

Nofrillstech's Mini Computer Beginner's Factfile

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System Optimization:

There are 5 steps to optimize system software health:

- 1) General File and Internet File cleaning, then File Check via the O/S facility, or, a custom File Checker
- 2) Registry cleaning
- 3) Defrag of HDD or Boot partition
- 4) Defrag Registry
- 5) Boot Defrag

There are 5 Guardians to optimize software protection:

- 1) Firewall
- 2) Antivirus
- 3) Anti-Adware/Anti-Spyware
- 4) Anti-Rootkits, and, in addition, keep them all current, plus:
- 5) **Always unplug/disconnect from the Internet during cleaning, or, when not required, for extra security...?**

There are 5 steps to optimize system protection for non-ruggedised systems:

- 1) Temperate and non-high-traffic ambient surroundings, with all leads and switches protected from disturbance
- 2) Clean Mains power, with surge protector(s), power conditioner, or preferably, a UPS, excluding laptops
- 3) Hardware monitor programs installed for temperatures, HDD health, etc
- 3) No floor-level deployment of any computer equipment, to minimize/avoid heavy dust accumulation
- 4) Regular quarterly(?) checks inside the case for dust removal, plus, replug all leads and cards concurrently
- 5) Avoid static/EMF contact, especially inside the case, turn off and unplug **ALL** systems in violent weather

There are 5 additional schedule steps:

- 1) Cleaning should be done weekly, or, just one or two steps per day, everyday, will achieve the same result
- 2) To check O/S health, perform Start/Run **sfc /scannow** monthly, with O/S disk/flash drive installed
- 3) Check for O/S updates, including Custom Updates, but only download from Custom what you **really** need
- 4) Backup Registry Files and Drivers regularly, keep these folders safe on separate drives, or a CD
- 5) Have boot partitions cloned, and preferably to a separate HDD, ready for dual-boot and/or re-cloning

There are 5 emergency steps to try before advanced problem-solving:

- 1) Task Manager, and check for non-responding programs, then Restart
- 2) Turn off and leave for 15 minutes, or, overnite is ideal, before restarting.
- 3) Restore Point, or, other Registry Backup utilised
- 4) F8 Start, then uninstall the problem program, or, rollback a problem driver
- 5) Complete clean and defrag as above, then File Check, via the O/S facility, or, a custom File Checker
- 6) Start/Run **sfc /scannow** or, Windows Repair as last resort, **before** complete clean and O/S reinstall
 - **Enclosed are program lists that can be consulted, relevant to the O/S installed, from 2000-Win7/Win10**
 - **RTFM, so, to do this, be sure to have current and relevant software and hardware manuals on your desk**
 - **For the full Beginner's Manual, with headings and additional details, consult <http://nofrillstech.net/>**
 - **ASK GOOGLE! There are many useful resources and answers Out There!**

The weekly housekeeping regime, depending on custom programs in use:

- 1) Delete all unwanted personal, (delete large files in batches, **do not choke the Recycle Bin**)
- 2) Install/de-install programs as required, preferably using a utility program
- 3) Empty Recycle Bin and Documents Shortcut File
- 4) Perform Internet Options deletions, remember Files, Objects, History, etc.
- 5) Perform any necessary back-ups at this stage, including reinstalling programs, **and data backup**
- 6) Run Guardians, **Avira, Ad-aware**, etc., and, Cleaners such as **Crap Cleaner, WinTools**, or similar
- 7) Empty Recycle Bin once more to be sure, and, do not use the Recycle Bin as a storage facility!
- 8) Perform **Scandisk/Checkdisk, Disk Cleanup and Defrag**
- 9) Keep Drivers back-ups, Registry backups, Custom programs, **and Microsoft Update**, all up to date

Important: Stay in Desktop to run housekeeping programs singly and consecutively, and **do not** concurrently open other files, programs or Windows, as there may be a clash, or even an inadvertent file corruption that will cause a malfunction, and loss of data. Not worth the risk to try this as a time saver. **Tidy your desk instead..?**

Seldom defragment solid state HDDs, including flash, for longer working life. There is finite life span for their memory cells, which are flashed repeatedly to effect data saving.

