

# Mini Laptop/Notebook/Netbook User's Factfile

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### Preface

The following Laptop Factfile still has relevance for current MS OSs, as to software comments, and also, to the ongoing care and management of the Wintel hardware platforms now shared by MS, Linux, and Apple/Mac systems.

See also the MiniLinux Facfile, via the Home page, for care and maintenance of Linux OSs. Apple/Mac Oss are similar, tho specialist forums and manuals should be consulted, note that Nofrillstech does not have an Apple/Mac Factfile.

Choosing/buying a laptop for reasons of quality and longevity should be undertaken carefully, and wherever you go to make your purchase, be sure to note makes, models, etc, and, at least then ask Google for opinions of merits, shortcomings, etc. Buying good second-hand, off the crest of the consumer wave, is strongly recommended, also there will be solid comments on performance online, and even by word of mouth, **and independent of your prospective vendor, OK!**

1) Be sure of what you want, now and for any foreseeable future, and, always buy an upgradable system, as to HDD/SSD, RAM, DVD, etc. Orphan makes and models should be avoided. **Intel on ASUS will be your best buy...?**

2) Sensible case architecture is important, especially for strength, durability, and upgradable features, such as panels underneath that give easy access to RAM, HDD/SSD, DVD etc. Batteries should have reasonable life left. Look for patterns of wear, cracks, etc, re the case condition, avoid purchase if excessive, or, beat down the price..?

3) Be sure that the particular CPU runs at a moderate or better temperature, and, that there are no recurring patterns of motherboard and other failures emerging from your research.

4) Macs can now run Linux, and, even MS OSs, with tweaking, but are physically difficult to work on, not easily upgradeable, and, are trending towards being mostly disposable as to the current Retina models. They are also much more expensive, and OSX needs to be purchased directly. Your choice, indeed, OK!!

5) **Caveat Emptor, Caveat Emptor, Caveat Emptor, OK!!** PCs have had standard architecture for years, are easily upgradeable, old PC cases last as long as you want them to, even if tinsnips and mastic are needed. Not so laptops, they are not standard in architectural detail, even within brands, and are a modern marketing dream as far as selling to gullible consumers is concerned, OK? If you have no trustworthy advisor or vendor, **Do Your Own Pre-Purchase Research..!**

**Market changes and consumer usage patterns, late 2000's**, mean that a home desktop PC is not always the first choice for a personal PC, plus, easy portable computing, and increasingly ubiquitous public Internet access, are also part of this trend. The smartfone has also overtaken much laptop convenience as well. However, laptops are still useful, their operating systems and hardware still need care and careful use, or else expenses and inconvenience will be the inevitable penalties. This small Factfile addresses some of the measures that must be taken to avoid such penalties. **There is not much that the average user can do, technically, within a laptop, so reliance on professional technicians is usually by default. Proceed with your own in-case repairs entirely at your own risk, is always the caution, OK!**

1) **Laptop** as a generic term is being increasingly replaced by **notebook**, and, **netbook** is the smaller variety, usually without a CD/DVD. **Portable computer** covers all categories. Mobile phones and mobile BB access mean that a home phone line is less necessary 'to be in touch', plus, the portable computer option has much more flexibility of use, and/or, may complement an existing desktop PC with extra resources needed for extended program use. **However, budget computing portability presently has an increasingly strong market following, also now affecting Home PC sales.**

**Standard** laptops certainly are useful and/or cost effective if relied on extensively, **but may not always be justified** because of security risks, or maybe expense, (especially new!), and, they do not have the ease of internal access and maintenance, or flexibility of upgrade, that a desktop PC does. If a portable **note-taker** only is required, you would be well advised to obtain, in lieu, a **small notebook, netbook, or palm-top**, or, a less-expensive older model laptop, and thus release funds for a more extensive home-base **desktop PC** system and peripherals **that the cheaper portable note-taker would then support. Plus, some say a PC supports a laptop, others will say vice versa..! Others swear by one, and NOT the other!**

