



LAB MANUAL 1

Windows

Introduction:

A window in computing refers to a graphical area on a display screen that allows users to interact with a program or operating system. It is a visual interface where information is displayed, and users can manage tasks or applications. Typically, windows are rectangular sections of the screen that can be resized, minimized, maximized, or moved around by the user.

Significance:

Windows are a fundamental part of graphical user interfaces (GUIs), providing a way to interact with different software applications simultaneously. Each window can show content from a separate program, such as web browsers, word processors, or file explorers. The concept of window enables multitasking, where users can open multiple applications or documents and switch between them seamlessly. Windows is the leading operating system in the corporate world. Its extensive network capabilities, enterprise-level tools, and support for Microsoft Office Suite make it a standard choice for businesses. It offers robust security features, multitasking abilities, and compatibility with enterprise solutions like Active Directory, making it essential in managing business operations.

Elements of Windows:

In a standard window system, common elements include:

1. Title bar:

Displays the name of the window and often includes buttons to close, minimize, or maximize the window.

2. Borders and corners:

Allow the window to be resized by dragging.

3. Menu bar:

Provides access to different functions within the program (optional, depending on the application).

4. Scroll bars:

Help navigate content that does not fit entirely within the window.

5. Content area:

The main section of the window where the application's content is displayed.

Installation Of Windows

Introduction:

The installation of Windows refers to the process of setting up the Windows operating system (OS) on a computer. Windows, developed by Microsoft, is one of the most popular OSs, known for its user-friendly interface, wide compatibility with software and hardware, and versatility.

in both home and professional environments. The installation of Windows can involve either upgrading an existing OS or performing a clean installation on a new or wiped hard drive.

Steps of Installation of Windows:

1. Choosing the Version of Windows
2. System Requirements
3. Installation Methods
4. Installation Process
5. Post-Installation Tasks

1. Choosing the Version of Windows:

Before beginning, it's important to select the appropriate version of Windows based on your needs. Some common versions include Windows 10, Windows 11, and earlier versions like Windows 8 or Windows 7. Each version has specific system requirements, features, and licensing models that affect compatibility and performance.



Fig: Choosing the Version of Window

2. System Requirements:

To install Windows, ensure that your computer meets the minimum hardware specifications, such as:

- Processor (CPU) speed
- Amount of RAM (random-access memory)
- Available hard disk space
- Graphics card compatibility (especially for Windows 11, which has more specific requirements like TPM 2.0)

3. Installation Methods:

Windows can be installed using different methods, depending on the system and user needs:

- i. **USB Drive:** The most common method involves creating a bootable USB flash drive using tools like the Windows Media Creation Tool. This is ideal for clean installations or system repairs.
- ii. **DVD:** An installation DVD can also be used, although this is less common today due to the shift to USB and digital downloads.
- iii. **Upgrade Installation:** If you are upgrading from an older version of Windows, you can perform an in-place upgrade through the system itself or through the Windows Update feature.

4. Installation Process:

The general process for installing Windows involves the following steps:

1. Boot from Installation Media:

After creating a bootable USB or DVD, restart your computer and enter the BIOS/UEFI settings (usually by pressing keys like F2, F12, or DEL during boot-up). Set the boot priority to the installation media and restart the computer.

2. Windows Setup:

After booting from the installation media, you will enter the “Windows Setup” process, which guides you through the steps:

- Select your language, time zone, and keyboard input.
- Enter the product key (for licensed installations).
- Choose whether to perform an upgrade (keeping files and settings) or a clean installation (which will erase all data on the drive).

3. Partitioning the Drive:

During the installation, you may be asked to select or create a partition on which Windows will be installed. You can either format the drive (for a fresh start) or install Windows alongside existing partitions.

4. File Copying and Installation:

The installer will copy the necessary files to your hard drive and install Windows. This process may take some time and includes multiple automatic restarts.

5. Initial Setup:

Once the installation is complete, you will be prompted to configure basic settings such as:

- User account setup (local account or Microsoft account)
- Wi-Fi/network configuration
- Privacy settings (like location tracking and diagnostic data)
- Time and region settings

6. Driver Installation and Updates:

After Windows is installed, the system will need to install device drivers for hardware like graphics cards, network adapters, and printers. Windows Update will also check for and install the latest security patches and updates.

5. Post-Installation Tasks:

After installation, it's important to perform several tasks to ensure your system is running optimally:

- Install or update drivers for your hardware (graphics, sound, etc.).
- Install necessary software, including antivirus and productivity tools.
- Activate Windows using your product key, if necessary.
- Backup your system or create a system restore point to safeguard against future problems.

Methods of Installation of Windows:

There are three methods of installation of windows:

1. CD/DVD
2. USB Drive
3. Upgrade Installation

1. Window installation using CD/DVD

Requirements:

Following are the requirements to install window by using a CD drive:

1. Window installation CD
2. Compatible computer
3. CD/DVD drive
4. Backup data
5. Bios setting
6. Sufficient disk space

Bios settings:

For the installation of window using CD bios settings are very important.

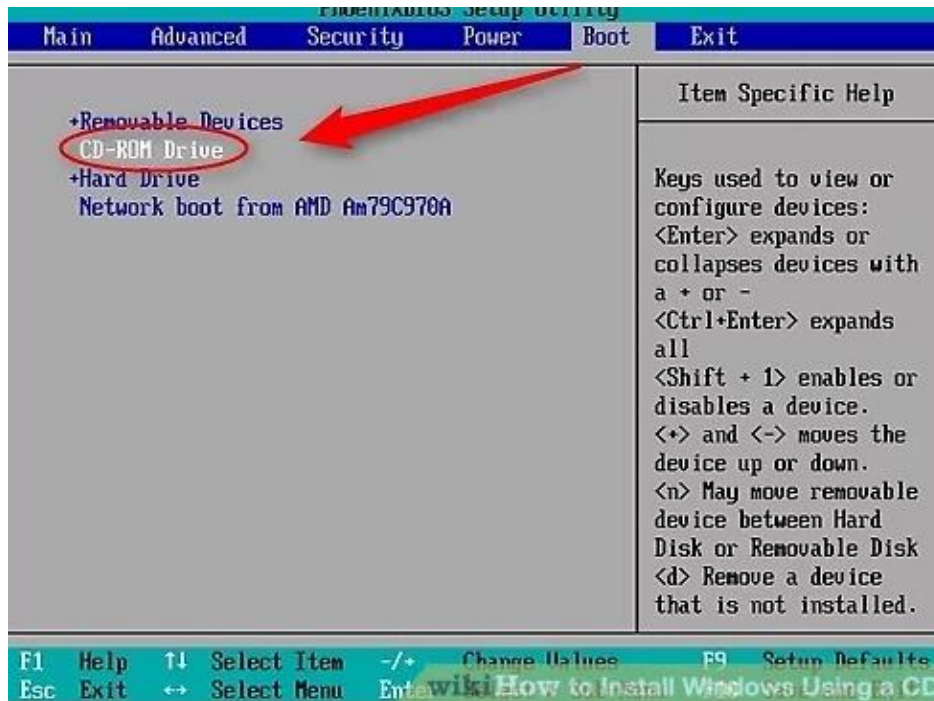
Steps of bios setting are as follow:

- **Opening of bios settings:**

For the opening of bios setting different keys works on different devices. In some device bios setting open by pressing the Esc key and the other keys are F2, F10 and by pressing the delete key multiple times.

