



EDITOR COMMENTS

New Drone Footage of Apple Campus 2.0. A great 4 minute ride. YouTube. tinyurl.com/z5s9zs9.

A great TED Talk is by Linda Lukas entitled "A delightful ".way to teach kids about computers". Encouraging kids to see computers not as mechanical, boring and complicated but as colorful, expressive machines meant to be tinkered with. 10 minutes. tinyurl.com/hvrxcux.

What will the world look like when we move beyond the keyboard and mouse? An "interaction designer" Sean Follmer gives us an idea of what is being built now. Another TED Talk. 9 minutes. tinyurl.com/hukdc3m.

MLMUG ON VACATION!

**No meeting this month.
Enjoy a vacation, but try to
keep current on
technology.
And so is the Editor so no
column this month.**

FOUNDED MAY 1989
MEETINGS - SECOND
SATURDAY OF THE MONTH



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Masthead

Designed by Dale Fletcher

Based on prior designs by
 Marc Robinson, Steve
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MLMUG Journal is
 published monthly by the
 Main Line Macintosh Users
 Group and is available
 online. It is produced using
 Apple Pages, with a
 Helvetica Neue font (Same
 as Yosemite).

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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. Compose your letter and email it to mlmug@yahogroups.com and your message will be sent to everyone on the mailing list. Posting to this list is restricted to MLMUG members. Contact Bob Barton if you are a member and you are not on the list.

Please observe rules of etiquette. See the Yahoo Groups Terms of Service. The MLMUG list may be used to post Apple/Macintosh-related items for sale, but any solicitation of members through the list is forbidden without the written consent of a MLMUG officer. The list is hosted at Yahoo Groups.

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.

Macintosh Programming SIG/ Philly Mac Programming Group

The objective of this group is to help members become more familiar with the concepts of Macintosh and iOS programming, i.e., the elements of the Macintosh GUI, user interaction, file system, etc., and the main Mac programming tools: AppleScript, Java, C, and Objective C.

The Philly Mac Programming SIG meets at 10:30 AM on the first Saturday of each month, but usually skips January and July. Contact Deivy Petrescu, Chair, for venue information. www.phillymacprog.org. The next meeting will probably be at Ludington Library in Bryn Mawr.

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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 12 months 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



Julio Ojeda-Zapata posted the following article to tidbits.com on July 28, 2016 tinyurl.com/z7o3z58. © TidBITS Publishing Inc. He is a technology reporter and blogger at the Pioneer Press in St. Paul, Minnesota. He has written books about technology.

Comparing iPad Pro Technologies And Intangibles

By Julio Ojeda-Zapata

The [iPad Pro](#), released in a 12.9-inch model in September 2015 and a 9.7-inch flavor in March 2016, has been touted as a breed apart.



Though the iPad Pros resemble previous iPad models, they're tricked out with a magnetic Smart Connector for use with a [Smart Keyboard](#) cover, and they also work with the new [Apple Pencil](#) stylus.

Apple's emphasis with the iPad Pro is on productivity, an angle I've embraced with gusto. Though I have long been fond of writing and doing other work on an iPad, the iPad Pro has taken over for an Apple laptop as my preferred workhorse while on the go.

The question is, which iPad Pro? There's the rub.

I've made extensive use of both models in recent months and love them both for different reasons. While they seem nearly identical on the surface – apart from size and weight, of course – they are quite distinct in some ways.

The newer 9.7-inch model boasts certain advanced features that its older 12.9-inch sibling lacks, while the big iPad Pro outpaces the smaller one in several significant ways.

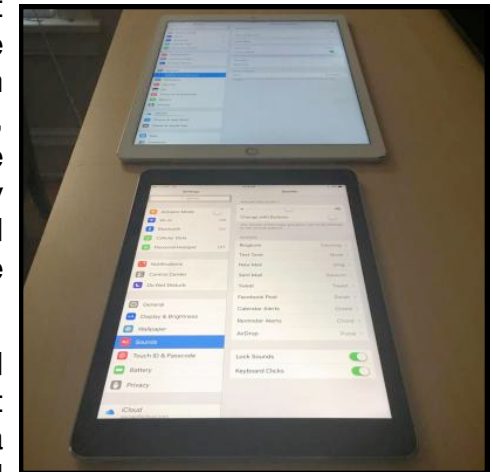
Advantages of the 9.7-inch iPad Pro -- The smaller iPad Pro, because it's newer, incorporates cutting-edge technology that presumably wasn't ready when Apple released the bigger iPad Pro.

- **Display:** Apple [advertises](#) the small iPad Pro as having the "brightest and least reflective" screen anywhere, with colors that "are more vivid, true to life and engaging." It adds that the smaller tablet "uses the same color space as the digital cinema industry," with a wider color gamut that gives the device up to 25 percent greater color saturation than previous models.

Fair enough, but I'm not sure I would have noticed this without being prompted. And, after much squinting at the two displays, I can't honestly think a user of the bigger iPad would feel cheated. In another respect, the display on the smaller tablet is starkly different. It offers a "True Tone" screen with built-in sensors that alter its appearance based on ambient lighting conditions. This feature adjusts the display color and intensity to match lighting around it.

I found True Tone jarring at first but grew to like it. Peering at the two iPads in my customarily dim home office on a late afternoon, for instance, the screen on the larger iPad Pro had a decidedly bluish tint while the smaller iPad appeared warmer and more inviting.

True Tone is different and separate from the Night Shift feature that aims to make a screen more comfortable to read



in low-light conditions. True Tone and Night Shift often seem to behave similarly, although Night Shift is based on timers and not physical sensors. I solved the confusion by keeping Night Shift switched off on the 9.7-inch iPad.

- **Cellular access:** Integrated support for cellular data connections in some iPad models sets them apart from Apple laptops, none of which can yet boast such connectivity. However, the two iPad Pro models have different cellular capabilities.

The 9.7-inch model supports a cellular data feature called [LTE Advanced](#) that is available from some carriers, including AT&T. LTE Advanced can boost Internet performance dramatically. In my speed tests, cellular downloads tended to be as much as 50 percent faster on the smaller iPad Pro model than on the large one.

Apple also eliminated the need for an add-in [Apple SIM](#) in the 9.7-inch iPad Pro, though the tablet still has a nano-SIM tray if your carrier requires a physical SIM. Instead, it has a new feature called embedded Apple SIM that internalizes the SIM card's features.

Regardless of whether the Apple SIM is embedded or not, it exists to make life easier for those who need cellular service in foreign lands. Obtaining a physical SIM for such service has been a longtime ritual for overseas travelers, but Apple SIM users can sign up for cellular service right on their tablets as they move from place to place. So the difference between the two Apple SIM types seems a minor one, allowing most users of the smaller iPad Pro to ignore the nano-SIM tray.

- **Camera and photos:** People like taking photos with their iPads, no matter how awkward it may look, and those who do should know that the cameras on the iPad Pro models differ in significant respects.

The larger iPad has an 8-megapixel rear-facing camera with an f/2.4 aperture that shoots 1080p video. Its front-facing camera has a 1.2-megapixel resolution with an f/2.2 aperture and takes 720p video. Neither camera has a flash, which is a distinct disadvantage.

The smaller iPad has a 12-megapixel rear-facing camera with an f/2.2 aperture that shoots 4K video. It adds a True Tone flash, found on certain iPhone models, whose white and amber LEDs can produce more than 1000 different color temperatures to achieve a better white balance.

Its front-facing camera has a 1.2-megapixel resolution with an f/2.2 aperture and shoots 720p video. It adds a Retina Flash feature that, as on the iPhone 6s and 6s Plus, turns the screen into a flash and makes for an unusual selfie experience as the screen momentarily turns bright white for subtle illumination.

The smaller iPad can take Live Photos, a capability absent from the larger model.

- **Hey Siri:** Only the smaller iPad boasts the always-on feature that puts Apple's intelligent assistant at your beck and call.

Advantages of the 12.9-inch iPad Pro -- The larger of the iPad Pro models, though older, is superior to the small one in several tangible ways.

- **Lightning port:** The Lightning port on the bigger iPad incorporates the zippy USB 3.0, while the one on the smaller iPad offers only the slower USB 2.0.

This difference likely means little to most people, but it has serious ramifications for certain types of users, such as photographers.

"For photographers who want to transfer photos for review or editing from a camera to the iPad, this is almost crippling," my TidBITS colleague Jeff Carlson [recently observed on his personal blog](#). Jeff found that transferring 1.5 GB of images took 30 seconds via USB 3 and 2 minutes 20 seconds via USB 2.

- **Performance:** Though roughly similar to the 9.7-inch model in terms of internal specs, the 12.9-inch model offers slightly superior performance.

It has 4 GB of RAM, compared to the smaller tablet's 2 GB. And while both tablets have an A9X chip, both raw processing and graphics are zippier on the larger iPad.

Honestly, though, I seldom noticed the difference while using both iPads.

- **Faster charging:** As I noted in [“iPad Pro Charges Faster with MacBook Adapter and New Cable”](#) (27 April 2016), charge times on the large iPad can be reduced by about half by swapping out its standard charger for the 29-watt USB-C Power Adapter that comes with the 12-inch MacBook and pairing it with one of Apple's new USB-C to Lightning cables.

