

# Remote VPN Client Load Balancing on ASA 5500 Configuration Example

## Contents

[Introduction](#)

[Prerequisites](#)

[Requirements](#)

[Eligible Clients](#)

[Components Used](#)

[Network Diagram](#)

[Conventions](#)

[Restrictions](#)

[Configuration](#)

[IP Address Assignment](#)

[Cluster Configuration](#)

[Monitoring](#)

[Verify](#)

[Troubleshoot](#)

[Troubleshooting Commands](#)

[Related Information](#)

## [Introduction](#)

Load balancing is the ability to have Cisco VPN Clients shared across multiple Adaptive Security Appliance (ASA) units without user intervention. Load-balancing ensures that the public IP address is highly available to users. For example, if the Cisco ASA that services the public IP address fails, another ASA in the cluster assumes the public IP address.

## [Prerequisites](#)

### [Requirements](#)

Ensure that you meet these requirements before you attempt this configuration:

- You have assigned IP addresses on your ASAs and configured the default gateway.
- IPsec is configured on the ASAs for the VPN Client users.
- VPN users are able to connect to all ASAs with the use of their individually assigned public IP address.

### [Eligible Clients](#)

Load balancing is effective only on remote sessions initiated with these clients:

- Cisco VPN Client (release 3.0 or later)
- Cisco VPN 3002 Hardware Client (release 3.5 or later)

- CiscoASA 5505 when acting as an Easy VPN client

All other clients, including LAN-to-LAN connections, can connect to a security appliance on which load balancing is enabled, but they cannot participate in load balancing.

## Components Used

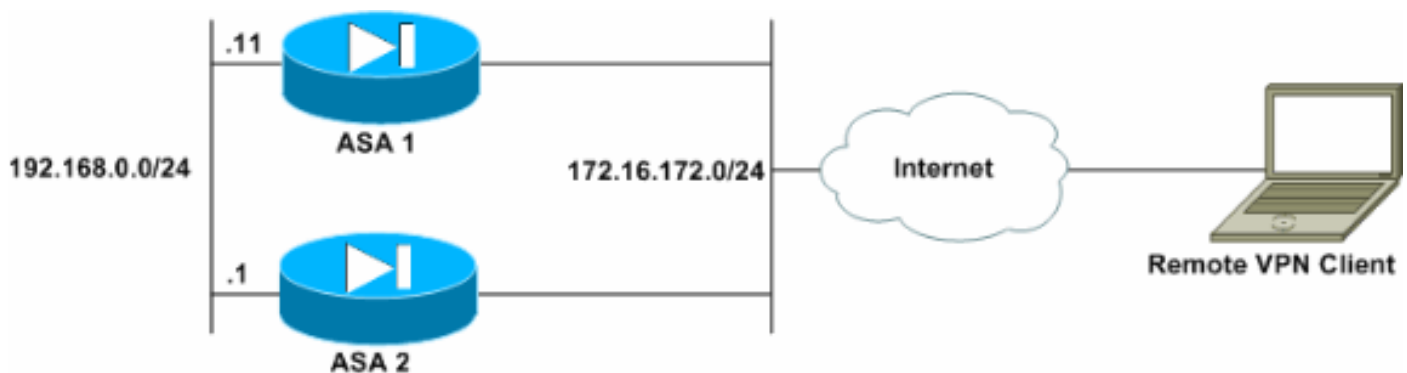
The information in this document is based on these software and hardware versions:

- VPN Client Software Releases 4.6 and later
- Cisco ASA Software Releases 7.0.1 and later **Note:** Extends load balancing support to ASA 5510 and ASA models later than 5520 that have a Security Plus license with the 8.0(2) version.

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:



## Conventions

Refer to the [Cisco Technical Tips Conventions](#) for more information on document conventions.

## Restrictions

- VPN virtual cluster IP address, User Datagram Protocol (UDP) port, and shared secret must be identical on every device in the virtual cluster.
- All devices in the virtual cluster must be on the same outside and inside IP subnets.

## Configuration

### IP Address Assignment

Ensure that the IP addresses are configured on the outside and inside interfaces and you are able to get to the Internet from your ASA.

