



# RAM vs. Hard Disk

**It's easy to get RAM and Hard Disk space confused. When people get an "out of memory" error message from their computer, they often think their hard drive is too full, when in reality, the RAM (memory) is getting too full. Here's a chart which may help you think about the difference between RAM and Hard Disk storage space.**

RAM	Hard Disk (Hard Drive)
Memory	Storage
Smaller amount (typically 128 MB - 1 GB)	Much larger amount (typically 1GB to 400 GB)
Temporary storage of files and programs	Permanent storage of files and programs
A little like your real desktop - has only your current work on it (which could be ruined by a spill of Coke or coffee!)	Like a file cabinet - has long-term storage of work (it's safe from spills!)
Contents disappear when you turn off power to the computer	Contents remain when you turn off the power to the computer (they don't disappear unless you purposely delete them)
Contents disappear when the computer crashes	Contents remain when the computer crashes
Consists of chips (microprocessors)	Consists of hard disks (platters)

<p>Contents are stored <u>electronically</u> in bits on the chip, in electronic <i>offs</i> and <i>ons</i> (0's and 1's), so RAM needs electrical power to hold the contents</p>	<p>Contents are stored <u>magnetically</u>, also in bits which are <i>off</i> or <i>on</i> (0 or 1), so the Hard Disk does not need power to hold the contents</p>
<p>When you want to use a program, a temporary copy is put into RAM and that's the copy you use</p>	<p>Holds the original copy of the program permanently</p>
<p>The file you are modifying, plus all the changes you make, are kept here in RAM until you do a "save"</p>	<p>When working on a file, the original file is left untouched here in the Hard Drive until you do a "save;" the "save" copies the new version of the file that's in RAM onto the Hard Disk (and usually replaces the original file)</p>
<p><b>RAM</b></p>	<p><b>Hard Disk (Hard Drive)</b></p>



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