Files and Folders Generic

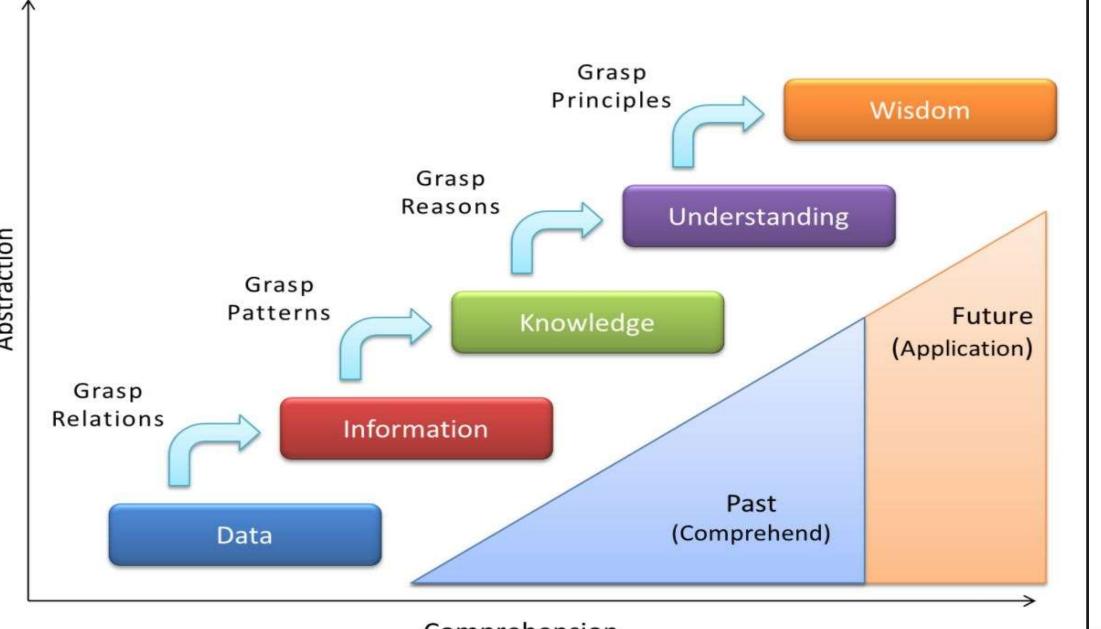
Sun City Computer Club Seminar

John Jenkinson

 To view and listen to the MP4 file of this seminar click on the link below:

https://vimeo.com/706248474

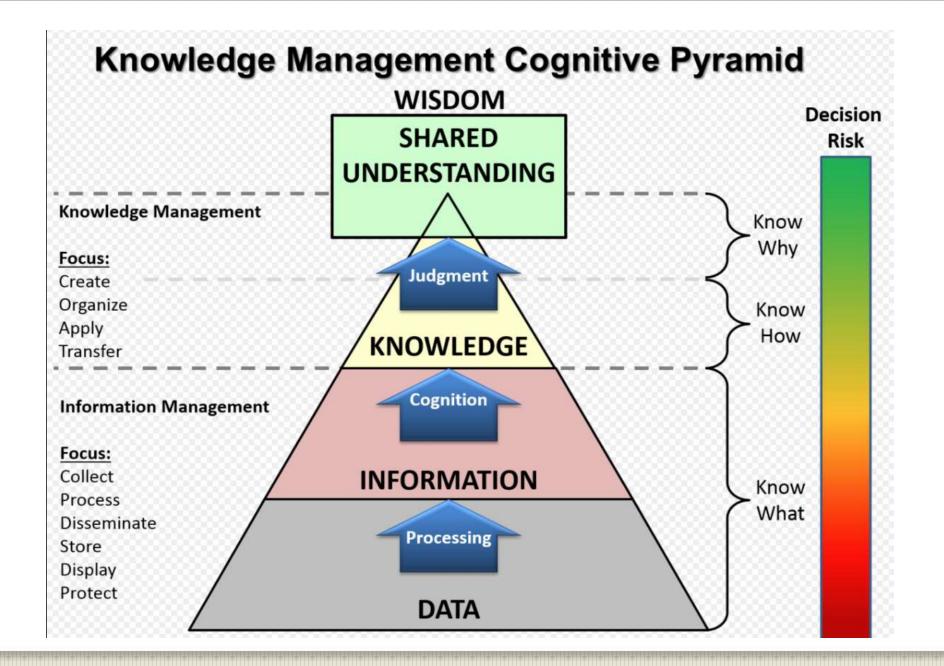




Comprehension

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Abstraction







N 0 /

• Pre 1950s

Room sized, single program, relatively small memory, no disks

- 1st generation 1940s -> 1958 relays, tubes (valves)
- 2nd generation 1959 -> 1964 transistor
- 3rd generation 1965 -> 1970 Integrated circuits
- 4th generation 1971 microprocessors, multi core
- 5th generation Artificial Intelligence, machine learning, ???

Computer History

Relative Computer Hierarchy

- Network 1Gb/sec
- Offline storage 60 MB/sec
- Disk 2 GB/sec
- Memory 10 GB/sec
- Cache 100 GB/sec
- Register 1 CPU cycle

-1-2-3-4 Steganography Hash Symmetric Asymmetric

cryptography

-1-2-3-4 Algorithm Key •Plain text Cypher text

cryptography

One way Fixed length output Any length input Message digests •E.g. MD2, MD4, MD5, SHA-1, SHA-2 Used for integrity, digital signing & passphrases has

- Plain text, algorithm, key, cypher text
- Algorithm usually public
- Key space is important
- Reversible with the one key
- Does not scale
- E.g. RC4,SEAL DES,3DES,RC5,Rijndael
- One-time pad
- Cryptanalysis
- Control

symmetric

- Public & private key
- Intractable problem
- Symmetric key exchange in presence of advisory
- Thousands of times slower
- E.g. RSA, El Gamal, ECC
- Public key distributed and verified via Digital Certificate
- Signing via digital signature

Asymmetric

Confidentiality Integrity Authentication Non-Repudiation



- Banking until blockchain
- Ledger vs. transaction
- Distributed ledger peer review verified by chain and cryptography
- Timestamp, transaction data
- Growing chain with a limit
- World wide
- Permanent
- Untraceable ?
- Mining
- Many other uses in addition to currency good and bad

Digital Currency

Digital transformation Revolution, Evolution, Devolution?

- Library of Alexandria
- School Research Methods
 Library card catalog, Note cards, Typewriters, Copy Machines