2) **For those whose choice or imperative is a portable computer**, note that laptops, et al, are smaller, less internally accessible, more intensively designed, have **installed batteries** as well as **mains-fed PSU power-conversion 'bricks'**, may require dedicated phone/BB connections, and, usually have, and need, more **drivers**. They may also have **operational restrictions** as to peripheral drives, heat control, and **ambient temperatures**. Also, there are limitations re magnetic/EMI ambience, handling and transport, plus user interface variables such as mouse or mouse-pad choices, screen size, etc. **Spilled beverages and loose food debris spell \$\$\$ and/or DOOM for laptops, note!**

3) **Laptops can be expensive to buy, and even more so to fix**, this is the price of miniaturisation of laptops and their working components! Throwaway units are a real possibility, ie some components may become too uneconomic to fix, some motherboards are already in this category anyway. **Think and plan before you buy a new and/or expensive laptop, OK!** Do your homework before purchase, especially sales 'specials', so that you do not finish up with a model that suffers from overheating, especially of the CPU, or, potentially faulty motherboards. Redundant models, cheap or otherwise, may also be DUD models, especially in department store 'specials'...!

4) Do not cover or obstruct the fan apertures, and always ensure all-round air flow, use an oven rack, a USB fan-base, or, install small rubber legs, to enable good air flow around the base, thus, laps are not actually the best places for operating lap-tops, and/or, are beds, and carpeted floors! Install a temperature monitor such as HWMonitor, SpeedFan or CPUCool if necessary, and act on the real-time information! CPUIdle(\$\$) or CPU-specific AMD Power Monitor, are useful examples of power regulators that lower CPU operating temperatures.

Note that Apple portable computers do not have vents in the base, a practice that should be followed by Wintel versions, for greater utility of use, as well as easier temperature control. Reduced power consumption for given performance has improved, however, with later models, especially for netbooks. A small sheet of smooth bare metal, (eg Cu/Al), under in-use power packs will also serve to disperse excess generated heat, and, do not cover the power pack when in use. Note also that warming a system case interior with a hair-dryer may help with booting, in an emergency, when all else has been tried. This is itself a sign of impending Mb failure, because material stress over time has caused some conductive filament to fail at a cool or cold temperature.

5) Do not physically shock the laptop, and thus also the HDD, or, expose the laptop to direct sunlight, while operating! Be extra-caring of CD/DVD trays and all peripheral connections, especially the power connector! Note also that a very high weight to volume ratio and the hard case means a long laptop fall or drop is unlikely to be survived by the unit, especially if not protected by a padded bag. Acquisition of a proper padded laptop carry-bag is thus strongly advised, as is an external storage HDD. Laptops should be level, for stability, and, on a cool hard surface to aid air circulation, when in use. A laptop with a solid-state drive should still have the same treatment as any other, note that shocks affect more components than just HDDs. Deploy any in-use power and/or ancillary leads carefully, as well.

6) To reiterate, a normal (non-ruggedised) laptop is just a small computer, even if portable, and definitely not a bullet-proof version! Physical security will also require thought and planning. Also, do not store in hot, cold, damp, or dusty conditions, direct sunlight, in areas of direct vibrational contact, when physically unsecured, or, under weighty objects. Always open a laptop lid evenly without twisting the monitor shell, similarly with closing up.

7) A laptop HDD/SSD can be directly piggybacked to a Desktop PC using a drive adapter, if necessary, for any data transfer, HDD cleaning and partitioning, and/or, for testing purposes. USB laptop HDD/SSDs enclosures are similarly useful for these purposes, as well as for general portable HDD storage. Note that testing HDD SMART will not be possible with a USB connection, unless using Speedfan.

8) PCMCIA and other card slots are very handy for extra facilities such as card modems, (a laptop will accept Ethernet cards as well as dial-up modem cards, especially useful to circumvent an installed modem), to add memory, or, external peripheral devices such as cameras, plus, auxiliary mice, keyboards and monitors can also be used via appropriate connections as required. Take special care when ancillary cards, USB drives, etc, are in use, and ensure that they are never prone to bumping or wrenching while inserted into laptop sockets, as damage may ensue to the laptop, as well as to the ancillary module.

9) Clean dusty screens with a damp sponge, and then gently rub with a dry paper tissue or soft rag. Never use any household solvents on any computer screen. A mild natural soap residue on the damp sponge should be enough to dissolve, and then physically remove, any fingerprints, or other film deposits, on a screen.

