Module 8 – File and Print

This module discusses managing network files and printing. Topics include: managing network file sharing and shared folders, controlling access using NTFS and share permissions, encrypting files and folders, protecting integrity of data through shadow copy, and backup and restore, restricting disk space using disk quotas and FSRM, and managing print services.

Section 8.1: File Services

Summary

This section explores installing the File Services role to manage network file sharing.

- When installing the File Services role, the following role services are available to choose from:
    - File Server
    - Distributed File System (DFS)
    - File Server Resource Manager (FSRM)
    - Services for Network File System (NFS)
    - Windows Search Service
    - Windows Server 2003 File Services
    - BranchCache for network files
- Managing file services on the server includes the following features and options:
    - NTFS permissions
    - NTFS quotas
    - Shadow copies
    - Server Backup (added as a server feature)
    - Storage Manager for SANs (added as a server feature)

Configuring Server 2008 Network Infrastructure Objectives

- 401. Configure a file server.
    - File share publishing
    - Branch Cache
    - NTFS permissions

Video/Demo   Time

- 8.1.1 Installing the File Services Role   3:01

☐ Number of Exam Questions: 1 question

Total Time: About 5 minutes

Section 8.2: File Shares

Summary

This section discusses creating and managing shared folders. Details include:

- Tools to create or manage shared folders:
    - Windows Explorer
    - Shared Folder snap-in
    - Share and Store Management snap-in
    - Command line
- A comparison of shared folder permissions and roles
- Facts about shared folders

Students will learn how to:

- Configure and manage shared folders and files.
- Restrict share access through share permissions and user limits.

Configuring Server 2008 Network Infrastructure Objectives

- 401. Configure a file server.
    - File share publishing
    - Share permissions
    - NTFS permissions
    - Access-based Enumeration (ABE)
    - Share and Storage Management console

Video/Demo	Time
☐ 🖥 8.2.1 File Share Concepts	4:19
☐ 🖥 8.2.2 Sharing Folders	11:05
☐ 🖥 8.2.3 Using Share and Storage Management Console	4:47
Total	*20:11*

Lab/Activity

- ☐ Share a Folder with a Second Name
- ☐ Remove a Shared Folder

☐ Number of Exam Questions: 7 questions

Total Time: About 40 minutes

Section 8.3: Offline Files

Summary

This section provides information about using offline files to work with documents in shared folders even when the user is not connected to the network.

Students will learn how to:

- Configure caching options for offline files, including automatic caching of files and caching of applications.
- Configure offline availability on the client.
- Manage synchronization settings through the Sync Center.

Configuring Server 2008 Network Infrastructure Objectives

- 401. Configure a file server.
  - Offline Files

Video/Demo   Time

☐ 🖥 8.3.1 Enabling Offline Files   12:54

Lab/Activity

- ☐ Enable Share Caching
- ☐ Disable Share Caching

☐ **Number of Exam Questions: 1 question**

Total Time: About 25 minutes

Section 8.4: NTFS Permissions

Summary

This section explores using NTFS permissions to control access to folders and files on an NTFS partition. Details include:

- Permissions for folders and files:
  - Read
  - Write
  - List Folder Contents
  - Read & Execute
  - Modify
  - Full Control
- Special permissions
- How file ownership affects access and assigning permissions
- The effects of copying or moving files with NTFS permissions
- Effective permissions are the sum of all permissions from the following sources:
  - Explicit assignment
  - Group membership
  - Inheritance
- Examples of effective NTFS permissions
- Suggestions for planning NTFS permissions

Students will learn how to:

- Configure NTFS permissions.
- Copy, remove, and modify inherited permissions.
- Identify the effective permissions a user has to a file or folder.
- Change file or folder ownership.

Configuring Server 2008 Network Infrastructure Objectives

- 401. Configure a file server.
    - NTFS permissions

Video/Demo   Time

☐ 8.4.1 NTFS Permissions   6:07

☐ 8.4.2 Configuring NTFS Permissions   13:11

     Total   *19:18*

Lab/Activity

- ☐ Configure NTFS Permissions
- ☐ Remove Inherited Permissions

☐ Number of Exam Questions: 3 questions

Total Time: About 40 minutes

Section 8.5: Share and NTFS Permissions

Summary

In this section students will learn how share permissions and NTFS permissions work together to control access.

Students will learn how to:

- Configure combined NTFS and share permissions.

