Lesson 8: Understanding Backup and Recovery Methods

# Learning Objectives

Students will learn to:

* Understand local, network, and automated backup methods
* Restore previous versions of files and folders
* Configure system recovery

# Objective Domain Skills

* Understanding backup and recovery methods 6.1

# Lesson Summary — Lecture Notes

Lesson 8 helps students understand local, manual, and network backups and how to automate them.

Begin the lecture by describing backing up and restoring information. A backup is a properly secured copy of files and folders—and sometimes settings—usually saved in a compressed format. A backup is created so you can restore the files and settings in the event of data loss from a hard disk failure, accidental erasure or disk formatting, or natural events. Most users hope they never need backups. When they do need backups, however, they need them *now*! And if they don’t have backups, it’s often too late—their files might be gone forever. You must be logged on as an administrator or a member of the Backup Operators group to back up a computer or data.

Windows 7 File Recoverywas designed to protect a computer in the event of a system failure by storing data on another medium (hard drive, network folder, or CD/DVD). It can also back up a system image of a computer, including applications.

The next section covers system recovery. There is no good time for a system to fail. But when it happens, you need to be ready. And the best way to be ready is to know the available recovery options and what steps to take before the problem occurs. However, the best method for system and data recovery is back up, back up, and back up some more.

Windows 10 System Restore saves information about drivers, registry settings, programs, and system files in the form of restore points for drives with system protection turned on. A restore point is a representation of the state of a computer’s system files and settings.

If a system fails to boot and Windows 10 installation media is not available, create a recovery drive that includes a Windows 10 boot environment and troubleshooting tools to regain access to the computer. AWindows 10 File Recovery drive can help by providing enough of a boot environment to get back into the system to begin the troubleshooting process. It can be used to refresh or reset a computer, restore a computer to a previously created System Restore point, recover a Windows installation from a specific system image file, automatically fix startup problems, and perform advanced troubleshooting from the command prompt.

Next, students will learn about File History, a feature in Windows 10 that is designed to keep personal files safe. It enables users who are not administrators to select an external drive or a folder on the network, and it automatically backs up and restores their personal files.

The Windows Recovery Environment (Windows RE or WinRE) can be used to repair common causes of unbootable operating systems. It is based on the Windows Preinstallation Environment (Windows PE).

TAKE NOTE: In the OneNote portion of this course, we include a blank space between the backward slashes that indicate the beginning of a network path (\\) and a server address (such as server\share\folder), to prevent them from becoming live links. In actual usage, there would be no space after the slashes.

# Key Terms

**backup** – A properly secured copy of files and folders—and sometimes settings—usually saved in a compressed format. A backup is created so a user can restore the files and settings in the event of data loss from a hard disk failure, accidental erasure or disk formatting, or natural events.

**File History** – A feature in Windows 10 that is designed to keep personal files safe. It enables users who are not administrators to select an external drive or a folder on the network, and it automatically backs up and restores their personal files.

**restore** – The process of returning a computer, or select files and folders, to a previous state, usually after some type of failure. A backup is created so a user can restore the files and settings in the event of data loss from a hard disk failure, accidental erasure or disk formatting, or natural events.

**restore point** – A representation of the state of a computer’s system files and settings.

**safe mode** – A troubleshooting option that limits Windows operation to basic functions. It's useful for troubleshooting problems with programs and drivers that might not start correctly or that might prevent Windows from starting correctly.

**Windows 7 File Recovery** – Designed to protect a computer in the event of a system failure by storing data on another medium (hard drive, network folder, or CD/DVD). It can also back up a system image of a computer, including applications.

**Windows 10 File Recovery drive** – Provides enough of a boot environment to get back into the system to begin the troubleshooting process. It can be used to refresh or reset a computer, restore a computer to a previously created System Restore point, recover a Windows installation from a specific system image file, automatically fix startup problems, and perform advanced troubleshooting from the command prompt.

**Windows 10 System Restore** – Saves information about drivers, registry settings, programs, and system files in the form of restore points for drives with system protection turned on.

**Windows Recovery Environment (Windows RE or WinRE)** – Used to repair common causes of unbootable operating systems. It is based on the Windows Preinstallation Environment (Windows PE).

# Knowledge Assessment

## Multiple Choice

**Select the correct answer(s) for each of the following questions.**

1. Backups of data can be stored on which of the following devices or media? (Choose all that apply.)

a. CD/DVD

b. The same drive on which you are storing the backup

c. USB

d. Hard drives

e. Network

2. Which program allows you to perform a standard backup of Windows including the System image?

a. File History

b. Windows 10 Restore

c. Windows 7 File Recovery

d. Windows 10 File Recovery drive

3. Which of the following is a representation of the state of a computer’s system files and settings?

a. Restore point

b. File History backup

c. Windows 10 File Recovery drive

d. Windows Recovery Environment

4. Which of the following options are likely to restore a system in which a System Restore was performed from a restore point, but the issue was not resolved and now the computer doesn't boot? (Choose all that apply.)

a. Roll back to another restore point

b. Manually delete all files that changed

c. Undo the System Restore

d. Restart the machine

5. What can be used to repair common causes of unbootable operating systems?

a. Device Manager

b. File History

c. Windows 7 File Recovery

d. Windows Recovery Environment

6. Which of the following is the Windows Recovery Environment based on?

a. Windows 7 Backup

b. DOS boot disk

c. Windows PE

d. Windows installation ISO

7. Which of the following recovery boot options should be avoided when the affected computer has been infected by a virus?

