





< /> **Computer and programming tools**, by Eric Piehl

Based on work experience, and classes I have taken, starting 2009-10-11, last updated 2021-08-08. First North American Serial Rights, USA Copyright © 2009-2021 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 www.ericpiehl.com.

General

- Recommendations for running a **safe computer** as an end-user (antivirus, antispysware, backup, etc.), in my other document "[Protect your !\[\]\(b1b781be830eb908d845c527ab08d5f8_img.jpg\) smartphones, tablets and !\[\]\(2176a4ba510fa27404d783166e891577_img.jpg\) 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 !\[\]\(a3b1c8d49688274496e55f2751cb8993_img.jpg\) heavily-policed or authoritarian areas, or when targeted by adversaries](#)".
- To search for people from phone numbers, see:
 - <https://duckduckgo.com/?q=aaa-eee-nnnn>,
 - <https://google.com/search?q=aaa-eee-nnnn>,
 - <https://goo.gle/search?q=aaa-eee-nnnn> [?],
 - <https://q.co/search?q=aaa-eee-nnnn> [?],
 - <https://www.spoeko.com/reverse-phone-lookup>,
 - <https://www.whitepages.com> > reverse phone,
 - www.whocallsme.com/Phone-Number.aspx/aaaeeennnn.
 - [From cell mobile number](#).
 - [Some more formats](#) > scroll down to section Google Phonebook.
 - **NEW** [Description](#):
 - <https://Pipl.com>
 - <http://itools.com/tool/wink-people-search>
 - <https://www.facebook.com/>,

Piehl-2

📱 </> ✂ Computer and Programming Tools

- <https://www.linkedin.com/>,
- <http://www.zabasearch.com/phone/aaaaeenennn>.
- **NEW** <http://resource.referenceusa.com/about-us/> via local library?
- [To find email addresses from names.](#)
- [Find people.](#) Or [here.](#) Or [here.](#)
- **NEW** [All kinds of information.](#)
- **NEW** [Niche search engines.](#)

- **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:
 - Eric's first law: *Any useful computer program must be modified.*
 - Eric's second law: *Leave some functionality for Release 1.1.*
 - 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:
 - freecarrierlookup.com <http://freecarrierlookup.com/>
 - [freemsgateway.info](http://www.freemsgateway.info) <http://www.freemsgateway.info/>
 - <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](#).
- [Free public-domain books online.](#)
- [Free movie streaming.](#)

Weather

- App <https://MyRadar.com>.

Weather (for now, USA-only and nearby areas, sorry)

- **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 www.weather.gov.
 - **Local** www.weather.gov or <https://forecast.weather.gov/zipcity.php> > upperleft=*yourZipCode* > **Go**.
 - **Also good**, no ads www.weather.gov/yourAirportCode > **Map** or **Weather Story** (each tab).
 - <https://weather.gov/alerts> > alert type > all or your state or zone or county.
 - <https://graphical.weather.gov>.
 - <https://radar.weather.gov>.
 - <https://airquality.weather.gov>.
 - <https://aviationweather.gov>.
 - For **hourly weather forecast graphs**, on above, right-click the barchart thumbnail > Open in new tab. If that service is temporarily down, use

Piehl-3

📄 </> ✂ Computer and Programming Tools

<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://www.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.**
- **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] .

Maps

- <https://google.com/maps/place/nnnn+street,+city,+state+zip>
- [https://google.com/maps/place/urlencode\(name+to+search\)](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=urlencode(name+to+search))
- [https://maps.google.com/maps?q=urlencode\(name+to+search\)&f=q&lci=bike](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\(target+address\)](https://google.com/maps/dir/?api=1&destination=urlencode(target+address)) or [https://maps.google.com/?saddr=Current+Location&daddr=urlencode\(target+address\)](https://maps.google.com/?saddr=Current+Location&daddr=urlencode(target+address))
- Parking <https://parkopedia.com/parking/locations/address/?arriving=yyyymmddhhmm&leaving=yyyymmddhhmm>.
- 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>.

