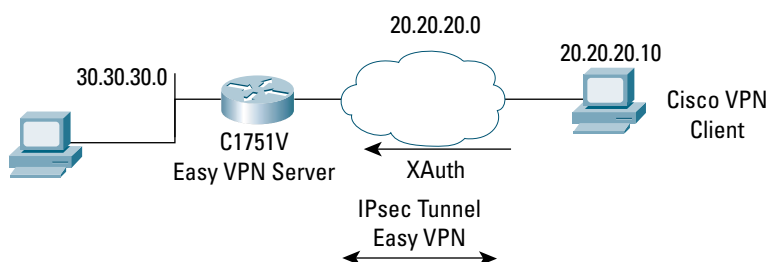


CONFIGURING CISCO VPN CLIENT AND EASY VPN SERVER WITH XAUTH

Figure 1
Network Diagram



INTRODUCTION

This document describes how to configure a host to router Easy VPN Solution based on the Cisco VPN Client and Cisco IOS® Remote Access Server. The sample configuration uses the Cisco VPN Client as the client and the Cisco 1751 Router as the server. The Cisco Easy VPN negotiates tunnel parameters and establishes IPsec tunnels. Xauth adds another level of authentication that identifies the user who requests the IPsec connection.

PREREQUISITES

The sample configuration is based on the following assumptions:

- The IP address at the Cisco Easy VPN Server is static.
- The IP address at the Cisco Easy VPN Client is static or dynamic.
- All traffic, including Internet traffic, from the Cisco Easy VPN Client is forwarded to the hub.
- Traffic from the remote hosts is forwarded after applying Network Address Translation/Port Address Translation (NAT/PAT).

COMPONENTS USED

The sample configuration uses the following releases:

- Cisco VPN Client Version 3.5
- Cisco 1751 with Cisco IOS Software Release 12.2(8)T (C1700-K9O3SV3Y7-M)

Figure 1 illustrates the network for the sample configuration.

The information presented in this document was created from devices in a specific lab environment. All of the devices started with a cleared (default) configuration. In a live network, it is imperative to understand the potential impact of any command before implementing it.

EASY VPN CONFIGURATIONS

The Cisco Easy VPN implements the Cisco Unity Client protocol, which simplifies configuring the detailed information on the client router because most VPN parameters are defined at the VPN remote access server. The server can be a dedicated VPN device, such as a VPN 3000 concentrator or a Cisco PIX Firewall, or a Cisco IOS Software router that supports the Cisco Unity Client protocol. The sample configuration uses the Cisco 1751 Router for the Easy VPN Server. The sample configuration also uses client mode on the Cisco VPN Client. In this mode, the public IP address of the client undergoes NAT to the mode config ip address that is pushed down by the Easy VPN Server.

The Cisco VPN Client forwards the Internet traffic to the Easy VPN Server. Direct access to the Cisco VPN Client by traffic other than the encrypted traffic from the Easy VPN Server is denied. Using the Xauth feature, the client waits for a “username/password” challenge after the IKE SA has been established. When the end user provides a response to the challenge, the response is forwarded to the IPsec peers for an additional level of authentication. The information that is entered is checked against the AAA server.

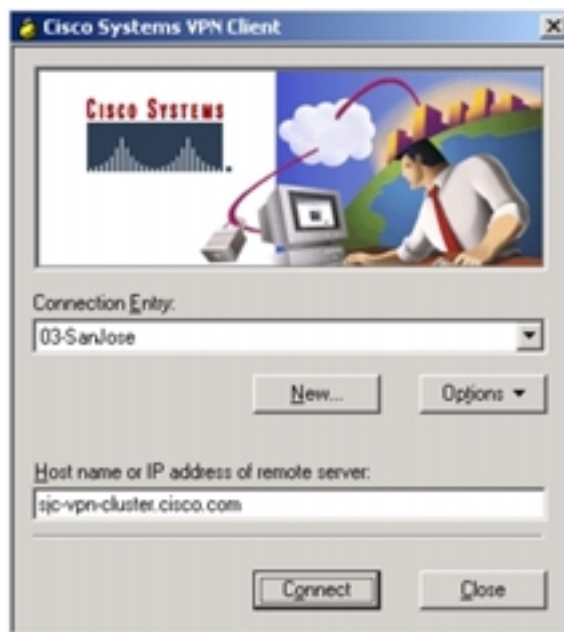
For additional information about configuring Cisco VPN Client, refer to *Cisco VPN Client User Guide Books—Cisco Systems*.