Audio

gramophone, Records, cassette, CDs, Napster, Spotify,

Photos

Photo plates, film, Polaroid, smartphones

Our Files and Folders History



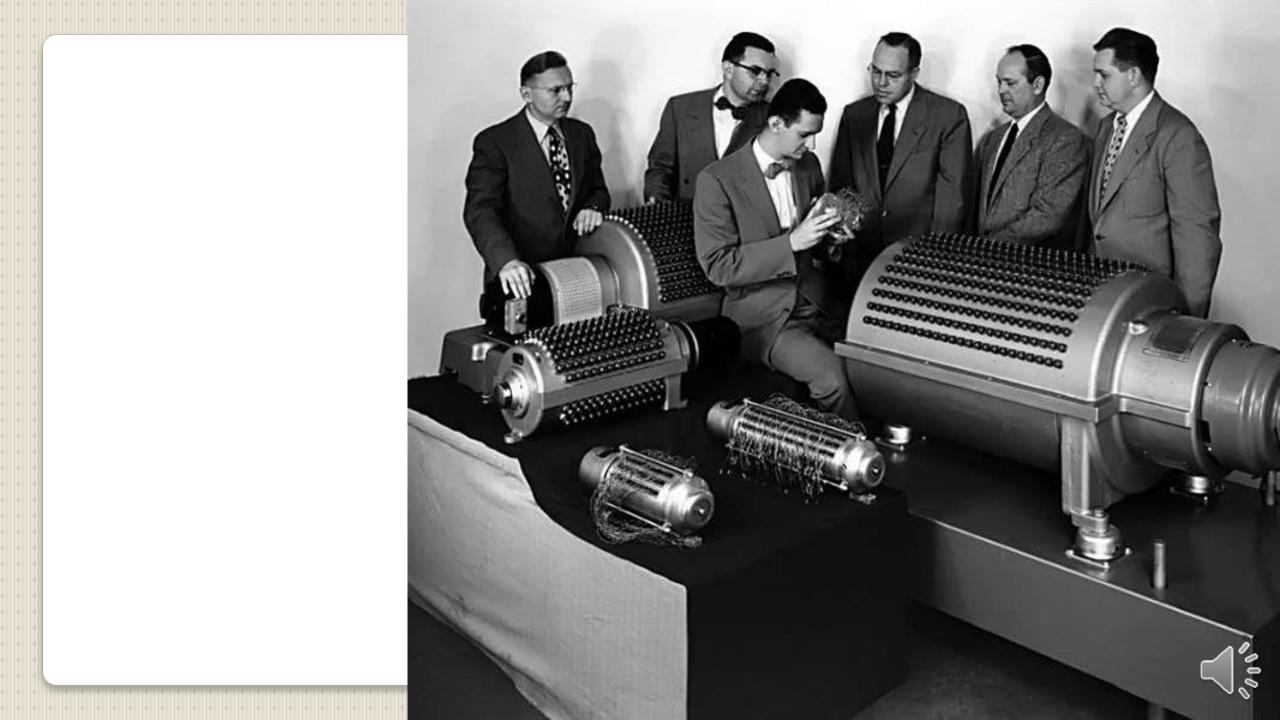
5 MB then 62,500 cards 4-day load

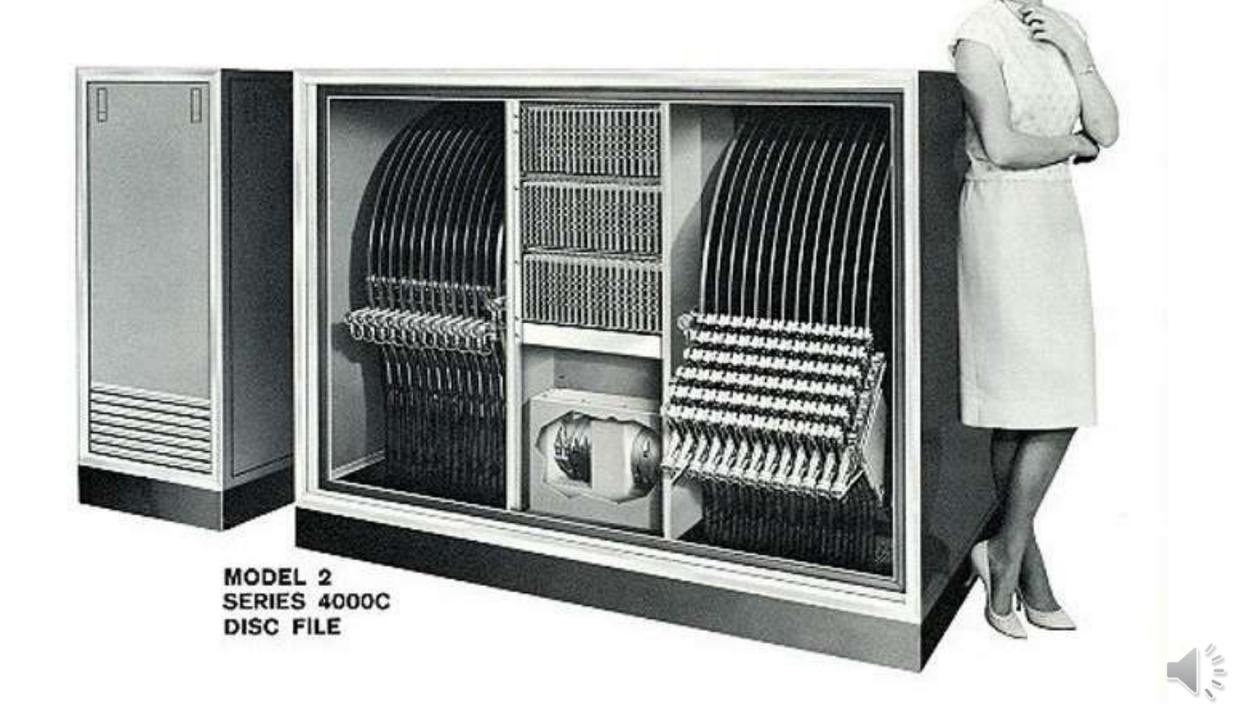
 ≥ 0

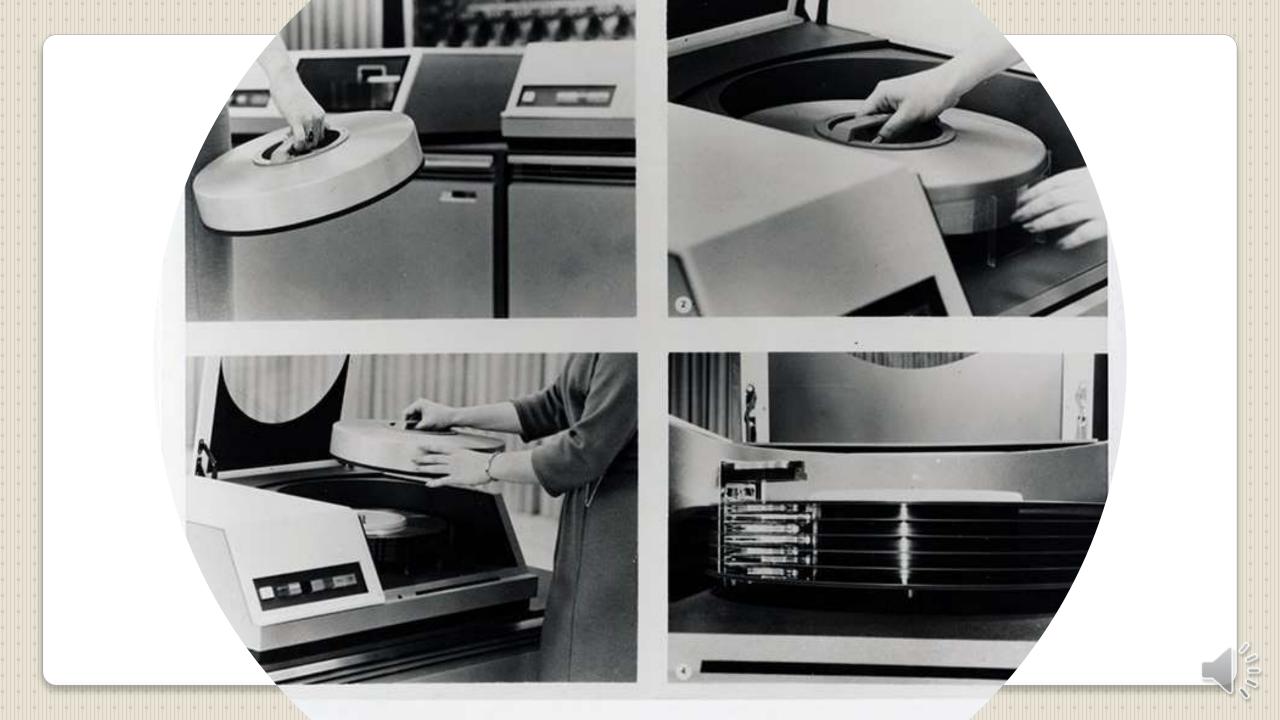
Digital Encoding

More and More with Less and Less





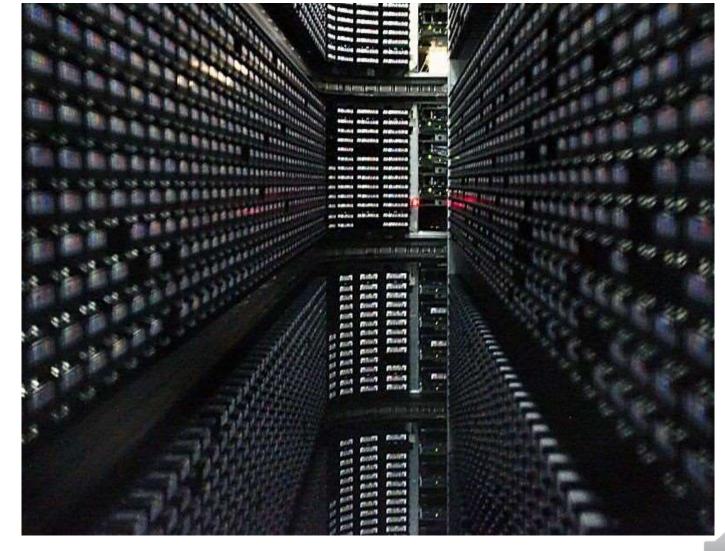




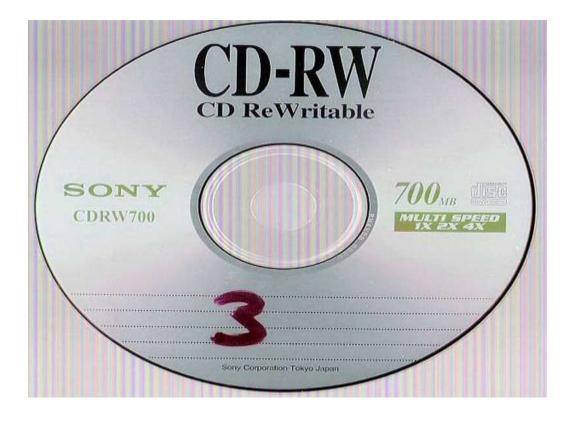


















Storage Devices

- Block oriented 512-byte blocks 4096-byte sectors
- Memory bit/byte addressable
- Storage devices block addressable
- Block 0 to maximum block capacity

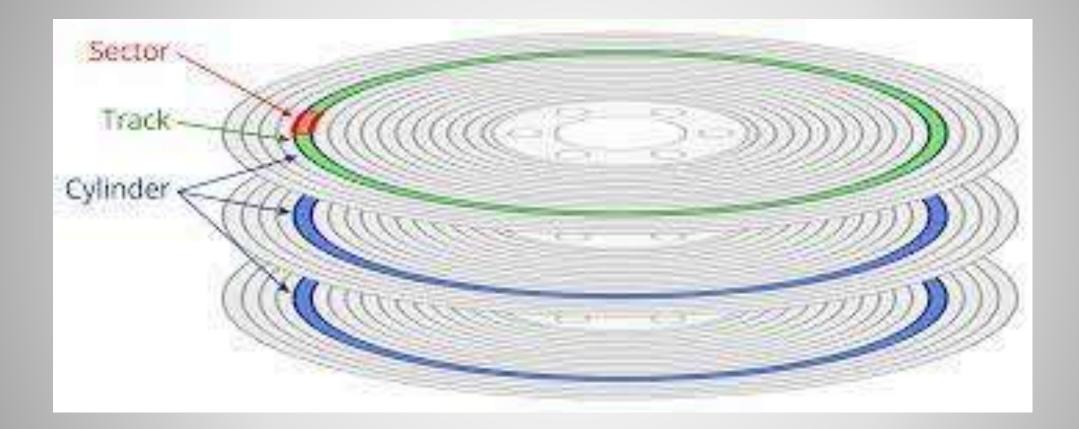


Hard disk drive example





Magnetic Disk (Disc) Mechanical



Hard Drive Disk

Hard Disk Drive Issues

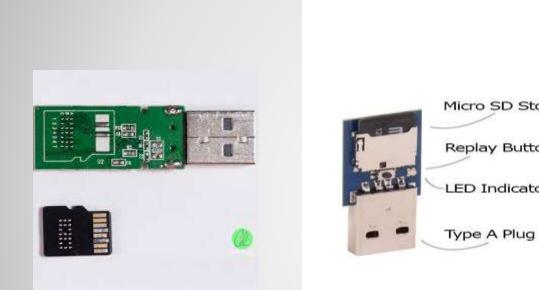
- Block oriented
- Logical block number -> Cylinder + Track + Sector
- Latency Rotational delay + Head select + head settle + transfer
- Head settle
- Head crash
- Spin up Spin down (head "parking") Spinning
- Speed rotational delay
- Size
- Power consumption
- Noise
- Geometry inner cylinders vs. outer cylinders
- Transfer rates 140MB/s
- Fragmentation
- Bad Blocks static vs Dynamic
- Head flying needs fluid

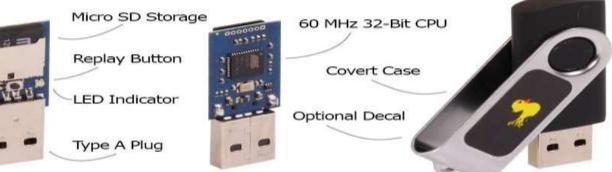
- Durability and resistance
- Random Access block
- Small
- Less power consumption

Shape

Solid State Disk Advantages

Disadvantages
 Capacitive storage
 Less "real" capacity





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Semiconductor Disk

Formatting Each block labeled Servo tracking Magnetic domains – vertical vs. horizontal Encoding - avoid bit bleed

How to find my data

Filesystem

- Translation from bits to data
- Speed vs. Security
- Size, Complexity, ...
- How & where files (and folders/directories) are located
- Data about data Metadata
- Permissions Ownership Encryption
- Volumes split or join
- Microsoft FAT32 ExFAT NTFS
- Apple HFS+ APFS
- Linux Ext2 Ext3 Ext4

• Bit 0 or 1

- Nibble 4 bits 16 values One Hex value
- Byte 8 bits 256 values ASCII EBCDIC
- Unicode and multibyte encoding
- 16 bits 65,536
- 32 bits 4GiB
- 64 bits 18 quintillion



I asked what time it was, you told me how to build a watch

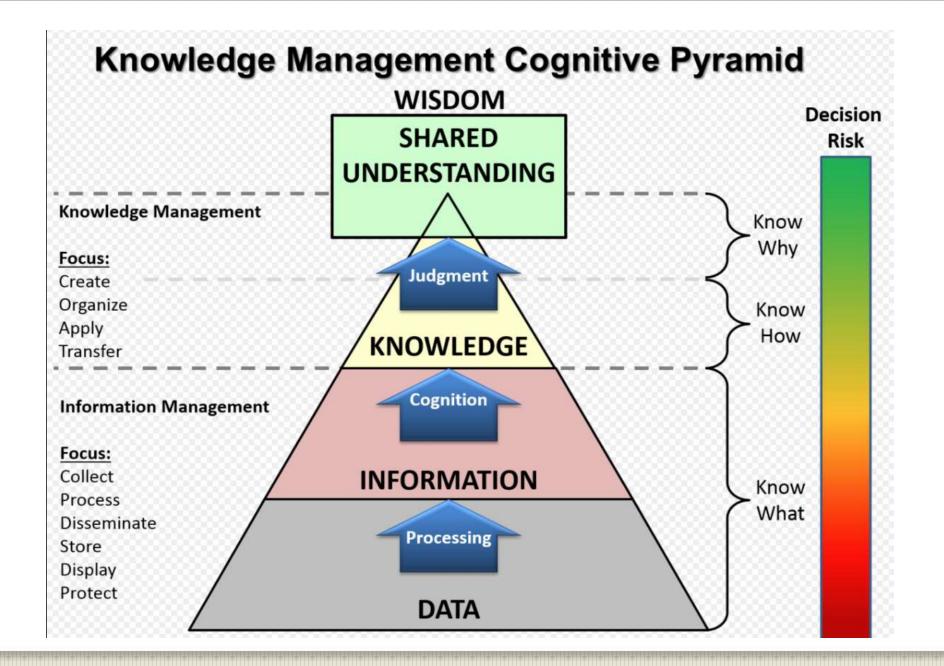


- Personal Computers
- Printers and Faxes
- Digital Cameras
- Smart phones & tablets
- Garman
- Black Boxes
- CCTVs

Files and Folders Any/Everywhere

Data Centers, Cloud, Big Data, Internet

Data in your files, folders, volumes,



File Systems

- Folders Directories Files of Files
- Files contain data
- Data text, music, videos, movies, any/everything
- Solve the disconnect

Smart device -> Music, messages, maps, etc. -> the one I want

Name/type/date/

- GUI
- Point and click
- Drag and drop
- Double tap
- Mouse
- Touch Screen
- Pencil Pointing Device
- Gaze & focus
- Keyboard

Graphical User Interface

Filesystem

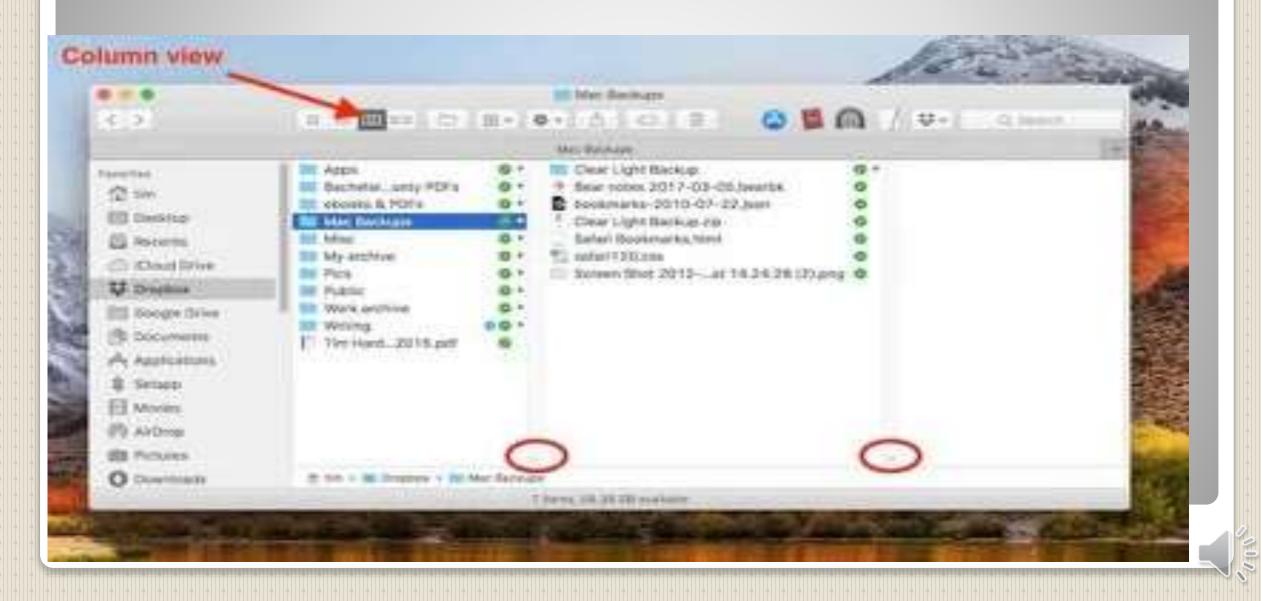
- Our history Files, Folders, File cabinets
- Logical Filesystem User interface Open, Read, Close, Delete
- Virtual Filesystem Volumes, Shares, Cloud, USB, cameras, Network
- Physical Device Drivers

