

SOME WEBSITES

The 9 Best USB Flash Drives to Buy in 2019. Updated January 29, 2019.. tinyurl.com/y95c7v9o.

30 Tips to Extend iPhone Battery Life. Many simple ways to use your iPhone longer. tinyurl.com/ya4lavxv.

Your Apple products are getting more expensive. But not the iMac and iPad. tinyurl.com/y8tqkssm.

Basic iPad Lessons to Teach You the iPad. Lots of info and lots of links, even for old iPad users. tinyurl.com/mqmmmsgn.

Two-factor authentication can save you from hackers. A good second step towards security. tinyurl.com/y7mgkh5a.

7 Password Managers for Stress-Free Security. These are really helpful if you have a fair number of passwords. tinyurl.com/yanoqlj6.

FEBUARY LOCATION. We will again meet at the East Whiteland Fire Company, 205 Conestoga Road in Malvern. It's near Route 401. Go to mlmug.org for maps.



FOUNDED MAY 1989
MEETINGS - SECOND
SATURDAY OF THE MONTH

INTERNET SEARCH FOCUS

PRODUCTIVITY

Our main speaker will be Jeff Porten and his presentation will be about Productivity. Everyone has methods for being productive, and most people learn theirs early and stick with them regardless of how their changing needs might be served better by alternate approaches. Jeff will present ideas from his book, which resulted from his personal study for 25 years on how to adapt an entire field of organizational literature into a framework for designing your own system of improved methods. The goal is not necessarily to get more done, but rather to determine your goals for why you do what you do, and to engineer your time and effort towards meeting those goals.



Jeff Porten is a Mac consultant specializing in small business and nonprofits based in Philadelphia. He is the author of the recent book "Take Control of Your Productivity" for Take Control Books, and is a regular contributor to TidBITS. In his copious spare time, he is Chair of Student Pugwash USA, an educational nonprofit dedicated to promoting discussion and activism regarding ethical issues in science and technology.

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Typical Meeting Agenda

9:00 - 9:05: Call to order in main meeting room.

9:05 - 10:05: Three Concurrent Special Interest Groups (SIGs) convene in separate rooms. The three current SIGs are:

Newer Users- We cover the most basic questions you may have about your Mac/iDevices and how to use them.

Multimedia - We discuss using your Mac/iDevices and applications for photo, video, audio, and print media.

OS - We go beyond basics to discuss Apple's current operating systems, using your Macs & iDevices, & various applications, & have Q&A.

10:05 - 10:15: Continuation of Q&A for all attendees.

10:15 - 10:30: Welcome and other business.

10:30 - 11:50: Main Presentation (by a member or guest)

11:50 - Noon: Raffles and silent auctions.

Come join some fellow MLMUG members for lunch after the meeting at a nearby restaurant.

MLMUG Email list

The Main Line Macintosh Users Group has its own email list, hosted at [Groups.io](https://groups.io). Compose your letter and email it to MLMUG@groups.io and your message will be sent to everyone on the mailing list. Contact Bob Barton (barton@bee.net) if you are a member and you are not on the list.

Please observe good email etiquette. If your message is humor or not Apple-related (off-topic), please include "Humor" or "OT" in the subject line. The [Groups.io](https://groups.io) Terms of Service are at groups.io/static/tos. Look for the section on "Conditions of Use"

The MLMUG list may be used to post Apple-related items for sale, but any solicitation of members through the list is forbidden without the written consent of a MLMUG officer. Violation of the [Groups.io](https://groups.io) terms of service or good email etiquette may result in removal from the list.

New Users SIG

You don't have to wait a whole month to get answers to your basic Mac questions! Get together with other members on the fourth Saturday (i.e., two weeks after each regular meeting) for the Startup Folder Lite.

Many new users have said that they can learn much more from face-to-face meetings than they do from manuals or other sources. That's what this meeting is all about. Go to www.mlmug.org/nusfl.html for details.

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Apple
User Group

Membership Information

Membership dues are \$25 for individuals and \$35 for families. Memberships are based on your anniversary date, which is the month you joined. You will be e-mailed reminders when membership fee is due.

If you're just visiting to check us out, or if you've been visiting for some time, but haven't joined, consider these **BENEFITS OF MEMBERSHIP**:

- **Monthly meetings**, where you can learn, share, and meet everyone from working Mac professionals to new Mac users from all backgrounds.
- **Monthly newsletter**, which is full of interesting Mac news, tips, and information.
- Useful free items at the monthly **Raffles**.
- **Discounts**. Vendors offer special prices to User Group members.
- **Web Site** with 2-3 years of MLMUG newsletters, meeting information, a member directory, directions to our meetings, and much more! Our web site is www.mlmug.org.
- **MLMUG Mailing List**, to post technical questions or comments to each other and the experts within the group.
- **Reviewers** keep items reviewed.

Are you ready to join? Please make a check payable to MLMUG and bring it to a monthly meeting or mail it to:

Treasurer, MLMUG

P.O. Box 1374

Southeastern, PA 19399



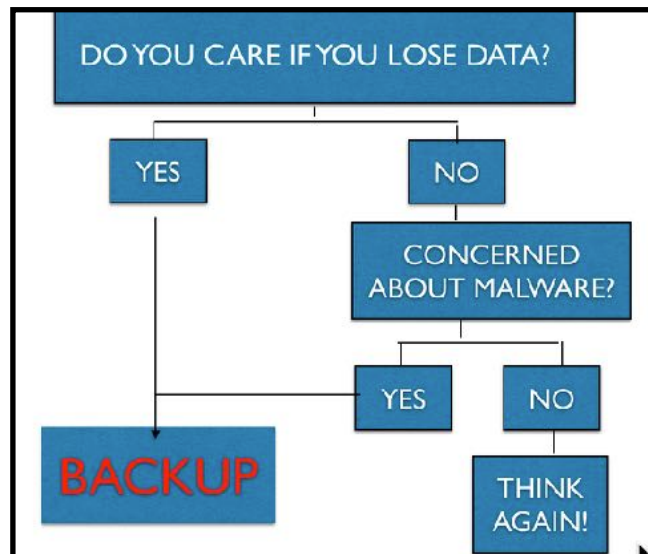
Bookmarks

By Mark Bazrod

Backup

All of us have been told we should backup our Macs and most of us, particularly in the Mac community, probably do. And most of us have probably heard we need two backup copies, although I wonder how many people do this. And to protect against catastrophe, it's a good idea to have a third backup, one that's online in the cloud or outside our home.

I recently gave a presentation on backup at the retirement community in which I live. Based upon the reception I got and the fact that a number of people started backing up, I thought it might be a good idea to devote this column to backup, particularly since the increasing volumes of malware make a bootable backup an absolute necessity. Here's a graphic I used:



As Bob LeVitus has said, there are two types of users - those you have lost data and those who will lose data. So backup. The best medium for your initial backups are external hard drives, not internal hard drives and not flash drives. The cost of hard drives has fallen so low (\$50– \$75 for a 1 TB drive) that question of what to use is really moot.

Why Backup?

Currently, the primary reason for backup is to recover from your Mac being infected by ransomware or a vicious irremovable virus. You then need to get back to the pre-ransomware time. The old reasons are, of course, still valid. Among them are you don't want to lose files, you inadvertently deleted overwrote a file, you dropped your laptop, you spilled liquid on your Mac, or you have a fire where your computer sits. So backup!

Remember hard drives don't last forever. It's hard to believe, but the average life of a hard drive is supposed to be somewhere between 3 to 5 years. In about 40 years of computing I've lost only one hard drive and that was about two years ago. On the other hand, Bob LeVitus indicated that he had the simultaneous failure of his main drive and one backup drive.

Get back to the pre-ransomware time

It's relatively easy. Simply boot from the backup, replace all your files backing up from the backup to the internal hard drive. Then reboot to see if the system works. If not, repeat the process. Unfortunately, files generated between the last backup and rebooting are lost, except if you're backing up to the cloud on a continual basis.

Backup Strategies

I like a 3-2-1 backup strategy:

- 3- Keep **3** copies of any important files: 1 primary & 2 backups.
- 2- Keep the backups on **2** different hard drives.
- 1- Keep **1** copy offsite (online or outside your home).

There are 3 main backup programs for the Mac - Time Machine (TM), SuperDuper! (SD), and Carbon Copy Cloner (CCC). TM creates incremental backups of files that can be restored at a later date. It captures the state of your data at the time of the backup. In essence, it creates multiple backups. It does not create a bootable disk.

SD and CCC also create incremental backups of changed files so the size of your SD and CCC files will be approximately the size of your internal hard drive. The result is similar to a clone of the files at the time of backup, but not a version of the files at a prior time. It creates a bootable disk which I can immediately access if my internal hard drive fails.

I'm inclined to use something in the neighborhood of 1.5 times the size of the data being backed up (not the size of your internal hard drive). You will be doing incremental backups so the size of your SD and CCC files will be approximately the size of your internal hard drive.

A good rule of thumb is that the Time Machine hard drive should be about twice the size of the files you will be backing up. The larger the hard drive, the more data you can store and the further back in time you have access to your data.

There are a number of online backup services available. I read that Glenn Fleishman and Bob LeVitus preferred CrashPlan, but CrashPlan for Home was discontinued last year. The Business version is still available. Other possibilities include iDrive, True Image, Carbonite, Backblaze, SpiderOak ONE, and SOS Online Backup. Just remember, a cloud storage service is not a cloud backup service. Dropbox, Box, Google Drive and others were not designed as backup services.

You can backup everything on your Mac or you can just backup your data files and not the operating system or the applications. The first choice is the better choice. If you are comfortable re-installing your operating system, applications, and customizations, you can save a lot of disk space by backing up

only your data. That can really be time-consuming. With inexpensive 1 TB drives being the norm, it's much easier to backup all files and be able to be operational in a short time after disaster.

It is safest to use 2 external drives - One for Time Machine and one for SD or CCC. That way, a corruption of one backup will not affect the other.

Then there is the question of when to backup. The answer is *It depends - on you*. You can decide when to do a periodic backup or you can have the backup program do it automatically, depending upon the times you select (weeks of the month, days of the week, and times of the day). I set SD to do it daily at 9:30 PM and I set Time Machine to do it every four hours. I chose the latter schedule so that I would not lose too much if there were a hard drive failure.

You should periodically check your backups. A backup is only useful if it reliably backs up your data. Imagine losing important files only to realize they weren't backed up like you thought they were. That would be devastating.

The best way to check if your backup is working correctly is to occasionally restore (open) a few files from your backup location. So open some and see if they look OK or are there. That's it!

Conclusions

Backup your entire Mac.

Use a hard drive, not a flash drive.

Have backup done automatically.

Test backups once a month.

Omar L. Gallaga posted the following article to philly.com on December 30, 2018. tinyurl.com/ydcgfu47. © Philadelphia Media Network (Digital), LLC. He is a former technology culture writer @512tech and co-creator of @loveaustin360.

What You Really Need for the Holidays: a Tech Purge

By Omar L. Gallaga



The traditional time for airing out your closets and getting rid of all the clutter and stuff you no longer need is from New Year's to spring. They even have a name for it: spring cleaning.

I propose you take a look at the technology you're not using and consider selling, donating, recycling, or just tossing what's no longer needed.

But what should you purge? If you're like me, you might have a closet full of old cables, barely functioning USB headsets, and random adapters you're keeping around "just in case." Who knows when you might need a VGA-to-DVI monitor adapter for an emergency multimedia presentation in your living room. What

if you suddenly need 10 USB thumb drives to distribute your one-person multimedia show, *USB Or Bust* to the media?

Let me say this clearly and please allow it to sink in (I'll do the same because I have this problem): "Just in case" is never going to happen. And if it does, we live in a world with two-hour Amazon shipping and eBay. You can find that weird adapter without too much trouble.

So let go of these things. You'll feel unburdened. I promise.

What to delete

Clutter guru Marie Kondo famously asks you to examine items in your life, from the contents of your sock drawer to your keepsakes, and ask: "Does this object bring me joy?"

With technology, it's less about joy than about utility. Does this object really have a use in your life? Is it making your life easier or just taking up space? Would a cheap upgrade to a better version of that item bring you fewer hassles?

Those are the questions you should ask as you examine your aging tech products. A good rule of thumb: if you haven't used something in six months, it probably should be on its way out of your life.

Here are just a few items upon which you should be casting a skeptical eye:

- **Old cables and adapters.** If you don't know what a power cable or adapter is for, *you don't need it*. Older cables such as S-video and component should be purged unless you need them for a specific gadget you're still using. My rule of thumb is to keep one kind of each cable (USB, RCA, etc.) as a "just in case," but even that might be overkill. Any cable that's frayed or doesn't work reliably should go. Keep HDMI cables unless they're not working properly.

- **VCRs, tape decks, and non-Blu-Ray DVD players.** It's a cumbersome process to transfer old home videos and cassettes to digital, but it's got to be done sometime. Those old tapes are only going to keep degrading. There are businesses that will do it for you, or you can invest in a gadget for transferring yourself (warning: this can be very time consuming). If you're not willing to let go of your DVD collection, DVD players can be pretty cheaply replaced with Blu-ray players (they also play regular DVDs) or even a 4K Ultra Blu-ray player. These newer devices typically also can access Netflix, Hulu, and other streaming services.
- **Old game consoles.** Unless you're playing those games or saving them for your kids, trade or sell them to a store or donate them. A lot of games from old consoles are readily available for newer game consoles.
- **Old thumb drives and external hard drives.** Transfer the contents of smaller drives to one big one (and remember to have a backup) or if you trust the cloud, keep the bulk of your files there. Do a secure format of any old storage media you plan to donate or if you're paranoid, just destroy the hard drive before sending it to a recycling center. Storage is cheap and solid-state drives are much faster than traditional hard drives. Old drives age fast.
- **Computers.** Slow and barely functional? Upgrade. But make sure to clear out your data and deauthorize apps such as iTunes that are used on multiple devices.
- **Kitchen gadgets.** Is your toaster barely functional and full of crusty crumbs from the early 2000s? Don't make cooking any harder than it has to be; get rid of any kitchen tools that are clinging to life.
- **Old software.** There's really no need to keep discs of old versions of Windows or TurboTax 1998. Destroy or recycle old installation discs.

- **Anything broken or unusable.** This goes for old TVs, cracked smart phones, or an old computer you think you're going to get fixed someday, but probably won't. In most cases, it costs more to fix a broken gadget than to just replace it. Stop pretending you're going to find a way to repair your gadgets cheaply.
- **Cameras.** If you're a photography hobbyist, by all means hold on to that gear. But if you're like most of us and taking most of your photos with your phone, you probably don't need an old point-and-shoot camera anymore. Donate.