The fast-charging capability in the 12.9-inch iPad makes this trick possible; alas, the 9.7-inch model lacks the fast-charging feature.

The Intangibles -- In many ways, purchasing an iPad is a highly personal decision. One potential buyer might find the larger iPad Pro too big and heavy, while it might be just right for another. For some, the version of the Smart Keyboard for the 9.7-inch iPad might feel intolerably cramped, but not for others.

I'll focus here on my experiences while broadening my discussion to include others who might be considering a purchase.

- **Smart Keyboard:** The dimensions of the Smart Keyboard for the bigger iPad are deliciously ample. I expected the smaller Smart Keyboard, like other keyboards and keyboard cases designed for 9.7-inch iPads models, to feel scrunched to me.

However, my concerns were laid to rest when I started using it. I did serious work on the thing with little discomfort. Your mileage may vary; I recommend trying both in a store.

- **Screen considerations:** The larger iPad's generous screen size can be critically important for some people. On the larger iPad, each side of the screen in Split View has as much display area as the smaller iPad's display, which is great for productivity. Split View

on the smaller iPad is less useful given the narrowness of each panel.

This, of course, assumes app developers have updated their offerings to support Split View. Some have not. As I've previously noted, Google's refusal to implement this basic feature in some of its iOS apps (such as Google Docs, which I'm using to type these words) is one of the great mysteries of the universe.

That issue impacts both iPad Pro models, but there's a related one that involves only the big iPad. In many cases, developers have been slow about updating apps to take advantage of the 12.9-inch screen. I'm looking at you, Facebook. Google has been maddeningly inconsistent in this regard, updating some apps (such as Inbox) but not others (like Gmail).

- **Size and weight:** At just under 1 pound (454 g), the 9.7-inch iPad Pro feels much more portable than the 12.9-inch model, which weighs 1.6 pounds (726 g).

The larger iPad Pro initially struck me as ridiculously large. It seems like a cafeteria tray – and I have even used it to transport meals from the kitchen to the front porch a few times.

For those with similar concerns but lusting after that big screen, I'd suggest a couple of strategies. Go for the [Smart Cover](#) (and, optionally, the matching [Silicone Case](#)) instead of the bulkier Smart Keyboard. With the cover and the case, the 12.9-inch iPad Pro struck me as a thin and light laptop.

Then, when you need it, add an external Bluetooth keyboard. There are many such options, some of which I covered in [“Three Alternatives to the iPad Pro's Smart Keyboard”](#) (8 February 2016).

One of the accessories in that article, the [Zagg Messenger Universal](#), remains my favorite as a large and comfy keyboard with an integrated fold-out stand that is more than stable enough to hold the larger iPad (in either portrait or landscape orientation). I get a ton of work done on it at home. The Zagg Messenger Universal is thin enough that I have been known to take it on the

road with the iPad despite the added weight and bulk, though it is mostly for home use.



Keyboard cases for the larger iPad Pro don't make a lot of sense to me — why bulk up the already large device? They make more sense for the smaller iPad.

Again, numerous options are available. I prefer [Zagg's Rugged Book](#), which bulks up the tablet a bit, but seems indestructible (I throw it into my bike pannier every morning for my commute without a second thought) and has four positioning/viewing modes. The tablet detaches, as well, when I just want a touch experience. When I need to type, the Rugged Book's keyboard feels fantastic, though, of course, a bit cramped.



Be sure to buy the version for the iPad Pro. The similar [iPad Air 2 model](#) will fit the iPad Pro form factor, but does not have its magnets correctly positioned to activate the tablet's sleep mode when the lid is closed.

Conclusion -- Most people won't have both iPad Pro models available to compare. I'm lucky to have both versions on loan from Apple, which has been a revealing experience.

I've found a role for each tablet. The larger iPad Pro is mostly for home use — on my front-porch workstation, for instance, when I want to get some serious work done while enjoying a bit of fresh air.

The smaller iPad Pro is my mobile model. It goes with me everywhere. I tuck it into a small messenger bag if I'm walking, chuck it into my pannier when biking, and have it with me in my car at all times.

If I had to choose? I'd get the 9.7-inch model because it does everything the bigger tablet can, though sometimes in a more cramped manner, and it has some cool new features.

You'll make your own decision based on your particular set of needs and circumstances, but you can't lose. Both models are great, though with key differences that you should mull over carefully before making your purchase.



Jonny Evans posted the following article to computerworld.com on June 24, 2016. tinyurl.com/zbc6hmt. © Computerworld Inc. He is an independent journalist/blogger who first got online in 1993 and began writing about Apple in 1999. He's author of Computerworld's AppleHolic blog and also writes for others in the US, UK and Europe.

The Essential Guide To Using Siri On A Sierra Mac

Everything you'll need to use Siri on your Mac

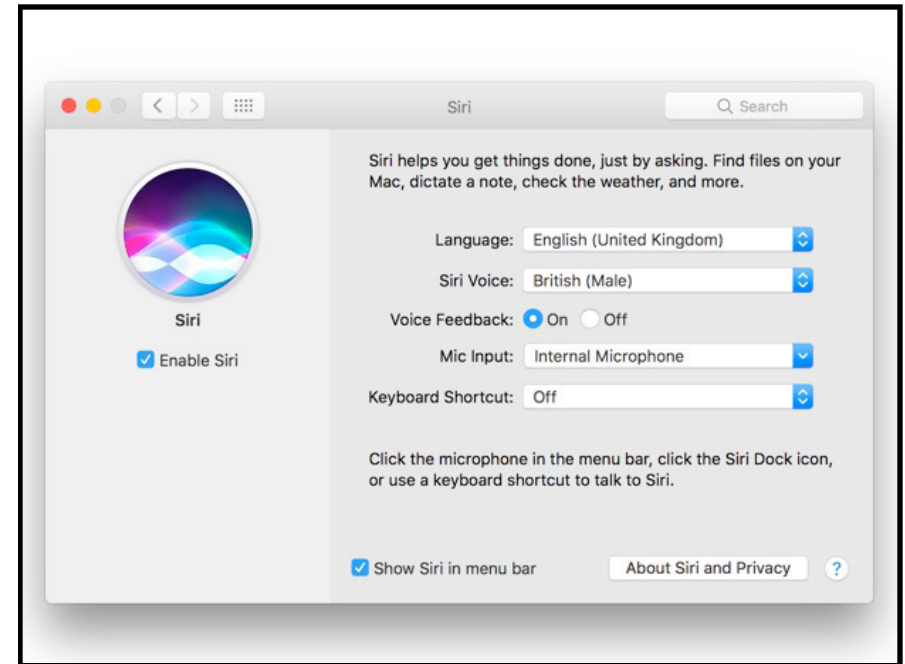
By Jonny Evans



Scheduled to ship in Fall with a public beta next month, macOS Sierra brings numerous improvements, with Siri making its debut on the Mac. In this report I'll explain what you need to know to use Siri with your Mac.

Enabling Siri

You'll be asked to enable Siri when you install macOS Sierra, however, if you don't do it then, don't worry as Siri can also be enabled in System Preferences where it has its own "Siri" section. To the left of the Preferences pane you currently see the "Enable



Siri" checkbox, which should be enabled by default. To the right you find preferences including language, voice, voice feedback, Mic Input and a drop down menu with which to enable a Keyboard Shortcut (see below). You will also find a tick box to show Siri in the menu bar and a link to take you to Apple's Siri privacy pages.

Once you have enabled Siri you will be able to speak with your Mac in natural spoken language — you don't need to learn specific commands. (You may need to figure out how Siri thinks — sometimes you need to restructure your questions).

Accessing Siri

You do not need to say "Hey Siri" to activate your assistant. There are three ways to access is:

- Click the Siri icon in the menu bar
- Click the Siri icon in the Dock

- Use the Keyboard Shortcut (if enabled). In the beta, the shortcut is set to Function Space by default, but this may change in the final OS. You can also set your own shortcut.

What can Siri do?

You don't need to switch out of the application you are in to use Siri, just tap one of the shortcut to invoke it and you can then ask it to do whatever it is you need, from searching the Web to making a call and more. (You may find a few more ideas on [how to use Siri in this article](#)).

In very broad terms, Siri on the Mac has three key roles:

Communication

You can use Siri to send messages, open, search and respond to emails and to answer and make calls (if used with an iPhone).

- “Call Dad at work.”
- “Read my latest email.”
- “Text Sacha 'See you soon smiley X'.”

Information

Siri will handle a wide range of informational requests — from creating reminders to searching the Web to looking up locations and more. You can even search for specific images. Here are some of the things you can ask Siri to do for you:

- “Tell me what movies are playing today.”
- “Find a table for three tonight.”
- “What's the weather in San Francisco on Monday?”

System control

Siri also has a range of useful System-wide functions, meaning you can make necessary tweaks to your System Preferences quite easily, using your voice. You can adjust settings and get

information about your system, find files and more. Some examples:

- “Show me all the files called blogs.”
- “Open the presentation I created last Monday.”
- “Search for files Erica sent last week.”
- “Turn Wi-Fi on.” (Or off)
- “Turn the system volume up.”
- “Start my screen saver.”
- “How fast is my Mac.”
- “How much iCloud storage do I have left?”
- “What is my computer's serial number?”