Configuring Server 2008 Network Infrastructure Objectives

- 401. Configure a file server.
    - Share permissions
    - NTFS permissions

Video/Demo   Time

☐ 8.5.1 Share and NTFS Permissions   4:51

Lab/Activity

- ☐ Configure Share Permissions
- ☐ Configure NTFS and Share Permissions 1

- ☐ Configure NTFS and Share Permissions 2

☐ **Number of Exam Questions: 5 questions**

Total Time: About 25 minutes

Section 8.6: EFS

Summary

This section discusses using Encrypting File System (EFS) to encrypt a file or folder. Details include:

- Operating systems in which EFS is available:
    - Windows Server 2008
    - Windows Vista Business
    - Windows Vista Enterprise
    - Windows Vista Ultimate
- Requirements to encrypt a file or folder:
    - Must have Write permissions to a file or folder
    - Cannot encrypt System or Read-only files
    - Cannot encrypt and compress a file or folder at the same time
- Users who can open an encrypted file:
    - The user who originally encrypted the file
    - Additional users who have been designated as additional users
    - Designated recovery agents (DRAs)
- Implementing encryption
- Recovering encrypted files
- Moving or copying encrypted files
- Enforcing encryption settings for offline files
- Rules to determine the encrypted state of a file
- Tips when saving encrypted files on a remote computer

Students will learn how to:

- Encrypt or decrypt a file or folder.
- Add authorized users to allow encrypted file access.
- Designate DRAs for file recovery.
- Configure EFS settings in Group Policy.

Configuring Server 2008 Network Infrastructure Objectives

- 401. Configure a file server.
    - Encrypting file system (EFS)

Video/Demo   Time

☐ 8.6.1 EFS   4:27

☐ 🖥 8.6.2 Managing Encrypted Files   <u>13:24</u>

   Total   *17:51*

Lab/Activity

- ☐ Encrypt a Folder

☐ Number of Exam Questions: 7 questions

Total Time: About 35 minutes

Section 8.7: BitLocker

Summary

This section examines using BitLocker to protect unauthorized data access on lost or stole laptops or other compromised system. Details include:

- The role of BitLocker
- Components of BitLocker
    - BitLocker partition
    - Trusted Platform Module (TPM)
    - USB device
    - BIOS support
- How BitLocker differs from the EFS
- BitLocker configuration involves creating the following security components:
    - TPM owner password
    - Recovery key
    - PIN
    - Startup key
    - Data volume key
    - Data Recovery Agent
- BitLocker modes which determine the security level:
    - TPM-only
    - TPM with startup key
    - TPM with PIN
    - TPM with PIN and startup key
    - Without a TPM
- Configuring and managing BitLocker

Students will learn how to:

- Generate recovery keys and create a BitLocker DRA.
- Configure BitLocker to implement BitLocker without a TPM.
- Configure BitLocker To Go to deny write access to unauthorized USB flash devices.

Configuring Server 2008 Network Infrastructure Objectives

- 401. Configure a file server.
  - BitLocker

Video/Demo — **Time**

- ☐ 8.7.1 BitLocker — 4:54
- ☐ 8.7.3 BitLocker Configuration — 4:27
- ☐ 8.7.4 Implementing BitLocker without a TPM — 4:25
- ☐ 8.7.5 Configuring BitLocker Recovery Agents — 4:08

  Total — *17:54*

☐ **Number of Exam Questions: 12 questions**

Total Time: About 40 minutes

Section 8.8: BranchCache

Summary

This section discusses using BranchCache to store content in remote location so that users in branch offices can access information more quickly. Details include:

- The role of BranchCache
- BranchCache operates in one of the following modes:
  - Hosted Cache
  - Distributed Cache
- Configuration of BranchCache:
  - Content server
  - Hosted cache server
  - Distributed cache mode
- Configuring BranchCache clients
- Tools to configure BranchCache on branch office client computers:
  - **Netsh**
  - Group Policy
  - Windows Firewall with Advance Security

Students will learn how to:

- Configure BranchCache clients.
- Install and configure a BranchCache content server.
- Install and configure a BranchCache hosted cache server.