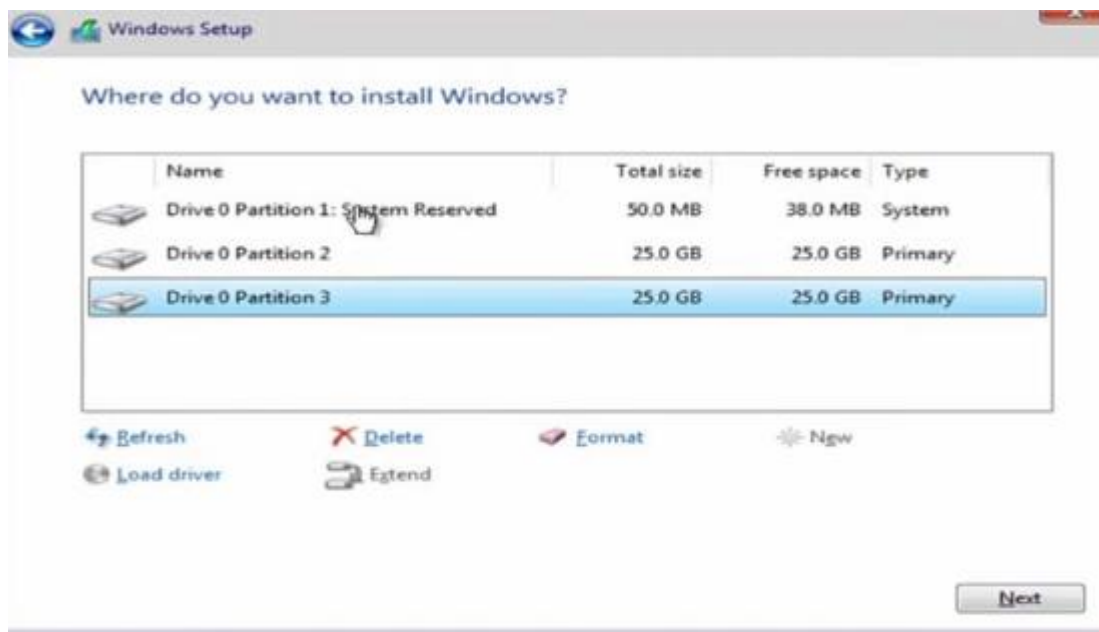
- **Boot order:**

After opening the bios setting press the boot menu and in the legacy bar their will be the boot order for the installation of window using the CD the CD or the disc driver should be first and the hard disk should be at the second for arranging them use the key F5 or F6 and to save the changes press the F10.



- **Drive partitions:**

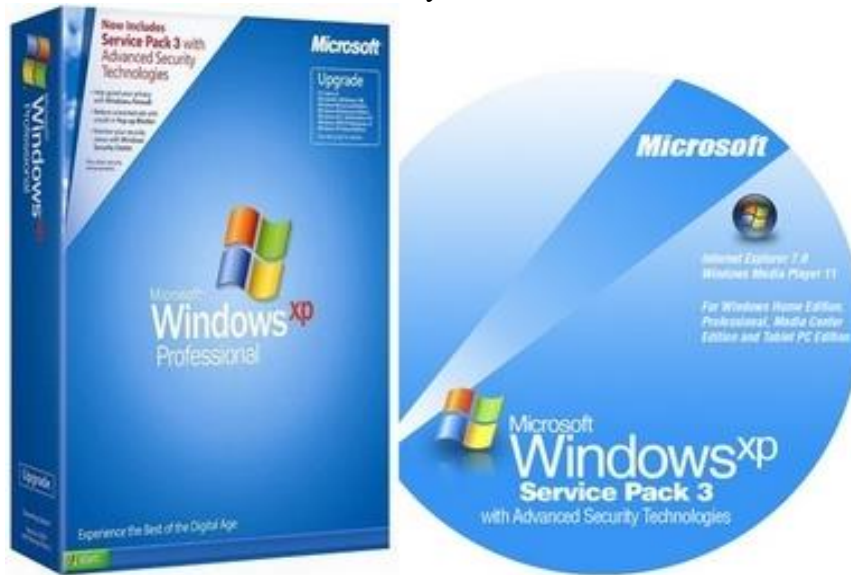
This is also the main step of window installation on the display click the new option and the divide the reserved memory of the device into different partitions as much you want.



Process:

1. **Preparing the CD:**

To install the window by using the CD it is obvious that you must have a CD and their must be a CD driver in your device to insert the CD.



This CD or DVD can be used for the installation of window in the computer or laptop.

2. Insert the CD:

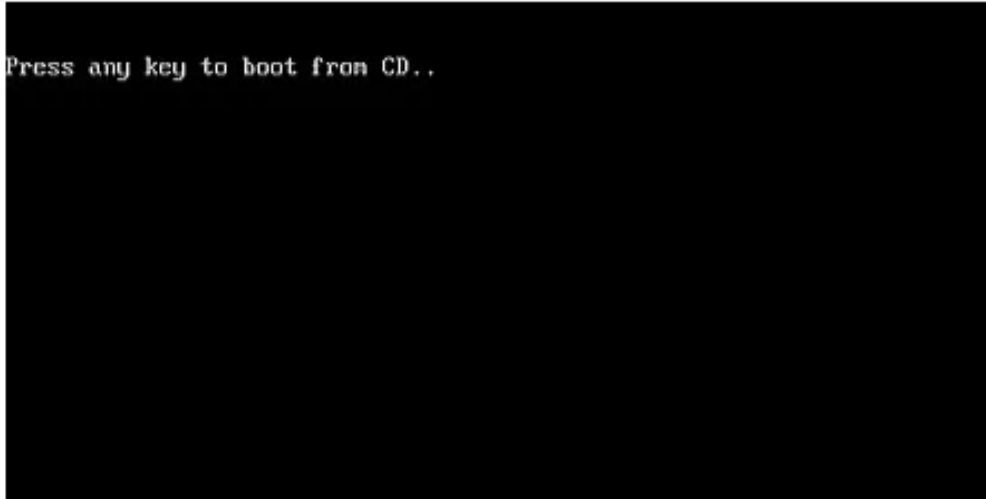
After preparing the CD or DVD insert the CD into the drive before starting the process of installation press the restart button on the computer case to restart the comput



The further process of installation will start after restarting the computer.

3. Installation of window:


After the computer restarts it will display a black screen written with that “press any key to boot from CD” to start the installation you have to press any key in five seconds otherwise the installation will not continue and you have to restart the computer again to continue installation



Press any key to boot from CD..

4. Window setup:

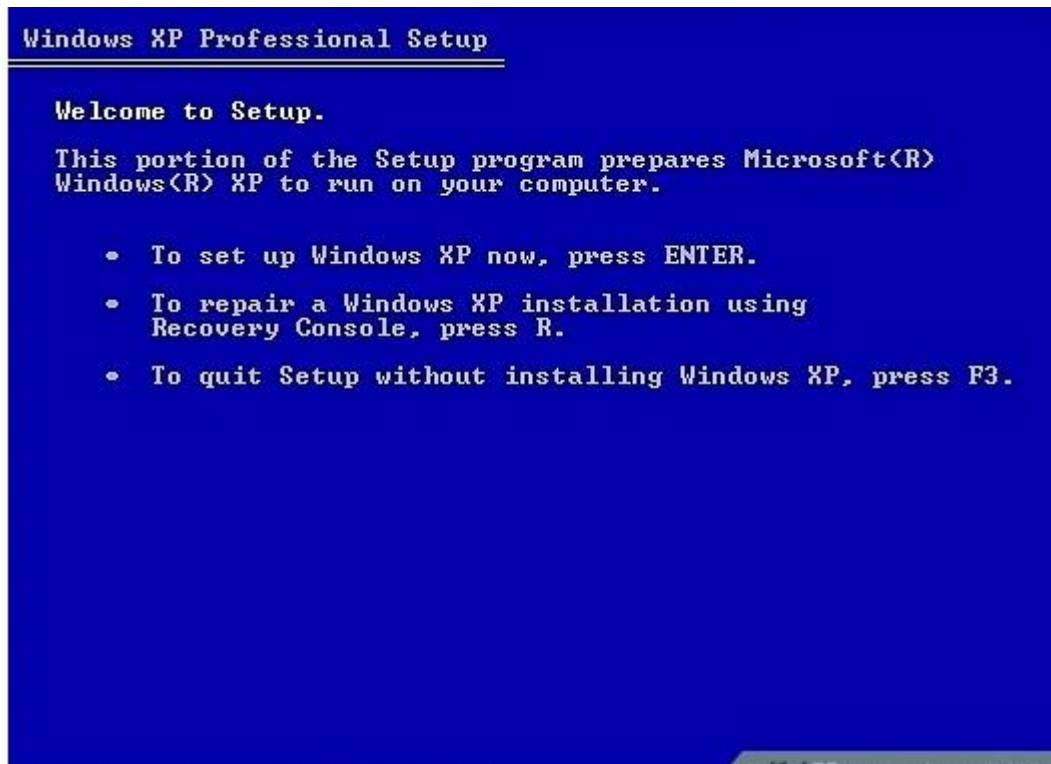
After pressing any key we have to wait for few seconds until the computer display a blue screen and “window setup” is written on it. It will properly start the installation of window.



