Lab – Operating System Upgrades (Instructor Version)

**Instructor Note**: Red font color or gray highlights indicate text that appears in the instructor copy only.

# Introduction

In this lab, you will explore the process to upgrade an operating system.

Part 1: Recovery Partition

Part 2: Unattended Installation

Part 3: Upgrade Considerations before Installation

Part 4: Post Upgrade Installation

# Recommended Equipment

* A computer with Windows version 10 installed
* Internet access
* Windows 10 installation files on a bootable media (**Note**: This was used in a previous lab.)

# Instructions

Eventually, the computer vendor releases a new operating system. The next question for the computer user will be: Should I upgrade to the latest version? Should I perform an in-place upgrade? Or should I perform a new installation? What are the pros and cons of upgrading?

In this activity, you will explore the recovery partition and walk through the process to upgrade from Windows 10 to Windows 11 while keeping your data.

## Recovery Partition

The Recovery Partition is created on the internal fixed drive to restore the OS environment to the original factory state.

**Note**: You will not perform the recovery in this activity.

### Access the Hidden Recovery Partition

* + - 1. Right-click **Start** and select **Disk Management**.
      2. Locate the recovery partition in the listing.

### Access Recovery Partition via System Startup

* + - 1. Perform an internet search to determine the combination of keys to access the recovery partition during system startup.
      2. Click **Troubleshoot** to reset your PC or see advanced options.
      3. Click **Reset this PC** to choose to keep or remove your files during Windows reinstallation.
      4. Select **Keep my files** or **Remove everything**. Follow the on-screen instructions to reset the PC; otherwise, click **Cancel** to exit.

**Note**: Do not reset the PC in this activity unless instructed to do so by your instructor.

### Access Recovery Partition via Settings

* + - 1. Right-click **Start** and select **Settings**. Select **Update & Security > Recovery**. Select **Get started** under Reset this PC.

**Note**: In Windows 11, select **System** > **Recovery**. Select **Reset PC** under Recovery Options.

* + - 1. In the Reset this PC window, select **Keep my files** or **Remove everything**. Follow the directions in the wizard to reset the PC; otherwise, click **Cancel** to exit.

**Note**: Do not reset the PC in this activity unless instructed to do so by your instructor.

## Unattended Installation

Image deployment allows you to configure devices with a standardized set of software and configuration options over the network or installation media.

In this part, you will create an answer file created using Microsoft Assessment and Deployment Kit (ADK). The answer file and the Windows installation files can be saved on a bootable USB media for an unattended installation.

**Note**: You will not perform the installation.

### Install Windows ADK.

* + - 1. Perform an internet search for Windows ADK. Download **Windows 10, version 2004** for this activity.
      2. Run the downloaded file and install Window ADK on the local computer. Click **Next** to continue.
      3. Decide if you want to send anonymous usage data to Microsoft. Click **Next** to continue.
      4. Click **Accept** to accept the Microsoft License Agreement.
      5. Only select **Deployment Tools** and unselect the rest of the options and click **Install** to continue. In the UAC windows, click **Yes** to allow the changes.

### Import Windows 10 Installation Files.

* + - 1. Open **File Explorer** to locate the Windows 10 installation file on the bootable USB media. Right-click the media and select **Open**.
      2. Copy all the files in the folder and paste the files in a new folder on your local computer. Note the name and location of the newly created folder.

### Prepare the Environment to Create the Answer File.

* + - 1. Click **Start** and search for **Window System Image Manager**.
      2. Click **File** > **Select Windows Image**.
      3. Navigate to the newly created folder. Open **sources** folder and select **install.wim**. Click **Open** to continue. Select the desired Windows version. Click **OK** and click **Yes** to create a new catalog file. Click **Yes** to allow changes in the UAC window. This process will take a few minutes.

**Note**: If your installation media does not contain the file **install.wim** in the sources folder, locate the file **install.esd** and use the following steps to decompress the **install.esd** file.

* + - * 1. Run Powershell as an administrator. Search for **Powershell** and select **Run as Administrator**.
        2. At the prompt, enter the following command where ***YourPath*** is the path to the file on the local computer, starting with the drive letter, such as C:.

**dism /Get-WimInfo /WimFile:*YourPath*\sources\install.esd**

* + - * 1. Search for the index number for the desired Windows edition. For example, Windows 10 Pro has an index number of 6.

