

## Module 3 – DHCP

This module covers DHCP configuration, customization options, and advanced settings. Students will learn proper server placement to assure client communication with the DHCP server, the rationale for creating superscopes and split scopes, and DHCPv6 options.

### Section 3.1: DHCP Configuration

#### Summary

This section discusses how to configure a DHCP server to deliver IP addresses to clients. Details include:

- Methods to obtain an address from a DHCP server:
  - DHCP Discover (D)
  - DHCP Offer (O)
  - DHCP Request (R)
  - DHCP ACK (A)
- Authorizing a DHCP server
- Objects to configure a DHCP server to deliver IP addresses:
  - Scope
  - Exclusion
  - Reservation
- The process to configure an existing server running server core for DHCP
- Using link layer filter to control the issuance or denial of DHCP leases based on MAC address for IPv4

Students will learn how to:





- Install and authorize a DHCP server.
- Create and activate scopes.
- Configure exclusion ranges and reservations.

#### Configuring Server 2008 Network Infrastructure Objectives

- 102. Configure Dynamic Host Configuration Protocol (DHCP).
  - DHCP options
  - Exclusions
  - Authorize server in Active Directory
  - Scopes

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**Log into LabSim and complete the tasks listed under Resources for each of the items listed below. As you complete them Checkoff the boxes:**

Video/Demo	Time
<input type="checkbox"/>  3.1.1 DHCP Concepts	5:16
<input type="checkbox"/>  3.1.3 Installing DHCP	3:25
<input type="checkbox"/>  3.1.5 Configuring DHCPv4 Scopes	4:28
<input type="checkbox"/>  3.1.9 Using DHCP MAC Address Filtering	4:11
<i>Total</i>	<u>17:20</u>

## Lab/Activity

- Authorize DHCP Servers
- Create a Scope
- Create Exclusion Ranges
- Create Client Reservations

**Number of Exam Questions: 10 questions**

**Time: About 50 minutes**

## Section 3.2: DHCP Options

### Summary

In this section students will learn about DHCP options to deliver a wide range of TCP/IP configuration parameters. Details include:

- Common option that can be used to configure DHCP:
  - 003 Router
  - 006 DNS Servers
  - 015 DNS Domain Name
  - 044 WINS/NBNS Servers
  - 046 WINS/NBT Node Type
- Levels that the DHCP options can be set at:
  - Server
  - Scope
  - Reservation

Students will learn how to:



- Configure server, scope, and user/vendor class options.
- Design DHCP options to customize configuration and minimize administration.

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## Configuring Server 2008 Network Infrastructure Objectives

- 102. Configure Dynamic Host Configuration Protocol (DHCP).
  - DHCP options

**Log into LabSim and complete the tasks listed under Resources for each of the items listed below. As you complete them Checkoff the boxes:**

Video/Demo	Time
<input type="checkbox"/>  3.2.1 DHCPv4 Options	3:55
<input type="checkbox"/>  3.2.2 Create DHCP Options	<u>6:43</u>
<i>Total</i>	<i>10:38</i>

### Lab/Activity

- Configure Server Options
- Configure Scope Options
- Design Scope Options
- Design DHCP Options

**Number of Exam Questions: 1 question**

**Total Time: About 30 minutes**

## Section 3.3: Advanced DHCPv4 Settings

### Summary

This section examines using advanced DHCPv4 settings to optimize DHCP server performance. Details include

- Advanced DHCPv4 settings:
  - Bindings
  - Backup and Restore
  - Dynamic DNS
  - Conflict Detection
- The role of Bootstrap Protocol (BOOTP)
- Components required by BOOTP
  - Client workstation
  - DHCP server
  - TFTP server
- Steps to configure a DHCP server to support Bootstrap Protocol (BOOTP) clients for diskless network boot

Students will learn how to:



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- Configure server bindings.
- Backup or restore a DHCP server.
- Configure proxy settings for dynamic DNS updates.
- Set the number of conflict detection attempts.

