

DHCP FAILOVER

The main goal of DHCP Failover is to provide DHCP service availability at all times on the enterprise network.

If a DHCP server is no longer reachable, the DHCP client is able to extend the lease on its current IP address by contacting another DHCP server on the enterprise network.

HOW DOES THIS WORK?

The DHCP server failover feature provides the ability to have two DHCP servers provide IP addresses and option configuration to the same subnet or scope.

The two DHCP servers replicate lease information between them, allowing one server to assume responsibility for servicing of clients for the entire subnet when the other server is unavailable.

It is also possible to configure failover in a load-balancing configuration with client requests distributed between the two servers in a failover relationship

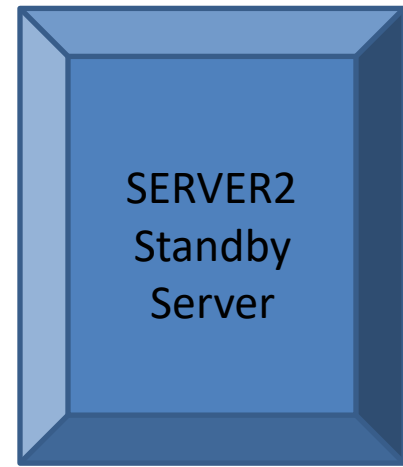
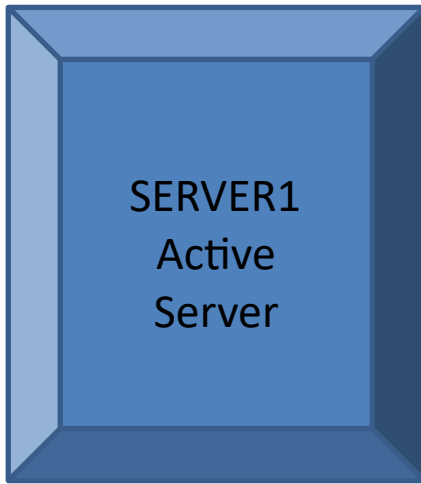
DHCP failover in Windows Server 2012 provides support for a maximum of two DHCP servers, and the failover relationship is limited to IPv4 scopes and subnets

Administrators can deploy DHCP servers running Windows Server 2012 as failover

partners in either hot standby mode or load sharing mode.

Hot standby mode

- Two servers operate in a failover relationship
- One active server is responsible for leasing IP addresses and configuration information to all clients in a scope or subnet
- The secondary server assumes this responsibility if the primary server becomes unavailable.



The free IP Address Pool is owned by free IP address pool of the active Server1. Server1 will service all the server only after the active server clients, giving Out IP addresses and transitions into **Partner Down state**. renewing leases.

If there is an outage the standby server this interim period – i.e. till it needs to Start renewing or extending transitions to Partner Down and takes leases as well as giving Out IP addresses

The standby server will take over the

To enable the standby server to serve

new IP address leases to clients during

over the entire free IP address pool of a scope – a **percentage of free IP address pool needs to be available to**

standby server. This can be provided by the configuration parameter – **reserve address percentage.**

Configure Failover

Create a new failover relationship



Create a new failover relationship with partner 10.0.0.2

Relationship Name:

Maximum Client Lead Time: hours minutes

Mode:

Hot Standby Configuration

Role of Partner Server:

Addresses reserved for standby server: %

State Switchover Interval: minutes

Enable Message Authentication

Shared Secret:

Default percentage of addresses reserved for the hot standby server. If address reserve percentage is set to 0, no addresses will be reserved for the hot standby server and new client leases cannot be granted by the hot standby server in case of outage of active server.

< Back

Next >

Cancel

Once the active server is up, the standby server retreats into standby mode and stops responding to clients. This facilitates failback of the clients back to the active server.