Index : 1

Name : Windows 10 Home

Description : Windows 10 Home

Size : 14,826,317,709 bytes

Index : 2

Name : Windows 10 Home N

Description : Windows 10 Home N

Size : 14,047,483,249 bytes

Index : 3

Name : Windows 10 Home Single Language

Description : Windows 10 Home Single Language

Size : 14,824,381,486 bytes

Index : 4

Name : Windows 10 Education

Description : Windows 10 Education

Size : 15,074,233,945 bytes

Index : 5

Name : Windows 10 Education N

Description : Windows 10 Education N

Size : 14,312,027,229 bytes

Index : 6

Name : Windows 10 Pro

Description : Windows 10 Pro

Size : 15,071,438,212 bytes

Index : 7

Name : Windows 10 Pro N

Description : Windows 10 Pro N

Size : 14,309,112,849 bytes

The operation completed successfully.

* + - * 1. The **dism** command can be used to decompress the file install.esd, The source and destination paths should be the same. At the prompt, enter the following command where ***YourPath*** is the path to the file on the local computer.

**dism /Export-Image /SourceImageFile:*YourPath*\sources\install.esd /SourceIndex:6 /DestinationImageFile:*YourPath*\sources\install.wim /Compress:Max /CheckIntegrity**

* + - * 1. The decompression will take a few minutes. When the process is done, navigate back to **Windows System Image Manager**. Click **File** > **Select Windows Image** > locate and open the file **install.wim.**
        2. Click **Yes** to create a new catalog file. Click **Yes** to allow changes in the UAC window. This process will take a few minutes.
      1. Under the heading **Distribution Share**, right-click **Select a Distribution Share** >click **Create Distribution Share**.
      2. Create a new folder with your choice of folder name within the dialog box. Click **Open**.
      3. Click **File** > **Select Distribution Share**. Select the newly created Distribution Share folder.
      4. Click **File** > Select **New Answer File**.

### Create an Answer File.

Now the environment is prepared for creating the answer file. In this step, you will only configure the language settings for the answer file.

In this example, the component names will start with amd64\_Microsoft Windows for the 64-bit version. If you are using a 32-bit version, the component names will start with x86\_Microsoft-Windows.

* + - 1. To configure the language settings, expand the **Components** folder in the Windows Image pane. Expand the **amd64\_Microsoft-Windows-International-Core-WinPE** component.
      2. Right-click the **SetupUILanguage** component and click **Add Setting to Pass 1 windowsPE**.
      3. Under the Answer File pane, select **amd64\_Microsoft-Windows-International-Core-WinPE\_neutral**.
      4. Under the Microsoft-Windows-International-Core-WinPE Properties pane, locate **Settings**. Enter the Input locales for your language or region. For example, the Input Locales for the United States is en-US. To determine the Input Locales for your location, perform an internet search for Input Locales in Windows. Here is the link to the [Default Input Profiles (Input Locales) in Windows](https://docs.microsoft.com/en-us/windows-hardware/manufacture/desktop/default-input-locales-for-windows-language-packs?ranMID=24542&ranEAID=kXQk6*ivFEQ&ranSiteID=kXQk6.ivFEQ-uC0UJQ_Aly3jHJ_rlkV_ew&epi=kXQk6.ivFEQ-uC0UJQ_Aly3jHJ_rlkV_ew&irgwc=1&OCID=AID2200057_aff_7593_1243925&tduid=(ir__eu3qq0nljskf60lui16n1pmgr22xvqsp0lwm30qr00)(7593)(1243925)(kXQk6.ivFEQ-uC0UJQ_Aly3jHJ_rlkV_ew)()&irclickid=_eu3qq0nljskf60lui16n1pmgr22xvqsp0lwm30qr00&view=windows-11).

Enter the Input Locales for the following fields under Settings:

InputLocale: **en-US**

SystemLocale: **en-US**

UILanguage: **en-US**

UserLocale: **en-US**

* + - 1. Under the Answer File pane, select **Setup UILanguage**. Under the SetupUILanguage Properties pane, enter **en-US** or your desired Input Locales in the UILanguage field.

### Install using the Answer File.

* + - 1. Click **Tools** > select **Validate Answer File**. In the Messages pane, verify that there are no warnings or errors in the Validations tab. Fix the errors are necessary.
      2. Click **File > Save Answer File** to save the file with the desired filename and location. The file will have an .xml extension.
      3. Copy the saved xml file to the root of a bootable USB media drive with Windows 10 installation files.
      4. The USB media can now be used to install Windows 10 if the device is set to boot from the USB media. However, the created answer file is not complete.