Filesystem

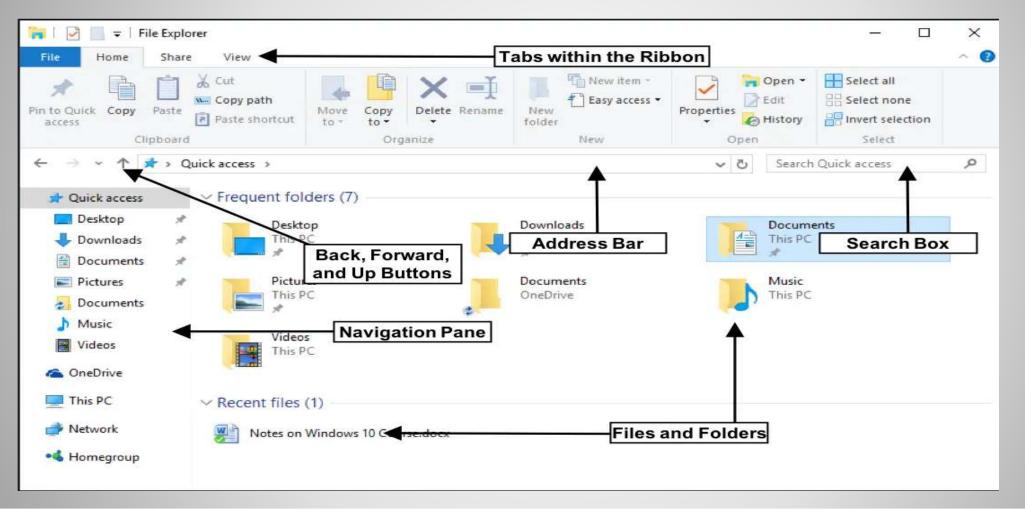
- Space Management
- File Names
- Folders / Directories
- Metadata
- Extensions
- Utilities
- Granting/Denying Access
- Integrity
- Your "stuff"
- The "Path" Volumes

* * # Home					Q ≡ ::: ♦ Ø
Places					
P Recent	Aadhar Card	Android Games	backup	bin	Binary
🖻 Home	Addital Card	Android Games	Баскар	bin	Binary
Desktop					
Documents	crossroads-2.74	daily	Desktop	Documents	Downloads
Downloads					
Music					
Pictures	ffmpeg usage	firefox	games	img	Jammu- SrinagarTrip
🗑 Trash					
Devices					
	JustDial	katoolin-master	Linux-ISO	LinuxSay.com	Linux-Tricks
Windows8_OS	Business Contacts - Proj				
LRS_ESP					
Computer			J		
Bookmarks	Movies	MultiCD	Music	Music-Player	netdata
Videos					

Linux Filesystem GUI



Windows File Explorer



<u>https://www.youtube.com/results?search_query=files+and+folder</u> <u>s+macmost</u>

2019

September 2019 - macOS Catalina

May 2019 - Roloud Considerations

April 2019 - Photo Project Extension Apps

Marith 2015 - Markapa

February 2019 - Cyber Security

January 2019 - Some New Things in Mojave

2018

Neversiber 2018 - Some Little Estras

October 2018 - Numbers, A Powerful Spreadsheet

September 2018 - Majave macOS 10.14 - IPs Coming!

May 2018 - Mac Do's & Dan's

April 2018 - Miscellaneous Tips

March 2018 - Fun With Provinw

February 2018 - Using Markup For Image Files

Jemuery 2018 - Serves Sector Benics.

2017

November 2017 - IOS 11's Dock on the iPad

September 2017 - macmost.com - Great Video Help Online

June 2017 - Phillip Pensabene's ICloud Presentation

April 2017 Printing Your David Photos

January 2012- URLs

2016

Nov - Time Machine

Clot - macOS Bierra 10.12

Simple - Hudga, Huslan, Huslan, Hinday



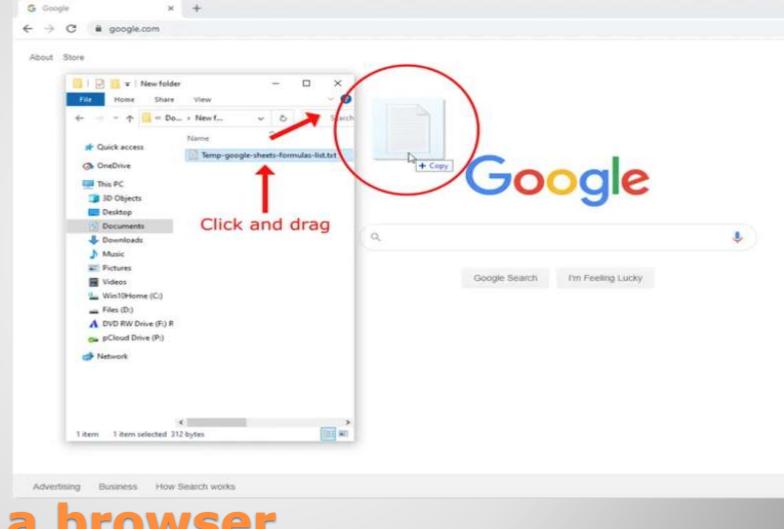
macOS Finder

< > Project Files

 How files & folders displayed icons lists columns gallery

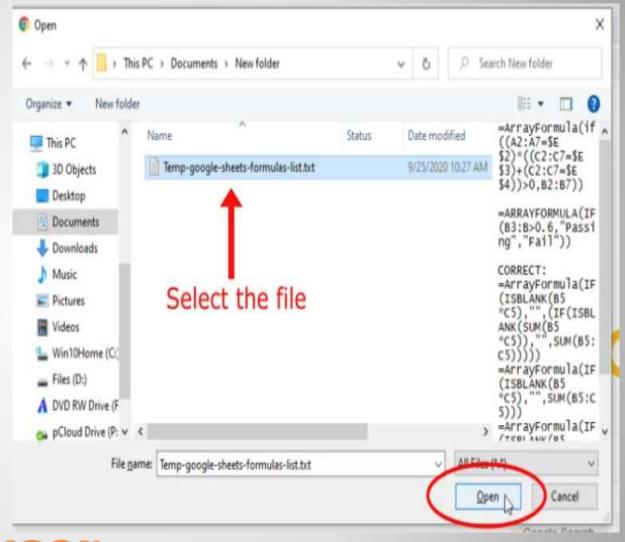
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Drag + Drop



View file in a browser

Browser "Open"
CTRL + O - Windows
CMD + O Mac



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View file in a browser

Use address barProvide path name

Solution×+-⊥×←→C①FileC:/☆CDicognito (2):GSafe Browsing - Go...amass - Automate...©Microsoft Patch Tue...>

Index of C:\

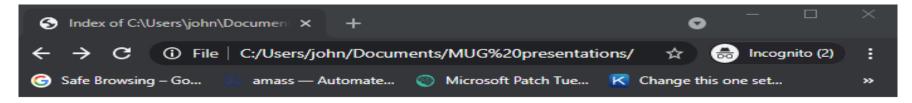
Name	Size	Date Modified
SRECYCLE.BIN/		2/16/18, 4:03:02 PM
SWINDOWS.~BT/		1/31/21, 1:22:26 PM
SWindows.~WS/		1/31/21, 1:38:35 PM
SWinREAgent/		10/27/20, 6:02:33 PM
AdwCleaner/		11/28/19, 11:42:45 AM
Config.Msi/		4/29/21, 8:06:28 AM
Documents and Settings/		2/15/18, 11:28:38 AM
ESD/		1/31/21, 2:02:47 PM
hp/		2/15/18, 10:56:11 AM
inetpub/		8/5/20, 7:03:43 PM
Intel/		4/29/21, 8:03:09 AM
OneDriveTemp/		12/16/20, 1:34:58 PM
opal/		7/31/19, 1:58:21 PM
PerfLogs/		12/7/19, 3:14:52 AM
Program Files/		4/28/21, 2:20:33 PM
Program Files (x86)/		2/22/21, 11:47:05 AM
ProgramData/		2/22/21, 11:47:05 AM
Recovery/		8/5/20, 4:20:04 PM
SWSetup/		2/15/18, 11:24:16 AM
System Volume Information/		5/1/21, 5:08:30 PM
SYSTEM.SAV/		2/15/18, 11:32:41 AM
Users/		8/11/20, 1:15:16 PM
Windows/		4/29/21, 7:59:30 AM
DumpStack.log.tmp	8.0 kB	4/29/21, 8:01:57 AM
🗋 hiberfil.sys	6.4 GB	4/29/21, 8:01:48 AM
pagefile.sys	1.5 GB	5/8/21, 12:13:40 AM
scan.out	591 kB	7/7/20, 10:19:37 AM
swapfile.sys	272 MB	5/2/21, 3:27:49 PM

Open file in browser

Unique location in filesystem
Volume Directory Subdirectory(s) File

Volume Folder Subfolder(s) File

What is a file path name



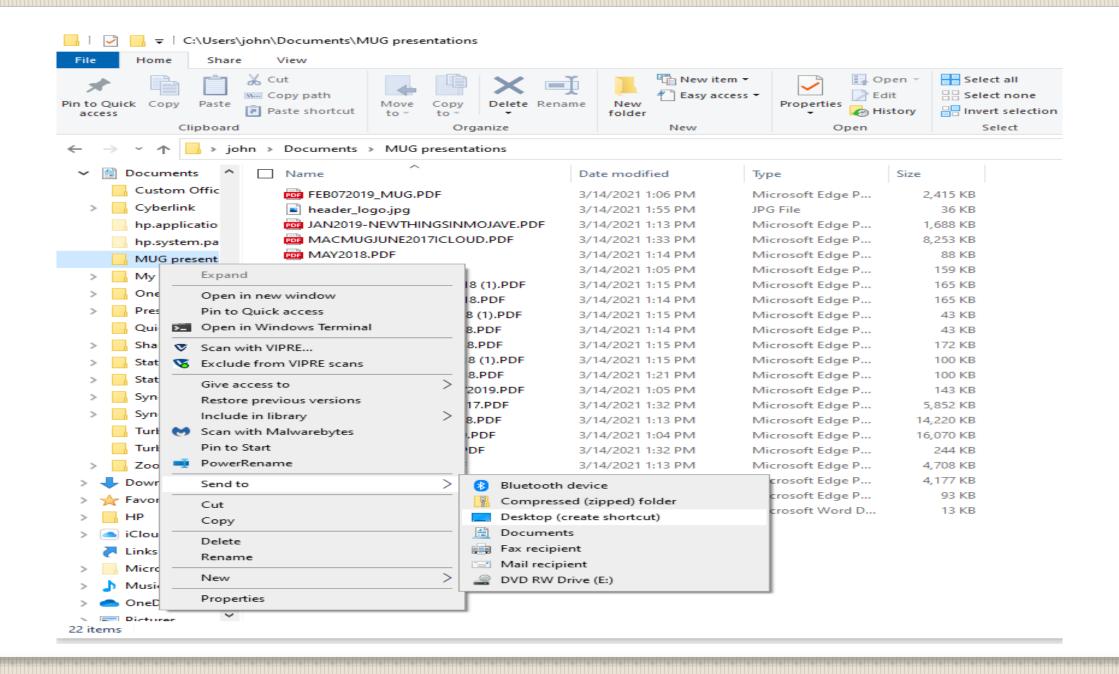
Index of C:\Users\john\Documents\MUG presentat

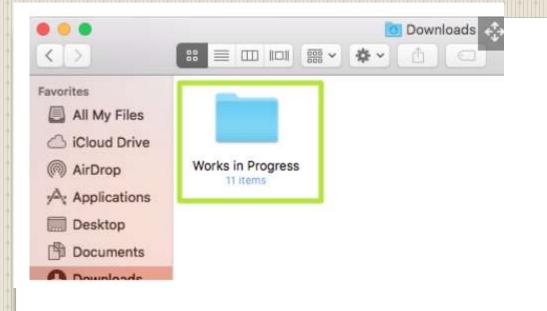
▶ 8

[parent directory]

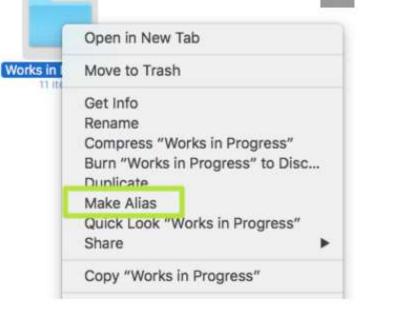
- 1 C

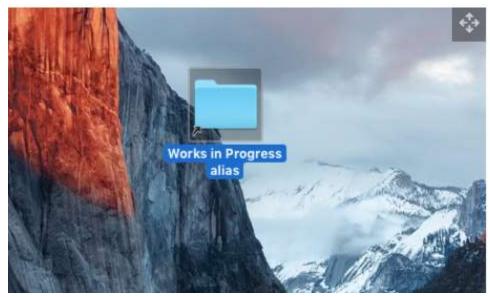
Name	Size	Date Modified
FEB072019_MUG.PDF	2.4 MB	3/14/21, 1:06:02 PM
header_logo.jpg	36.0 kB	3/14/21, 1:55:01 PM
JAN2019-NEWTHINGSINMOJAVE.PDF	1.6 MB	3/14/21, 1:13:02 PM
MACMUGJUNE2017ICLOUD.PDF	8.1 MB	3/14/21, 1:33:42 PM
MAY2018.PDF	87.4 kB	3/14/21, 1:14:03 PM
MAY2019.PDF	158 kB	3/14/21, 1:05:16 PM
MEETING-NOTES-APR2018 (1).PDF	164 kB	3/14/21, 1:15:02 PM
MEETING-NOTES-APR2018.PDF	164 kB	3/14/21, 1:14:16 PM
MEETING-NOTES-FEB2018 (1).PDF	42.5 kB	3/14/21, 1:15:15 PM
MEETING-NOTES-FEB2018.PDF	42.5 kB	3/14/21, 1:14:28 PM
MEETING-NOTES-JAN2018 (1).PDF	99.9 kB	3/14/21, 1:15:50 PM
MEETING-NOTES-JAN2018.PDF	99.9 kB	3/14/21, 1:21:00 PM
MEETING-NOTES-MAR072019.PDF	142 kB	3/14/21, 1:05:47 PM
MEETING-NOTES-NOV2017.PDF	5.7 MB	3/14/21, 1:32:30 PM
MEETING-NOTES-SEP2018.PDF	13.9 MB	3/14/21, 1:13:46 PM
MEETING-NOTESFEB12018.PDF	172 kB	3/14/21, 1:15:25 PM
MEETING-NOTESSEP2019.PDF	15.7 MB	3/14/21, 1:04:55 PM
MUGMACMOST.PAGES.PDF	244 kB	3/14/21, 1:32:53 PM
MUGOCTOBER42018.PDF	4.6 MB	3/14/21, 1:13:32 PM
PHOTOS_ON_MAC.PDF	4.1 MB	3/14/21, 1:05:33 PM
SOMELITTLEEXTRAS_NOV2018.PDF	92.7 kB	3/14/21, 1:13:14 PM
The Mac User overview.docx	12.6 kB	3/14/21, 1:54:27 PM