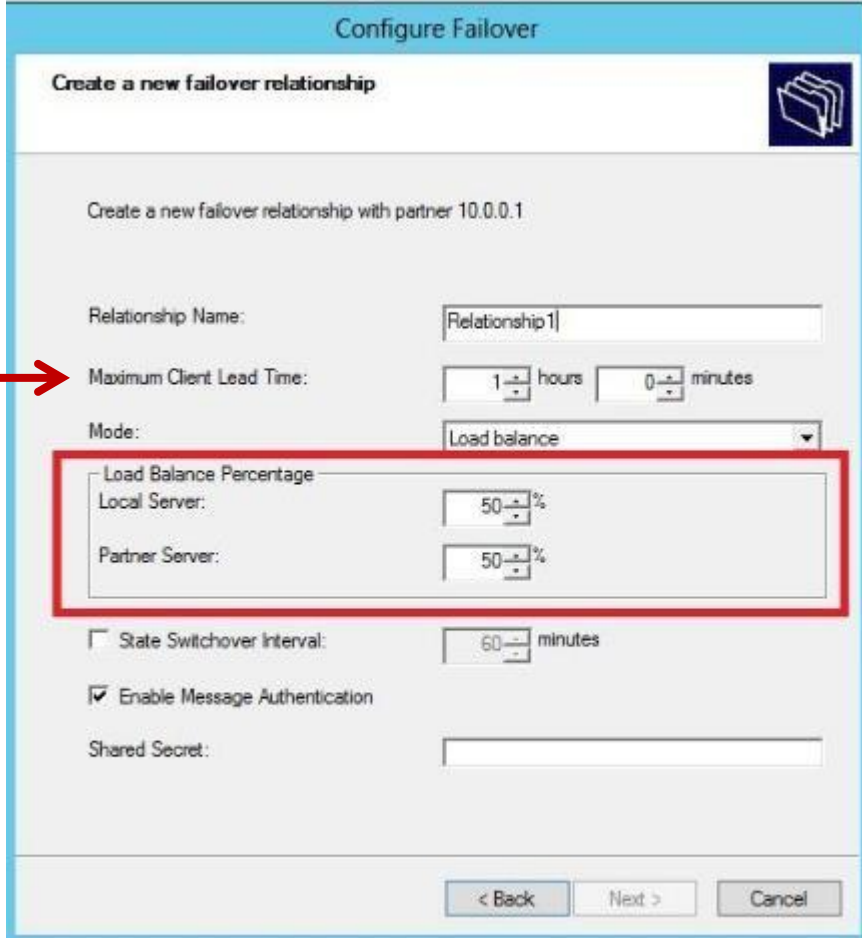
Load Balance Mode

In load-balance mode of operation both the servers respond to client requests.

This is the default mode. In this mode both servers supply IP configuration to clients simultaneously. The server that responds to IP configuration requests depends on how the administrator configures the load distribution ratio. The default ratio is 50:50.

The administrator configures the MCLT parameter to determine the amount of time a DHCP server should wait when a partner is unavailable, before