEV=9 IKEDBG/0 RPT=122 209.165.202.129
Group [209.165.202.129]
computing hash
337 06/03/2002 11:02:30.680 SEV=9 IKEDBG/46 RPT=6 209.165.202.129
Group [209.165.202.129]
constructing dpd vid payload
338 06/03/2002 11:02:30.680 SEV=8 IKEDBG/0 RPT=123 209.165.202.129
SENDING Message (msgid=0) with payloads :
HDR + HASH (8) + NOTIFY (11) + VENDOR (13) + NONE (0) ... total length : 100
340 06/03/2002 11:02:30.690 SEV=8 IKEDBG/0 RPT=124 209.165.202.129
RECEIVED Message (msgid=71c8c9fd) with payloads :
HDR + HASH (8) + NOTIFY (11) + NONE (0) ... total length : 92
342 06/03/2002 11:02:30.690 SEV=9 IKEDBG/0 RPT=125 209.165.202.129
Group [209.165.202.129]
processing hash
343 06/03/2002 11:02:30.690 SEV=9 IKEDBG/0 RPT=126 209.165.202.129
Group [209.165.202.129]
Processing Notify payload
344 06/03/2002 11:02:30.690 SEV=5 IKE/73 RPT=19 209.165.202.129
Group [209.165.202.129]

!--- As IOS has a default IKE time of 1 day (86400) seconds
!--- and forces the VPN Client to accept this value.
!--- This is because Cisco IOS responds and the VPN Client initiates.

Responder forcing change of IKE rekeying duration from 2147483647 to 86400 seconds
347 06/03/2002 11:02:30.690 SEV=6 IKE/0 RPT=2
AM AM:843f96f6 received unexpected event EV_RESET_LIFETIME in state AM_RSND_LST_
MSG
349 06/03/2002 11:02:30.700 SEV=8 IKEDBG/0 RPT=127 209.165.202.129
RECEIVED Message (msgid=ecb5af46) with payloads :
HDR + HASH (8) + ATTR (14) + NONE (0) ... total length : 86
351 06/03/2002 11:02:30.700 SEV=9 IKEDBG/1 RPT=34
process_attr(): Enter!
352 06/03/2002 11:02:30.700 SEV=9 IKEDBG/1 RPT=35
Processing cfg Request attributes
353 06/03/2002 11:02:30.700 SEV=9 IKEDBG/1 RPT=36
Received Xauth Type in request!
354 06/03/2002 11:02:30.700 SEV=9 IKEDBG/1 RPT=37
Received Xauth Message!
355 06/03/2002 11:02:30.700 SEV=9 IKEDBG/1 RPT=38
Received Xauth Username request!
356 06/03/2002 11:02:30.700 SEV=9 IKEDBG/1 RPT=39
Received Xauth Password request!
357 06/03/2002 11:02:30.700 SEV=9 IKEDBG/0 RPT=128 209.165.202.129
Group [209.165.202.129]
constructing blank hash
358 06/03/2002 11:02:30.700 SEV=9 IKEDBG/0 RPT=129 209.165.202.129
Group [209.165.202.129]
constructing qm hash
359 06/03/2002 11:02:30.700 SEV=8 IKEDBG/0 RPT=130 209.165.202.129
SENDING Message (msgid=ecb5af46) with payloads :
HDR + HASH (8) + ATTR (14) + NONE (0) ... total length : 77
361 06/03/2002 11:02:30.710 SEV=8 IKEDBG/0 RPT=131 209.165.202.129
RECEIVED Message (msgid=ad808e58) with payloads :
HDR + HASH (8) + ATTR (14) + NONE (0) ... total length : 64
363 06/03/2002 11:02:30.710 SEV=9 IKEDBG/1 RPT=40
process_attr(): Enter!
364 06/03/2002 11:02:30.710 SEV=9 IKEDBG/1 RPT=41
Processing cfg Request attributes
```

