How to defragment and optimize drives for Windows 10/11

Introduction

Almost everything you do on your computer affects its internal storage. As you create and copy files, data is being thrown into many different places. A lot of that information is redundant, which leads to useless fragments of data scattered across your system's memory, hence the need for optimization. We will be using the Windows built-in version of the "Defragment and Optimize drives" tool to solve this problem. When you run this app, it reorganizes and/or deletes the fragmented data on your hard drive(s) to give you faster speeds and even free up some memory for you. Whether its for your personal laptop, home desktop, or workstation, every computer can benefit from this using this tool.

This guide will walk you through the entire process, as well as configuring optimization to occur on a set schedule if you would like it to. You will require a basic knowledge of your Windows operating system and, obviously, an installed hard drive of some kind.

Before beginning this process, note the different kind of hard drives your computer may have installed:

- Hard Disk Drives (HDD) are an older and bulkier type of memory. They operate by spinning large metal disks and using a metal arm to magnetize specific parts of the disk to read and write your data.

  More about Hard Disk Drives - https://www.explainthatstuff.com/harddrive.html

- Solid State Drives (SSD) are a newer, smaller, and more expensive type of memory. They utilize electronic chips, called semiconductors, to store your data.

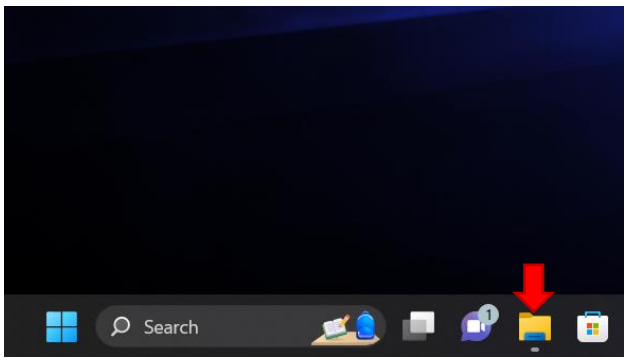
  More about Solid State Drives - https://computer.howstuffworks.com/solid-state-drive.html

- Disk Fragmentation – The scattering of data across computer memory. This slows down file access time because all instances of a file must be found before the file can be opened.
- Operating System – Collection of programs that utilize the software and hardware of your computer to create a functional user experience.

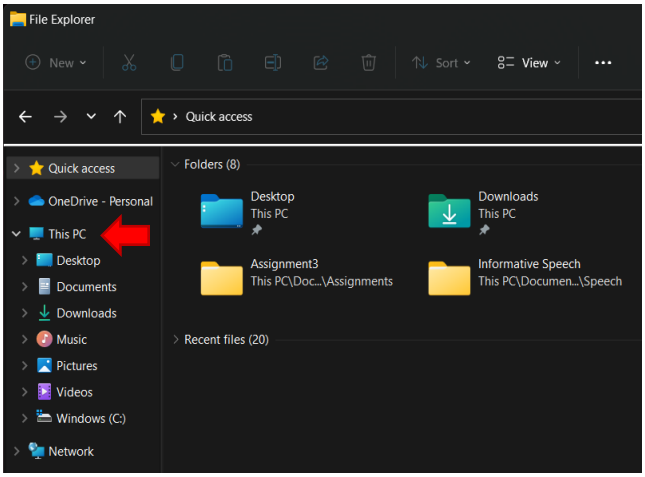
Navigation

Notice	This guide was performed on a Windows 11 Operating System. If you are using Windows 10, know that the process is still the same, but some menus may look slightly different.