Configuring the Cisco VPN Client

Follow the steps in this section to configure the Cisco VPN Client.

Step 1. After installing the Cisco VPN Client, launch the application.

The Cisco Systems VPN Client dialog box is displayed.



Step 2. Click New.

The New Connection Entry Wizard is displayed.



Step 3. Enter the name of the new connection entry: Ez VPN Server

Step 4. Click Next.

The prompt for the host name or IP address of the server is displayed.



Step 5. Enter 20.20.20.2 and click Next.

A request for authentication parameters is displayed.

Step 6. Enter the following values:

Name: hw-client-groupname

Password: hw-client-password

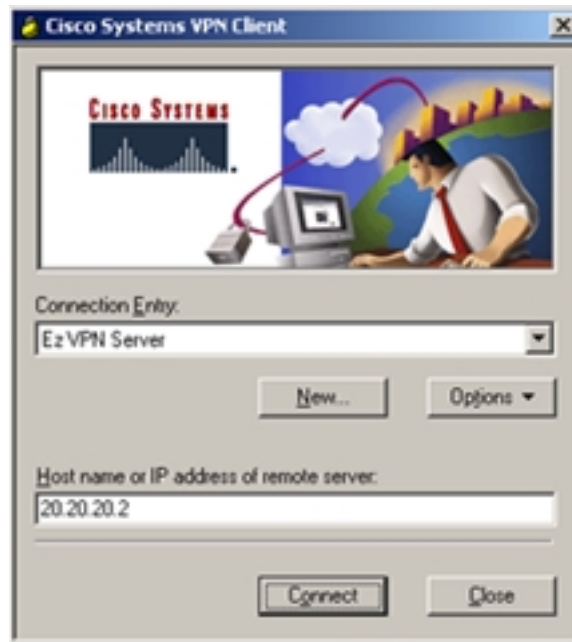
Confirm password: hw-client-password

Step 7. Click Next.

A message saying: “you succeeded in creating the VPN connection” is displayed.

Step 8. Click Finish.

The Cisco Systems VPN Client dialog box is displayed.

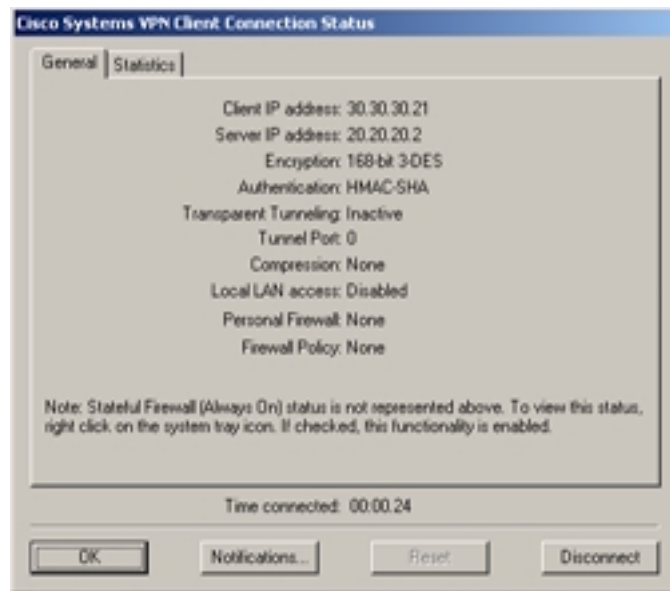


Step 9. Click Connect.