```
365 06/03/2002 11:02:30.710 SEV=9 IKEDBG/1 RPT=42
Received Xauth Status Set!
366 06/03/2002 11:02:30.710 SEV=9 IKEDBG/0 RPT=132 209.165.202.129
Group [209.165.202.129]
constructing blank hash
367 06/03/2002 11:02:30.710 SEV=9 IKEDBG/0 RPT=133 209.165.202.129
Group [209.165.202.129]
constructing qm hash
368 06/03/2002 11:02:30.710 SEV=8 IKEDBG/0 RPT=134 209.165.202.129
SENDING Message (msgid=ad808e58) with payloads :
HDR + HASH (8) + ATTR (14) + NONE (0) ... total length : 60
370 06/03/2002 11:02:30.720 SEV=9 IKEDBG/0 RPT=135 209.165.202.129
Group [209.165.202.129]
constructing blank hash
371 06/03/2002 11:02:30.720 SEV=9 IKEDBG/0 RPT=136 209.165.202.129
Group [209.165.202.129]
constructing qm hash
372 06/03/2002 11:02:30.720 SEV=8 IKEDBG/0 RPT=137 209.165.202.129
SENDING Message (msgid=30ce63a8) with payloads :
HDR + HASH (8) + ATTR (14) + NONE (0) ... total length : 231
374 06/03/2002 11:02:30.740 SEV=8 IKEDBG/0 RPT=138 209.165.202.129
RECEIVED Message (msgid=30ce63a8) with payloads :
HDR + HASH (8) + ATTR (14) + NONE (0) ... total length : 313
376 06/03/2002 11:02:30.740 SEV=9 IKEDBG/1 RPT=43
process_attr(): Enter!
377 06/03/2002 11:02:30.740 SEV=9 IKEDBG/1 RPT=44
Processing MODE_CFG Reply attributes

!--- The VPN Client processes the mode
!--- configuration reply attributes sent by Cisco IOS.

378 06/03/2002 11:02:30.740 SEV=6 IKE/130 RPT=2 209.165.202.129
Group [209.165.202.129]
Received unsupported transaction mode attribute: 7
379 06/03/2002 11:02:30.740 SEV=5 IKE/115 RPT=7 209.165.202.129
Group [209.165.202.129]
Client rejected NAT enabled IPSec request,
 falling back to standard IPSec
381 06/03/2002 11:02:30.740 SEV=3 AUTH/24 RPT=7
Tunnel to headend device 209.165.202.129 connected
382 06/03/2002 11:02:30.740 SEV=9 IKEDBG/0 RPT=139 209.165.202.129
Group [209.165.202.129]
Oakley begin quick mode
383 06/03/2002 11:02:30.740 SEV=4 IKE/119 RPT=7 209.165.202.129
Group [209.165.202.129]

!--- Phase 1 is complete.


384 06/03/2002 11:02:30.740 SEV=6 IKE/121 RPT=2 209.165.202.129
Keep-alive type for this connection: DPD
385 06/03/2002 11:02:30.740 SEV=7 IKEDBG/0 RPT=140 209.165.202.129
Group [209.165.202.129]
Starting phase 1 rekey timer: 73440000 (ms)
386 06/03/2002 11:02:30.740 SEV=9 IPSECDBG/6 RPT=15
IPSEC key message parse - msgtype 6, len 200, vers 1, pid 00000000, seq 13, err
0, type 2, mode 0, state 32, label 0, pad 0, spi 00000000, encrKeyLen 0, hashKey
Len 0, ivlen 0, alg 0, hmacAlg 0, lifetype 0, lifetime1 662488, lifetime2 0, dsI
d 300
390 06/03/2002 11:02:30.740 SEV=9 IPSECDBG/1 RPT=47
Processing KEY_GETSPI msg!
391 06/03/2002 11:02:30.740 SEV=7 IPSECDBG/13 RPT=3
Reserved SPI 1608220759
392 06/03/2002 11:02:30.740 SEV=8 IKEDBG/6 RPT=3
IKE got SPI from key engine: SPI = 0x5fdb8057
393 06/03/2002 11:02:30.750 SEV=9 IKEDBG/0 RPT=141 209.165.202.129
```

```
Group [209.165.202.129]
oakley constucting quick mode
394 06/03/2002 11:02:30.750 SEV=9 IKEDBG/0 RPT=142 209.165.202.129
Group [209.165.202.129]
constructing blank hash
395 06/03/2002 11:02:30.750 SEV=9 IKEDBG/0 RPT=143 209.165.202.129
Group [209.165.202.129]
constructing ISA_SA for ipsec
396 06/03/2002 11:02:30.750 SEV=9 IKEDBG/1 RPT=45 209.165.202.129
Group [209.165.202.129]
constructing ipsec nonce payload
397 06/03/2002 11:02:30.750 SEV=9 IKEDBG/1 RPT=46 209.165.202.129
Group [209.165.202.129]
constructing proxy ID
398 06/03/2002 11:02:30.750 SEV=7 IKEDBG/0 RPT=144 209.165.202.129
Group [209.165.202.129]
Transmitting Proxy Id:

!--- This is the SA for management between
!--- the VPN Client and Cisco IOS.