What to keep (surprisingly)

It's not all about purging. Here are a few things you might want to hold on to a little longer or use in a new way:

- **Smartphones and tablets.** Smartphones age really quickly through software updates, but sometimes it's worth hanging on to a phone or tablet after you've upgraded. If you have kids like me, a nonactivated smartphone can make a good internet device and music player. And some people use an old phone or tablet as a smart-home controller/remote control or even an always-on security camera.
- **Land lines.** Yes, we have cell phones, but if you work out of your home and live in an area with poor cell reception, a phone land line is probably a better solution than relying on Skype and other internet services all the time.
- **Computer monitors.** Upgrading to a new monitor usually means getting rid of the old one, but if you do a lot of desktop work, having a second or even third monitor in your home office can be a game-changer.
- **Streaming boxes.** An old Roku or Apple TV might not be your best option for family room viewing if you have a new 4K television, but they can make a good option in a

bedroom or guest room, especially one not wired for cable/satellite.

What to do with purged items

Now that you have decided what should stay and what should go, you have a lot of options on what to do with these items.

For newer tech such as tablets and smartphones, the best first option is probably to try selling or trading in if you're in the market for new gadgets. Gazelle, NextWorth, Craigslist, and eBay are good places to start, as well as more locally focused apps such as OfferUp, Mercari, Letgo, and even Facebook Marketplace. If you're selling to individuals instead of a company, be prepared for flaky people, offers to trade, and lowball offers. But a little cash is still better than nothing.

Donating your tech is always a good bet. Goodwill is usually my go-to. If you keep track of donations for tax purposes, don't forget to ask for a receipt.

Recycling is always a much better option than just throwing your old tech in the trash. Best Buy and Target are good places to unload nonfunctioning phones, cameras, TVs, old ink cartridges, and some appliances.

Andrew Heinzman posted the following article to howtogeek.com on January, 2019. tinyurl.com/yc7xemvb. © How-To Geek, LLC. He is a writer for How-to Geek and its sister site, Review Geek. He recently started writing for these sites.

How to Research a Topic Online

By Andrew Heinzman

Online research is a crucial skill, whether you're working on an academic paper, writing a blog post, or just trying to learn something new about your houseplants. But it's not always easy

when you're tackling a complicated or niche topic.

Organize Your Information Early On

Organizing your information can help you save time, and it can save you from forgetting or misremembering anything that you've learned from your research. You should keep a link to every webpage that you visit from the start to the very end of your research. It's best to write down a little bit of information for each link so that you remember why you saved them and what kind of information that you could take from them. You should also save any PDF's or images related to your research because you can use them as valuable primary sources.

If you need to organize a lot of data across multiple devices, consider using a note-taking app like [Evernote](#), [OneNote](#), or [Google Keep](#). They're all great for keeping track of web pages, PDF's, photos, and whatever else you need for your big project.

If you're just trying to knock out a short essay or learn something about DIY woodworking, then you probably don't need to grab a dedicated note-taking app unless you already use one. You might find it easier to cut and paste web pages into a Word or Google Doc file and save any PDFs or images to your local or cloud storage drive. Just make sure that you [keep your files organized](#) and take notes for all of your sources.

In the end, you'll probably only use a handful of the links that you save. But if you're publishing a blog post or writing an essay, you



need to be able to double-check and cite all of your sources. Otherwise, you might end up creating a lot of extra work for yourself later.

Start Broad and Collect a Lot of Information

When researching, it's tempting to dive straight into the first exciting thing that you find. But you should try to start as broad as possible. Otherwise, you might miss out on some fascinating pieces of information and end up with a poor understanding of your topic.

That's why you should try to find a lot of information on your topic, more than you think that you'll need. A good way to start broad is to search Google for general terms related to your topic. If you're researching the difference between sunflowers and tulips, then you should learn a bit of information about each flower before going deeper.

Of course, [Wikipedia](#) is also a fantastic place to begin your research. You can use Wikipedia to find a lot of general information on your topic, and you can use it to find related topics or primary sources that may be useful as you go deeper into your research.

Decide What's Important, and Narrow Things Down

Once you've collected a broad swath of data, you need to review everything and decide on what to focus. Don't just go for the first thing that sounds interesting to you. Try to find any new relationships between the different pieces of information that you've gathered.

Let's say that you're researching an author, like Mark Twain. You found in your broad research that he was in the Civil War and that some of his stories take place in the antebellum south. On their own, those two pieces of information are boring and hard to care about. But when you put them together, it's clear that there may be a tantalizing relationship that's worth some in-depth research.

It's okay to research a relationship that seems obvious or well-known, especially if you're writing a blog, doing personal research, or doing a rudimentary history paper. But if you want to find something unique, then you need to think about how to narrow your research.

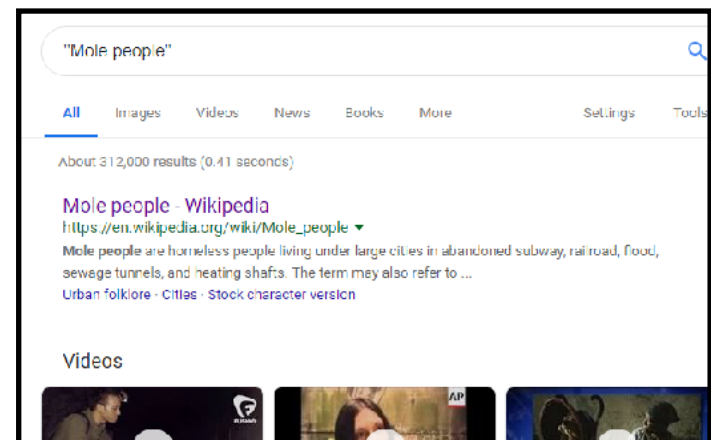
Optimize Your Google Search

Okay, you're ready to do some more in-depth research. Now what? If you're looking into something that's kind of unique, then you may have trouble finding some good search results on Google.

That's why you need to use some [Google Search Operators](#) to get the most out of your Google searches. There are a lot of search operators that you can use, and they're all pretty straightforward. But there are a few that are especially useful for doing online research.

If you need to look up exact phrases or names on Google, then you can put them in quotation marks. For example, if you search the phrase "mole people" on Google, then you'll only find pages that contain the word "mole" followed by the word "people."

"Mole people"



The idea of starting broad and then narrowing your search applies to searching the web, too.

For example, if your search for “mole people” include too many results related to New York, then you could use a minus sign to exclude those results. This is what it would look like:

"Mole people" -"New York"

Note that we also used quotation marks around “New York” in that search because we want the whole phrase excluded.

If you hit a point in your research where you can't find any new websites to visit, then you should try to switch up your Google search. Try using variations on the same search terms, and change which Search Operators you're using. Sometimes the slightest change in your search will give you wildly different results.

Go Further Than Google

Sometimes Google's expertise won't be enough for you. If you're working on a full academic paper or writing a deep-dive blog post, then you may need to look through some magazines, academic papers, or old books. You know, “primary sources.”

Some websites, like [Project Muse](#) and [JSTOR](#), are an excellent resource for periodicals, academic papers, and other primary sources. You can usually access them through your University or public library. There's also some free alternatives to these websites, like [Google Scholar](#) and [SSRN](#).

But if you're writing a deep-dive on dairy advertisements, then you're going to need to find some old catalogs, magazines, periodicals, and posters. [Google Books](#) is an excellent resource for this kind of material.

You can also use [Wikipedia](#) to find some primary sources. At the end of every Wikipedia article, there's a “References” table. This table tells you the sources for all of the information in the article. If you come across a juicy bit of information while reading a

Wikipedia article, then there's usually a small number that links to the reference table.

It's good to look into all of these resources because they usually come up with different results for the same search. They also tend to have built-in advanced search functions, which are useful for topics that are unique or niche.

Double-Check Your Research

Once you've completed your research, you need to make sure that all of your information is accurate. You can save yourself a lot of heartbreak by double-checking all of your research before doing any writing.

Go and reread all of your sources, because there's a chance that you misinterpreted what they're saying. Of course, you're not the only person that can misread a source, so it's good to check any citations that you find on a website.

You should also consider how you used Google to research your topic. If you included any bias in your search terms, then there's a chance that the information that you gathered will reflect that bias. Try searching Google with a variety of search terms and [Google Search Operators](#).

There are also fact-checking websites that you can use to make sure that your information is accurate. Websites like [Factcheck.org](#) or [Snopes](#) are pretty fantastic; just don't use them as your only fact-checking resource.

What if You Find Conflicting Information?

Sometimes you'll spend a lot of time double-checking all of your research, and you'll realize that things don't seem to line up. In this situation, it's tempting to stand behind some information that may not be entirely factual. After all, it's a lot easier to go along with inaccurate information than to redo your entire research process.

But you should never write or publish any information unless you're confident that it's accurate. If you run into conflicting

information while researching a topic, go back to the drawing board or try to spin the pieces of contradictory information in your favor.

For example, if you find a lot of conflicting eyewitness accounts while researching the Titanic, then you can quickly turn those conflicting accounts into an exciting piece of information. You could even go back and do some in-depth research into who made those eyewitness accounts, and how they shaped the public's opinion on the sinking of the Titanic. Hey, that could be a book.

Jerri Collins posted the following article to lifewire.com on December 27, 2018. tinyurl.com/ych883l2. © About.com. She is probably a freelance writer.

10 Ways You Can Use the Web to Find People

There's no shortage of places on the web to look for someone.



By Jerri Collins

Tracking down someone you've lost contact with is one of the most popular activities on the web all over the world and with good reason. The vast amount of free information available online makes finding someone easier than ever before. The tools and websites shown here are all free and deliver consistently reliable results.

A couple of things to keep in mind while reading this article, and before you start using any of the resources listed here:

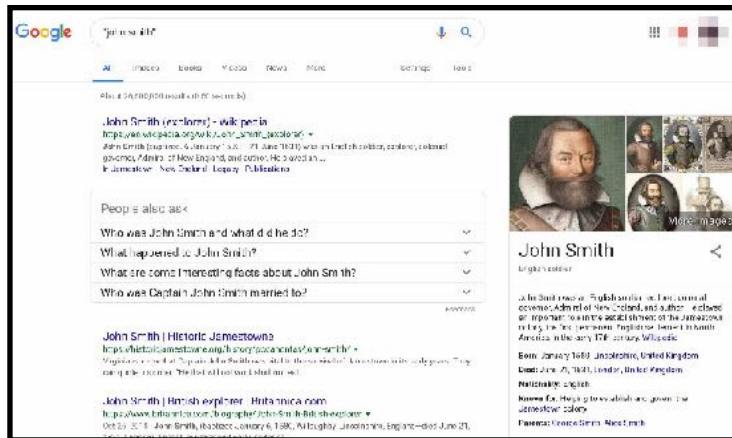
Be patient. Have you ever heard the phrase "Rome wasn't built in a day"? If the person you're looking for hasn't left much of a trail, you probably won't find success in one simple search. Give yourself time and realize that you may need to run multiple searches in several locations to find the information you seek.

Use all the tools in your toolbox. Don't limit yourself to one [search engine](#) or one website. Search tools can give surprisingly different results, and each tool adds just a bit more information to the overall summary.

Keep your money. The resources listed here are free and don't require financial or personal information. If you come across information that requires a credit card, don't give out your secure data. Learn more about whether or not you should [pay to find people online](#).

01 Google

Ask someone what [Google](#) is, and they'll tell you it's a [search engine](#). However, Google is much more than just a search engine. It offers a whole spectrum of search tools that you can use to [find people](#) on the [web](#). These include finding phone numbers, tracking down maps, and images.



02 Family Tree Now

Family Tree Now is a popular genealogy and people search site that provides a surprising amount of information — all free — with no registration required. Anything from census records to birth dates and phone numbers can be found here, making the site both useful and somewhat controversial at the same time.



03 Zabasearch

Zabasearch, a free people search engine, uncovers a startling amount of information, most of it amazingly accurate. Zabasearch updates its records according to information that is



publicly available. You can search by what is available in the public domain for free public access. If you're not comfortable with your information being accessible in Zabasearch, you can [remove your personal information from Zabasearch](#).

04 People Search Sites

There are a wide variety of [websites that focus only on people-related information](#), such as online phone directories and databases. These sites are excellent resources for picking up bits and pieces of information, such as business phone numbers, obituary notices, and census data.



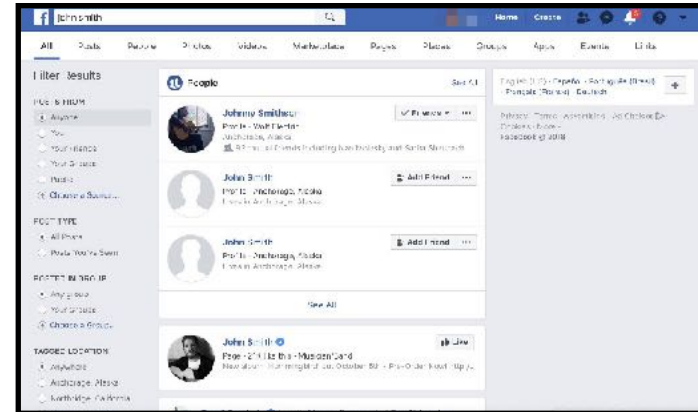
05 Obituaries and Death Notices

Surprisingly, in a day of almost limitless information online, obituaries prove somewhat tricky to find because they are published by local, city, and state newspapers. Its worth a try to check the newspaper in a person's hometown, if you have that information. There are ways to find both present and past [obituaries on the web](#) using a variety of resources and search queries. If you don't have the hometown but have the person's first and last name, try the free [Social Security Death Index](#) at Ancestry.com. It may lead you to the date of death and the city or town where the person was living. Then, you can check the local newspaper.



06 Facebook

About 1.5 billion people use [Facebook](#) every day to connect with friends and family all over the world. You can use this incredibly deep and diverse network to find a person, company, brand, or organization. The possibilities are endless. You need to have a free Facebook account to access all the Facebook information that is available to you. There are plenty of ways to [use Facebook to find people](#), starting with your high school classmates.