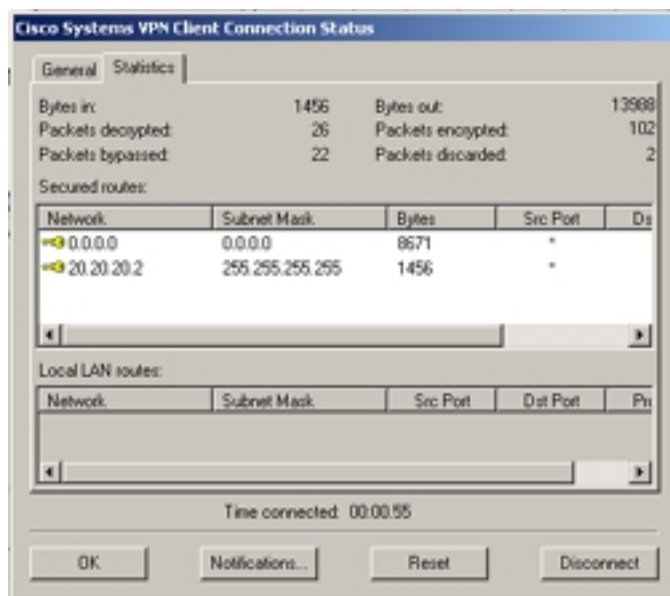
The connecting message is displayed, and then a request for authentication information is displayed.



After the connection is made, the connection status is displayed.



The following is a view of the connection statistics:



CISCO 1751 VPN ROUTER CONFIGURATION

```
version 12.2
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
service internal
!
hostname Cisco1751
```

```

!
aaa new-model
!
!
aaa authentication login userlist local
aaa authorization network hw-client-groupname local
aaa session-id common
enable password cisco
!
username cisco password 0 cisco
memory-size iomem 15
clock timezone - 0 6
ip subnet-zero
no ip source-route
!
!
ip domain-name cisco.com
!
ip audit notify log
ip audit po max-events 100
!
crypto isakmp policy 1
  encr 3des
  authentication pre-share
  group 2
crypto isakmp client configuration address-pool local dynpool
!
crypto isakmp client configuration group hw-client-groupname
  key hw-client-password
  dns 30.30.30.10 30.30.30.11
  wins 30.30.30.12 30.30.30.13
  domain cisco.com
  pool dynpool
!
!
crypto ipsec transform-set transform-1 esp-3des esp-sha-hmac
!
crypto dynamic-map dynmap 1
  set transform-set transform-1
  reverse-route
!
!
crypto map dynmap client authentication list userlist
crypto map dynmap isakmp authorization list hw-client-groupname
crypto map dynmap client configuration address respond
crypto map dynmap 1 ipsec-isakmp dynamic dynmap
!
!
interface Ethernet0/0
  description connected to INTERNET
  ip address 20.20.20.2 255.255.255.0
  half-duplex
  no cdp enable
  crypto map dynmap
!
interface FastEthernet0/0
  description connected to HQ LAN
  ip address 30.30.30.1 255.255.255.0

```

```

speed auto
no cdp enable
!
ip local pool dynpool 30.30.30.20 30.30.30.30
ip classless
ip route 0.0.0.0 0.0.0.0 Ethernet0/0
no ip http server
ip pim bidir-enable
!
!
no cdp run
!
line con 0
line aux 0
line vty 0 4
  password cisco
!
end

```

VERIFYING THE RESULTS

This section provides information that can be used to confirm that configuration is working properly.

Verifying the Cisco 1751 Status

```

Cisco1751#show crypto ipsec sa
interface: Ethernet0/0
  Crypto map tag: dynmap, local addr. 20.20.20.2
  protected vrf:
    local ident (addr/mask/prot/port): (0.0.0.0/0.0.0.0/0/0)
    remote ident (addr/mask/prot/port): (30.30.30.21/255.255.255.255/0/0)
    current_peer: 20.20.20.10:500
    PERMIT, flags={}
    #pkts encaps: 0, #pkts encrypt: 0, #pkts digest 0
    #pkts decaps: 276, #pkts decrypt: 276, #pkts verify 276
    #pkts compressed: 0, #pkts decompressed: 0
    #pkts not compressed: 0, #pkts compr. failed: 0
    #pkts not decompressed: 0, #pkts decompress failed: 0
    #send errors 0, #rcv errors 0
    local crypto endpt.: 20.20.20.2, remote crypto endpt.: 20.20.20.10
    path mtu 1500, media mtu 1500
    current outbound spi: FD8D8795
    inbound esp sas:
      spi: 0xD62F4DAA(3593424298)
      transform: esp-3des esp-sha-hmac ,
      in use settings ={Tunnel, }
      slot: 0, conn id: 202, flow_id: 3, crypto map: dynmap
      sa timing: remaining key lifetime (k/sec): (4474755/3463)
      IV size: 8 bytes
      replay detection support: Y
    inbound ah sas:
    inbound pcp sas:
    outbound esp sas:
      spi: 0xFD8D8795(4253910933)
      transform: esp-3des esp-sha-hmac ,
      in use settings ={Tunnel, }
      slot: 0, conn id: 203, flow_id: 4, crypto map: dynmap
      sa timing: remaining key lifetime (k/sec): (4474789/3463)