  Local host:  209.165.200.225  Protocol 0  Port 0
  Remote host: 209.165.202.129  Protocol 0  Port 0
402 06/03/2002 11:02:30.750 SEV=9 IKEDBG/0 RPT=145 209.165.202.129
Group [209.165.202.129]
constructing qm hash
403 06/03/2002 11:02:30.750 SEV=8 IKEDBG/0 RPT=146 209.165.202.129
SENDING Message (msgid=e429a70e) with payloads :
HDR + HASH (8) + SA (1) + NONCE (10) + ID (5) + ID (5) + NONE (0) ... total leng
th : 292
406 06/03/2002 11:02:31.010 SEV=8 IKEDBG/0 RPT=147 209.165.202.129
RECEIVED Message (msgid=e429a70e) with payloads :
HDR + HASH (8) + SA (1) + NONCE (10) + ID (5) + ID (5) + NOTIFY (11) + NONE (0)
... total length : 192
409 06/03/2002 11:02:31.010 SEV=9 IKEDBG/0 RPT=148 209.165.202.129
Group [209.165.202.129]
processing hash
410 06/03/2002 11:02:31.010 SEV=9 IKEDBG/0 RPT=149 209.165.202.129
Group [209.165.202.129]
processing SA payload
411 06/03/2002 11:02:31.020 SEV=9 IKEDBG/1 RPT=47 209.165.202.129
Group [209.165.202.129]
processing nonce payload
412 06/03/2002 11:02:31.020 SEV=9 IKEDBG/1 RPT=48 209.165.202.129
Group [209.165.202.129]
Processing ID
413 06/03/2002 11:02:31.020 SEV=9 IKEDBG/1 RPT=49 209.165.202.129
Group [209.165.202.129]
Processing ID
414 06/03/2002 11:02:31.020 SEV=9 IKEDBG/0 RPT=150 209.165.202.129
Group [209.165.202.129]
Processing Notify payload
415 06/03/2002 11:02:31.020 SEV=5 IKE/73 RPT=20 209.165.202.129
Group [209.165.202.129]
Responder forcing change of IPSec rekeying duration from 2147483647 to 3600 seco
nds
418 06/03/2002 11:02:31.020 SEV=9 IKEDBG/0 RPT=151 209.165.202.129
Group [209.165.202.129]
loading all IPSEC SAs
419 06/03/2002 11:02:31.020 SEV=9 IKEDBG/1 RPT=50 209.165.202.129
Group [209.165.202.129]
Generating Quick Mode Key!
420 06/03/2002 11:02:31.020 SEV=9 IKEDBG/1 RPT=51 209.165.202.129
Group [209.165.202.129]
Generating Quick Mode Key!
421 06/03/2002 11:02:31.020 SEV=7 IKEDBG/0 RPT=152 209.165.202.129
```