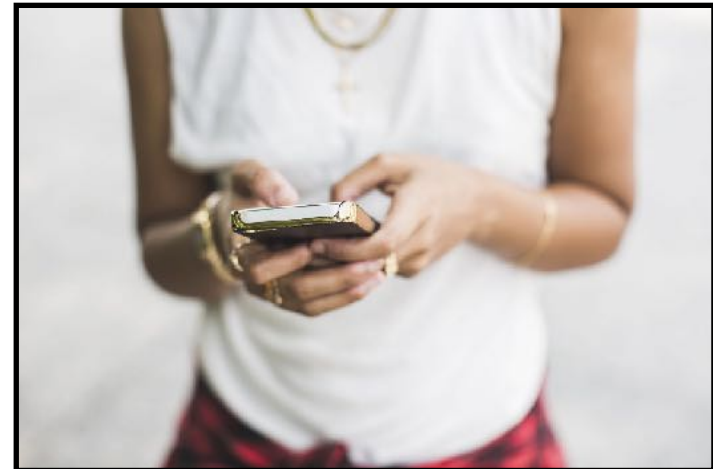


07 Public Records

All sorts of interesting [public, vital, historical, and genealogical records](#) can be tracked down online, or you can use the resources you find on the web to give you a running start at your local records offices.

08 People Search Engines

[Search engines that focus only on people-related information](#),



like a search engine that filters result from the [invisible web](#) or tools that bring in any related web content to the person you're looking for, are incredibly valuable tools when you're trying to dig

up as much information as possible. Check out PeekYou, Pipl, and Wink. Don't forget LinkedIn. Although it isn't a search engine, it's a treasure trove of searchable personal information.

09 Cell Phone Numbers



If you've ever tried to [look up a cell phone number](#), you've probably hit a brick wall. Cell phone numbers are attractive to people who enjoy their [privacy](#) because they aren't listed in public phone directories. However, there are ways to get around this and track down who a cell phone number belongs to using a few clever search tricks. If you have a phone number, try using a reverse number lookup on Google, or search the social media websites for the number.

10 Search Engine Shortcuts



If you're trying to figure out what part of the country a U.S. area code is related to, all you need to do is type the area code into any search engine. You can also use the web to find a [toll free phone directory](#). Check out this list of the [top web search tricks](#) for more ways you can find people on the web.

Jerri Collins posted the following article to lifewire.com on January 03, 2019. tinyurl.com/ycavg5nx. © About.com. She is probably a freelance writer.

Not The Same: Invisible Web and the Dark Web



By Jerri Collins

Have you watched the news, your favorite TV show, or a hit movie recently, and heard the term [Dark Web](#), [Invisible Web](#), or Deep Web? These are subjects that are getting a lot of mentions lately, and many people are curious about them — and rightly so! Unfortunately, popular culture to the contrary, these terms are not interchangeable, and mean very different things. In this article, we're going to look at what the difference is between the Invisible Web and the Dark Web, as well as a term you might not have heard before — the Surface Web.

Different Layers to the Web

It's probably best to start by explaining that there are actually several layers, so to speak, of the Web: the Surface Web, the

Invisible Web, and the Dark Web. The web that we're all used to — the one that offers up our favorite sports websites, gossip news, online magazines, etc. — that is commonly known as the Surface Web. The Surface Web includes any content that is easily crawled, or indexed, by search engines.

The Invisible Web

However, there's a limit to what search engines include in their indexes. That's where the term *invisible web* comes into play. Invisible web mainly refers to the vast repository of information that search engines and directories don't have direct access to and are not including in their index, like databases, libraries and court records.

Unlike pages on the visible, or Surface Web (that is, the Web that you can access from [search engines](#) and directories), information in databases is generally inaccessible to the [software spiders](#) and crawlers that create search engine indexes. There's generally nothing nefarious going on here, and there are several different factors as to why a site would not be included in a search engine index, but basically they simply boil down to technical barriers and/or deliberate decisions on the part of the site owner(s) to exclude their pages from search engine spiders.

For instance, university library sites that require passwords to access their information will not be included in search engine results, as well as script-based pages that are not easily read by search engine spiders. There's also really large databases in there, both public and private; anything from [NASA](#), the [Patent and Trademark Office](#), [U.S. National Oceanic and Atmospheric Administration](#) to databases like LexisNexis, which require a fee to search.

How Do You Access the Invisible Web?

It used to be that these pages were hard to get to, but over the years, search engines have gotten pretty sophisticated and are including more and more of the content that was difficult to find in their indexes. However, there are still many, many pages that

are not making it into search engines for whatever reason; you can still find them directly if you know how. Basically, you can piggyback, so to speak, on search engines to drill down into databases to find these pages. For example, if you did a search for “weather” and “database”, you’d come up with some pretty fascinating information. From this initial search query, you can drill down into the database's index to find what you’re looking for.

The Difference Between the Dark Web and the Invisible Web

Now we can finally get to what the [Dark Web](#) — also known as DarkNet — really is. If the Surface Web is basically everything that a search engine offers up in its index, and the Invisible Web — which, incidentally, is estimated to be at least 500x times larger than the Surface Web — is basically information that a search engine does not or cannot include in its index, then the Dark Web is a relatively small portion of the Invisible or Deep Web, one that has a lot of different stuff going on, anything from drug trafficking to murder for hire to people who are looking to share information safely in an unsafe environment or culture, with complete freedom from censorship; in other words, it’s not all bad stuff going on there.

Jerri Collins posted the following article to lifewire.com on January 03, 2019. tinyurl.com/ybyby9gg. © About.com. She is probably a freelance writer.

How to Find Medical Information on the Invisible Web

The invisible web a goldmine for medical databases

By Jerri Collins



The [Invisible Web](#) has a goldmine of medical databases and specialized medical sites that just don't show up on a cursory search in the search engines. Best of all, this information is free.

Online medical information should never substitute for the expertise of a real, live doctor. If you or someone you love needs medical attention, make sure you get it. The links in this article are for informational purposes only.

General Medical Information Sites on the Invisible Web

- [The Center for Disease Control and Prevention](#): Enormous amount of medical information here, from genetics to environmental health.
- [NOAH](#): "provides access to high-quality full-text consumer health information in English and Spanish that is accurate, timely, relevant and unbiased."
- [National Library of Medicine Gateway](#): just what it sounds like; a jumping off point to a variety of medical information databases.
- [Medscape](#): Medscape "offers specialists, primary care physicians, and other health professionals the Web's most

robust and integrated medical information and educational tools."

- Medicare has a very useful database in which you can [search for a good nursing home](#). Search by geography, proximity, or you can search by name.
- The [National Library of Medicine](#), "the world's largest medical library," is an incredible resource. I was able to find a lot of great information here.
- If you're researching anything to do with a virus, check the [All the Virology on the Web](#) database first.
- The [National Cancer Institute](#) is a great site. Search for information about any type of cancer, clinical trials, cancer topics, etc. In addition, you can find cancer statistics and all kinds of info about national research into the disease.
- The United States [Department of Health and Human Services](#) is a searchable database of anything to do with human health, including safety and wellness, drugs and food, reference, aging, and more.
- From the American Academy of Family Physicians comes [FamilyDoctor.org](#), health information for the entire family. Nicely organized into searchable subject directories as well as alphabetized listings.
- Everything you ever wanted to know about the process of aging can probably be found at AARP's [Internet Resources on Aging](#). This site is organized into searchable subject categories.
- Information about substance abuse and mental health can be found at [SAMHSA](#), a site put together by the US Department of Health and Human Services.
- The World Health Organization has an excellent site, [WHO Health Topics](#), organized alphabetically. You can also check out world policies on disease and emergencies.

- [OmniMedicalSearch.com](#) is a search engine for many specialized medical databases. You can customize your search to the Web, MedPro Search, Basic Search, or you can choose which specific medical database you'd like to browse; such as HealthFinder.gov, MediWarp, or the National Cancer Institute (among others).
- [The Merck Manual of Medical Information](#): One of the largest medical information sites on the Web today.
- [OmniMedicalSearch](#): a meta search engine for a variety of medical information sites, including PubMed, the CDC, and the NIH.

Specialized Medical Information Sites

- [Medical Mnemonics](#): "A free, non-profit, online searchable database of medical mnemonics to help remember the important details."
 - [Medlogs](#): a large medical information news aggregator; pulls medical information from a large variety of online journals and sites.
 - [Medical and Health Sciences Libraries on the Web](#): a collection of university health and medical libraries on the Web; large collection here of some pretty fantastic medical information databases.
-

Jerri Collins posted the following article to lifewire.com on December 16, 2018: tinyurl.com/ybyby9gg. © About.com. She is probably a freelance writer.

Search the Invisible Web: 20 Free Resources



By Jerri Collins

Unlike pages on the visible web (the web that you can access using search engines and directories), information in the invisible web is not visible to the software spiders and crawlers that create search engine indexes. Since this information makes up the vast majority of available content on the web, you are potentially missing out on some pretty amazing resources. That's where invisible web search engines, tools, and directories come in. Many invisible web search tools access the wealth of information that is the invisible web. Here are 20 search engines, directories, and databases you can use to uncover an astounding amount of content.

01 Wayback Machine



What We Like

- Lots of content.
- Displays most pages perfectly.
- Easy-to-understand results.
- Keeps you on the site while browsing.

What We Don't Like

- Keyboard shortcuts would be helpful but aren't supported.

The Internet Archive Wayback Machine holds a vast number of webpages. As part of the nonprofit Internet Archive, the Wayback Machine has more than 20 years of web history and webpages archived and accessible to everyone, including more than 330 billion webpages, 11 million books, and millions of audio recordings, concerts, videos, television news programs, and images—in addition to more than 100,000 software programs.

02 USA.gov



What We Like

Accurately categorized results.
Government web pages only.
Ad-free.

What We Don't Like

Lacks advanced search options like filtering.

USA.gov is a mammoth search engine and portal that gives the searcher direct access to a wide variety of information and databases from the U.S. government, state governments, and local governments. USA.gov includes access to the Library of Congress, an A-Z government agency index, the Smithsonian, and much more.

[Read our review of USA.gov](#)

03 The WWW Virtual Library



What We Like

Easy-to-use, simple design.

Curated links.

What We Don't Like

Pages haven't been updated since early 2017.

The WWW Virtual Library gives you instant access to hundreds of different categories and databases on a wide variety of subjects ranging from agriculture to international affairs. The site claims that the WWW Virtual Library is [the oldest catalog of the web](#), started by [Tim Berners-Lee](#), the creator of [HTML](#) and of the web itself, in 1991 at CERN in Geneva.

It is run by volunteers, who compile pages of links for particular areas in which they have expertise. The Virtual Library pages are among the highest-quality guides to specific sections of the web.

04 Science.gov



What We Like

- Queries millions of pages.
- Advanced search feature.
- Lots of filtering options.
- Results can be emailed.

What We Don't Like

- Results seem cluttered.

Science.gov searches over 60 databases and more than 2,200 selected websites from 15 federal agencies, offering 200 million pages of authoritative U.S. government science information, including research and development results.

Science.gov is an interagency initiative of 19 U.S. government science organizations. These agencies form the voluntary Science.gov alliance, which governs [science.gov](#).

05 Wolfram Alpha



What We Like

- Covers lots of material.
- Very detailed results.
- Suggests searches as you type.
- Mobile apps.

What We Don't Like

- Not all features are free.
- Can be overwhelming.

Wolfram Alpha is a computational search engine, which means it stores a vast amount of pure data available to you by search and by a question-and-answer format.

Wolfram Alpha aims to collect and curate all objective data; implement every known model, method, and algorithm; and make it possible to compute whatever can be computed about anything.

06 The National Security Archive

What We Like

- Advanced search capabilities.
- Easy-to-read synopses.
- Thousands of documents.

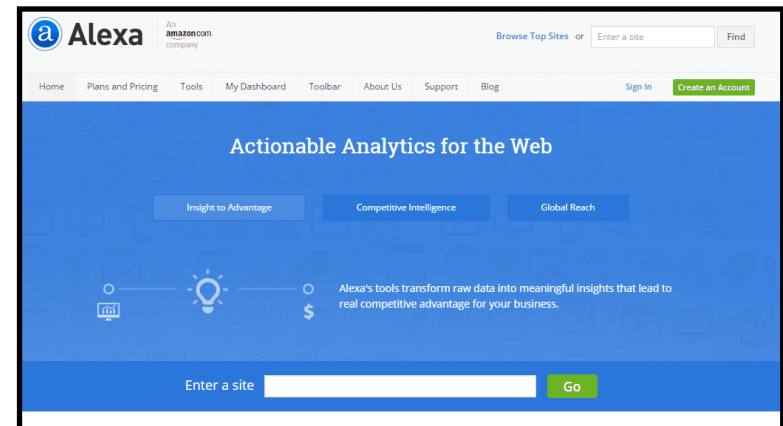
What We Don't Like

- Can't change how the results are sorted.

The National Security Archive at George Washington University is home to a treasure trove of declassified documents, papers, and other primary-source materials on subjects related to U.S. national security, foreign policy, intelligence policy, and diplomatic and military history.

The site was founded in 1985 and is home to more than 50 years of documents released under the Freedom of Information Act.

07 Alexa



What We Like

- Free trial.
- Self-explanatory.
- Lots of data.
- Browser extension support.

What We Don't Like

- Many tools aren't available for free.

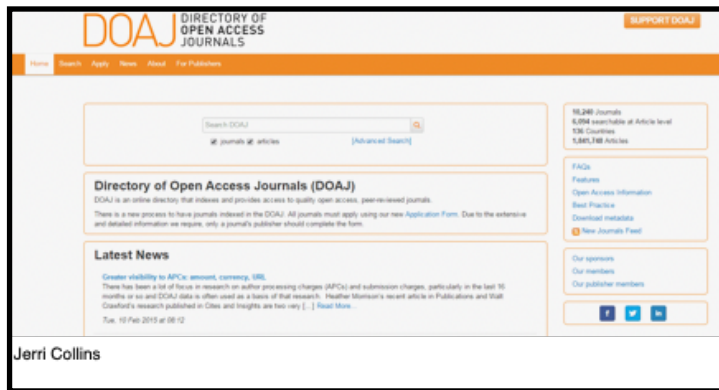
Alexa and Amazon.com company give you specific analytical information about web properties. Alexa gathers much of its

traffic data from direct sources in the form of sites that chose to install the Alexa script on their site to certify their metrics.

The traffic estimates are based on data from a global traffic panel, which is a sample of millions of internet users using one of over 25,000 different browser extensions.

Website owners especially can benefit from the data that Alexa offers; for example, here's a [list of the top 500 sites on the Web](#).

08 Directory of Open Access Journals



What We Like

- All the content is free.
- Abstract and full text.
- Lots of filtering options.
- Supports translations.