10) Children should never be entrusted with a laptop, especially an expensive one, if unsupervised, Internet access notwithstanding. Business laptops especially should be especially secure from any tampering, always being protected physically, and also, by passwords, codes, encrypted files, etc.

11) Laptop batteries are only good for 300 cycles, at most, and, reliance on mains power also carries the same hazards as for any electronics not further protected by a UPS/SPS and/or other power filters, especially in foreign surroundings with unknown grid or circuitry integrity. Remove battery packs if using AC mains power for extended periods, and advisedly, remove and reinstall batteries when mains power is turned OFF. Sleep Mode is NOT 'off'!

Batteries should be charged at least monthly if portables are used infrequently, and, the batteries must be removed for any storage duration, and also before opening the case. If practicable. Store any unused batteries in a cool, dry place. Rotate batteries as/when is this affordable, and, always use AC power when available, to extend battery life, and definitely when batteries are beginning to loose storage capacity. Battery storage may be enlarged by running down, then fully recharging, at least three times, and, relative to existing battery health. BatteryBar or similar will also prove useful. Newer lithium ion batteries do not have a 'memory', note.

Do not leave laptops turned OFF while still connected to AC, to avoid battery overcharge. OSs will manage charge capacity, note. Battery power availability readings may not be true until the laptop is properly warmed after Startup. Adjust power consumption settings to optimize any battery reliance. Permanent AC connection may need to be interrupted by monthly charge/recharge cycles, so, RTFM re batteries for your particular laptop, OK!

If the battery is removed for mains-only use, then utilize a good power conditioner, UPS, and/or power surge monitor, just as for a Desktop PC. Use only matching voltages, either for mains power, and/or power packs and batteries, at all times. Store unused batteries in non-conductive materials to prevent contacts shorting out! Also, for world travellers, Eaton Powerware posts national main-grid voltages, in case a suitable voltage transformer may be needed.

12) As with PCs, always make sure that you have an appropriate O/S disc, driver disc, and legitimate serial number, whatever the MS operating system. Avoid models with 'Restore Partitions' and bundled software, you do not need the bloat, and any 'Restore' will bring it all back, as well as the O/S re-installation being consequently outdated. Storing of

a regularly updated Boot Partition image, or entire disc image, on a separate partition or storage drive, that could then be utilized by a Recovery Disc, is probably the easiest, and most convenient backup option. Cloning is another similar option. Note also that netbooks may not have a CD/DVD, so, O/S installation via flash drive or other external USB drive is then necessary, and, the BIOS should be thus configured for Boot recognition.

13) Apart from the standard Internet security guardians, Wintel O/Ss will need to be maintained, as per scrap files, Registry entries, Defragging, etc. XP, Vista, and Win7, all respond well to using [CrapCleaner](#), [360Amigo](#), and, [Advanced System Care](#), Toolwiz, (free versions), as minimum Housekeeping measures. Also, keep Startup files to a minimum, plus preferably turn off HDD Indexing, and also Superfetch in Vista/win7, to ease HDD function, as well as to free up resources. (See also the [Computer Beginner's Management Survival Factfile](#) or [Mini Computer Factfile](#) for more performance tweaks, Housekeeping, and program lists). Note that laptops are restricted in power use to stabilize heat generation, so, be accepting of the fact that they are rarely as fast as any PC with the same resources and software configuration.

14) Laptops may have interference problems when live mobile phones, or other similar technology, are used in close proximity, so, be sure to maintain 30 cm or more distance from the laptop.

15) Avoid environmental dust, liquids, food debris, sunlight exposure, etc, and, **always acclimatize laptops**, before Startup, when moving between differing ambiances of humidity, and temperature. One hour should suffice..?

16) Never allow a laptop to pass through a metal detector when travelling, and, always enclose any non-installed HDD in an anti-static bag. Remove and appropriately store the battery before travel as well. Ensure that a laptop is always stowed securely, without any sliding and bumping eventuating. Never leave unattended either, where practicable, all part of proud laptop ownership. Security cables can also be quickly cut by a determined and well-equipped thief..?

