

How To Optimize your SSD Boot Drive



A guide showing a few simple steps to optimize the performance of your SSD boot drive.

Introduction

SSDs are the fastest drives available for desktop and portable computers. However, modern operating systems, programs, and games can quickly take up a huge amount of storage. One very popular set-up these days is for users to use an SSD for their boot drive and use standard hard drives for data storage space. Therefore, it's wise to optimize the SSD space that you have when using an SSD as your boot drive.

There are a few simple things you can do to get the most performance out of any SSD. Outlined in this guide are the steps we took to achieve maximum results without impacting performance while also saving on disk space. Our guide was assembled using the Force series F40 SSD and the information here applies to all of the SSDs in our lineup.



1

Disable Hibernation

If your system isn't a laptop or netbook then you probably won't ever need hibernation. While hibernation is turned on your system keeps a file on the root of your drive where it saves information about what you're currently doing on your computer. Disabling hibernation is easily accomplished with a simple command line and will save you several GB's of space. On our F40 we found that disabling Hibernation saved us roughly 8GB of space (20%)!

Here are the steps we followed:

1. Click on the "Start" button (Window's logo icon in the lower left hand corner of your desktop) and type "command" into the search field.
2. Right click on "Command Prompt" at the top of your search results and choose "Run as Administrator".
3. In the DOS window enter the following command: **powercfg -h off**
4. Close the command window.



```
Administrator: Command Prompt
Microsoft Windows [Version 6.1.7600]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.
C:\Windows\system32>powercfg -h off_
```

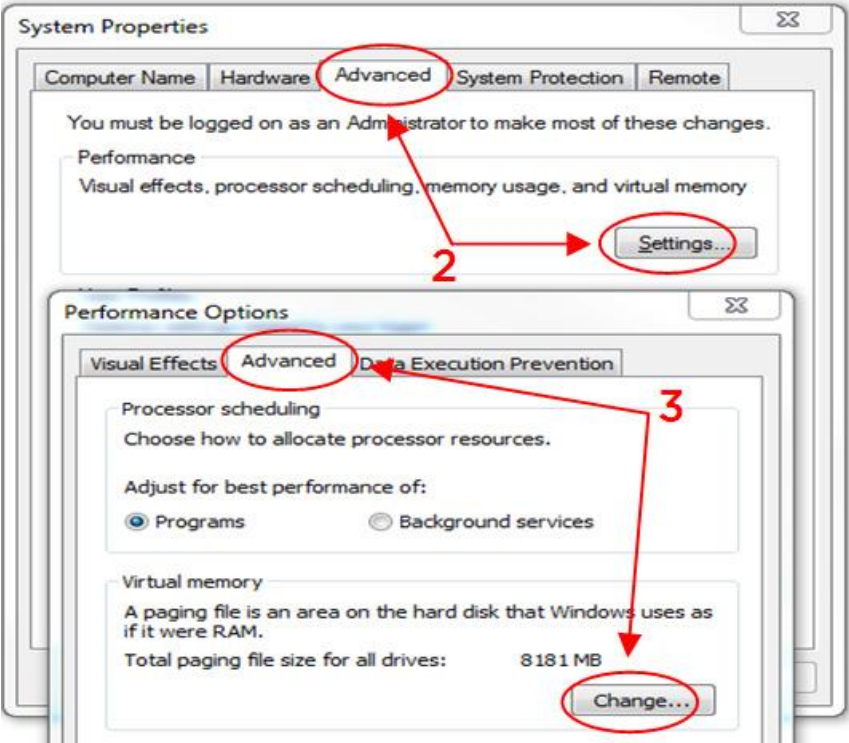
2a

Change your Page File Settings

The primary purpose of your page file is to act as virtual memory. Windows 7 primarily uses it for a couple of things; first off it acts as a staging area for information the OS thinks it might need next (think cache) and as a backup in case you don't have enough physical memory (DRAM). Additionally some applications are written to utilize the page file and may refuse to work correctly without one being present.