Drag Alias to Desktop



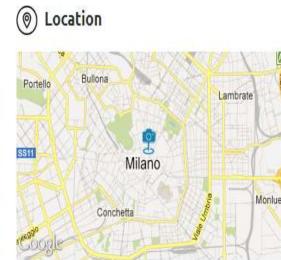


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Exif details	
File Name	Example Teatro Scala.JPG
Creation Date	2012- <mark>02-</mark> 18 22:15:34
File Size	266,358 bytes (260.1 KB)
Dimensions	1024 x 768 pixels
Make	Apple
Model	iPhone 4S
Latitude	45.467
Longitude	9.18967
GPS Coordinates	<u>45.467, 9.18967</u>

💿 Image





Exif metadata example

File Settings Help

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APDV

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Check out our other software at acutesystems.com

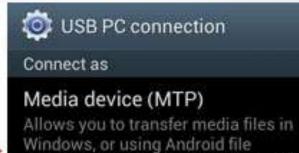
C:\Use	 ☑ Show image preview ☑ Show embedded preview if available (faster) 	
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AP IN	An 1	
		1

Image Summary		EXIF General Tags		EXIF General Tags (continued)	
File name:	Softpedia exif photo-QR.jpg	Make:	Hewlett Packard	FNumber:	F4.7
File size:	1.8 MB	Model:	Photosmart M425	FileSrc:	Digital Still Camera (DSC)
File Modified:	9/6/2014, 3:42	Orientation:	top, left side	Flash:	Flash did not fire, auto mode
Pixel W x H:	2576 x 1920 pixels	ResolutionUnit:	inches	FlashPorVersion:	0100
DPI W x H:	230 x 230 dots per inch	Software:	Version 1.4100, SN: CN63KC70SGF	FocalLength:	6.0 mm
Print size W x H:	11.2 x 8.3 inches	XResolution:	230	FocalLength1n35mmFilm	: 36 mm
Color type:	RGB	YCbCrPositioning:	Datum point	GainControl:	None
Color bits per pixel	: 24	YResolution:	230	150SpeedRatings:	100
Transparency:	No	ApertureValue:	F4.7	LightSource:	050
Background color:	No	BrightnessValue:	7999/1000	MakerNote:	HH.
		ColorSpace:	sRGB	MaxApertureValue:	F2.8
		ComponentsConfiguration	e YCbCr	MeteringMode:	Center weighted average
		CompressedBitsPerPixel:	16/5 bits/pixel	PixelXDimension:	2576.0
		Contrast:	Normal	PixelYDimension:	1920 0
		CustomRendered:	Normal process	Saturation:	Normal
		DateTimeDigitized:	2008:09:17 08:14:59	SceneCaptureType:	Standard
		DateTimeOriginal:	2008:09:17 08:14:59	SceneType:	Directly photographed image
		DigitalZoomRatio:	0/10	SensingMethod:	One-chip color area sensor
		ExifVersion:	0220	Sharpness:	Normal
		ExposureBiasValue:	8	ShutterSpeedValue:	1/256 sec
		ExposureIndex:	100/1	SubjectDistanceRange:	Distant view
		ExposureMode:	Auto exposure	WhiteBalance:	Auto white balance
		ExposureProgram:	Program normal	InteroperabilityIndex:	898
		ExposureTime:	301/125000 sec	InteroperabilityVersion:	0100

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Unlock Android phone

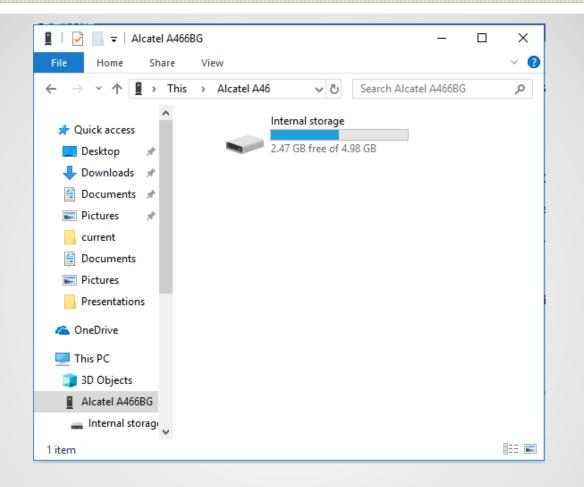




Windows, or using Android file transfer on a Mac (see www.android. com/filetransfer) \checkmark

Camera (PTP) Allows you to transfer photos using

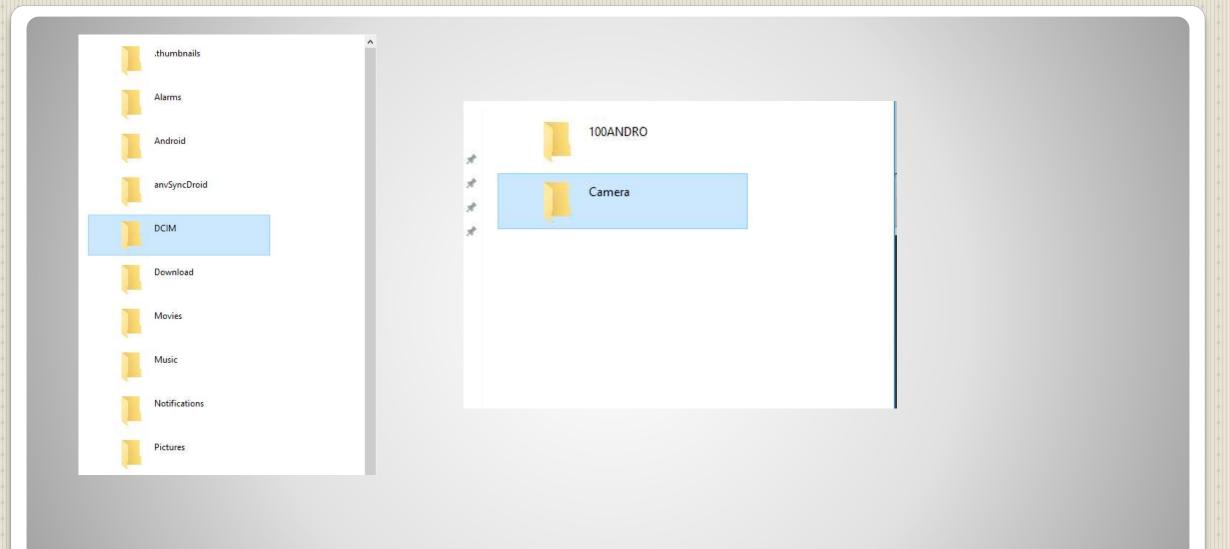
Micro USB device







Android phone as Folder





MG_20180718_151735.jpg

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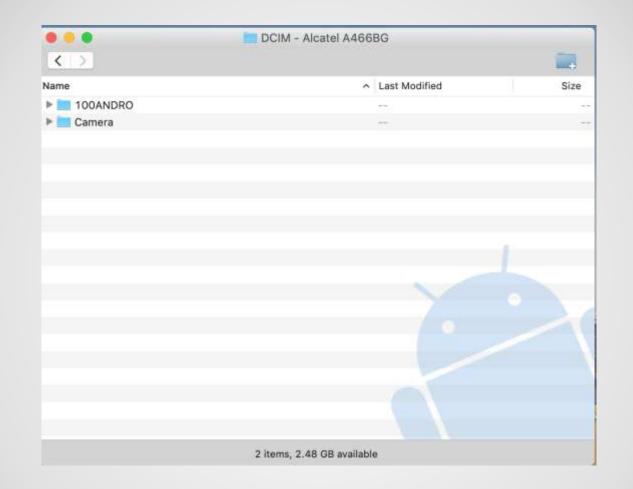


JPG File



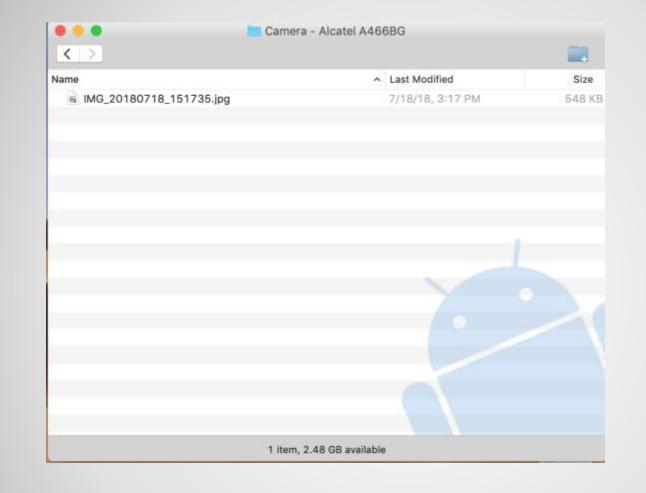


Android File Transfer



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The Photo Drag and Drop

Files and Folders Generic

Sun City Computer Club Seminar Part 2

John Jenkinson

My Apologies

- File Digital resource for recording data on a storage device
- Folder Virtual container within a digital filesystem in which groups of files and other folders can be kept and organized
- Directory Similar definition for folder
- Filesystem hierarchical (resembles tree with branches)

Parent and child folders/directories

- Folder metaphor
- Folder Graphical User Interface Icon
- Directory element of a path

 Path – general form of the name for a file and/or folder specifies unique location in a filesystem follows directory hierarchical tree expressed as character string

delimiters separate directory structure
usually colon ":" slash "/" backslash "\"

 Examples: Unix (MacOS) /home/user/docs/Letter.txt Windows C:\user\docs\Letter.txt

Definitions



Filename extensions

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Filetype

- Filename suffix
- Characteristic of file contents intended use
- WhatApp
- Period usual separator
- Metadata
- MAY NOT BE DISPLAYED icon instead
- LETTER-FOR-YOU.TXT.vbs

Common (?) Filename extensions

Common filename extensions – NOT inclusive

- Audio .mid .mp3 .wav
- Compressed .7z .rar .z .zip
- Disk & media .bin .iso .vcd
- Data & database .csv .dat .log .sav .sql .xml
- eMail .email .msg .ost .pst .vcf
- Executable .bat .pl .exe .jar .py .wsf
- Font .fnt .otf .ttf
- Image .pbm .gif .ico .jpg .jpeg .ps
- Internet .asp .cgi .css .htm .html
- Presentation .key .pps .ppt .pptx and so on and so on

- Network Volume Directory filename extension
- Network Volume Directory filename extension version
- Artificial versioning filename_1 filename_2 filename_21-May-2021 filename_save filename save your version naming scheme



Universal Naming Convention (UNC)

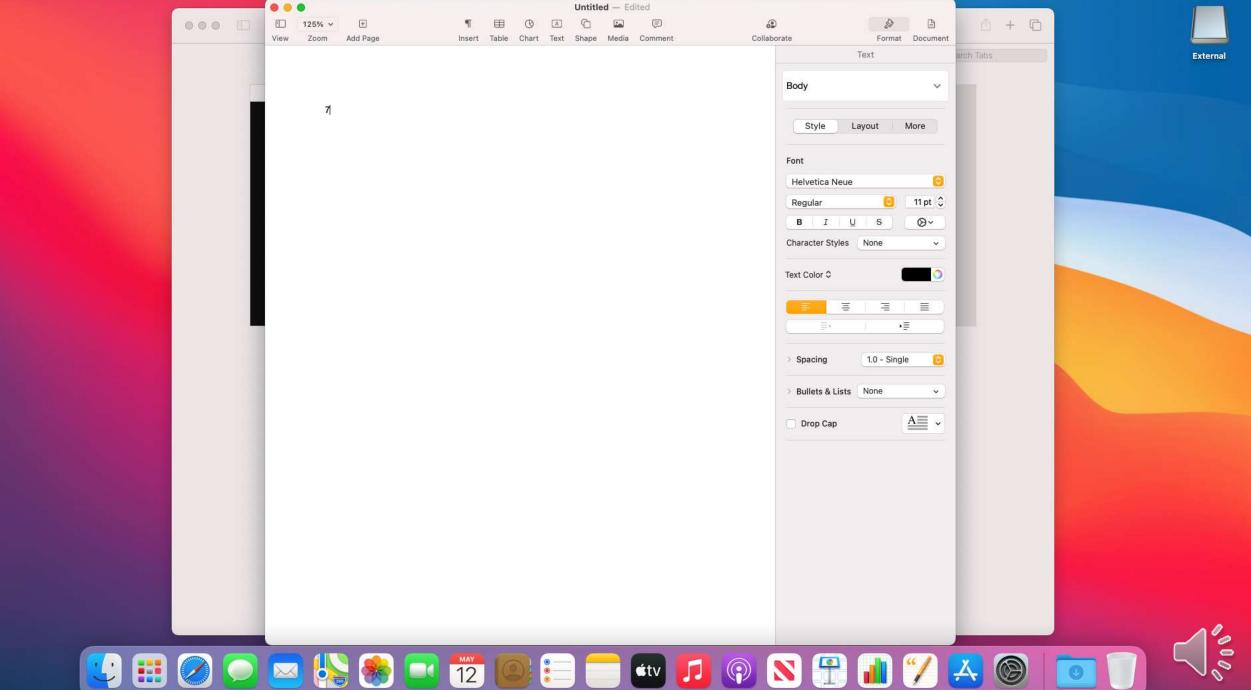
Networked Files and Folders
 \\ComputerName\SharedFolder\Resource