Windows Setup

5. Instructions by the computer:

After the window setup a window XP professional setup will display on the screen and it will give a few instructions to follow to continue the installation of window.



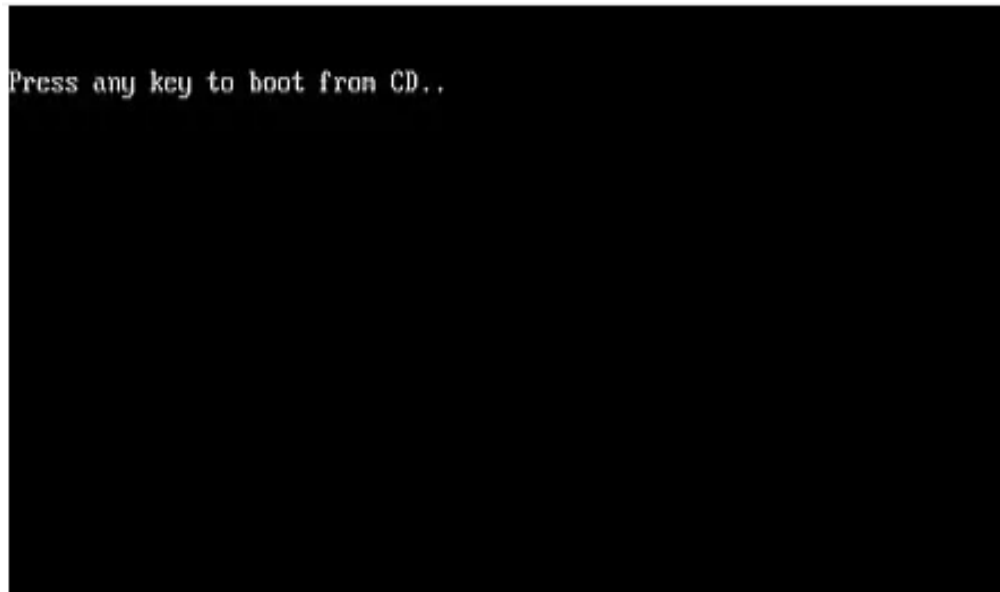
6. Drive selection:

After following the instructions given by the computer. It will display another blue screen for the selection of the drive and to choose the file system and partition for the window.



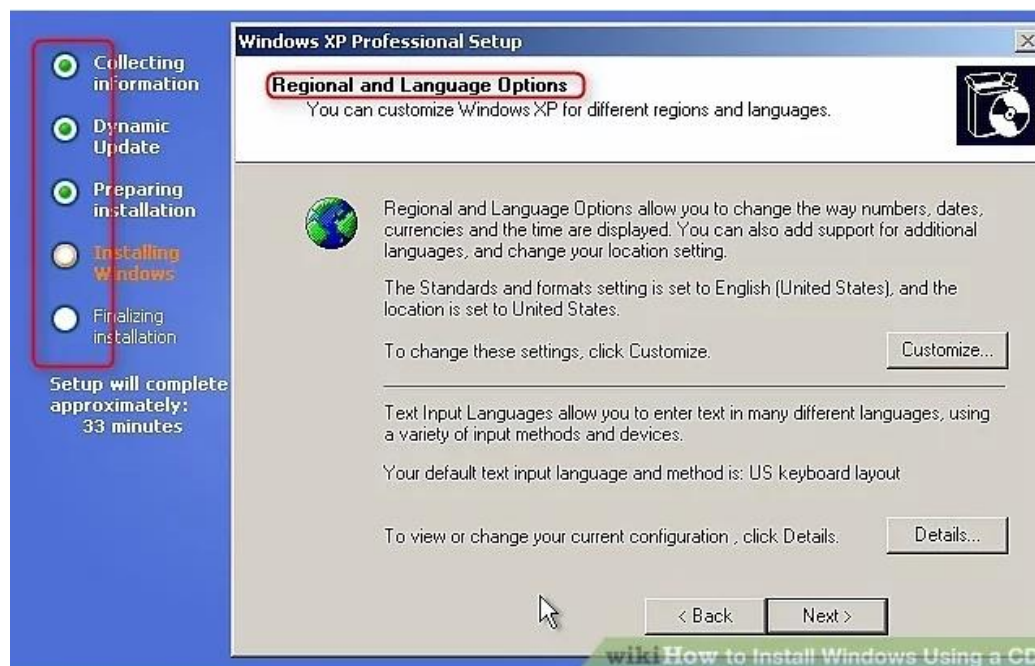
7. Restarting of computer:

After the selection of the drive the computer will start restarting and after a number of restarting it will again display that “press any key to boot from CD” but this time you don’t have to press any key you just have to ignore this and wait for few seconds.



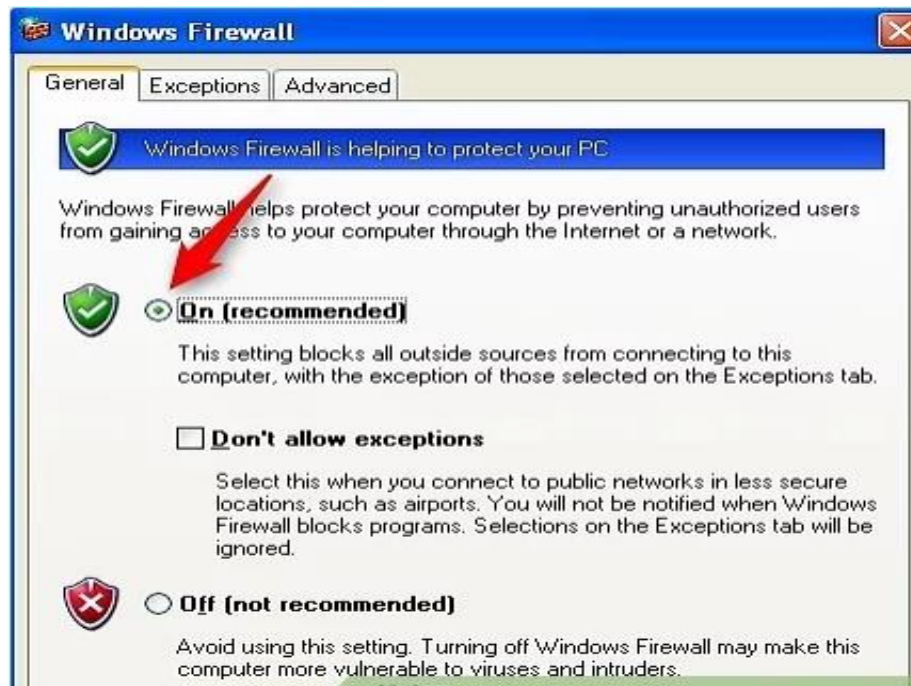
8. Regional and language setup:

After selecting all the regional and language setup and network setting let the setup to install the window. And wait for the processing of the system.



9. Security software:

After selecting region and language install the security software like: firewalls, cryptography, intrusion prevention, access management. It is necessary for protecting your system, safeguarding your personal data, preventing the identity theft, and complying with regulatory requirement.



10. Updating of window and security software:

After installation of security software update the window and security software. It will help to protect the system from viruses and improve the stability.