Here are the steps we followed in Windows 7 to change the page file settings:

- 1. Click on the Start button then right click on "My Computer" and choose "Properties".
- 2. In the left pane, click "Advanced" then click on "Settings" under "Performance".

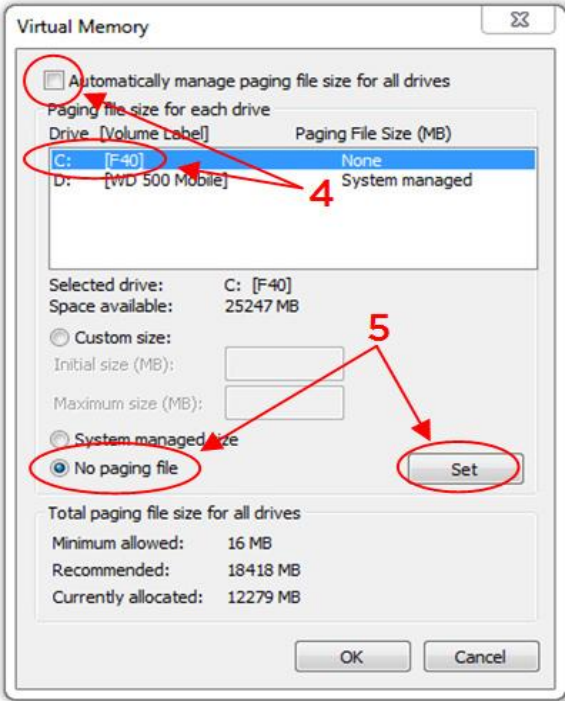


2_b

Change your Page File Settings

The steps continued:

3. Select the “Advanced” tab and click on “Change” in the “Virtual Memory” section.
4. Uncheck the box at the top and select your SSD.
5. Click on “No paging file” then click on “Set”. Ignore any warnings, we’re simply relocating the pagefile.



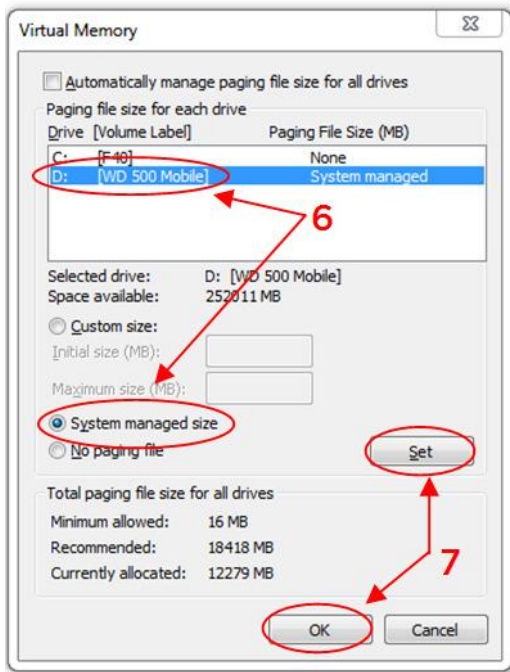
With so much system memory in today’s computers you might think that you could get away just turning off your page file. However, we have experimented with various page file settings and found that you get better performance by relocating the page file to a storage drive and believe this option is the best solution. In our testing the performance difference using this solution was barely measurable.

2c

Change your Page File Settings

The steps continued:

6. Select your secondary drive and click on “System managed size”.
7. Click on “Set” then “OK”.
8. Reboot your computer and confirm that everything is where it should be. The pagefile.sys is a system file so you won't be able to see it till you've changed your file view properties.