**17) Health Issues and Portable Computer Use:** Laptop use is rather cramped and restrictive, especially with ever-smaller models. You may wish to try different external keyboards, eg, ergonomic or Dvorak (different key layout), and there are typing, and other aids, for those with disabilities, such as large external trackball mice. **Extensive mouse use** with one hand/arm more than the other may be alleviated by **ambidextrous mouse use**, especially when using the left/right-compatible mouse settings. Always easier, of course, for those who grow with new technology, rather than having to learn the new tricks! **However, if you do spend a lot of time at any keyboard, you risk physical damage such as RSI if care is not taken to ensure comfort and well-being over the longer term, and, do not forget wellbeing of eyes, the maintaining of good general working posture, sensible diet, and, even sensible toilet stops!**

**RSI, Repetitive Strain Injury**, aka **Cumulative Trauma Disorder**, can, and does, affect the strongest of us, as the occurrence is not a matter of physical strength or of sheer endurance, **but of the consequences of sustained tension suffered by muscles and tendons**, unrelieved by variation of activity to 'work' other muscles combinations, and by the limiting of healing and repair opportunities, thus resulting in chronic inflammation, swelling, thickening, and even possible deformation by foreshortening, of involved muscles and tendons. **Keyboard activity, especially, affects some of the most complicated and nerve-rich muscle groups humans have, ie, those involving arms and hands, as well as those of the larger muscles and joints that relate to maintaining seated postural integrity.**

Overuse and consequent inflammation of the wrist can result in the well-known keyboard-related condition of **Carpal Tunnel Syndrome**, in which tendons, ligaments, and nerves that pass through tunnels between the wrist/carpal bones, within the encircling carpal tissue band, begin to exert drag as they inflame and thicken, causing more and more pain and inflammation, especially by compression of the relatively large median nerve. Other hand, arm, thoracic spine, and shoulder areas can also be affected by poor computer habits, and all will cause pain and discomfort, often continuing even after the cessation of the causative activity, and then becoming chronic in nature. As well, in susceptible people, prolonged inactivity of large lower body muscles may lead to blood clots forming, ie, **DVT, aka Deep Vein Thrombosis**, may result, the greatest hazard being the further movement of parts of these clots, were they to break up, which may then cause further blockages in heart, lungs or brain, after setting off on their own particular journeys of destruction.

**Note that prolonged laptop posture is even more stressful than for PC use, especially for the young with their growing bodies**, so, interspersed usage of ancillary keyboards, mice, monitors, and, other proper computer furniture and seating is advisable, as well as the prescribed mandatory exercise, relief, and relaxation breaks. Also, where practicable, use of a port replicator, in conjunction with seating at a normal computer work-desk, plus conventional keyboard and monitor, will optimise convenient and healthy laptop usage. **This also applies to smartfone use as well, OK!**

So, **RSI** is real, **DVTs** are real, **eye-strain** is real, and a general lack of regular exercise and postural variation breaks bring their own long and short-term health penalties. **Develop good keyboard and general computer usage habits as part of becoming a savvy and long-term effective computer operator, portable or otherwise.** Better, therefore, than to have recovery time being later imposed that reduces actual productive output, or even just hobby and browsing pleasure.

**You will not know how susceptible you are, personally, to cumulative trauma disorder, or, how or to what degree the condition will affect you, until it actually develops, so be warned, and do not put yourself to that particularly needless test, OK!** Test the [Mousotron](#) and the [Screen Magnifier](#), and see also [Eye and Arm Strain](#).

## Laptop Maintenance and Repair Tips:

For more very detailed information about overall laptop maintenance and repair, beg, borrow, or buy the current **'Upgrading and Repairing Laptops'** by Scott Mueller. There is also much in common with PCs, and other Wintel desktop models, for software and hardware troubleshooting and repair. (See also **CBMSF**) **For those with sufficient skill and confidence, here are some tips for keeping personal laptop \$\$\$ down:**