Flight info

- Fare finder <https://skyscanner.net>.
- Choose seats in accordance with <https://seatguru.com>.
- 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).

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.
 - For **Microsoft Office Online** ([review](#)), **free**, see next paragraph "cloud-based".
 - Verify your version has all the subunits you need: real Outlook, Visio, SQL Server, etc.
 - *If you have Office XP, 2000 or 2003*, install the [Microsoft Office Compatibility Pack for Word, Excel, and PowerPoint 2007 File Formats](#).
 - [No current need to upgrade from Office 2007 or 2010](#).
 - [Other Microsoft Office free downloads](#).
 - 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**.
 - Some versions may include Microsoft Office **Publisher**, \$, publishing and typesetting. I use it for networking cards and a couple other projects.
 - [Running Microsoft Office on Linux](#).
- 🍏 **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](#).

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](#).
 - For-profit organizations can pay for **Google Workspace** (formerly **G Suite**).
 - Nonprofit organizations can use [Google Workspace \(formerly G Suite\) for Nonprofits](#), apparently still free after some paperwork.
 - Government agencies can also use **Google Workspace** (formerly **G Suite**) for free, after some paperwork.
 - **NEW** People with no affiliations above can pay for **Google Workspace** (formerly **G Suite**), starting in 2021?
 - **NEW** [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.](#)

NEW [Spell- and grammar-check apps.](#)

To examine word use, use [Wordifier](#).

[Free .pdf editors.](#)

[Document converters](#), including [.pdf to .jpg](#). [YouConvertIt](#).

Editors (code)

- The **IDE** you are going to code in:
 - [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.
 - Microsoft **Visual Studio**. I love it, too, particularly for building fat client apps.
 - [Komodo IDE](#).
 - [Xcode](#) for 🍏 Apple macOS. Looks real good.
 - **CodeStorm** for 🍏 Apple macOS.

Piehl-6

📁 </> 🛠 Computer and Programming Tools

- **IntelliJ** IDEA for 🍏 Apple macOS.
- And/or a good **colorizing** program **editor**, such as:
 - [Sublime text](#) code editor looks great on 🍏 Apple macOS, Microsoft Windows and Linux.
 - [Textmate](#) for 🍏 Apple macOS. Looks real good.
 - MacVim for 🍏 Apple macOS.
 - **Notepad++** 5.8.5 www.wikipedia.org/wiki/Notepad++. I love it. -OR-
 - Textpad www.textpad.com (if you install, [get add-on syntax files for your favorite languages](#), and set colors to something vibrant). -OR-
 - [gVim](#) 7.3 if you like VI or Linux and want function over prettiness. -OR-
 - [Nano](#) for Linux or 🍏 Apple macOS > Get Nano.
 - [Komodo Edit](#) for HTML, CSS, JavaScript, JSP, PHP, XML. No WYSIWYG. -OR-
 - 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).
 - 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**:
 - [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, Appcelerator, QT.
 - [For all platforms](#).
- **Compare** folders and files utility (you **need** one to keep the various versions of stuff straight!):
 - **Beyond Compare** (my favorite!), or
 - Total Commander (I haven't used it, but a guy I trust likes it; it seems to have file management functions, too), or
 - [something else](#) I could download for free when I could not get a good one at work, or
 - compare feature in your editor, such as Eclipse or UltraEdit or SlickEdit.
 - 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

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

- [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 [except in 2021, is identified by Microsoft Defender as a PUP Potentially-Unwanted Program, and may recently be **crapware**] > 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 **TODO: expand on these. Investigate RootkitRevealer.**

- [Microsoft Windows PowerToys](#)

- Open Command Window Here, save lots of time if you open DOS boxes ever.
- Improved calculator, image tools, Alt-Tab replacer, all kinds of stuff I have found very helpful. I need to try out the SyncToy, and [KarenWare ptReplicator backup](#)