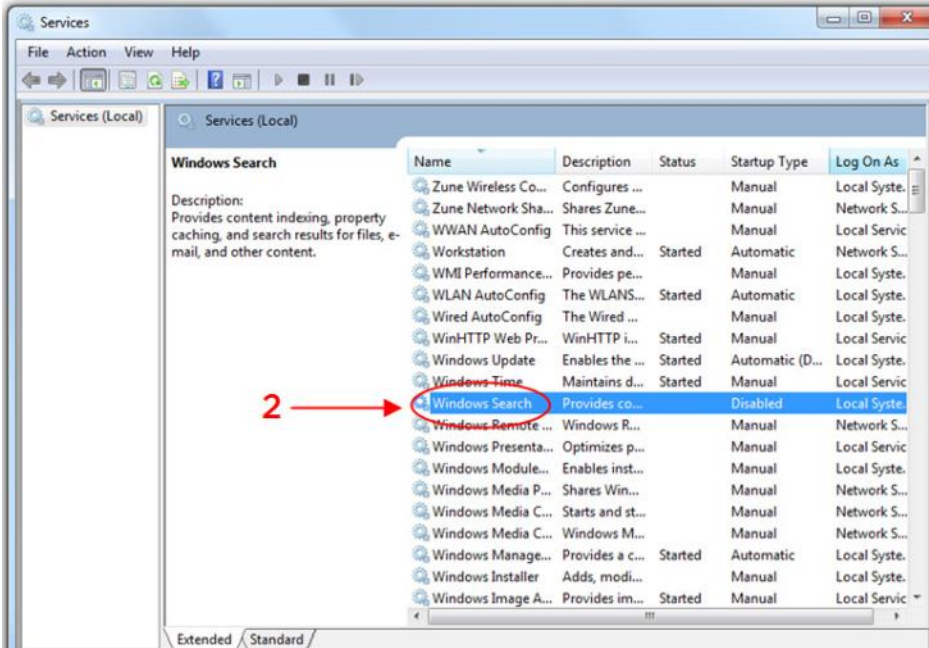
The nature of the page file means that your OS is going to be constantly writing to it and while we don't need to worry about fragmentation on an SSD like we would on a traditional hard drive we do need to take into consideration the impact constant writes to the page file will have on the lifespan of your SSD.

Feel free to experiment with different settings; what works best on your system might be different, and you can always go back to an earlier setting.

3a

Turn off Indexing

Indexing is a trick Windows uses to speed up the search for information on your hard drive. This helps on rotating media (HDD's) but doesn't provide any benefit on an SSD, and only increases CPU overhead. Indexing can be disabled in Windows Services.