Accessibility: *Because it works with VoiceOver and Switch Control, Siri is an invaluable tool to access the Mac's Accessibility features, no matter which application you happen to be in at the time.*

What's the first thing you should ask Siri? Simple, ask it, “*What can you do?*”

What else can Siri to do?

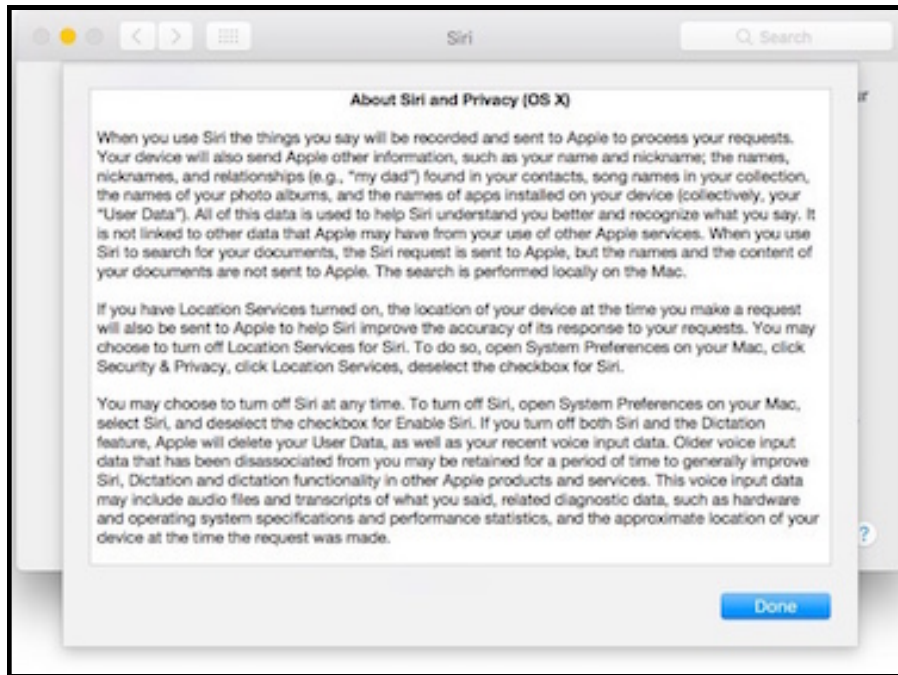
Siri on the Mac behaves a little differently than it does on iPhones, iPads and the Apple TV. To put this into context it is important to recognize that Siri on the Mac is also an application, which means it is capable of application like behaviors. So, on the Mac using Siri:

You can **drag-&-drop items** from Siri search results into documents you are working on; Perhaps you are making a newsletter and need an image of a horse, you can ask Siri to get some images for you from the Web and then drag-&-drop the one you like into your document.

You can **copy items** from Siri search results by selecting them in the usual way (Command-C) and pasting them elsewhere (Command-V).

You can also **pin certain search results to Notifications Center**: You can't do this for every kind of result, but those you can use in this way are shown in the Siri window with a small + sign in a grey circle at the top right of the specific search category. This is the Add button which you tap to pin that specific set of results. You can pin results from Sports, Stocks, Finder, Weather, Wikipedia, Wolfram Alpha and others.

Siri and privacy



Apple being Apple it has made sure you can easily access information about Siri and privacy in the Siri System Preferences section. This reveals that things you say are recorded and sent to Apple for processing and that information such as names, relationships, photo albums and other user data is also shared, but is not linked to any other data Apple may hold about you.

However, if you untick the Enable Siri checkbox and turn Dictation off, Apple will delete much of your User data,

Caveat emptor

This report is based on use of an early beta of macOS Sierra. Some or all features may be added to or changed before the final version of the OS ships in Fall — but I'll keep you posted moving forward.



**SPEAKER ROSTER FOR
MLMUG'S 2016 MEETINGS**

January 9	Podcasts - Mark Bazrod
February 13	MS Office & Apple TV - Stan Horwitz
March 12	Special Interest Groups
April 9	iOS Security - Mike Inskeep
May 14	Tips & Tricks To Make Your Images "Pop" - Bill Achuff
June 11	Picnic
July 9	Recess - Summer
August 13	Recess - Summer
September 10	MLMUG University - 3 Presentations
October 8	Be Your Own IT - Sue Czarnecki
November 12	Bob "Dr. Mac" LeVitus
December 10	Holiday Party, Swap Meet, Members' Show & Tell & Election of Officers

Daniel Nations posted the following article to about.com on November 4, 2015. tinyurl.com/kp9d9aw. © About.com. He has been writing, programming and following technology since back in the Commodore Vic 20 days.

The Top iPad Movie And TV Streaming Apps

By Daniel Nations

The iPad is often referred to as a 'consumption device,' which means a device intended for the consumption of media. And while this is not altogether correct -- there are many great uses for the iPad -- it does make a great device for reading books and watching movies. But before you can really take advantage of the iPad, you need which are the best apps for streaming movies and video to your iPad.

[How to Use Home Sharing to Stream Video to Your iPad](#)

Crackle for the iPad



Crackle is a relative newcomer to the field of streaming video on the iPad, but it shoots to the top of the list for one very simple reason: it's free. Not only is it a free download, but it also doesn't take a subscription fee to watch premier movies and television. Owned by Sony Pictures, Crackle has a lot of great content, including some great programming produced solely for Crackle. [More »](#)

Netflix for the iPad



While the Netflix app for the iPad resembles a cheaply produced iPhone app rather than a full fledged and fully functional iPad app, it does reign supreme in one department: it's ability to stream great video to your iPad. And because the app supports the video out functionality of the iPad, it really comes to life if you have your iPad connected to your TV. With a great

collection of movies and TV, Netflix is sure to keep you entertained. The streaming-only subscription cost for Netflix is \$7.99. [More »](#)

Hulu Plus for the iPad



The Hulu Plus app takes some flack for both requiring a subscription cost (\$7.99 a month) and having commercials within the video playback, but one thing few can argue with is its presentation. Compared to Netflix's watered down interface, Hulu Plus is quite a dream to use. The app does lack some key features, such as video out support. And soon after the iPad 2's release, Hulu hijacked the ability to do display mirroring, flinging a message to the screen saying they were working on a feature to bring video to the television. [More »](#)

YouTube for the iPad



YouTube was one of the default apps on the iPad until iOS 6.0. Now, you can find an improved version of the app in the App Store. While YouTube videos will play perfectly fine from within the website in the Safari browser, the YouTube app presents a superior interface for browsing through videos and picking out the best ones to watch. [More »](#)

FunnyOrDie Website



It doesn't take an app to provide excellent streaming video service to the iPad, as FunnyOrDie.com proves. The same great comedy found on the website can easily be viewed with the iPad. And because the website supports iPad video, it supports the video out capabilities of the iPad. FunnyOrDie.com also offers HD version of

their videos, so if you do stream them to your TV, they'll look fantastic.



There are many other great websites that support iPad video without the need for an app, but FunnyOrDie.com certainly tops the list. [More »](#)

Showyou



A video aggregator is an app that gathers up free videos from across the web and gives you a single interface for viewing them. And as video aggregators go, Showyou is one of the best on the iPad. Rather than try to present a unique spin on the video aggregator, Showyou has a rather simple interface, which makes it easy to find videos to watch when other aggregators often make it more difficult. [More »](#)

Frequency for iPad



Frequency is another good video aggregator with a relatively simple interface. In frequency, you choose different websites like The Onion, Boing Boing and Space.com to make up your channel list. You can then easily browse videos from these sources, check out the newest videos or watch from the archive.

[More »](#)

TED for iPad

There is something for everyone in TED, which hosts speeches and presentations from the world's most fascinating people. There's everything from Stephen Hawking to Steve Jobs to Tony Robbins to teenaged boy wonders playing bluegrass. [More »](#)

Cable Networks / Broadcast TV



In addition to premium services like Netflix and Hulu Plus, free movies like Crackle, free video from YouTube and video aggregators like Showyou, many different TV channels from broadcast TV to cable networks have iPad apps that show video clips and full-length videos. Most of the premium channels (HBO, Showtime, etc.) have companion apps with a large amount of content you can access by verifying your cable

subscription, and many different cable providers like Verizon FIOS and Time Warner have apps that include the ability to watch a select number of channels live.

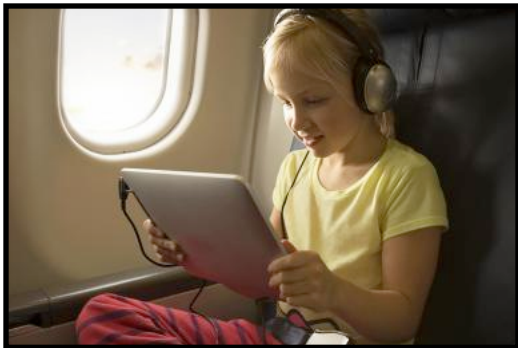
Browse the list of cable networks and broadcast TV networks available on the iPad [More »](#)



Daniel Nations about Daniel Nations posted the following article to about.com on May 8, 2016. tinyurl.com/o53cgm4. © About.com. He has been writing, programming and following technology since back in the Commodore Vic 20 days.