What We Don't Like

- Results lack a preview.

The Directory of Open Access Journals (DOAJ) indexes and provides access to quality open-access, peer-reviewed journals. More than 10,000 journals and millions of articles are searchable using the DOAJ.

The Directory of Open Access Journals indexes research journals, periodicals, and their articles' [metadata](#). The DOAJ aims

to be comprehensive and cover all open-access scientific and scholarly journals that use an appropriate quality control system. The directory's goal is to increase the visibility and ease of use of open-access scientific and scholarly journals—regardless of size and country of origin.

09 The Online Books Page



What We Like

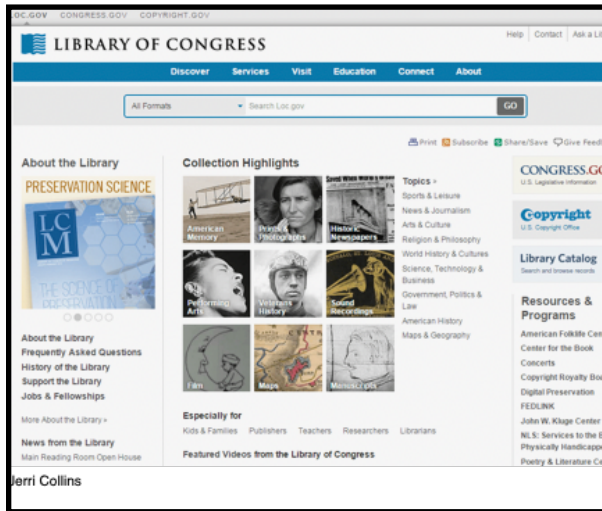
- No ads.
- Lots of ways to browse.
- Variety of free content.

What We Don't Like

- Bland website design.
- Lacks advanced filtering and searching.

The Online Books Page, a service offered by the University of Pennsylvania, gives readers access to more than two million books freely accessible (and readable) on the [internet](#). Users also gain access to significant directories and archives of online texts, as well as special exhibits of particularly interesting classes of online books.

10 The Library of Congress



What We Like

- Trending searches page.
- Lots of filtering options.
- Search term suggestions.
- Different viewing options.
- Sorting capabilities.

What We Don't Like

- Links open in new page.

One of the most vivid and interactive sites on this list of [Invisible web resources](#), the Library of Congress offers an incredibly rich and varied array of content. Collection highlights include congressional records, digital preservation resources, the Veterans History Project, and the World Digital Library.

According to the site, "The Library of Congress is the nation's oldest federal cultural institution and serves as the research arm of Congress. It is also the largest library in the world, with millions of books, recordings, photographs, maps and manuscripts in its collections."

11 Census.gov



What We Like

- Helpful visuals.
- Data finding tools and apps.
- Variety of search term suggestions.

What We Don't Like

- No advanced search options.

If you're looking for data, then Census.gov is one of the first places you'll want to visit. From geography to population statistics, you'll be able to find them on this website.

The U.S. Census Bureau conducts demographic, economic, and geographic studies and strengthens statistical development around the world through technical assistance, training, and software products.

For more than 60 years, the Census Bureau has performed international analytical work and assisted in the collection, processing, analysis, dissemination, and use of statistics with counterpart governments in over 100 countries.

12 Copyright.gov



What We Like

- Basic and advanced search tool.
- Hints on how to make searches.

What We Don't Like

- Not very user friendly.

Copyright.gov is another U.S. government resource you can put in your invisible web search toolbox. Here, you can view works registered and documents recorded by the U.S. Copyright Office since January 1, 1978, as well as search records of registered books, music, art, periodicals, and other works, including copyright ownership documents.

13 Catalog of U.S. Government Publications



What We Like

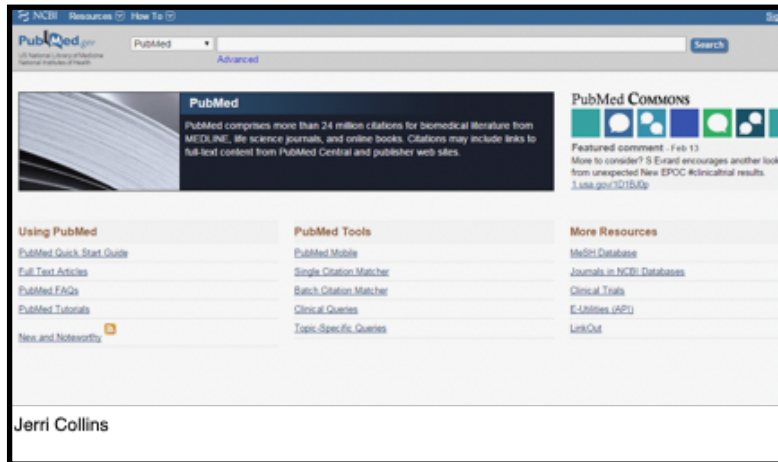
- Zero ads.
- Updates daily.
- Hundreds of thousands of results.
- Lots of options while searching.
- Pages you can manually browse.

What We Don't Like

- Outdated page functions.

The Catalog of U.S. Government Publications gives users instant access to electronic and print publications from the legislative, executive, and judicial branches of the U.S. government, with more than 500,000 records generated since July 1976.

14 PubMed



What We Like

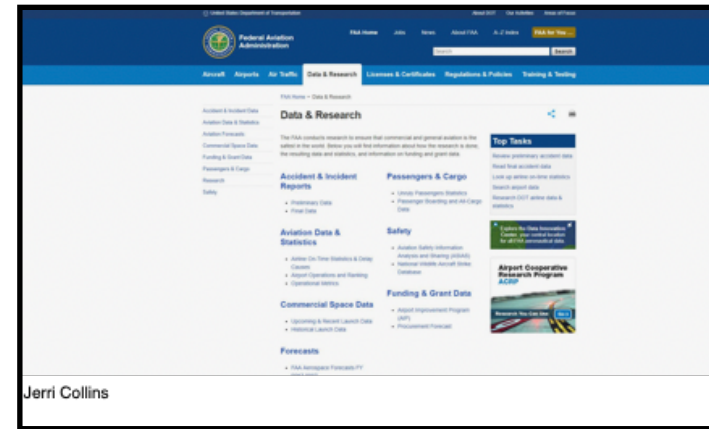
- Huge trove of data.
- Data exporting capabilities.
- Simple and advanced search options.
- No advertisements.

What We Don't Like

- Unfriendly UI; can be hard to use.

PubMed, part of the National Center for Biotechnology Information, U.S. National Library of Medicine, is the perfect resource for anyone who's looking up medical or medical-related information. It offers more than 24 million citations for biomedical literature from MEDLINE, life science journals, and online books.

15 FAA Data and Research



What We Like

- Modern interface.
- Official, always up-to-date data.
- Free from ads.
- Clear and understandable menu headings.

What We Don't Like

- No advanced search options.

The FAA Data and Research pages offer information on how FAA research is done, the resulting data and statistics, and information on funding and grant data. Anything from aviation safety to unruly passengers (seriously) can be found here.

16 DuckDuckGo

What We Like

- Privacy-conscious
- Forces site encryption.
- Mobile apps
- Sorting and filtering options

What We Don't Like

- No easy-to-use advanced search box.

DuckDuckGo searches both the regular web and the deep web without saving any of your personal information or your search results. DuckDuckGo blocks advertising trackers to keep your search history private.

Although DuckDuckGo resembles other web browsers, this search engine is fully capable of performing advanced searches on the deep web.

17 FindLaw



What We Like

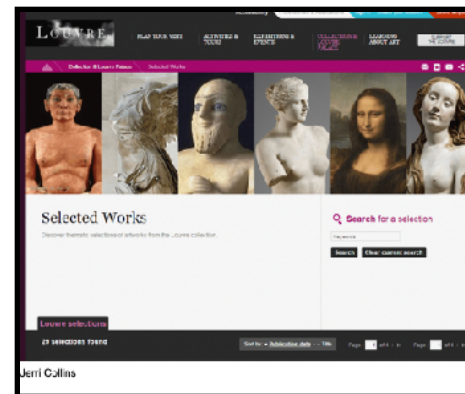
- Great learning resource.
- Very comprehensive.
- Easy to use.
- Lots of filtering options.

What We Don't Like

- Lots of ads.

FindLaw is a gigantic repository of free legal information on the internet, and it offers one of the largest online lawyer directories available. You can use FindLaw to locate an attorney, learn more about U.S. law and legal topics, and participate in the active FindLaw community forums.

18 The Louvre



What We Like

- Simple website.
- A few sorting options.

What We Don't Like

- Displays advertising.
- Too simple of a search tool.

The Louvre online begs to be discovered and cherished by art lovers all over the world. View thematic collections of art, get more information about the background of selected works, and view art aligned with historical events.

19 FreeLunch

What We Like

- Continuously updated.
- Clear and concise data.
- Lots of information.
- Region-specific.
- No ads.



What We Don't Like

- Poor search tool.

FreeLunch gives users quick access to free economic, demographic, and financial data. It provides comprehensive and extensive historical and forecast data at the national and subnational-regional levels representing over 93 percent of global GDP.

FreeLunch covers more than 180 countries, over 150 global metro areas, and all U.S. states, metro areas, and counties. The databases contain economic, financial, demographic, and consumer credit time series.

20 Bankrate



What We Like

- Wealth of information.
- Extremely user-friendly.
- Free calculators.
- Useful sorting options.

What We Don't Like

- Too simple of a search tool.
- Lots of ads.

Bankrate, an online financial resource that's been around since 1996, offers a huge library of financial information on current interest rates, mortgage lender reviews, ARMs, articles on CUSIP, and much more.



Marziah Karch posted the following article to lifewire.com on December 19, 2018. tinyurl.com/z43esf9. © About.Inc. She is a former writer for Lifewire, a senior instructional designer in Portland, Oregon, and the author of several technology books and manuals

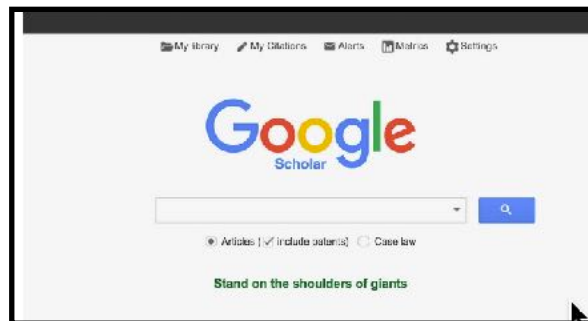
10 of Google's Other Search Engines

By Marziah Karch

Google has a search engine. We're all familiar with it. It's at google.com. Within Google search, Google also has a lot of [hidden search engines](#) and hacks, such as converting currency, finding local weather forecasts, movie times, and finding stock quotes.

Search engines that search specific sub-groups of the web are known as vertical search engines. Google also calls them "specialized search." Google has quite a few of these specialized search engines. Many of these vertical search engines are deeply integrated into the main Google search engine — to the point that they really don't look any different from a regular Google search and can only be seen when you adjust your search settings. However, some of Google's search engines are separate search engines with their own URL. You might sometimes see a suggestion to try searching for those results in the main search engine, but when you're searching for a specific subject matter, it just saves time to go directly to the source.

01 Google Scholar



If you search for academic research at all (including high school papers), you need to know about [Google Scholar](#). Google Scholar is a vertical search engine dedicated to finding scholarly research.

It will not always give you access to those papers (plenty of research is hidden behind paywalls) but it will give you access to any open access publications and a direction to start searching. Academic library databases are often difficult to search. Find research on Google Scholar and then switch back to your library database to see if they have that particular document available.

Google Scholar ranks pages by taking into account the source (some journals are more authoritative than others) and the number of times the research has been cited (the citation rank). Some researchers and some studies are more authoritative than others, and citation count (how many times a particular paper is cited by other papers) is a widely used method of measuring that authority. It's also the method that was used as the foundation for Google's [PageRank](#).

Google Scholar can also send you alerts when new scholarly research is published on topics of interest.

02 Google Patent Search



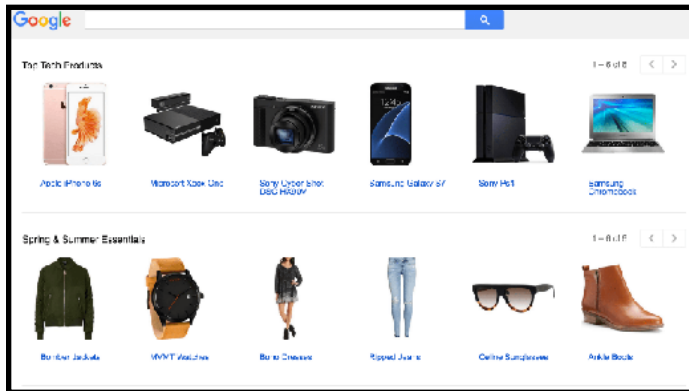
[Google Patents](#) is one of the more hidden vertical search engines. It's no longer as boldly branded as a separate search

engine, although it does have a separate domain at patents.google.com.

Google Patent search can search through names, topic keywords, and other identifiers for patents around the world. You can view the patents, including the concept drawings. You can also use Google's patent search engine as part of a killer research portal by combining Google Patents and Google Scholar results.

Google used to have a vertical search engine that specialized completely in US government documents (Uncle Sam Search) but the service was discontinued in 2011.

03 Google Shopping

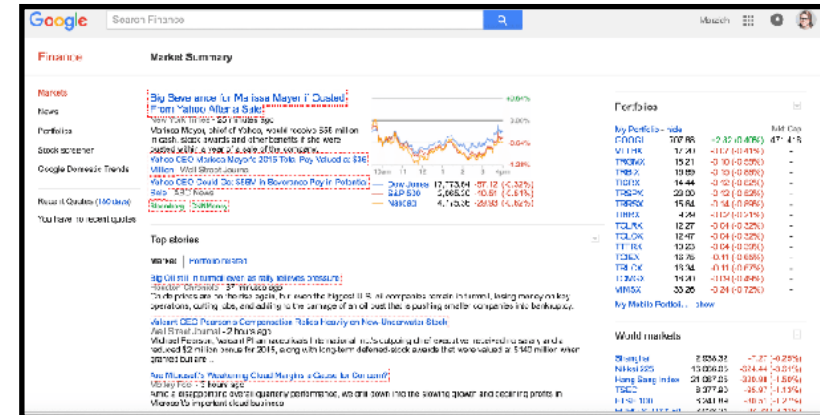


Google Shopping (previously known as Froogle and Google Product Search) is Google's search engine for, well, [shopping](#). You can use it for both casual browsing (shopping trends) or you can search for specific items and drill down into comparison shopping. You can filter searches by things such as vendor, price range, or local availability.

