

6420 – Fundamentals of Windows Server 2008

Vendor Course Code: MS6420

Course Length: 5 days

Overview: The purpose of this 5-day course is to teach students the basic fundamentals of networking, security, and server administration with Windows Server 2008. It is intended to provide the foundational knowledge needed to prepare for the Microsoft Technology Associate (MTA) exams and begin building a career in Microsoft technologies.

Skills Gained: After completing this course, students will be able to:

- Describe fundamental network components and terminology thus enabling you to select an appropriate network component in a particular scenario.
- Implement a network by selecting network hardware components and technologies and determine the appropriate network hardware and wiring components for a given situation.
- Describe the protocols and services within the Transmission Control Protocol/Internet Protocol (TCP/IP) suite of protocols and implement IPv4 within a Windows Server environment.
- Select appropriate storage technologies and configure storage on Windows Server.
- Perform a local media-based installation of Windows Server 2008 R2.
- Describe server roles.
- Implement and configure an Active Domain Directory Service (AD DS) forest.
- Describe the concept of defense-in-depth and determine how to implement this approach with Windows Server.
- Identify the security features in Windows Server that help to provide defense-in-depth.
- Identify the network-related security features in Windows Server to mitigate security threats to you network.
- Identify and implement additional software components to enhance your organisation's security.
- Monitor a server to determine the performance level.
- Identify the Windows Server tools available to maintain and troubleshoot Windows Server.
- Create and configure a virtual machine with Hyper-V

Key Topics:

Module 1: Understanding Network Infrastructure

In this module, students will learn how to describe fundamental network component and terminology thus enabling the student to select an appropriate network component in a particular scenario. Students will also learn to determine the appropriate network infrastructure component for a given scenario.

Lessons

Lesson 1: Network Architecture Standards
Lesson 2: Local Area Networking
Lesson 3: Wide Area Networking
Lesson 4: Wireless Networking
Lesson 5: Connecting to the Internet
Lesson 6: Remote Access

Lab : Selecting Network Infrastructure Components
Exercise: Determining Appropriate Networking Components

After completing this module, students will be able to:

- Describe physical network topologies and standards.
- Define local area networks (LANs).
- Define wide area networks (WANs).
- Describe wireless networking technologies.
- Explain how to connect a network to the Internet.
- Describe how technologies connect remote access.

Module 2: Connecting Network Components

In this module, students will learn to build a network using network hardware components and technologies. The student will also learn to determine the appropriate network hardware and wiring components for a given situation.

Lessons

Lesson 1: Understanding the OSI Model

Lesson 2: Understanding Adapters, Hubs, and Switches

Lesson 3: Understanding Routing

Lesson 4: Understanding Media Types

Lab : Connecting Network Components

Exercise 1: Determining the Appropriate Network Hardware

Exercise 2: Selecting a Suitable Wiring Infrastructure

After completing this module, students will be able to:

- Describe the industry standard protocol model.
- Describe adapters, hubs, and switches.
- Describe routing technologies and protocols.
- Describe wiring methodologies and standards.

Module 3: Implementing TCP/IP

In this module, students will describe the protocols and services within the TCP/IP suite of protocols. Students will learn to implement IPv4 within a Windows environment. Students will also learn basic understanding of IPv6 and name resolution.

Lessons

Lesson 1: Overview of TCP/IP

Lesson 2: Understanding IPv4 Addressing

Lesson 3: Configuring IPv4

Lesson 4: Understanding IPv6

Lesson 5: Name Resolution

Lab : Implementing TCP/IP

Exercise 1: Determining an Appropriate IPv4 Addressing Scheme

Exercise 2: Configuring IPv4 with Windows Server 2008

Exercise 3: Verifying the Configuration

Exercise 4: Configuring and Testing Name Resolution

Exercise 5: Viewing the IPv6 Configuration

After completing this module, students will be able to:

- Describe the functionality of the TCP/IP suite.
- Describe IPv4 addressing.
- Configure an IPv4 network.
- Describe IPv6 addressing and transition.
- Describe the various name resolution methods used by TCP/IP hosts.