**Note:** Ensure that ISAKMP is enabled on both the inside and outside interface. Select

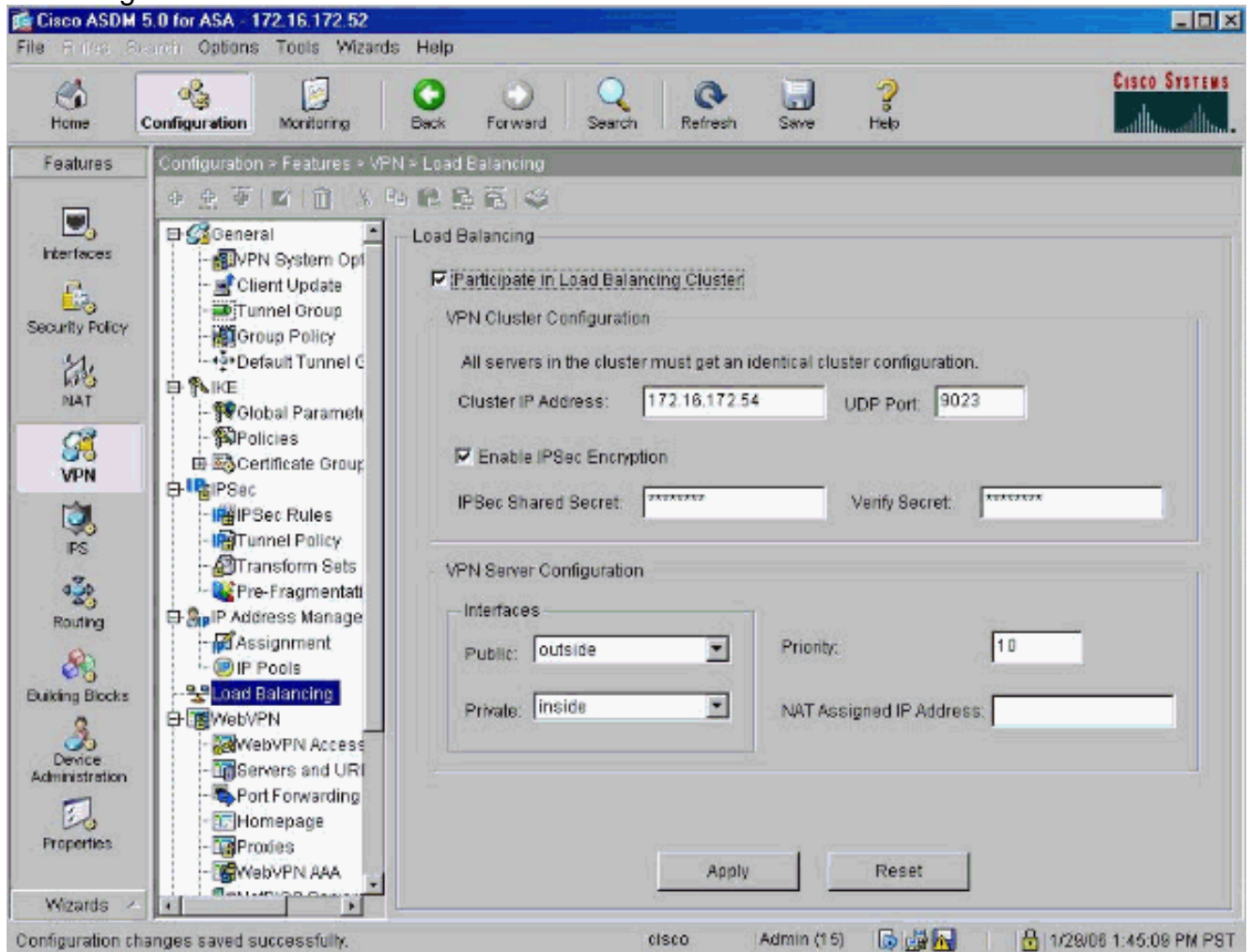
**Configuration > Features > VPN > IKE > Global Parameters** in order to verify this.

## Cluster Configuration

This procedure shows how to use the Cisco Adaptive Security Device Manager (ASDM) to configure load balancing.

**Note:** Many of the parameters in this example have default values.

1. Select **Configuration > Features > VPN > Load Balancing**, and check **Participate in Load Balancing Cluster** to enable VPN load balancing.