assuming control of the address range. This value cannot be zero, and the default is one hour

The administrator can also enable automatic transition to partner down state by configuring the auto state switchover interval.



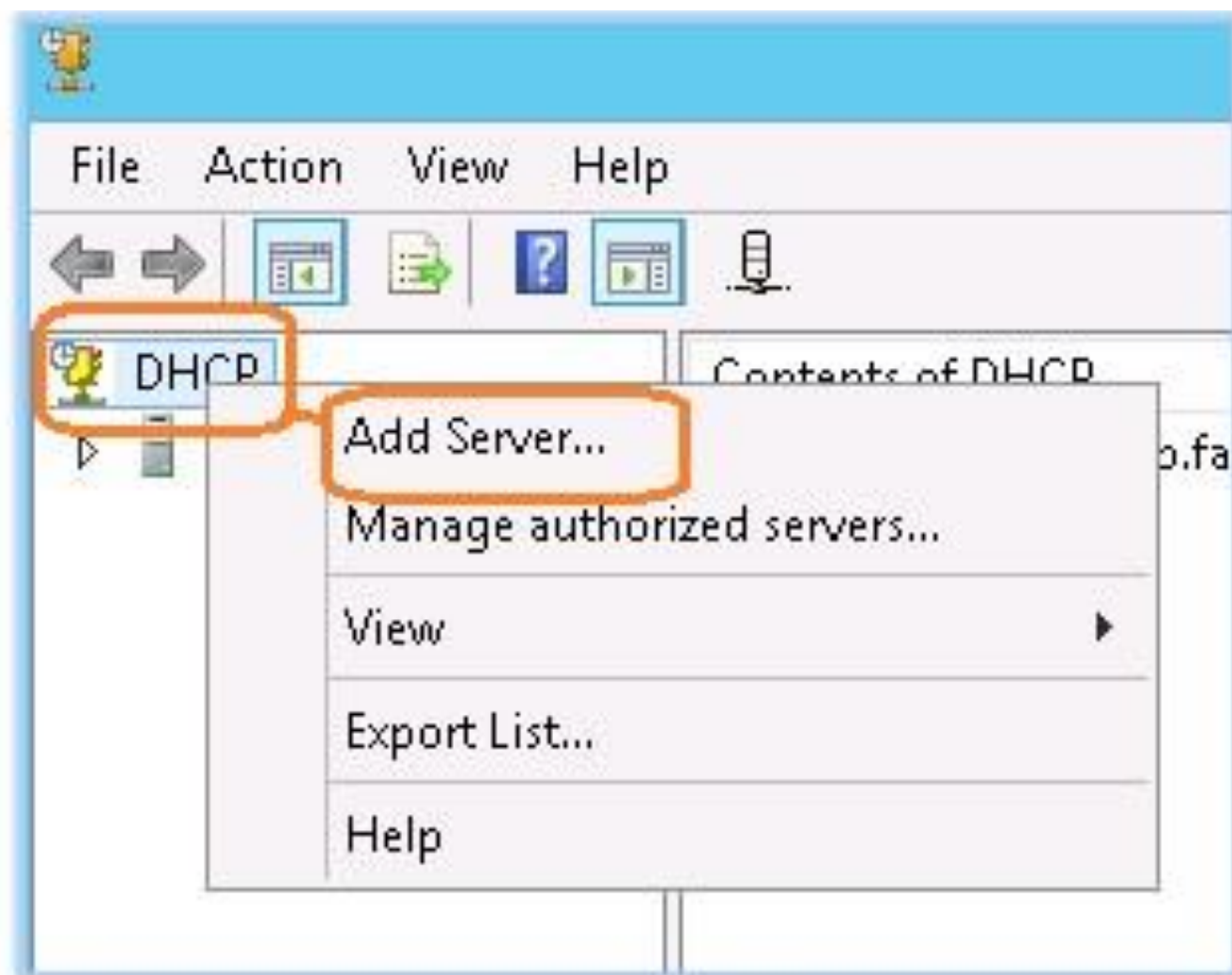
The screenshot shows the 'Configure Failover' dialog box. The title bar reads 'Configure Failover'. Below the title bar, there is a section titled 'Create a new failover relationship' with a folder icon. The main content area contains the following fields:

- Relationship Name: Relationship1
- Maximum Client Lead Time: 1 hours 0 minutes
- Mode: Load balance
- Load Balance Percentage (highlighted with a red box):
 - Local Server: 50%
 - Partner Server: 50%
- State Switchover Interval: 60 minutes
- Enable Message Authentication:
- Shared Secret: (empty field)

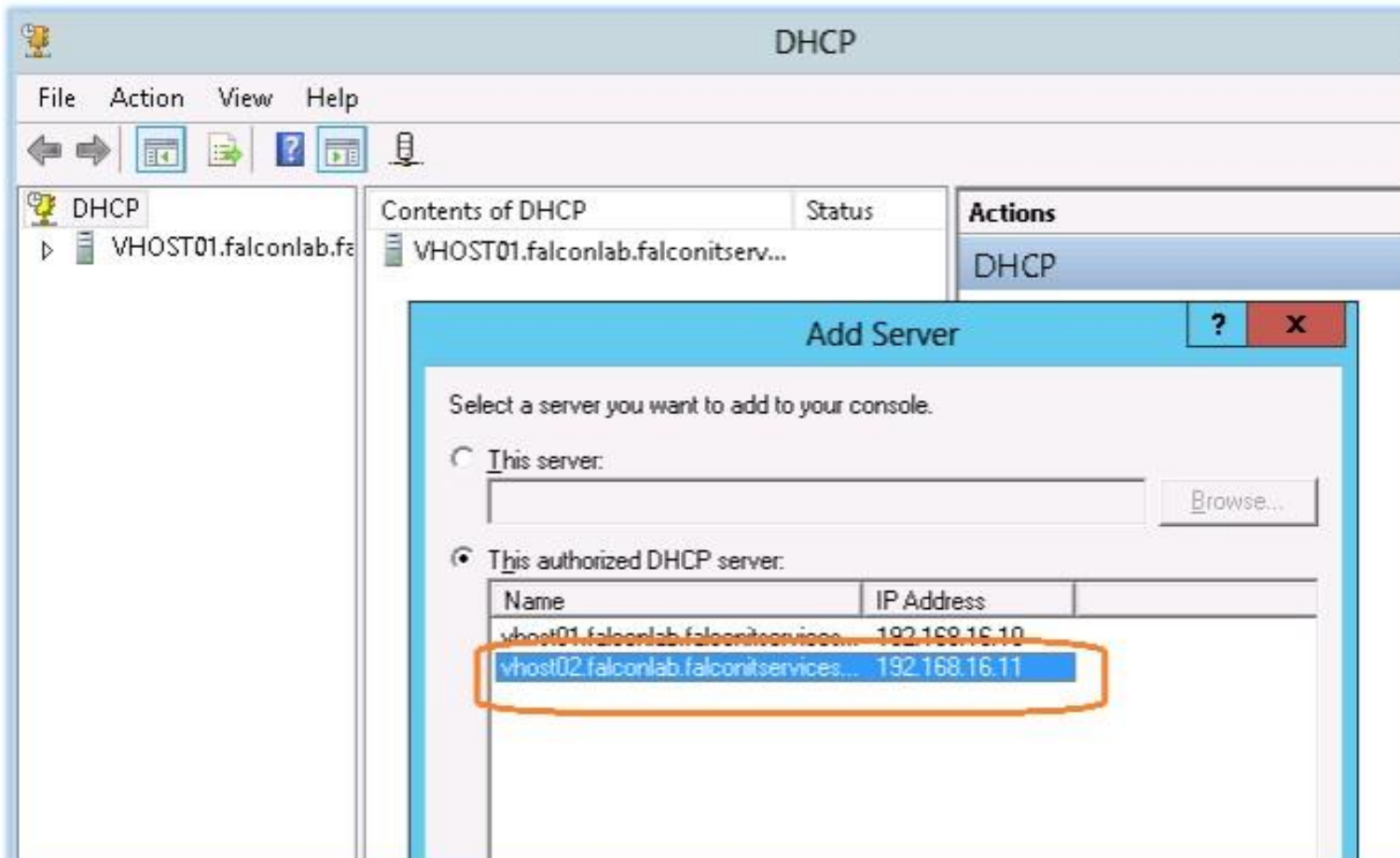
At the bottom of the dialog, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Figure 1: Load Balance Ratio in a Failover Relationship