Configuring Server 2008 Network Infrastructure Objectives

- 401. Configure a file server
  - BranchCache

Video/Demo	Time
☐ 🖳 8.8.1 BranchCache	4:56
☐ 🖳 8.8.3 BranchCache Configuration	6:48
☐ 🖥 8.8.4 Configuring BranchCache	2:25
Total	*14:09*

☐ **Number of Exam Questions: 11 questions**

Total Time: About 35 minutes

Section 8.9: Distributed File System (DFS)

Summary

This section explores using DFS to logically organize shared folders on multiple servers into a single logical folder hierarchy called a namespace. Details include:

- DFS includes the following namespace components:
  - Namespace
  - Namespace server
  - Namespace root
  - Folder
- Components to control replication
  - Replication group
  - Replicated folder
  - Connection
- DFS configuration
- Types of namespace:
  - Stand-alone
  - Domain-based
- Configuring a Replication Group

Students will learn how to:

- Create stand-alone or domain-based DFS namespaces.
- Add folders and folder targets to a namespace.
- Configure DFS replication by creating replication groups and replicated folders.

Configuring Server 2008 Network Infrastructure Objectives

- 402. Configure Distributed File System (DFS).
    - DFS namespace
    - DFS configuration and application
    - Creating and configuring targets
    - DFS replication
    - Read-only replicated folder
    - Failover cluster support
    - Health reporting

Video/Demo	Time
☐ 🖳 8.9.1 DFS	7:23
☐ 🖳 8.9.2 New DFS Features	4:51
☐ 🖳 8.9.4 Enabling DFS	9:17
☐ 🖳 8.9.5 Configuring DFS Read-Only Replicated Folders and Access Based Enumeration	3:49
Total	*25:20*

Lab/Activity

- ☐ Create a DFS Structure

☐ **Number of Exam Questions: 11 questions**

Total Time: About 50 minutes

Section 8.10: Shadow Copy

Summary

This section covers using shadow copy to make copies of files at regular intervals. This allows you to take a snapshot of files and shared folders which can be used at a later date to recover previous versions of a file or recover a deleted file. Details include:

- Facts about using shadow copies
- Recommendations for using shadow copies

Students will learn how to:

- Enable shadow copies on a volume.
- Configure shadow copy settings, including storage location, size, and schedule.
- Create snapshots.
- Save, copy, or restore previous versions of files.

Configuring Server 2008 Network Infrastructure Objectives

- 403. Configure shadow copy services.
  - Restoring data
  - Shadow copy services

Video/Demo	Time
☐ 8.10.1 Shadow Copy Services	3:09
☐ 8.10.2 Enabling Previous Versions	<u>5:45</u>
Total	*8:54*

Lab/Activity

- ☐ Enable Shadow Copies

☐ **Number of Exam Questions: 9 questions**

Total Time: About 25 minutes

Section 8.11: Backup and Restore

Summary

In this section students will become familiar with Windows Server Backup which is used to provide backup and recovery for Windows Server 2008 and replaces NTbackkup.exe. Details include:

- Using Windows Server Backup
- Windows Server Backup provides three ways to run backups:
  - Windows Server Backup MMC snap-in
  - Wbadmin from the command line
  - PowerShell cmdlets for Windows Server Backup
- Volume options you can select for Windows Server Backup:
  - Full Server
  - Critical volumes/Bare metal recovery
  - System state
  - Individual volumes
  - Folders or file
- Storage type for Windows Server Backup:
  - Internal disk
  - External disk
  - Shared folder
  - DVD, other optical, or removable media
- Types of backups you can perform using Windows Server Backup:
  - Automatic backup
  - Manual backup
  - Scheduled backup
  - System state backup

- Tools to perform a system recovery:
    - Files and folders
    - Volumes
    - Applications
    - Backup catalog
    - Operating system or full server
    - System state

Students will learn how to:

- Install the Windows Server Backup features.
- Configure a regular backup schedule.
- Configure and run a Backup Once backup operation.
- Restore a backup, restoring the full server, volume or selected folders and files.

Configuring Server 2008 Network Infrastructure Objectives

- 403. Configure backup and restore.
    - Backup types
    - Backup schedules
    - Managing remotely
    - Restoring data
    - Volume snapshot services (VSS)
    - Bare metal restore

Video/Demo   Time

☐ 8.11.1 Server Backup   5:20

☐ 8.11.2 Using Windows Server Backup   7:22

☐ 8.11.3 Performing a Bare Metal Restore   5:42

    Total   *18:24*

Lab/Activity

- ☐ Back Up a Server

☐ **Number of Exam Questions: 17 questions**

Total Time: About 50 minutes

Section 8.12: Disk Quotas

Summary

This section examines using disk quotas to restrict the amount of disk space user's files can use on an NTFS volume. Disk quotas are set up per volume and per user and cannot be configured using groups.