Security essentials

Security Center helps you manage your Windows security settings. To help protect your computer, make sure the three security essentials are marked ON. If the settings are not ON, follow the recommendations. To return to the Security Center later, open Control Panel.
[What's new in Windows to help protect my computer?](#)

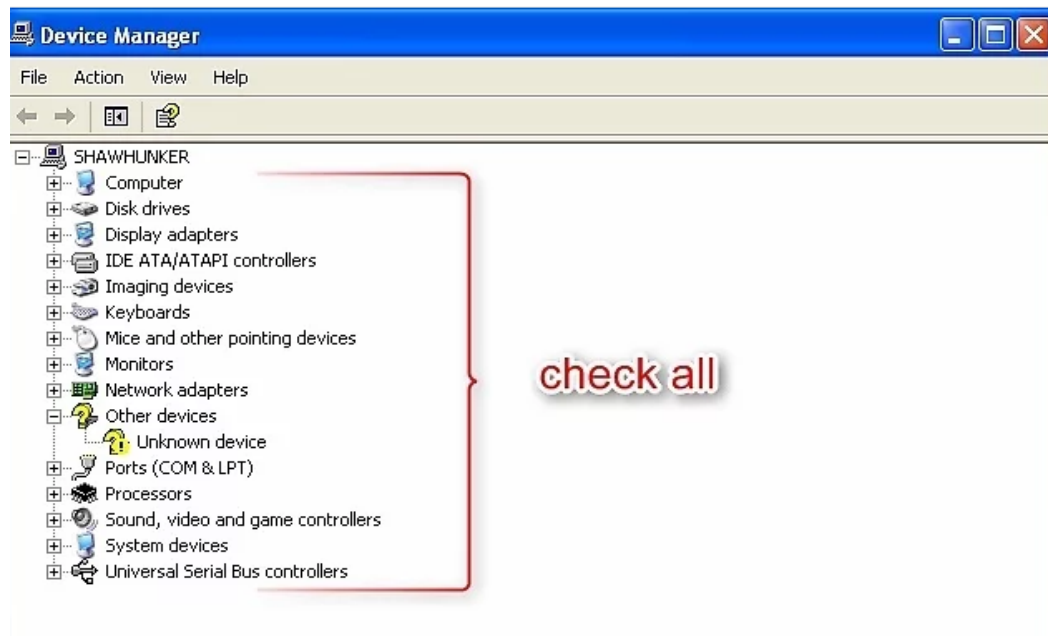


Manage security settings for:



11. Hardware working:

After these steps make sure that your hardware is working. For inspecting this open the device manger to look for any warning sign, visual inspection, performance monitoring, listen for unusual sound.



12. Installation completed:

After following all these steps and other instructions given by the computer now you are done with the installation of the window and you can check the whole setup of your window.



2. Windows Installation using USB Drive

Requirements:

Following are the requirements to install window by using a USB drive:

1. USB drive
2. Window ISO file
3. Rufus
4. PC with USB port

- **Rufus:**

Rufus is a free open source that help create bootable USB drive from ISO file (is an archive file that consist of duplicate of a disc content like a CD,DVD or blu-ray) . Rufus use to install operating system from USB

Process:

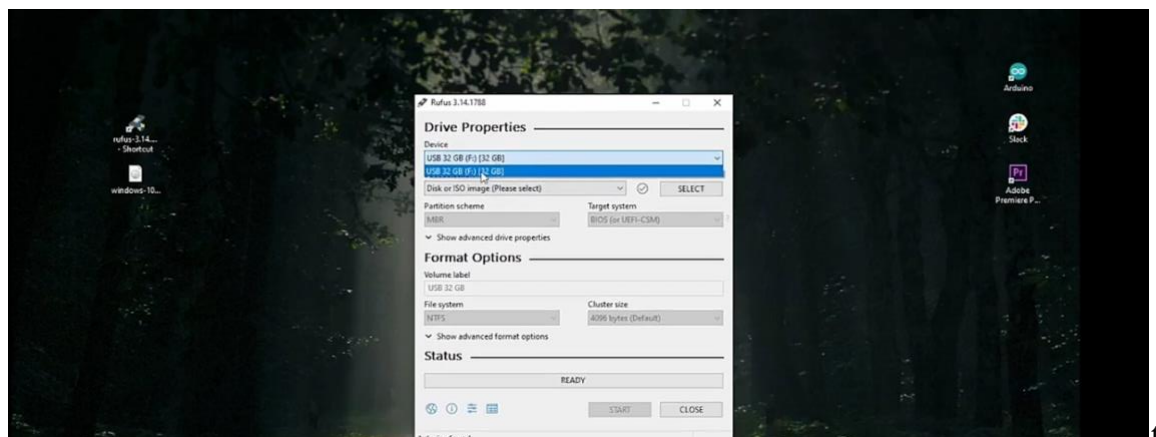
It consists of following steps

1. Create a bootable USB drive
2. Setup PC for USB boot
3. Install window
4. Finalize install

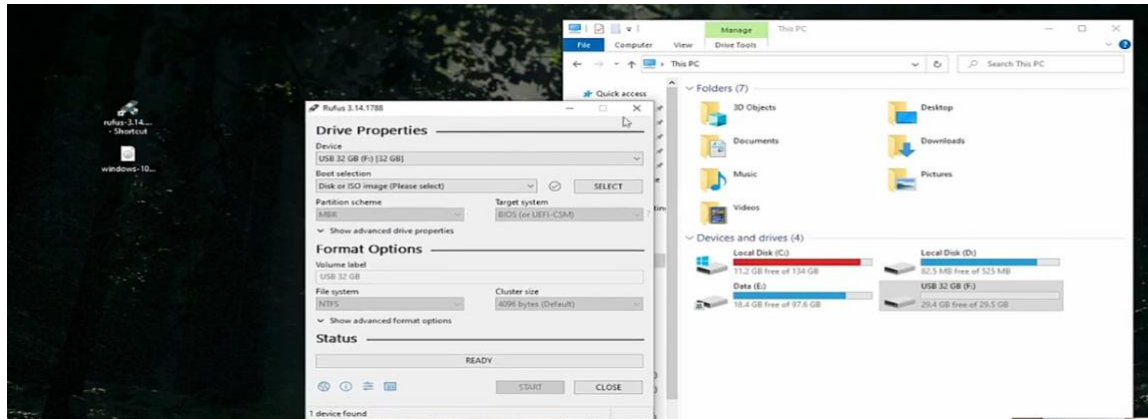
1. Create a Bootable USB drive:

Booting from USB refers to the process of starting your computer using software or an operating system stored on a USB drive instead of your computer's main hard drive. This allows you to run different operating systems, recovery tools, or installation programs from a USB flash drive without affecting the data on your main drive.

- Insert a USB flash drive into a running computer.
- Open a Command Prompt window as an administrator.
- Type disk part, and then select and enter



- Type clean, and then select ENTER. This command deletes all data from the USB flash drive.
- To create a new primary partition on the USB flash drive, type create partition primary, and then select ENTER.
- To select the partition that you just created, type select partition 1, and then select ENTER.
- To format the partition and then select ENTER.
- Type active, and then select ENTER.



2. Setup PC for boot USB:

- Enter BIOS setting
- Set USB drive as first boot device
- Configure USB setting (find USB configuration and enable USB boot)
- Boot from USB (insert USB drive and restart the computer. Now the computer will be boot from the USB drive)

Download Windows 10

Create Windows 10 installation media

To get started, you will first need to have a license to install Windows 10. You can then download and run the media creation tool. For more information on how to use the tool, see the instructions below.