Filenames can be the same Paths must be unique WEB file address (path)
 scheme:[//authority]path[?query][#fragment]
 authority = [userinfo@]host[:port]



mailto:someone@example.com

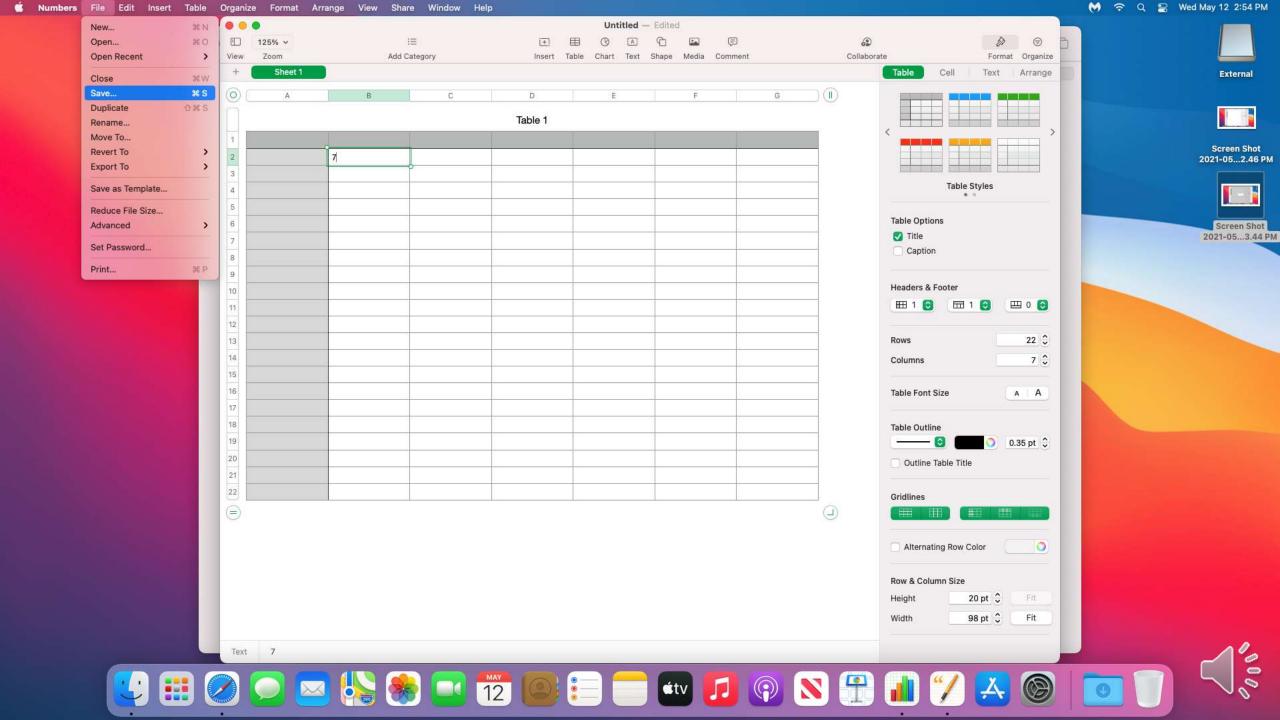
M 🗢 Q 🗟 Wed May 12 2:52 PM

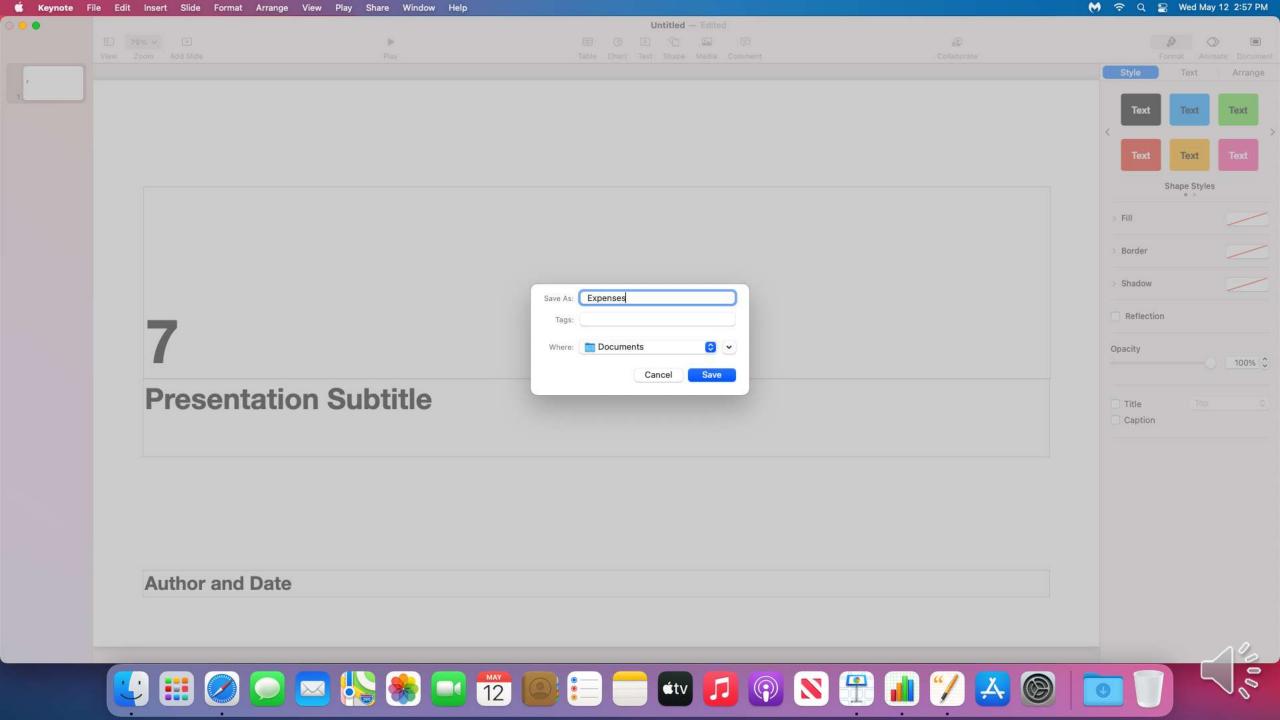


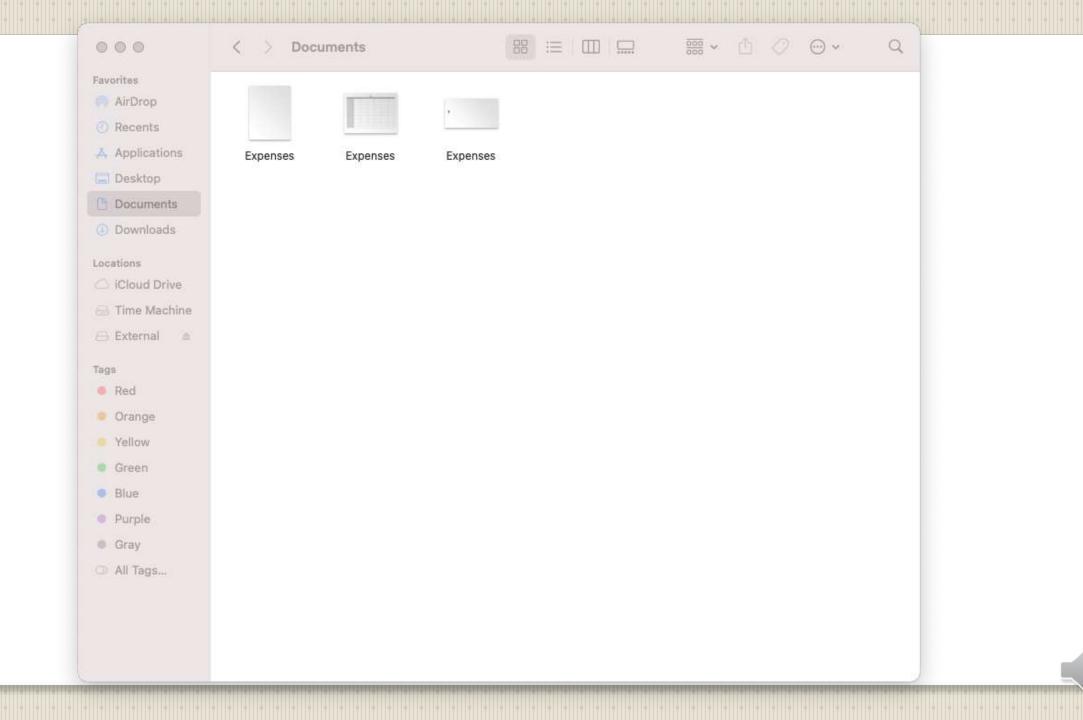
📫 Pages File Edit Insert Format Arrange View Share Window Help

💓 奈 Q 😪 Wed May 12 <u>2:53 PM</u>

Pages File Edit Insert Format Arrange View	Share Window Help	😸 🛜 Q 🚆 Wed May 12 2:53 PM
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and the second	Regular 🗢 11 pt 🗘	
	B I U S O×	
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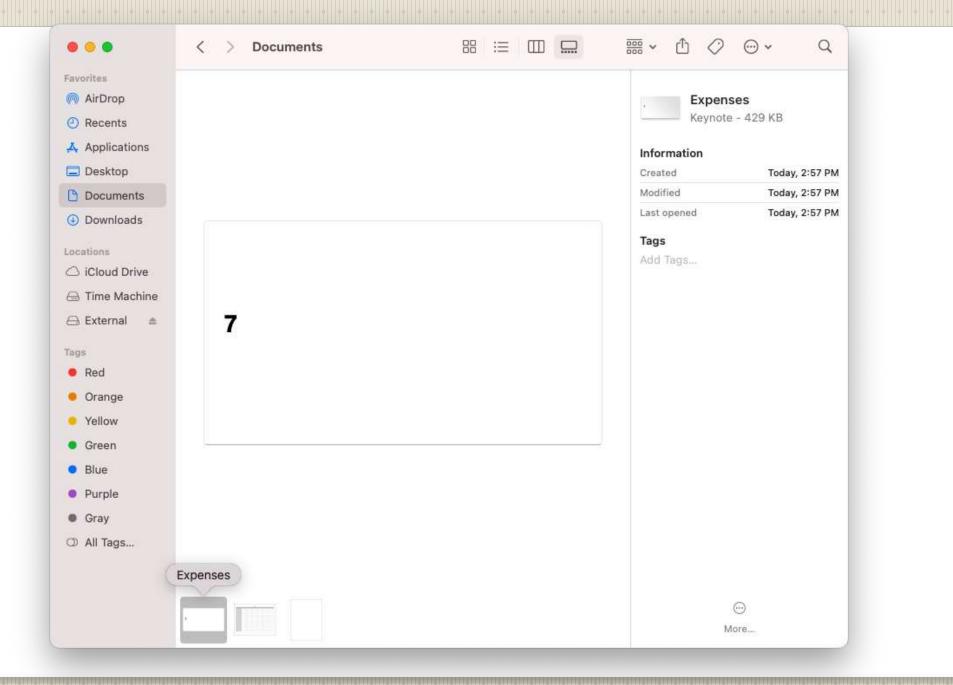




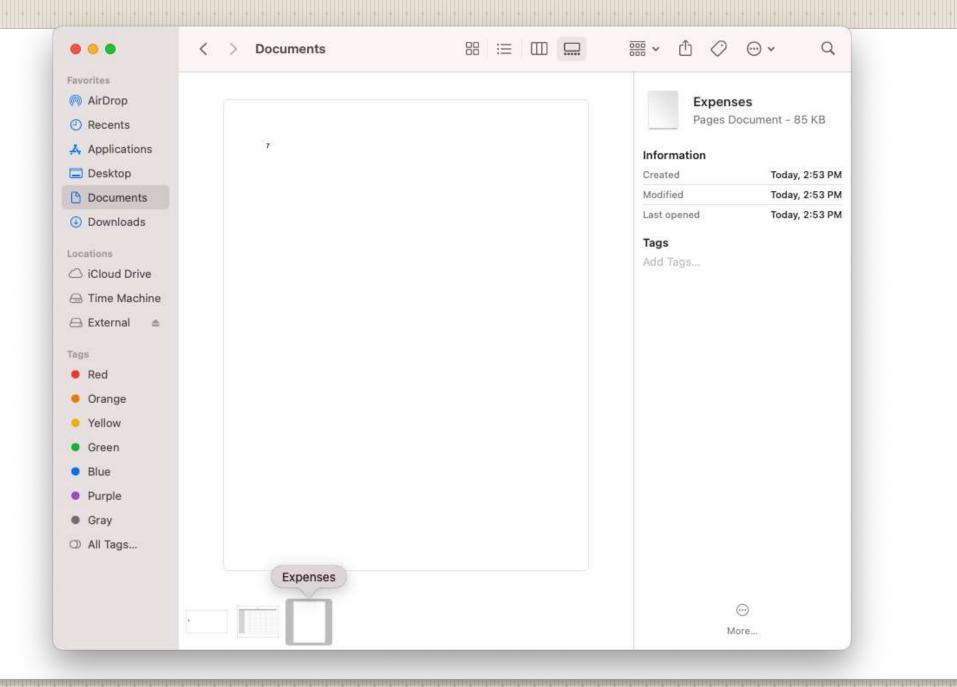
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Favorites	Name	A Date Modified	Size	Kind
AirDrop	Expenses	Today at 2:57 PM	429 KB	Keynote
ecents	Expenses	Today at 2:55 PM	132 KB	Numbers
Applications	Expenses	Today at 2:53 PM	85 KB	Pages
🚍 Desktop				
Documents				
Downloads				
Locations				
CiCloud Drive				
🖂 Time Machine				
🖂 External 🛛 📾				
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Yellow				
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Gray				
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Gray			
② All Tags			