Students will learn how to:

- Configure disk quotas and enforce quota limits.
- Add quota entry exceptions for specific users.
- Enable quota logging for warning levels.

Configuring Server 2008 Network Infrastructure Objectives

- 404. Manage file server resources.
    - Quota by volume or quota by user
    - Quota entries

Video/Demo	Time
☐ 8.12.1 Configuring Disk Quotas	2:40

Lab/Activity

- ☐ Enable Quota Restrictions
- ☐ Create a Quota Entry
- ☐ Modify Quota Limits

☐ **Number of Exam Questions: 5 questions**

Total Time: About 25 minutes

Section 8.13: FSRM Features

Summary

This section explores using the File Server Resource Manager (FSRM) snap-in to manage folder and volume quotas. Details include:

- FSRM features:
    - Quotas
    - Notifications
    - File Screening
    - Storage Reports
    - File Classification

- o   File Management
- Methods for configuring quotas:
    - o   NTFS Disk Quotas
    - o   Folder and Volume Quotas

Students will learn how to:

- Configure volume and folder quotas
- Create quota templates.
- Configure file screens and file screen exceptions.
- Create custom file groups.
- Generate FSRM reports for both quotas and overall file system use. Schedule FSRM reports.
- Assign file classification information to files.
- Create file management tasks.

Configuring Server 2008 Network Infrastructure Objectives

- 404. Manage file server resources.
    - o   FSRM
    - o   Quota entries
    - o   Quota templates
    - o   File classification
    - o   File management tasks
    - o   File screening

Video/Demo   Time

☐ 🖥 8.13.1 FSRM Quotas and File Screening   5:46

☐ 🖥 8.13.2 FSRM File Classifications and Management   6:06

☐ 💻 8.13.3 Configuring FSRM Quotas and File Screening   8:57

☐ 💻 8.13.4 Configuring FSRM File Classifications and Management   8:40

Total   *29:29*

☐ **Number of Exam Questions: 15 questions**

Total Time: About 50 minutes

Section 8.14: Print Services

Summary

In this section students will learn how to manage print services on a Windows Server 2008 system by installing the Print and Document Services role. Details include:

- Key definitions:

- o Print server
- o Printer
- o Print device
- o Print driver
- o Print queue
- o Printer port
- Managing printing on a Windows Server 2008 R2
- Services that the Print and Document Services role is composed of:
  - o Print server
  - o LPD Service
  - o Internet Printing
  - o Distributed Scan Server
- Facts about Print and Document Services
- The role of Print Management
- Configuring printers
- Features to be aware of when managing printing:
  - o Printer permissions
  - o Printer pooling
  - o Multiple printer objects
  - o List in Active Directory
  - o Deploy with Group Policy
  - o Export/import printer
  - o Manage print drivers
  - o Manage documents in the print queue
  - o Location-aware printing
  - o Print driver isolation
  - o Client-Side Rendering (CSR)

Students will learn how to:

- Install the Print and Document Services role.
- Create and share a printer.
- Modify printer properties, including the following:
  - o Sharing
  - o Listing in Active Directory
  - o Adding ports
  - o Modifying security permissions
  - o Enabling pooling
  - o Scheduling availability
  - o Designating priority
- Deploy printers using Group Policy.
- Manage the default printer based on the location.

Configuring Server 2008 Network Infrastructure Objectives

- 405. Configure and monitor print services.
  - o Printer share
  - o Publish printers to Active Directory

- o Printer permissions
- o Deploy printer connections
- o Install print drivers
- o Export and import print queues an printer settings
- o Print pooling
- o Print priority
- o Print driver isolation
- o Location-aware printing
- o Print management delegation

Video/Demo	Time
☐ 8.14.1 Print Services	7:15
☐ 8.14.2 Installing the Print Services Role	1:49
☐ 8.14.4 Configuring Printing	14:03
☐ 8.14.5 Migrating Print Server and Configuring Print Driver Isolation	3:44
☐ 8.14.6 Delegating Printer Management	3:19
☐ 8.14.7 Configuring Location Aware Printing	2:23
Total	*32:33*

Lab/Activity

- ☐ Create and Share a Printer
- ☐ Configure Printer Pooling
- ☐ Restrict Printer Access

☐ **Number of Exam Questions: 26 questions**

Total Time: About 80 minutes