**Note**: You will not perform the installation in this activity.

#### Question:

Perform an internet search to learn more about creating answer files. What other settings are necessary in the answer file?

Type your answers here.

Answers will vary. Some of the settings include: product key, partitions, and user account information.

### Cleanup

* + - 1. Delete any files and folders that were created for this part of the activity.
      2. Uninstall any programs that you may have downloaded and installed for this part of the activity.

## Upgrade Considerations before Installation

Upgrading to a newer OS can be exciting. However, there are a few things you can do to make sure the upgrade will go smoothly.

### Product Lifecycle

The product lifecycle starts when a product enters the marketplace and becomes established then eventually retires and is removed from the marketplace.

* + - 1. Perform an internet search using keywords, such as Windows lifecycle, to determine the retirement data for Windows 10 Home and Pro edition.

#### Question:

What is the retirement date?

Type your answers here.

The retirement date for Windows 10 is Oct 14, 2025. The end date for the latest release version 21H2 is June 13, 2023.

* + - 1. To determine which release version is running on your Windows 10 PC, click **Start** > **Settings** > **System**.
      2. Select **About** under the System heading in the left panel. Scroll down to the Windows specifications heading.

#### Question:

What is the currently installed Windows version?

Type your answers here.

Answers will vary.

### Determine Windows 11 requirement

Before starting the process to upgrade to Windows 11, you should determine if the PC hardware meets the minimum requirements.

* + - 1. Using an internet search, determine the minimum hardware requirement to run Windows 11 successfully. Use keywords, such as Windows 11 System Requirements.
      2. Compare the minimum requirements to your current computer.

#### Question:

Does your current computer meet the requirement? If not, what is missing?

Type your answers here.

Answers will vary. Most of the newer computers will meet the requirement unless it is not capable of running Trusted Platform Module (TPM) version 2.0. If the PC can run TPM 2.0, search for instructions to enable TPM 2.0. The computer needs to support Secure Boot and a processor that is supported for Windows 11.

If the PC does not meet the requirements, can you upgrade the hardware to meet the requirements?

Type your answers here.

Answers will vary. For example, replacing the hard drive to meet the minimum storage requirement of 64 GB. Additional RAM may be added to meet the minimum requirements of 4 GB of RAM.

### Use Windows Update

You may also verify that the current system meets the minimum Windows 11 requirements using Windows Update on a PC running Windows 10.

* + - 1. On the Windows 10 PC, navigate to **Settings** > **Update and Security** > **Windows Update**.
      2. Scroll down the page. If your PC is up to date and meets the minimum Windows 11 requirement, you will see a message indicating that the PC can run Windows 11. Otherwise, you will receive a message notifying you that your PC does not currently meet the system requirements to run Windows 11.

### What should I do before upgrade?

Review unsupported OS features

As operating system evolves, some of the familiar features will be deprecated. Before you upgrade to the newest OS version, you should be aware of impact of the removed features.

#### Question:

Using an internet search, determine some of the deprecated features in windows 11 and document any impact for your experience.

Type your answers here.

Answers will vary. For example, Internet Explorer is replaced by Microsoft Edge with IE mode in Windows 11. With the upgrade, the language packs may need to re-install or only default language is migrated. (<https://www.microsoft.com/en-us/windows/windows-11-specifications>)

Check your applications and hardware drivers

Inventory your applications and hardware drivers to ensure they are available in Windows 11. For example, the driver for a USB to serial cable may not be functioning in Windows 11. You should check with the manufacturer’s website to determine if there is an updated driver that is compatible with Windows 11.

For most software applications, running the program in compatibility mode will resolve the issue.

* + - 1. Locate the program executable. The program folder is usually located in C:\Program Files (x86) or C:\Program Files.
      2. Search within the program folder until the executable associated with the program name is located. For example, the executable for Cisco Packet Tracer is PacketTracer.exe located in C:\Program Files\Cisco Packet Tracer\bin folder.
      3. Right-click the executable file and select **Properties**.
      4. Navigate to the **Compatibility** tab. Review the options in the tab.
      5. Click **OK** when done.

Review advantages and disadvantages of upgrading to Windows 11

#### Questions:

List some of the advantages of upgrading.

Type your answers here.

Answers will vary. The newer OS will continue to provide bug fixes and security updates and possibly increase device functionality.