[Download tool now](#)

Privacy



[Using the tool to upgrade this PC to Windows 10 \(click to show more or less information\)](#)

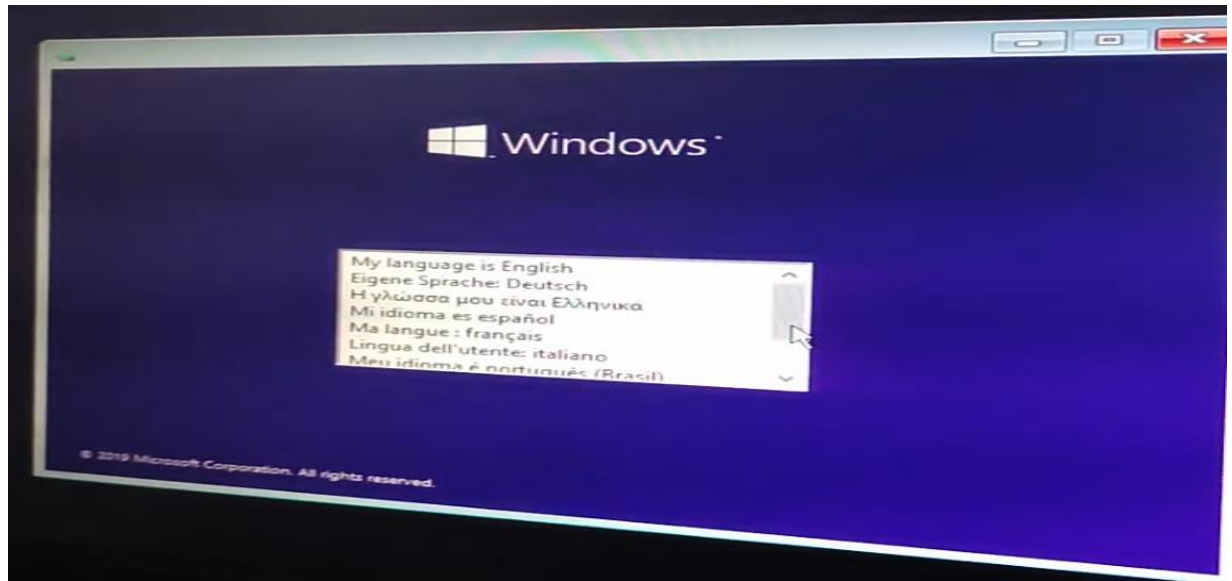
[Using the tool to create installation media \(USB flash drive, DVD, or ISO file\) to install Windows 10 on a different PC \(click to show more or less information\)](#)

[More download options](#)

