🛠 Tools: web, research, 🔊📽 audiovisual, 📱🖥 computer, </> programming, development, and more, by Eric Piehl

Based on work experience, and classes I have taken, starting 2009-10-11, last updated 2024-03-03. First North American Serial Rights, USA Copyright © 2009-2024 by Eric D. Piehl.

While helping 👫 family, friends and 👥 colleagues on various projects, we have learned some things. In an attempt to keep these processes repeatable, *and keep myself organized,* I ✍ record and maintain some helps on this subject. For information on 🌲 green or </> other programming subjects, please see a list of this document's **sister docs**.

Education

- Free college courses online.
- Free public-domain books online.

- List of local institutions at https://EricPiehl.alterVista.org/westMichigan.html#edu.

General

- Recommendations for running a **safe computer** as an end-user (antivirus, antispyware, backup, etc.), in my other document "*Protect your 📱 smartphones, tablets and 🖥 computers from spam and malware, via antivirus*".

- Under Microsoft Windows, reboot (1) before installing software if you have been working for a little while, (2) between installing or upgrading any two software products, and (3) after your last install (some wiggle room).

- On your Android device, install a security app such as Lookout Mobile. Although …

- Before attending any protests that might get you arrested, read and follow the EFF's recommendations about **mobile cell phones** at **protests**. If you have an Android mobile phone, please see Whispercore and www.networkworld.com/news/2012/051412-android-259182.html. Support to protestors and journalists and my general article "Demonstrating protesting traveling in 🚁 heavily-policed or authoritarian areas, or when targeted by adversaries."

- **Advanced Search** https://Google.com/advanced search if you aren't comfortable using search terms for exact spellings, alternate terms, year, ranges, ignore, et al.

- **Trends** of words or topics people are putting on the web https://Trends.Google.com

- To search for **people** from **phone numbers**, use a reverse phone lookup:
    - https://duckduckgo.com/?q=*aaa-eee-nnnn*,
    - https://google.com/search?q=*aaa-eee-nnnn*,
    - https://goo.gle/search?q=*aaa-eee-nnnn* [?],
    - https://g.co/search?q=*aaa-eee-nnnn* [?],
    - https://www.spokeo.com/reverse-phone-lookup,
    - https://www.whitepages.com > reverse phone,

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- o https://radaris.com/ng/search?ff=*first*&fl=*last.*
- o www.whocallsme.com/Phone-Number.aspx/*aaaeeennnn*.
- o From cell mobile number.
- o Some more formats > scroll down to section Google Phonebook.
- o Description:
  - ▪ https://**Pipl**.com
  - ▪ http://itools.com/tool/**wink**-people-search
  - ▪ https://www.**facebook**.com/,
  - ▪ https://www.**linkedin**.com/,
  - ▪ http://www.**zabasearch**.com/phone/*aaaeeennnn*.
- o http://resource.referenceusa.com/about-us/ via local library?
- o ~~From https://timesunion.com/marketplace/article/who-called-me-from-this-phone-number-18086691.php :~~
  - ~~• [Harvent email addr] Best reverse phone search overall https://BeenVerified.com.~~
  - ~~• [$] Best for catching a cheater https://TruthFinder.com.~~
  - ~~• [Push notifies] Easiest phone lookup site https://intelius.com~~
  - ~~• Instant Checkmate: Best for background checks~~
  - ~~• $ Biggest records database https://peoplelooker.com~~
  - ~~• US Search~~
  - ~~• Spokeo~~
  - ~~• CocoFinder~~
  - ~~• NumLooker~~
  - ~~• WhoCallMe~~
- To find email addresses from names.
- Find people. Or here. Or here.
- All kinds of information.
- Niche search engines.
- If you have to, can use this sleazy site > button **Search ...**.

- **Laws of Programming**. As far as I know, the first law, I came up with myself. The second, I probably got from somewhere else, but have used it with coworkers so long that I can no longer remember to where to attribute them. So until I get better attribution:
  - o Eric's first law: *Any useful computer program must be modified.*
  - o Eric's second law: *Leave some functionality for Release 1.1.*
  - o Smiths/GE: *Any computer development project takes longer and costs more.*

- To schedule group meetings, use www.doodle.com.

- To send SMS text messages from an emailer:
  - o freecarrierlookup.com http://freecarrierlookup.com/
  - o freesmsgateway.info http://www.freesmsgateway.info/
  - o https://lifewire.com/how-to-email-a-text-4147467.

- More tools at http://pcsupport.about.com/od/software-tools.

- "Library of millions of **free books, movies, software, music**," and **website Wayback Machine** (not the same as 🍎 Apple Time Machine) at the **Internet Archive**.
  - o Including 4 episodes of https://archive.org/details/BBC_Sherlock2010.

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- Free public-domain **books** online.
- Free movie streaming.

- Statistics, health, disease, vectors, aphids https://influentialpoints.com/.

Weather
- **Around the world** https://michigan-weather-center.org/#:~:text=Weather%20Links > scroll down to Weather Links.
- App https://**MyRadar**.com.
- **Aurora forecast**
  o Univ of Alaska's Geophysical Institute https://gi.alaska.edu/monitors/aurora-forecast.
  o https://swpc.NOAA.gov/products/aurora-30-minute-forecast
  o Tips https://swpc.noaa.gov/content/tips-viewing-aurora
  o Tips from Michigan Tech https://mtu.edu/tour/copper-country/northern-lights
  o Background https://woodtv.com/weather/ask-ellen/ask-ellen-where-can-i-get-aurora-forecasts.

Weather for Canada
- App https://Weather.gc.Ca

Weather (for now, USA-only and nearby areas, sorry)
- **Emergency NOAA weather-alarm radio**
  https://EricPiehl.alterVista.org/antivirus.pdf#page=26 section 5 "Emergency situations:
  ☐ search and rescue SAR, earthquake, flood, 🌪 tornado, 🌀 hurricane".
- **Big-picture map** https://www.wpc.ncep.noaa.gov or
  https://www.wpc.ncep.noaa.gov/national_forecast/natfcst.php or
  https://www.nws.noaa.gov/outlook_tab.php.
- **Best forecast**, no ads https://weather.gov.
  o **Local** https://weather.gov or https://forecast.weather.gov/*zipcity*.php >
    upperleft=*yourZipCode* > **Go**.
  o **Also good**, no ads https://weather.gov/*yourLocalAirportCode* > scroll down > **Weather Map** (each tab) or **Weather Story**.
  o https://weather.gov/**alerts** > alert type > all or your state or zone or county.
  o https://**Aviation**Weather.gov.
  o https://**graphical**.weather.gov.
  o https://**radar**.weather.gov.
  o 🔥 ≋ **Smoke**, **particulate** and **ozone** levels, to determine whether healthy enough for outdoor activities:
    ▪ https://**AirQuality**.weather.gov.
      • Or use the proposed rewrite https://digital.mdl.nws.noaa.gov/airquality > set
        dropdown **Air Quality Elements** to "**... PM 2.5 ... bias-corrected ...**" and zoom in.
    ▪ https://AirNow.gov > allow website to know your location, or give ZIP Code or city
      and state.
      • In Michigan, http://deqMIair.org.
  o For **hourly weather forecast graphs**, on above, right-click the barchart thumbnail >
    Open in new tab. If that service is temporarily down, use
    http://forecast.weather.gov/MapClick.php?lat=42.98949&lon=-

85.49941919999998&unit=0&lg=english&FcstType=graphical (put in your latitude and longitude).
- ~~Useful GOES imagery http://www.goes.noaa.gov/ECIR3.html.~~
- ~~For **satellite photos** (let you see how thick the clouds are, to gauge how fast the rain or snow might fall), on above, right-click the satellite thumbnail > Open in new tab > scroll down > click link "Color Enhanced Image #3".~~
- ~~Eclipse (deprecated) https://weather.gov/source/crh/eclipse.html.~~
- ~~Show **weather forecast along your trip** www.wunderground.com/wundermap#roadtrip.~~
- The 6 Best Weather Apps for your Phone.
- **Michigan** https://michigan-weather-center.org, and maybe http://deqMIair.org.
- **Misery index** current https://earth.nullschool.net/#current/wind/surface/level/overlay=misery_index > drag around, zoom in, and click on your location.
- **Heat index** https://www.wpc.ncep.noaa.gov/heat_index_MAX.shtml.
- **Heat Index** v **humidity**: https://wrh.noaa.gov/psr/general/safety/heat/heatindex.png and https://wikipedia.org/wiki/Heat_index.
- **Dewpoint** v **humidity**:
  - DewPoint°C = Temp°C - (100-RH)/5.
  - DewPoint°F = Temp°F - (100-RH)*9/25.
  - RH = 100 - 5*(Temp°C - DewPoint°C).
  - RH = 100 – 25/9*(Temp°F - DewPoint°F). -- https://wikipedia.org/wiki/Dew_point

Dewpoint	Dewpoint	Comfort
>21°C	>70°F	Oppressive for people accustomed to temperate climates [wiki].
>18°C	>65°F	Lots of moisture in the air, becoming oppressive [weather.gov].
>18°C	>65°F	Uncomfortable if accustomed to tropical climates [wiki].
>15°C	>59°F	Uncomfortable if accustomed to temperate climates [wiki].
13-18°C	55-65°F	"Sticky" with muggy evenings [weather.gov].
10-15°C	50s °F	Dry and comfortable [Eric].
-5-15°C	24-60°F	OSHA at 20-24.5°C (68-76°F) [wiki].
<13°C	<55°F	Dry and comfortable [weather.gov].

- **Sunset, sunrise**, and **twilight** times (civil, nautical and astronomical), for your location https://planetcalc.com/300 > scroll down to "Sunrise and sunset calculator".

Maps and addresses
- Validate mailing address https://tools.USPS.com/go/ZipLookupAction!input.action.
- Validate address for GPS or Google maps https://Google.com/maps.
- https://google.com/maps/place/*nnnn+street,+city,+state+zip*
- https://google.com/maps/place/*urlencode(name+to+search)* works sometimes
- https://google.com/maps/search/?api=1&query=*urlencode(name+to+search)*
- https://google.com/maps/search/?api=1&query=**(43.035838,-85.490425)** (put in your latitude and longitude).
- https://maps.google.com/maps?q=*urlencode(name+to+search)*&f=q&lci=bike bikes!

- **Directions** https://google.com/maps/dir/?api=1&destination=urlencode(*target+address*) or https://maps.google.com/?saddr=Current+Location&daddr=urlencode(*target+address*)

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- **Parking** https://parkopedia.com.
- **Smoke** https://fire.airnow.gov
- **Genealogy, small towns**, **nearby towns** in various languages, **nearby airports**, recent weather http://fallingrain.com/world/a/K/a/l/i/s/h/ or https://google.com/search?q=Starobin+site%3Afallingrain.com, e.g., http://**fallingrain**.com/world/US/MI/Ada.html.