**1) Avoid using a laptop in ambient conditions beyond 25°C**, (as in 4) above), consider using a cooling pad beyond this point, as the confines of a laptop case make temperature control more critical than with a PC. Plus, the occasional judicious external use of **compressed air** will keep vents, coolers, grills, and keyboards free of dust and debris. **Judicious use of compressed air** is also advised whenever the laptop case is opened, be sure to check any **cooler FINS, if present**, for dust and debris. **A small sheet of smooth bare metal, (eg Cu/Al), under in-use power packs will also serve to disperse excess generated heat, and, do not cover the power pack when in use. Material stress extremes, such as from large temperature differences, will inevitably shorten any computer module's working life.**

**2) RTFM is strongly advised**, so, download the appropriate **User's and Technician's Manuals** before attempting any disassembly. Often there are Web info-files on specific laptop models, with good graphics also posted, that can be consulted. **Frequent digital camera shots of disassembly stages are also useful for reassembly. First recourse for drivers and manuals should be the brand manufacturer's own website, in most cases.**

**3) Replacing drives and RAM should pose few problems**, and, for anything further, proceed at your own risk. **Always unplug from mains, and remove the battery, before opening the laptop case for disassembly, OK!** In regards to RAM use and RAM swapping in laptops, there is also a proprietary tendency, of late, with some brands, to match a particular RAM speed to a specific motherboard, so that RAM actually in use, does not match that installed. Thus, should this problem occur with any RAM-swapping or replacement, RAM details should be re-checked in manufacturers' specs, and, the correct size and speed RAM sticks used.

**4) Test components by comparing with known-goods where possible, and a handy PC is useful for drive testing, plus, digital snapshot and Webfile viewing as well. Note that testing HDD SMART will not be possible with a USB connection.**

**5) Replugging and use of electrical contact spray, as with PCs, is advised to initially check pluggable module function, before any further disassembly. Power and battery connections can also benefit from this treatment.**

**6) When replacing motherboard components** such as CPU and ancillary processing units, video cards, sound, CMOS batteries, fans, etc., **be sure that components do match/are compatible. Interchangeable monitors** are also possible, if connections are the same, and, the screen fits, as **usually**, voltages are all the same. However, do note that when laptop displays fail, 5 components may be involved, singly or otherwise, viz, fluorescent light, inverter, display panel, connection to motherboard, and/or video card, so expert attention will be required. The simple test for video card functionality is just to plug in an external monitor.

**7) CD/DVD lenses** are easily cleaned with cotton bud and **propyl alcohol. Never use any silicon-based cleaner** in a laptop or PC, and, always use dedicated brand **electrical contact cleaner** on any power connections and ancillary plug-in connections.

**8) As with any PC disassembly and servicing, practice on an older functioning laptop before attempting these steps on a more modern model. RTFM, RYF Mueller, and, know when to consult a professional, OK!**

**9) Just before final case closure**, boot up the system to make sure all is well, turn off, and then complete the closure.

**10) Being organized, orderly, and uninterrupted, while you tinker, always helps, as does the use of correct tools. Observe standard anti-static practices** inside the laptop case, and, when handling internal components.