3. Install Window:

- Insert USB drive
- Restart PC
- Follow on screen instruction

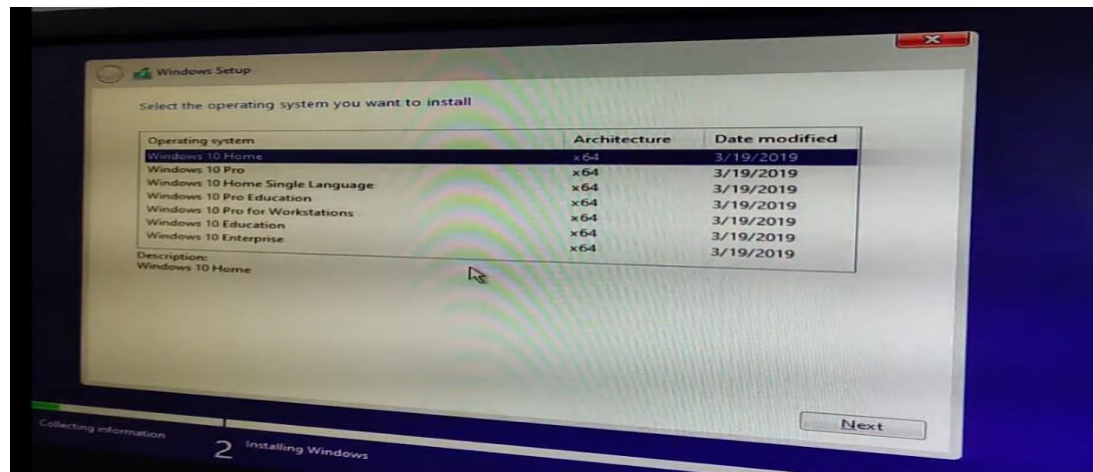
- Select language time



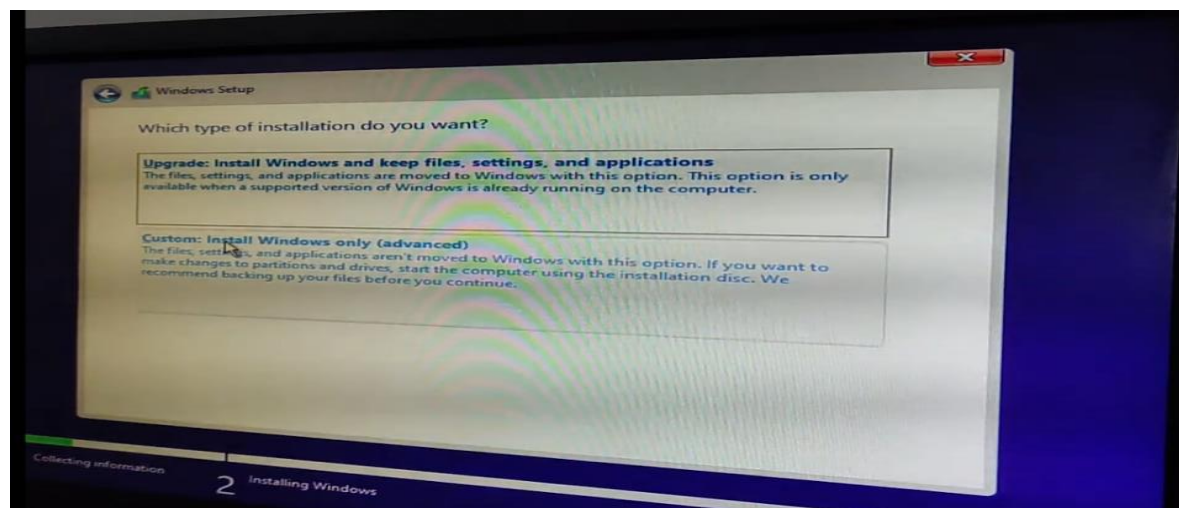
- Click to install now



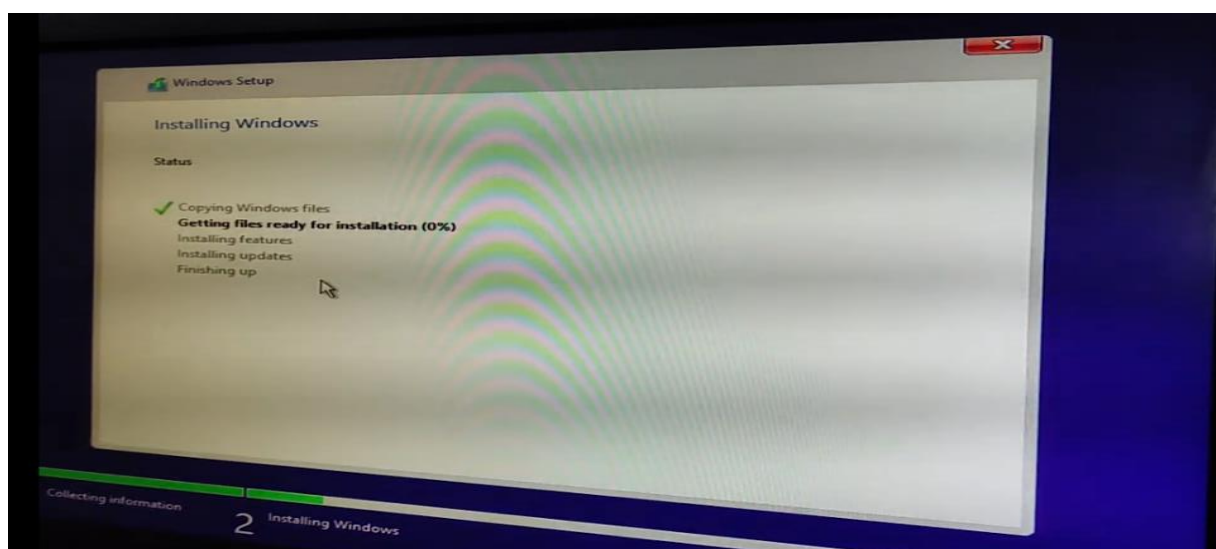
- Window version



- Choose the installation type which custom or upgrade



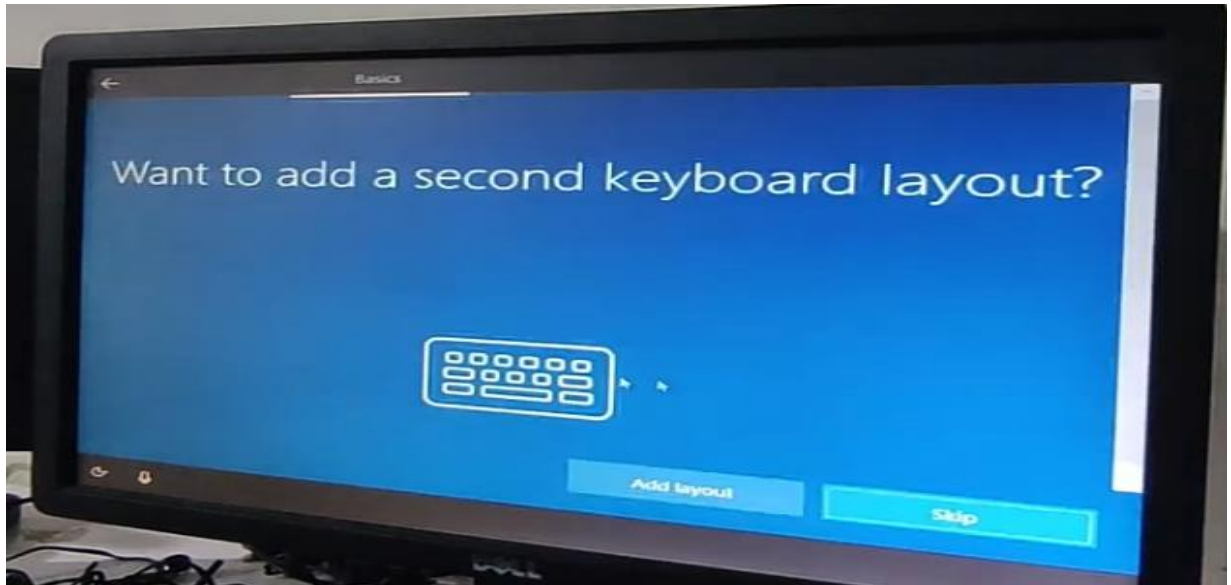
- window downloading start



- Select partition which is very important .you can divide your memory in two or three portion
- . Follow installation process

4. Finalize Installation:

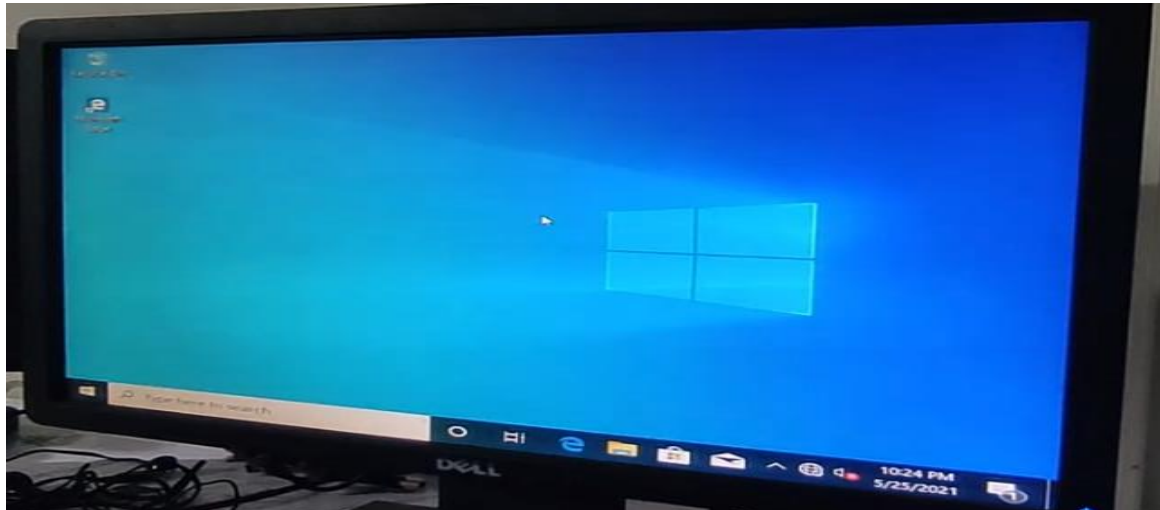
- select keyboard and language



- Setting up user account and password



- Configuring network and internet setting
- Installing necessary drivers and upgrade
- Customizing settings (display Ssound etc)
- Install other software (additional)
- Restarting the system



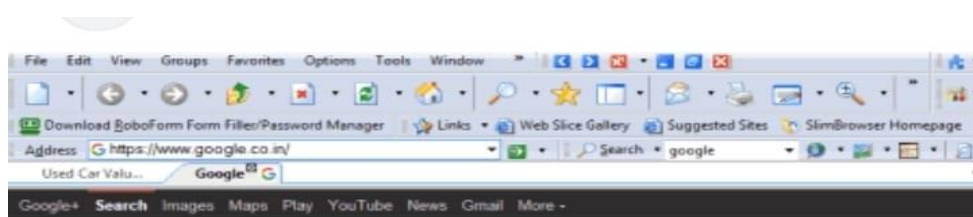
3. Install window by using internet method:

Requirements:

1. Stable internet connection
2. Compatible System
3. Sufficient disk space
4. Microsoft account
5. Power source
6. Administrative privileges

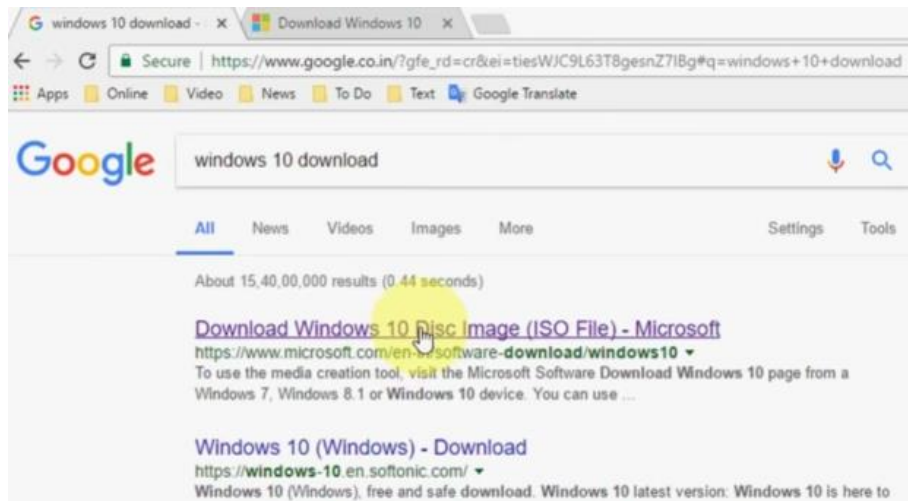
Process:

- Visit Microsoft website
- Open a web browser (google or chrome) and go to Microsoft official website