Custom Housekeeping programs examples:

Virus, Trojan Checkers	Avira, Avast , (f), viruses, trojans and spyware only
Adware, Spyware	Ad-Aware , Spybot , Threatfire , PopUpKiller , SpywareTerminator (f)
Firewall & Virtual Browsing	Avira , Sandboxie (f)
Cookies, Internet, etc.	Cookie Monster , CrapCleaner , StartPageGuard , (f)
Email Backup	Outlook Express Backup (f)
Online Email Checkers	Mailwasher Pro (\$)
RAM Monitor	FreeRam XPPro , Memory Booster , (f) NB, Low RAM overworks the Boot HDD!
Utilities (&/or)	RegSeeker , ERUNT/NTRegOpt , Auslogics Defrag , DustBuster , 360Amigo , Toolwiz , Advanced System Care , Glary Utilities (s/f); Wintools , Registry Mechanic (\$),
Drivers Backup	DriverWizard , DriverMax , Unknown Device identifier , WinDrvBackup (f),
System Analyst	SANDRA Lite , SIW (f), using Gadwin Printscreen (f) for easy printouts
Web Upload/Download	Filezilla, FreeDownloadManager , NetMeter , TCPOptimiser , (f)
File Zip/Recover/Find	IZarcFileUtility , FreeUndelete , SearchInformDesktopFree (f)
HTML	Kompozer (f), or such as Dreamweaver , Frontpage , (\$)
PDF	pdf995 (\$), PDFCreator , Adobe Reader , FoxitPDF , doPDF (f)
Audio-Visual	MediaPlayer 10/11 , QuickTime , (f), ask Google .
Burner	CDDVDBurnerXPPro

Also, remember that 32-bit and 64-bit systems will use corresponding Custom Programs, OK!

REGULARLY BACKUP YOUR OWN DATA!

Nofrillstech's Own Essential Programs List:

Avira virus checker, and, **AVG Anti-Rootkit**, **ZoneAlarm** Firewall, or, a less resource-hungry virus checker is **PCTools Free Antivirus**, similarly, a less resource-hungry firewall is **PCTools Free Firewall**, both quite effective

Ad-Aware Adware and Trojan checker, and, **Threatfire**, especially for rootkits

Firefox Browser and **Thunderbird** Email to avoid Microsoft-targeted online mischief-making

Wintools(\$), **EusingFRC(f)**, **Toolwiz**, for cleaning Files, Shortcuts, and Registry Entries, Startup, Uninstall, and also **TweakUI**

CrapCleaner for Internet Files, Applications, and some Registry Entries, plus Startup and Uninstall

Advanced System Care for extra Housekeeping and Security use, **SpeeditupFree** for system efficiency

DustBuster, **360Amigo**, **Toolwiz**, for advanced automatic file cleaning

Auslogics Defrag for speed, good graphic, and settings that include USB or other external drives, **Page Defragmenter** for boot-time defrag of System Files and Registry, (excluding **Vista/Win7** as of May 08, a custom (\$) program may be needed)

ERUNT for Registry Backup, and **Auslogics RegDefrag** for Registry Defrag

CheckDisk will do just that in Windows, and report, in lieu of a boot-time Windows File Check

Autostart and Process Viewer finds and displays just as it says

Driver Wizard for Driver ID and finding, also **WinDrvBackup** for Driver Backup

HDDHealth for HDD monitoring, **HDTune** for HDD analysis and checking, **CheckDisc** for file indexes

Rubber Ducky for a good real-time system function graphic, **Sensors View(\$)** for real-time system vital signs monitoring

SIW for quick system analysis details, **HWMonitor** for temperatures and voltages

IZarc File Utility or **Zip Genius**, handy file utilities, **Fences** for handy Desktop Icon control

Highly Commended:

Eusing Free Registry Cleaner, nearly as good as **Wintools** for the Registry

doPDF small and effective PDF maker, **PDFCreator** is larger, more technical

FreeUndelete for those deleted file recovery missions, **EasyUninstaller** for problem programs

Eraser when you really mean it; also includes the Boot HDD cleaner, **DBan**

HDDWipe/LLFormat cleans and/or wipes Slave HDDs in Windows, and, more effectively than O/S Reformats do

SyncBack for file and folder backups, **Gadwin Printscreen** for Desktops images

Sage Dictionary, **Vikrant's PC Glossary** for respective quick references

Mailwasher Pro(\$) for that very useful anti-spam bounce function

Google Toolbar now locks a Home Page, **TCPOptimiser** tweaks Internet bandwidth and speed

VLCMedia Player seems to work when not all others do..? **CDDVDBurnerXPro** for a good, all-purpose burner

PowerSuite BootDisk(\$), **Vista/Win7PE**, **BartPE**, **MiniPE**, **Hiren's BootCD**, via **ImageBurn**, all make useful boot disks for data retrieval and system repair and/or HDD/partition copying/imaging.

Add your own...?