## A serviceable Wintel computer system, PC or portable, should have the following operational factors:

- 1) **Genuine O/S number**, as required, certainly within the software, and definitely on the case, sometimes there may even be a different number. So, always test with **SIW** or similar, also for other software numbers. Record these numbers, and store securely. **Always check new systems for an O/S label on the case, refuse the sale if this is not present.**
- 2) **Additional support discs**: An O/S disc that goes with number(s), system, viz. age, type, 32/64 bit etc; Startup disc, Drivers disc, ancillary software discs, or other appropriate media. O/S discs can be downloaded, Startup discs made as per O/S facility, and, drivers can be recorded and saved with **DoubleDriver** or similar, also on appropriate media for the system in use. Be sure to check that all drivers are present. Updated drivers are not so important **as actually having drivers that work**, especially for network and Internet use, being most important for solo home systems, OK!
- 3) **Note that modern BIOSs will enable booting from a USB and/or portable media**, especially important for those systems that no longer have a floppy or a CD/DVD. USB flash drives must be made bootable with **Unetbootin**, or similar. **Ask Google, there is much on offer on this topic.**
- 4) **Ideally, Windows O/Ss should be constrained within a boot partition**, 50 Gb min should do, and, there should be one or more storage partitions on that HDD. Systems with extra partitions set by commercial installers can be zeroed, then a fresh O/S installation undertaken, given that factors, listed in 1) and 2), are available, of course. System managers will also avoid bundled software, spreading of O/S software, lack of extra partitioning opportunity, etc. **Be sure to disable Indexing and Superfetch, which will avoid unnecessary HDD activity, and thus wear. Check HDD SMART at least monthly**, with **CrystaDiskInfo** or similar.
- 5) **Always have a good quality flash drive to save data externally, on a temporary basis, and a similarly, a conventional HDD for long-term bulk storage.** **Note that SSD HDDs are not suitable, value-for money, for bulk storage, and will also only be fully catered for anyway, re formats, no-defrag, and partition alignment, by Win 7 O/Ss and above.** **Vista and XP will need extra software and drivers for these SSD purposes**, so, consider these factors before buying SSDs, including the fact that 4<sup>th</sup> generation SSDs are the current optimum choice, after development problems up till that stage.
- 6) **Recommend a clone boot partition also**, depending on system management expertise, easy enough with XP, though use of Easy BCD is required for **Vista/Win7/8/10**. **Consider also a spare cloned HDD for any computer**, kept up-to-date by USB enclosure use, and easily swapped when needed, then the original drive can be repaired or replaced. **Bootting from an inner partition is desirable**, with HDD age, thus spreading the HDD wear.
- 7) **If you just want the basics of Internet, Email, and word-processing, graphics, etc, then consider using freeware Open Source O/Ss.** The gaps between these O/Ss in performance, between Wintel, and now 'Mactel', are always steadily closing. Little if any Housekeeping is required, and any HDD, PC or portable, can be likewise used in any other appropriate system. **Pentium 4s can still be used**, although bundled drivers may not be more than basic for older systems, no such problem for newer systems, including for dual monitors.

**Consider that your computer system is a tool**, rather than an end in itself, just to own and admire, with no real-world gain for money spent, and thus, avoid pitfalls of blindly following marketing trends. Stay just off the crest of the marketing wave, do system pre-purchase research, plus, incorporate sensible computer management and usage patterns.

**For Linux users, see the Mini-Linux Factfile, via the main page.**

**For Apple Users, there are many Apple books and online forums which can be consulted**, so, these Apple comments file merely presents some initial common-sense tips, for new and average users. As well, only desktops and laptops, and relevant OSs, are discussed.

**Apple desktop and laptop systems hardware are now based on Wintel platforms**, which means easy transfer of skills for management, maintenance, and troubleshooting. The OSs are similar in layout to Linux, including Terminal Command line use, being based, in turn, on Unix. **The OSs are relatively cheap, but Apple hardware is expensive**, and Apple prefers that only their own OSs will run on these machines. Note that this rule can be circumvented, but, is best left to more expert users to practice. **The OSs are not licenced as MS OSs are**, but do have a cost, however, and just downloading a Mac OS iso, especially an older version, can be problematical, especially older versions, Apple itself does not help in this regard. **Apple OSs are, at present, 2015, variations on OS X.**

**Installing Mac OSs needs the correct disc for your model**, after which you can boot holding down the Alt key, with the disc installed, or, you can insert the OS disc while the system is running normally, and select the install option that way, if practicable.

**Apple computers and laptops come in just a few models**, so, hardware and software compatibility throughout the range is generally assured, 'integration' is thus the key descriptor. The systems are robust, but, only the newer A-type laptop models are relatively easy to disassemble. Sadly, the latest Retina models now revert to custom HDDs/SSDs, and RAM is soldered onto the system board. Similarly for Apple all-in-one systems. PC-style cases and contents are more straightforward, well, at present, anyway. **For the average user, access to battery, RAM, HDD, and CD/DVD is important, and Wintel models are thus much easier to work on, and recyclable, if you are that way inclined?**

**For Apple, the change to Wintel systems came 2006/7**, thus, OS install discs also reflect that change. For laptops the

change came between G3 iBooks, and Macbooks, so select the correct OS type and number for your particular system.