AirDrop	Sheet	1			Expens	s - 132 KB
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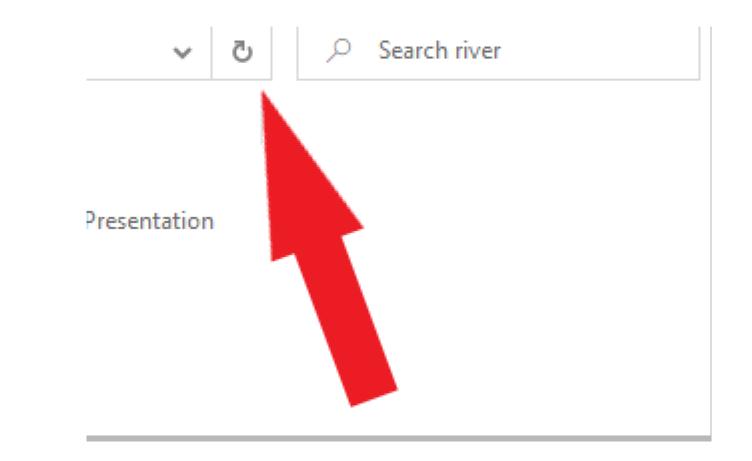
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Refresh View Windows

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📴 expenses.pptx	5/12/2021 5:17 PM	Microsoft PowerPoint Presentation	32 KB	5/12/2021 5:17 PM
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expenses.xlsx	5/12/2021 5:16 PM	Microsoft Excel Worksheet	9 KB	5/12/2021 5:16 PM

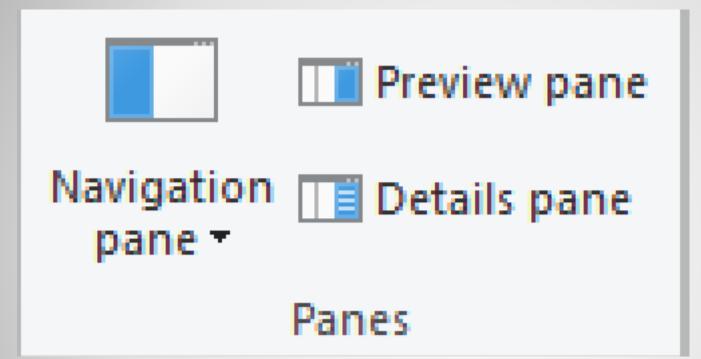
Windows Rename the Rename Rename back



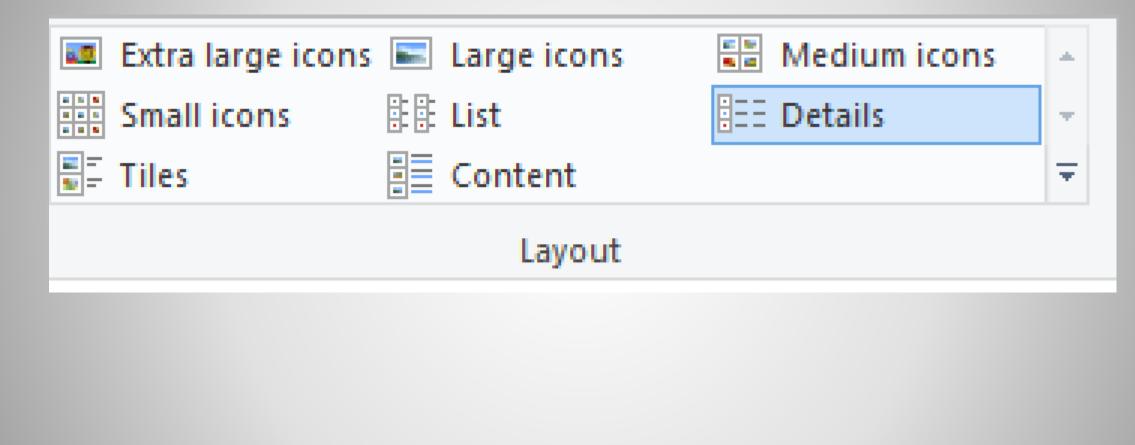
Windows File Explorer icon

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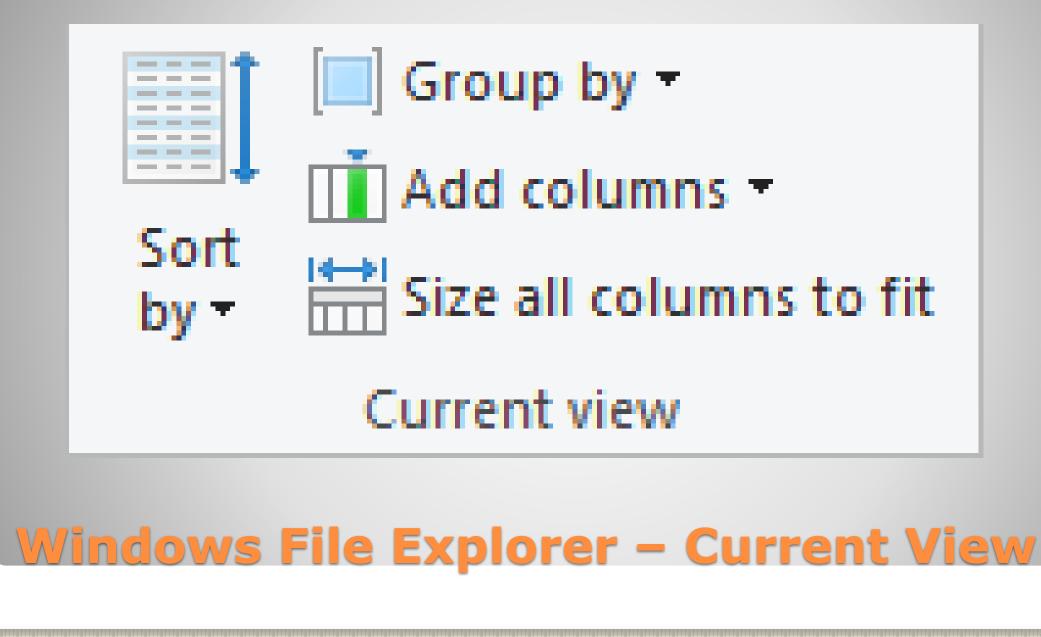
Windows File Explorer View Tab

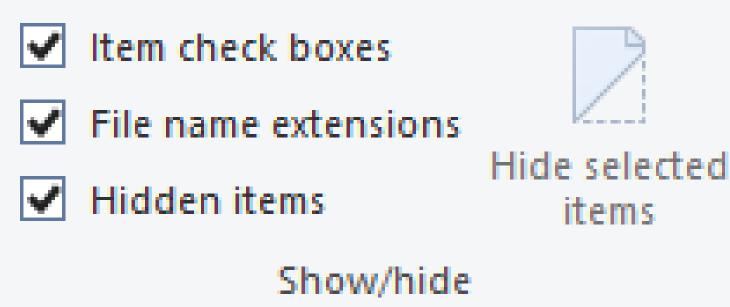


Windows File Explorer - Panes



Windows File Explorer - Layout





Windows File Explorer – Show/Hide

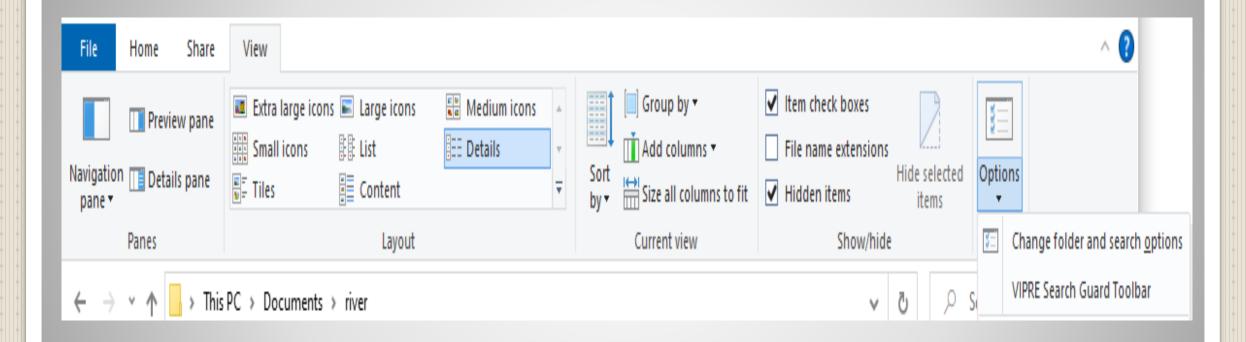
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Windows File Explorer – Hide Extensions Default

Microsoft Windows Hide File Extensions

- Why Avoid user error
- Can actually cause user error
- Important Notice.txt.exe will display Important Notice.txt
- BAD BAD for security suggest showing file extensions

Double check the icon of the file



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Windows File Explorer - Options

Windows File Explorer - Options

Folder Options X	Folder Options	× Folder Options ×
General View Search Open File Explorer to: Quick access ✓ Browse folders ✓ Image:	Show drive letters	General View Search How to search Don't use the index when searching in file folders for system files (searches might take longer) When searching non-indexed locations When searching non-indexed locations Include system directories Include compressed files (ZIP, CAB) Always search file names and contents (this might take several minutes)
 Underline icon titles only when I point at them Double-click to open an item (single-click to select) Privacy Show recently used files in Quick access Show frequently used folders in Quick access Clear File Explorer history Clear Restore Defaults 	 Show encrypted or compressed NTFS files in color Show pop-up description for folder and desktop items Show preview handlers in preview pane Show status bar Show sync provider notifications Use check boxes to select items Use Sharing Wizard (Recommended) When typing into list view Automatically type into the Search Box Select the typed item in the view 	Restore Defaults
OK Cancel Apply	OK Cancel App	ly OK Cancel Apply

Windows File Explorer

File & Folder Explorer

Path

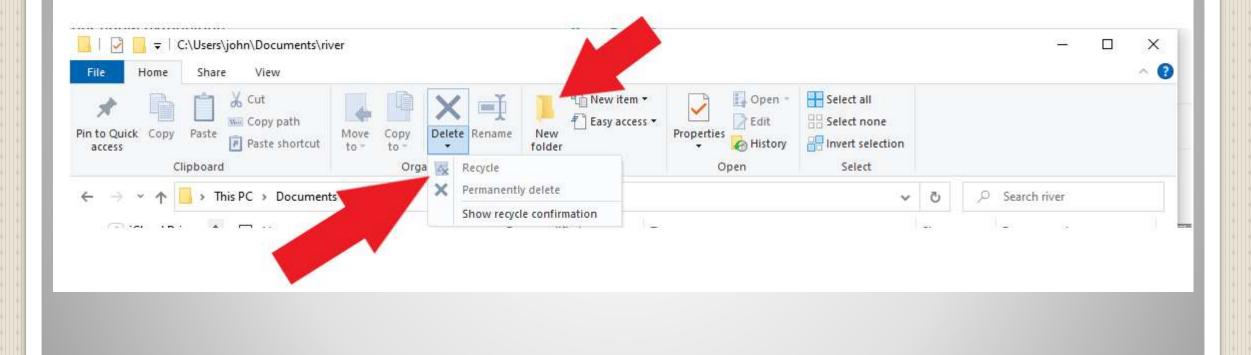
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C:\Users\john\Documents\river

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Files and Folders

Windows



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Files and Folders Mac

Digital analog to physical files and folders
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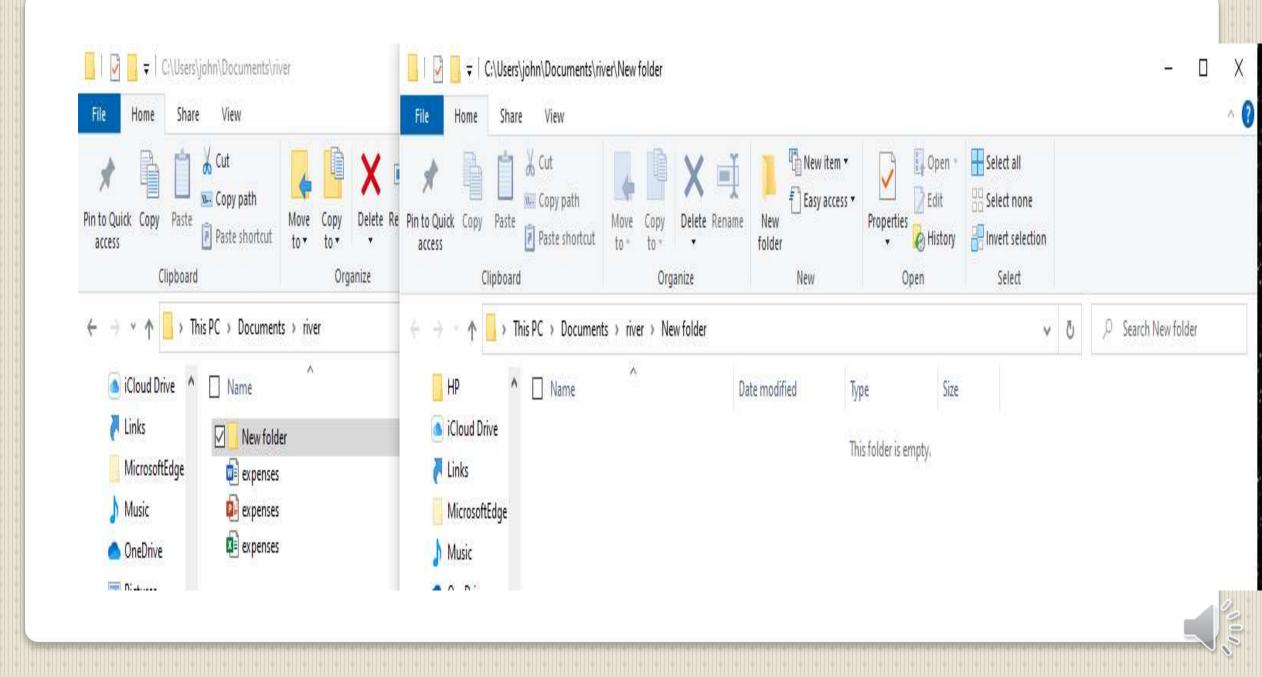
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Windows File Explorer - New Folder