```
Group [209.165.202.129]
Loading host:
  Dst: 209.165.202.129
  Src: 209.165.200.225
423 06/03/2002 11:02:31.020 SEV=4 IKE/49 RPT=13 209.165.202.129
Group [209.165.202.129]
Security negotiation complete for peer (209.165.202.129)
Initiator, Inbound SPI = 0x5fdb8057, Outbound SPI = 0xa088f2dc
426 06/03/2002 11:02:31.020 SEV=9 IKEDBG/0 RPT=153 209.165.202.129
Group [209.165.202.129]
oakley constructing final quick mode
427 06/03/2002 11:02:31.030 SEV=8 IKEDBG/0 RPT=154 209.165.202.129
SENDING Message (msgid=e429a70e) with payloads :
HDR + HASH (8) + NONE (0) ... total length : 76
429 06/03/2002 11:02:31.030 SEV=9 IPSECDBG/6 RPT=16
IPSEC key message parse - msgtype 1, len 612, vers 1, pid 00000000, seq 0, err 0
, type 2, mode 1, state 64, label 0, pad 0, spi a088f2dc, encrKeyLen 24, hashKey
Len 20, ivlen 8, alg 2, hmacAlg 4, lifetype 0, lifetime1 662488, lifetime2 0, ds
Id -378167296
433 06/03/2002 11:02:31.030 SEV=9 IPSECDBG/1 RPT=48
Processing KEY_ADD msg!
434 06/03/2002 11:02:31.030 SEV=9 IPSECDBG/1 RPT=49
key_msghdr2secassoc(): Enter
435 06/03/2002 11:02:31.030 SEV=7 IPSECDBG/1 RPT=50
No USER filter configured
436 06/03/2002 11:02:31.030 SEV=9 IPSECDBG/1 RPT=51
KeyProcessAdd: Enter
437 06/03/2002 11:02:31.030 SEV=8 IPSECDBG/1 RPT=52
KeyProcessAdd: Adding outbound SA
438 06/03/2002 11:02:31.030 SEV=8 IPSECDBG/1 RPT=53
KeyProcessAdd: src 209.165.200.225 mask 0.0.0.0, dst 209.165.202.129 mask 0.0.0.
0
440 06/03/2002 11:02:31.030 SEV=8 IPSECDBG/1 RPT=54
KeyProcessAdd: FilterIpsecAddIkeSa success
441 06/03/2002 11:02:31.030 SEV=9 IPSECDBG/6 RPT=17
IPSEC key message parse - msgtype 3, len 332, vers 1, pid 00000000, seq 0, err 0
, type 2, mode 1, state 32, label 0, pad 0, spi 5fdb8057, encrKeyLen 24, hashKey
Len 20, ivlen 8, alg 2, hmacAlg 4, lifetype 0, lifetime1 662488, lifetime2 0, ds
Id -378167296
445 06/03/2002 11:02:31.030 SEV=9 IPSECDBG/1 RPT=55
Processing KEY_UPDATE msg!
446 06/03/2002 11:02:31.030 SEV=9 IPSECDBG/1 RPT=56
Update inbound SA addresses
447 06/03/2002 11:02:31.030 SEV=9 IPSECDBG/1 RPT=57
key_msghdr2secassoc(): Enter
448 06/03/2002 11:02:31.030 SEV=7 IPSECDBG/1 RPT=58
No USER filter configured
449 06/03/2002 11:02:31.030 SEV=9 IPSECDBG/1 RPT=59
KeyProcessUpdate: Enter
450 06/03/2002 11:02:31.030 SEV=8 IPSECDBG/1 RPT=60
KeyProcessUpdate: success
451 06/03/2002 11:02:31.030 SEV=8 IKEDBG/7 RPT=3
IKE got a KEY_ADD msg for SA: SPI = 0xa088f2dc
452 06/03/2002 11:02:31.030 SEV=8 IKEDBG/0 RPT=155
pitcher: rcv KEY_UPDATE, spi 0x5fdb8057
453 06/03/2002 11:02:31.040 SEV=4 IKE/120 RPT=13 209.165.202.129
Group [209.165.202.129]
PHASE 2 COMPLETED (msgid=e429a70e)

!--- This line indicates that SA establishment
!--- for management between the VPN Client and Cisco IOS is complete.

454 06/03/2002 11:02:35.040 SEV=7 IPSECDBG/10 RPT=4
IPSEC ipsec_output() can call key_acquire() because 4 seconds have elapsed since
 last IKE negotiation began (src 0x0a3042b9, dst 0x00a66e24)
456 06/03/2002 11:02:35.040 SEV=7 IPSECDBG/14 RPT=4
```