- **Michigan** traffic/road construction map   MiDrive Mi Drive https://Michigan.gov/Drive (turns into https://MDotJBoss.state.MI.US/MiDrive) > toggle on traffic **camera layer** > select your favorite cameras. From MDOT https://Michigan.gov/mdot.
  - Layers:
  - Speed
  - Road Construction
  - Static cameras, select to see a still photo from within the previous few minutes
  - Accidents
  - State maintenance vehicle locations (including snowplows!), select to see a still photo out the truck's windshield, from within the previous few minutes.
  - Message boards, select to see what is being displayed there.
  - MDOT https://Michigan.gov/mdot :
  - Major Road Projects
  - Bridges and Crossings
  - Mi Commute
  - Rest Areas/Welcome Centers
  - Maps
  - Safety
- **Kent Co** traffic incident map   https://AccessKent.com/traffic.
  - Kent Co police and fire incident map   https://arcg.is/0408iT.
  - Kent County construction   https://kentcountyroads.net/projects/active.
- **Consumers Energy electricity outage** map   https://consumersenergy.com/outagemap

- **Pennsylvania** driving conditions, including collisions and construction, https://511PA.com.

Flight info
- Fare finder https://skyscanner.net.
- Choose seats in accordance with https://seatguru.com top nav "Seat Maps" > don't click ads.
- Can tell others (or your phone) to follow flight with:
  - **FlightAware** > *yourFlight*, in form https://flightaware.com/live/flight/*sssnnnn* (easy, may show ahead or behind).
  - **FlightRadar24**, in form https://www.flightradar24.com/data/flights/*aaannnn*.
  - **PlaneFinder** > Map Options > plane=*yourFlight*, in form https://planefinder.net/flight/*aaannnn* (projects current position based on position and velocity 6 minutes previous, uses ADS-B).
- Status of your airport https://www.fly.faa.gov.

Travel Advisories
- USA https://travel.State.gov/content/travel/en/traveladvisories/traveladvisories.html
- Canada https://travel.gc.CA/destinations/united-states

- UK https://gov.UK/foreign-travel-advice/usa/safety-and-security

Editors (doc)

Fat-client (installed) software (review):
- **Microsoft Office/Microsoft 365**, great, **$**.
  If eligible, save money by:
  (A) downloading via deals with certain employers, or
  (B) with the "Education" packages, often through your school.
  o For **Microsoft Office Online** (review)**, free**, see next paragraph "cloud-based".
  o Verify your version has all the subunits you need: real Outlook, Visio, SQL Server, etc.
  o *If you have Office XP, 2000 or 2003,* install the Microsoft Office Compatibility Pack for Word, Excel, and PowerPoint 2007 File Formats.
  o No current need to upgrade from Office 2007 or 2010.
  o Other Microsoft Office free downloads.
  o Microsoft stopped **selling** Office, because they found they could make more money from yearly subscriptions, which they branded **Microsoft Office 365**. And now I hear that, as of 2020-04, MS Teams has been added to MS Office 365, and branded **Microsoft 365**.
  o Some versions may include Microsoft Office **Publisher**, $, publishing and typesetting. I use it for networking cards and a couple other projects.
  o Running Microsoft Office on 🐧 Linux.
- "How to Use **Microsoft Word** for **Free**".
- 🍎 **Apple iWork** (formerly **Productivity Apps**), **free** on 🍎 Apple iOS, iPadOS and macOS. Components: Pages (Word), Numbers (Excel), and Keynote (PowerPoint) (Keynote better for incorporating 🎥 video, according to Rick Darke, presentation at OSU, 2021-02-06).
- **Apache OpenOffice**, pretty good, **free**. Mostly-equivalent to MS Office. Maybe should use fork LibreOffice below. Components: Writer (Word), Calc (Excel), Impress (PowerPoint), Draw (Visio), Base (Access/SQL Server), and Math (equations).
- **LibreOffice**, said to be very good, **free**. Said to be similar to MS Office. Components: Writer (Word), Calc (Excel), Impress (PowerPoint), Draw (Visio), Base (Access/SQL Server), Math (equations), and Charts.
- **SoftMaker FreeOffice** review. Components: TextMaker (Word), PlanMaker (Excel), Presentations (PowerPoint), BasicMaker (VBA).
- **Adobe InDesign** $, publishing and typesetting, I read is for plotters, mills and engravings, or for posters, flyers, brochures, magazines, newspapers, and books.
- More alternatives. 13 Reasonable Alternatives to Adobe's Expensive Apps.

Cloud-based, runs in a web browser window (Software as a Service SaaS) (review), may be good for collaboration (multiple people working on same doc at same time):
- **Prezi** presentations are very nice, freemium.
- **Google Docs, Sheets and Slides,** running on **Google Drive** (review), good, **free**. If you have a **Gmail** email account, you already have access to Google Docs, Sheets and Slides through your email account. The most common used parts of the above: documents, spreadsheets and presentation. Can access from your Android phone. Pretty good. Improving steadily; I may have made my last upgrade of MS Office. Components: Docs (Word), Sheets (Excel), Slides (PowerPoint), Drawings (Visio), Forms and Fusion Tables (Access/SQL Server). Spaces. Forms.
  o For-profit organizations can pay for **Google Workspace** (formerly **G Suite**).

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- o Nonprofit organizations can use **Google Workspace** (formerly **G Suite**) **for Nonprofits**, apparently still free after some paperwork.
- o Government agencies can also use **Google Workspace** (formerly **G Suite**) for free, after some paperwork.
- o People with no affiliations above can pay for **Google Workspace** (formerly **G Suite**), starting in 2021?
- o *As* **Google Workspace** (formerly **G Suite**) **for Education** *tools enter classrooms across Canada, some parents are asking to opt out*.
- **Microsoft Office Online** (review), **free**, running on **Microsoft OneDrive**. If you have an **Outlook.com/Live Mail** (formerly **Hotmail**) email account, you already have access to Microsoft OneDrive and Office Online through your email account. Also through **https://office.com** > **Sign In** with your Skype, Microsoft or Office id. (Options described in https://youtu.be/DuQyKM7_V-Y. *For full effect,* select the video link, then icons ☐ fullscreen, **cc** captions, ▶ Play, and ☐ ☒ Skip Ads.)
  Components: Word, Excel, PowerPoint, Excel Surveys (forms), OneNote (drawings), and no database nor math equations.
- Comparison of above two.

TODO: make a chart of the various office suites v. components.
Purdue Online Writing Lab OWL, including MLA style guide.

Spell- and grammar-check apps.

To examine word use, use **Wordifier**.

How to copy uncopyable texts under Windows.

Editors (pdf)
Free **.pdf** editors.
Need to try (read good things about) app **PDFGear.**

A **.pdf**-filler site. I used it to good effect.

Document converters, including **.pdf** to **.jpg**. YouConvertIt.

Editors (code)
- The **IDE** you are going to code in:
  - o **Eclipse**. I love it, but steep learning curve. **TODO**: try on PHP, SQL, html….
    - ▪ If doing student embedded work, may need add-on Code Composer Studio CCStudio v5. If doing pro stuff, see your real-time RT OS vendor.
  - o Microsoft **Visual Studio**. I love it, too, particularly for building fat client apps.
  - o **Komodo** IDE.
  - o **Xcode** for 🍎 Apple macOS. Looks real good.
  - o **CodeStorm** for 🍎 Apple macOS.
  - o **IntilliJ** IDEA for 🍎 Apple macOS.
- And/or a good **colorizing** program **editor**, such as:

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- o [Sublime text](#) code editor looks great on Apple macOS, Microsoft ⊞ Windows and 🐧 Linux.
  - o [Textmate](#) for Apple macOS. Looks real good.
  - o MacVim for Apple macOS.
  - o **Notepad++** 5.8.5 https://wikipedia.org/wiki/Notepad++. I love it. –OR-
  - o Textpad www.textpad.com (if you install, [get add-on syntax files for your favorite languages](#), and set colors to something vibrant). –OR-
  - o [gVim](#) 7.3 if you like VI or 🐧 Linux and want function over prettiness. –OR-
  - o [Nano](#) for 🐧 Linux or Apple macOS > Get Nano. –OR-
  - o [Komodo Edit](#) for HTML, CSS, JavaScript, JSP, PHP, XML. No WYSIWYG. –OR-
  - o Microsoft [VSCode Visual Studio Code](#). –OR-
  - o Editors that cost $$:
    - ▪ **SlickEdit** (more powerful than UltraEdit, but steeper learning curve).
    - ▪ **UltraEdit** (easier to learn than SlickEdit, but much clunkier source where-defined *Open Declaration* or *Go To Definition*, and where-used *Find All References* features).
  - o Some of these use powerful Search/Replace using [Regular Expressions](#). A learning curve, but doing so will save you LOTS of time on certain projects.
- And maybe an **application framework**:
  - o [For smartphone platforms](#) (Android, Blackberry, Apple iOS, Palm, ⊞ Windows Mobile, etc.). **TODO**: Try out [PhoneGap](#) (more platforms, code in JS, CSS3 and HTML5) or [Appcelerator Titanium](#) (faster, compiles to native APIs). [How to Develop for iOS, Android, Windows and Mac at the same time](#) : PhoneGap/Apache Cordova, Xamarin, Appcellerator, QT.
  - o [For all platforms](#).
- User experience UX design and user interface UI design tools https://makepixelperfect.com/ai-tools-for-ui-ux-designers.

- **Compare** folders and files utility (you **need** one to keep the various versions of stuff straight!):
  - o **Beyond Compare** (my favorite!), or
  - o Total Commander (I haven't used it, but a guy I trust likes it; it seems to have file management functions, too), or
  - o *[something else](#)* I could download for free when I could not get a good one at work, or
  - o compare feature in your editor, such as Eclipse or UltraEdit or SlickEdit.
  - o These are good ways to enforce your folder and file [naming conventions](#).

- For batch mass-conversions, if ad hoc Replace-In-Files in your editor above isn't good enough, and you want Multiple-Replace-In-Files in batch, get [ReplaceEm](#). Or use [Unix or GNU command **sed**](#).

Troubleshooting tools and things to make your life easier

- [Check short URL](#) and [more short URL expanders for testing a suspicious link without clicking on it](#).

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- Winternals [Sysinternals](#) (2023 "[Microsoft Sysinternals: The best maintenance, troubleshooting and analysis tools for Windows](#)"):
    - [Process Explorer ProcExp](#) or SourceForge [Process Hacker](#). Does everything that Microsoft Windows Task Manager can do, plus a lot more — find out:
        - which task has your file in use,
        - what task is using all your resources,
        - what a task's subtasks are,
        - see all network connections and ports and what processes are doing that (PH),
        - scan or analyze memory (PH),
        - etc.