Module 4: Implementing Storage in Windows Server

This module will introduce students to different storage technologies, discuss how to implement the storage solutions in Windows Server 2008 R2 and will finish with helping you detail a resilient strategy for your storage that will be tolerant in various ways, helping to avoid unplanned downtime and loss of data.

Lessons

Lesson 1: Identifying Storage Technologies

Lesson 2: Managing Disks and Volumes

Lesson 3: Implementing RAID

Lab : Implementing Storage in Windows Server

Exercise 1: Creating a New Volume

Exercise 2: Creating a Fault Tolerant Disk Configuration

Exercise 3: Implementing the Windows iSCSI initiator

After completing this module, students will be able to:

- Identify storage technologies.

- Manage disks and volumes.
- Implement RAID.

Module 5: Installing and Configuring Windows Server

In this module, students will learn to understand the various options available for installing Windows Server and to complete an installation. Students will also launch a local media setup and then perform the post-installation configuration of a server.

Lessons

Lesson 1: Installing Windows Server

Lesson 2: Managing Services

Lesson 3: Managing Peripherals and Devices

Lab : Installing Windows Server

Exercise 1: Performing a Local Media-Based Installation

Exercise 2: Configuring Windows Server

Exercise 3: Configuring Services

Exercise 4: Configuring Devices

After completing this module, students will be able to:

- Install Windows Server 2008 R2.
- Manage Services.
- Manage Devices and Device Drivers.

Module 6: Windows Server Roles

In this module, students will learn to deploy server roles to support a business scenario. Students will also learn to implement appropriate server roles to support a given scenario.

Lessons

Lesson 1: Role-Based Deployment

Lesson 2: Deploying Role-Specific Servers

Lab : Implementing Server Roles

Exercise 1: Determining the Appropriate Roles to Deploy

Exercise 2: Deploying the Determined Server Roles

After completing this module, students will be able to:

- Describe different types of servers.
- Select and install server roles and features to support different types of servers.

Module 7: Implementing Active Directory Domain Services

In this module, students will learn to implement an AD DS forest. Students will also create and configure an AD DS forest.

Lessons

Lesson 1: Introducing AD DS

Lesson 2: Implementing AD DS

Lesson 3: Managing Users, Groups, and Computers

Lesson 4: Implementing Organisational Units

Lesson 5: Implementing Group Policy

Lab: Implementing AD DS

Exercise 1: Promoting a New Domain Controller

Exercise 2: Creating an Organisational Unit

Exercise 3: Configuring Accounts

Exercise 4: Creating a GPO

After completing this module, students will be able to:

- Describe the fundamental features of AD DS.
- Manage objects in a domain.
- Implement organisational units (OUs) for managing groups and objects.
- Configure client computers centrally with group policy objects (GPOs).

Module 8: Implementing IT Security Layers

In this module, students will learn the concept of defense-in-depth and how to implement this approach with Windows Server. Students will also learn to implement security best practices to help

to secure the network.

Lessons

Lesson 1: Overview of Defense-in-Depth

Lesson 2: Physical Security

Lesson 3: Internet Security

Lab : Implementing IT Security Layers

Exercise 1: Implementing Physical Security

Exercise 2: Configuring Security Settings in Internet Explorer

After completing this module, students will be able to:

- Identify security threats at all levels and mitigate those threats.
- Describe physical security risks and identify mitigations.
- Identify Internet-based security threats and protect against them.

Module 9: Implementing Windows Server Security

In this module, students will understand security features in Windows Server to help to provide defense-in-depth. Students will also implement some of the Windows Server security features.

Lessons

Lesson 1: Overview of Windows Security

Lesson 2: Securing Files and Folders

Lesson 3: Implementing Encryption

Lab: Implementing Windows Security

Exercise 1: Configuring an Accounts Policy

Exercise 2: Securing NTFS Files and Folders

Exercise 3: Encrypting Files

After completing this module, students will be able to:

- Configure a password policy.
- Secure an NTFS folder.
- Encrypt files.

Module 10: Implementing Network Security

In this module, students will describe the security-related threats to an organisation's network and the technologies available in Windows Server to mitigate these risks.

Students will also implement network-related security features in Windows Server.