## Configuring Server 2008 Network Infrastructure Objectives

- 102. Configure Dynamic Host Configuration Protocol (DHCP).
  - Creating new options
  - PXE boot

**Log into LabSim and complete the tasks listed under Resources for each of the items listed below. As you complete them Checkoff the boxes:**

Video/Demo	Time
<input type="checkbox"/>  3.3.1 Advanced DHCPv4 Settings	2:00
<input type="checkbox"/>  3.3.2 Configuring Advanced Settings	<u>2:49</u>
<i>Total</i>	<i>4:49</i>

**Number of Exam Questions: 6 questions**

**Total Time: About 15 minutes**

## Section 3.4: Server Placement

### Summary

In this section students will learn how DHCP server placement affects the ability of clients to communicate with the DHCP server. The following strategies to provide DHCP for multiple subnets are presented:

- DHCP server on each subnet
- Multihomed DHCP server
- BOOTP forwarding
- DHCP relay agent

Students will learn how to:



- Configure a DHCP relay agent.

## Configuring Server 2008 Network Infrastructure Objectives

- 101 Configure IPv4 and IPv6 addressing.
  - Multi-homed
- 102. Configure Dynamic Host Configuration Protocol (DHCP).
  - DHCP relay agents

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**Log into LabSim and complete the tasks listed under Resources for each of the items listed below. As you complete them Checkoff the boxes:**

Video/Demo	Time
<input type="checkbox"/>  3.4.1 DHCP Server Placement	4:16
<input type="checkbox"/>  3.4.3 Configuring a DHCP Relay Agent	<u>1:27</u>
<i>Total</i>	<i>5:43</i>

## Lab/Activity

- Configure a DHCP Relay Agent

**Number of Exam Questions: 4 questions**

**Total Time: About 15 minutes**

## Section 3.5: Superscopes and Split Scopes

### Summary

This section discusses how and when to use superscopes and split scopes.

- Superscopes are used to combine multiple address ranges into a single logical range.
- Split scopes provide fault tolerance by two DHCP servers servicing a portion of each range for each subnet.


Students will learn how to:

- Use the 80/20 rule to create a split scope.

### Configuring Server 2008 Network Infrastructure Objectives

- 102. Configure Dynamic Host Configuration Protocol (DHCP).
  - Scopes

**Log into LabSim and complete the tasks listed under Resources for each of the items listed below. As you complete them Checkoff the boxes:**

Video/Demo	Time
<input type="checkbox"/>  3.5.1 Superscopes and Split Scopes	8:01

## Lab/Activity

- Add a DHCP Server on Another Subnet

Number of Exam Questions: 3 questions

Total Time: About 15 minutes

## Section 3.6: DHCPv6

### Summary

This section examines configuring DHCPv6. Details include:

- Methods to assign IPv6 addresses to clients:
  - Stateless DHCPv6
  - Stateful DHCPv6
- Messages exchanged between the client and the DHCP when stateful DHCPv6 is used:
  - Solicit Packet (S)
  - Advertise Packet (A)
  - Request Packet (R)
  - Reply Packet (R)



Students will learn how to:

- Create and activate an IPv6 scope using the global unicast prefix.
- Include address range exclusions as part of an IPv6 scope.

### Configuring Server 2008 Network Infrastructure Objectives

- 102. Configure Dynamic Host Configuration Protocol (DHCP).
  - DHCPv6

**Log into LabSim and complete the tasks listed under Resources for each of the items listed below. As you complete them Checkoff the boxes:**

Video/Demo	Time
<input type="checkbox"/>  3.6.1 DHCPv6	4:01
<input type="checkbox"/>  3.6.2 Configuring DHCPv6	<u>4:10</u>
<i>Total</i>	<u>8:11</u>

Number of Exam Questions: 2 questions

Total Time: About 10 minutes