Results usually show both online and local places to purchase items. Information for local results is limited because it relies on stores to also list their inventory online. Thus, you're not likely to get as many results from smaller local merchants.

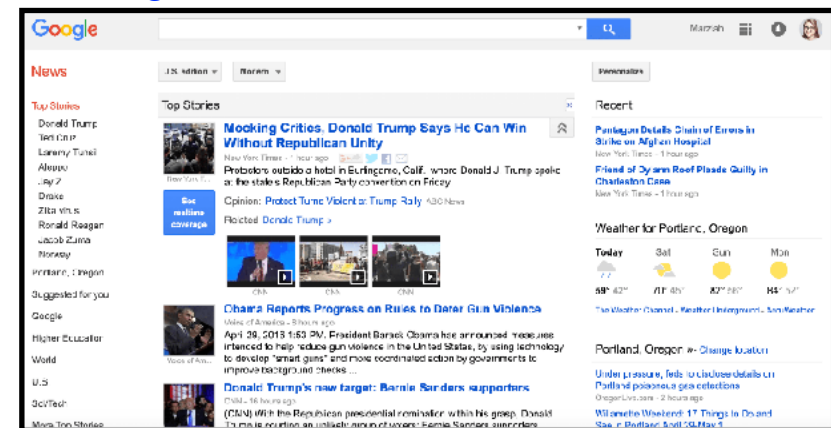
Google also had a related search engine that it [killed](#), revived, and then killed again called Google Catalogs. It searched through print catalogs for shopping information.

04 Google Finance



Google Finance is a [vertical search engine](#) and portal dedicated to stock quotes and financial news. You can search for specific companies, view trends, or keep track of your personal portfolio.

05 Google News

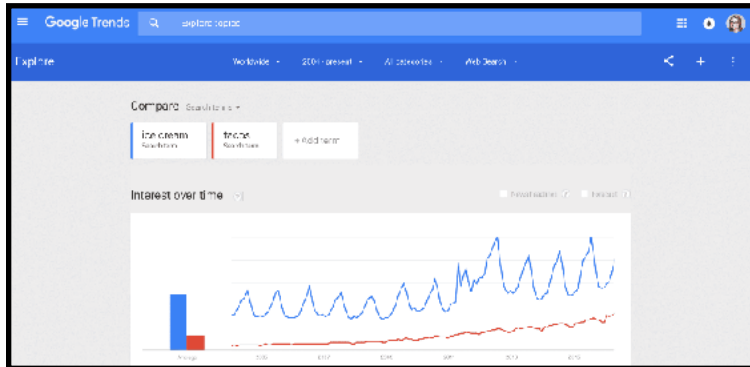


[Google News](#) is similar to Google Finance in that it's a content portal as well as a search engine. When you go to the front page of Google News, it resembles a newspaper stitched together

from a large number of different newspapers. However, Google News also contains information from blogs and other less traditional media sources.

You can customize the layout of Google News, search for specific news items, or set up [Google Alerts](#) to be notified of news events on topics of interest to you.

06 Google Trends



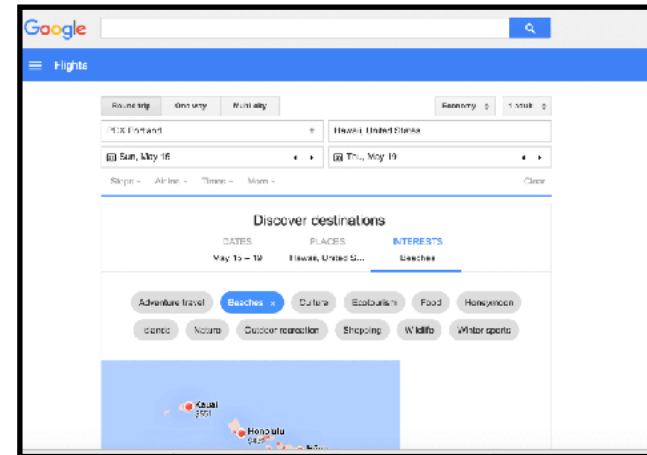
[Google Trends](#) (previously known as Google Zeitgeist) is a search engine for the search engine. Google Trends measures fluctuations and relative popularity of search terms over time. You can use it to measure general trends (lots of people are talking about Game of Thrones right now) or compare specific search terms over time. In the example image, we compared the relative popularity of 'tacos' and 'ice cream' over time.

Google also bundles Google Trends information for the year into the [Google Zeitgeist](#) report. [Here is the report for 2015](#). Note that general trends represent changes in popularity, not a ranking of absolute search volume. Google indicates that the most popular search terms don't actually change much over time, so the trend data sorts out the background noise in order to find search phrases that are different.

Google experimented with a measurement of Google trends to find the spread of the flu, called [Google Flu Trends](#). The project

was started in 2008 and did quite well until 2013 when it missed the peak of the flu season by a large margin.

07 Google Flights



[Google Flights](#) is a search engine for flight results. You can use it to search and comparison shop between most airlines (some airlines, like Southwest, opt not to participate in results) and filter your searches by airline, price, flight duration, the number of stops, and time of departure or arrival. If this sounds a lot like the sort of thing you can already get on many travel search engines, that's because Google purchased [ITA](#) in order to make Google Flights, and that's still the same search engine that powers many of those travel sites today.

08 Google Books



Google Books is a search engine for finding information in print books and a place to find your personal e-book library for any e-books [you have uploaded](#) or purchased through your library in Google Play Books. You can also easily [find free e-books](#) through Google Books.

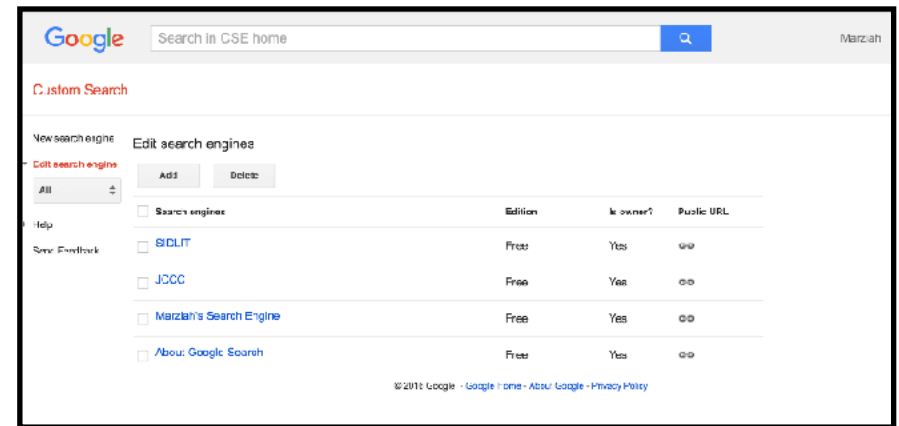
09 Google Videos



[Google Videos](#) used to be a video uploading service that Google created as a competitor to YouTube. Eventually, Google gave up on the idea of building a full video streaming service from scratch and bought YouTube. They folded the video streaming features from Google Videos into YouTube and relaunched Google Videos as a video search engine.

Google Videos is actually a pretty amazing video search engine. You can find results from YouTube, of course, but you can also find results from [Vimeo](#), [Vine](#), and multiple other streaming video services.

10 Google Custom Search Engine



When all else fails, make your own vertical search engine. [Google Custom Search Engine](#) allows you to make your own specialized vertical searches.

Google Custom Search Engine results display inline ads, just like standard Google search results. However, you can pay for an upgrade to remove the ads in your custom search engine (such as search engines you create as a web developer to search your own website) or you can opt to share in the profits from the inline ads.

SPEAKER ROSTER FOR MLMUG'S 2019 MEETINGS

January 12	Nick Iacona - Mojave & iOS 12 Walkthrough
February 9	Jeff Porten - Productivity
March 9	Mark Bazrod - TBA
April 13	Dave Hamilton - TBA
May 11	Dave Comeau - 3D Projectors & New Technology
June 9	Picnic
July	Recess - Summer
August	Recess - Summer
September 14	Jeff Gorman - TBA
October 12	TBA
November 9	Bob "Dr. Mac" LeVitus - TBA
December 8	Pot Luck Brunch, Members' Show & Tell, & Election of Officers



SOME SPEAKER ROSTER DETAILS

February 9 - Jeff Porten - An author of several Take Control eBooks.

March 9 - Mark Bazrod - Long time MLMUG member, presenter, and Newsletter Editor.

April 13 - Dave Hamilton - Co-founder of The Mac Observer and publisher and co-host of the Mac Geek Gab Podcast

May 11 - Dave Comeau - Long time MLMUG member and entrepreneur.

June 9 - Picnic - Valley Creek Park, Route 29, East Whiteland

September 14 - Jeff Gorman - Apple Specialist, PMUG member; and owner of Creative Computing in New Hope, NJ.

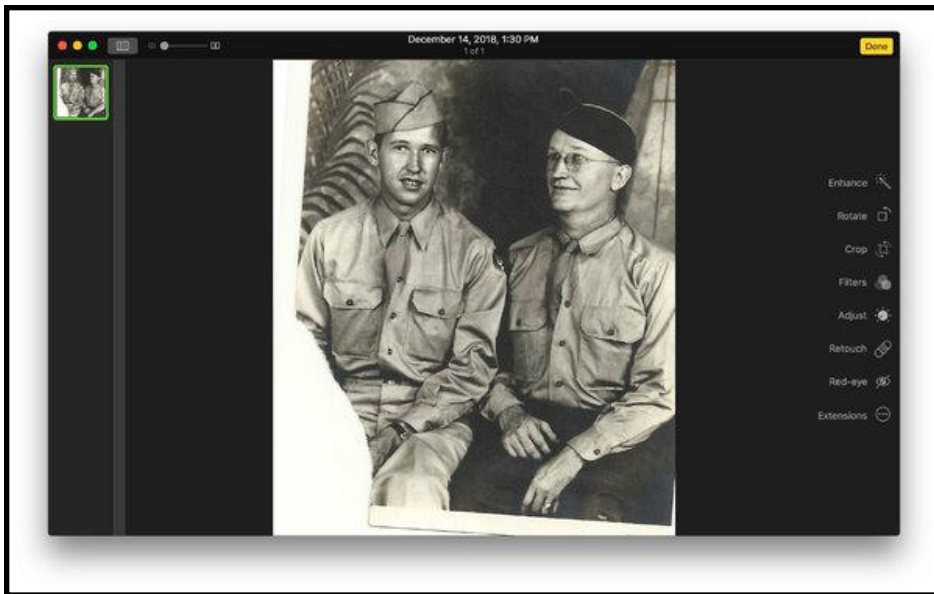
November 9 - Bob "Dr. Mac" LeVitus - a leading expert on Apple products and software. Has written or co-written more than 80 popular computer books. Known for his trademark humorous style and unerring ability to translate "techie" jargon into usable and fun advice for regular folks.

December 14 - Pot Luck Buffet, Member's Show and Tell, and Election of Officers for 2020 An opportunity to enjoy friends, and good food, A "Show and Tell" session called will allow members 5, 10, or 15 minutes to present a topic.

J. D. Biersdorfer posted the following article to the *nytimes.com* on December. 19, 2018. [tinyurl.com/y9zphgvd](https://www.nytimes.com/2018/12/19/technology/family-photos.html). © The New York Times Company. She has been answering technology questions for The New York Times since 1998 and is the author or co-author of eight books on consumer-technology topics.

How to Rescue, Repair and Revive Old Family Photos

If the march of time is eroding your personal picture archive, give your beloved images new life.



Apple Photos and other free image-editing programs have tools to clean up your old scanned pictures and give them new life.

By J. D. Biersdorfer

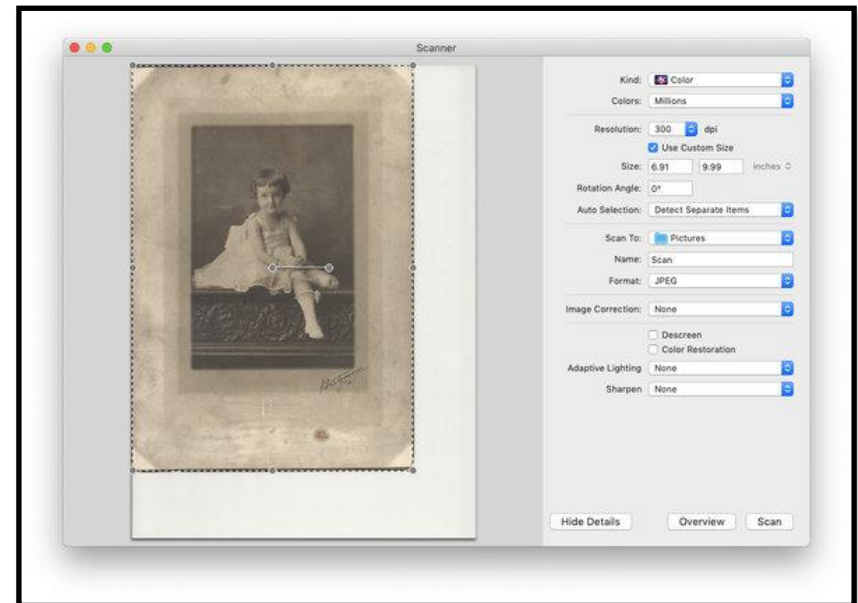
If you see your family pictures starting to fade away in their shoe boxes, crumbling photo albums or moldering slide carousels, fear not. There are easy ways to save your valuable images — and maybe even make them better.

Shipping them off to a professional scanning company for digital conversion and retouching is one easy approach. Services like [Memories Renewed](#), [DigMyPics](#) and [ScanMyPhotos](#) are easily found on the web and do fine work.

But if you're inspired (or thrifty) and want to take a crack at transforming the pictures yourself, you just need time and the right tools. Here's how to get started.

Step 1: Scan the Hardware Way

Most multifunction printers include [scan](#) and copy features. If you have one of those but have never scanned before, check your help guide. No scanner? Wirecutter, a New York Times Company site that recommends products, [has suggestions](#) for reliable printers and scanners.



A flatbed scanner can make high-resolution digital copies of your old photos.