a. Safe Mode

b. Safe Mode with Networking

c. Repair Your Computer

d. Safe Mode with Command Prompt

8. Which of the following indicates how often Windows 10 automatically creates restore points by default?

a. Every day

b. Once every 3 days

c. Once every 7 days

d. Once every 30 days

9. Which Windows 10 feature is used to protect personal files by automatically backing up those files?

a. File History

b. File Recovery

c. System Restore

d. Windows 7 backup

10. Before installing some new inventory software, which of the following precautions can be taken to protect a system so that if something goes wrong, the changes can be undone?

a. Install the application in safe mode

b. Create an image with the recovery disk

c. Perform a Windows 7 backup

d. Create a restore point

## Fill in the Blank

**Complete the following sentences by writing the correct word or words in the blanks provided.**

1. The best method for recovering data is to ensure you have backed it up.

2. When you change your Windows password, you should create a password reset disk.

3. A backup is a properly secured copy of files and folders—and sometimes settings—usually saved in a compressed format.

4. A user must be logged on as an administrator or a member of the Backup Operators group to back up a computer or data.

5. Use Previous Versions to restore an earlier version of a file.

6. To back up a drive in Windows 10, open the Control Panel and click Backup and Restore (Windows 7).

7. If a new device driver has been added and the system is not responding, boot to the Advanced Options menu and choose Safe Mode.

8. To find the text file that contains your driver information after enabling boot logging, look in the C:\Windows folder for a file named ntbtlog.txt.

9. A Windows 10 File Recovery drive can provide enough of a boot environment to get back into the system to begin the troubleshooting process.

10. Use a restore point to roll back a computer system to an earlier point in time.

## True / False

**Circle T if the statement is true or F if the statement is false.**

**T F** 1. Windows 10 enables users to choose exactly what to back up to a folder.

**T F** 2. The traditional backup program that comes with Windows 10 is called Windows 10 File Recovery.

**T F** 3. Windows 10 allows users to control how much hard drive space backups can use.

**T F** 4. File History can be configured to back up the registry files.

**T F** 5.Users can restore individual data files from a system image backup.

# Business Case Scenarios

## Scenario 8-1: Scheduling File Backups

You provide technical support for a small environmental consulting firm. Dina, the graphic artist, creates a lot of maps for client reports. Her Windows 10 Professional computer automatically backs up files every Sunday starting at 7:00 p.m. Dina reported recently that her computer was still backing up files when she arrived for work the last two Monday mornings. What can you do to help ensure that Dina's files are backed up by Monday morning?

To ensure that Dina's files are backed up by Monday morning, reschedule her Windows 10 backup to begin sometime on Saturday. Another option is to increase the frequency of the backups from weekly to daily beginning at 7:00 p.m. When Windows 10 backup starts, it will back up only new files or files that have changed. Backing up files on a daily basis will reduce the amount of time that's currently needed to back up her files once a week. In addition, a daily backup better protects her data. Currently, anything she creates or modifies on Monday through Friday might have to be re-created if her computer fails before the next backup occurs.

## Scenario 8-2: Installing from an Image

The owner of the consulting firm approved funds to purchase a new computer for Dina because an upgrade to her main mapping software requires more memory than her current computer's motherboard can handle. The new computer will be the same make and model but will have more memory and will have a much larger hard disk. You also ordered a 1 TB external USB drive for backups. When the new computer arrives, describe how to quickly get it up and running for Dina.

Create a system image of Dina's old computer system to the external USB drive. Install that image onto the hard disk of Dina's new computer. Test the new computer to ensure it operates properly before transitioning Dina from her old computer to the new computer.

## Scenario 8-3: Creating a System Repair Disc

Stanley works for your organization from his home office on a company-owned computer. He called your cell phone while you were at a restaurant having lunch. He said his computer has been having all kinds of problems lately and that it takes a long time for Windows to start. You suspect his Windows system files have become corrupt. Describe your recommended solution.

To help provide a boot environment, create a Windows 10 File Recovery drive. Insert a
USB drive into your system, click Start, and execute the Create a Recovery Drive command. Select the USB drive and click Create. Once the disc is created, restart the computer with the Windows 10 File Recovery drive with the USB drive. You might be prompted to press any key to start the computer from the system repair disc. Next, select his language setting and then click Startup Repair from the list of recovery options.

## Scenario 8-4: Resolving a Driver Problem Using Recovery Boot Options

You recently installed a new video adapter in Jeffrey's desktop computer using the driver supplied on the CD in the adapter packaging. When Windows starts, the words on the screen are unreadable. Describe your recommended solution.

On a properly functioning computer, visit the website of the video adapter manufacturer. Download the latest video adapter driver and save it to a USB flash drive or burn it to a CD/DVD.

Shut down Jeffrey's computer. Then restart the computer with the Windows Recovery Environment, access the Advanced Boot Options menu, and select Safe Mode. Select Safe Mode. When Windows starts, use Device Manager to update the video adapter driver from the USB flash drive or CD/DVD. Then, restart the computer and let it start Windows normally.