List some of the disadvantages of upgrading.

Type your answers here.

Answers will vary. An OS upgrade could be time consuming and there is a risk that the upgrade is not successful.

In place upgrade vs. fresh installation

#### Questions:

List some of the advantages and disadvantages of upgrading versus a fresh installation.

Type your answers here.

Answers will vary. A fresh installation allows you start over completely by starting the setup from an installation media created by downloading the ISO image. For a fresh installation, you will need to backup all your files before any upgrade can start because you will erase everything and restore all the data after the installation. An in-place OS upgrade allows you to start the upgrade setup from the existing OS and keep all the customized configurations and user data, and avoid reinstallation of all the applications and restoration of data. An in-place upgrade can also save up-time because you can be up and running when the OS is upgraded and all the user data and applications are ready to go. It is advisable to back up all data even when doing the in-place upgrade, to ensure there is no data loss. If possible, it is advisable to create a disk image on removable media in the event that you wish to restore the old installation.

Master Boot Record (MBR) vs. GUID [globally unique identifier] Partition Table (GPT)

If the drive on your PC has a larger capacity than 2TB, MBR cannot support it. So, you will need to upgrade from MBR to GPT for the partition scheme and UEFI is required for firmware interface support. The conversion from MBR to GPT partition style is beyond the scope of this course.

*Via Disk Management*

* + - 1. To determine your partition style: right-click **Start** > select **Disk Management**.
      2. Right-click **Disk 0** in the bottom panel and select **Properties**.
      3. Select **Volumes** tab. Under Disk Information, note the partition style. It is either MBR or GPT.

*Via Command Line*

* + - 1. To determine your partition style: right-click **Start** > search for **PowerShell** and select **Run as Administrator**. Click **Yes** in the UAC window**.**
      2. At the prompt, enter **diskpart** to start Microsoft DiskPart.

PS C:\WINDOWS\system32> **diskpart**

* + - 1. At the prompt, enter **list disk** to list all the disks on the system. The \* under the Gpt column indicates that the disk uses Gpt for the partition style.

DISKPART> **list disk**

Disk ### Status Size Free Dyn Gpt

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Disk 0 Online 476 GB 0 B \*

* + - 1. To determine the GUID of the GPT partition, enter **select disk 0** at the prompt.

DISKPART> **select disk 0**

Disk 0 is now the selected disk.

* + - 1. At the prompt, enter **uniqueid disk** to display the UUID of disk 0.

DISKPART> **uniqueid disk**

Disk ID: {0733952C-DFB2-4D87-9AAA-F2FC651B2E71}

Backup your files and user preferences

#### Question:

Where can the backup files and user preferences be saved?

Type your answers here.

Answers will vary. Backup your data and user preferences in your Microsoft account or on an external drive.

You can use Windows built-in back up tool to create a full backup on an external flash drive.

* + - 1. Click **Start** > **Settings**> **Update & security** > **Backup**.
      2. Turn on **Backup up using File History**.
      3. Click **More options**. Click **Back up now** to save on an external flash drive.

Download the Windows 11 Installation Assistant

You can use the Windows 11 installation assistant to upgrade from Windows 10 to 11. You can also download the installation media or disk image to upgrade. The example below is upgrading using the installation wizard.

* + - 1. Using a web browser, search for **Windows 11 installation** if you want to upgrade now.
      2. Locate the **Windows 11 Installation Assistant** and click **Download Now**.
      3. Expand **Before you begin** to review the upgrade process.
      4. Run the Installation Assistant wizard to upgrade to Windows 11.

## Post Upgrade Installation

After the upgrade, you should test the installation.

### Update drivers

If drivers are not compatible with Windows 11, you can update the drivers if they are available.

* + - 1. Right-click **Start** > select **Device Manager**.
      2. Locate and right-click the problematic driver and select **Update driver**.

### Check for updates

After the upgrade, it is idea best practice to check for the latest Windows updates.

* + - 1. Navigate to **Start > Settings > Windows Update** and check for available updates.
      2. Download and install the updates that are needed.

### Back up Your PC

Before any damage can be done in Windows 11, you should back up your PC.

Search on the internet to find out how to do it in Windows 11.

Two built-in ways:

* Create a system restore point:
* Create a system image

#### Question:

What are other customizations in Windows 11?

Type your answers here.

Answers will vary. Some examples are to disable unnecessary startup programs, personalize Windows 11, and check and modify power settings.

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