```

```

IV size: 8 bytes
replay detection support: Y
outbound ah sas:
outbound pcp sas:
protected vrf:
local ident (addr/mask/prot/port): (20.20.20.2/255.255.255.255/0/0)
remote ident (addr/mask/prot/port): (30.30.30.21/255.255.255.255/0/0)
current_peer: 20.20.20.10:500
PERMIT, flags={}
#pkts encaps: 51, #pkts encrypt: 51, #pkts digest 51
#pkts decaps: 0, #pkts decrypt: 0, #pkts verify 0
#pkts compressed: 0, #pkts decompressed: 0
#pkts not compressed: 0, #pkts compr. failed: 0
#pkts not decompressed: 0, #pkts decompress failed: 0
#send errors 0, #recv errors 0
local crypto endpt.: 20.20.20.2, remote crypto endpt.: 20.20.20.10
path mtu 1500, media mtu 1500
current outbound spi: 3FE025F3
inbound esp sas:
spi: 0xA5262E38(2770742840)
transform: esp-3des esp-sha-hmac ,
in use settings ={Tunnel, }
slot: 0, conn id: 200, flow_id: 1, crypto map: dynmap
sa timing: remaining key lifetime (k/sec): (4517706/3461)
IV size: 8 bytes
replay detection support: Y
inbound ah sas:
inbound pcp sas:
outbound esp sas:
spi: 0x3FE025F3(1071654387)
transform: esp-3des esp-sha-hmac ,
in use settings ={Tunnel, }
slot: 0, conn id: 201, flow_id: 2, crypto map: dynmap
sa timing: remaining key lifetime (k/sec): (4517700/3460)
IV size: 8 bytes
replay detection support: Y
outbound ah sas:
outbound pcp sas:
Cisco1751#show crypto isakmp sa
dst src state conn-id slot
20.20.20.2 20.20.20.10 QM_IDLE 1 0
Cisco1751#show crypto engine connections active
ID Interface IP-Address State Algorithm Encrypt Decrypt
1 Ethernet0/0 20.20.20.2 set HMAC_SHA+3DES_56_C 0 0
200 Ethernet0/0 20.20.20.2 set HMAC_SHA+3DES_56_C 0 0
201 Ethernet0/0 20.20.20.2 set HMAC_SHA+3DES_56_C 100 0
202 Ethernet0/0 20.20.20.2 set HMAC_SHA+3DES_56_C 0 561
203 Ethernet0/0 20.20.20.2 set HMAC_SHA+3DES_56_C 0 0

```

TROUBLESHOOTING THE CONFIGURATION

Certain **show** commands are supported by the *Output Interpreter Tool* (registered customers only), which analyzes **show** command output.

Note: Before issuing debug commands, see *Important Information about Debug Commands*.

- **debug crypto isakmp**—Displays errors during Phase 1.
- **debug crypto ipsec**—Displays errors during Phase 2.
- **debug crypto engine**—Displays information from the crypto engine.
- **debug ip your routing protocol**—Displays information about routing transactions of the routing protocol.
- **clear crypto connection connection-id [slot | rsm | vip]**—Terminates an encrypted session currently in progress. Encrypted sessions normally terminate when the session times out. Use the **show crypto cisco connections** command to see the connection-id value.
- **clear crypto isakmp**—Clears the Phase 1 security associations.
- **clear crypto sa**—Clears the Phase 2 security associations.

RELATED INFORMATION

- IPsec Support Page
- An Introduction to IP Security (IPsec) Encryption
- Download Cisco VPN Client from CCO
- Cisco VPN Client
- Cisco IOS Easy VPN Server
- Configuring IPSec Network Security
- Configuring Internet Key Exchange Security Protocol
- Command Lookup Tool (registered customers only)
- Technical Support—Cisco Systems



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