        Way cool. To install, follow first External Link. Slow it down. [Link to PC Mag article.](#)
    - **Process Monitor** ProcMon - a process and thread monitor. Replaces old RegMon and FileMon. [Link to PC Mag article.](#)
    - If your computer runs **slower** than it used to:
        - If you don't use [www.**malwarebytes**.org](#) anti-malware, install the **free** version, boot to **Safe Mode**, and **run it**.
        - Start wacking or delaying programs that start themselves automatically, using:
            - (easy) **Norton Security Online** ([free with Comcast](#)) > **Tuneup** > **Startup Manager**; or
            - (moderate) **msconfig** (free on Windows) tab **Startup** (works fine, easier than below; *Windows 10* has nice link to where they moved it: **Task Manager** tab **Startup**); or
            - (moderate) **services.msc**; or
            - (don't remember) [Winternals **Autoruns**](#); or
            - (moderate) find all your **Startup** folders, and move bad entries to new sister folder **StartupNOT**,
            - (expert) Registry entries HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion**Run** and HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion**Run** (delete the bad entries) (works great).
        - Use the other tools in **msconfig** (free on Windows) tab **Tools**, including **mmc**.
        - Until your **system drive** has at least **15% freespace**, run Windows **Disk Cleanup** (or **[CCleaner](#)** Free <mark>[except in 2021, is identified by Microsoft Defender Antivirus as a PUP Potentially-Unwanted Program, and may recently be crapware]</mark> > turn off "Windows Explorer MRUs" > Run Cleaner, and then Tools > Duplicate Finder) (or [Auslogics **duplicate file finder**](#)), then move, compress or delete unneeded files.
        - Reboot, **Defrag** and reboot. (There are at least two ways.)
    - runasuser.exe
    - PortMon - a serial and parallel port monitor
    - DiskMon - a hard disk monitor
    - DebugView <mark style="background:lime">**TODO**: expand on these. Investigate RootkitRevealer.</mark>

- [Microsoft Power**Toys**](#)
    - Open Command Window Here, save lots of time if you open DOS boxes ever.

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- o Improved calculator, image tools, Alt-Tab replacer, all kinds of stuff I have found very helpful.
- o Need to try out function **SyncToy**, and KarenWare ptReplicator backup tool, for whenever my HP external harddrive gets too small. ==TODO: expand on this.==
- o Need to look into new function **PowerRename**, and **Image Resizer**.
- o Installer at https://github.com/microsoft/PowerToys/releases > **Assets** > *.exe.

- Microsoft offers **bootable** anti-malware: Microsoft Defender Antivirus (was Windows Defender Antivirus) Offline tool.
  ==TODO==: Try the above, and Attack Surface Analyzer.
  Kim Komando keeps track of this stuff.

- UNetbootin bootable USB drive, BIOS updater (how to use), partition manager, password resetter, anti-virus Rescue disk, and other cool tools.
- If that doesn't work.
- **Bootable USB drive** Kingston Technologies DataTraveler Workspace (Windows to Go).
- If your SSD/harddrive is **protected** by **BitLocker**, you can copy its encryption key to a USB drive or other backup device in case you need it later. I did this once, as it was recommended when I was updating my BIOS. How to Enable or Disable Bitlocker Encryption in Windows.

- ~~Bootable CD tool Paragon Software partition manager. Said to (1) clone harddrives — even dodgy (failing) ones, and (2) resize partitions, e.g., to migrate to larger drive.~~
- ~~Bootable CD Ultimate toolkit or bootable USB creator.~~
- ~~To burn or copy **bootable CDs** or **bootable DVDs** from **ISO images**, such as for your various **Rescue CDs**, please below in the File management section.~~

- More free utilities for Windows from GNU.

- Harddrive testing programs.

- Karen's Power Tools for Windows. ==TODO: expand on this.==

- "Library of millions of **free books, movies, software, music**," and **website Wayback Machine** (not the same as Apple Time Machine) at the **Internet Archive**.
- Wikibooks and Project Gutenberg.
- Free movie streaming.

- ==TODO==: investigate:
  - o What's in your machine:
    - ▪ Sysinfo SI HWiNFO32
    - ▪ SIW System Information for Windows
  - o Crap Cleaner.
  - o Recuva locate deleted files and selectively undelete restore them, or Diskinternals uneraser.
  - o Defraggler defragger.
  - o **VirtualBox** desktop virtualization (way cool, I use it every week, need to write about it).

- More in the Testing section.

Unix tools that run under Microsoft Windows
- **Cygwin**. Runs a lot of Unix/🐧 Linux utilities. Very useful, and good for automation.
  - o Some of the above use powerful Search/Replace using Regular Expressions.
  - o Nice 📹 **video installation instructions** by Calvin College Prof. **Joel Adams**.
  - o <mark>**TODO**: expand on this.</mark>
  - o 🐧 Linux command reference for your Android!

- GNU Unix utilities for Win32 Windows DOS http://unxutils.sourceforge.net: bc, bison, bzip2, diffutils, fileutils, findutils, flex, gawk, grep, gsar, gzip, indent, jwhois, less, m4, make, patch, recode, rman, sed, shellutils, tar, textutils, unrar, wget, which. I find tar/bzip2 and sed very useful, and grep.
  - o Some of the above use powerful Search/Replace using Regular Expressions.
  - o Can get a subset of this functionality in a single binary in Swiss File Knife.

Distributed-team 📹 video-conferencing apps
- This section is <mark>**much** more up-to-date at my document "Preparing and showing 🖥🎨 presentations (for 👥 people who do this sporadically)</mark>".
- "I have used about five different ones. Most are fine, but you should have newbies install the software the day before, in case it doesn't work. Some need to be rebooted after installation. Wish I have kept notes as to which are which ...
- **Zoom** Video Conferencing. Installs right away! If you have newbies log on 4 minutes before the meeting, you have a chance of getting everyone on!
  - o > Meetings or Video Webinar.
  - o Setup > Virtual Background.
  - o Meeting-recording option.
- Google **Meet** https://meet.google.com (formerly, classic Hangouts video call).
- Microsoft **Skype**, and **Teams**. And now I hear that, as of 2020-04, MS Teams has been added to MS Office 365, and together branded **Microsoft 365**.
- Cisco **Webex** Personal or paid; Teams, Meetings, Events, etc.
  - o Very functional. Different room feature is way cool!
  - o As of 2020-08, interface is a bit clunky, surprising since Webex created this marketspace.
- GotoMeeting.
- crowdcast.
- More at sister document https://EricPiehl.alterVista.org/present.pdf#page=2 section 1.2.1 "First steps".
- More thoughts in *Consumer Reports* article "Working from Home because of COVID-19? These Tech Ideas can make it Easier".

Distributed-team chat apps
- Slack.

Remote Access

- **Remote Desktop Connection**. Will connect you to and take over a target PC without first having to install any VNC server software on the target machine.
  Comes already installed on Microsoft Windows Pro, Business or Ultimate versions. Web says it not included on Windows Home versions. Bizarrely, my Windows 7 Home Premium has the client (viewer) half, but not the server (target) half???
  Includes mapping your local harddrives as virtual harddrives on the remote machine, for easy drag-and-drop without FTP. Makes some stuff way easy!
  To use, see the good Microsoft help pages on that, to:
  - Set up the target (client) PC to allow it.
  - Run RDC server.

- **VNC** Virtual Network Computing. First must install a VNC server on the target machine, and a VNC viewer on the remote machine. Works very well, too.
  - **RealVNC**. Free viewer. My favorite for longer connections, such as over 2 minutes.
  - **UltraVNC**. Free viewer. Nicer/easier dialog to get to the target versus RealVNC, but less easy to use for longer connections (over 2 minutes).
    TODO: expand on this.
  - **TightVNC**. Recommended to me by people I trust, but I haven't installed it.

- If you don't have RDC or VNC above, I read that LogMeIn works well, is free, and runs through a web browser. You can pay for extra goodies, but the free version is said to be good enough for first use. If you use this, please let me know; maybe this belongs in the VNC paragraph above.

- To hold **webcasts**:
  - Software from **Cisco**, on first use, has **lots** of teething pains.
  - Software **Zoom** installs quick and easy.

Networking

- ⊞ When Windows 11 decides it is **missing Wi-Fi**.

- Check short URL and more short URL expanders for testing a suspicious link without clicking on it.

- Ookla > Internet speed test for mobile and computers.
- Look into https://speedtest.net. Sometimes works OK. **Do not click on their many ads!**
- Look into https://speed.measurementlab.net from NDT Network Diagnostic Tools from Measurement Labs M-Lab.
- NEW Google speed test https://google.com/search?q=speed+test > box **Internet Speed Test** button **Run Speed Test**.
- Overlook Fing SSID and IP details, and speed of your current Wi-Fi connection; network discovery, TCP port scanning, ping, *Traceroute* and DNS lookups; on your Android! I believe there is an iOS version, too.
- More broadband internet speeds explained.
- And see Ten Windows 10 network commands everyone should know.

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- Change your computer's DNS setting.
- Network packet sniffer WireShark (works great).
- Wi-Fi network packet sniffer NetStumbler (I should try this).

- Wi-Fi Analyzer on your Android, I love this one. Others. Good tips.
- Network analyzer for Android http://netalyzr.icsi.berkeley.edu/.

- What is my **IP address**?
    - www.whatsmyip.org, plus "More Info About You" "Traceroute", and other cool tools — lots of info, no ads.
    - https://duckduckgo.com/?q=my+IP
    - https://google.ca/search?q=my+IP
    - https://lifewire.com/192-168-0-1-818066
- **Whois** the **holder** of this Internet **domain**, **URL** or **IP** address? ("**nslookup**" or "**whois**" services):
    - Karen's Power Tools whois
    - www.whatsmyip.org > "WHOIS & DNS"
    - www.internic.net/whois.html
    - https://www.whois.com/whois /*yourDomainNameOfInterest* minimal ads
    - http://www.internic.net/whois.html recommended by Apache and CentOS, forwards to https://lookup.icann.org/.
    - http://whois.domaintools.com /*yourDomainNameOfInterest* lots of cool info
    - http://dnstoolkit.net/nslookup /*yourDomainNameOfInterest*
    - ~~www.scamanalyst.net if they show anything, they show **lots** of cool info~~
- And see Ten Windows 10 network commands everyone should know.