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A Starter 32-bit Vista/Win7/Win10 Custom Software Suite:

Avira, PCTools Free Antivirus, PCTools Free Firewall, Ad-Aware, CrapCleaner, 360Amigo Threatfire, SuperUtilities(\$), Wintools(\$), Registry Mechanic(\$), Glary Utilities, RegSeeker, EusingFRCleaner, DustBuster, Advanced System Care, Auslogics Defrag, Auslogics RegDefrag, ERUNT/NTRegOpt, ImageBurn, FreeRam XPPro, HWMonitor, Sensors View(\$), Autostart and Process Viewer, HDDLife, HDTune, SIW, Driver Wizard, WinDrvBackup, HDDWipe/LLFormat, Rubber Ducky, Checkdisc, MagicJellybean Keyfinder, Actual Booster, CheckDisc, TCPOptimiser, Fences

Izarc File Utility, OpenOffice, Eraser, Kompozer, StripFile, doPDF, FoxitPDF, Filezilla, Gadwin Printscreen, Vikrant's PC Glossary, Sage Dictionary, SyncBack, Google Toolbar, Rubber Ducky, PowerSuite BootDisk(\$), MiniPE

VLCMedia Player, CDDVDBurnerXPPro, and, see also [FreeVista/Win7/Win10Files](#) for more Vista/Win7/Win10-compatible general software choices.

Note that Win O/S efficiency improvements, plus, ever-increasing system resources and performance, will tend to render this particular aspect of Housekeeping less of a priority, however, always have O/S images, clones, and/or Recovery Discs, up-to-date if using such Custom programs, regardless of their provenance and/or reputation. Also, remember that 32-bit and 64-bit systems will use corresponding Custom Programs, OK!

Two good tweaks that will increase Vista/Win7/Win10 speed are, **Disable/Stop of Superfetch, and, HDD Indexing Services, via Administrative Tools.** Also, turn off `hiberfil.sys` via `regedit` if hibernation is not needed, (Win7/10 HDD Indexing also turns off same as for XP.) **SpeeditupFree** does wonders for system efficiency. Win7 will have a Startup-tweaking facility to minimize the number of running programs that consume memory. Some Custom programs such **ASC** will also perform Registry Tweaks. Reputable computer magazines will also have dependable O/S tweaks. **Follow online tweak advice with caution, however, especially in relation to O/S Services.**

Great care is needed to turn off other Services, do so at your own risk, and, according to your own needs, there is plenty of advice in Google on the subject. Meanwhile, use effective cleaning and defragging programs to optimise system performance, accept Updates, and all should be well.

See also: **Windows 10 Bible**, Tidrow, Boyce, Schapiro, Wiley 2.....

For Linux users, See the Min-Linux Factfile, [via PDF and WORD](#) main page.

For Apple users, there are many Apple books and online forums which can be consulted, so, these few 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 SSDs 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**

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 used.

Portable Broadband USB modems are simple mobile phones that draw power from a computer, and thus connect wirelessly to the Internet, the best option for independence and portability within specified mobile signal range. This is the ultimate no-frills option for Internet access without fuss, and, unwanted or unnecessary hard-wired phone connections.

Finally, computers, O/Ss, and other software, are either all useful tools, or, just gadgets and gimmicks, thus, you will decide your own usage purposes.

Note also:

One motto and one maxim to observe, both most important for effective computer management:

Persevere, with Patience and Purpose, plus,

Those who do ask questions are fools for 5 minutes, but, those who will not are fools forever

(China Trad.)

The 5 Principal Computer Vulnerabilities to continually oversee and manage are:

Power, Cooling, Security, Housekeeping, and Backup.

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The Least You Must Know About Effective Computer Management:

A) To make it all so much easier:

- 1) Learn to touch-type, the only true computer and/or keyboard shortcut.
- 2) Alternating ambidextrous mouse use will alleviate fatigue, and prevent possible RSI.
- 3) Define (optimally) what you need to do, and thus, what you need to know to accomplish this.
- 4) Buy popular and reputable, buy new(ish), buy optimal, especially RAM.
- 5) Buy computer literature similarly; useful, but not too glossy.
- 6) RTFM when you have bought them, keep a log, and study just like in school, believe it!
- 7) Plan modest projects, learn in small steps, and take relevant computer classes if possible.
- 8) Keep a Computer Day Diary or log, organise Time, and both of your desktops.
- 9) Use sensible furniture, sensible time-spans, sensible exercise breaks.
- 10) Always pause/quit when you are ahead, as tiredness engenders problems.
- 11) Practice, and how much is needed, may depend on age and/or strength of purpose.
- 12) Observe default settings, and always make expendable data copies to edit and practice with.
- 13) Never needlessly tinker with Rash Uninstalls, Unknown Programs, DOS, or, Hidden Files, OK!
- 14) **Faultfinding and trialling always undertake in single, simple steps, and log your actions.**
- 15) **Regularly Save, use Restore Points or ERUNT, Back-up, Backup, Backup, VERIFY, and then Safe-Keep, OK!**
- 16) If you do not want to manage computer systems, then delegate and pay someone who will, or, \$\$\$!