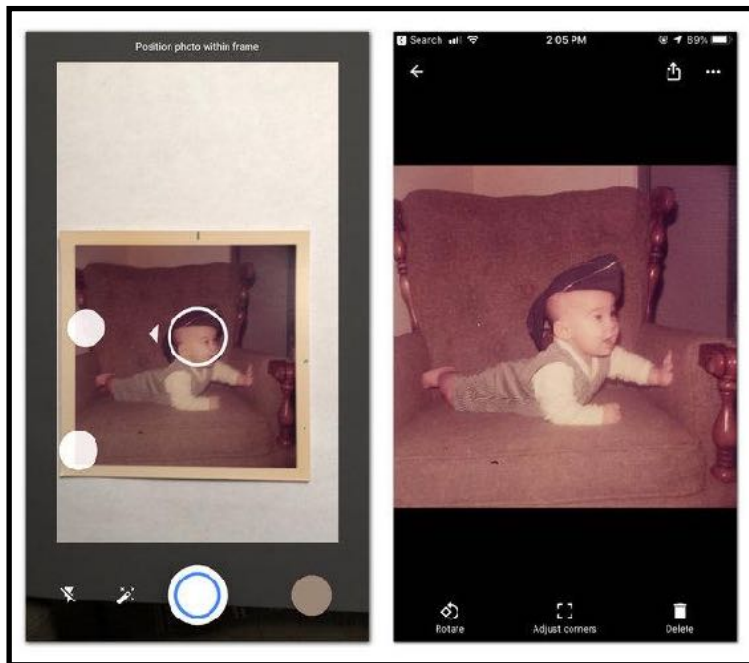
Unlike photographic prints, slides and negatives need backlighting to properly illuminate the image when scanning. Hardware designed to handle them, like the [Kodak Scanza](#)

(around \$170) or the [Epson Perfection V600 Photo Scanner](#) (around \$200), are among those that scan prints, slides or negatives.

If you have a flatbed scanner — but no attachment for scanning transparencies — Make Magazine's downloadable template for a [do-it-yourself cardboard adapter](#) is one inexpensive workaround.

Step 2: Scan With Your Phone or Tablet

Using a mobile app that takes a picture of the picture is a quick way to “scan” photos. The resulting image quality may not be as good as with a hardware scanner, but apps are inexpensive and you spare fragile prints from bright light.



Google PhotoScan, free for Android and iOS, is one of the many mobile apps available for capturing digital copies of old prints.

[Google PhotoScan](#) (free) and [Photomyne](#) (free, with in-app purchases) are two apps for Android and iOS that are created to capture images of physical photographs. They both boost color

and contrast for the photos, as does the \$7 [Photo Scanner](#) for iOS. An all-purpose scanning app — like Microsoft Office Lens (for [Android](#), [iOS](#) and [Windows](#)) — may also do photos.

Capturing slide and negative images with an app can be more challenging because they are smaller and need backlight. The free [Helmut Film Scanner](#) for Android or the \$6 [FilmLab](#) for iOS are two options.

Step 3: Select Your Photo-Repair Software

Once you have scanned your pictures, grab a program to fix the faded color, scratches, tears and other blemishes in the photos. Depending on the images' condition, you may be able to get by with full-featured free apps, like [Photos](#) from Apple, [Google Photos](#) or [Microsoft Photos](#). These all include tools for adjusting light and color and cropping torn edges; Apple and Microsoft's programs also have tools for removing specks and blemishes.



A desktop program is often easier for extremely detailed photo-fixing, but mobile apps — like the free Adobe Photoshop Express for Android and iOS — offer a good basic image-repair toolbox for those on the go.

If your default photo program doesn't fit your needs, dozens of others await in the app store. The [Adobe Photoshop](#) family — including [Adobe Photoshop Elements](#) for Windows and Mac (\$100, but a free 30-day trial is available) and [Adobe Photoshop Express](#) (free for Android, iOS and Windows touch-screen devices) — are among the more popular products.

The open-source [GIMP](#) program for Windows, Mac and Linux systems is also powerful and free, though it can take time to learn.

Step 4: Fix Those Photos

Now it's time to whip out the toolbox:

For scratches, rips and tears in the photograph, look for the program's "healing brush," "spot fix" or "clone stamp" tool, which typically copies nearby pixels to cover up the damage. Use the tool to click or swipe over the blemishes.

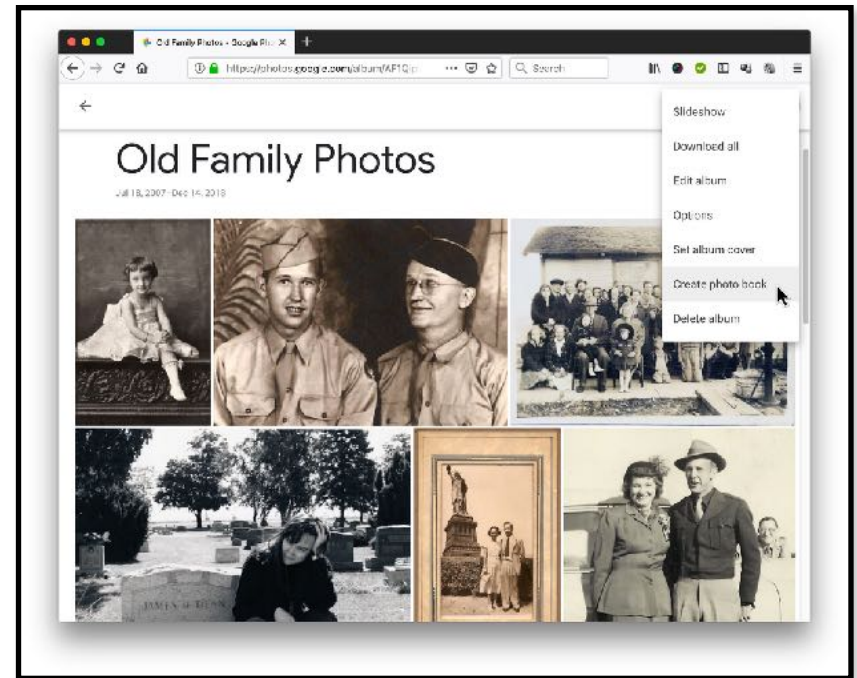
Click the automatic "enhance" button — or drag onscreen sliders to make manual adjustments to a photo's contrast and color balance.

Use the program's cropping tool to slice away cluttered backgrounds and frayed edges.

Check your app's help guide for specific instructions, or search YouTube for video demonstrations. Detailed tutorials are available online, like [Adorama's guide](#) for those with Adobe Photoshop; the online [Digital Photography School](#) has instructions, too.

Step 5: Share Your Work in Pixels or Print

When you have the photos cleaned up and looking good, you can share them with family in all sorts of ways. Posting them to the online photo gallery like [Google Photos](#), [iCloud](#) or [OneDrive](#) allows relatives to view and download copies wherever they may be (and upload images of their own). Online storage also keeps treasured images safe from fires and floods.



When you have finished the restoration work, you can share the images online, create a new photo book of them — or both.

If you're worried about digital formats not standing the test of time, you can also reprint your favorite images on [acid-free archival photo paper](#) for safekeeping. A number of picture-printing companies also offer the photo-book option to reprint all the restored images in a bound volume — which also makes a lovely gift for family members in some of those snaps.

Elliott Cobin, a long-time MLMUG member and our Treasurer, send me this article on January 13, 2019. He thought the members should be informed about the problems with the Nektony App Cleaner app.

When Time Machine Fails

By Elliott Cobin

I've been using Time Machine (TM) regularly since I purchased my first and only Mac computer in 2010 (a mid 2010 27" iMac). I've never had an issue until I ran my first back-up in early January 2019. TM appeared to run but at the end it indicated failure. I searched Mac user forums and many other computer help websites but all advice on internet was of no help at all. Unfortunately, a short coming of TM is that it doesn't provide what the errors are, so I had no clue how to proceed.

My internal hard drive was recently replaced with a WD SSD 1TB drive. I ran Smart Utility App (which indicated failures on my original drive that was replaced) which showed no issues. Then I thought that my external backup drive that is used exclusively for Time Machine might be failing, but testing showed no issues.

However, the good news for me was that I ran Carbon Copy Cloner (CCC) and it failed also - sounds strange that that would be good news. But, CCC does provide information (complete paths on the back up drive for CCC) on what failed. It was the Nektony App Cleaner! I found out that Apple no longer allows any App downloaded from their App Store to delete other Apps - go figure. So App Cleaner is now only available from

their website. I assume that somehow this caused a disparity between the App Cleaner files on my iMac versus those on the back up drives (CCC and Time Machine external backups). Both TM and CCC compare backed up files with those on the computer's internal drive and it appears that some issue arose with the Nektony files (there were many in the CCC failure list).

I searched for the Nektony App Cleaner files on all drives and deleted them - CCC still failed and showed a few remaining that I couldn't delete - I probably could have but my frustration got the better of me. So, I reformatted the back-up drives (both TM and CCC external drives). I also used CCleaner and Clean Genius Pro to remove the remaining Nektony App Cleaner files from my iMac. Then I ran fresh starts for CCC and Time Machine (took many hours) and now all is well.

My suggestion is that if you have purchased Nektony App Cleaner from the App Store, delete it from your machine (it's worthless now) and repurchase it from Nektony's website (they also have a free version). As I have two other app cleaners, I'm not reinstalling the Nektony app.

Daniel Nations posted the following article to lifewire.com on August 16, 2018. tinyurl.com/yawvm2pl. © About.Inc. He has been writing, programming and following technology since back in the Commodore Vic 20 days.

How to Scan Documents With Your iPad



By Daniel Nations

The days of needing a big, clunky scanner in your office are over. The iPad can easily scan documents. In fact, the apps on this list are far better than an old-fashioned scanner. They can allow you to edit documents, [fax documents](#), save documents to the [cloud](#), and one of them will even read the document back to you.

The actual scanning of the document is accomplished using the back-facing camera on the iPad. Each of these apps will cut the document out from the rest of the picture, so you'll just get the page you are wanting to scan, not the pen sitting right next to the document. When taking the picture, the scanner app will show you the grid it will use to cut the document out of the picture. This grid is editable, so if it doesn't quite get the whole document, you can resize it.

When scanning the document, it is important to wait until the words on the page come into focus. The camera on the iPad will adjust automatically in order to make the text on the page readable. For the best scans, wait until you can easily read the words.

Scanner Pro

Easily the best of the bunch, Scanner Pro is the right combination of price and reliability. The app is easy to use, scans great copies, and has the ability to fax documents for small in-app purchase. Amazingly, the price tag puts it at one of the least expensive scanner apps for a "pro" edition. After scanning, you can choose to email the document or upload them to [Dropbox](#), [Evernote](#), and other cloud services. And if you have an iPhone, you scanned documents will automatically be synced among your devices.

Prizmo

If you want all of the bells and whistles, you may want to go with Prizmo. In addition to scanning documents and storing them through various cloud services, Prizmo can create editable documents out of your scans. This can be a key feature if you want to capture the text of a document and make a few quick changes. It also has text-to-speech abilities, so it can not only scan your documents but also read them to you.

Scanbot

While Scanbot is the new guy on the block, it's packed with a lot of great features. It's also an excellent choice for those who just want a basic scanner with the ability to save to cloud services without needing to pay for anything. While the pro edition of Scanbot opens up the ability to edit documents, add signatures, add your own notes to a document or even lock them with a password, the free version will be enough for many users.

If all you need is to scan a document and save it to iCloud Drive or Dropbox, Scanbot is a great choice. And one neat feature of

Scanbot is that it does the scanning for you — rather than wait until the text becomes clear and taking a picture of your document, Scanbot detects when the page is in focus and takes the photo automatically.

Doc Scan HD

Doc Scan HD has the best interface of the bunch, which makes it extremely easy to pick up and start using. The free features include both scanning and editing, so if you need to add a signature to documents, Doc Scan is a good choice. You can choose to email the document or save it to your camera roll, but if you want to save it to a cloud service like [Google Drive](#) or Evernote, you will need to purchase the pro version.

Genius Scan

Genius Scan specializes in creating multi-page PDF files out of the documents you scan. It claims to make the text easier to read, although actual results may vary. The free version is limited on where you can export documents, but it does allow you to export to "Other Apps," and if you set up [Dropbox](#) or other cloud services right, you can use this to get the document to your cloud drive with the free version.

Kirk McElhearn posted the following article to [macworld.com](#) on January 21, 2016 . [tinyurl.com/mrhdfq2](#). © IDG Consumer & SMB. He is a Senior Contributor to Macworld, a contributor to TidBITS, The Loop Magazine, and other publications. He has written numerous Take Control eBooks, and is one of my favorite authors.

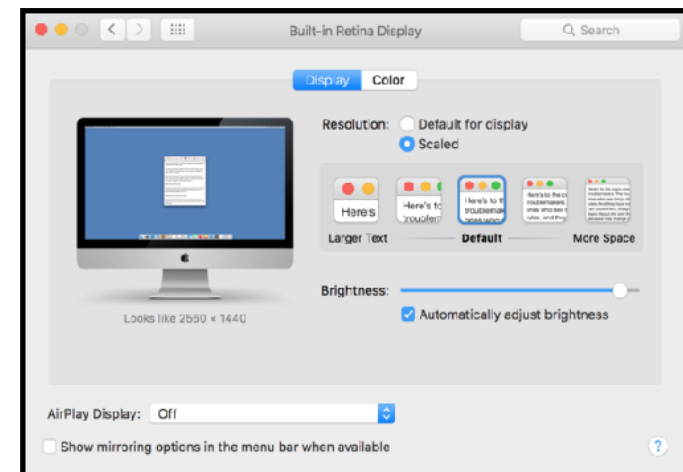
How To Adjust Your Mac Display's Resolution Settings

The lowdown on how resolution settings work on the Mac.

By Kirk McElhearn



Macs ship with the display set at a certain resolution, and Apple defines this in the technical specifications for each model. But with Retina displays, these numbers can get confusing: there is the display's resolution and the "looks like" resolution used on the Mac. Resolutions on Retina Macs look like half the actual number of pixels measured vertically and horizontally because of "pixel doubling."



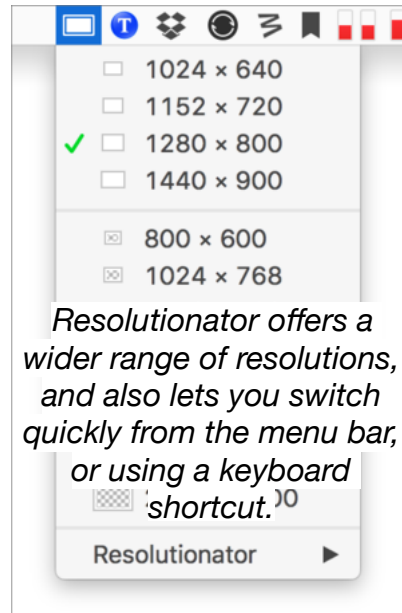
The Displays pane of System Preferences offers a choice of display resolutions.