Review: Crackle Brings Free Movies And TV To The iPad

By Daniel Nations



Very few apps are as easy to name a "must-have" as Crackle. In fact, if all it did was provide free movies and TV shows with no subscription costs, it'd make the must-have iPad apps list. But Crackle manages to put this together in an intuitive interface that makes it easy

to browse for some entertainment.

[Download Crackle From iTunes](#)

Crackle Features:

- Feature-length movies
- Selected TV Shows
- No subscription cost
- Save movies and TV shows to your queue to watch later

Crackle Review:

Owned by Sony Pictures Entertainment, you will mainly see movies and TV programs produced by Sony. This makes Crackle somewhat limited when compared to Netflix or Hulu Plus, but considering both of those apps require monthly subscriptions, it's easy to put Crackle ahead of the competition.

Crackle's interface resembles the Hulu Plus interface in that sections are broken down by Featured, Movies, Shows and the ability to search through the collection. It even has the same split-screen that puts the featured movies highlighted at the top while the bigger list of titles dominates the bottom of the screen.

The interface is quick, so you won't be slowed down by poster art loading, and clicking on a title not only starts the show, but gives you a synopsis of it.

[The Top Apps for Streaming Movies and Television](#)

One of the few areas that needs improvement is the default windowed style of playback. As mentioned above, tapping a show's poster art takes you to a screen where the video plays with a description of the show below the playback. Like most iPad videos, you can take it full screen by touching the video and using the on-screen controls that appear at the bottom of the video. But for those new to the iPad, this might not be readily apparent, which could lead to some confusion.

But that is a very minor complaint compared to an app that is overall solid both in its interface, which is definitely slick, and its content, which consists of free movies and TV shows, so what's not to love?

[How to Connect Your iPad to Your HDTV](#)

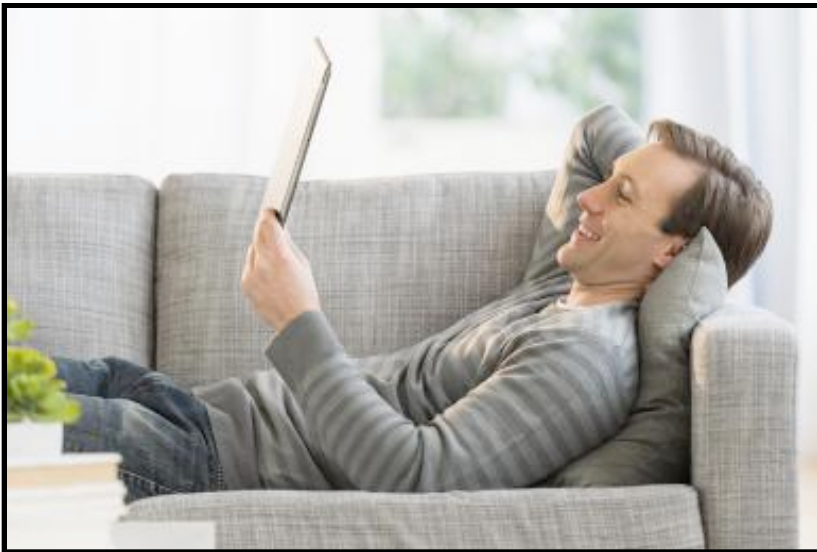


Daniel Nations updated the following article to about.com on January 29, 2016. tinyurl.com/gnmsjat. © About.com. He has been writing, programming and following technology since back in the Commodore Vic 20 days.

How To Watch TV On Your iPad

Turn Your iPad Into a Portable Television

By Daniel Nations



One of the neat things about the iPad is just how many [cool ways you can use the tablet](#). And this extends to watching TV. Busy lifestyles come in all shapes and sizes, from frequent travel for work to parents who often find themselves at soccer or ballet practice. And luckily, there are a number of good options that will allow you to watch TV on your iPad, so you never have to worry about missing your favorite shows or not being able to see the big game.

Most of these devices work by intercepting the television signal from your cable box and then broadcasting it through your Wi-Fi network, which can allow you to access your shows from anywhere in the house and while on the go via your iPad's data

connection. But one interesting option literally turns the iPad into a portable television, and for those who don't want to spend the money on expensive accessories, sometimes an app is all you need.

Sling TV

The battle to cut the cord has been waging for a few years now, but when Sling TV appeared, the tide officially turned against the cable companies. Sling TV isn't a device that throws your current cable signal to your TV or an antenna that picks up stations for your iPad. It is an Internet cable provider, which means they do the same basic thing that your cable company does without running cable to your house. Instead, you stream your stations across the Internet.

Sling currently costs \$20 a month and gives you access to popular channels like ESPN, AMC, TNT, TBS and others. You can also subscribe to HBO, Epix and additional channel packages.

The good side is that Sling TV needs no extra hardware to work.

The bad side is that it won't broadcast local channels.

TiVo Stream

If you aren't interested in cutting the cord, TiVo may be the best overall solution for pushing your TV signal to your iPad. Unfortunately, it may be the most expensive, at least in upfront costs. You will either need to add a TiVo Stream device to your existing TiVo setup, or you'll need the TiVo Roamio Plus, which includes both the TiVo Roamio for basic TiVo service and the TiVo Stream for streaming across the Internet.

But while getting setup on TiVo is more expensive, you can stop renting an HD DvD Recorder from your cable provider, which might end up saving you money.

The big bonus to TiVo Stream is the ability to watch recorded shows as well as live shows. The Stream essentially turns your

iPad into a TiVo player, so you have access to everything recorded on your TiVo's DVR.

Slingbox Slingplayer

Not to be confused with Sling TV, Slingbox's SlingPlayer works by intercepting the television signal from your cable box and then "slinging" it across your home network. The SlingPlayer software turns your system into a host that allows you to stream the television signal to your iPad across both Wi-Fi or your iPad's 3G/4G data connection. With the Slingplayer app, you can tune in, change channels and watch any TV show that you could watch at home. You can even access your DVR and watch recorded shows.

Beyond being a good way to watch remotely, Slingplayer is also a good solution for those who want access to the TV in any room in the house without wiring cable outlets everywhere or springing for multiple televisions. One downside is that the iPad app must be purchased separately and adds a good chunk onto the price of the device.

Cost: Boxes starting at \$179 for the Slingbox and \$14.99 for the iPad app.

@TV Plus

Belkin is the latest manufacturer to jump into the market, and their @TV is priced in between the Vulcano Flow and the Slingbox SlingPlayer. It includes all of the same basic features of the other two products, including the ability to pause and/or record live television.

One feature oddly missing from @TV is an HDMI connection. @TV only uses component or composite cables rather than the higher quality HDMI.

Cost: Boxes starting around \$149.99 with no charge for the iPad app.

Cable TV / Network Apps

An alternative to hooking up hardware to your entertainment system or plugging an antenna into your iPad is simply downloading apps available from your cable provider or major networks. Many major providers like [Cox TV](#), [Time Warner Cable](#) and [DirectTV](#) offer apps for the iPad that will allow you to watch TV, though not all support the full range of TV offered by your subscription and not all offer the ability to stream over 3G/4G.

You can also access premium content via apps, with some restrictions based on your provider. [HBO](#), [Cinemax](#), [Showtime](#) and [Starz](#) all have apps that work with *some* providers.

...And More Apps

Beyond official apps from your cable provider or premium channels, there are a number of great apps for streaming movies and TV. The top two most popular choices are [Netflix](#), which offers a nice selection of movies and TV for a relatively low subscription price, and [Hulu Plus](#), which doesn't have quite the same movie collection but offers some television shows still within the current season.

[Crackle](#) is also a great option for streaming movies and doesn't require any subscription fees.

The Top iPad Movie and TV Apps

Did you know you can stream movies from your PC to your iPad for free? Home Sharing allows you to stream anything from your iTunes collection to your iPad -- including music. [Find out how to set up Home Sharing](#).

Tom Nelson posted the following article to about.com on July 28, 2016. tinyurl.com/hxtpfdg. © About.com. He is a consultant and writer providing Macintosh training, advice, and support. He has written hundreds of articles, tutorials, and product reviews.

The Apple Hardware Test To Diagnose Problems

Most Late-Model Macs Can Boot From the Internet to Run the Apple Hardware Test

By Tom Nelson

You can use the [Apple Hardware Test \(AHT\)](#) to diagnose issues you're having with your Mac's hardware. This can include problems with your Mac's display, graphics, processor, memory, and storage. The Apple Hardware Test can be used to rule out most hardware failure as the culprit when you're trying to troubleshoot problems you're experiencing with your Mac.

Actual hardware failure is rare, but it does happen from time to time; the most common hardware failure is RAM. The Apple Hardware Test can check your Mac's RAM and let you know if there are any issues with it. With many Mac models, you can easily replace faulty RAM yourself, and save a few dollars in the process.

Which Macs Can Use the Internet-Based Apple Hardware Test?

Not all Macs can make use of the Internet-based AHT. Macs that are unable to use the Internet version of AHT can use a [local version](#) that's either installed on the Mac's startup drive or included on your OS X install DVD.

