Defragmentation
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by David Perkovic

What is Defragmentation?

As you start to create and delete files and applications on your computer the hard drive will become fragmented. This means that your data is split into chunks and stored in different areas of the hard disk. The more fragmented your drive is, the less efficient your computer operates. Defragmentation consolidates the separate chunks, frees up disk space and speeds up your computer.

In simple terms imagine your hard drive as a bunch of little containers (with empty space being empty containers). Each file is represented as a different colour in the diagram below. An unfragmented hard drive would have all of the containers for programs or files next to each other like this:

Now what happens when you delete a program or file? An empty space will result and your hard drive will look like this:

Next time a file is written to the drive it will be placed in the first empty space. If the file is larger than the empty space it will be split up with part being written to the empty space and the next part written to the next free space and so on.

As files are deleted, change in size and new files added the drive will be split up into multiple sections, causing files to be located in various containers throughout the entire drive. The result is a hard drive looking something like this:

To defragment is to take all of the fragmented pieces and put them back in order. Windows comes with a defragmenting program and you can also purchase third party software.
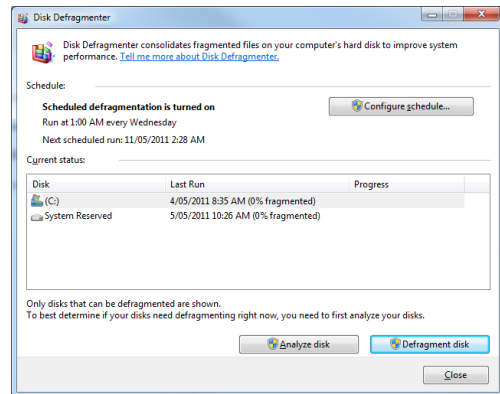
How To Defragment Your Hard Drive?

The following steps list how to defragment your hard drive. You should defragment your hard drive every few months, if you often add and/or remove programs and files you should defragment more often. If you have any problems please contact DP Computing.

Note:
1. It is recommended that you stop using your computer while you are defragmenting the drive. You should also stop all programs running including your screen saver.
2. The defragmentation program can take a long time to run. It is recommended that you run this program overnight or when you do not need to use the computer for a few hours.
3. Turn off any power saver modes before starting to defrag - the system may either go into hibernation or suspend before the defragmentation has completed.
4. If the program seems to become stuck at a certain stage and / or you see an error such as "Drive's content changed: restarting", another program may be accessing the disk. The easiest way around this is to start the computer in Safe Mode and then run Defrag. To start the computer in Safe Mode reboot your computer and hold down the Ctrl or F8 key during the booting process. A menu should appear in which you can select "Safe Mode". Once booted you can then safely run defrag. Reboot after defrag has finished and the computer will start normally.
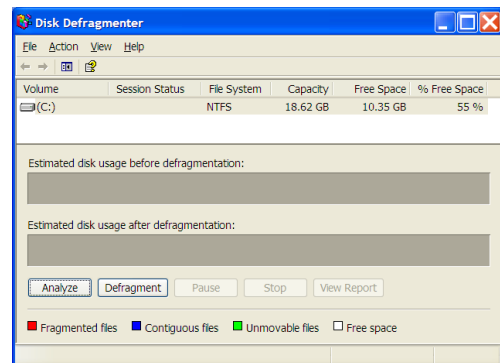
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MS Windows 7

1. To open Disk Defragmenter, click on the Windows 7 Start Orb (AKA start button in the bottom LHS of the screen), point to All Programs, point to **Accessories** then **System Tools**, and click **Disk Defragmenter**.
2. Press the **Defragment Disk** button to start the defragmentation.
3. If you have any problems running the defragmenter you may need to be logged on as an administrator or a member of the Administrators group.
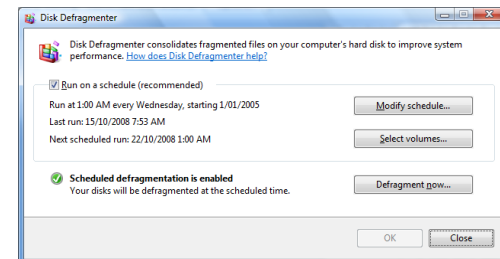
MS Windows 2000/XP

1. To open Disk Defragmenter, click **Start**, point to **All Programs**, point to **Accessories** then **System Tools**, and click **Disk Defragmenter**.
2. Click the drive you want to defragment, click the **Defragment** button and then wait for the defragmentation tool to finish (this may take a long time).
3. If you have any problems running the defragmenter you may need to be logged on as an administrator or a member of the Administrators group.

MS Vista

4. To open Disk Defragmenter, click on the Vista Start Orb (AKA start button), point to All Programs, point to **Accessories** then **System Tools**, and click **Disk Defragmenter**.
5. Press the Defragment now button to start the defragmentation.
6. If you have any problems running the defragmenter you may need to be logged on as an administrator or a member of the Administrators group.

Further Help and Assistance

If you need further help or assistance on this or any other computer problem please contact DP Computing at the address below.

This article is part of a series of articles by David Perkovic of DP Computing aimed at helping users gain effective use from their computers. Other similar articles can be found online at: www.dpcomputing.com.au/articles or at our Facebook site www.facebook.com/dpcomputing.

DISCLAIMER: We will not be held responsible for any damage or data loss to your system. If you are in doubt over something or if the steps are different than what you see on your computer contact a professional.

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