B) For Beginners, also t.m.i.a.s.m.e. to decide on system purchase:

- 1) Experiment and practice wherever you can, before you buy, or, just buy very basic or second-hand systems. Save the big purchase until real work and/or extensive use of the Internet beckon.
- 2) If you want the Net only for email, or odd searches, just use the Library, or visit a friend; buying for the regular and optimal use of the Internet is a more serious financial step.
- 3) Sensible and useful Net communication is the ultimate use of a computer, and this already shapes our future, so do not spurn any opportunity to learn and experience the Net, even if you do not own or manage a personal computer, because there is so much, Net-wise, that is worthwhile, even if you just augment existing hobbies.
- 4) Take care with committing to Internet contracts, dialup or broadband, consider what is really needed, the durability and reputation of the service provider, and, any fine print re finance, cancellation, etc.

C) For Computer Operation and Management, once again t.m.i.a.s.m.e:

- 1) Take good physical care of your investment, CBMSF et passim, ie, give it A Good Home, and Good Housekeeping! A computer is not like a fridge that is bought, unread paperwork filed/lost, thermostat set, and then it chugs along for 25 years. For a computer, from the outset, the priority is to see that it is cared for and managed properly, because there is no either/or in this respect if you want to get your money's worth, and, optimal use of computer time. **The 5 Principal Computer Vulnerabilities to continually oversee are Power, Cooling, Security, Housekeeping, and Backup.**
- 2) **At the very least, install these programs in an Internet-ready computer:** virus checker, ad-ware checker, firewall, Temporary/Internet File cleaner, home-page lock, Registry cleaner, and email cleaner, update them all ad hoc, plus check regularly with **Microsoft Update**, and do not forget Removable Media checks.
- 3) Learn as diligently about hardware as you do software. Hone observation and pattern-recognition skills, especially of Desktop messages, as you work! **Observation aids record-keeping, which aids pattern recognition, which in turn aids problem solving, axioms applicable to all computer endeavours.**
- 4) **If you care about data integrity**, ensure that all HDDs are formatted to NTFS, including external drives, too, also important for Networking. Always use a custom program to perform an initial low-level HDD cleaning.
- 5) Have optimum RAM installed to ease the labour of the HDD, and **optimise software functions**. Download Internet updates in quieter hours, avoid static time online at peak hours, especially if the computer is unattended. Dial-up is slower than ADSL/Broadband, but it is cheaper, your IP address changes each time. Use an Internet Connection optimiser such as **TCPOptimiser** for improving either service. (See also **Beginner Business Computer**)
- 6) **Security programs** such as virus checkers and firewalls should be disabled for major O/S repairs or re-installations, and for housekeeping that involves installation and activation of special and/or new programs, enable these again

when all related tasks are completed. Always use Restore Points and backup options when Housekeeping, also ensuring all is well before deleting any of this stored backup.

7) Computer-related Backup should include drivers, O/Ss, custom programs, relevant emails, receipts, and Favourites, VERIFIED, and all for long-term safe-keeping, OK!

8) **Cleaning of CD/DVDs is best done by propyl alcohol on cotton wool, with outward strokes.** A short burst of fresh air through the open flap, and/or short insertion time of a correct cleaning disc, will suffice to keep CD/DVD drives and laser lenses clear of dust and debris, but check all disc surfaces before insertion. **Do not flex discs, or risk damaging the laminations, and thus jeopardizing disc readability! Faulty CD/DVD drives can halt POST at Startup!**

9) Consult your own computer records to aid professionals when their time and skills are needed; trial-and-error faultfinding are expensive, and strain relations, plus, knowing the right questions will also help, so do your homework. **Print your BIOS/CMOS settings directly from Setup; printer On+paper, hit Printscreen key.**

10) **Use a UPS/SPS, utilising power and phone line filters to protect that as well! To make things easier for the good professionals, computers should be enabled to run only when connected to a UPS/SPS, and when a full updated Security Suite is also in place, and believe it, OK!**

11) Peripherals need not necessarily be replaced if you just need a new motherboard/chip, bigger/extra IDE/SATA drives and/or a thermally-advantaged case, so consult if necessary! Vista/Win7 O/S use, however, may enforce Old Faithful program replacements, so, be warned. **If XP still does the job, then perhaps you do not really need Vista/Win7..?**

12) The First Minor Law Of Human Computer Logic is to RTFM, OK! Delegate wisely if you do not intend to RTFM, RTF Books, or, be otherwise interested or Hands-On, OK! To gain the right computing answers does mean knowing the right questions in the first place, and someone needs to be responsible!