2013 and Later Macs

2013 and later Mac models make use of a newer version of the hardware test called Apple Diagnostics. You can find instruction for testing newer Macs using Apple Diagnostics at:

[Using Apple Diagnostics to Troubleshoot Your Mac's Hardware](#)

Apple Hardware Test Over the Internet

Macs That can use Internet Version of AHT		
Model	Model ID	Notes
11-inch MacBook Air	MacBookAir3,1	late 2010 through 2012
13-inch MacBook Air	MacBookAir3,2	late 2010 through 2012
13-inch MacBook Pro	MacBookPro8,1	early 2011 through 2012
15-inch MacBook Pro	MacBookPro6,2	mid 2010 through 2012
17-inch MacBook Pro	MacBookPro6,1	mid 2010 through 2012
MacBook	MacBook7,1	mid 2010
Mac mini	Macmini4,1	mid 2010 through 2012
21.5-inch iMac	iMac11,2	mid 2010 through 2012
27-inch iMac	iMac11,3	mid 2010 through 2012

Note: Mid 2010 and early 2011 models may require an [EFI firmware](#) update before you can use Apple Hardware Test over the Internet. You can check to see if your Mac needs the EFI update by doing the following:

1. From the [Apple menu](#), select About This Mac.
2. In the window that opens, click the More Info button.
3. If you're running [OS X Lion](#) or later, click the System Report button; otherwise, continue with the next step.
4. In the window that opens, make sure Hardware is highlighted in the left-hand pane.
5. From the right-hand pane, make a note of the Boot ROM Version number, as well as the SMC Version number (if present).
6. With the version numbers in hand, go to the [Apple EFI and SMC Firmware update website](#) and compare your version against the latest available. If your Mac has an older version, you can download the latest version using the links on the above webpage.

Using the Apple Hardware Test Over the Internet

Now that you know your Mac is capable of using the AHT over the Internet, it's time to actually run the test. To do this, you need either a wired or Wi-Fi connection to the Internet. If you have the required network connection, then let's get started.

1. Make sure your Mac is turned off.
2. If you're testing a Mac portable, be sure to connect it to an AC power source. Do not run the hardware test [using only your Mac's battery](#).
3. Press the power button to start the power on process.
4. Immediately hold down the Option and D keys.
5. Continue to hold the Option and D keys until you see a "Starting Internet Recovery" message on your Mac's display. Once you see the message, you can release the Option and D keys.
6. After a short time, the display will ask you to "Choose Network." Use the drop-down menu to make a selection from the available network connections.
7. If you chose a wireless network connection, enter the password and then press Enter or Return, or click the check mark button on the display.
8. Once you have connected to your network, you'll see a message that says "Starting Internet Recovery." This may take a while.
9. During this time, the Apple Hardware Test is being downloaded to your Mac. Once the download is complete, you will see the option to select a language.
10. [Use the mouse cursor](#) or the Up/Down arrow keys to highlight a language to use, and then click the button in the bottom right-hand corner (the one with the right-facing arrow).

11. The Apple Hardware Test will check to see what hardware is installed in your Mac. This process can take a little bit of time. Once it's complete, the Test button will be highlighted.
12. Before you press the Test button, you can check what hardware the test found by clicking on the Hardware Profile tab. It's a good idea to take a cursory look at the hardware profile, just to make sure that all of your Mac's major components are showing up correctly. Be sure to verify that the correct amount of memory is being reported, along with the correct CPU and graphics. If anything appears to be wrong, you should verify what your Mac's configuration should be. You can do this by checking [Apple's support site](#) for the specifications on the Mac you are using. If the configuration information doesn't match up, you may have a failed device that will need to be checked on.
13. If the configuration information appears to be correct, you can proceed to the testing.
14. Click the Hardware Test tab.
15. The Apple Hardware Test supports two types of testing: a standard test and an extended test. The extended test is a good option if you suspect an issue with your RAM or video/graphics. But even if you do suspect such a problem, it's probably a good idea to start with the shorter, standard test.
16. Click the Test button.
17. The hardware test will start, displaying a status bar and any error messages that may result. The test can take a bit of time, so be patient. You may hear your Mac's fans rev up and down; this is normal during the testing process.
18. When the test is complete, the status bar will disappear. The Test Results area of the window will display either a "No trouble found" message or a list of problems found. If you see an error in the test results, take a look at the error code section below for a list of common error codes and what they mean.
19. If no trouble was found, you may still want to run the extended test, which is better at finding memory and graphics problems.

To run the extended test, place a check mark in the Perform Extended Testing (takes considerably more time) box, and then click the Test button.

Ending a Test in Process

- You can stop any test in process by clicking the Stop Testing button.

Quitting the Apple Hardware Test

- Once you finish using the Apple Hardware Test, you can quit the test by clicking either the Restart or Shut Down button.

Apple Hardware Test Error Codes

The error codes generated by the Apple Hardware Test tend to be cryptic at best, and are meant for Apple service technicians. Many of the error codes have become well known, however, and the following list should be helpful:

Apple Hardware Test Error Codes	
Error Code	Description
4AIR	AirPort wireless card
4ETH	Ethernet
4HDD	Hard disk (includes SSD)
4IRP	Logic board
4MEM	Memory module (RAM)
4MHD	External disk
4MLB	Logic board controller
4MOT	Fans
4PRC	Processor
4SNS	Failed sensor
4YDC	Video/Graphics card

Most of the above error codes indicate a failure of the related component and may require having a technician look at your Mac, to determine the cause and the cost of a repair. But before you send your Mac off to a shop, try [resetting the PRAM](#) as well as [resetting the SMC](#). This can be helpful for some errors, including logic board and fan problems.

You can perform additional troubleshooting for memory (RAM), hard disk, and external disk problems. In the case of a drive, whether internal or external, you can try repairing it using [Disk Utility](#) (which is included with OS X), or a third-party app, such as [Drive Genius](#).

If your Mac has user-serviceable RAM modules, try cleaning and reseating the modules. Remove the RAM, use a clean pencil eraser to clean the RAM modules' contacts, and then reinstall the RAM. Once the RAM is reinstalled, run the Apple Hardware Test again, using the extended testing option. If you still have memory issues, you may need to replace the RAM.



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The following article was posted to osxdaily.com on January 18, 2015. tinyurl.com/lisuygzk. © OSX Daily. Try the site.

Troubleshoot Safari Freezes & Crashing In Mac OS X

Some Mac users have discovered the Safari web browser has become significantly less stable after updating to some versions of Mac OS X system software including OS X El Capitan, OS X Yosemite, and MacOS Sierra. This can range from periodic crashes of Safari that never happened before, to Safari freezing up entirely, to Safari outright refusing to open as it crashes immediately upon launch.



Troubleshooting app crashes can be frustrating, but there are some tricks specific to Safari that may help to resolve instability with the Safari browser. If you're experiencing Safari crashing or freezing on a regular basis under Mac OS X whether in Yosemite or newer and you've already [reset Safari](#) to no relief, follow each of the steps below. If all fails to resolve the problem, we'll offer a reasonable workaround too.

1: Update to the Latest Versions of Software

Often simply updating to the newest version of Safari and OS X is enough to remedy random crashes, particularly if the cause is due to a known bug that has since been fixed. Many users fall behind on software updates, which makes this an easy first recommendation.

As usual, you should do a quick backup before updating system software.

- Go to **Apple** menu > App Store > Updates and install any version of MacOS X and/or Safari that are available

This alone can often fix a problem with Safari crashing or freezing out. For example, if you're on Mac OS X 10.10, updating to

10.10.1 or later with Safari 8.0.2 may be sufficient to fix the freezing or crashing issues.

Some beta users have reported that Safari has become more stable under the latest beta versions, which typically are a few weeks behind a wider release. This further suggests that updating to the latest version when it is available is a good idea.

When you relaunch Safari, immediately [clear the recent web data](#) and try to visit the website(s) that were causing issues. Things just may be working fine now, though sometimes [resetting Safari](#) will do the trick too.

2: Ditch Safari Caches Manually

You can manually remove all caches pertaining to Safari by going into the User Library folder and making some targeted moves. We're going to recommend doing this in Safe Mode because booting into OS X Safe Mode dumps some system caches as well.

1. Reboot the Mac into safe mode by restarting and immediately holding down the "Shift" key
2. From Finder, hit Command+Shift+G and enter the following path:
3. ~/Library/Caches/com.apple.Safari/
4. Remove Safari caches manually by placing them into the Trash
5. Restart the Mac again, this time normally
6. Open Safari as usual

If Safari works fine at this point, you shouldn't need to do anything else. If problems persist, carry on with the next steps.

3: Disable Third Party Extensions & Plugins

Flash is notorious for causing problems, and many other video and animation plugins can be problematic as well. The [Adobe Acrobat reader plugin](#) has also been known to cause issues with Safari in Yosemite. Either disabling or removing these extensions and plugins can often remedy a problem specific to a plugin, like if

Safari only crashes when a Flash video or Silverlight animation is loaded.

1. Quit Safari (if it's open and hasn't crashed yet)
2. From the Finder, hit Command+Shift+G and enter the following path:
3. /Library/Internet Plug-ins/
4. Create a new folder on the desktop called something like "Plugin Backups", and drag suspect third party plugins into that folder – you're placing these into an accessible folder so you can easily undo the change by moving the plugin back to the origin if necessary
5. Relaunch Safari

This is a bit more advanced, so you should have some familiarity with what third party plugins you installed yourself and what comes native. Focus exclusively on third party plugins, do not remove plugins if you aren't sure what they are or if you have no idea what you're doing.

