

## Crib Sheet on Data Safety and Security:

- 1) **Hard copy versus digital copy backup is a simple paradox**, in that hard copy is bulkier, especially with numbers of copies, with quality storage space and portability needed, whereas digital means copies ad lib, relatively little 'space' needed, portability easy, given clean electricity, good hardware, plus, no mistakes or glitches. Duplication may suffice for **hard-copy**, given storage space, at minimum 2 locations, versus **safeguarding virtual data, needing little space, though more locations needed**. Plus, always with the mantra **'if not backed up 3x, then not backed up at all'** ruling your choices, plus, **with reliable and secure destinations also chosen. Virtual copying and backup will now be considered** in this Crib Sheet.
- 2) **There are data safety and security concerns, including for back-up**, viz, safety at your own repository, (as was for hard both copy, now for virtual copy), plus, being secure elsewhere, which means, safe and secure physical storage and transport, and security regarding online interference, theft, hacking, etc. **Any online activity, and/or data storage, is entirely at your own risk**, whatever the repository, for obvious reasons, and is thus not considered here. **Check your firewall, and regularly update and run your virus checker. (Dual systems, work/data, and online, also an option..?)**
- 3) **Disconnect from the Internet when copying data, and/or backing up**, also, when cleaning software, given that updating has been completed. In all cases, given that your system has a UPS, or a good battery if a laptop is in use, **dedicate system resources to either task, to be sure**, so glitches do not occur due to power and/or performance problems. **Note also, that copper Internet access is a power-surge hazard, another reason to disconnect during back-up, see below.**
- 4) **Disconnect backup/storage HD drives when not required**, plus, **handle and store carefully**, they will last longer, **especially being HD platter drives**, and also, will avoid being compromised during normal work or Internet use, **especially as 'always online' is by default these days. Do not disturb HD platter drives in any way, during use..! Be gentle also, with HD connection and disconnection, re spinning platters.**
- 5) CD/DVDs, flash drives, and HDDs, are all hardware possibilities for virtual copy backup, and physical storage. **Note that SSDs are not suitable for long-term storage**, as they need electricity to charge internal capacitors at least thrice a year. **Flash drives are never completely reliable**, plus, also needing periodic electrification, like SSDs. **All drives, whether for backup or not, need clean, dry, cool, stable, storage conditions** when not in use, and that also includes CD/DVD discs....a fireproof safe being an optimal backup storage repository for all, in this regard.
- 6) **Backups are best done offline for security reasons**, plus, without other programs running that may interfere, and/or consume too much power, such as burning discs, switching on laser printers, or using other heavy power consumers, especially when on the same circuit. **If only one circuit is available, eg, student bedsit, always switch on such heavy power users first, before booting your computer. Thus, also be careful with using heaters and electric kettles, note.**
- 7) **HDDs/SSDs in enclosures, and portable CD/DVD burners**, used for backing up data, **should have their own dedicated USB connection**, not just connected via an external USB port, **and the backup should proceed hands-off, especially important with lower-resourced systems.**
- 8) **Copper Internet access is always a potential power surge hazard, utilise an optical fibre option or wifi, if possible**. Also, if thunderstorms are imminent, switch off all electronics, and your mains power, until the hazard is past. **Fire and electrical faults, including power fluctuations, are foremost domestic and (SOHO) office safety hazards**, then comes the self-inflicted, such as spills, careless handling, children, pets, personal forgetfulness, et al....
- 9) **Note that a UPS is a must** if you care about electronic health and performance. Laptops have a battery, but, using them without a battery should be via a UPS, note, **especially if the laptop is always on. Internal laptop batteries thus should be disconnected as well. No laptop with a connected battery should be on permanent charge, for safety reasons!** Note, however, that **UPSs are no match for lightning strikes**, so, regardless of your computing or other current domestic activities, if possible, **cut all mains power before thunderstorms strike**. Your TV, electronic phones, et al, will also benefit!
- 10) **If your computer and/or laptop systems are ever compromised, physically or virtually, and, given you have clean backup, then reinstall your operating system(s) forthwith..! (For mobiles, do a factory reset.)** Serious physical electronic damage, such as resulting from a power surge, brownout, or lightning, may mean expensive replacement of parts, such as PSUs, HDDs/SSDs, disc drives, and even complete motherboards, **if you do not heed warnings about lightning strikes and/or unfiltered mains power.**