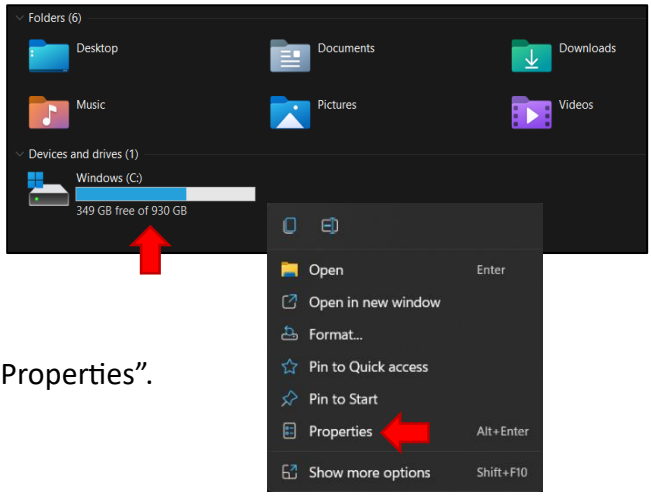
1. From your home screen, click on “File Explorer” located at the bottom of your screen on the taskbar.



2. On the left-hand side of the window, click on “This PC”

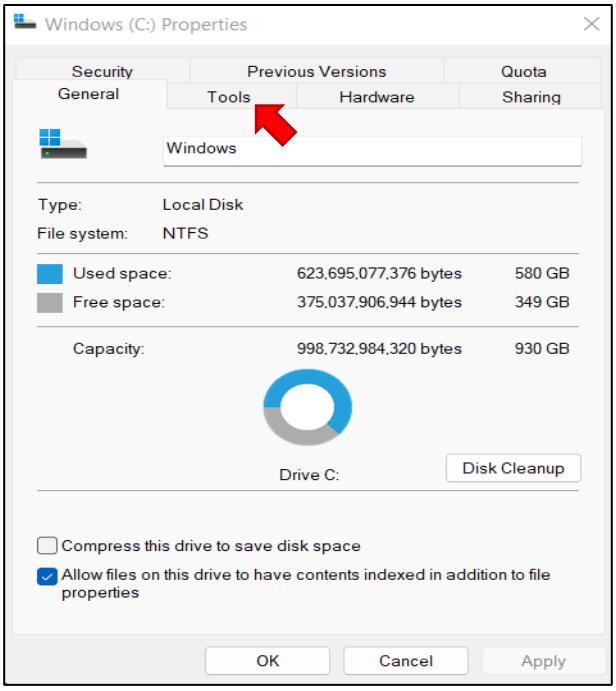


3. From this menu, right click on the drive named “Windows (C:)”. You may have to unhide it from the dropdown menu labeled “Devices and Drives”.

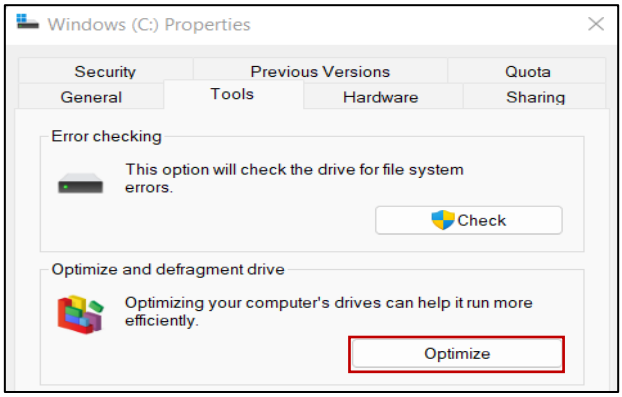


4. On the popup menu, select the option labeled “Properties”.

5. At the top of the properties panel, click on the “Tools” tab.

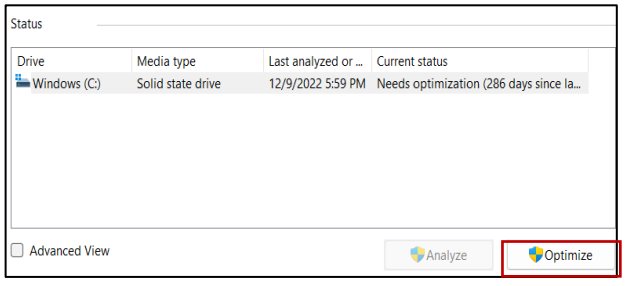


6. You will see some of the tools available for your hard drive, including "Optimize and defragment drive". Click Optimize.