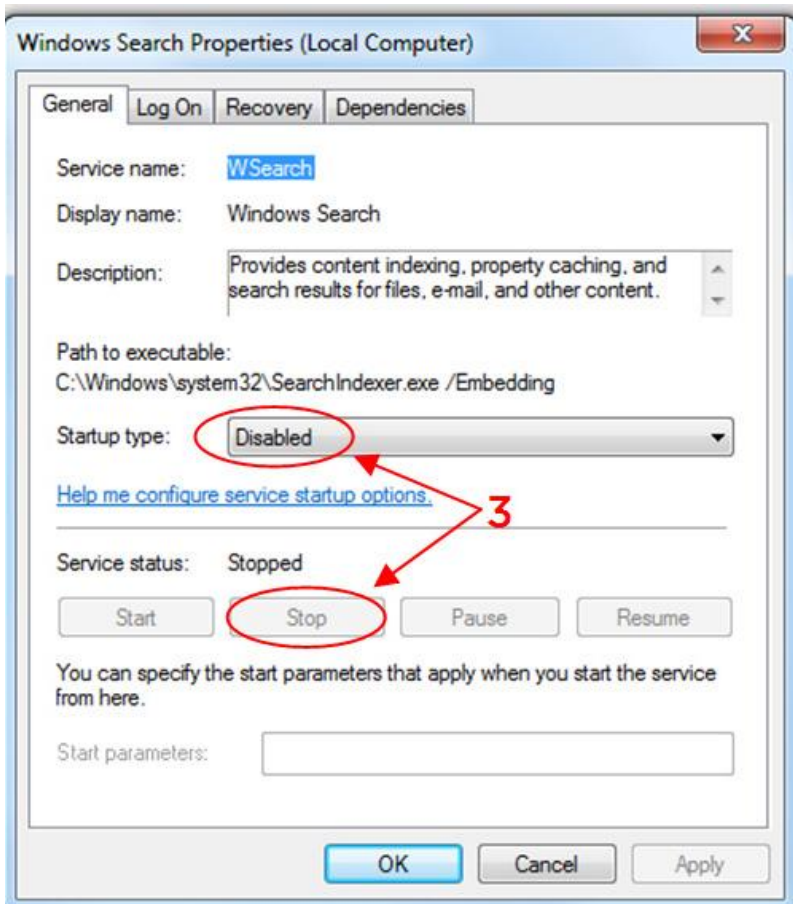


3_b

Turn off Indexing

Here are the steps we followed to turn it off:

1. Click on the “Start” button and type “services” into the search field then click on the “Services” program in the results field.
2. Double-click on “Windows Search”. (tip: sort by name)
3. Change “Startup type” to “Disabled” and click on “Stop” to turn off the service currently running.



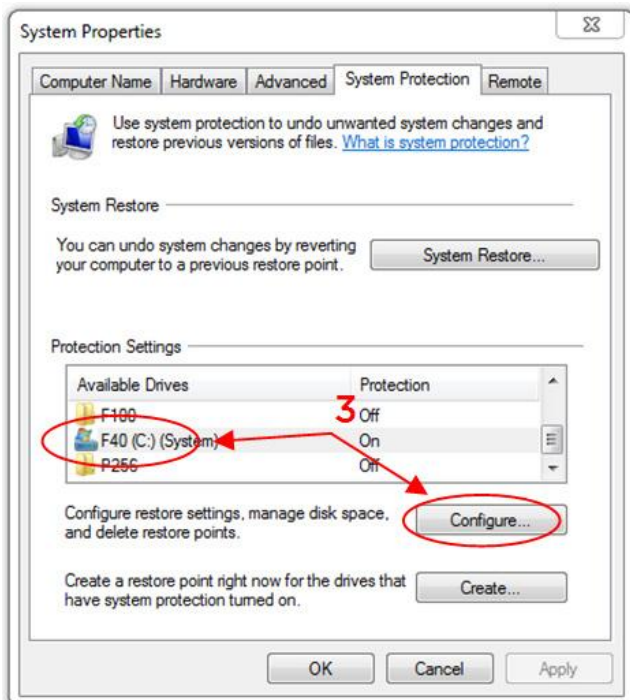
4a

Modify Windows System Restore

While you could turn this function off entirely we feel that it's worth keeping around. After all, as good as Windows 7 is, it still occasionally encounters problems, and being able to roll back your OS to an earlier version could save you the headache of having to reinstall everything from scratch. By default, System Restore will reserve between three and five percent of your drive, which means that your system is setting aside at least 1GB.

Here are the steps we followed to modify System Restore:

1. Click on the Start button then right click on "My Computer" and choose "Properties".
2. In the left pane, click "System protection".
3. Under "Protection Settings", click on your SSD then click "Configure"

