

How to Update Device Drivers on Windows

Updating device drivers is a crucial task for maintaining the stability, performance, and security of your Windows operating system. Device drivers are essential software components that allow the operating system to communicate with hardware devices such as printers, graphics cards, and network adapters. Outdated or corrupt drivers can lead to hardware malfunctions, system crashes, and security vulnerabilities. This article will guide you through the process of updating device drivers on Windows, using both graphical user interface (GUI) methods and command-line tools.

Examples:

Using Device Manager

1. Open Device Manager:

- Press Win + X and select Device Manager from the menu.

2. Locate the Device:

- In Device Manager, find the device you want to update. Devices are categorized, for example, under "Display adapters" for graphics cards.

3. Update the Driver:

- Right-click the device and select Update driver.
- Choose Search automatically for updated driver software. Windows will search online for the latest driver and install it.

Using Windows Update

1. Open Settings:

- Press Win + I to open the Settings app.

2. Navigate to Update & Security:

- Go to Update & Security > Windows Update.

3. Check for Updates:

- Click Check for updates. Windows Update will search for available updates, including driver updates.

4. Install Updates:

- If driver updates are found, they will be listed under "Optional updates". Click Download and install.

Using Command Line Tools

Using PowerShell

1. Open PowerShell as Administrator:

- Press Win + X and select Windows PowerShell (Admin).

2. List Installed Drivers:

- Run the following command to list all installed drivers:

```
Get-WmiObject Win32_PnPSignedDriver | Select-Object DeviceName, DriverVersion, Manufacturer
```

3. Update Drivers Using PowerShell:

- Although PowerShell does not have a built-in command to directly update drivers, you can use it to automate the process of downloading and installing drivers from a script. For example:

```
# Example script to download and install a driver
$driverUrl = "http://example.com/driver.exe"
$outputPath = "C:\Temp\driver.exe"
Invoke-WebRequest -Uri $driverUrl -OutFile $outputPath
Start-Process -FilePath $outputPath -ArgumentList "/S" -Wait
```

Using Command Prompt

1. Open Command Prompt as Administrator:

- Press Win + X and select Command Prompt (Admin).

2. Use DISM to Update Drivers:

- The Deployment Imaging Service and Management Tool (DISM) can be used to add and update drivers in a Windows image. For example:



```
dism /online /add-driver /driver:C:\Path\To\Driver.inf
```