

How to Backup Your Computer

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Agenda

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Why Backup?

- You have accumulated data
 - Pictures
 - Videos
 - Documents
 - Music
 - Financial Records
- You could lose it all
 - Computer Malfunction
 - Fire / Theft / Coffee Spill
 - Virus / Malware



What is a Backup?

- A copy of your digital files
 - My Documents
 - My Music
 - My Pictures
 - My Videos
 - My Bookmarks
 - Software you use (Purchased or Free)
 - Operating Systems
- Computer, SD Cards, Smart phone, Tablet



Location of your Backup

- Local Machine Backup
 - On Same computer
 - Even on same Hard drive
- External Drive Backup
 - Manual or Automatic
 - Hard Drive, USB Thumb Drives
- Cloud Based Backup
 - Manual or Automatic
 - Free / Fee



Same Machine Backup

- Pros

- Fast to recover
- Better than nothing
- Cheap

- Cons

- Single point of Failure, if hard drive fails, all data is gone
- Reliant on Operating system, if it fails, gets a virus, data could be gone
- Single Location – Fire / Theft / Coffee spill
- Not Easily expandable

External Device Backup



- Can be an external drive, network attached storage or another drive on your computer
- Pros
 - If operating system crashes, data is safe
 - Reasonably fast backup
 - Expandable
 - Portable
 - Potential for redundancy
 - Backup software (if used) handles backup automatically

External Drive Backup

- Cons
 - More Expensive
 - Potential single location problem
 - External device can also fail
 - Not easily expanded on single device



Cloud Based Backup



- Copies of your Files are stored in the Cloud
 - Free or Fee or Combination
- Pros
 - Off site location means protection from local disaster
 - Backups are independent of your system Hardware / Software
 - Backup Software can handle backup automatically
 - No worry about Hardware failure
 - Easily Expandable
 - May allow for on line collaborative document editing

Cloud Based Backup



- Cons
 - Uploading takes a long time
 - Uploading takes bandwidth on your internet provider
 - Free plans are available but limited
 - Can use multiple sites but YOU must manage what data is backed up where
 - Service plans get more expensive as your needs grow
 - Reliance on an external company to **secure** your data
 - Potential for chosen company to go out of business

Current Data versus Archive Data



- Your Computer Hard Drive has a finite capacity
- When your files exceed your hard drive capacity
 - Clean Up
 - Buy more capacity
 - Decide what you need available all the time on your hard drive
 - Archive what you only refer to occasionally.
 - External Drive(s)
 - Cloud

A Backup Strategy



- Any Backup Strategy is better than none
- There are drawbacks to just using one technique
- Best Practice: 3-2-1 Strategy
 - Have at least 3 copies of your data
 - 2 local (ie in your home) and one remote
 - One copy is on your hard drive
 - One copy on an external device but kept locally
 - One copy is off site

Offsite Backup Alternatives

- Cloud Based Backup
- External Drive stored away from your home
 - Safety Deposit Box at a Bank
 - Vacation home
 - Family Member or Friend's Home
 - Work place



What Files to Backup?



- Everything
 - All Operating System Files, Installed Software and Data
 - Can recover from a full hard drive failure
 - Hard Drive Data and Archive Data
- All Data Files
 - Pictures, Documents, Videos, Music, Financial Data
 - Useful for moving to a new Computer
- Selected Files
 - Those which are the most important to you.

Structure of your Backup?



- Full Backup
 - All Files
 - Snapshot at any point in time
- Differential Backup
 - Copies what has changed since last Full Backup
 - Need the Differential Backup plus Full Backup to fully restore
- Incremental Backup
 - Only backup files that changed since last backup
 - Keep older versions of your files as well as the current version
 - Requires a separate Disk (either on your computer or external)
 - Need all Incremental Backups plus Full Backup to fully restore

External Hard Drive Backup Software



- Incremental Backup software
 - Automatically searches for changed files and backs them up
 - Prevents accidental erasure or change
 - Keeps old versions of the same file
 - Can adjust Frequency, What files to backup, storage location, encryption and compression
 - Fee or Free versions come with varying options
 - Examples: Time Machine, File History, EaseUS Todo, Cobian, Paragon, Fbackup
 - <http://www.techradar.com/news/the-best-free-pc-backup-software>
 - <https://www.lifewire.com/free-backup-software-tools-2617964>