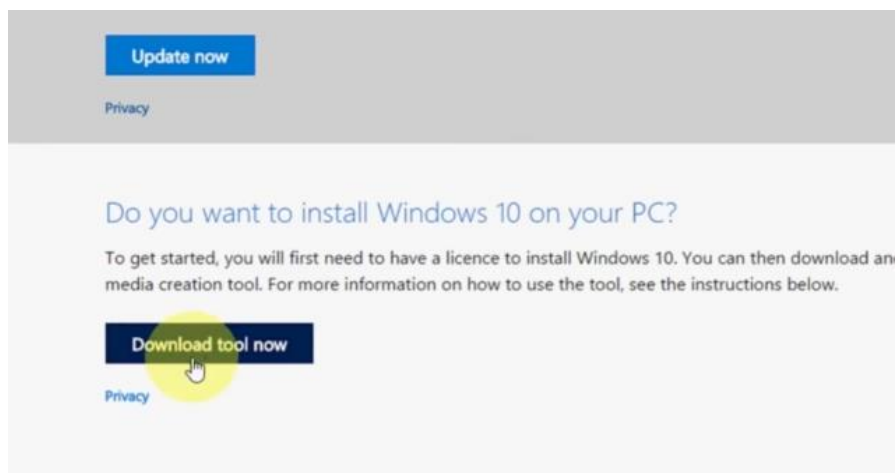


- Navigate to download section

- Click on download at the top and select window from the menu



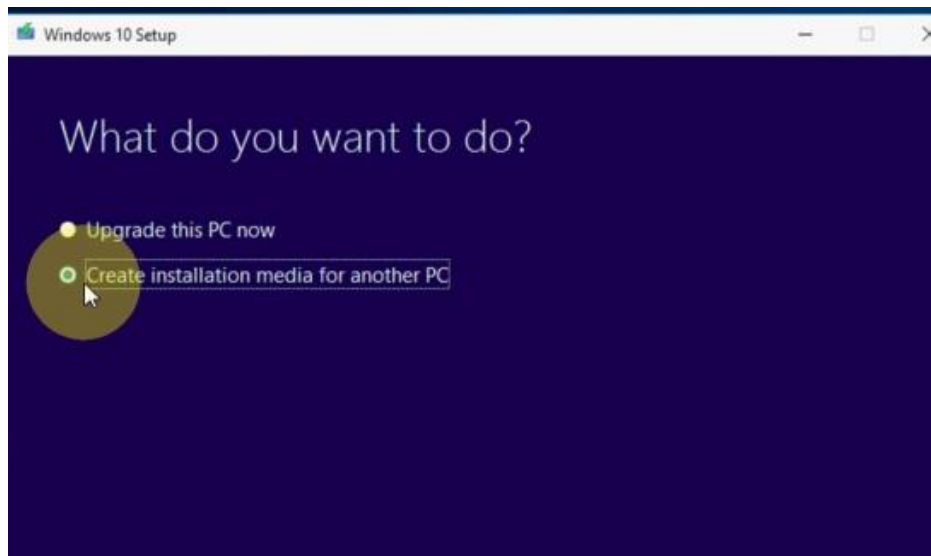
- Open the first link



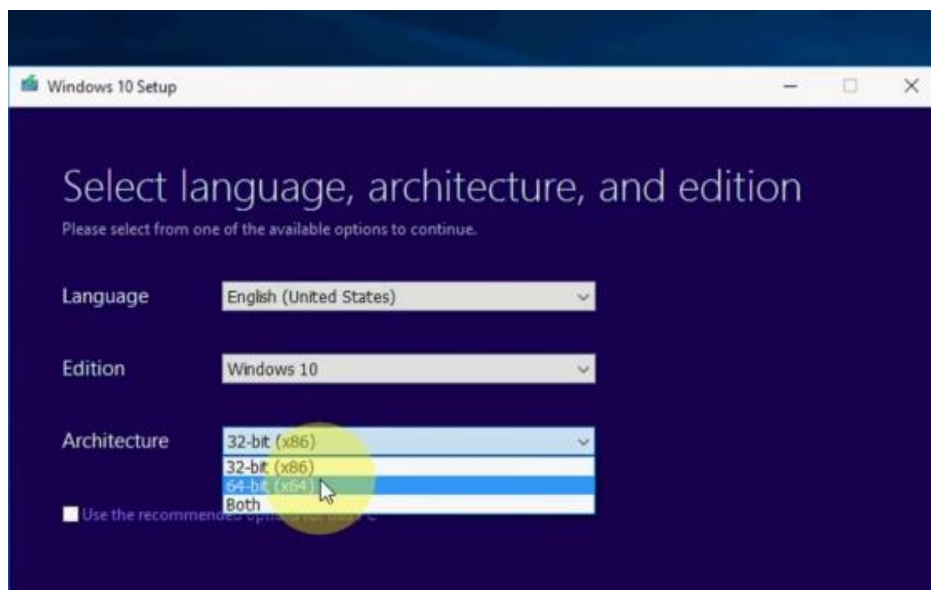
- Now open this tool



- And click accept and go to next page



- Select language and edition



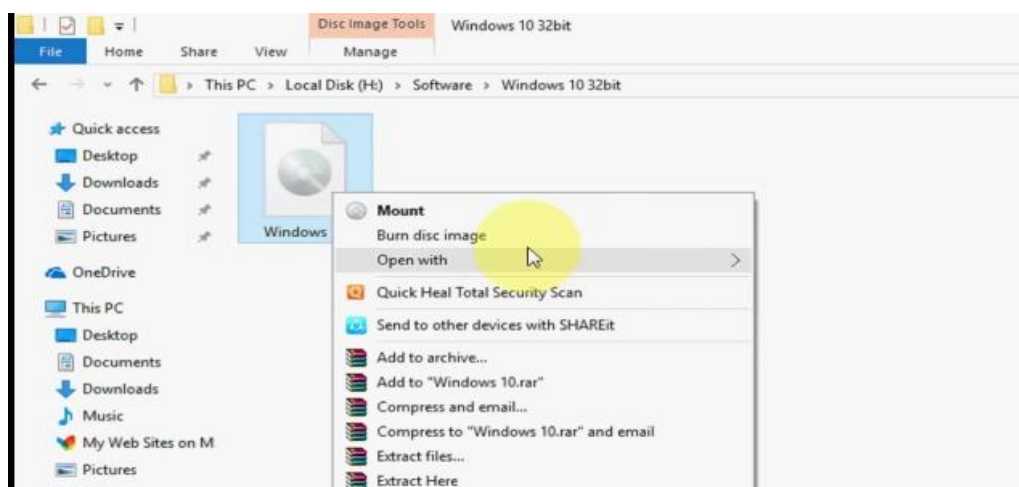
- Click next and go to ISO file



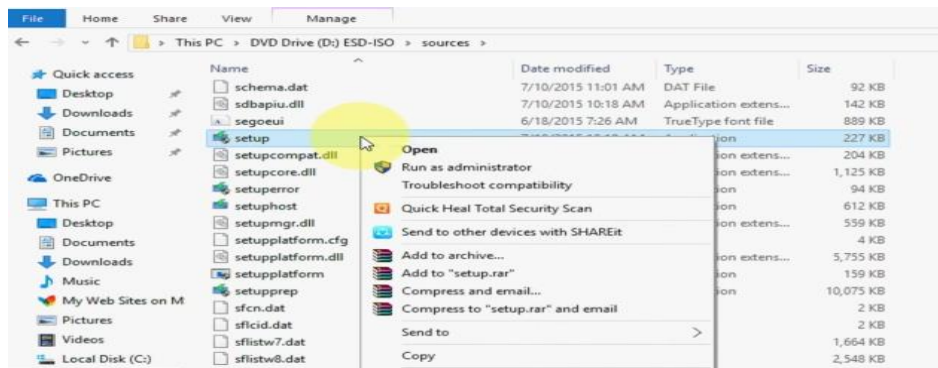
- And go to file location and click and downloading start