13) If it ain't broke, don't 'fix' it, and/or use the system wisely in the first place, thus avoiding problems and crashes that would need fixing. Also, if it runs well do not clog it, and never rely solely on Recovery Procedures! **Faultfinding and trialling always should be undertaken undertake in single, simple steps, and log your actions!**

14) **Always SWITCH OFF MAINS POWER to systems before opening cases, and use sensible EMF/EMI/ESD/RFI prevention practices. Always disconnect from power and phone line during bad weather, or when not in use.**

15) **Use booted computers with cases closed and intact, where possible, to protect both system and operators from adverse effects of EMF/EMI. Cable networks rather than wireless are also advisable in high EMI environments. Note that the cheapest, most reliable, and secure network of all, is a clean USB or similar external drive.**

16) **Fit system fans and/or use ambient air conditioning, and also utilise 'thermally advantaged' system cases, ideally full towers, to counter system heat buildup.** The average system operating temperatures should be no more than mid-high 30s°C, CPU and HDD, for a PC, and for laptops allow another 5°C max. If more in either 'case', install fan cooling, ambient cooling, or, relocate, as applicable.

17) Computer problems may 'hide' behind each other, or, manifest similar symptoms, thus epitomising the influences of The Laws on such complex systems. Solutions, therefore, may range from simple and low-tech to complex and comprehensive, but, any analysis or remediation always requires patience, logical and orderly thinking, and, perseverance. Computer Faultfinding Motto: **Persevere, with Patience and Purpose, OK!**

18) **Windows Vista/Win7/Win10 Upgrade Advisor** will help with dependent decisions, and remember to factor in all ancillaries and peripherals when estimating prospective system requirements and resources for respective Vista/Win7 level matching. **But, optimal Vista/Win7 performance, with optimum drivers included, will take two years, after the 2008 launch, to effectively implement.** So, plan a wise and utilitarian Upgrade decision as/when necessary.

19) **The Ultimate Backup is a clean, original boot HDD or partition, updated and always ready to clone, with the scion being used for everyday purposes?** (There are technical reasons, to do with uninstalling and/or updating programs, which mandate keeping the original HDD as the main backup.) Vista/Win7 Business, Enterprise, and, Ultimate Versions, have a native **Complete PC Backup facility**, as well as **System Restore** and **Files and Folders**, which can all be accessed via the Backup and Restore Centre.

20) **Modern large HDDs should have multiple partitions for optimal performance and data deployment, and to confine the O/S working area. There should always be 20% free working space on any HDD, note.**

21) **Check BIOS/CMOS settings, especially on unknown systems, for optimised settings relating to CPU, RAM, and BUS speeds, also USB-enabling, PnP, boot order, quiet boot, etc. Consult if you need to, OK!** Note also that **Locked BIOS = EI Cheapo Computer** is a good Rule of Thumb, and means the CPU is already set to its operating limits.

22) **Note that some system adjustments, such as for ESCD, PnP, or RAM changes, are not effective without a proper 'cold' boot rather than just a 'warm' restart,** and, leaving the system to sit for an extra hour or two when dealing with persistent anomalies is also effective as 'current' electrical traces will eventually dissipate. With Reboot(s), the system will then rescan for any changes, and, **should** boot as normal, incorporating the desired settings. **Note 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.

23) Reseat, Restart, Reset, Restore, (as in Defaults, Registry, or Points!), Replace, Reinstall, Rerun, Repair, Replenish, (as in upgrade!), Refine, (as in using mains/phone filters and UPS/SPS power!), Recheck, even Reformat and/or Repartition, then Reinstall once again. The 12 Rs of System Recovery!

24) Bootable USB Drives: Whole customised O/Ss can now be loaded onto USB external and flash drives, given that the parent computer will boot to USB in BIOS, and, MiniPE, BartPE and Vista/Win7PE can also be loaded to a flash drive for emergency HDD data access. (See also [LiveUSB](#), [BootDisk](#), and [PCStats](#) re bootable USB drives, including for installation of OSs on USB drives) **Never defragment solid state HDDs, including flash, for longer working life.**

D) Some professional scams, and related factors, to be aware of:

Ram substitution will involve, for example, swapping into a system two older 256 Mb modules for a single 512 strip, because the 256Mb strip can then later be sold for a good profit. The system RAM is then harder to upgrade as a result, as the sockets are taken up with RAM that must be **completely** replaced.