- SharesFinder on your Android!
- Default router passwords on your Android.
- Seeing your actual Wi-Fi passwords.
- Bandwidth monitoring tool Arpwatch, and other cool tools from http://ee.lbl.gov/.
- I really like the Wikipedia network tools, listed at the bottom of dotted-IP User_talk pages. As of 2011-05-30:
    - ~~WHOIS www.toolserver.org/~chm/whois.php~~ ?ip=*yourDottedIpAddress*
    - rDNS www.robtex.com/ip/ *yourDottedIpAddress*.html
    - *Traceroute* www.dnsstuff.com/tools/tracert/?tool_id=68 &ip=*yourDottedIpAddress*
    - Geolocate www.ip2location.com/ *yourDottedIpAddress*
    - RIRs:
        - America http://whois.arin.net/ rest/ip/*yourDottedIpAddress*.html
        - Europe www.ripe.net/fcgi-bin/whois ?searchtext=*yourDottedIpAddress*
        - Africa www.afrinic.net/cgi-bin/whois ?query=*yourDottedIpAddress*
        - Asia-Pacific www.apnic.net/apnic-bin/whois.pl ?searchtext=*yourDottedIpAddress*
        - Latin America/Caribbean www.lacnic.net/cgi-bin/lacnic/whois?lg=EN &query=*yourDottedIpAddress*
- Registrar and domain name security check.
- I haven't used this 🐧 Linux-based open-source diagnostic and monitoring Network Security Toolkit, but it looks interesting.

- And see Ten Windows 10 network commands everyone should know.

- Traceroute above, and:
    - ⊞ Windows ⊞**Win+R** (or ⊞**Start** > Run) > "`cmd`" > Enter > `tracert yoursite.com`
      or Karen's Power Tools traceroute utility for Windows
    - Unix/🐧 Linux `traceroute yoursite.com`

- When you permanently **move your website**, redirect traffic from old to new location, in a search-engine-friendly manner, using a 301 redirect in an .htaccess file in your web server root.

- **TODO**: add Metasploit www.rapid7.com/products/metasploit and nmap www.nmap.org tools.

Graphics/Images/Photos

Images can be (Wikipedia article):

- **Lossy** raster graphics image formats (uses lossy compression — destroys some info):
    - **.avif** (lossy and lossless, new in 2022) (and maybe .avci .avcs .avifs .heic .heics .heif .heifs),
    - **.jpeg**/JFIF,
    - **.j2k**/JPEG 2000 irreversible wavelet transform,
    - **.heif** set for lossy image data storage, **TODO**: find out how to set that (and maybe .avci .avcs .avif .avifs .heic .heics .heifs).
    - **.pcd** (viewable only via Kodak propriety viewer — covert to .jpg using pcdtojpeg),
    - **.webp** (Google).
- **Lossless** raster graphics image formats (no or lossless compression):
    - **.avif** (lossy and lossless, new in 2022) (and maybe .avci .avcs .avifs .heic .heics .heif .heifs),
    - **.bmp**,
    - **.dng** (Adobe Photoshop and Lightroom negative, extension to .tiff),
    - **.flif** (free lossless image format),
    - **.gif**,
    - **.j2k**/JPEG 2000 reversible wavelet transform,
    - **.heif** set for lossless image data storage, **TODO**: find out how to set that (and maybe .avci .avcs .avif .avifs .heic .heics .heifs)
    - **.mng**,
    - [*raw*] (specific to each vendor, such as **.nef** for Nikon or **.crw .cr2** for Canon),
    - **.pcx**,
    - **.pdf**,
    - **.png**,
    - **.psd** (Adobe Photoshop's native format),
    - **.svg** (Scalable Vector Graphics vector-based drawings),
    - **.tiff**,
    - **.vsd** (vector-based drawings by Microsoft Visio),
    - **.xaml**,
    - **.xcf** (GIMP's native format).

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- **Lossless** vector-based drawings:
    - **.ai** (Adobe Illustrator Artwork format, vector-based, use AI, GIMP or Inkscape),
    - **.eps** (Adobe Illustrator format, containing both vector- and bitmap-images),
    - **.vsd** (vector-based drawings by Microsoft Visio).

- **Layered** image formats:
    - **.ai** (Adobe Illustrator Artwork format, vector-based, use AI, GIMP or Inkscape),
    - **.dng** (Adobe Photoshop and Lightroom negative, extension to .tiff),
    - **.eps** (Adobe Illustrator format, containing both vector- and bitmap-images),
    - **.gif** animation frames,
    - **.heif** (🍎 Apple) (and maybe .avci .avcs .avif .avifs .heic .heics.heifs),
    - **.pdf**,
    - **.psd** (Adobe Photoshop's native format),
    - **.svg** (Scalable Vector Graphics vector-based drawings),
    - **.tiff**,
    - **.vsd** (vector-based drawings by Microsoft Visio),
    - **.xaml**,
    - **.xcf** (GIMP's native format).
- **Flat** image formats:
    - **.avif** (new in 2022) (and maybe .avci .avcs .avifs .heic .heics .heif .heifs),
    - **.bmp**,
    - **.eps** (Adobe Illustrator format, containing both vector- and bitmap-images),
    - **.gif** non-animation frames,
    - **.jpeg**/JFIF,
    - **.j2k**/JPEG 2000,
    - **.mng**,
    - [*raw*] (specific to each vendor, such as **.nef** for Nikon or .crw **.cr2** for Canon),
    - **.pcd** (viewable only via Kodak propriety viewer — covert to .jpg using pcdtojpeg),
    - **.pcx**,
    - **.png**,
    - **.webp** (Google).

- To view **images**, you already have tons of options on your computer, but I like:
    - ~~Picasa http://picasa.google.com~~, or its replacement **Google Photos** https://photos.google.com. I liked Picasa much better than the photo organizer from my 📷 camera, and much better than Photoshop. I should soon have an opinion on GP. Review.
- To **rip** or capture your screen, use:
    - **[Alt-PrtScn]** > then Paste into MSPaint or GIMP.
    - SnagIt.
- To modify, retouch or author **raster graphics images** (photos, movies), use any one of:
    - **GIMP** GNU Image Manipulation Program www.gimp.org free (cropping, conversions, and feature "clone" work Great!) (said to have functionality similar to Adobe Photoshop, and is better for home users).
        - Has a function **color picker**. Also a function in Microsoft PowerToys.
        - For colors, see Pantone and Freetone at https://hackaday.com/2022/11/16/interview-stuart-semple-on-pantone-freetone-colour-and-open-source.

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- **Markup** for 🍎 Apple macOS?
- **Pixelmator** for 🍎 Apple macOS?
- **MyHeritage** https://myheritage.com tools, as described in https://wmgs.org/pdf/MyHeritage_Photo_Tools_handout.pdf :
  - Sharpen focus or blurry photos, using Photo Enhancer https://myheritage.com/photo-enhancer.
  - Colorize or restore color, using Color Restoration https://myheritage.com/incolor.
  - Animate still photos a bit, using Deep Nostalgia Animation https://myheritage.com/deep-nostalgia.
  - Record stories behind your favorite family photos, and attach this to your photo as 🔊 voiceover audio, using Photo Storyteller.
- **TODO:** Look into Canva.
- **TODO:** Look into newer versions of **IrfanView**.
- Adobe **Photoshop CS** $$ or **Photoshop Elements PSE** $80 (feature "free transforming" allows you to knit photos or docs together into one piece, feature "context-sensitive clone" is said to be like GIMP clone, but you don't have to pick out the "from" area). If you chose this one:
  - At install, may need to regsvr32 from %SystemRoot%\System32 and %SystemRoot%\SysWOW64 on %ProgramFiles%\Adobe\Adobe Premiere Elements [Photoshop?] 11*.ax.
  - Before **backup**, copy its project files %ProgramData%\Adobe\PSE n and PRE n***.psess** and ***.prel** to somewhere in My Documents, then do the backup.
  - For colors, see Pantone and Freetone at https://hackaday.com/2022/11/16/interview-stuart-semple-on-pantone-freetone-colour-and-open-source.
- Adobe **Photoshop Express** www.photoshop.com/products/photoshopexpress free on Android, 🍎 Apple iOS, Windows Phone, Windows (have not yet looked at it).
- **TODO:** Adobe **Spark** on web?
- Overlay (filter) an image with a flag.
- **Irfan** photo viewer and converter www.irfanview.com. **TODO**: Verify has alleged screen image-grabber function. If Yes, for quality, save as .tiff or .png.
- Web-based www.fotoflexer.com.
- Google Photos (when it was **Picasa**) (great for red-eye and lightening pics, and for face recognition). Review.
- Microsoft Paint **MSpaint** (bare-bones cropping or conversions).
- **iPhoto** (🍎 Apple macOS). How does this differ from 🍎 Apple **Aperture** or **Pixelmator**?
- To **resize images** that look good even expanded 1,000% due to fractal processing, I am told that great is "**Perfect Resize**".
  To convert color photos to **black and white**, I am told great is **Perfect B&W**. These two and other utilities are bundled in **Perfect Photo Suite**.
  Said to have interfaces to Adobe **Photoshop** and 🍎 Apple **Aperture**.
  - **Markup** for 🍎 Apple macOS?
  - **Pixelmator** for 🍎 Apple macOS?
  - Also see Microsoft PowerToys function **Image Resizer**.

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- o To colorize **black and white** photos to color, I am told there is https://playback.fm/colorize-photo.
  - o **MATLAB** from MathWorks, I have heard of one person using this to process images.
  - o To convert Kodak-propriety **.pcd** to **.jpg**, use **pcd**to**jpeg**.
  - o Other image converters.
  - o 13 Reasonable Alternatives to Adobe's Expensive Apps.

- To **draw vector graphics**, including working with **logos**, use:
  - o Microsoft Office **Visio**, $, Microsoft Windows. I like it, but can get tedious.
  - o **Adobe Illustrator** $, looks very good, incl. let trace vectors over a raster pic.
  - o **Adobe InDesign** $, publishing and typesetting, I read is for plotters, mills and engravings, or for posters, flyers, brochures, magazines, newspapers, and books.
  - o **Adobe Photoshop** $, is supposed to have some vector graphic capability.
    - ▪ For colors, see Pantone and Freetone at https://hackaday.com/2022/11/16/interview-stuart-semple-on-pantone-freetone-colour-and-open-source.
  - o 13 Reasonable Alternatives to Adobe's Expensive Apps.
  - o **TODO:** Look into Canva.
  - o **Inkscape**, free, all platforms. Said to be awesome on .svg, .pdf, .ai, raster, etc.
  - o **LibreOffice** Draw, free.
  - o **Omingraffle** on 🍎 Apple macOS.
  - o **Markup** for 🍎 Apple macOS?
  - o **Pixelmator** for 🍎 Apple macOS?
  - o **Google Drawings**, free.
  - o **Lucidchart**, free, said to be "diagramming and flowcharting software to map business processes, model databases, design software applications, draw IT networks, . . . and integrates with . . . Google Apps [later **G Suite**, now **Google Workspace** above] for Work, Office 365 [I hear that, as of 2020-04, MS Teams has been added to MS Office 365, and branded **Microsoft 365**], and Slack."
  - o Skills for graphic design.

