

MOC 6420B Fundamentals of Windows Server 2008

Course Summary

Description

The purpose of this 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.

Objectives

At the end of 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 organization'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.

Topics

- Understanding Network Infrastructure
- Connecting Network Components
- Implementing TCP/IP
- Implementing Storage in Windows Server
- Installing and Configuring Windows Server
- Windows Server Roles
- Implementing Active Directory Domain Services
- Implementing IT Security Layers
- Implementing Windows Server Security
- Implementing Network Security
- Implementing Security Software
- Monitoring Server Performance
- Maintaining Windows Server
- Implementing Virtualization

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Course Summary

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

- 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.

Duration

Five days

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Course Outline

I. 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.

- A. Lesson 1: Network Architecture Standards
- B. Lesson 2: Local Area Networking
- C. Lesson 3: Wide Area Networking
- D. Lesson 4: Wireless Networking
- E. Lesson 5: Connecting to the Internet
- F. 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.

II. 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.

- A. Lesson 1: Understanding the OSI Model
- B. Lesson 2: Understanding Adapters, Hubs, and Switches
- C. Lesson 3: Understanding Routing
- D. 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.

III. 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.

- A. Lesson 1: Overview of TCP/IP
- B. Lesson 2: Understanding IPv4 Addressing
- C. Lesson 3: Configuring IPv4
- D. Lesson 4: Understanding IPv6
- E. Lesson 5: Name Resolution

Lab: Implementing TCP/IP

- A. Exercise 1: Determining an Appropriate IPv4 Addressing Scheme
- B. Exercise 2: Configuring IPv4 with Windows Server 2008
- C. Exercise 3: Verifying the Configuration
- D. Exercise 4: Configuring and Testing Name Resolution
- E. Exercise 5: Viewing the IPv6 Configuration

After completing this module, students will be able to:

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

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Course Outline (cont'd)

IV. 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.

- A. Lesson 1: Identifying Storage Technologies
- B. Lesson 2: Managing Disks and Volumes
- C. Lesson 3: Implementing RAID

Lab: Implementing Storage in Windows Server

- A. Exercise 1: Creating a New Volume
- B. Exercise 2: Creating a Fault Tolerant Disk Configuration
- C. 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.

V. 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.

- A. Lesson 1: Installing Windows Server
- B. Lesson 2: Managing Services
- C. 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.

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- Manage Services.
- Manage Devices and Device Drivers.

VI. 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.

- A. Lesson 1: Role-Based Deployment
- B. 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.

VII. 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.

- A. Lesson 1: Introducing AD DS
- B. Lesson 2: Implementing AD DS
- C. Lesson 3: Managing Users, Groups, and Computers
- D. Lesson 4: Implementing Organizational Units
- E. Lesson 5: Implementing Group Policy

Lab: Implementing AD DS

- Exercise 1: Promoting a New Domain Controller
- Exercise 2: Creating an Organizational Unit
- Exercise 3: Configuring Accounts
- Exercise 4: Creating a GPO

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Course Outline (cont'd)

After completing this module, students will be able to:

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

VIII. 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.

- A. Lesson 1: Overview of Defense-in-Depth
- B. Lesson 2: Physical Security
- C. 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.

IX. 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.

- A. Lesson 1: Overview of Windows Security
- B. Lesson 2: Securing Files and Folders
- C. Lesson 3: Implementing Encryption

Lab: Implementing Windows Security

- Exercise 1: Configuring an Accounts Policy

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- 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.

X. Implementing Network Security

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

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

- A. Lesson 1: Overview of Network Security
- B. Lesson 2: Implementing Firewall
- C. 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.

XI. Implementing Security Software

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

- A. Lesson 1: Client Protection Features
- B. Lesson 2: E-Mail Protection
- C. Lesson 3: Server Protection

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Course Outline (cont'd)

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.

XII. Monitoring Server Performance

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

- A. Lesson 1: Overview of Server Components
- B. 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.

XIII. 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.

- A. Lesson 1: Troubleshooting Windows Server Startup

- B. Lesson 2: Server Availability and Data Recovery
- C. Lesson 3: Applying Updates to Windows Server
- D. 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.

XIV. Implementing Virtualization

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

- A. Lesson 1: Overview of Virtualization Technologies
- B. Lesson 2: Implementing Hyper-V Role

Lab: Implementing Virtualization

- 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 virtualization technologies.
- Implement server virtualization with Hyper-V

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