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Windows File Explorer – Open new Window



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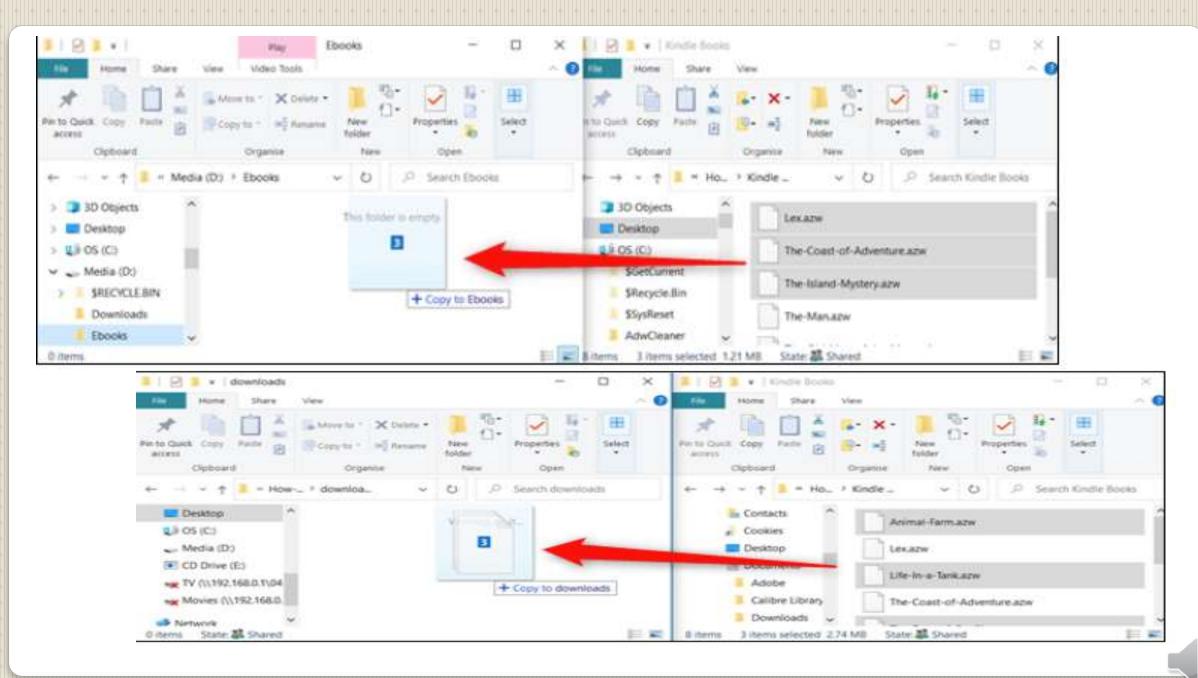
Windows Files and Folders

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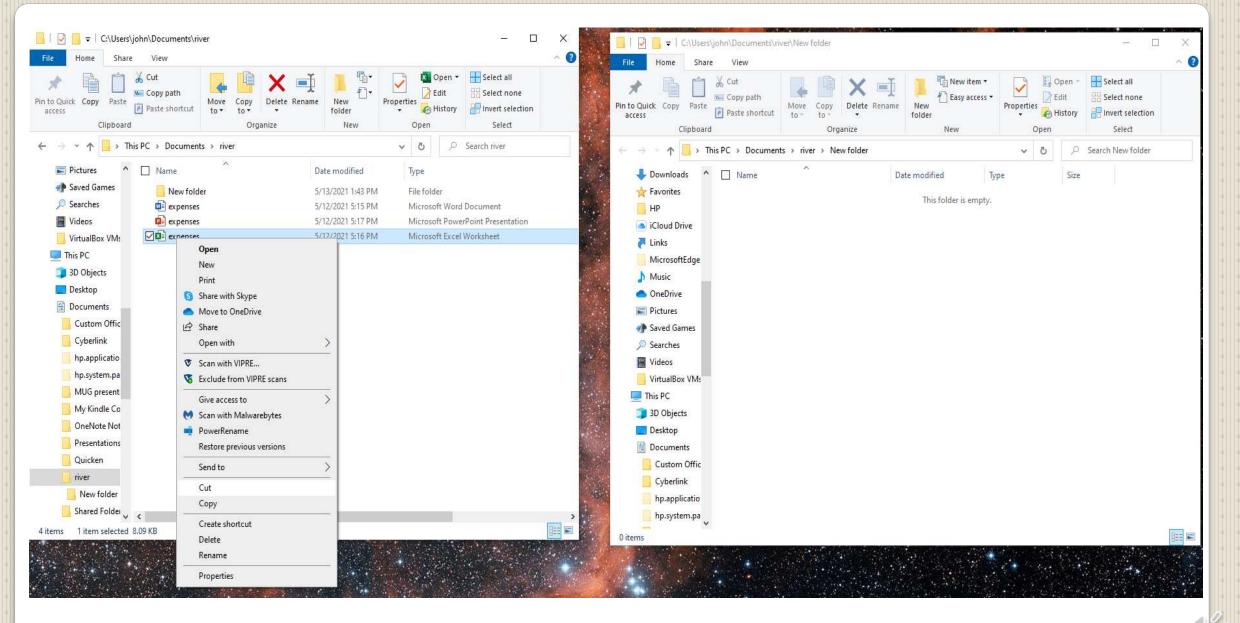
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- Move result one copy
- Copy default for different drive
- Move Default for same drive
- Copy to same drive Drag – BEFORE DROP press CTRL to trigger copy mode
 Move to different drive Drag – BEFORE DROP press SHIFT to trigger move mode

Windows Files and Folders Move vs Copy



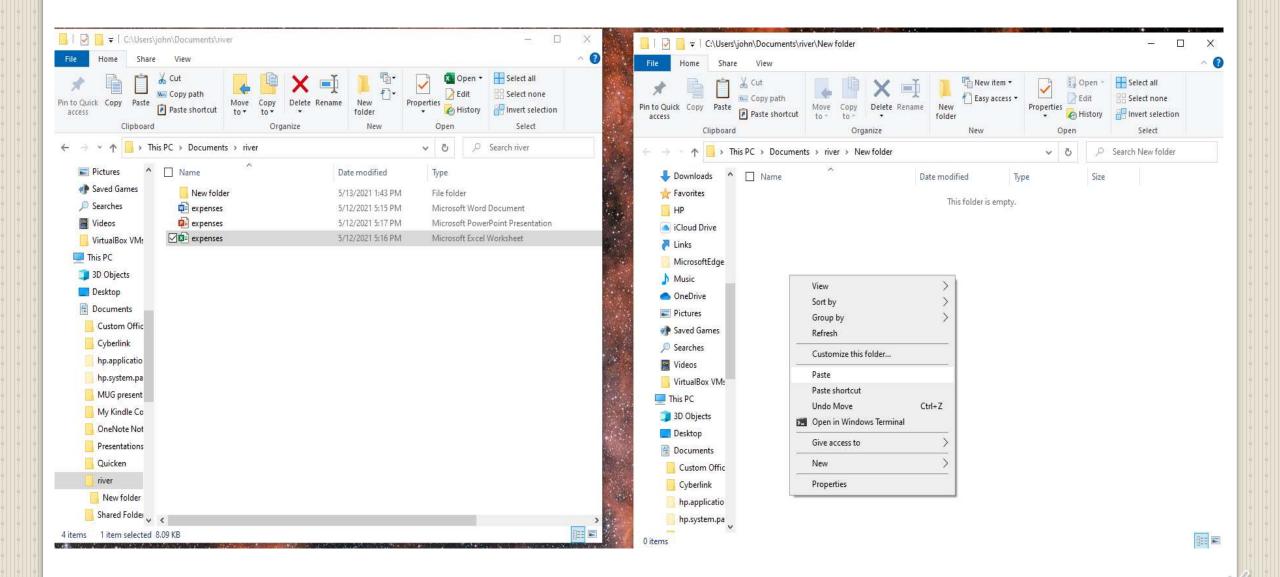


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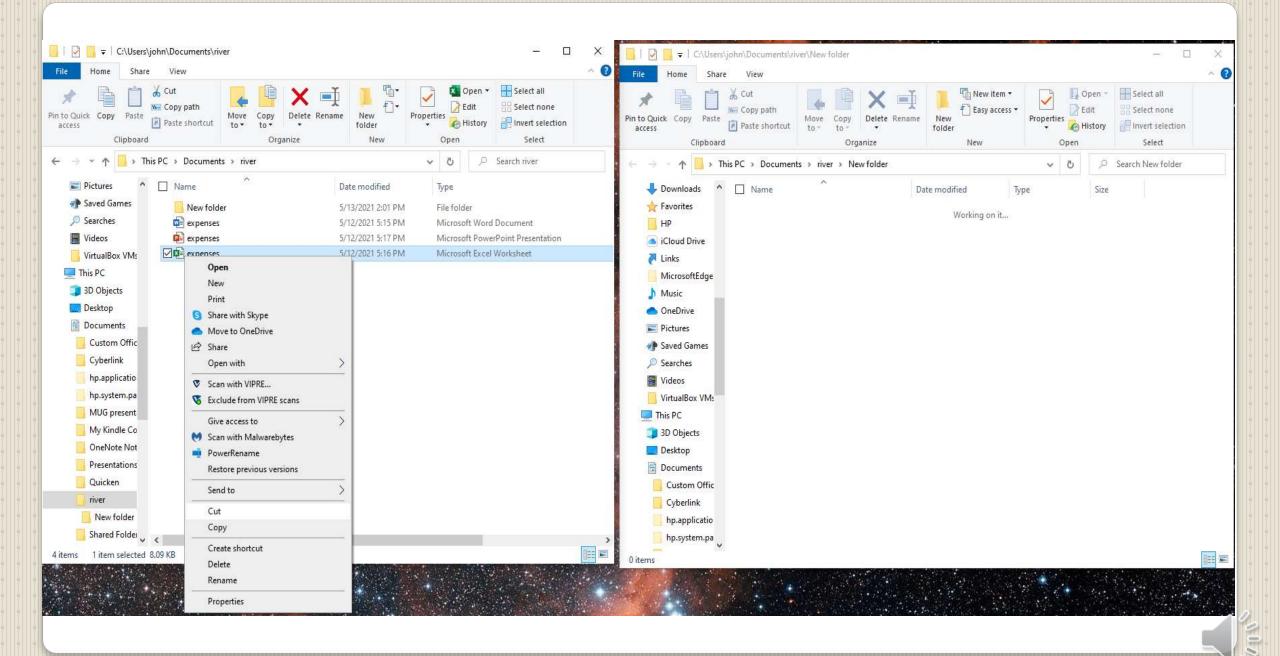
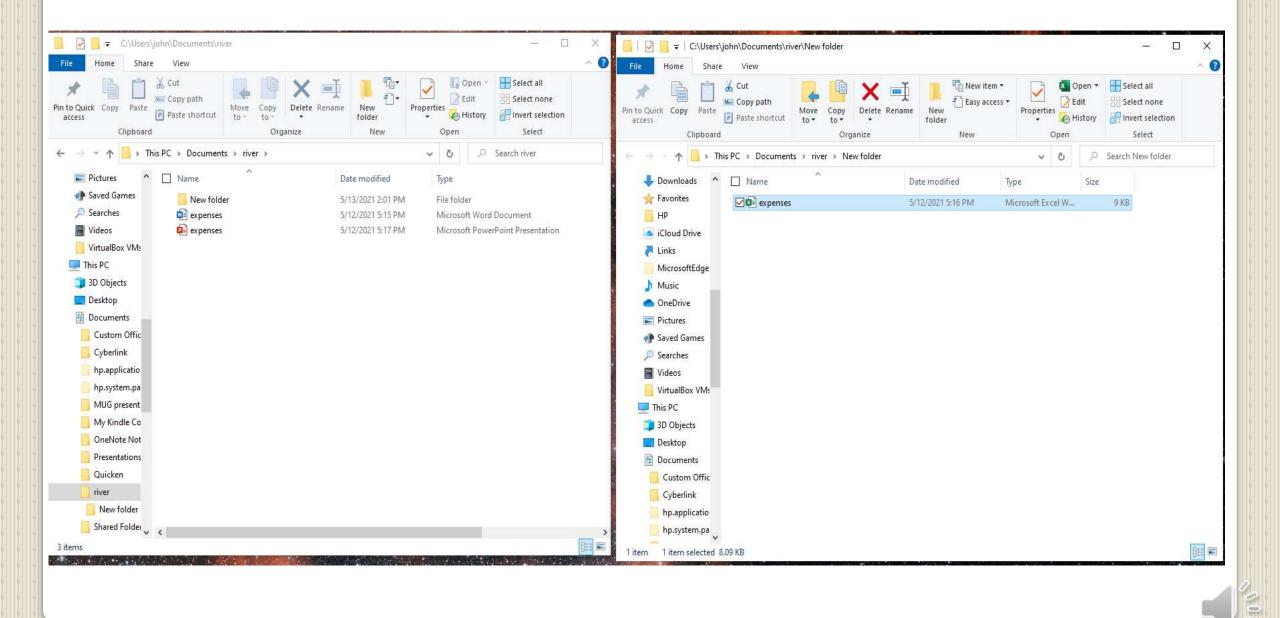
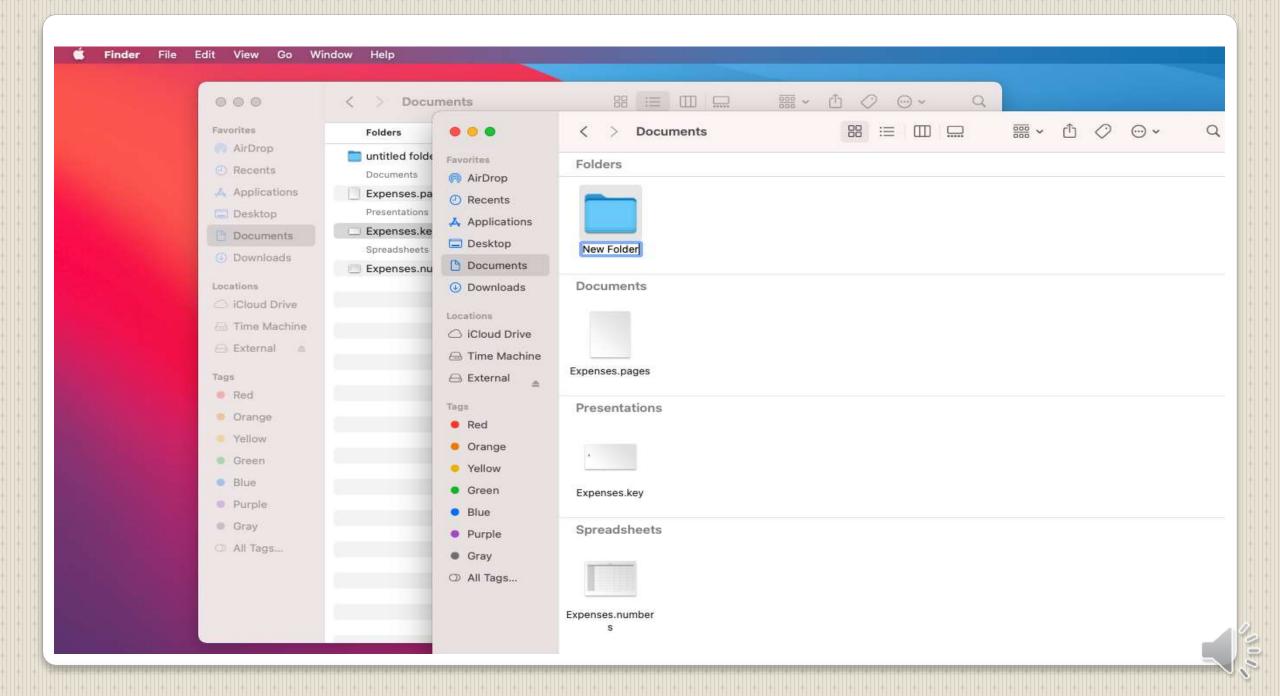