**Mac hardware diagnostics can be run by pressing 'D' at boot, Disk Utility** can be used to check the **HDD/SSD** when the system is running. **System Reporter** and **Onyx** can also be used, check for particular model numbers before downloading. Otherwise, plug to other systems to test as practicable. **On Older Macs**, HDDs and/or their ribbon cables were very common failures. **Memtest** will test memory while the system is running. Note that programs are downloaded and then run, recommend using the **Applications** folder, and to uninstall, just dump in the **Recycle Bin**.

**Note that Mac Oss recognise Fat32, the universal file system, so ensure this is used as drive formatting when swapping storage between MS, Apple, and Linux systems.**

**Note that the same physical handling rules apply for any Apple systems, that apply to all computer hardware**, viz, keep as cool as possible, do not jolt or drop while operating, (especially with HDDs installed), keep way from liquid spills, direct sunlight, avoid excessive EMF, and, ensure a steady mains electricity supply, where possible, etc.

**Apple systems now have problems with viruses and other malware**, thus **Sophos**(f) antivirus is recommended, as well as **Malwarebytes**, although be sure you have the genuine article of the latter. **Time Machine** can restore infected systems as well, but as for all Internet use, common-sense prevails, and supervision of minors, in other words, so, be always wary online, of what is searched, and/or clicked on....OK!

**Additional software** can be downloaded from the Apple App Store, plus other sources, but, is best left to advanced users, or, seek informed help as required.

**OS Updates can be manual or automatic, but are best allowed to proceed uninterrupted, as with any OS, to forestall being corrupted, and consequently causing problems even to the extent of clean booting failure.**

**Make sure that the system clock is set to the correct time before updates**

**Apple Oss defrag automatically, cleaning for speed does not involve file accumulation, but more streamlining operations**, as per following excerpts:

<http://osxdaily.com/2014/01/13/defrag-mac-hard-drive-necessary-or-not/>

<https://discussions.apple.com/thread/3642953> Kappy's Personal Suggestions for OS X Maintenance

Plus <https://discussions.apple.com/docs/DOC-4032> see also **Everyday Mac, How To Geek/Apple**

See also **Louis Rossmann**, via Google, for info re Apple systems

**Backup is needed, beyond the given system, or The Cloud**, and, a good quality platter external drive is still recommended. (WD Black or Blue HDDs, not Green.) **Note that SSDs usually fail catastrophically when they do fail**, and, are thus not recommended for long-term storage, similarly for flash drives.

**Store partitions** are not as easy to set up as for MS and Linux Oss, but, can be done by advanced users. Resizing partitions can be done with the OS disc, for more expert users. Cloning entire Mac drives is achievable with **Easeus Disk Clone**, (latest version of which includes SSDs), so, for the ultimate clean back-up, just swap the drives, update, and then reclone to another HDD/SSD to store.

**Running MS apps on Apple Systems, and vice-versa**, look for, and use, the respective equivalent native formats first, after which seek advice, virtual environment programs may need to be used.

## Notes re Choosing and Purchasing a Laptop:

To begin with, if you actually want value for money when computing, choose a PC, as in Big Beige Case, et al, optimum 17x17x7.5 in/43x43x19 cm minitower, if available, which can also be non-new, the reason being that the BBCase will have standard mountings for motherboards of various types and sizes, plus, the case can be 'modified' for front-end fittings, etc. Always use a good quality PSU, and years, even decades, of BBCase service are possible. Lots of add-on and hand-room inside, good cooling too.

However, if computing portability is required, then some sort of laptop purchase will need to be made, new or secondhand. But, note that the same 'error' was not made, re motherboard bases being standardised, in the construction of laptops. So, interchange of non-peripheral parts, except to some extent within actual brand ranges, is almost non-existent, thus, motherboard swapping cannot be done so easily, if at all. (This also applies to other portable devices such as 'smart' phones.)

This is then, in turn, a licence to print money for expedient manufacturers, re model 'changes' and 'upgrades', which can be just cosmetic, ensuring non-interchangability of most parts. This, coupled with consumer cupidity and 'designer' features, such as 'slimness', means that the practicality of portable computing is compromised, as well as useful life-span, plus, cost and waste are unnecessarily high. Ideal for sweatshop manufacturing to churn out even more questionable over-designed and engineered products at inflated prices..?

