

Computer Backup 2016

- Why should we back up our data and/or computer?
 - The best protection against malware damage is a frequent backup.
 - Multiple staggered backups on separate media provide the most protection.
 - The most recommended Backup rule is the 3:2:1 backup.
 - Maintain 3 backups.
 - Back up to at least 2 different media
 - Such as two separate external drives.
 - Or an external drive and DVDs.
 - Or an external drive, and back up data only to Flash (thumb) drive, etc.
 - Have 1 backup offsite (Elsewhere), such as in the **cloud**.
 - So disaster to the computer or device doesn't also include destruction or loss of the backup.
 - **At least one local backup should not be constantly attached**, thus avoiding susceptibility to zero-day infection or encryption-based malware.
 - Drive image software, such as Windows System image or Acronis True image backups (TIB format) **previously** avoided encryption.
 - **But now** some ransomware **DELETES tib and bak files**.
 - Further protection means at least one backup is stored "off-site".
- Two types of Backup
 - Data only (**File and Folder**, and perhaps some settings) backups.
 - Most common.
 - Stores backups as copies of the files and folders.
 - Restore of the system requires first restoring Windows and Programs manually, using original discs or factory images.
 - Then performing all Windows and Programs updates.
 - Finally copying back the data to all its various folders.
 - This part may be automated by backup software.
 - Capable of using smaller storage devices or less online storage.
 - Requires usually considerable effort and manual involvement to complete the process.
 - Time to full recovery may requires several hours to days.
 - Disk imaging
 - The entire hard drive or a particular drive letter is stored compressed in its entirety.
 - Downside: Requires considerably more storage space.
 - Upside: Recovery of the system restores operating system and programs, including data all as one process.
 - Much faster recovery to functionality.

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- Devices for Back up storage:
 - DVD or Double-density DVD require constant manual attention.
 - Handles both data and drive image backups.
 - Each DVD holds only 4 GB or 8 GB respectively.
 - Thus must be present to switch DVDs when instructed.
 - Relatively **slow writing to DVD**.
 - Quality of DVD may dictate duration of viability of data.
 - Media not reusable (technically).
 - Common Flash drive
 - Good primarily only for data backups.
 - Expensive 128 GB and 256 GB flash drives are available.
 - External hard drive
 - Most common device for backup.
 - Relatively inexpensive per GB.
 - Good for both data and drive image backups.
 - Install a second internal hard drive
 - Primarily only an option for desktop computers.
 - Downside: Not removable to avoid encryption malware.
 - Back up to the Cloud.
 - Require signing up or subscribing.
 - Most cloud sites offer small amount of storage (2-5 GB) free.
 - Dropbox
 - Google drive
 - OneDrive
 - iCloud (used mostly for Apple devices) but Windows users can also subscribe.
 - More space requires paid subscription.
 - Prices vary.
 - Subscription to Office 365 includes 1 TB of storage.
 - Most back up sites provide backup programs.
 - Such as Carbonite and Mozy
 - Most backup programs offer cloud storage.
 - Some cloud storage included in the price of software subscription.
 - Such as Acronis or Norton

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- **What is the CLOUD?**
 - The Cloud is simply another term for the Internet.
 - "Cloud" computing for instance refers to the use of programs offered on the web rather than your own computer.
 - Such as Microsoft Office online, Google docs. Or similar.
 - Much software is now offered as annual or monthly subscriptions versus outright purchase.
 - Such as Office 365, Adobe Creative Cloud programs.
 - The cloud when referred to as storage, is simply put a folder managed by you, but on the Internet.
 - It is used by your computer as any other folder.
 - However, because of restrictions in Internet connection,
 - Is somewhat slow for saving or copying extremely large files.
 - Advantage: Files (or folders) can be made available to other individuals, some, or all.
 - Called "sharing".
 - You have sharing settings on each.
- Windows Backup tools are under Control Panel.
 - Windows 8 and 10, it is File History.
 - File History backs up Data., including versions of repeatedly saved files.
 - Does not automatically create drive image.
 - To create a disk image, under File History, use the System Image Backup link (lower left).
 - Then Create System Image.
 - Here you can also use a Windows 7 style Backup and Restore if desired.
 - Windows 7 has Backup and Restore.
 - By default, Windows 7 backs up data and also an occasional drive image.
 - But does not store multiple versions of files.

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- Acronis True Image
 - Drive imaging software.
 - Acronis has simplified the interface.
 - Setting up Acronis:
 - Merely open Acronis and choose Backup (top icon, if not already open) to create a backup task.
 - Or to create additional backup tasks, click on the Plus sign at the bottom.
 - The backup task name is in the upper left pane, just type to change it.
 - It is set to back up Entire PC.
 - Entire PC chooses always the primary hard drive and all its partitions (drive letters) needed to recover.
 - Click on the Entire PC box to "change" (or view) the source.
 - Then choose Disks... or Files and Folders to be selective.
 - Click on Destination and choose the storage device to be used.
 - Choose one of the displayed destinations, or choose Browse.
 - This is what the file will be labeled initially.
 - This by default sets up a backup which repeats weekly.
 - It does incremental backups from then on.