Similarly, [getting a new version of Java](#) can also be helpful if the difficulties only occur with sites that make prodigious usage of Java.

4: Safari Still Crashing? Chrome or Firefox to the Rescue

If Safari is still experiencing persistent issues, your best bet may be to use Chrome or Firefox for the time being. Both are free and excellent web browsers, my personal preference is for Chrome but many users adore Firefox. Try out both and going with what you prefer:

- [Get Firefox free from Mozilla](#)
- [Get Chrome free from Google](#)

Using another browser is obviously more of a workaround than a solution. This may be the only option left until another system update to OS X or a bug fix release for Safari is made available, which could remedy a specific problem you're experiencing.

PODCASTS - AUGUST 2016

Here's the second of small monthly snippets on great and interesting podcasts which I think you might enjoy. This month's choice is **MACWORLD**. The podcasts are moderated by Glenn Fleishman, Macworld Senior Contributor, and Susie Ochs, Macworld Senior Editor. They tend to be very informative, a bit technical, and about an hour long. Recent subjects have been:

Three Cheers For App Camp For Girls

Zany Bob Mansfield's Apple Car Emporium

iCloud Library Meets Its Match

The Pokémon Invasion

Facebook Cuts Paper, Its Only Good At

You Don't Know, Jack?

Still Coming Down From WWDC 2016

At WWDC 2016, It's All Coming Together

WWDC Predictions, Apple TV Love, And Free Pizza

No More 16 GB iPhone?

Apple And Google And AI In The Future

The Ballad Of iTunes Usability

The Day The iCloud Music Library Died

The following article was posted to howtogeek.com, probably by Lowell Heddings. tinyurl.com/2uu5p29. © How-To Geek, LLC. He is founder of How-To Geek (in 2006), the editor-in-chief, programmer, system administrator, and CEO.

How To Encrypt Your Mac's System Drive, Removable Devices, And Individual Files

Macs offer excellent built-in encryption support, whether you want to encrypt your entire hard drive, removable drives, or just create an encrypted container for only your most important files. It's all built in.

These features are hard to come by on Windows without third-party software, with [BitLocker](#) only available on Professional versions of Windows and [BitLocker To Go](#) only available on Enterprise editions. [Windows 8.1 is now encrypting system drives by default](#), but only on new PCs.

[HTG Explains: What is Encryption and How Does It Work?](#)

Encryption has a long history dating back to when the ancient Greeks and Romans sent secret messages by substituting letters only decipherable with a secret key. Join us for a quick history lesson and learn more about how encryption works.

Encrypt Your System Drive

The FileVault feature allows you to encrypt your Mac's entire hard disk. When you enable File Vault, [your files are stored on disk in an encrypted, seemingly scrambled format](#). Someone who gains access to your Mac, removes your hard drive, and attempts to view your files won't be able to do it without your encryption key. (Normally, [anyone with physical access to your Mac could remove its hard drive and view your files](#) because they're stored in an unencrypted form.)

You can choose user accounts that have the ability to unlock your disk. When you turn on your Mac, you'll have to sign in with one of

those user accounts before your drive is unlocked. Your drive will be locked again when you shut down your Mac.

To enable FileVault, click the Apple icon on the menu at the top of your screen, select System Preferences, and click the Security & Privacy icon. Click the Turn On FileVault option to enable and configure FileVault.



FileVault will also provide you with a recovery key you can use to unlock your disk if you ever forget your user account's password. You'll want to note this recovery key and keep a copy of it in a secure place.

Once you're done configuring FileVault, your Mac will restart and begin encrypting its hard drive.



Encrypt Removable Devices

Mac OS X allows you to encrypt an entire drive, like a USB drive or external hard drive. The contents of the drive will be encrypted with a passphrase you choose and no one will be able to access them without that passphrase. It functions like BitLocker To Go on Enterprise editions of Windows, but it's available to all Mac users.

To encrypt a drive, simply open the Finder and connect the drive to your Mac. Ctrl+click or right-click the drive in the Finder sidebar and select the Encrypt "Drive Name" option.

The disk will be encrypted once you enter your password of choice — be sure to use a secure one! You may have to wait several minutes for the contents of your disk to be encrypted, depending on the size of your drive and its speed.

Don't lose your password! If you do, you won't be able to access any files on the encrypted drive.



[How to Create an Encrypted File Container \(Disk Image\) on a Mac](#)

Macs don't need third-party utilities like TrueCrypt to create a secure, encrypted container for your sensitive files.

Encrypt Specific Files

You can encrypt individual files by creating an encrypted file container, or disk image. Whenever you want to work with your encrypted files, you'll mount the disk image and enter your password. The files will be available to use and any files you save to the disk image will be encrypted. When you unmount the disk image, the files will be locked and no one will be able to access them unless they have your encryption password.

This is a simple method for encrypting files. You don't have to encrypt any entire devices; you just have to use a single container file. Better yet, the encrypted disk image you create can be synchronized online using a service like Dropbox or Google Drive. You'll have an online copy and can synchronize it between your computers, but no one will be able to access your files without your encryption key. You won't have to worry about your sensitive data being compromised if you use a secure password.

Follow [our guide to creating and using an encrypted disk image](#) for more information. Remember, if you lose your password, you won't be able to mount your disk image and access the files inside!

Other encryption utilities like the venerable [TrueCrypt](#) will also work on a Mac, but you don't need them as badly as you do on a Windows PC. These encryption tools are integrated into Mac OS X.

Jamie Lending posted the following article to extremetech.com on March 26, 2016. © Ziff Davis LLC. He is the Editor-In-Chief of ExtremeTech. and previously, managed the consumer electronics and mobile teams for PCMag.

How To Boost Your Wi-Fi Speed By Choosing The Right Channel

By Jamie Lendino



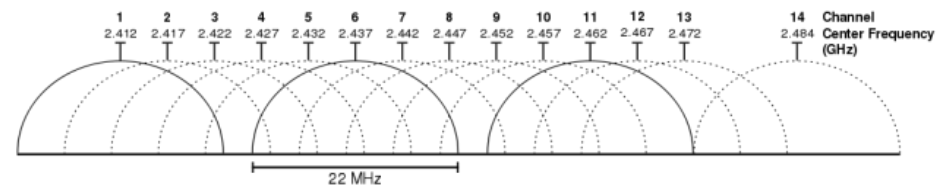
Wireless networks have come a long way in the past 15 years. And yet, sustained Wi-Fi speeds are still a vexing problem in a lot of situations. A number of things can come into play, such as the way your router is set up, whether there's nearby interference, if you live in an apartment building or a separate house, and how far apart your devices are from the router. Fortunately, there's always a way to fix slow transfer speeds.

If you've ever messed around with your Wi-Fi router's settings, you've probably seen the word channel. Most routers have the channel set to Auto, but I'm sure many of us have looked through that list of a dozen or so channels and wondered what they are, and more importantly, which of the channels are faster than the others. Well, it turns out some channels are indeed much faster — but that doesn't mean you should go ahead and change them just

yet. Read on to find out more about 802.11 channels, interference, and the massive difference between 2.4GHz and 5GHz Wi-Fi.

Channels 1, 6, and 11

First of all, let's talk about 2.4GHz, because as of the start of 2015, almost all Wi-Fi installations still use the 2.4GHz band. 802.11ac, which debuted in 2013, is driving adoption of 5GHz — but thanks to backwards compatibility and dual-radio routers and devices, 2.4GHz will continue to reign for a while.



All of the versions of Wi-Fi up to and including 802.11n (a, b, g, n) operate between the frequencies of 2400 and 2500MHz. These paltry 100MHz are separated into 14 channels of 20MHz each. As you've probably worked out, 14 lots of 20MHz is a lot more than 100MHz — and as a result, every 2.4GHz channel overlaps with at least two (but usually four) other channels (see diagram above). As you can probably imagine, using overlapping channels is bad — in fact, it's the primary reason for awful throughput on your wireless network.

Fortunately, channels 1, 6, and 11 are spaced far enough apart that they don't overlap. On a non-MIMO setup (i.e. 802.11 a, b, or g) you should always try to use channel 1, 6, or 11. If you use 802.11n with 20MHz channels, stick to channels 1, 6, and 11 — if you want to use 40MHz channels, be aware that the airwaves might be very congested, unless you live in a detached house in the middle of nowhere.

What channel should you use in a built-up area?

Funny WiFi SSID names If you want maximum throughput and minimal interference, channels 1, 6, and 11 are your best choice —

but depending on other wireless networks in your vicinity, one of those channels might be a much better choice than the others.

For example, if you're using channel 1, but someone next door is annoyingly using channel 2, then your throughput will plummet. In that situation, you would have to change to channel 11 to completely avoid the interference (though 6 would be pretty good as well). It might be tempting to use a channel other than 1, 6, or 11 — but remember that you will then be the cause of interference (and everyone on 1, 6, and 11 will stomp on your throughput, anyway).

In an ideal world, you would talk to your neighbors and get every router to use channels 1, 6, or 11. Bear in mind that interior walls do a pretty good job of attenuating (weakening) a signal. If there's a brick wall between you and a neighbor, you could probably both use channel 1 without interfering with each other. But if it's a thin wall (or there's lots of windows), you should use different channels.