For example, if you have (as I do) a 5K iMac, the display resolution is 5120x2880, but the Displays pane of System Preferences tells me that it looks like 2560x1440.

That's the default resolution, but you can change this if you want. To do so, you must first check Scaled in the Displays pane, as I have in the screenshot above, and you then see five options. These range from larger text to more space, with the Default setting in the middle.

If you have aging eyes or just want to see less on your display, try one of the settings to the left of the Default option. If you want to see more on the display—with smaller fonts, menus, etc.—then try one of the settings to the right. When you hover over one of these options, the Displays pane shows a text saying that “Using a scaled resolution may affect performance.” This is because your graphics card might not be able to keep up with a higher resolution (i.e., when things look smaller), or that some of your apps may not display correctly.

The 13-inch Retina MacBook Pro has a native resolution of 2560x1600 and uses a default “looks like” resolution of 1280x800. Things are a bit different with Apple's 12-inch Retina MacBook. Its display has a resolution of 2304x1440, but the default “looks like” resolution it uses is not half that, but a bit more: 1280 x 800, just like the 13-inch MacBook Pro. So it looks like the same number of pixels, but on a display that's one inch smaller diagonally. Naturally, these laptops offer other scaled options; each lets you choose from a total of four resolutions,



from 1024x640 to 1440 900 (12-inch MacBook) or 1680x1050 (13-inch MacBook Pro).

If you have a second display connected to your Mac, you can choose a resolution for that display, also from the Displays pane of System Preferences. Select the display in the preference pane's popup menu, then hold down the Option key and click the Scaled button to see your options.

Even more resolutions

Maybe you want even more choice in the resolution of your display. If so, you can use Many Tricks' \$3 [Resolutionator](#). This utility lets you quickly switch resolutions without going to System Preferences, but also lets you choose from non-Retina resolutions. For example, in the screenshot below, you can see the options available on my 12-inch MacBook. I could choose to set its display to 2560x1600; that's not the resolution that *looks like* half that, which is the default, but a resolution that actually uses every pixel of the display.

Naturally, things are quite small at that resolution, so you probably won't want to do this often, but there may be times when you want to keep your eye on several windows at a time, and only a high resolution like that will work.

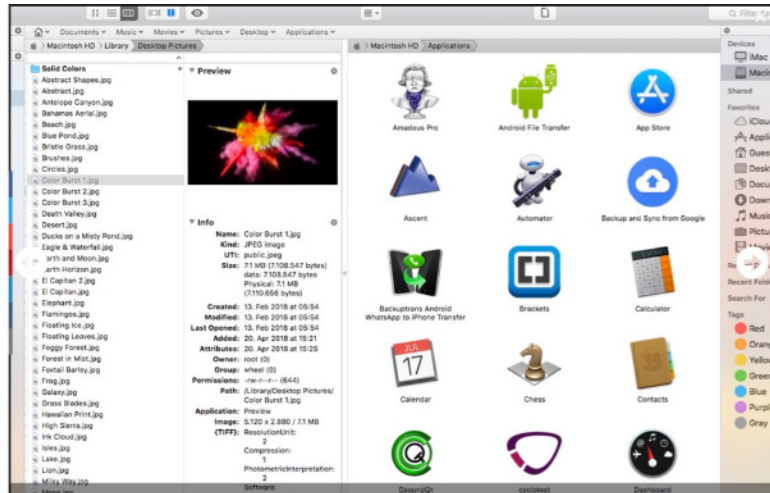
When I work on my MacBook, I sometimes switch resolutions. When I'm focusing on writing, I use the native resolution, which makes texts large enough that I don't need to strain, but if I have a lot of windows open, I sometimes go to a higher resolutions to get a broader view of what I'm doing. Try changing resolutions on your Mac; you may find that it's easier to read texts, or that you can see more, than at the default resolution.

John Martellaro posted the following article to macobserver.com on August 29, 2019. tinyurl.com/ya9saukm. © The Mac Observer, Inc. A scientist and author, he has worked for NASA, the Oak Ridge National Laboratory, & Apple.

Cocoatech's Path Finder 8 is a Great macOS Finder Replacement

By John Martellaro

Apple's macOS Finder has evolved slowly over the years. It started simple, got faster and more refined, but never evolved dramatically. But Cocoatech's [Path Finder](#), now at version 8, has.



Path Finder working in Dual Pane View is very helpful.

The last time I visited Cocoatech's Path Finder (PF) was in June of 2015. But I've been using it since its earliest incarnation in 2001. It's essential to my daily workflow. See my 2015 article below for a description of features I really like.

[6 Coolest Features of Cocoatech's Path Finder OS X App]

Most all of my favorites have endured, but there's been one significant change.

Drop Stack. Think of it as a temporary parking space for a file while you move it to a new location. It's amazingly helpful.

Fully customizable alternate row colors. (See the screenshot below.) This really helps manage visual clutter in list view.

Instant Text File Creation. **File > New Text File.** I use this often when I'm working on a project, and I want to create a quick text file of notes. Later, by default, my text file opens in BBEdit.

Shelves. In Path Finder 8, the classic shelves are gone, but they're replaced by something much better: more dynamic modules. Shelves, explained in my earlier article, were cool, but, in my experience, tended to have visual, cosmetic bugs from version to version—even in PF 7. I'll have more to say on modules below.

Archiving can be helpful for transmitting large files, but it's not so critical anymore for saving disk (SSD!) space.

Printing. One enduring feature of PF that I didn't mention previously is the ability to print. Amazingly, after 17 years, the macOS Finder still can't print a listing of a folder (directory). This has come handy for me, for example, when I'm ready to upgrade to a new version of macOS and want a listing of my /Applications folder and mission critical apps. Here's a sample printout from my [Background Mode podcast](#) folder. Sweet.

Show_097_Mark_Gurman	8/6/17, 2:41 PM
Show_098_Eddie_Alterman	8/11/17, 12:26 PM
Show_099_Alban_Stern	8/21/17, 4:40 PM
Show_100_John_Kheit	9/1/17, 3:06 PM
Show_101_Mich...artenberg (s1)	9/12/17, 1:42 PM
Show_102_Daniel_Jalkut	9/14/17, 11:32 AM
Show_103_Kelly_Guimont (2)	9/20/17, 11:50 AM
Show_104_Gregorio_Zanon	9/20/17, 11:50 AM
Show_105_Thorsten_Lemke	9/24/17, 6:00 PM
Show_106_Maryn_McKenna (2)	9/26/17, 6:20 PM
Show_107_Elizabeth_Craig	10/16/17, 1:12 PM
Show_108_Josh_Centers	10/26/17, 12:21 PM
Show_109_Bryan_Chaffin	11/7/17, 11:49 AM
Show_110_Mich...artenberg (s2)	11/8/17, 1:57 PM
Show_111_Michael_T_Rose	11/9/17, 3:44 PM
Show_112_Christopher_Caen	11/9/17, 1:31 PM
Show_113_Gina_Smith	11/27/17, 11:28 AM
Show_114_Kiki_Sanford (3)	12/7/17, 11:31 AM

A printed list of a folder contents can be very handy, even if to a PDF file.

There are many, many more cool features, but I don't have room in this Quick Look review. I included Cocoatech's feature list below.

Path Finder 8

Cocoatech has published an [interesting and informative blog post](#) about the history of Path Finder and what led them to a complete overhaul of the app. It is essential reading. In part....

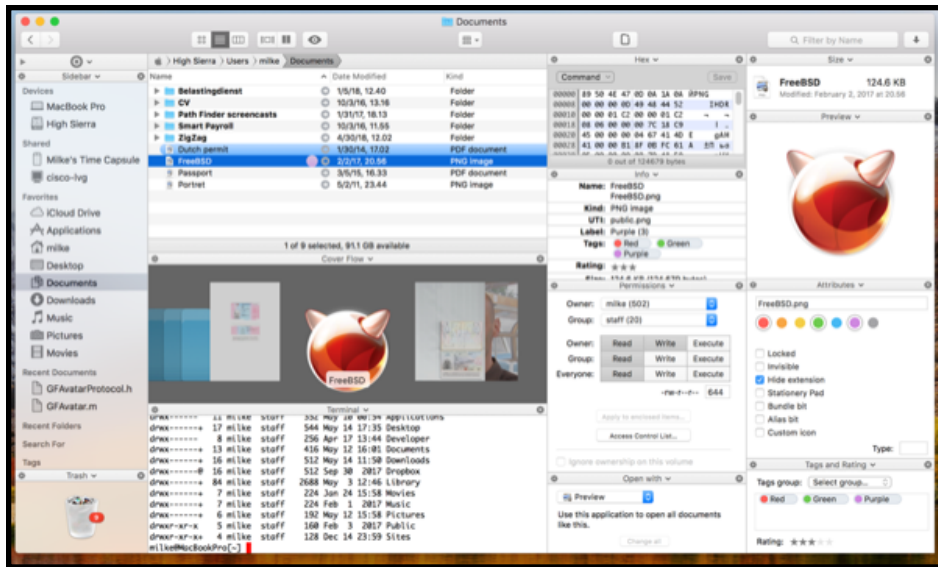
With each major release of macOS, the application was getting more lines of obsolete code, deprecated APIs and officially unsupported features. The moment of imminent redesign and

rewrite was getting closer. We tried to postpone it as much as we could in a passionate desire to offer yet a few new features, so we kept patching and finding workarounds for unsupported and obsolete stuff. But with the latest macOS updates we have finally come to the inevitable; going back to the drawing board and give Path Finder the proper overhaul it needed for a long time.

Part of the rewrite was the transition from static shelves to more flexible modules. In shelves, there were bottom and side shelves that could accomodate a limited number of modules. But, as Cocoatech describes it....

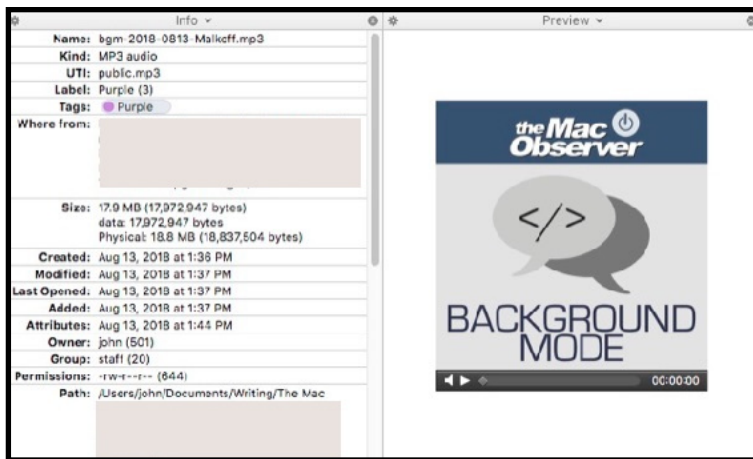
Even older versions had modules in window drawers. Still, those modules were pretty much static and fixed to a place. Not in Path Finder 8! It sports completely new and flexible modules structure. You can put as many modules in a single browser window (or "Get info" window/inspector) as you need. You can arbitrarily arrange them anywhere around browsing view of your single or dual pane. You can dismiss or drag them away when you don't need them any longer.

Here's what a PF 8 display looks like with an admitted overload of modules (for emphasis) dragged in.



Cocoatech's screenshot of modern modules. Place anywhere.

The way to access the palette of module is with **Window > Modules**. Two that I find very helpful are “Info” and “Preview.” For example, when editing a podcast, these two modules instantly tell me the .mp3 file size and also allow in-place, active playback, respectively. Also, new in Preview is in-place text file editing.

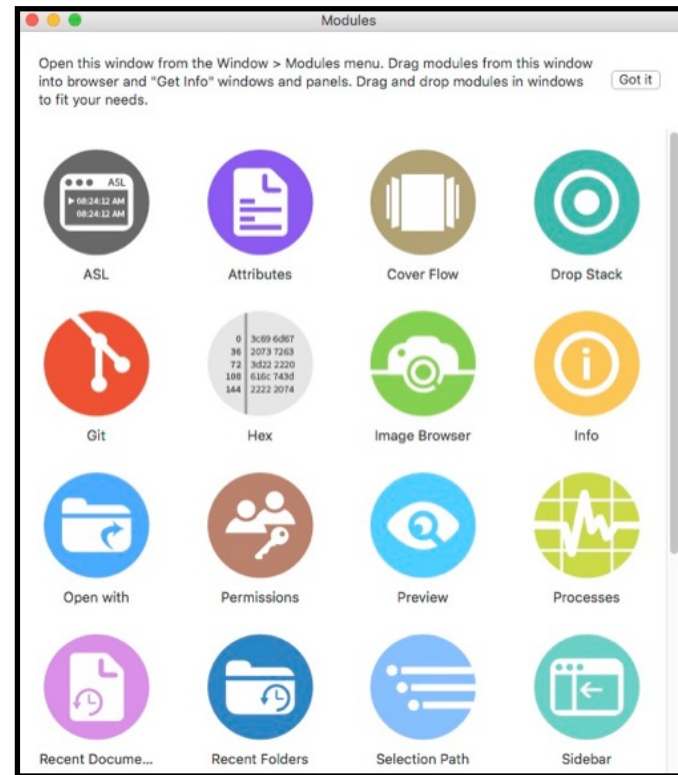


Two of my favorite modules: Info and Preview

As an aside, I must say that's it's particularly fun and geeky to have a terminal window open in a module. And close it when not needed. Here's more on modules from the Cocoatech blog...

Everything about modules is new inside and out. They look new, but they also work in a new way, using completely rewritten, redesigned and modernized code. We started the above mentioned Path Finder overhaul with them. But they aren't the only new thing. A lot of things around modules had to be changed and redesigned to allow them to fit in into the old code structure. It will not be visible to users, but a lot of things are changed and made better, faster and more robust.

The Cocoatech home page [has a video](#) showing how to manage modules.



A partial list of available modules in PF 8.

If you're ready to upgrade to Path Finder 8 and want a traditional list of new features, [it isn't available yet](#). But I can say that I've been using PF 8 for awhile now, and I haven't found anything obviously missing compared to version 7. My feeling is that the upgrade is worth it for the dramatic increase in speed of operation (what a blessing) and the new, better module management.