- To **design 3D models**, presumably also **vector models**, perhaps for making real via **3D printing/additive manufacturing**:
  - o **Google SketchUp**.
  - o **ZBrush**.
  - o **Adobe InDesign** $, publishing and typesetting, I read is for plotters, mills and engravings, or for posters, flyers, brochures, magazines, newspapers, and books.
    - ▪ 13 Reasonable Alternatives to Adobe's Expensive Apps.
  - o https://**Onshape.**pro/veritasium computer-aided design **CAD**, data management and collaboration platform, available to the **hobbyist** and **maker** communities free of charge for non-commercial use.

- To do **mass renames** of files or folders (poor-man's tags), use Metamorphose Métamorphose 1.1.2.
  - o To make things easy on yourself or buddies running Unix or Linus, or running any platform and using Unix or GNU utilities, I use (and recommend to all techies) **usernames**, **filenames** and **folder names** with ***no* spaces (blanks) " "**.

- o Instead use **camelCase** for metadata that relates to each other, perhaps separated by **underscores** "**_**" or **hyphens** "**-**" to metadata that doesn't relate.
- o I try to put all metadata in the filename. For example, for photographs, I use format *date_WhoFromTopToBottomLeftToRight_Where_doingWhat_byWhom.ext*, where:
    - ▪ **date** is in ISO 8601 format, *yyyymmdd* (within the doc will be *yyyy-mm-dd*). The international standard, and it sorts correctly!
    - ▪ **Who** is in UpperCamelCase *FirstLast*.
    - ▪ **Where** is in UpperCamelCase, perhaps *CityStateCountry* or *VillageCountyST*.
    - ▪ **doingWhat** is in lowerCamelCase, perhaps *atZoo*.
    - ▪ **byWhom** is probably sometimes their initials, perhaps *byEP*.
    - ▪ **ext** is the file extension, perhaps *.png*.
- o Need to look into Microsoft Power**Toys** new function **PowerRename**.

- • [To take a cellphone **mobile screenshot**.]
    - o Android: hold buttons **Power** and **VolumeDown** for 3 seconds, until screen shrinks.
- • Windows, do one of:
    - o ⊞**Start** > "**snip**" > wait > desktop app **Snipping Tool** > **New** > mouse drag rectangle you want > **Exit** > Save=**Yes** > to **.png** or **.tiff** format (lossless!), not **.jpg** (lossy!).
    - o ⊞**Win+Shift+S** > choose a shape > drag your area > do something with your results in the Clipboard or Notification.

🎥 Video

- • To **view** *all* types of 🎥 video and 🔊 audio sound media, including the open **.ogg** format:
    - o If you **any** issues with your current media player, install **VLC media player** from VideoLAN. I love it! Plays all kinds of files, tolerates incomplete or damaged media files, records played media, converts between file types, and grabs individual-frame screenshots. *An article recommends that if you are also going to install the Irfan photo viewer and converter (described above), install Irfanview first, before VLC, so VLC becomes the default for all media files.*
- • To save videos from Facebook.
- • To **rip YouTube videos** (and some other Flash video streams) into **video files** on your harddrive:
    - o As of 2018-02-19 and 2021-02-19, OK seems to be http://www.clipconverter.cc > remember and follow the instructions listed there > exit the new tab of advertising that it opens.
    Download as **.avi** or **.mp4**.
        - ▪ Downloading **Full HD 1080p** (1920x1080) in format **.mp4** showed great in **VLC** media player, but was **very-jerky** playing in **MS PowerPoint 2010**.
        - ▪ Downloading **HD 720p** (1280x720) in format **.mp4 or.avi** played very well in PP 2010.
        - ▪ Downloading **HD 720p** (1280x720) in format **.mov**, and **.mp4 or.avi**, were also very-jerky playing in PP 2010.
        - ▪ Downloading **HD 720p** (1280x720) in format **.wmv** was not Insertable into PP 2010.

- ▪ If this website works for you, <mark>do **not** try any of the following . . .</mark>
  - o www.computerhope.com/issues/ch001002.htm has lots of suggestions. The only one that works on my locked-down system (and then only in IE) is www.keepvid.com > at bottom of page, turn on "Java ", "Show Log " and "Show Sizes (MB) " > Paste into text box at **top** your YouTube or other URL > click **top-right** button "Download" (middle button "Download" is an ad, I think) > wait a bit > let Java app KeepVidDownloader from http://keepvid.com Run > I have been using Download MP4 (Max 480P) to good effect.
  - o https://github.com/rg3/youtube-dl works, but puts on **Trojan: Win32/Tefau.A!cl**, so if you must use this software, <mark>run a full antivirus scan!</mark>
  - o <mark>Do not use this: contains difficult-to-remove malware: ~~YouTube Downloader YTD~~</mark>. ~~(On 2013-02-03, this failed, unless I reformatted~~ ~~www.youtube.com/watch?v=11chacterID to http://youtu.be/11chacterID or to http://youtu.be/11chacterID?hd=1, but I haven't seen this problem in a while.)~~
    - ▪ ~~If YTD saved the file as a **.mp4**, and you are going to use it in Adobe **Photoshop Elements** PSE 11 **slideshow**, it will crash PSE. Installing Adobe **Premiere Elements** PRE 11 helped PSE to not crash on **.mov** files. But still, PSE 11 crashes on **.mp4** and **.3gp** files. Finally found a help page about slideshows needing to be photos or .pse or .wmv. Use YTD to convert the **.mp4** download to **.avi** (9% larger, but better frame rate) or **.wmv** format, then use that in your PSE slideshow.~~
- To **download** non-video files (**never** download a **.dll**–**don't do it!**):
  - o ~~**TODO**: try www.computerhope.com/issues/ch001002.htm.~~
  - o ~~Paste your URL into www.downloadbyurl.com. Seems to be bad now.~~
- To **rip a DVD** using VLC.   Or **trim** or **convert** videos using VLC or Clipchamp.
  - o I find **.mpg** files to be this highest quality. Not bad.
  - o If you are going to use in PowerPoint 2010, and PP doesn't like that:
    - ▪ Convert it to an **.mp4** file, using codec **H.264**. Less quality than above, but not terrible.
    - ▪ Do **not** convert it to an **.mp4** file, using codec **H.265**. Very jumpy; pretty terrible.
    - ▪ Convert to an **.avi** or **.wmv** file?
- To **create** video animations, I am told Adobe **After Effects** is good.
  - o 13 Reasonable Alternatives to Adobe's Expensive Apps.
- To **edit** video, I am told Magix Movie Edit Pro Plus, and Apple **Final Cut** Pro X and Compressor (macOS, apparently) are good.
  And of course, Adobe **Premiere Pro** ($$), and Adobe **Premiere Rush** or **Premiere Elements** PRE ($). Help https://youtu.be/TEAnYKgvPxg. (13 Reasonable Alternatives to Adobe's Expensive Apps.)
  And Apple **iMovie** (for macOS) (and **Screenflow** for Apple macOS?) and **iMovie for iOS** (and presumably for **iMovie for iPadOS**).
  Need to look into **VideoLAN Movie Creator VLMC** https://videolan.org/vlmc.
  To **trim** (video for **crop**-in-**time**):
  - o Adobe **Premiere Elements** PRE ($) (three different ways) (my favorite is by launching Adobe Premiere Elements PRE 11 > button "Video Editor" > button "New Project" > top navigation bar "Quick" > drop your input file into button "Drop Files Here" > ▶ Play until right part [if you wish, zoom the timeline using the lower right Render zoom slider] > Pause or slide the red you-are-here timeline until you get to the right spot > mouse to the red you-are-here timeline

until you see a button with scissors icon > click that scissors button > for each part you don't want to use, right-click it "Delete and close gap" > repeat this for anything else you need to do. When you are happy, "File" > "Save" or "Save As" the project file to location and name you wish > upper-right button "Publish+Share" > "Computer" > "AVCHD" > something compatible with frame rate of the original, such as "MP4 - H264 1440x1080p 30" [.mp4] [launches in WMP] [good quality] > file name and location for your movie > "Save"), or

  ▪ 13 Reasonable Alternatives to Adobe's Expensive Apps.
- o **VLC** > View > Advanced controls > ▶ Play pause frame-by-frame > Record, find in "file:///C:/Users/*yourUserName*/Videos", or
- o **Clipchamp**, allegedly integrated into Windows 11, with a stock library of royalty-free assets.
- o **Windows Live Movie Maker**, but it is lossy (changed .mpg to .wmv, to half size, from 720x480 x 224 kbps to 640x480 x 128k), or
- o www.solveigmm.com/en/products/avi-trimmer-mkv and doc www.solveigmm.com/files/USG_AVITrimmer.pdf. SolveigMM_WMP_Trimmer_Plugin_2_1_1111_8.exe > Windows Media Player > Tools->Plug-ins->SolveigMM WMP Trimmer Plugin.

- **YouTube:**
  - o Upload via https://youtube.com/upload.
  - o More details at https://EricPiehl.alterVista.org/antivirus.pdf#page=20 section "Upload video to YouTube".
- **YouTube video URLs:**
  - o ❗ https://youtube.com/embed/8cRrjJCgRcQ ▶ Play > ☐ fullscreen, shorter URL
  - o ❗ https://www.youtube.com/embed/8cRrjJCgRcQ ▶ Play > ☐ fullscreen.
    - ▪ "*For full effect,* select the video link, then icons ☐ fullscreen, cc captions, ▶ Play, and ☐ ☒ Skip Ads."
  - o https://youtu.be/4AjzTcavoYw ordinary viewer, shortest URL
  - o https://youtube.com/watch?v=4AjzTcavoYw ordinary viewer, shorter URL
  - o https://www.youtube.com/watch?v=4AjzTcavoYw ordinary viewer, full URL
  - o www.youtube.com/watch?&v=4AjzTcavoYw what I was using in docs
  - o There are additional parameters for autoplay, start at a particular time, etc. https://youtu.be/RzzWmTIVv3c?t=37m36s ordinary viewer, at a particular time https://youtube.com/embed/8cRrjJCgRcQ?rel=0&autoplay=1;fs=0;autohide=0;hd=0 https://youtube.com/embed/8cRrjJCgRcQ?cc_load_policy=1 https://www.youtube.com/embed/8cRrjJCgRcQ?yt:cc=on https://www.youtube.com/embed/8cRrjJCgRcQ?yt%3Acc=on
- "Library of millions of **free books, movies, software, music**," and **website Wayback Machine** (not the same as Apple Time Machine) at the **Internet Archive**.
- Free movie streaming.
- 🎞 Video **converters**.
- To record your screen (Apple, Android, ⊞ Windows) into a video file.
- How to **Record Phone Calls** on your iPhone or Android.