RAM stripping means to remove the 'excess' RAM from a computer before re-sale, usually followed by reinstalling it in the same computer, often at the customer's request, following a costly 'offer' to 'boost RAM'. A '**net**' **RAM replacement**, (retaining the difference for expedient resale), rather than adding additional RAM, is another similar ploy. Always ascertain what optimum RAM incorporation is possible for your system, including the current modules, before extra RAM purchases are made.

Under-RAM means just that, especially in a new computer; do not bother with less than 4Gb in a new Win10-based computer, A good professional should advise you on the best computer capacity for projected use, but, **you** must also know what you really **need**, as opposed to just wanting.

Overclocking means to swap a smaller CPU for a larger CPU that can be re-sold, the smaller CPU is then over-clocked to run faster, in **your** computer, usually with deleterious results such as over-heating, damage, and program malfunction.

Unexplained lock-ups not attributable to viruses or trojans may be caused by software bugs inserted to 'time out' and manifest themselves sometime after a service or repair; aka **logic bombs**, naturally necessitating a return for more 'service'.

Not returning hardware after an unsuccessful driver 'search', ensuring yet another sale, at a later date, of the 'junk' so kindly 'disposed of' on the unwitting and trusting customer's behalf. **Actually, a driver search** is a handy way to test the integrity of a professional without endangering your entire system, or without outlaying too much cash, as well. Otherwise, ask Google if you are proficient enough to essay an online search, and there are also dedicated sites such as [DriversGuide.com](#), or, use [Driver Wizard](#).

Beware the default full reformat and reinstall that avoids attempting professional software problem-solving, especially if there is a driver or other software search; **usually done without further consultation**, and, too bad if you do not have back-up, although there can be a handy in-house charge imposed for that as well. **Modest system problem-solving efforts, at least, should be expected, and you, the computer owner/manager, are responsible for backing up your own data. Note that a full HDD or partition wipe and O/S re-installation still may be more cost effective than essaying major software problem-solving. An optimally partitioned HDD, or even better, cloned HDD or partition, are therefore very handy, OK!**

Not telling you that all computers **DO** need proper **Security and Housekeeping programs**, including for trash files, software health, and for cleaning the **Registry**, plus regular HDD checks and defragging, **including Registry defrag**. If these procedures are not regularly carried out, systems will slow down, there will be software problems, reformat and/or complete HDD clean-and-reinstalls will be needed sooner rather than later, and **you will pay** if you cannot do all or any of this yourself! **Extra RAM** is no sensible substitute for routine **Housekeeping!** **Prevention v. Cure, OK!**

Not providing appropriate original **O/S system and driver discs**, and also current, plus legitimate serial numbers; such standards apply to any other accompanying peripheral or installed program that should be thus supported.

Not providing a **coherent and sound warranty** that includes in clear terms, parts and labour, and duration, as well as any possible extent of financial liability. **The responsibilities of both buyer and seller at time of sale should also be explicitly stated. Caveat Emptor, Caveat Emptor, Caveat Emptor, OK!**

Not giving you the option, or, even the encouragement, to purchase a **UPS/SPS**, or even a basic power surge monitor to use with your computer, or even explaining why power and phone lines need appropriate electrical filters.

Always ensure that you record the relevant statistics of your computer via System or a system analyst before committing to an outside service or repair, and re-check when your computer is returned. RAM strips and their respective sizes, and, HDD/Optical Drive brands and specifications, must also be checked by sighting them inside the system case. Once again, having an IT professional handy whom you can trust implicitly is very important, so seek until you can find one! To repeat, **caveat emptor**, and knowing the right questions is also necessary before seeking the right answers! Do your own computer homework, or be sure delegate this responsibility effectively!

The worst example of professional misconduct so far, as witnessed by Nofrillstech, was RAM swapping in a blind man's computer by a supposedly respectable member of a certain NSW/Australian small-town business community.

The worst example of professional lying, no doubt in pursuit of possible profit, was an IT professional's 'special test' once carried out to prove that Nofrillstech's Notemaker 'had the wrong charge to ever touch computers'. Many computers since have been thus 'touched' by said Notemaker, with no ill-effects for either party, while just using sensible anti-static precautions..! IT service and repair should never be a just licence to print money..!