Path Finder 8 has a free, 30-day trial, and then the cost is US\$40. The upgrade cost for current users is a mere \$20. I think this is a bargain because Cocoatech's [official policy](#) allows you to run a single Path Finder license on up to three of your personal Macs at the same time.

If you're curious, here's Path Finder's official list of features.

Finally, one may ask, how does the new Finder in macOS Mojave compare to PF 8? Ah, but that's, perhaps, a future article. However, my estimate is that for a US\$20 upgrade fee, you won't go wrong. Path Finder is, and seems likely to remain, a valuable supplement to any version of the macOS Finder.

Product: [Path Finder 8](#)

Company: [Cocoatech](#)

List Price: US\$40. (Upgrade: \$20)

Rating: Outstanding Product. Get It Now!

Pros: Many, many useful "Finder" related functions and features that never made it into the macOS Finder. (See text.)

Cons: None noted

Tons of Features

<ul style="list-style-type: none"> • Dropbox integration Full Dropbox integration. Just link your account and you're all set up. 	<ul style="list-style-type: none"> • Modules everywhere Fully customize your browser window with our new simple drag and drop module system. 	<ul style="list-style-type: none"> • FolderSync FolderSync is Cocoatech's Folder Comparison and Synchronization tool. And it's powerful.
<ul style="list-style-type: none"> • Folder Merging Merge contents of two folders when copying/moving instead of overwriting. 	<ul style="list-style-type: none"> • Arranging and Grouping items Arrange files in a group based on a specific file attribute. 	<ul style="list-style-type: none"> • Editable Path Navigator Directly type in the Path Navigator to get to your files quickly.
<ul style="list-style-type: none"> • One-Click Dual Pane Copy Use Path Finder's intuitive dual-pane browser to copy files from one pane to the next, with just a single click. 	<ul style="list-style-type: none"> • Secure Delete Secure delete using 1, 7 or 35 passes on any volume type. 	<ul style="list-style-type: none"> • File Transfer Queue Access current file operations from either a toolbar item or a separate unified window.
<ul style="list-style-type: none"> • ACL Editor Create and modify Access Control Lists, an advanced alternative to macOS's standard Unix permissions. 	<ul style="list-style-type: none"> • Calculate File Checksums MD2, MD4, MD5, SHA-1, SHA224, SHA-256, SHA384, SHA-512. 	<ul style="list-style-type: none"> • File Tagging Leverage the power of OpenMeta to tag your files and share tags between apps.
<ul style="list-style-type: none"> • Batch Renaming Apply filename changes to a group of files simultaneously. 	<ul style="list-style-type: none"> • Hex Editor Low-level file editing without ever leaving your browser. 	<ul style="list-style-type: none"> • Drop Stack Freeze drag-and-drop operations by placing files into a temporary stack.
<ul style="list-style-type: none"> • Dual-pane Browser View the contents of two folders side-by-side in one window. 	<ul style="list-style-type: none"> • Tabs & Bookmarks Bring your web browser workflow into your file browser. 	<ul style="list-style-type: none"> • Low-level Search Search using Spotlight's database just like the Finder, or do a low-level scan for your files.
<ul style="list-style-type: none"> • File List Filtering Quickly filter a list of files by name, extension, or kind. 	<ul style="list-style-type: none"> • Smart Sorting Sort by folders, packages, or files first. 	<ul style="list-style-type: none"> • Advanced Selection Select files based on file name, extension, attributes, and more.
<ul style="list-style-type: none"> • Keyboard Access Change Path Finder's default shortcuts or add your own. 	<ul style="list-style-type: none"> • Quick Look & Cover Flow Quickly preview files, and display Cover Flow alongside any other view type. 	<ul style="list-style-type: none"> • Integrated Terminal Embed a terminal window directly into your graphical file browser window.
<ul style="list-style-type: none"> • Command Line Tools Execute common command line tools directly from the Path Finder GUI. 	<ul style="list-style-type: none"> • Source Control Run common Git and Subversion commands without the command line. 	<ul style="list-style-type: none"> • Application Launcher Access your apps with the press of a key.
<ul style="list-style-type: none"> • Archives Work with a variety of archive types including zip, gzip, dmg, sit, and more. 		<ul style="list-style-type: none"> • Text & Image Editors Create and edit text. Crop and scale your images.

Path Finder feature list.



AI And Humans The Missing Link

By Kathy Garges

Little progress has been reported publicly in revealing the internal processes of “black box” artificial intelligence since this column focused on the problem more than a year and a half ago. “Black box” refers to any AI program (or non-AI computer algorithm) that contains portions opaque to human knowledge. We don’t know exactly how such a program reaches its conclusions. We don’t know if the program is biased, erratic, or even dangerous.

Opaque AI is found most often in machine learning (also known as deep learning and neural networks). The “neurons” in machine learning are computer programs, not biological structures, but they learn in a way similar to how we believe the human brain works.

Machine learning has become the dominant focus in AI, with recent big leaps in performance in areas like image recognition and language translation. The problem comes when we need to find the reasons the AI program came to a particular result. There are many such situations. A European Union regulation allows it to require a company to explain any decision it reached that involved using a computer algorithm. Uncertainty is also slowing down progress in self-driving cars because safety concerns require a high degree of predictability.

Scientists “train” machine learning AI with large amounts of data. The program can be given goal categories for sorting data or can be left free to create its own. The training data can be systematically labeled in advance, which is time consuming and expensive but makes it easier to test accuracy, or the program

can be set loose on unlabeled data (the entire Internet, for example). Machine learning programs are placed into operation after they are trained and tested, but some programs can continue learning on an ongoing basis as they are used, making it even harder to keep a check on their internal processes.

The controversy has stirred up broader issues with AI science. Some AI programs use fancy names, like “stochastic gradient descent,” for what are essentially unsophisticated trial-and-error methods of tweaking a program for better performance. Other programs, including at least one language translator, operate even better when they are greatly simplified, suggesting that developers do not understand, and do not care about understanding, their own inventions. Unscientific marketing and sloppy research can undermine AI progress and public acceptance, especially because getting beyond limited and hocus-pocus human reasoning is one of the prime reasons we are pursuing AI.

A computer scientist at Alphabet-owned DeepMind, Csaba Szepesvári, suggested that the problem is due in part to preferring scientific papers for publication that report performance against benchmarks rather than explaining program function. Along these lines, the U.S.

One approach to solving the problem is building an explanation function into the initial design of the AI program. This is not foolproof, however, and there are already many machine learning programs in use that lack transparency. Initial design improvements will never be a complete answer. There will always be a need to explain functions of AI programs after they are in operation if they exhibit unexpected results or if they have capacity for ongoing learning.

One approach that seemed promising for testing reliability of existing programs has proven to be surprisingly unsuccessful. The idea was to delete individual “neurons” or groups of “neurons” and see if they changed the program output. If the

change is significant, it indicates that those parts of the system are essential to the AI's reasoning. A DeepMind study, however, reported no significant difference when researchers deleted parts of machine learning systems believed to be important.

Another effort, DeepXplore, is a “white box” testing program developed by researchers at Columbia University and Lehigh University in the U.S. The approach is laborious, using systematic generation of testing scenarios, and retraining of the system when incorrect results are revealed. DeepXplore is not foolproof, but it has uncovered many bugs in self-driving car programs. It can also be used to reveal hidden malware and discriminatory tendencies in non-AI computer algorithms. DeepXplore is available to the public as open source code.

A promising new approach at Google Brain, Testing with Concept Activation Vectors (TCAV), uses human experts to generate concepts and testing data to challenge machine learning AI. Been Kim, a research scientist on the team, described the approach as focusing on reliable safety for tool use rather than complete transparency of AI function to human understanding. We do not need to fully understand a tangible tool, like a chainsaw, in order to use it safely. (The analogy is imperfect – quite a few humans know in detail how chainsaw work.)

Kim offered as an example the introduction of a few images of “fused glands” into a cancer diagnostic medical AI, based on the expert knowledge of human doctors that this is a factor they look for in making a diagnosis. TCAV conducts “sensitivity testing” to determine how much the probability of a positive prediction for cancer increases based on the added data. The TCAV score is a number between zero and one which indicates how much the AI relies on this factor in coming to its conclusions. She also noted that TCAV can test for system reliance on factors that human experts consider suspect or misleading, like color tinge in an image.

Opaque AI has turned out to be a difficult obstacle. As DARPA has noted, however, solutions to this problem could be key to creating advanced, third-wave artificial intelligence that can understand common sense human knowledge and real-world context, and that can learn and function alongside humans.

Sources and additional information:

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“A tool to debug ‘black box’ deep-learning neural networks,” Kurzweil Accelerating Intelligence blog, October 30, 2017, tinyurl.com/ybqmx2fl

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January 12, 2018 Meeting Minutes

By Mark Bazrod, Secretary

Maria Arguello, our President, opened the MLMUG meeting at 9:12 AM at the East Whiteland Fire Company in Malvern near 202. There were about **35** attendees.

Q and A Panel - Adam Rice, Bob Barton, & Nick Iacona.

Q. Are SSD portable drives bootable.?

A. SuperDuper! didn't work with the particular drive. Sandisc says they are not bootable. Nick commented that we are moving away from hard discs. APFS is optimized for SSD. We are not sure what happens when files are deleted. New Macs have File Vault enabled so be careful.

Q. What do you do with an old hard drive?

A. Use Disc Utility to make multiple erasures. A drill press also works. A sledge hammer is not a good idea since metal splinters might fly off.

Q. What do I do with an Apple keyboard attached to an iPad Pro which does not work at times.

A. Take it back to an Apple Store.

Q. What apps work with Mojave?

A. Roaringapps.com is a good place to start. Someone commented that Dreamweaver 3 works , but 4, 5, and 6 do not.

Q. How do I get old operating systems?

A. You used to be able to get old ones, but now you often can not find them. So save the installer for future. Make sure it is not a link. It should be about 5-6 GB.

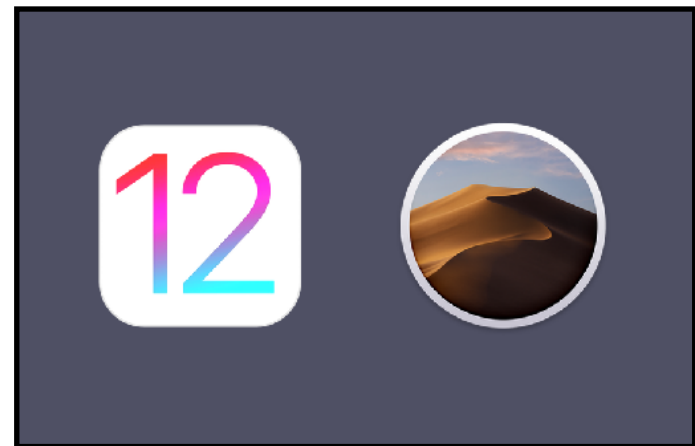
There was an article in ZDNet on 10 things to know when buying a new Mac. It said don't get a hard drive; get an SSD and an external drive and get as much storage as you afford. Apple is moving to more sealed units so upgrading is getting more difficult.

Use Smart Photos or something like that to send full resolution photos to iCloud while saving thumbnails on the iPhone.

Location survey.

Elliott reported on the results of the location survey. Attendance has been down. It has even been lower since we had the meetings at Ludington Library. So we are spending money on speakers as opposed to meeting locations.

More members are willing to travel to West Chester than to Bryn Mawr. Two thirds prefer breakout sessions. A fee increase of \$35/\$50 is acceptable to 84% of members. Some prefer the panel of Adam, Nick and Bob.



Nick Iacona. Mojave And IOS Overview.

Mojave

Nick began by showing a one-minute video from Tim Cook . Mac is number one in customer satisfaction. He also highlighted some of the key features in Mojave - Gallery View, Dark Mode, Stacks, and the new Mac App Store.

Nick then showed a history of Mac operating systems, all of which sit on top of UNIX. To get Mojave, go to the Apple Store or apple.com. Incidentally, he keeps installers in separate folder.

Partitioning. He has clones of Mojave, Sierra and ElCapitan in separate partitions, thus keeping the preferences for each OS.

Apple is blending iOS and macOS together and steering people to the cloud since they now have several devices. Files are in the cloud and synced between devices. It's a new computing style which can be tricky. It's a personal decision as to whether to change.

Dark Mode. In System Preference > General. Easy to switch back to old view. Adobe and other developers have done this for a long time. Some latency with text.

Gallery View. Replaces Carousel View.

Desktop images can be dynamic. Change with time of day. One available so far.

Stacks. Right click to use Stacks. Groups desktop icons by various criteria to reduce desktop clutter.

Finder. Examine default Finder preferences. Change to show external hard drive, file extensions, etc.

Sidebar. Nick suggests that you put more files and apps in Sidebar. You can drag them to the Sidebar. Also check View options.

Quick Look. Click space bar and you can edit in Quick Look.

Screen Capture. Shift+Command+5 . You choose the type you want in window at bottom. There are many options in the Options tab. Get a thumbnail for 15-20 seconds. You can edit screenshots from here.

Continuity Camera. Shoot on the iPhone and import into the Mac. Doesn't work with old photos.

Four iOS applications were brought to the Mac - News, Stocks, Voice Recognition and Home.

Group FaceTime. You can have up to 32 people on a call. Everyone needs to run iOS or Mojave. Like Google Hangout.

Safari. Improved privacy. Makes it harder to track you.

Mac App Store. Has new and reorganized interface.

Dock. Added recent selections. Remove by click & hold.

Remember Help is on the Menu Bar.

iOS 12.

History. Yearly upgrades, normally in September.

Files app. Files are in iCloud Drive. Folders are initially organized by app, but additional folders are possible. Some files just go to iCloud Drive. You can see Mac files on iDevices if you have Wi-Fi access.

Tips app. Get from Ap Store to get tips for some Apple products.

Control Center. Swipe up to go to Control Center tiles. Use touch and hold to get options. Geofencing. To totally turn off Bluetooth and Airplane Mode you need to go to Settings.

Customize controls to add functions by going to Setting>Control Center>Customize Controls. For example, you can add Screen Recording.

Checking screen times is a new feature in iOS.

Settings>Battery provides much information.

Measure app. Work for nearby objects, not far.

Settings>General>Accessibility. Magnifier. When enabled, triple click Home button to start. Has a zoom control. Better than just a camera.

No user guide. Type in user guide in search to read it.