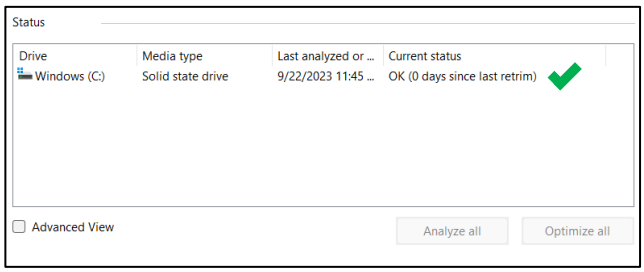
Process

1. On this new menu, you will see a list of all drives installed on your device and whether they are an SSD or HDD type drive. Select the drive you want to optimize. If you would like to optimize multiple drives, hold Ctrl while you click, and all your selected drives will be included in the process. Then, click “Optimize” or “Optimize All”.



Notice	If you are using a hard disk drive, this process may take up to a few hours depending on how long the drive has gone without being defragmented. Before running this process during company work hours, contact your IT department to find the best time for this process.

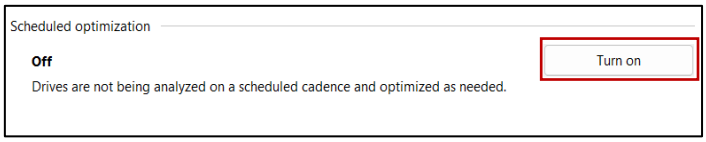
2. After the test is complete, the associated drives should now list "OK" under the Current Status Column.



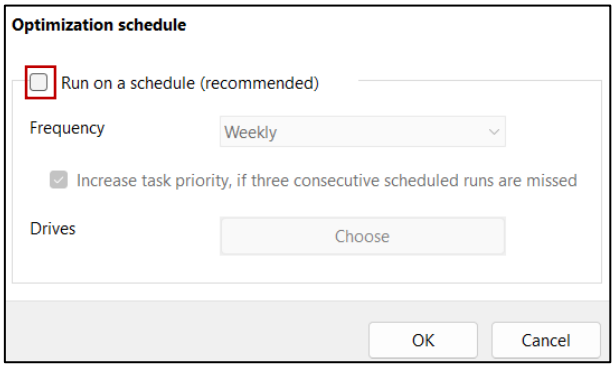
Scheduling Optimization

Note: These next steps are optional. You may choose to complete this process manually every time, which will not affect the results in any way.

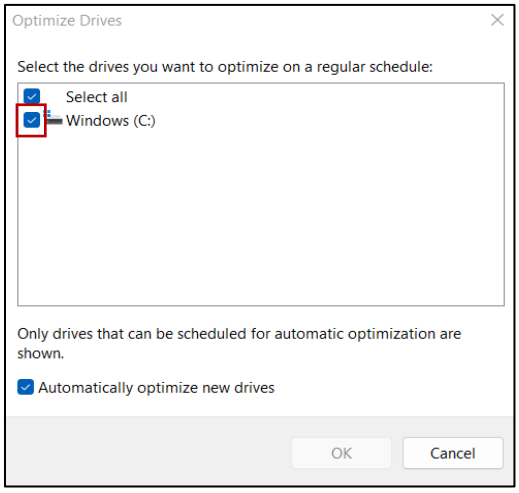
1. Under Scheduled Optimization, select “Turn On”.



2. A new Schedule Optimization window will appear. Check the “Run on a Schedule” box and the below fields will open.



3. After setting the frequency, leave “Increase task priority” checked. Click on Choose and a small window with your installed drives will pop up. Make sure to check all the drives you want on this schedule. Click OK and then OK once more.



Wrapping Up

And that completes your drive Optimization and scheduling. Remember, results may vary depending on the type of drive you have installed. After running this test with an SSD, a total of 8 Gigabytes of memory were freed up. That may not seem like a lot, but that amount can quickly build over time. If you have an HDD installed, your results may be even better than this tutorial.

It's important to perform routine checks on your software and hardware to get the most performance possible out of them. On the other hand, if you are looking to free up more memory, look into these guides:

Free up drive space in Windows - Microsoft Support

7 Ways to Clear Memory and Boost RAM on Windows (helpdeskgeek.com)