There are tools that can help you find the clearest channel, such as Vistumbler, but it's probably easier to just switch between channels 1, 6, and 11 until you find one that works well. (If you have two laptops, you can copy a file between them to test the throughput of each channel.)

But what about 5GHz?

The great thing about 5GHz (802.11n and 802.11ac), because there's much more free space at the higher frequencies, is that it offers 23 non-overlapping 20MHz channels!

It's also worth pointing out that, starting with 802.11n, wireless technology in general is a lot more advanced than the olden days of 802.11b and g. If you own a modern 802.11n router (i.e. if you bought a router in the last couple of years), it likely has some fancy



Get ready for lots of antennas.

hardware inside that chooses the right channel and modifies the output power to maximize throughput and minimize interference.

If you're using the 5GHz band, and your walls aren't paper-thin, then attenuation and the general lack of 5GHz devices should mean there's very little interference in your apartment — possibly even allowing you to use the fatter 40, 80, and 160MHz channels if you feel like it.

Eventually, as everyone upgrades to newer hardware and moves towards 5GHz, picking the right channel will mostly become a thing of the past. There may still be some cases where it makes sense to fine-tune your router's channel selection. But when you're dealing with MIMO setups (up to eight in 802.11ac), it's generally a better idea to let your router do its own thing. Eventually, of course, 5GHz will fill up as well — but hopefully by then, we'll have worked out how to use even higher frequencies (60GHz WiGig) or entirely new antenna designs (pCells, infinite capacity vortex beams) to cope with our wireless networking demands.

Sebastian Anthony wrote the original version of this article. It has since been updated with new information.



Tom Nelson updated the following article to about.com on July 28, 2016. tinyurl.com/jzppfmn. © About.com. He is a consultant and writer providing Macintosh training, advice, and support. He has written hundreds of articles, tutorials, and product reviews.

Personalize Your Mac By Changing Desktop Icons

By Tom Nelson



Changing the default icons of your drives is a great first step to personalizing your Mac desktop.

Your Mac's desktop is a lot like your home; it needs to be personalized to make it seem like it's your place. Changing desktop icons is one of the easiest ways to bring a touch of you to your Mac's desktop, and it's as easy as a few mouse clicks.

Where to Get Icons for Your Mac

If you're going to personalize your desktop, you're going to need some new icons. That means either copying existing icons or creating your own.

In this guide, we're going to look at copying icons from one of the many icon collections you can download and use on your Mac.

The easiest way to find Mac icons is to search on the phrase 'Mac icons' in your favorite search engine. This will return numerous sites that have icon collections for the Mac. Two of the sites I often visit are The Iconfactory and Deviantart. Since I'm familiar with those sites, let's use them as an example of how to change an icon on your Mac's desktop.

Even better, the two sites above offer icons in different formats, requiring you to use slightly different ways to install the icons on your Mac.

The Iconfactory supplies its icons in the form of empty folders that have the icon already applied to them. You can easily copy the icons to other folders and drives, using the steps we'll outline in a little bit.

Deviantart, on the other hand, usually supplies icons in the Mac's native ICNS file format, which requires a slightly different way to make use of them.

Download the Icon Sets

We're going to use two of the freeware icon sets, one from The Iconfactory, which we'll use to replace the boring default drive icons the Mac uses, and the other from Deviantart, which we'll use to replace some of the Mac's folder icons.

First up is the Doctor Who icon set. As part of this set, there's an icon of the TARDIS. As any Doctor Who fan knows, the TARDIS is the time travel vehicle the Doctor uses to get about in. It will make a great drive icon for your Time Machine drive. Get it? TARDIS, Time Machine!

The second icon set we'll use is Folder Icons Pack by deket, available from Deviantart, which contains about 50 icons you can use for various folders on your desktop.

You can find the two icon sets by clicking on their names below. I've also included two additional icon sets, in case the example sets don't quite meet your needs.

[Doctor Who](#)

[Folder Icons Pack by deleket](#)

[Refresh Snow Leopard](#)

[Studio Ghibli](#)

The links above will take you to a page that describes the icons. You can download the icons to your Mac by clicking the Apple icon under the pictures of the icons in the set (Iconfactory), or by clicking the Download link to the right of the of the icon images (Deviantart).

Each icon set will download as a disk image (.dmg) file, which will automatically be converted to a folder once the download is complete. You'll find the two icon folders in the Downloads folder (or your default folder for downloads, if you save them somewhere else), with the following names:

Doctor Who Mac

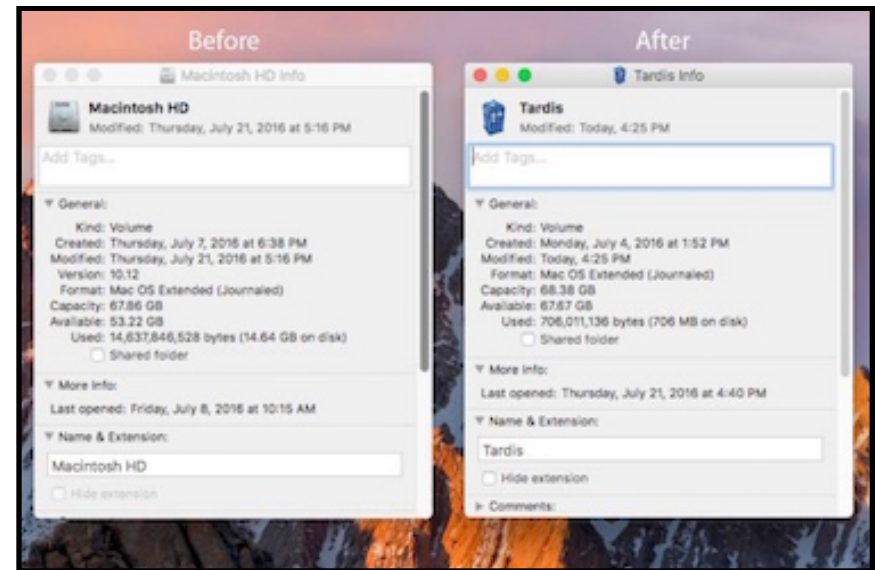
folder_icons_pack_by_deleket

Refresh Snow Leopard Mac

Studio Ghibli Mac

To learn how to use the icon sets to change either a folder icon or a drive icon on your desktop, read on.

Changing Your Mac's Folder Icons



The thumbnail view of the current icon for the selected folder is shown in the upper left corner of the Get Info window.

To change your Mac's Finder folder or drive icons, all you need to do is copy the new icon you wish to use, and paste it or drag it onto the old one. The process is simple, but there are two methods you can use, depending on the format of the source icon you chose.

We're going to start by changing the icon used for one of your Mac's drives.

Select the icon you want to use as your new drive icon. We're going to use the Doctor Who icon set we downloaded on the previous page.

Copying the New Icon

Inside the Icons folder, you'll find 8 folders, each with a unique icon and a folder name associated with it. If you examine the 8 folders, you'll find they're empty folders, with no sub-content.

What each folder does have, however, is an assigned icon. That's the icon you see when you view the folder in the Finder.

To copy the icon from a folder, follow these instructions.

1. Open the Doctor Who Mac folder, located in your Downloads folder.
2. Open the Icons folder.
3. Right-click the 'The TARDIS' folder, and select Get Info from the pop-up menu.
4. In the Get Info window that opens, you'll see a thumbnail view of the folder's icon in the top left-hand corner of the window.
5. Click the thumbnail icon once to select it.
6. Press command + c or select 'Copy' from the Edit menu.
7. The icon has now been copied to your Mac's clipboard.
8. Close the Get Info window.

Changing Your Mac Drive's Icon

1. On the desktop, right-click the drive whose icon you wish to change.
2. From the pop-up menu, select Get Info.
3. In the Get Info window that opens, you'll see a thumbnail view of the drive's current icon in the top left-hand corner of the window.
4. Click the thumbnail icon once to select it.
5. Press command + v or select 'Paste' from the Edit menu.
6. The icon you copied to the clipboard earlier will be pasted onto the selected hard drive's icon as its new icon.
7. Close the Get Info window.
8. Your hard drive will now be displaying its new icon.

That's all there is to changing Desktop and drive icons. Next up, changing a folder icon using an icon with a .icns file format.

ICNS Icon Formats

The Apple Icon Image format supports a wide variety of icon types, from small 16x16 pixel icons, to 1024x1024 icons used with Retina-equipped Macs. ICNS files are a handy way to store and distribute Mac icons, but their one downside is that the method of copying an icon from the ICNS file to a folder or drive is slightly different, and not as well-known.

To demonstrate how to use ICNS-formatted icons with your Mac, we'll use a free icon pack from Deviantart that's supplied in the ICNS format to change the icon of a folder on your Mac.

Change a Mac's Folder Icon

To get started, select an icon you want to use from the Folder Icons Set you downloaded from page one of this article.

Drag and Drop ICNS Icons

Inside the `folder_icons_set_by_deleket` folder that you downloaded, you'll find three different folders, named ICO, Mac, and PNG. These represent three common formats use for icons. We're interested in the ones located inside the Mac folder.

Inside the Mac folder, you'll find 50 different icons, each a .icns file.