🔊 Audio/Sound

- Radio.
- To communicate via voice over VoIP: **Skype** or **WhatsApp** or Google **Hangouts**.
- To **play all** types of 🔊 audio sound and 🎦 video files, including the open **.ogg** format,
  - I use **iTunes** for almost everything, mostly because of downloading free podcasts.
  - If you **any** issues with your current media player, install **VLC media player** from VideoLAN. I love it! Plays all kinds of files, tolerates incomplete or damaged media files, records played media, converts between file types, and grabs individual-frame screenshots. *An article recommends that if you are also going to install the Irfan photo viewer and converter (described above), install Irfanview first, before VLC, so VLC becomes the default for all media files.*
  - One article suggests Jaangle.
  - Other file extensions are **.mp3**, **.wma**, **.flac**, **.ape**, **.aac** (🍎 Apple iTunes), **.acc** (🍎 Apple) and **.acelp** (for speech).
  - **TODO**: Look up which formats are lossless or high quality.
- For royalty-free 🔊 audio files, see Partners in Rhyme. Some tracks are free.
- "Library of millions of **free books, movies, software, music**," and **website Wayback Machine** (not the same as 🍎 Apple Time Machine) at the **Internet Archive**.
- To **rip streaming audio Flash** to your harddrive, howto.
- ~~To **download**, Paste your URL into www.downloadbyurl.com. Seems to be bad now.~~
- To **record** and **edit** 🔊 audio sounds, including **trim** (crop):
  - Cross-platform, **Audacity** ~~1.3.13, free.~~ [2021-07: now considered **malware.** The old Audacity is being resurrected as **Tenacity** or **Sneedacity**.]
  - On 🍎 Apple **iOS** (and presumably for **iPadOS**), use app Voice Memos.
- How to **Record Phone Calls** on your iPhone or Android.
- 🔊 Audio **converters**.

- To **rip audio CDs** to 🔊 **audio files** onto your harddrive:
  - See folder file:///C:\Users\EricP\Documents\Tools\VLC\, and tailor file "Follett_WorldWithoutEnd_VLC_CD_RIP.bat".
  - Can run it with ⊞**Win+X** (or right-click of ⊞**Start** icon) > **Windows PowerShell (Admin)** or **Command Prompt (Admin)** > type:
    - "**cd C:\Users\EricP\Documents\Tools\VLC**" (no quotes) [Enter],
    - "**.\ Gawande_BeingMortal_VLC_CD_RIP.bat**".
  - You probably want to move your new files
    - from file:///c:\Users\EricP\Music\VLC_CD_RIP *author**title*
    - to file:///c:\Users\EricP\Music\iTunes\iTunes%20Media *author_title,*
    - and then to a **flash-drive/jumpdrive/¿SSD?/thumbdrive/USB-drive/USB-key/ USB-stick** to put in the car.

- To **rip YouTube videos** to 🔊 **audio files** onto your harddrive:
  - https://www.youtube**5s**.com/watch?v=＿＿＿＿＿＿ > dropdown to **MP3 128kbps** > button **Get Link** > right-click button **Download** > **Open in New tab** > **Save File** > *if any popups*, exit them > wait for **.mp3** file to show up in the folder your browser uses for Downloads.
  - ~~Launch computer app **VLC** >~~

- ~~action bar **Media** > **Open Network Stream ...** > tab **Network** > URL for your video file (e.g., https://www.youtube.com/watch?v=_____)~~ > <mark>~~*[if way longer than you need,* check checkbox **Show more options** > give it a starting and ending time >]*~~</mark> ~~button **Play** > after it starts >~~
- ~~action bar **Tools** > **Codec Information** > copy **Location** > stop the video >~~
- ~~action bar **Media** > **Open Network Stream** > tab **Network** > Paste the long URL you copied above > dropdown **Play** > **Convert** [Stream > button Next > button Add file >] > **Audio – MP3** > give it a **destination folder** (e.g., file:///C:\Users\EricP\Downloads\) and **filename** (e.g., _____.mp3) >~~ <mark>~~*[if way longer than you need,* check checkbox **Show more options** > give it a starting and ending time >]*~~</mark> ~~button **Save** >~~
- ~~button **Start** > wait for file to be converted > do something with the file.~~
- ~~2022-01-20 haven't been able to get this to work, on~~ ~~https://www.youtube.com/watch?v=CMSIMrCynyg into https://rr5--sn-vgqsknld.googlevideo.com/videoplayback?expire=1642739401&ei=aOLpYbfaN4b0igS8ub2oCA&ip=2601%3A404%3Ace00%3A150b%3A706b%3Af307%3Adefc%3A85cd&id=o-ANb3c-g3AoxSZeQCKjD91spXAkE7SSmMYzK0InqYXMiY&itag=22&source=youtube&requiressl=yes&mh=dv&mm=31%2C26&mn=sn-vgqsknld%2Csn-p5qlsndk&ms=au%2Conr&mv=m&mvi=5&pl=34&initcwndbps=1507500&vprv=1&mime=video%2Fmp4&ns=LzDSWreqgfVhL8aH468R9nEG&ratebypass=yes&dur=1217.190&lmt=1619902984140078&mt=1642717514&fvip=5&fexp=24001373%2C24007246&c=WEB&txp=5311224&n=opTKyM5ag8MrtSwch0PU&sparams=expire%2Cei%2Cip%2Cid%2Citag%2Csource%2Crequiressl%2Cvprv%2Cmime%2Cns%2Cratebypass%2Cdur%2Clmt&sig=AOq0QJ8wRQIhAOVJKGB_zX0bnRP52Ni5YjiW0zBTQo1pGwYbgZ99-h00AiA1aiQeZQwBUpB2aZVCs1hVta--9tfeq9yACMX5G3fqQ%3D%3D&lsparams=mh%2Cmm%2Cmn%2Cms%2Cmv%2Cmvi%2Cpl%2Cinitcwndbps&lsig=AG3C_xAwRgIhAIhAFDLCkPjrcLjjBfVmCftfpTpiWT5MqLktf2x53leiAiEA2XHatiYrPYIiEh6AU3TexQYf7NLSbdD5MQouO5L64TM%3D~~ ~~into~~ ~~file:///C:\Users\EricP\Downloads\CMSIMrCynyg.mp3 — https://online-tech-tips.com/google-softwaretips/how-to-rip-audio-from-youtube.~~
  - ~~**VLC** > **Convert / Save ...** > tab **Network** > **Add** > URL for your video file > dropdown **Convert / Save** > **Audio – MP3** > give it a destination folder and filename > button **Start**. As of 2022-01-19, creates 0-length file.~~
  - ~~https://video.genyoutube.net /VamQSEW7KAw. (As of 2022-01-19, broken.)~~
  - ~~https://mp3-convert.org/ (As of 2022-01-19, horrible ads.)~~

- My local library, has a **Podcast Studio** (only 1 reservation allowed per day), with:
  - A **soundproof room** with a Internet, phone, table, 4 chairs, instructions,
  - Three 🎤🔊 **professional microphones** and closed-back headphones, connected to a ...
  - **RØDECaster Pro audio mixing console** (mixing board) https://rode.com/rodecasterpro, which can store audio recordings on a **microSD** (µSD microSDHC microSDXC microSDUC TF) card, and optionally transmit it over a USB-A/USB-C cable to a ...
  - laptop running ...

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- o RØDECaster Pro Podcast Studio software (to configure something, and one way to get your recording off the mixing board), and
- o **Adobe Audition 2020** software (to **edit your** 🔊 **audio recording or podcast**).
  - ▪ [13 Reasonable Alternatives to Adobe's Expensive Apps](#).
- o **Instructions** and **signup** are at [https://**kdl.org/podcast**](#). Under the COVID-19 coronavirus pandemic, they only allow one signup per day, so you might as well reserve it all day! **Hours** [https://kdl.org/locations/ADA](#). **Questions** "Penni Zurgable ([PZurgable@kdl.org](#))".
- o I made a test audio recording and transferred it to my computer. Way cool!
- o Need to verify that I can fix soft recording level, by **adjusting mixer board's Output-level slider**.
- o Need to determine how to feed **podcast studio**'s 🔊 good audio into a Zoom presentation, or a 📷 **video recording** of someone showing and doing stuff on a computer. Presumably from the mixer's Audio Outs, into a computer, using some combination of cables and connectors.
- o May practice **editing an** 🔊 **audio recording** using podcast studio's **Adobe Audition 2020** software.
  - ▪ [13 Reasonable Alternatives to Adobe's Expensive Apps](#).
- Need to determine a way to,
  while people are **waiting** for a Zoom presentation to start,
  while sharing a nice slide with the name and subject of the presentation and that it will start soon,
  have neither silence nor the panelists talking among themselves,
  but have some 🔊 **music or nature sounds**,
  so that people know their 🔊 audio is working.
  This is regardless of using a podcast studio or not.
  This ought to work, but it doesn't: On slide-sharing computer > launch presentation with intro slide with the name and subject of the presentation and that the presentation will start soon > launch audio > launch Zoom > button "Share Screen" > check checkbox "Share sound" > select the window with the intro slide > button "Share" > verify slide and audio are visible and audible over Zoom. The slide is visible, but the audio is not. Does the audio have to be embedded in the slide?

</> Web development

- **Static website generators:**
  - o I wrote my own! Which I use for [iCanSeeNature.com](#) and [EricPiehl.com](#).

- [Website builders (free)](#).

- **HTML editor**, WYSIWYG, [https://wikipedia.org/wiki/**KompoZer**](#) version 0.7.10, said to be more reliably maintained than Nvu.
  - o When is this going to support [HTML 5](#)?
  - o [font type guide](#)

- **HTML validator** program [https://wikipedia.org/wiki/**HTML_Tidy**](#) (set to XHTML 1.0 Transitional) (this is **extremely** useful), or use [http://validator.w3.org/](#) (examples in ICSN).

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- Google's:
  - website validator **Search Console** https://google.com/webmasters/tools/home, including https://google.com/webmasters/tools/mobile-friendly (examples in ICSN)
  - resources for hacked sites https://google.com/webmasters/hacked/
  - other steps on "This site may be hacked".

- **Firefox** is my primary browser. ~~When I used to use add-ons:~~
  - ~~add-ons Firebug and Web Developer (add to the other add-ons I recommend: Adblock Plus, ChromaTabs Plus, Dafizilla, IE Tab, Html Validator above, HTTPS Everywhere, and McAfee SiteAdvisor).~~

- **Arc** sounds interingt.

