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## PC410: A Division of Science Translations

Managed IT Services, PC Service and Sales in Central Maryland

### Security & PC News, March 2015

**This is your hard drive.**



**This is your hard drive, fragmented.  
Any questions?**



## What does 'Fragmented' mean?

Hard drives store each new file in any available space in which it fits; it's really that simple. But when you open a file, edit it, and resave it, here's what usually happens:

- 1) The edited file is saved with a temporary name, so it goes into a new location on the drive.
- 2) After the new file was saved successfully, the old file is deleted.
- 3) The new file is renamed to use the old file name.

So now the file is in a different location than it was, and there's a small empty space available to place a new file. And that's exactly what Windows does next--it places a file there, or half there and half in the next available block (think cubbyhole), and so on. As drives are used, they slow down because the files that are used the most are scattered into dozens or hundreds of separated fragments or blocks (think pages), and to read them, the computer must re-assemble them in memory (think blackboard).

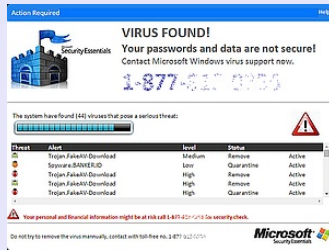
The best way to remove this particular slowdown is to put those pages back together as files; your computer can do that for you. The defragment program will move files on your drive to optimize performance. If your machine is very fragmented it will cause your machine to move very sluggishly.

The only question is, do you know if it is doing that? In Windows 7 and above, the defragmenter should tidy up every Wednesday morning at 1am, if the computer is on. If it's off, like most desktops and nearly all notebooks, it won't--you will have to start the defrag process manually--around once a month is good.

One caution: Defragmentation applies ONLY to spinning hard drives, of the mechanical variety. Solid-State drives have no moving parts, and while fragmentation does occur, there's no time lost in moving a mechanical drive head into location for reading, and the new drives age from writing (not reading). So defragmenting a SSD drive will shorten its life. Windows 7 and above will not run the automated weekly cycle. If you have an SSD, don't run the defragmenter manually, either.

There are instructions on the PC410 website on maintaining your computer:

<http://www.pc410.com/upkeep>



## Quiz Time

There's a new quiz online at Startupware.com:

**What the \*\$&! Is this malware?** will see if you recognize the evil that shows up on your screen as malware, and if you know what kind of threat it is.

There are 5 questions, multiple choice. This should

be required before you're allowed to use a computer.

Visit [startupware.com/quizzes/malware-quiz-2015-march/](http://startupware.com/quizzes/malware-quiz-2015-march/)

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## Contact US

PC410.com is the local computer services division of Science Translations, serving central Maryland, including Baltimore and Westminster.

Call us at 410-871-2877, or from Baltimore, at 410-205-9250.

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