Piehl-8

📁 </> 🛠 Computer and Programming Tools

[tool](#), for whenever my HP external harddrive gets too small. **TODO: expand on this.**

- [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 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 USB drive [Kingston Technologies DataTraveler Workspace \(Windows to Go\)](#).
- 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](#).
- Microsoft offers **bootable** anti-malware: [Microsoft Defender \(was Windows Defender\) Offline](#) tool.
TODO: Try the above, and Attack Surface Analyzer.
[Kim Komando keeps track of this stuff](#).
- [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:**
 - What's in your machine:
 - Sysinfo SI HWINFO32
 - SIW System Information for Windows
 - Crap Cleaner.
 - [Recuva](#) locate deleted files and selectively undelete restore them, or [Diskinternals uneraser](#).
 - Defraggler defragger.
 - **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.

- Some of the above use powerful Search/Replace using [Regular Expressions](#).
 - Nice [video installation instructions](#) by Calvin College Prof. **Joel Adams**.
 - **TODO: expand on this.**
 - [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](#).
 - Some of the above use powerful Search/Replace using [Regular Expressions](#).
 - Can get a subset of this functionality in a single binary in [Swiss File Knife](#).

Distributed-team video-conferencing apps

- This section is **much** more up-to-date at my document "[Preparing and showing presentations \(for people who do this sporadically\)](#)".
- "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!
 - > Meetings or Video Webinar.
 - Setup > Virtual Background.
 - 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.
 - Very functional. Different room feature is way cool!
 - As of 2020-08, interface is a bit clunky, surprising since Webex created this marketplace.
- GotoMeeting.
- 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

Piehl-10

📱 </> ✂ Computer and Programming Tools


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



- **NEW** [Check short URL](#) and [more short URL expanders for testing a suspicious link without clicking on it](#).
- Look into [NDT Network Diagnostic Tools from Measurement Labs M-Lab](#).
- Look into <https://speedtest.net>. Sometimes works OK. **Do not click on their many ads!**
- [Ookla](#) > Internet speed test for [mobile](#) and [computers](#).
- [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](#).
- [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
- [SharesFinder](#) on your Android!
- [Default router passwords](#) on your Android.
- **NEW** [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.robtext.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/cgi-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.
- Traceroute above, and:
 - Windows  **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):
 - **.jpeg**/JFIF,
 - **.j2k**/JPEG 2000 irreversible wavelet transform,
 - **.heif** set for lossy image data storage, **TODO: find out how to set that**
 - **.pcd** (viewable only via Kodak propriety viewer—covert to .jpg using [pcdtojpeg](#)).
- **Lossless** [raster graphics](#) image formats (no or lossless compression):
 - **.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**
 - **.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).
- **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),
 - **.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:
 - **.bmp**,
 - **.eps** (Adobe Illustrator format, containing both vector- and bitmap-images),
 - **.gif** non-animation frames,
 - **.jpeg**/JFIF,

 </>  Computer and Programming Tools

- **.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**.
- 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](#)).
 - **Markup** 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](#).
 - 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.
 - 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**?
 - 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?
 - To colorize **black and white** photos to color, I am told there is <https://playback.fm/colorize-photo>.
 - **MATLAB** from MathWorks, I have heard of one person using this to process images.
 - To convert Kodak-propriety **.pcd** to **.jpg**, use [pcdtojpeg](#).
 - [Other image converters](#).
- To **draw [vector graphics](#)**, including working with **logos**, use:
 - Microsoft Office **Visio**, \$, Microsoft Windows. I like it, but can get tedious.
 - **Adobe Illustrator** \$, looks very good, incl. let trace vectors over a raster pic.
 - **Adobe InDesign** \$, publishing and typesetting, I read is for plotters, mills and engravings, or for posters, flyers, brochures, magazines, newspapers, and books.
 - **Adobe Photoshop** \$, is supposed to have some vector graphic capability.
 - **TODO:** Look into [Canva](#).
 - [Inkscape](#), free, all platforms. Said to be awesome on .svg, .pdf, .ai, raster, etc.
 - [LibreOffice](#) Draw, free.
 - **Omingraffle** on 🍏 Apple macOS.
 - **Markup** for 🍏 Apple macOS?
 - **Google Drawings**, free.
 - [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."
 - [Skills for graphic design](#).
 - To **design** or **3D model**, presumably also vector models:
 - [Google SketchUp](#).
 - **ZBrush**.
 - **Adobe InDesign** \$, publishing and typesetting, I read is for plotters, mills and engravings, or for posters, flyers, brochures, magazines, newspapers, and books.
 - To do **mass renames** of files or folders (poor-man's tags), use [Metamorphose](#) [Métamorphose](#) 1.1.2.
 - To make things easy on yourself or buddies running Unix or Linux, 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)** " ".