### First of all, slimness and 'beauty' really means:

- 1) The fragility of the case must be compensated for by more screws to confer rigidity, and, there now is a semi-monocoq trend away from utilising those handy detachable base-plates that would give ready access to RAM, HDD, and fan inspection/cleaning.
- 2) Motherboards and leads, connectors, etc, all become more fragile, cases become more cramped, cooling is more of an issue, and displays, hinges, are also more fragile.
- 3) **The point can be then legitimately made, that there is no such thing as a hot CPU**, rather, the laptop into which it is fitted has been poorly designed, especially as pertains cooling passages, vents, fan, etc. Plus, the smaller the enclosure, the closer in proximity to each other are the main heat-producing components, being CPU, GPU, HDD.
- 4) **Also re heat**, even the term 'laptop' conveys a poor description of ideal running conditions, laps are not places for booted laptops, of any description, nor are bedspreads, carpets, etc, rather, firm table-tops, hard-topped lap bean bags, are more suitable, as more heat build-up means more material stress, due to a greater range of expansion and contraction. **Always use temperature-measuring software, OK!**
- 5) **Bigger cases and fans also mean more efficient cooling**. Customer education for usage is thus important, including for HDD safety and health, bumps and strong vibrations should be avoided, as well as excess heat, although SSDs are now increasingly being used, with cooler operating temps, and, are not so susceptible to bump and vibration damage.
- 6) **If small and slim really means a tablet, or even just a smartfone, then do not buy a laptop.....especially if you just need to connect to the Internet whilst travelling..?**

### Secondly, points to look for, re laptop pre-purchase choice:

- 1) **Mainstream brands will be advisable**, especially those common in your own country, and/or, look for those compatible with your own domicile, and personal, requirements.
- 2) **New is not necessary**, especially if using Linux, and also, to avoid depreciation \$\$\$. **Check for obvious signs of ill-use, wear, lid-hinge stability, cracks, dusty fan and vents, etc. Do your own detailed laptop research pre-purchase, new, or used, OK!**
- 3) **Check online for respective CPU operating temps**, and, avoid small cases when these hotter CPUs are being used. Recheck temps again with pre-purchase running, the underside of the case should, at most, feel comfortably warm to the hand, whilst running at more than just idle speed. **Units with small, and over-occluded fan vents, should be avoided**, unless you consider 'renovation'..? **Do not cover the PSU pack whilst in use..!**
- 4) **Sensible, serviceable cases are optimum**, with handy detachable plates for convenience, which is also good for cooling, especially if a laptop is to be used on a desk or table in lieu of a PC. **Note that laptops can also be used as desktop PCs**, if external monitors, keyboards, and mouse are used, which means that the case can be opened up, fan vents also, (get out the tin-snips...?), remove case panels, run on a hard surface, raise the laptop for more space underneath, with extra rubber pads/feet, etc.
- 5) **Sensible, accessible layout, inside the case**, especially with the HDD spaced away from CPU, fan easily accessible for dis-assembly and cleaning, similarly for CD/DVD access. **This layout detail can also be checked via Google laptop breakdown links.**



- 6) **On/Off switches being sensibly located**, (inside the lid, optimally), that cannot be accidentally tripped, with casual or careless handling. Check the condition of the external PSU connection, and the PSU itself, plus check the battery life, if this is important, both for new and secondhand units.
- 7) **Externally-fitted batteries** that can be easily detached for storage, or, to prevent accidental overcharge on mains power, when not booted, etc. **Ask Google re optimal laptop battery health, OK!**
- 8) **Check all necessary connections**, USBs, monitor, card slots, wifi switches, CD/DCD, sundry other connections, etc, for presence, 'liveness', and, for suitability of purpose.
- 9) **More valuable units should have physical non-theft locking device(s) present**, but, any other hardware or software security is a personal choice, thus, do note, and remember, that software locks, and passwords, only keep honest people, and owners, out..? Anyway, purchase, and carry, **an external storage unit** of some kind, be it SD card, flash drive, or, external HDD, **always kept separate from the laptop.**
- 10) **Make sure any PSU pack is matched as being electrically optimal for the laptop: volts and polarity being correct, and, of quality manufacture, plus, higher amps and watts is OK, but, lower amps will mean that PSU and laptop will both run too hot, OK!**

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