2. Complete these steps to configure the parameters for all ASAs participating in the cluster in the VPN Cluster Configuration group box: Type the IP address of the cluster in the Cluster IP Address text box. Click **Enable IPsec Encryption**. Type the encryption key in the IPsec Shared Secret text box and type it again in the Verify Secret text box.
3. Configure the options in the VPN Server Configuration group box: Select an interface that accepts the incoming VPN connections in the Public list. Select an interface that is the private interface in the Private list. (*Optional*) Change the priority that the ASA has in the cluster in the Priority text box. Type an IP address for the Network Address Translation (NAT) Assigned IP Address if this device is behind a firewall that uses NAT.
4. Repeat the steps on all the participating ASAs in the group.

The example in this section uses these CLI commands to configure load balancing:

```
VPN-ASA2(config)#vpn load-balancing VPN-ASA2(config-load-balancing)#priority 10 VPN-ASA2(config-load-balancing)#cluster key cisco123 VPN-ASA2(config-load-balancing)#cluster ip address 172.16.172.54 VPN-ASA2(config-load-balancing)#cluster encryption VPN-ASA2(config-load-balancing)#participate
```

## Monitoring

Select **Monitoring > Features > VPN > VPN Statistics > Cluster Loads** to monitor the load balancing feature on the ASA.

VPN Cluster Loads

Current cluster VPN server loads. This server is identified by an asterisk (\*) in the Role column.

Public IP Address	Role	Priority	Model	Load (%)	Sessions
172.16.172.52	Backup	4	ASA-5520	1	2
172.16.172.53	Master *	5	ASA-5520	0	1

Refresh

Last Updated: 1/29/06 5:28:18 PM

Data Refreshed Successfully

## Verify

Use this section to confirm that your configuration works properly.

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

- **show vpn load-balancing**—Verifies the VPN load balancing feature.  
Status: enabled  
Role: Backup  
Failover: n/a  
Encryption: enabled  
Cluster IP: 172.16.172.54  
Peers: 1

Public IP Role Pri Model Load (%) Sessions

-----  
\* 172.16.172.53 Backup 5 ASA-5520 0 1  
172.16.172.52 Master 4 ASA-5520 n/a n/a

## [Troubleshoot](#)

Use this section to troubleshoot your configuration.

### [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 vpnlb 250**—Used to troubleshoot the VPN load balancing feature.`VPN-ASA2#`

```
VPN-ASA2# 5718045: Created peer[172.16.172.54]
5718012: Sent HELLO request to [172.16.172.54]
5718016: Received HELLO response from [172.16.172.54]
7718046: Create group policy [vpnlb-grp-pol]
7718049: Created secure tunnel to peer[192.168.0.11]
5718073: Becoming slave of Load Balancing in context 0.
5718018: Send KEEPALIVE request failure to [192.168.0.11]
5718018: Send KEEPALIVE request failure to [192.168.0.11]
5718018: Send KEEPALIVE request failure to [192.168.0.11]
7718019: Sent KEEPALIVE request to [192.168.0.11]
7718023: Received KEEPALIVE response from [192.168.0.11]
7718035: Received TOPOLOGY indicator from [192.168.0.11]
7718019: Sent KEEPALIVE request to [192.168.0.11]
7718023: Received KEEPALIVE response from [192.168.0.11]
7718019: Sent KEEPALIVE request to [192.168.0.11]
7718023: Received KEEPALIVE response from [192.168.0.11]
7718019: Sent KEEPALIVE request to [192.168.0.11]
7718023: Received KEEPALIVE response from [192.168.0.11]
7718019: Sent KEEPALIVE request to [192.168.0.11]
7718023: Received KEEPALIVE response from [192.168.0.11]
7718019: Sent KEEPALIVE request to [192.168.0.11]
7718023: Received KEEPALIVE response from [192.168.0.11]
7718019: Sent KEEPALIVE request to [192.168.0.11]
```

## [Related Information](#)

- [Cisco ASA 5500 Series Adaptive Security Appliances](#)
- [Cisco PIX Firewall Software](#)
- [Cisco Secure PIX Firewall Command References](#)
- [Security Product Field Notices \(including PIX\)](#)
- [Requests for Comments \(RFCs\)](#) 
- [Technical Support & Documentation - Cisco Systems](#)