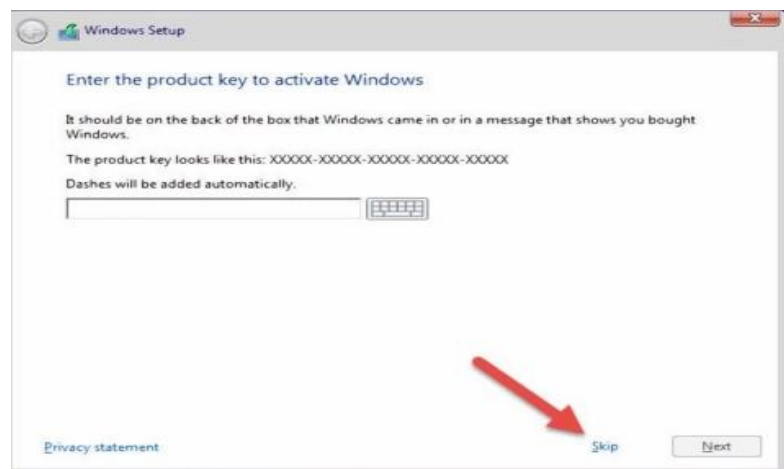
- Now window download click to open with window explorer



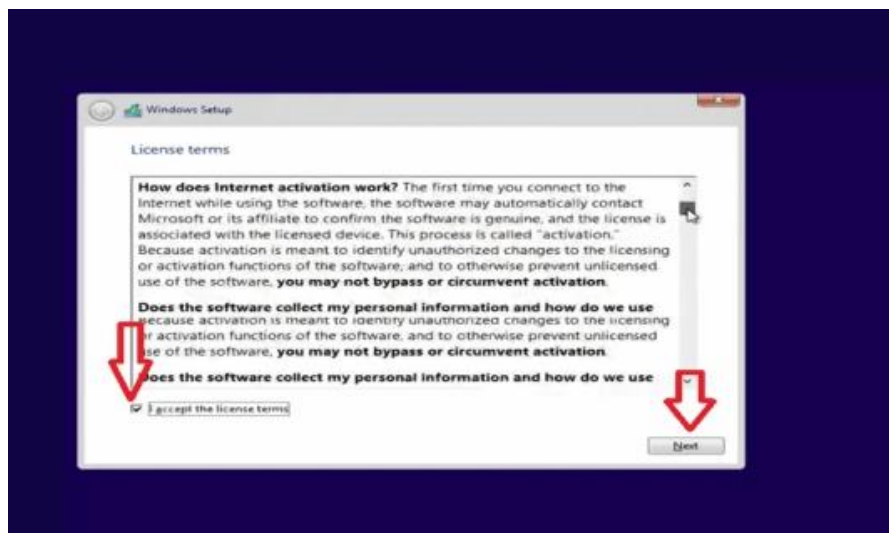
- And go to source and find setup file and click on run and administrator



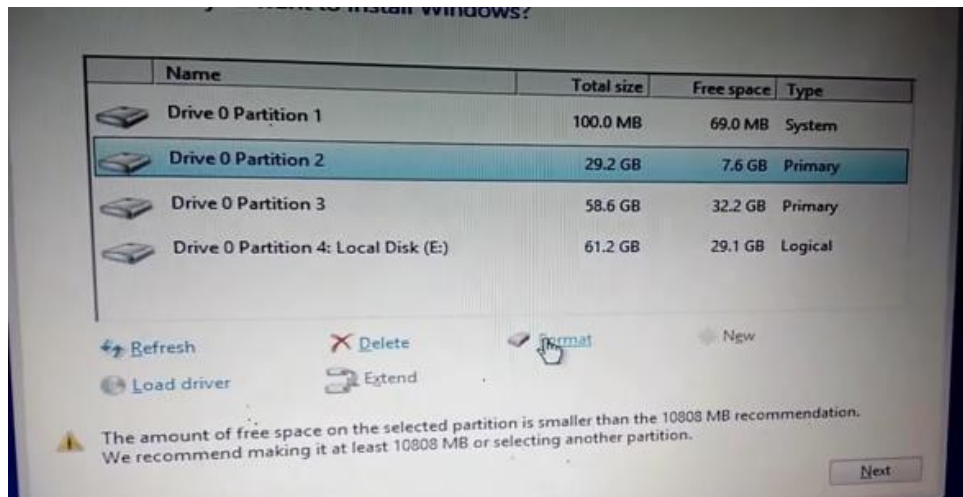
- And then click install window
- Skip the product key



- And then licens term to click next



- Now install window custom or upgrade
- Now drive partition
-



- And finally click next and window install

Checking previous version of Windows:

There are some methods to identify the previous Windows installation:

1. Check the "Windows.old" Folder:

When you upgrade Windows, the system often creates a folder called Windows.old that stores files from the previous version of Windows. This folder allows you to revert to the earlier version if needed. You can use this folder to identify the previous Windows version.

Steps:

- Open **File Explorer**.
- Navigate to your system drive (usually the C: drive).
- Look for a folder named **Windows.old**.
- Inside this folder, browse to **Windows.old > Windows > System32** and find a file named **winver.exe**.
- Run this file to see information about your previous Windows version.

2. Use System Information (msinfo32):

If the upgrade retained some system information, you might find details about your previous installation through the **System Information** tool.

Steps:

- Press **Windows + R** to open the Run dialog box.
- Type **msinfo32** and press Enter.
- In the System Information window, check for an entry like **OS Version** or **Original Install Date**. This may show details that hint at the previous version.

3. Check the Registry:

You can use the Windows Registry to find information about previous installations.

Steps:

- Press **Windows + R** to open the Run dialog box.
- Type **regedit** and press Enter to open the Registry Editor.
- Navigate to the following path:

HKEY_LOCAL_MACHINE\SYSTEM\Setup

- Look for a subkey called Upgrade or Source OS. This key may contain information about the previous Windows installation, such as its version number and installation type.

4. Use Command Prompt:

You can run a few commands to check for information about the previous installation.

Steps:

- Open **Command Prompt** as an administrator.
- Type the following command and press Enter:

systeminfo

This command may list details of the original OS and the system installation date, which could help you deduce the previous version.

5. Check Windows Update History:

If you upgraded through **Windows Update**, the history of installed updates might still be present, and it can include details about the upgrade.

Steps:

- Open **Settings**.
- Go to **Update & Security**.
- Select **Windows Update** and click on **View update history**.
- If the system was upgraded recently, you might see an entry for the version of Windows you upgraded from.

6. Check the System Restore Points:

If you have system restore enabled, Windows often creates a restore point before major updates or upgrades. These restore points may contain information about the previous OS version.

Steps:

- Press **Windows + R** to open the Run dialog.
- Type **rstrui** and press Enter to open **System Restore**.
- Review the available restore points and their dates. You may find references to a previous version of Windows before the upgrade.

Removing Previous Windows Installation Files:

There are two ways of removing previous windows installation files that are:

1. Settings
2. Disk Cleanup

Settings:

After the upgrade, the previous version of Windows is often stored on your system as **Windows.old** (located in the C: drive) to allow you to revert to the previous version if necessary. If you are satisfied with the new version and want to free up space:

- Go to **Settings > System > Storage**.
- Click on **Temporary files**.
- Check the box for **Previous Windows installation(s)** and click **Remove files**.

Disk Cleanup:

Alternatively, you can use **Disk Cleanup**:

1. Open **File Explorer** and right-click on your C: drive.
2. Select **Properties** and click **Disk Cleanup**.
3. Click on **Clean up system files**.
4. Check the box next to **Previous Windows installation(s)** and confirm to delete the files.

Activation of Windows:

Ensure that your new Windows installation is properly activated. Go to:

- **Settings > Update & Security > Activation**.

If your upgrade was from a genuine, activated version of Windows, the new version should automatically activate. If not, you may need to enter the product key.

Summary:

There are several methods to install or upgrade Windows, each suited to different scenarios such as clean installations, system upgrades, or repairs. The two primary methods are through a **bootable USB drive** or **Windows Update**.

1. Bootable USB or DVD
2. Windows Update

Both methods require meeting system requirements, backing up data, and installing any necessary updates and drivers after installation. Once installed, users may remove previous Windows installation files to free up disk space. These methods ensure flexibility, allowing users to install or upgrade their Windows system based on their specific needs.