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

- 1) **Genuine O/S number**, 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/SSD. 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 Solid State 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 SSD management purposes**, so, consider these factors before buying SSDs, including the fact that 4th 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. **Consider also a spare cloned HDD for any computer**, kept up-to-date by USB enclosure use, and easily swapped when needed, the original drive can then be repaired or replaced. **Booting 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.
- 8) **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.

Care and Maintenance of Data:

1. **Never trust a computer and/or its HDD, and, never solely rely on either for data safety, including USB flash drives.**
2. **Use an external HDD for data storage, (conventional, with platters, not SSD), even use more than one, and store separately for safety, plus, never leave permanently connected to the system, thus wearing them even when not used directly.**
3. **USB flash drives are useful interim storage, but have finite lives, (as do Solid State Drives), so if used often, should be replaced yearly or so, especially if left plugged in. Do not unplug flash drives without 'permission' from the O/S, if this is required. Do not defrag any solid state drive, USB or otherwise, as this shortens their working life.**
4. **Create additional store partitions on your HDD, separate to the boot partition, so that data can be saved if the boot partition fails, and the HDD needed to be piggy-backed.**

5. Shift the boot partition to a less-used part of the HDD, this will require cloning. The wear on the HDD is thus spread, and you will extend the life of the HDD as a result. Also, confining the space within which the O/S runs will promote efficiency, and thus operational speed, especially with MS O/Ss.

6. Use a SMART program, or native Disk Utility, to check HDD Smart, especially if the HDD has some age. If a new HDD does not fail within 3 months of use, it should last OK up to 5-6 years, start any SMART observations at least after 3 years for all critical systems, eg, business. SSDs also have SMART, note. Useful for fast booting.

7. Run regular file checks on any system, to keep file systems in order, which will also ultimately protect data integrity, forestalling corruption and possible data loss. This will include storage drives.

8. CD/DVD storage must be under ideal conditions, cool, dry, stacked flat or vertical, etc, they will last a decade or so, if not used regularly. Platter drives are best or long-term, not SSDs. Every few years you should transfer any data to new media anyway. Cloud Storage is an additional option. Hard copy should always be monitored for any deterioration.

9. Always conserve file originals, with clear names and dates, as backups, especially if using more than one Office-style program, note that fonts, bold, colour, and also font sizes can be affected when switching from one program to another

10. Children **MUST** be carefully and patiently taught software and computer care, plus, it is strongly recommended that there always be a separate computer for them to use, away from adult personal or business systems.

Optimise Computer Software:

1. Limit Startup folder to only those programs necessary to run the computer, and/or turn off those not immediately necessary.

2. Un-install any unused or unnecessary software.

4. Use an external HDD, or, another partition on the system HDD, to store and run movies, games, etc. Take care that any downloads of this nature are directed to this separate storage.

5. Use Housekeeping programs as applicable, and do full system Housekeeping regularly. Defrag the registry as well as general files in the Boot Partition. Empty the Recycle Bin, do not use this as a file store..!

6. Shift as much personal data as possible to an external drive, as above, and then delete these folders/files from the Boot partition. Similarly, empty the Downloads folder as necessary, also, store the wanted downloads on external storage.

7. Turn off any unused concurrent running programs in the Taskbar, and, do not strain the system resources with too many simultaneously open Windows of any kind, be they folders, files, or programs, etc.

8. When browsing on the Internet, be careful of what you click on, and, when downloading or installing programs, again be careful of what you click on, read the message windows as they appear, which will avoid unwanted cookies, adware, browser helpers, etc. Block automatic outside access, via the firewall, to installed programs that do not require this.

9. Keep your Internet Guardians up to date, and run regular checks with them.

10. Children **MUST** be carefully and patiently taught software and computer care, plus, it is recommended that there always be a separate computer for them to use, away from adult personal or business systems.

Care and Maintenance of Drivers:

1) Drivers are modules of software that enable the hardware and software of a system to communicate and interact with each other. They are often specific to a particular O/S, as well as to the actual hardware components themselves, including chipsets and peripherals.

2) If present and functioning properly within a booted system, drivers should be saved and stored securely, using a driver-saving program such as **DoubleDriver**, in case repair or replacement is necessary at any stage of the working life of that system. Use of a CD/DVD for storage and deployment is recommended, as the system will search for drivers automatically within this type of media, as required, whereas, storage on other media will require a specific location search to be made for driver installation and/or update to be effective..

3) When drivers are required, they can be found online by different means, tho starting with the motherboard brand website is firstly recommended, providing specific motherboard and chipset data. Peripherals drivers can be similarly found at brand websites, otherwise recourse to sites such as PCI Vendor may be necessary, especially if the drivers are not particularly new, and thus, no longer found on brand websites. A properly descriptive entry in Google search may also bring good results.