```
Sending KEY_ACQUIRE to IKE for src 10.48.66.185, dst 0.0.0.0
457 06/03/2002 11:02:35.040 SEV=8 IKEDBG/0 RPT=156
pitcher: received a key acquire message!
458 06/03/2002 11:02:35.040 SEV=4 IKE/41 RPT=136
IKE Initiator: New Phase 2, Intf 2, IKE Peer 209.165.202.129
local Proxy Address 10.48.66.0, remote Proxy Address 0.0.0.0,
SA (ESP-3DES-MD5)
460 06/03/2002 11:02:35.040 SEV=9 IKEDBG/0 RPT=157 209.165.202.129
Group [209.165.202.129]
Oakley begin quick mode
461 06/03/2002 11:02:35.040 SEV=9 IPSECDBG/6 RPT=18
IPSEC key message parse - msgtype 6, len 200, vers 1, pid 00000000, seq 14, err
0, type 2, mode 0, state 32, label 0, pad 0, spi 00000000, encrKeyLen 0, hashKey
Len 0, ivlen 0, alg 0, hmacAlg 0, lifetype 0, lifetime1 662488, lifetime2 0, dsI
d 300
465 06/03/2002 11:02:35.040 SEV=9 IPSECDBG/1 RPT=61
Processing KEY_GETSPI msg!
466 06/03/2002 11:02:35.040 SEV=7 IPSECDBG/13 RPT=4
Reserved SPI 1819592269
467 06/03/2002 11:02:35.040 SEV=8 IKEDBG/6 RPT=4
IKE got SPI from key engine: SPI = 0x6c74c64d
468 06/03/2002 11:02:35.040 SEV=9 IKEDBG/0 RPT=158 209.165.202.129
Group [209.165.202.129]
oakley constucting quick mode
469 06/03/2002 11:02:35.040 SEV=9 IKEDBG/0 RPT=159 209.165.202.129
Group [209.165.202.129]
constructing blank hash
470 06/03/2002 11:02:35.040 SEV=9 IKEDBG/0 RPT=160 209.165.202.129
Group [209.165.202.129]
constructing ISA_SA for ipsec
471 06/03/2002 11:02:35.040 SEV=9 IKEDBG/1 RPT=52 209.165.202.129
Group [209.165.202.129]
constructing ipsec nonce payload
472 06/03/2002 11:02:35.040 SEV=9 IKEDBG/1 RPT=53 209.165.202.129
Group [209.165.202.129]
constructing proxy ID
473 06/03/2002 11:02:35.040 SEV=7 IKEDBG/0 RPT=161 209.165.202.129
Group [209.165.202.129]
Transmitting Proxy Id:
  Local subnet:  10.48.66.0  mask 255.255.254.0 Protocol 0  Port 0
  Remote subnet: 0.0.0.0  Mask 0.0.0.0 Protocol 0  Port 0

!--- This line indicates the SA for the traffic between
!--- the networks behind the VPN Client and Cisco IOS.

