

## Module 1 - IPv4

This module discusses the details of configuring IPv4 addressing and subnetting. This includes topics of converting IPv4 addresses from binary to decimal, converting subnet masks to slant notation, identifying Ipv4 classes and ranges of IP addresses, and determining local and non-local hosts. Students will learn how to customize the number of subnets and hosts allowed on each subnet.

### Section 1.1: IPv4 Addressing

#### Summary

In this section the students will learn how to convert IPv4 addresses and subnet masks from binary to decimal and how to convert subnet masks to slant notation. Students will learn:

- The five IPv4 classes of IP addresses with the range of IP addresses and the default subnet mask for each class.
- How to identify the Network ID, host ID, and the default gateway address to determine local and non-local hosts.

#### Configuring Server 2008 Network Infrastructure Objectives

- 101. Configure IPv4 and IPv6 Addressing.
  - Configure IP address 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"/>  1.1.1 IPv4 Addressing	6:10
<input type="checkbox"/>  1.1.2 Classful IPv4 Subnetting	<u>11:22</u>
<i>Total</i>	<u>17:32</u>

**Total Time: About 20 minutes**

### Section 1.2: IPv4 Subnetting

#### Summary

This section discusses using IPv4 subnetting. Details include:

- Using a Variable Length Subnet Mask to vary the number of bits in the subnet mask to:
  - Subnet a single network address into multiple smaller subnets.
  - Create a supernet which combines multiple network addresses into a single larger subnet.
- Recommended subnetting tables for students to memorize:
  - Exponent values for powers of 2

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- Binary subnet mask values and decimal equivalent values

Students will learn how to:

- Given a network address and a custom mask, identify valid subnet addresses.
- Given a scenario with the desired number of hosts, choose a subnet address and mask.
- Given a subnet address and the subnet mask, identify valid host addresses on that subnet.

## Configuring Server 2008 Network Infrastructure Objectives

- 101. Configure IPv4 and IPv6 Addressing.
  - Subnetting
  - Supernetting

**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"/>  1.2.1 Variable Length Subnet Mask (VLSM)	17:19
<input type="checkbox"/>  1.2.3 IPv4 Subnetting Cheat Sheet	<u>4:38</u>
<i>Total</i>	<i>21:57</i>

**Number of Exam Questions: 4 questions**

**Total Time: About 30 minutes**

## Section 1.3: IPv4 Host Configuration

### Summary

This section explores IPv4 host configuration. Details include:

- Configuration values:
  - IP address
  - Subnet mask
  - Default gateway
  - Host name
  - DNS server
  - WINS server
  - MAC address
- Methods used to configure IPv4 configuration settings:
  - Static (manual) assignment
  - Dynamic Host Configuration Protocol (DHCP)
  - Automatic Private IP Addressing (APIPA)

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- Alternate IP configuration
- Commands to configure Windows host with IPv4 configuration parameters
- TCP Chimney offloading

Students will learn how to:

- Configure static and automatic IPv4 addressing.
- Specify an alternate IPv4 configuration.
- Use the command line to configure IPv4 settings.

## Configuring Server 2008 Network Infrastructure Objectives

- 101. Configure IPv4 and IPv6 Addressing.
  - Configure IP address 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"/>  1.3.1 IPv4 Configuration	4:35
<input type="checkbox"/>  1.3.3 Configuring IPv4 Client Addressing	2:33
<input type="checkbox"/>  1.3.7 Using Netsh	7:32
<input type="checkbox"/>  1.3.9 Allowing Ping through the Firewall	<u>3:45</u>
<i>Total</i>	<u>18:25</u>

## Lab/Activity

- Configure IP Settings
- Configure Automatic and Alternate Addressing
- Configure a Subnetted Address

**Number of Exam Questions: 10 questions**

**Total Time: About 50 minutes**