In the DHCP manager window, right click on DHCP and select add server from the menu.



Select the secondary DHCP server to add. This will allow you to view and manage both DHCP servers from the DHCP MMC.



Right click on IPV4 and select new scope to configure your scope. Configure your scope options.

Configure the primary scope to have the entire range of leased addresses.

Scope [192.168.16.0] FalconLab Scope Properties

General | DNS | Network Access Protection | Advanced

Scope

Scope name: FalconLab Scope

Start IP address: 192 . 168 . 16 . 55

End IP address: 192 . 168 . 16 . 254

Subnet mask: 255 . 255 . 255 . 0 Length: 24

Lease duration for DHCP clients

Limited to:

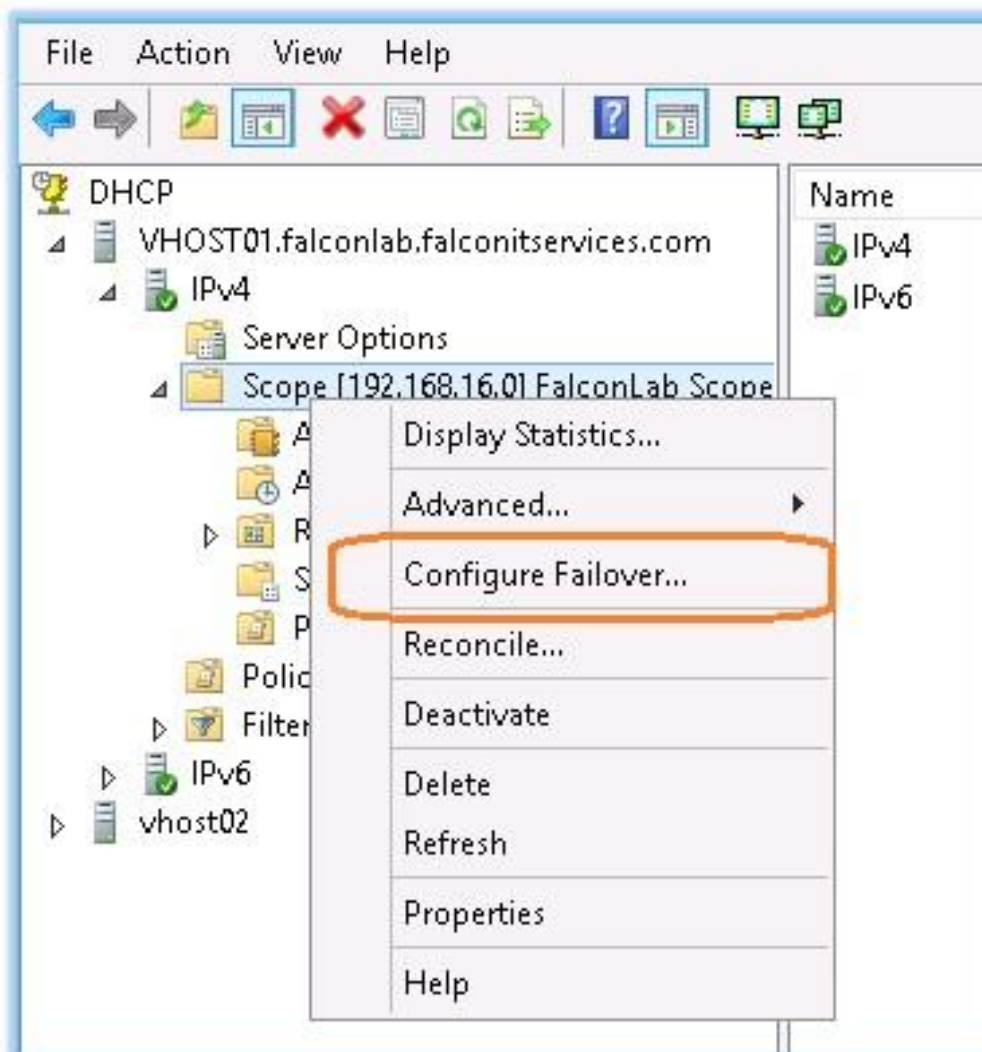
Days: 4 Hours: 0 Minutes: 0

Unlimited

Description:

OK Cancel Apply

Right click on the primary server's scope and select *configure failover*.



Select the secondary DHCP server as the partner server.

Configure Failover

Specify the partner server to use for failover



Provide the host name or IP address of the partner DHCP server with which failover should be configured.

You can select from the list of servers with an existing failover configuration or you can browse and select from the list of authorized DHCP servers.


Alternatively, you can type the host name or IP address of the partner server.

Partner Server:

Reuse existing failover relationships configured with this server (if any exist).

Configure your options as shown below and click next, then finish.

Configure Failover

Create a new failover relationship 

Create a new failover relationship with partner vhost02

Relationship Name: FalconLab DHCP Failover

Maximum Client Lead Time: 1 hours 0 minutes

Mode: Hot standby

Hot Standby Configuration

Role of Partner Server: Standby

Addresses reserved for standby server: 20 %

State Switchover Interval: 60 minutes

Enable Message Authentication

Shared Secret: xxxxxxxx

Right click on the primary DHCP server's scope and select *replicate relationship* and *replicate scope*.

DHCP

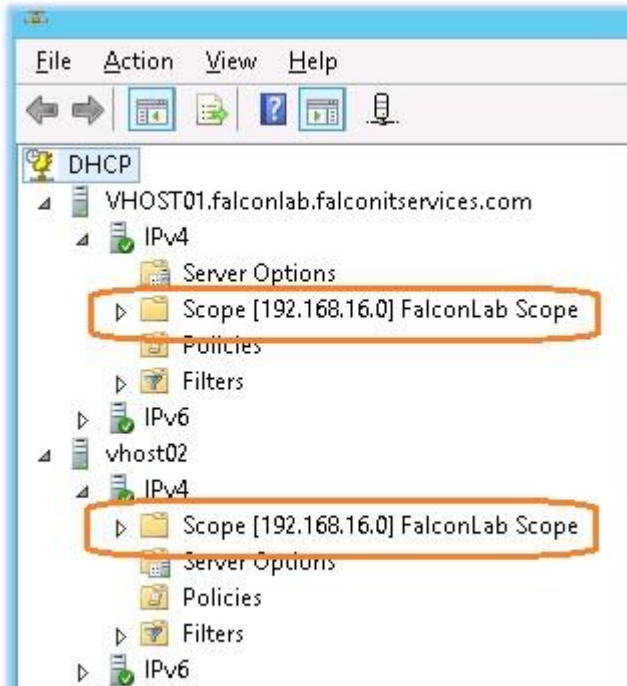


This action will replicate the configuration of all failover scopes that are part of the failover relationship FalconLab DHCP Failover to the partner server vhost02. This operation may take some time.

OK

Cancel

Close and re-open the DHCP manager and the scope should appear for both the primary and secondary DHCP servers.



Your DHCP scope is now fault tolerant. If the event that the primary DHCP server fails, the secondary server will lease out IP addresses.