- Instead use [camelCase](#) for metadata that relates to each other, perhaps separated by **underscores** "_" or **hyphens** "-" to metadata that doesn't relate.
- 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](#).
- [\[To take a cellphone mobile screenshot.\]](#)
 - Android: hold buttons **Power** and **VolumeDown** for 3 seconds, until screen shrinks.
- Windows, do one of:
 - **⌘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!).
 - **⌘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 sound media, including the open **.ogg** format:
 - 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) onto your harddrive:
 - 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 **1080p** in format **.mp4** showed great in **VLC** media player, but was **very-jerky** playing in **MS PowerPoint 2010**.
 - Downloading **720p** in format **.mp4 or.avi** played very well in PP 2010.
 - Downloading **720p** in format **.mov**, and **.mp4 or.avi**, were also very-jerky playing in PP 2010.
 - Downloading **720p** in format **.wmv** was not Insertable into PP 2010.
 - If this website works for you, **do not try any of the following . . .**
 - 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.

- <https://github.com/rg3/youtube-dl> works, but puts on **Trojan: Win32/Tefau.A!cl**, so if you must use this software, **run a full antivirus scan!**
- **Do not use this:** contains difficult-to-remove malware: [YouTube Downloader YTD](#). (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!**):
 - ~~**TODO:** try www.computerhope.com/issues/ch001002.htm.~~
 - 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](#).
 - I find **.mpg** files to be this highest quality. Not bad.
 - 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, I am told Adobe **After Effects** is good.
- 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/TEAnYKgvPvg>.

NEW And  Apple **iMovie** (for macOS) (and **Screenflow** for  Apple macOS?) and **iMovie for iOS** (and presumably for **iMovie for iPadOS**).

NEW Need to look into **VideoLAN Movie Creator VLMC** <https://videolan.org/vlmc>.

To **trim** (video for **crop-in-time**):


 - 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
- **VLC** > View > Advanced controls > ► Play pause frame-by-frame > Record, find in "<file:///C:/Users/yourUserName/Videos>", or
- **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
- 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:**

- Upload via <https://youtube.com/upload>.
- More details at www.ericpiehl.com/present.pdf#page=20 section "Upload video to YouTube".

- **YouTube video URLs:**

- **!** <https://youtube.com/embed/8cRrjJCgRcQ> ► Play > fullscreen, shorter URL
- **!** <https://www.youtube.com/embed/8cRrjJCgRcQ> ► Play > fullscreen.
 - "For full effect, select the video link, then icons fullscreen, **cc** captions, ► Play, and Skip Ads."
- <https://youtu.be/4AjzTcavoYw> ordinary viewer, shortest URL
- <https://youtube.com/watch?v=4AjzTcavoYw> ordinary viewer, shorter URL
- <https://www.youtube.com/watch?v=4AjzTcavoYw> ordinary viewer, full URL
- www.youtube.com/watch?&v=4AjzTcavoYw what I was using in docs
- 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 \(!\[\]\(d4c9768318b38eff1042b07478e20b4c_img.jpg\) 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 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**, **.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** 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](#).
- Rip audio from YouTube <https://video.genyoutube.net/VamQSEW7KAw>.
- **NEW** 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,
 - **3 🎧 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 card, and optionally transmit it over a USB-A/USB-C cable to a ...
 - laptop running ...
 - RØDECaster Pro Podcast Studio software (to configure something, and one way to get your recording off the mixing board), and
 - **Adobe Audition 2020** software (to **edit your 🎧 audio recording or podcast**).
 - **Instructions** and **signup** are at <https://kdl.org/podcast>. Under the COVID emergency, 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)".
 - I made a test audio recording and transferred it to my computer. Way cool!
 - **Need to verify that I can fix soft recording level, by adjusting mixer board's Output-level slider.**
 - **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.**
 - **May practice editing an 🎧 audio recording using podcast studio's Adobe Audition 2020 software.**
- **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:**