- **Chrome** was my primary Browser for a long time, although it is now Firefox. ~~When I used to use add-ons:~~
  - ~~I heard that **add-ons** FlashBlock and AdBlock are good.~~
  - ~~I heard that **add-ons** IETab, Stayfocusd and Feedly are good; I have them, but are currently Disabled. I have Google Calendar Checker extension turned on.~~
  - ~~No (little?) need for the Firefox add-on **Firebug**, with equivalent (?) functionality built into Chrome, on page of interest > right-click Inspect Element (or Ctrl-Shift-I or click wrench icon > Tools > Developer tools) (see other cool tools under the wrench icon). Karl Swedberg wrote, "Firebug was one of the few things keeping me using Firefox rather than Chrome, but the pace of improvements to the Chrome Dev Tools has been amazing. I like a number of the features in Chrome Dev Tools much more than similar ones in Firebug now. Definitely run Chrome from at least the Dev channel to get all the good stuff. Paul Irish has a couple great videos (1 , 2) that show some of the cool stuff you can do". I have done this, looks good. TODO: finish watching those two videos.~~
  - If you use Chrome, you may need to use *chrome:about*, ***chrome:plugins***, *chrome:extensions*, *chrome:settings/passwords* and *chrome:settings/content*.
  - For all web browsers, consider testing your browser against tracking, and installing plug-ins:
    - HTTPS Everywhere from the EFF, protecting you against eavesdropping, tampering with or forging content in more of the websites you visit. So far, trouble-free for me.
    - Privacy Badger new from the EFF (good, but I have to tell it to exclude some websites), or
    - www.**ghostery**.com> set to block web tracking types Advertising, Analytics, Beacons, Privacy and Widgets. A cousin recommended this. I am experimenting with this, currently with everything blocked ~~except for one Analytics that I use occasionally~~. So far, so good.
  - Users on a 🖥 computer with default browser **Firefox**, **Edge**, **Safari**, **Opera**, **Vivaldi**, **Brave** or **Arc**?

- **Android** Google Docs app, including taking photo of doc > converted into text.

- Optional (I have not used this yet, but recommended by the Sierra Club webmastering listserv) Cascading Stylesheet CSS Validator http://jigsaw.w3.org/css-validator/.

- Optional (I have not used this yet, but recommended by the Sierra Club webmastering listserv) JavaScript Validator www.jslint.com.

- "Library of millions of **free books, movies, software, music**," and **website Wayback Machine** (not the same as 🍎 Apple Time Machine) at the **Internet Archive**.

Database
- **MySQL**. [Used it for a class](), love it, easy to use, all platforms.
- **Microsoft SQL Server**. Used this at two workplaces, very capable, full function. $, Microsoft ⊞ Windows only.
- **FileMaker Pro**. Looks awesome, on 🍎 Apple macOS.

File management

- When you acquire a new **flash-drive/jumpdrive/¿SSD?/thumbdrive/USB-drive/USB-key/ USB-stick:**
    o IF your drive came in format="FAT32",
      AND you want your drive to handle file sizes >4GB=**No**,
      THEN you can leave it just like this.
    o IF your drive came in format="NTFS",
      AND you want your drive for Microsoft Windows use=**Read-Write**
      AND ❤ Apple macOS use=**Read-Only** or **not at all**,
      THEN you can leave it just like this.
    o IF your drive came in format="HFS+",
      AND you want your drive for ❤ Apple macOS use=**Read-Write**
      AND Microsoft Windows use=**not at all**,
      THEN you can leave it just like this.
    o IF you want your drive for use in the Honda Fit/Jazz Type 2 entertainment system,
      THEN reformat your drive to format="FAT32".
    o IF you are running ❤ Apple macOS level lower than 10.6.6,
      THEN apply the "exFAT patch".
    o IF you are running Microsoft Windows release lower than 7,
      THEN apply the "exFAT patch".
    o IF you are running Microsoft Windows release lower than 10,
      THEN upgrade to a modern level of Windows with all due speed.
    o IF you want your drive for ❤ Apple macOS use=**Read-Write**
      AND Microsoft Windows use=**Read-Write**,
      AND handle file sizes >4GB=**Yes**,
      THEN reformat your drive to format="exFAT" as in
      https://support.wdc.com/knowledgebase/answer.aspx?ID=291 (creates folder "__MACOSX").
- While you are at it, personalize the name of your backup drive to:
    o something with your name and location, in format *FirstLastUSA*, or
    o a permanently-available ⊟☎ phone number, in format *AAA-EEE-NNNN*.

- To get Microsoft Windows **My PC**/**File Explorer** (formerly **My Computer/Windows Explorer**, and still called "Windows Explorer" *under-the-covers*) to sort Folders on top,
  https://duckduckgo.com/?q=windows+10+sort+folders+top or
  https://google.com/search?q=windows+sort+folders+top said to:
    o **View** > **Details** (OK, I run that way),
    o then sort column **Date Modified** to **V** (OK, I run that way),
    o then Shift-click column **Name**. Worked. Weird.
- To get the *other* **File Explorer** (formerly **Windows Explorer**, and still called "Windows Explorer" *under-the-covers*) from Microsoft, see the Microsoft App Store
  https://microsoft.com/store/apps/windows > search "**Files**". Not yet sure if better.

- To **share folders** or **files** with yourself or a distributed workgroup collaboration, use **Dropbox** (Basic plan FREE) (I love this, and use all the time!), **Box, Microsoft OneDrive**, ❤ **Apple iCloud**, **Google Drive** (review)**, pCloud**; or the more-secure **milDrive, sync.com**

    or **SpiderOak ONE** ($); or other file hosting, file synchronization, or online backup services.
    Or use the **collaboration features of Google Drive and Microsoft OneDrive**.

- o If you have an **Outlook.com/Live Mail** (formerly **Hotmail**) email account, you already have access to **Microsoft OneDrive** and **Office Online** through your email account.
- o If you have 🍎 **Apple** devices, you probably already have access to **iCloud**.
- o If you have a **Gmail** email account, you already have access to **Google Docs, Sheets and Slides** through your email account.

- In Android, use **ES File Explorer**.

- When **scanning** into a .pdf, do so using **OCR** to make it **searchable/copyable/ pasteable**!
  - o My Canon Pixma MX922 printer does a nice job, **if** I:
    - ▪ (One-time) Have **previously**:
      - Installed on my computer Canon **IJ Scan Utility** (this is what you will use two bullets down).
      - Installed on my computer Canon **My Image Garden** (unfortunately, the OCR software resides in this otherwise-useless piece of software).
      - Rebooted.
      - Optionally uninstalled **Canon My Image Garden Design Files**.
        - o Do **not** uninstall plain **Canon My Image Garden** (unfortunately, the OCR software resides in this otherwise-useless piece of software).
      - Brought up my computer's ⊞**Start** > **Canon Utilities** > **IJ Scan Utility** > button [gear] **Settings** > left tab **Set the preferences for scans that are started from the computer** > tab **Document Scan** > section **Save Settings** > set dropdown **Data Format:** to **PDF** or **PDF (Multiple Pages)** > button [gear] **Settings...** > **check** checkbox **Save a PDF that supports keyword search** > button **OK** > button **OK**.
      - Brought up my computer's ⊞**Start** > **Canon Utilities** > **IJ Scan Utility** > button [gear] **Settings** > left tab **Set the preferences for scans that are started from the buttons on *the printer or scanner*** > tab **Save to PC (Document)** > section **Save Settings** > button [gear] **Settings...** > **check** checkbox **Save a PDF that supports keyword search** > button **OK** > button **OK**.
    - ▪ (Each time) Do the scan from my computer's ⊞**Start** > **Canon Utilities** > **IJ Scan Utility** > button **Document**. Even though I have done the last bullet above, I still avoid doing the scan from the printer's control panel.
  - o I have not yet used these, but I read that you can ***after-the-fact*** add **OCR** searchable/copy-pasteable text using:
    - ▪ ~~**Irfan** photo viewer and converter www.irfanview.com~~,
      - ~~Irfanview 32-bit https://FHug.org.uk/kb/link/irfanview-3 will give you text of (A) only a text-block-at-a-time, not the whole doc; and (B) won't put any text into the .pdf file.~~
    - ▪ **Adobe Acrobat** ($$, not Reader),

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- [13 Reasonable Alternatives to Adobe's Expensive Apps](#)
  - **ABBYY Fine Reader**,
  - **FreeOCR** or
  - [https://tools.**pdf24**.org/en/ocr-pdf](#)
  - **tesseract**.
  - **OmniPage**,
  - **FineReader** or
  - **Readiris**.

- Zip program **7-Zip** [7-zip.org](#). Best I have seen. Does all formats (including Unix-format .tar, .bzip2 and .tgz), very large files, encryption, is bulletproof and easy to use.

- To **convert** files:
  - [General-purpose converter](#), recommended to me, but I have not used it yet.
  - ~~[General-purpose converter](#), I have not used it yet.~~
  - [List of file converters](#), I have not yet used them.
  - [2EPUB](#) is online converter to make eBook e-reader files in formats .epub, .fb2, .lit, .lrf, .mobi from .doc, .epub, .fb2, .html, .mobi, .pdf, .prc, .rtf, .txt.
    - .pages, .numbers, .key ?
  - [Tools to sign and edit .PDFs](#).
  - [convertii](#) and [Nitro Cloud](#) (free) and [PrimoPDF](#) and [PDF Online](#) convert to .doc, .ppt, .txt, .xls files from .pdf scans (for searchable/copy-pasteable, see two major-bullets above).
    - .pages, .numbers, .key ?
  - [Google Drive](#) ([review](#)) makes editable text from .pdf via Upload > "Convert text from PDF and image files to Google documents."
  - [Other file converters](#).

- **Compare** folders and files utility (you need one to keep the various versions of stuff straight!):
  - **Beyond Compare** (my favorite!) or   **TODO**: expand on this.
  - WinMerge (works fine, but is clunker than above) or
  - Total Commander (I haven't used it, but a guy I trust likes it, it seems to have file management functions, too) or
  - Compare feature in your editor, such as UltraEdit or SlickEdit.
  - These are good ways to enforce your folder and file [naming conventions](#).

- **[CCleaner](#)** [except in 2021, is identified by Microsoft Defender Antivirus as a PUP Potentially-Unwanted Program, and may recently be crapware] > Tools > **Duplicate Finder** seems to be adequate at cleaning up from projects that you completed quickly, but left files splattered all over. It does this by finding, showing, and optionally deleting these files.
- But I like [Auslogics **duplicate file finder**](#) a little better. But to keep out bloatware, during the install:
  - **select** radio button "**Custom install (advanced)**", and
  - **uncheck every** checkbox.   **TODO**: Suggest a Rename function.

- [Verify file integrity of downloads using SHA1 or MD5](#). Actually, they should use SHA2.

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- Since Microsoft Windows 7 has made **defrag** difficult to control, and impossible to get it to do anything nor see what it is doing, I installed Auslogics **disk defrag**. I run it monthly or so, to defrag my disk anyway. I am **very** happy with it. But to keep out bloatware, during the install:
    - o **select** radio button "**Custom install (advanced)**", and
    - o **uncheck every** checkbox.

- **FTP** fat clients:
    - o **WS_FTP95LE** (love it--have used it for years!),
    - o open-source free **FileZilla** (I have used FileZilla, but have no opinion of it--must have worked fine) (but watch out for it asking to install other software [tell it No], and installing other software without asking, such as Web Companion [reboot and uninstall it]!), or
    - o **SmartFTP**.