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- To choose the Options desired:
 - Select the backup task (if more than one) and then the Options button (at the bottom).
 - Here it shows "weekly", the time and the day it is to occur.
 - Click the day desired.
 - If different, click the current day listed to turn off the backup on that day.
 - Change the time of day using the arrows.
 - The up arrow is later; the down arrow is earlier.
 - Now look at the Backup scheme (next tab).
 - It is initially listed as Incremental scheme.
 - Use the drop-down arrow to change it.
 - Notice the **Which scheme to choose** link for help choosing.
 - Next see the Backup method.
 - It also reads Incremental.
 - Again change it using the drop-down menu.
 - Notice the **Difference between methods** link for help choosing.
 - Notice just below Backup method is a radio button in Create a full version after every 5 incremental versions.
 - This can consume your external hard drive and eventually lead to failure due to drive being full.
 - Choose **Turn on automatic cleanup**.
 - Automatic cleanup offers to remove earlier backups.
 - Deleting version chains older than 7 days is the default.
 - Change based on size of destination drive.
 - Also note the **Do not delete the first version of the backup** check box, if you wish to keep one original backup.
 - Such as a pristine backup while everything was working optimally.
 - Once done viewing or changing options, click OK.
 - True image 2015 required a clicking a Save button.
 - You can choose Back up now, or the drop-down to delay the task.

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- Difference between backup methods Incremental, Differential, and Full:
 - Incremental
 - After an initial Full backup, incremental backups record only the changes occurring since the previous backup whether full or incremental.
 - Thus to recover you need both the initial Full backup file plus ALL incremental backup files.
 - Incremental files are smaller, but
 - You may have numerous (by default, five) incremental files.
 - Should a single one of those files become corrupted the entire recovery fails.
 - Advantage:
 - Incremental backups are faster.
 - Incremental files allow recovering individual lost files based on date of incremental file creation.
 - Differential
 - Again, after an initial Full backup, ALL changes which have occurred since the original Full backup are recorded.
 - Thus there is always only one Full, and one differential file.
 - And both are needed for a successful recovery.
 - Advantage:
 - Only one Differential file is needed for recovery.
 - Disadvantage:
 - Backup takes longer when days away from Full backup.
 - Cannot go to a single day's file backup to recover a specific version.
 - Full
 - Each time the backup occurs it creates a Full backup.
 - Full backups require the most time to complete.
 - Advantage
 - Only a single file is needed for recovery.

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- Other Acronis task Options
 - Notifications
 - Set email notifications of the process.
 - Exclusions
 - Unless you know a lot about them, do not change from the default.
 - Advanced
 - Allows you to require a password to open.
 - Manually decide how whether a backup file should be split into smaller portions.
 - Acronis automatically decides by default.
- Other Acronis tools
 - Clone Disk
 - Use if you purchase new larger disk.
 - Cannot clone to a smaller disk.
 - Rescue Media builder
 - Create a bootable CD, DVD or USB drive to recover.
 - More tools
 - Drive Cleanser
 - Securely wipes the hard drive.
 - System Cleanup
 - Wipes traces of Windows activity and wipes all disk free space
 - May have had files copied to these areas and then deleted but not erased.

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- Some possibly needed file locations
 - WLM
 - Mail and accounts location by default (unless changed by user):
 - *C:\Users\username\AppData\Local\Microsoft\Windows Live Mail*
 - Save the entire Windows Live Mail folder.
 - Restoring simply needs replacing this copied file with the newly created folder during reinstalling Windows Live Mail, and then re-providing passwords for account(s) first time mail is retrieved.
 - Contacts and Categories (groups) list is stored:
 - First requires showing hidden system files in File Explorer's View ribbon, Options button and then View tab.
 - *C:\Users\username\AppData\Local\Microsoft\Windows Live\Contacts\Default\ 15.5\DBStore* as an **contacts.ebd** file.
 - Replacing this after reinstall returns all contacts and groups.
 - Message rule backup:
 - Open the Registry Editor and go to the *Hkey Current_User\Software\Microsoft\Windows Live Mail\Rules\Mail*
 - Then export that Mail key by either right-clicking on mail,
 - Or clicking Mail and then going to File menu | Export.
 - AOL
 - Personal filing cabinet is stored in the organize folder at:
 - *C:\ProgramData\AOL\C_AOL Desktop 9.8.2\organize*
 - Save the organize folder and then replace it when AOL Desktop is reinstalled.