- I wrote my own! Which I use for icanseenable.com and ericpiehl.com.

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

- **HTML editor**, WYSIWYG, www.wikipedia.org/wiki/KompoZer version 0.7.10, said to be more reliably maintained than Nvu.

- When is this going to support [HTML 5](#)?
- [font type guide](#)

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

- 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://www.google.com/webmasters/hacked/>
- other steps on ["This site may be hacked"](#).

- **Firefox** 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](#)).

- **Chrome** is way faster than Firefox 3 (as of 2011-01-11). **TODO:** if you can stand the thought of having three browsers on your machine, try Chrome v. Firefox again now that **Firefox 4 is out**. After a little learning curve, I like Chrome a lot, and use it as my primary Browser.

- I hear that **add-ons** FlashBlock and Adblock are good.
- I hear 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.
- **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.jshint.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/thumbdrive/USB-drive/USB-key/USB-stick**:
 - 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.
 - 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.
 - 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.
 - IF you want your drive for use in the Honda Fit/Jazz Type 2 entertainment system,
THEN reformat your drive to format="FAT32".
 - IF you are running 🍏 Apple macOS level lower than 10.6.6,
THEN apply the "exFAT patch".
 - IF you are running Microsoft Windows release lower than 7,
THEN apply the "exFAT patch".
 - IF you are running Microsoft Windows release lower than 10,
THEN upgrade to a modern level of Windows with all due speed.
 - 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:
 - something with your name and location, in format *FirstLastUSA*, or
 - 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:
 - **View > Details** (OK, I run that way),
 - then sort column **Date Modified** to **V** (OK, I run that way),
 - 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](#)), or more-secure **milDrive**, **sync.com** or

SpiderOak.

Or use the [collaboration features of Google Drive and 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.
 - If you have 🍏 **Apple** devices, you probably already have access to **iCloud**.
 - If you have a **Gmail** email account, you already have access to **Google Docs, Sheets and Slides** through your email account.
- **NEW** In Android, use **ES File Explorer**.
 - When **scanning** into a .pdf, do so using **OCR** to make it **searchable/copyable/pasteable!**
 - 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**.
 - 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.
 - I have not yet used these, but I read that you can **after-the-fact** add **OCR** searchable/copyable/pasteable text using:
 - **Irfan** photo viewer and converter www.irfanview.com,
 - **Adobe Acrobat** (\$\$, not Reader),
 - **ABBYY Fine Reader**,
 - **FreeOCR** or
 - **tesseract**.
 - **NEW** **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/copyable/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 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.
- 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:
 - **select** radio button "**Custom install (advanced)**", and
 - **uncheck every** checkbox.



- **FTP** fat clients:

- **WS_FTP95LE** (love it--have used it for years!),
 - 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
 - [SmartFTP](#).
- To burn **bootable CDs** or **bootable DVDs** from **ISO images** (like your Rescue CD):
 - On Win 7 or above, you can use Windows.
 - 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**.
 - 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 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.
 - 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) " "**.
 - Instead use [camelCase](#) for metadata that relates to each other, perhaps separated by **underscores "_"** or **hyphens "-"** to metadata that doesn't relate.
 - 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](#).
- **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).

Surveys

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