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macOS Finder move and Copy



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- Recovery Codes
- Authenticator Codes

Do Not forget Paper

Scan into Digital format

- Scanned image for digital document transfer
- Optical Recognition (OCR) for textual searches



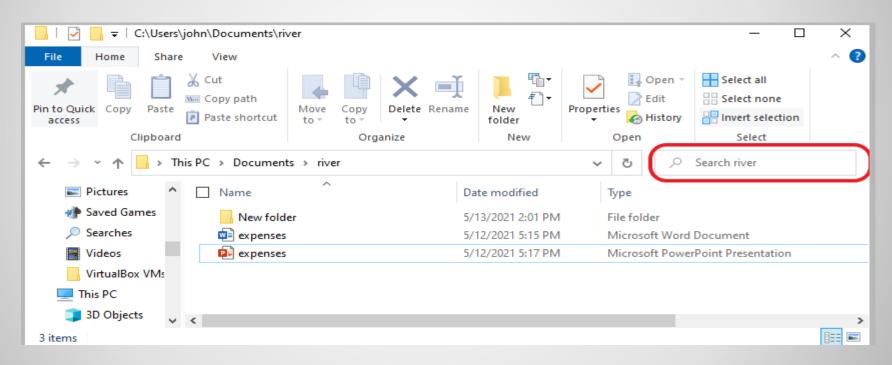
Electromagnetic Pulse (EMP)

macOS Spotlight

• Siri

Windows

• Cortana





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macOS Finder search

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Copy – identical copy

Aliases – shortcuts , Links

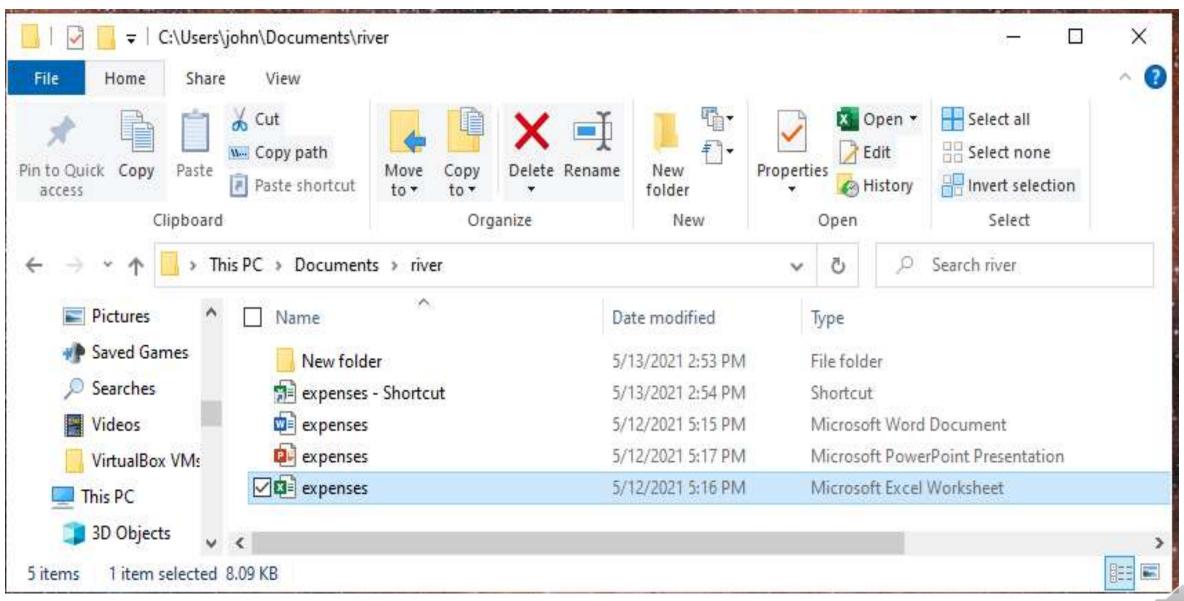
Filesystem feature - same blocks, different directory/folder entry

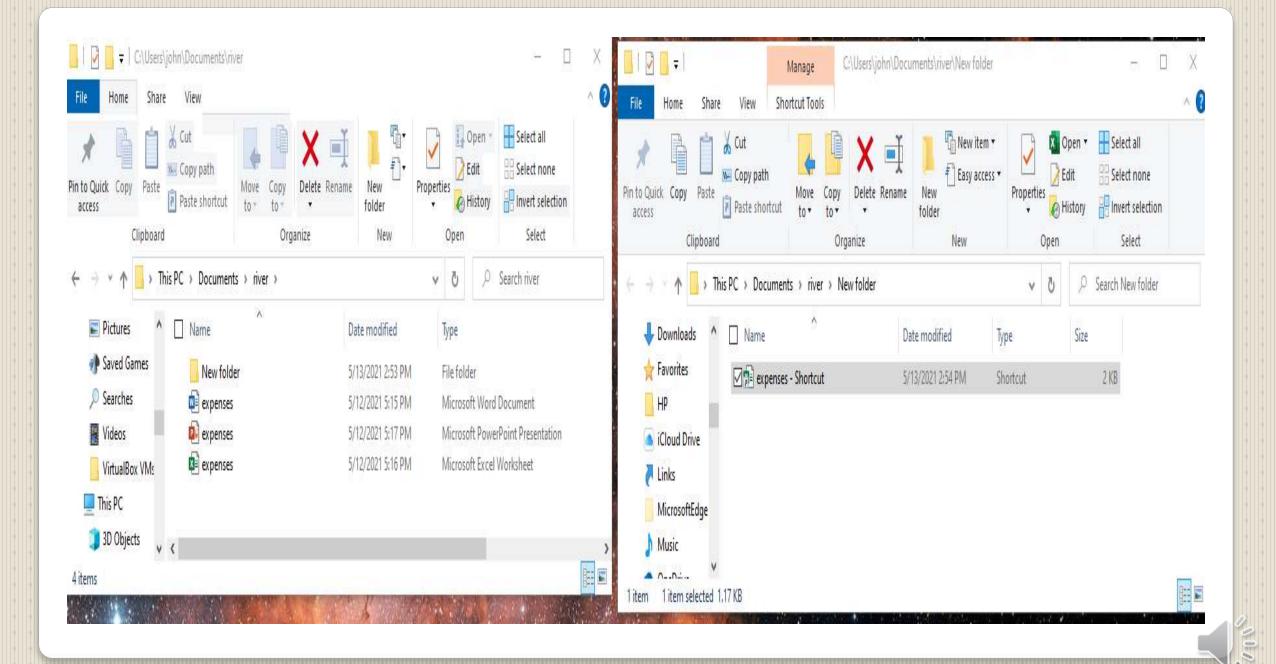
Duplicates – copy in same folder – must be renamed

Copies, Aliases, Duplicates

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Alias - shortcut





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	Folders	 Date Modified 	Size	Kind	Favorites	Name	 Date Modified Show items as icons, in a list
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ts	Documents						
ations	Expenses.pages	Yesterday at 2:53 PM	85 KB	Pages	Applications		
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oads	Spreadsheets	Vesterday at 0.00 Dtd	400 00	blumbars	Downloads		
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- Icons differ
- Can be renamed
- Link count kept by filesystem
- Quick access from desktop (or anywhere)
- Cross references Expenses 2018 2019 2020 2021
 2018 Expenses letters bills photos
- Your design flexibility

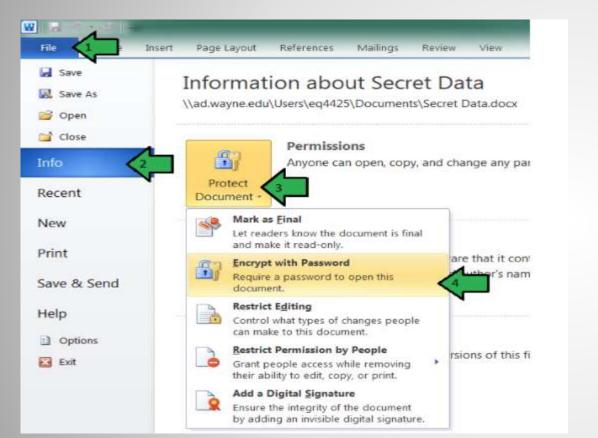
Uses of aliases, shortcuts, duplicates

- Operating system Recovery point Image backup hard drive clone cloud dedicated drive
- 3-2-1 backup

Three copies of your important data
Two different media choices
One copy offline (most of the time)
Use of cloud OneDrive iCloud Google Drive, etc.
ENCRYPTION



Microsoft Office document encryption



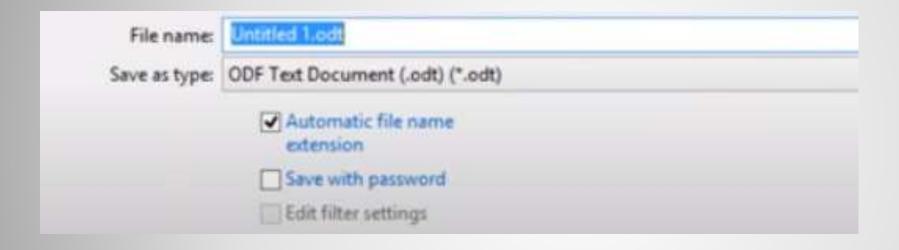




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Password:	
Verify:	
Password Hint: Recommended)	
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Libre Office

Use Consumer Reports, PC World, Macworld

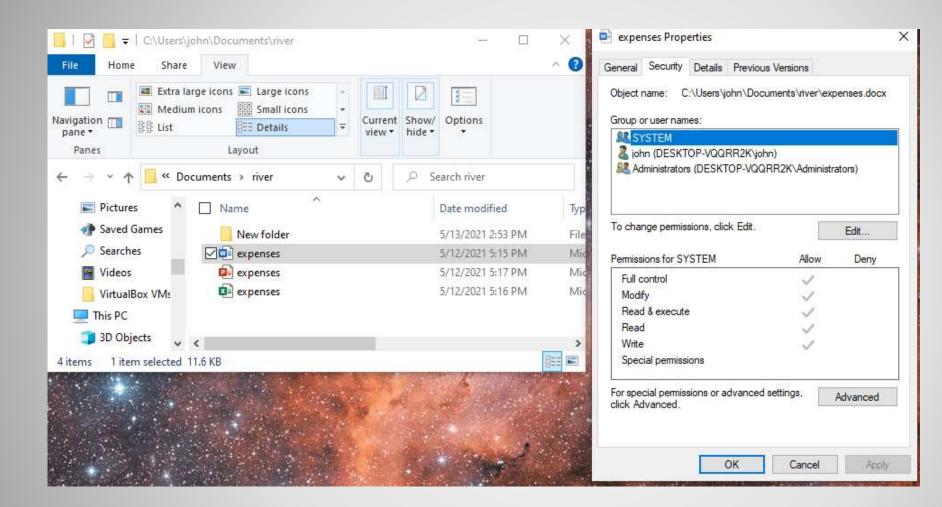
System Disk Encryption
 Laptop vs Desktop
 Vendor supplied preference

Third-party Encryption

Data about the data

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File Metadata



Permissions - Security

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Windows Metadata - Details

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Applications	Expenses.pages	Yesterday at 2:53 PM	85 KB	Pages	Kind: Pages Document
🖂 Desktop	Prasentations				Size: 85,481 bytes (86 KB on disk) Where: Macintosh HD • Users • river •
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macOS metadata

We want you!



- The Computer Club seeks new instructors and new course ideas.
- Instructors might receive fame, fortune, and a free membership to the club for the following year.
- We could especially use Mac courses and Android classes!
- Contact:

educationdirector@sctxcompcl ub.org

New Instructors and New Courses Wanted!

