

Solid State Hard Drive and Memory Upgrade Cheat Sheet

How to backup all of your data for SSD (solid state drive) migration, possible hard drive fails, virus issues and motherboard fails.

If your system runs slowly there are several ways of speeding it up.

- 1.) Increase the amount of memory (the cheapest).
- 2.) Install an SSD (Solid State (hard) Drive) (somewhat more expensive but getting cheaper by the month.)

In the computer business there are a number of rules of thumb.

- 1.) Prices will come down
- 2.) Speeds and capacities will go up

Although these do not occur as rapidly as we might like; they have been happening for the last 60 years.

Evaluating your system for upgrades:

Systems to rule out.

Usually, if your system is a slimline; it may be a challenge. If you cannot remove and replace your battery yourself it may be iffy. With slimline computers with nonremovable batteries getting to the battery, memory or hard drive may require special skills, tools, dexterity and training.

The **manufacturer** may be willing to replace like for like but **will NEVER upgrade any computers**. They are in the business of selling NEW computers. Further, **some** SSDs and memory on thin line computers are soldered in place as if they were part of the motherboard circuit. When in doubt, go to the manufactures site with a serial number or service tag number and look up the tear down/manual/disassembly info.

If you tear it down and break it the manufacture will repair it **back to the original specs** for \$60 to \$150 per hour. They will upgrade nothing. (Their rules, not mine.)

SYSTEMS THAT ARE EASY TO UPGRADE THE MEMORY AND HARD DRIVE: The best reason to purchase professional grade computers as opposed to consumer grade computers is that professional/commercial grade computers are 1.) the easiest to troubleshoot, 2.) easiest to access the parts and 3.) the easiest to service.

If there are no icons (see graphic below) on the bottom of the system that look like **concentric circles (record changer)** or **rectangles with a bunch of dots** getting to the memory and hard drive without a lot of work may be a challenge.

- 1.) If you find icons on the bottom of the computer that look like the old time record changers /concentric circles (the computer symbol for hard drives) and rectangles with a bunch of dots (the computer symbol for memory) and there is a latch so you can remove the battery then usually memory and solid state hard drive swaps are going to be user friendly.
- 2.) Levels of ease and difficulty: Commercial/professional grade systems are designed to be serviced by relative amateurs in user hostile environments. (I was a co supporter of General Franks computer in Kuwait where we coached relative amateurs (generals combat staff) on a hard drive replacement caused by the dusty conditions.)
(Some HP models, Lenova models, Dell Precision and Latitude models and others all meet this description. If you want to **know** the ease of upgrade go to the manufacture's website with the serial number or service tag number and download and **study** the service manual. It may save you a world of hurt or make what might have been difficult; easy. Realize also that the writer of the manual may never have done the service and just cut and pasted what they thought would work. Awful, but I have seen it and coped with it.
- 3.) Realize that the state of the art when the computer shipped may be dated by years compared to the solid state drive you want to install in it. In 2013 the customers were trying to install the earliest 1 TB hard drives and the firmware/BIOS of virtually all of the systems out there did not support a terabyte. The work arounds were massive. The customers were forced, sometimes for months; to wait for the manufacture to upgrade the firmware/BIOS updates. **Very nearly all systems now do not have this issue with 1 TB but may with greater than 1 TB.**
- 4.) **STUDY** the manufactures specs and installation manuals. If there is only one memory slot and the system only supports one stick of memory and 4 GB and/or you can only get 4 GB sticks you cannot upgrade to 8 GB.

NOTE ALSO THAT VERY NEARLY EVERY SYSTEM WILL WORK FINE ON ONLY 8 GB OR RAM.

You only gain multitasking capability and speed with more than 8 GB of RAM unless you have **very** large databases, graphics, music, pictures, videos or spreadsheets.

Prepare a system for a possible hard drive failure.

Prepare a system for a non Samsung SSD upgrade. (Samsung has their own very nice software tool.)

Windows 7: Go to control panel then backup and restore

Plug in a USB backup hard drive (**preferably, USB 3.0** or you will take forever.)

After configuring **create a system image and a system repair DVD** or USB KEY.

USE THIS AGAIN to create future system image backups in case of hard drive failure or encryption virus.

Swap in the new solid state hard drive and restore from the repair DVD and USB backup hard drive. **This will work with the Samsung SSDs but their software is much more user friendly.**

Step by step: insert repair DVD or USB repair stick, swap Solid State drive into computer, Connect USB backup drive. Do a F12 boot and select boot to DVD or USB stick. Select to restore from system backup image. On older systems I have restored 90 GB in several hours.

WINDOWS 10:

Prepare a system for a possible hard drive failure.

Prepare a system for a non Samsung SSD upgrade.

(Samsung has their own *very nice* software tool.)

Search for Control Panel, Right click on control panel, more, pin to task bar. YOU WILL USE THIS AGAIN to create future system image backups in case of hard drive failure or encryption virus.

Go to FILE HISTORY. Create a system image backup and a recovery DVD or USB key.

Unplug the USB hard drive, swap in the new solid state hard drive and restore from the repair DVD and USB backup hard drive.

Step by step: insert repair DVD or USB repair stick, swap Solid State drive into computer. Connect USB backup drive. Do a F12 boot and select boot to DVD or USB stick. Select to restore from system backup image. On older systems I have restored 90 GB in several hours.

This will work with the Samsung SSDs but their software is much more user friendly

Samsung hard drive prep: Insert the Solid State Samsung (only supported drives) in a USB external drive case.

Read or at least scan the documentation.

Install the Samsung migration software

Run the software, connect the external USB hard drive case and follow the instructions.

Methodically, follow the instructions at the end to ensure you get it right.

Remove the Samsung SSD from the external case and install.

You may need to change the boot order configuration in the BIOS.

On my Dell Precision models I routinely put the old drive, minus the operating system in the options bay as my data backup hard drive. (Lately, I have concluded that using a SSD for the backup drive may be a large improvement due to reduced heat and increased battery life.)

Alternatively, using the larger 256 or even 400 GB+ SD cards may be a practical solution as the prices continue to fall.

Worthwhile additional backups: All the above techniques work fine if you only have a hard drive failure or the encryption virus.

BUT, if your motherboard fails and /or your system is uneconomical to service; backups of all of the primary data directories on your system are worth their weight in gold.

Open file explorer with your USB backup drive connected.

Copy and paste the data from each of the directories, Documents, Music, Pictures, Videos.

Select (for example) the Documents directory, Right click and copy. Go to the USB hard drive and if needed a subdirectory, right click and paste and when completed you will have a Documents directory in your USB hard drive. Repeat for the other three directories, Music, Pictures, and Videos.

Then you can likely recover from most of the common computer failures.

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