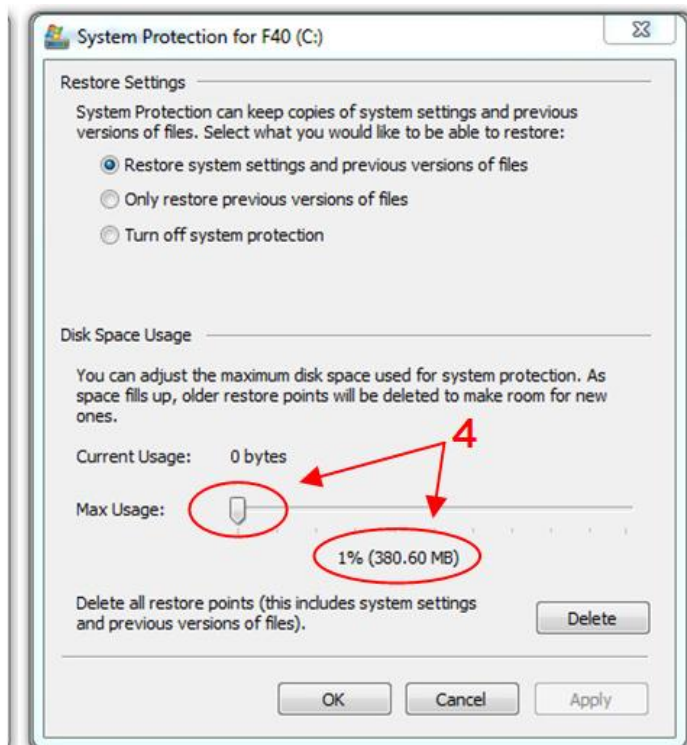


4_b

Modify Windows System Restore

The steps continued:

4. Under “Disk Space Usage” move the slider all the way to the left.



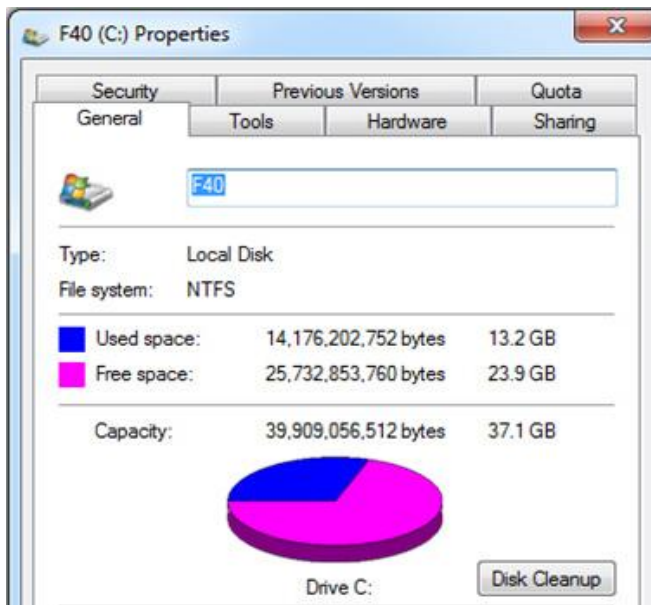
According to Microsoft you'll need to allow the system to reserve at least 300MB (<http://windows.microsoft.com/en-US/windows7/How-much-disk-space-does-System-Restore-require>). Fortunately, you control the percentage of reserved space with a slider bar, so it's impossible to go below that barrier.

5

Game and Program Files and the Completed Installation

While installing and running your games and programs on your SSD will be quickest, you'll want to determine on a case by case basis which ones are important enough to reside on your SSD. Programs such as Outlook rely on a database file and really benefit from the increased IO of an SSD while most other programs aren't going to see the same level of benefit and basically just take up space.

Today's games usually run 5GB or more (Starcraft II takes 10.5GB!). So you're not going to be able to install many games on your boot drive at the same time if you are using a smaller SSD such as the F40 used here.



Our Windows 7 Ultimate 64bit installation after using this guide takes up 10.4GB. And once you've installed Outlook 2010 (all files and programs run from disk) your total installation is 13.2GB. This leaves you with 23.9GB of super-fast SSD to get your game on with!

Resources

Corsair SSD Product Page:

http://www.corsair.com/products/ssd_home.aspx

Corsair Blog, SSD section:

<http://blog.corsair.com/?cat=7>

Corsair Support and Discussion Forums:

<http://forum.corsair.com/v3/index.php>

Microsoft Knowledge Base, System Restore:

<http://windows.microsoft.com/en-US/windows7/How-much-disk-space-does-System-Restore-require>