477 06/03/2002 11:02:35.040 SEV=9 IKEDBG/0 RPT=162 209.165.202.129
Group [209.165.202.129]
constructing qm hash
478 06/03/2002 11:02:35.040 SEV=8 IKEDBG/0 RPT=163 209.165.202.129
SENDING Message (msgid=a809c6b4) with payloads :
HDR + HASH (8) + SA (1) + NONCE (10) + ID (5) + ID (5) + NONE (0) ... total leng
th : 300
481 06/03/2002 11:02:35.310 SEV=8 IKEDBG/0 RPT=164 209.165.202.129
RECEIVED Message (msgid=a809c6b4) with payloads :
HDR + HASH (8) + SA (1) + NONCE (10) + ID (5) + ID (5) + NOTIFY (11) + NONE (0)
... total length : 200
484 06/03/2002 11:02:35.310 SEV=9 IKEDBG/0 RPT=165 209.165.202.129
Group [209.165.202.129]
processing hash
485 06/03/2002 11:02:35.310 SEV=9 IKEDBG/0 RPT=166 209.165.202.129
Group [209.165.202.129]
processing SA payload
486 06/03/2002 11:02:35.310 SEV=9 IKEDBG/1 RPT=54 209.165.202.129
Group [209.165.202.129]
processing nonce payload
487 06/03/2002 11:02:35.310 SEV=9 IKEDBG/1 RPT=55 209.165.202.129
```

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Group [209.165.202.129]
Processing ID
488 06/03/2002 11:02:35.310 SEV=9 IKEDBG/1 RPT=56 209.165.202.129
Group [209.165.202.129]
Processing ID
489 06/03/2002 11:02:35.310 SEV=9 IKEDBG/0 RPT=167 209.165.202.129
Group [209.165.202.129]
Processing Notify payload
490 06/03/2002 11:02:35.310 SEV=5 IKE/73 RPT=21 209.165.202.129
Group [209.165.202.129]
Responder forcing change of IPSec rekeying duration from 2147483647 to 3600 seco
nds
493 06/03/2002 11:02:35.310 SEV=9 IKEDBG/0 RPT=168 209.165.202.129
Group [209.165.202.129]
loading all IPSEC SAs
494 06/03/2002 11:02:35.310 SEV=9 IKEDBG/1 RPT=57 209.165.202.129
Group [209.165.202.129]
Generating Quick Mode Key!
495 06/03/2002 11:02:35.320 SEV=9 IKEDBG/1 RPT=58 209.165.202.129
Group [209.165.202.129]
Generating Quick Mode Key!
496 06/03/2002 11:02:35.320 SEV=7 IKEDBG/0 RPT=169 209.165.202.129
Group [209.165.202.129]
Loading subnet:
  Dst: 0.0.0.0  mask: 0.0.0.0
  Src: 10.48.66.0  mask: 255.255.254.0
499 06/03/2002 11:02:35.320 SEV=4 IKE/49 RPT=14 209.165.202.129
Group [209.165.202.129]
Security negotiation complete for peer (209.165.202.129)
Initiator, Inbound SPI = 0x6c74c64d, Outbound SPI = 0x8e34d356
502 06/03/2002 11:02:35.320 SEV=9 IKEDBG/0 RPT=170 209.165.202.129
Group [209.165.202.129]
oakley constructing final quick mode
503 06/03/2002 11:02:35.320 SEV=8 IKEDBG/0 RPT=171 209.165.202.129
SENDING Message (msgid=a809c6b4) with payloads :
HDR + HASH (8) + NONE (0) ... total length : 76
505 06/03/2002 11:02:35.320 SEV=9 IPSECDBG/6 RPT=19
IPSEC key message parse - msgtype 1, len 612, vers 1, pid 00000000, seq 0, err 0
, type 2, mode 1, state 64, label 0, pad 0, spi 8e34d356, encrKeyLen 24, hashKey
Len 20, ivlen 8, alg 2, hmacAlg 4, lifetype 0, lifetime1 662488, lifetime2 0, ds
Id -378167296
509 06/03/2002 11:02:35.330 SEV=9 IPSECDBG/1 RPT=62
Processing KEY_ADD msg!
510 06/03/2002 11:02:35.330 SEV=9 IPSECDBG/1 RPT=63
key_msghdr2secassoc(): Enter
511 06/03/2002 11:02:35.330 SEV=7 IPSECDBG/1 RPT=64
No USER filter configured
512 06/03/2002 11:02:35.330 SEV=9 IPSECDBG/1 RPT=65
KeyProcessAdd: Enter
513 06/03/2002 11:02:35.330 SEV=8 IPSECDBG/1 RPT=66
KeyProcessAdd: Adding outbound SA
514 06/03/2002 11:02:35.330 SEV=8 IPSECDBG/1 RPT=67
KeyProcessAdd: src 10.48.66.0 mask 0.0.1.255, dst 0.0.0.0 mask 255.255.255.255
515 06/03/2002 11:02:35.330 SEV=8 IPSECDBG/1 RPT=68
KeyProcessAdd: FilterIpsecAddIkeSa success
516 06/03/2002 11:02:35.330 SEV=9 IPSECDBG/6 RPT=20
IPSEC key message parse - msgtype 3, len 332, vers 1, pid 00000000, seq 0, err 0
, type 2, mode 1, state 32, label 0, pad 0, spi 6c74c64d, encrKeyLen 24, hashKey
Len 20, ivlen 8, alg 2, hmacAlg 4, lifetype 0, lifetime1 662488, lifetime2 0, ds
Id -378167296
520 06/03/2002 11:02:35.330 SEV=9 IPSECDBG/1 RPT=69
Processing KEY_UPDATE msg!
521 06/03/2002 11:02:35.330 SEV=9 IPSECDBG/1 RPT=70
Update inbound SA addresses
522 06/03/2002 11:02:35.330 SEV=9 IPSECDBG/1 RPT=71
key_msghdr2secassoc(): Enter
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523 06/03/2002 11:02:35.330 SEV=7 IPSECDBG/1 RPT=72
No USER filter configured
524 06/03/2002 11:02:35.330 SEV=9 IPSECDBG/1 RPT=73
KeyProcessUpdate: Enter
525 06/03/2002 11:02:35.330 SEV=8 IPSECDBG/1 RPT=74
KeyProcessUpdate: success
526 06/03/2002 11:02:35.330 SEV=8 IKEDBG/7 RPT=4
IKE got a KEY_ADD msg for SA: SPI = 0x8e34d356
527 06/03/2002 11:02:35.330 SEV=8 IKEDBG/0 RPT=172
pitcher: rcv KEY_UPDATE, spi 0x6c74c64d
528 06/03/2002 11:02:35.330 SEV=4 IKE/120 RPT=14 209.165.202.129
Group [209.165.202.129]
PHASE 2 COMPLETED (msgid=a809c6b4)

!--- This line indicates that SA establishment
!--- for networks between the VPN Client and Cisco IOS is complete.
```

Related Information

- **Cisco VPN 3000 Concentrator Support**
- **Cisco VPN 3002 Hardware Client Support**
- **IPSec Negotiation/IKE Protocols Support**
- **Technical Support & Documentation − Cisco Systems**

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