- You can create **bootable USB drives**, too. I did it once, using instructions on the Internet somewhere. Maybe described above in the Troubleshooting section.
- ~~To burn **bootable CDs** or **bootable DVDs** from **ISO images** (like your Rescue CD):~~
    - ~~o On Win 7 or above, you can use Windows.~~
    - ~~o On Windows pre-7, use **ImgBurn** (when installing, use Advanced and uncheck bloatware checkboxes) or **IsoBurn** (both work great).~~
- ~~To copy bootable CDs or bootable DVDs (like your Rescue CD), use **ImgBurn** (when installing, use Advanced and uncheck bloatware checkboxes).~~
- ~~Regarding bootable **Recue CDs**, create some! I have used **Knoppix** to great effect several times, **F-Secure** bootable CD antivirus CD to good effect once, and **BartPE**.~~

- To the Windows **My PC**/**File Explorer** (formerly **My Computer/Windows Explorer**, and still called "Windows Explorer" *under-the-covers*) context menu, temporarily add the complete filename path with Shift-right-click > *Copy as Path*. Annoying that you have to hold down the Shift key, but has not yet annoyed me enough to hack the Registry.

- To do mass renames of files or folders (poor-man's tags), use Metamorphose Métamorphose 1.1.2.
    - o To make things easy on yourself or buddies running macOS or Unix, or running any platform and using Unix or GNU utilities, I use (and highly-recommend) **usernames**, **filenames** and **foldernames** with ***no* spaces (blanks) " "**.
    - o Instead use **camelCase** for metadata that relates to each other, perhaps separated by **underscores** "**_**" or **hyphens** "**-**" to metadata that doesn't relate.
    - o I try to put all metadata in the filename. For example, for photographs, I use format *date_WhoFromTopToBottomLeftToRight_Where_doingWhat_byWhom.ext*, where:
        - ▪ **date** is in ISO 8601 format, **yyyymmdd** (within the doc will be **yyyy-mm-dd**). The international standard, and it sorts correctly!
        - ▪ **Who** is in UpperCamelCase *FirstLast.*
        - ▪ **Where** is in UpperCamelCase, perhaps *CityStateCountry* or *VillageCountyST.*
        - ▪ **doingWhat** is in lowerCamelCase, perhaps *atZoo.*
        - ▪ **byWhom** is probably sometimes their initials, perhaps *byEP.*
        - ▪ **ext** is the file extension, perhaps *.png.*

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- **Source code management/revision control system**
  You are going to use one in industry, so you might as start getting used to it now.
  At work, I have used 5 different systems at work, most purchased, one homegrown (which a pair of us enhanced to do parallel development). At home, I installed SVN and TortoiseSVN for a class, but had to get homework done before getting it fully configured. I have not yet used the others. ==**TODO**: talk about distributed systems: Git or Mercurial. Say something nice about Git.==

  Git "*The biggest advantage I've seen to git over subversion, besides the 'local branch' effect, is the merging tools are wayyy better. Ridiculously better.*"   --Matt Heusser of GRJUG.

  Mercurial open-source cross-platform distributed revision control tool. Good tutorial.

  Subversion SVN.
    - ○ *Apache Subversion binaries http://subversion.apache.org/packages.html#windows; works great.*
    - ○ ~~Optional, can use www.github.org for SVN subversion source repository.~~
    - ○ ~~If Windows, the Windows **My PC/File Explorer** (formerly **My Computer/Windows Explorer**, and still called "Windows Explorer" *under-the-covers*) interface to Subversion TortoiseSVN www.tortoisesvn.net 1.5.7 has nice instructions for installing SVN, at ⊞Start > [All] Programs > TortoiseSVN > Help.~~
    - ○ ~~If you want your own SVN (good idea), and after installing TortoiseSVN and reading its nice instructions:~~
      - • ~~Automated (installer was nice, but where are all the files, and why do they not seem to be hooked up to anything?):~~
        - • ~~**Python** Windows installer www.python.org version **2.5.4** (why doesn't SVN recognize **2.6.1** or **3.0.1**?).~~
        - • ~~**SVN** from http://subversion.tigris.org/ > binaries > your Apache version > "Python 2.5 bindings installer for Win32" version **1.5.5**.~~
      - • ~~Manual:~~
        - • ~~Subversive subversion for Eclipse http://www.eclipse.org/subversive/.~~
        - • ~~**SVN** from http://subversion.tigris.org/ > binaries > your Apache version > "Subversion Win32 *[if you run WinDoze]* binaries *[if you don't need source]* for Apache 2.2.x (2.2.9 or higher is required within the 2.2.x series)" version **1.5.5**.~~
        - • ~~Looks good, but how do I install it?~~
          - ○ ~~Unzip yourself (use 7-Zip below if needed).~~
          - ○ ~~Move from your trash location to C:\Program Files\Subversion.~~
          - ○ ~~Follow nice instructions for installing SVN, at ⊞Start > [All] Programs > TortoiseSVN > Help > section "Setting Up A Server".~~
      - ▪ ~~Using SVN: www.cis.gvsu.edu/~adams/Scholarship/subversionTutorial.html and http://svnbook.red-bean.com/ esp Chapter 2. *But I still don't know how to do that.*
        http://svnbook.red-bean.com/ book~~

After installing your source code management/revision control system, put in a **daily/continuous auto-build/auto-test** (**continuous integration**) server. Seriously. Save yourself **tons of hours and hassle**. Do it. And check your dashboard every morning when you come in. Or put a stoplight over the middle of your development area, showing red/yellow/green with the results of the latest auto-build/auto-test cycle. Be amazed at how **quick and easy it is to solve problems** when you catch them within **hours**, rather than months, of when someone "broke the build." Then, to your source-code-check-in or daily-build process, add static code analysis. Hold your team accountable that no project may be considered **done** until it is (1) **checked in**, (2) passed **static code** analysis, (3) passed an **auto-build** cycle, and (4) passed an **auto-test** cycle. Despite initial resistance, be amazed at how quickly your team learns to appreciate that once their code goes in good, it stays good.

- "Library of millions of **free books, movies, software, music**," and **website Wayback Machine** (not the same as 🍎 Apple Time Machine) at the **Internet Archive**.

Testing

- **TODO**: Play with free unit testing tools NUnit, JUnit, others from the xUnit series, and Embedded Unity Embunity (written by the cool people at Atomic Object), from SourceForge.
- **TODO**: Look in detail at Hans Schaefer's list of software testing tools.
- **TODO**: Suggest that Ruby programmers use RSpec.
- **TODO**: Copy Test-Driven Design TDD stuff from other source, including new stuff.

- Article "*Meaningful and Flexible Survivability Assessments: Approach and Practice*":
  - Software systems test should cover not only functionality and performance, but also **Confidentiality**, **Integrity** and **Availability CIA** (security).
  - Has a nice chart of non-functional tests.
  - Talks about "test attacks," vulnerabilities, and survivability testing, including TCP connection flooding, serialization attacks, password cracking, malformed XML, SQL injection (!).
  - They use open-source tools:
    - **Static code analysis**. Looks for faults/errors/bugs **before** a failure can occur at run-time, **before** raising an incident. I agree. After trying out these tools offline, you will be **shocked** that your current code base **ever** worked. Fix these problems, then put tool in your source-code-check-in or daily-build process so similar problems never come back:
      - C, C++, Perl, PHP, Python **Rough Auditing Tool for Security RATS**.
      - C, C++ **FlawFinder**.
      - Java byte code **FindBugs**.
        Javatester, including a nice tester of which Java version your browser is using.
        Another Java tester. Old Java version uninstall tool.
      - More static code analysis tools
    - **Execution analysis** (memory leaks, memory corruption, memory profiling tools):
      - C++ **Valgrind**.

- C or C++ pointer checking **Mudflap**.
- C or C++ **mpatrol**.
  - Other tools from www.forge.mil ?

- "Test what you fly, fly what you test!"   (The way I learned it writing aviation software.)
  - We almost caused **Apollo 11 moon mission to abort!**
  - Mars and other "Loss of Mission" failures (also see later pages)
- "Train like you fight; fight like you train." (The way I heard some of our users learned it.)
- "Plan your work; work the plan."   (The way I learned it in chainsaw safety training)
- Ariane 5 Flight 501 Failure (US$370 million loss, delayed program 17 months).
- GAO Report: Patriot Missile Defense — Software Problem Led to System Failure at Dhahran, Saudi Arabia (28 dead, system laughed at).
- Radiation and other "History's Worst Software Bugs".
- "Toyota Case: Single Bit Flip That Killed" and design and transcript.

Project management and collaboration software

- Microsoft **Project**. Very useful for multi-person projects. But a lot of work to get your project in, broken up into tasks and allocated to resources, and kept up-to-date. Not sure anyone else could do better — may just be the nature of the beast. Would love to see a side-by-side fly-off.
- Look for **Kanban** software, like **Trello**, in this comparison of **project management software**. Like Kanban a lot, but have only used with sticky-notes on a wall. Would love to see if software is any good. For personal use, and for multi-person projects.
- See also this comparison of **collaborative software**.
- See also some notes in this document's sections **Editors (doc)** and **File management**.
TODO: Investigate these:
- Microsoft **Planner**. Part of **Microsoft Office 365** subscriptions. Have not yet tried. And now I hear that, as of 2020-04, MS Teams has been added to MS Office 365, and branded **Microsoft 365**.
- Microsoft **To Do**. A mobile app, apparently. Have not yet tried.
- Microsoft **Wunderlist**. Going away soon/already gone — convert to something else.
- Google **Keep**. Pre-installed on later Android, free for others apparently. Have not yet tried.
- **Todoist**. Have not yet tried.
- **Any.do**. Have not yet tried.
- **Habitica**. Have not yet tried.
- **Remember the Milk**. Have not yet tried.

Bug tracking

- Bugzilla from Mozilla (open source).
- Spiceworks free, including a mobile version for your Android!
- FogBugZ from Fog Creek Software ($, but way cool).

⌨🖥 </> 🛠 Computer and Programming Tools

Surveys

- [Eventbrite](#) Good, according to GW.
- [SurveyMonkey](#) hard to use, according to GW.
- Google [Forms](#).

Artificial Intelligence AI or Large Language Models LLMs

"Artificial Intelligence played Wargames. The result isn't reassuring."
https://YouTu.be/mh_hNvGTmIg
https://wikipedia.org/wiki/Large_language_model

- OpenAI's **GPT**-4 or GPT-3.5.
    - Used in ChatGPT and Microsoft Copilot.
    - Suffix "**Base**" is the cheaper version. Sabine says known for giving random answers, and not following instructions very well.
    - Sora? Thora? Torch??
- Meta's **LLaMA**-2 Chat.
- Anthropics's **Claude**-2.0.
    - Sabine says more peace loving than the others.
- Google's **PaLM** and **Gemini**.

-30- send comments to the author.