Lessons

Lesson 1: Overview of Network Security

Lesson 2: Implementing Firewall

Lesson 3: Network Access Protection

Lab : Implementing Network Security

Exercise 1: Configuring Windows Firewall with Advanced Security

Exercise 2: Configuring Compliance with NAP

After completing this module, students will be able to:

- Identify network-based security threats.
- Implement Windows Firewall to secure Windows hosts.
- Explain how to enforce corporate compliance.

Module 11: Implementing Security Software

In this module, students will identify and implement additional software components to enhance an organisation's security. Students will also analyse and secure a Windows Server.

Lessons

Lesson 1: Client Protection Features

Lesson 2: E-Mail Protection

Lesson 3: Server Protection

Lab : Implementing Security Software

Exercise 1: Restricting Applications with AppLocker

Exercise 2: Using the Security Configuration Wizard

Exercise 3: Hardening the Security Settings on Windows Server 2008

After completing this module, students will be able to:

- Implement Windows Server and features to improve client security.
- Describe security threats posed by e-mail and how to mitigate these threats.
- Explain how to improve server security using Windows Server security analysis and hardening tools.

Module 12: Monitoring Server Performance

In this module, students will identify a poorly performing server. Students will also monitor a server to determine the performance level.

Lessons

Lesson 1: Overview of Server Components

Lesson 2: Performance Monitoring

Lab : Monitoring Server Performance

Exercise 1: Creating a Performance Baseline

Exercise 2: Simulating a Server Load

Exercise 3: Gathering Additional Performance Data

Exercise 4: Determining Probable Performance Bottlenecks

After completing this module, students will be able to:

- Identify server components that are impacted through excessive workloads.
- Measure system resource usage and identify component bottlenecks.

Module 13: Maintaining Windows Server

In this module, students will understand the tools available and the methods to employ to maintain and troubleshoot Windows Server. Students will also learn how to maintain and troubleshoot Windows Server systems.

Lessons

Lesson 1: Troubleshooting Windows Server Startup

Lesson 2: Server Availability and Data Recovery

Lesson 3: Applying Updates to Windows Server

Lesson 4: Troubleshooting Windows Server

Lab : Maintaining Windows Server

Exercise 1: Troubleshooting the Startup Process

Exercise 2: Installing and Configuring WSUS

Exercise 3: Gathering Information to Start the Troubleshooting Process

After completing this module, students will be able to:

- Troubleshoot the Windows Server boot process.
- Implement high-availability and recovery technologies to improve system availability.
- Explain the importance of system updates.
- Implement an appropriate troubleshooting methodology to resolve problems with Windows Server.

Module 14: Implementing Virtualisation

In this module, students will understand the virtualisation technologies provided by Microsoft. Students will also create and configure a virtual machine with Hyper-V.

Lessons

Lesson 1: Overview of Virtualisation Technologies

Lesson 2: Implementing Hyper-V Role

Lab : Implementing Virtualisation

Exercise 1: Creating the VHDs

Exercise 2: Creating New Virtual Machines

Exercise 3: Modifying Virtual Machine Settings

Exercise 4: Creating and Applying Virtual Machine Snapshots

After completing this module, students will be able to:

- Describe the various virtualisation technologies.
- Implement server virtualisation with Hyper-V.

Target Audience:

Candidates for this course are seeking to gain fundamental knowledge and skills around security, networking, and administration in Windows Server 2008 R2. It can apply to home computer users, academic, information workers, developers, or help desk technicians wishing to begin a new skills path or up-skill to Windows Server technologies. It is for candidates wishing to prepare for the Microsoft Technology Associate (MTA) certification in Windows Server 2008. Candidates for this course may also include IT Pros with skills within other IT areas or operating systems (such as Linux) who wish to gain an insight into Windows Server.

Prerequisites:

In addition to their professional experience, students who attend this training should have the following technical knowledge:

- A good fundamental knowledge of general computing equivalent with the CompTIA A+ Certification
- An ability to understand basic security, networking and administration concepts
- Some previous knowledge and experience with desktop operating systems, although this is not mandatory

Note: No programming skills are required, although some experience and knowledge of scripting technologies would be advantageous.