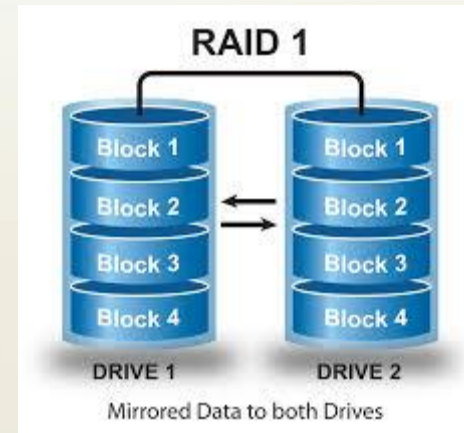
External Drive Backup

- External Hard Drive
 - Various Sizes are Available
 - Buy big to accommodate your current hard drive plus archive data
 - Generally USB attached
 - USB 3 port is 10 times faster than USB 2.
 - May be Network attached
 - Ethernet cable attached to your computer or Wi-Fi attached.
 - Within your home
 - Can be out of site
 - Can be shared with your family members
 - May be accessed remotely



How to Protect External Drive Data

- External Hard Drives can fail
- Data Redundancy provides protection against data loss
- RAID 1 drives can provide mirroring
 - Redundant Array of Inexpensive (or independent) Disks
 - Replication of data to 2 drives
 - Seamlessly and simultaneously
 - Can be USB or Network attached
 - Drives are removable
 - May come with Backup Software



Cloud Backup 1



- External Hard Drives you access through the internet
- Cloud Storage and Synching Services
 - Synch a folder and sub folders to the cloud
 - Free space offered with fee based upgrade options
 - Can have multiple free accounts but your data is scattered
 - Data is often encrypted
 - Data is Accessible from anywhere
 - Examples: Box, Dropbox, Google Drive, OneDrive, SugarSynch, iCloud
 - Google Drive has biggest free file size of 15 GB

<https://www.pcmag.com/roundup/306323/the-best-cloud-storage-providers-and-file-syncing-services>

Cloud Backup 2



- On Line Backup Services
 - Scan your computer for worthy files to backup or you choose files
 - Encrypt the files and send them to the cloud
 - Can choose the schedule to backup or continuous
 - Incremental backup
 - Examples: iDrive, Backblaze, Carbonite, Norton On Line Backup
 - The Best Online Backup Services for 2018 (PC Mag)
 - <https://www.pcmag.com/article2/0,2817,2288745,00.asp>

SD Card Backup

- Digital Cameras use SD Cards
- Insert SD Card into Computer SD Card Reader
- Open Folder
- DCIM Folder contains all Pictures
 - May be stored in subfolders by month
- Copy pictures to PC / MAC or to an External Drive
 - Drag and Drop



Mobile Device Backup - Apple



- Apple Products iPhone, iPad, iPod
 - iTunes will back up all your files automatically to PC or Mac
 - iCloud backs up Contacts, Calendar, Photos, Apps
 - 5 Gig Free,
 - Fee based offerings
 - Can backup everything to the cloud nightly
 - Photos can be manually downloaded when USB attached
 - iPhone / iPad looks like an external device
 - Open folder until you find DCIM
 - Photos and Videos are located in this file
 - Drag and Drop onto your PC or Mac.

Mobile Device Backup – Android

- Manual
 - Connect device to your PC
 - Open File and Access all your files
 - Drag and Drop to a file your PC
 - Tip: Date the file folder so you know how old the data is
- Use Google to backup some of your files
 - Contacts, Calendar, App Data, Wi-Fi Passwords (NOT Photos, Videos)
 - Gmail users can have Google automatically backup photos and videos
- Use Software for Automatic Backup
- <https://www.androidauthority.com/best-android-backup-apps-and-other-ways-too-608014/>



How to Get Started

- Review what data is important to you
- Make 2 copies of that important data
- Review your needs for backup for on going changes to your data
- Review the tools you might need
- Acquire the hardware and software you need
- Sign up for services
- Learn the Software or Service you acquire
- Set up the Frequency of backup
- Ensure you have an off site option



Questions?