- 4) Beware of third-party attempts to inveigle money or personal details from you, in return for driver downloads, they can be ignored, unless the driver is extremely rare, and, not obtainable by normal means. Also check that what you do download is really the driver sought, and not some scam third-party software, all too common on the contemporary internet, sadly.
- 5) Hardware and driver details, including PCI_VEN numbers, can be provided by system analysis programs such as **SIW**, also via O/S Hardware Properties, which gives the PCI_VEN details, as well as the option to rollback incompatible drivers if this is required. Note that reboots are often required after installation, and, turning off the system and leaving it to have a cup of coffee, will then enable flushing of the RAM, which may be necessary for completion of a successful driver upgrade.
- 6) Note that driver-finding and updating programs, which usually cost money, may not provide accurate matching, or, valid drivers that are supposedly required, with attendant difficulties ensuing from incompatibility. So, 'if it is not broke, then do not fix it' without a very good reason for doing so, as serious driver incompatibility may prevent successful booting, which will then necessitate O/S Repair, and all that this requires.
- 5) Drivers that are not installed automatically should be installed manually, from within Program Files, to avoid clutter and confusion in C: drive, just another example of good system housekeeping practice.
- 6) Note that a BIOS/CMOS upgrade is an advanced form of driver upgrade, relating to motherboard hardware and vintage, that is best left to experts, if even really necessary, as such an upgrade that is unsuccessful, will mean an unbootable system, requiring recourse to technical skills and knowledge to remediate. Once again, **'if it is not broke, then do not try to fix it', OK..!**

Finally, if you do not want to know any or all of these facts, and/or perform the steps involved, then, be prepared to pay the full professional price, OK!

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Win 10 Management Notes

Nofrillstech recently went delving into Win 10, to see what changes were to be found, and realised that XP was not far below the surface. So, a short note on managing Win 10 follows, to do with cleaning, defragging, et al, tho other program usage is all about heuristics...nothing changes in that respect. More relevant notes can be found in the **Computer Management Files** on the main **PDF and WORD Page**.

See also **Windows 10 Bible**, Tidrow, Boyce, Schapiro, Wiley 2015>

Re basic Win 10 tweaks, go to **Control Panel**:

Turn off **Indexing**, (stops this always running in the background),

Settings/System Properties Turn off **Remote Access**, (security step, trust your IT dept does not require this), and,

Settings/System Properties/Visual Effects/Performance/Best Performance, all squares unticked.

(All of these are reachable via **Search**, as well)

Plus, install **Toolwiz**, for file and Registry cleaning/defrag, et al, also turns off some unwanted Services...never had any problems with this program, run once per week, interesting to check out various aspects as well. You will notice an immediate speed improvement, tho also note that, after any Defrag, a couple of boots may needed to get the OS to run optimally, this always being the case, as Win re-deploys System files and Directories. **Use Optimise via the Win10 Defrag**.

Note that **defrag does not apply in the case of SSDs**, make sure that is never happening. Win 7, and above, should automatically take care of this, **viz, SSDs need TRIM to free up/overwrite vacant space on the drive**.

Bleachbit is a handy cleaner, complementary to **Toolwiz**, tho leave Passwords, Memory, Diskwipe, and RAM unticked, the rest should be OK.

To get rid of the new Index, install **Classic Shell**, if needed, then the system will look and feel more like XP again.

To dig deeper re turning off Win 10 Services:

<http://www.askvg.com/beginners-guide-to-configure-windows-10-services/> ...and, there are many other refs via Google, depending on how keen you are. Some of these links also deal with Win 10 Bloatware. **Fast Win 10 systems should not actually need any more tweaks, up to you...?**

Re installation and validation: Win 10 will install, boot, and run, including updating, installing ancillary programs, drivers, et al, and, the unvalidated drive OS will be swappable, from one system to another, which would be useful for finding the best system match, and for cloning purposes.

Existing validation codes may then be utilised, from Win 7 and above, tho, be sure to install the version that matches the label code chosen. However, **actual validation will then match that installation to a particular system**.

<https://www.howtogeek.com/266072/you-can-still-get-windows-10-for-free-with-a-windows-7-8-or-8.1-key/>

If needed: [fix-windows-10-startup-problems](#), plus, reinstallation and updates are simpler and faster, currently.

Note that Win10 OS is quite resilient, so, also look for hardware problems like failing HDD/SSD, RAM, DVD, et al.

For the full Computer Beginner's Management Survival Factfiles, with extra headings and additional details, including workshop and troubleshooting, consult the main page.

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