For this example, I'm going to use the Generic Green.icns icon to replace the generic Mac folder icon that is used on a folder named Images that houses photos I use exclusively for the About: Macs site. I selected the simple green folder icon because it will stand out in the parent folder that houses the Images folder, as well as all of the articles that are used on my About website.

You, of course, can pick any of the icons in the collection to use on any of your own Mac folders.

Changing a Mac's Folder Icon With an ICNS Icon

Right-click the folder whose icon you wish to change, and then select Get Info from the pop-up menu.

In the Get Info window that opens, you'll see a thumbnail view of the folder's current icon in the top left-hand corner of the window. Keep the Get Info window open.

In the folder_icons_pack_by_deleket, open the Mac folder.

Pick an icon you wish to use; in my case, it's the one named Generic Green.icns.

Drag the selected icon to the open Get Info window, and drop the icon on the icon thumbnail in the top left corner. When the new icon is dragged on top of the current thumbnail, a green plus sign will appear. When you see the green plus sign, release the mouse or trackpad button.

The new icon will take the place of the old one.

That's it; you now know the two methods of changing icons on your Mac: the copy/paste method for icons already attached to files, folders, and drives, and the drag-and-drop method for icons in the .icns format.



Amit Agarwal posted the following article to his website, labnol.org, on June 3, 2016. tinyurl.com/pc7gqdp. © Digital Inspiration. He holds an Engineering degree in Computer Science from IIT and authors the Digital Inspiration blog where he covers computer software, consumer gadgets, and web applications.

The 10 Important URLs That Every Google User Should Know

By Amit Agarwal

Which websites and apps have access to your Google account? Where do they store your searches and location history? These 10 links will reveal everything Google knows about you.

What does Google know about the places you've visited recently? What are your interests as determined by Google? Where does Google keep a list of every word that you've ever typed in the search box? Where can you get a list of Google ads that were of interest to you?

The 10 Important Google Links

Google stores everything privately and here are the 10 important links (URLs) that will unlock everything Google knows about you. They are hidden somewhere deep inside your Google Account dashboard and they may reveal interesting details about you that are otherwise only known to Google. Let's dive in.

1. Google stores a list of usernames and passwords that you have typed in Google Chrome or Android for logging into various websites. They even have a website too where you can view all these passwords in plain text.

passwords.google.com

2. Google creates a profile of yourself based on the sites you visit, guessing your age, gender and interests and then use this data to serve you more relevant ads. Use this URL to know how Google sees you on the web.

www.google.com/settings/ads

3. You can easily export all your data out of the Google ecosystem. You can download your Google Photos, contacts, Gmail messages and even your YouTube videos. Head over to the Takeout page to grab the download links.

www.google.com/takeout

4. If you ever find your content appearing on another website, you can raise a DMCA complaint with Google against that site to get the content removed. Google has a simple wizard to help you claim content and the tool can also be used to remove websites from Google search results that are scraping your content.

support.google.com/legal

5. Your Android phone or the Google Maps app on your iPhone is silently reporting your location and velocity (are you moving and if yes, how fast are you moving) back to Google servers. You can find the entire location history on the Google Maps website and you also have the option to export this data as KML files that can be viewed inside Google Earth or even Google Drive.

google.com/maps/timeline

6. Create a new Google Account using your existing email address. The regular sign-up process uses your @gmail.com address as your Google account username but with this special URL, you can use any other email address as your username.

accounts.google.com/SignUpWithoutGmail

7. Google and YouTube record every search term that you've ever typed or spoken into their search boxes. They keep a log of every Google ad that you have clicked on various websites, every YouTube video you've watched and, if you are a Google Now user, you can also see a log of all your audio search queries. OK Google.

history.google.com (Google searches)

history.google.com/history/audio (Voice searches)

youtube.com/feed/history (YouTube searches and watched videos)

8. You need to login to your Gmail account at least once every 9 months else Google may terminate your account according to their program policies. This can be an issue if you have multiple Gmail accounts so as a workaround, you can setup your main Gmail account as the trusted contact for your secondary accounts. Thus Google will keep sending you reminders every few months to login to your other accounts.

www.google.com/settings/account/inactive

9. Worried that someone else is using your Google account or it could be hacked? Open the activity report to see a log of every device that has recently connected into your Google account. You'll also get to know the I.P. Addresses and the approximate geographic location. Unfortunately, you can't remotely log out of a Google session.

myaccount.google.com/security

10. Can't locate your mobile phone? You can use the Google Device Manager to find your phone provided it is switched on and connected to the Internet. You can ring the device, see the location or even erase the phone content remotely. You can even find the IMEI Number of the lost phone from your Google Account.

google.com/android/devicemanager



Caitlin McGarry posted the following article to macworld.com on July 12, 2016. tinyurl.com/joad485. © IDG Consumer & SMB. She is a Staff Writer at Macworld who covers Apple news, health and fitness tech, and social networks.

Mail In iOS 10: Under-The-Radar Changes Make Your Inbox Easier To Manage

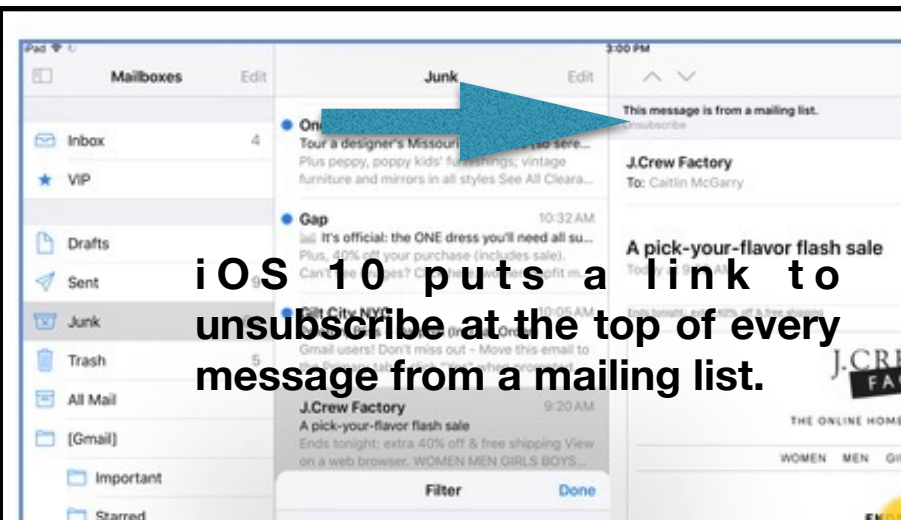
Mail didn't get the radical overhaul that Messages did in iOS 10, but some small tweaks are coming.

By Caitlin McGarry

Apple didn't lavish love on Mail like it did [Messages in iOS 10](#), but that's probably for the best. Can you imagine sending full-screen fireworks, stickers, or handwritten scrawls via email? No thanks.

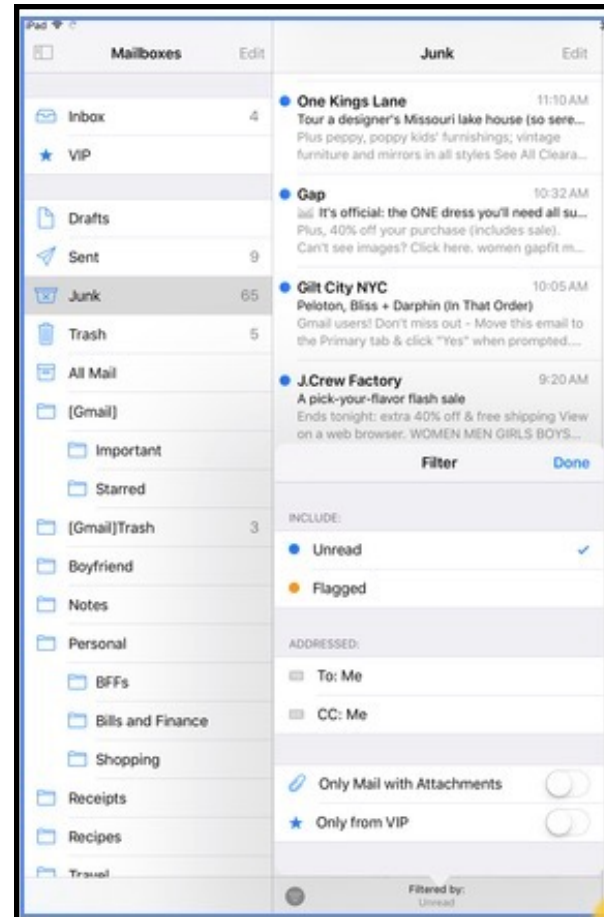
Mail did get a few tweaks that make wrangling the unwieldiest of inboxes easier than ever. I've been using the [iOS 10 developer beta](#) on a 12.9-inch iPad Pro for the last couple weeks, and the public beta since its launch. Here are four of my favorite new Mail features. If you've found any other changes in the Mail app, share them with us in the comments.

Unsubscribe



Like most humans with email addresses, I get an unholy amount of unsolicited mail, most of it from mailing lists that my address ended up on without my knowledge or consent. Unsubscribing for those lists requires finding the unsubscribe link buried in tiny font at the bottom of each junk email, then tapping through a variety of options to confirm you're actually 100 percent unsubscribed. No more. Mail in iOS 10 makes it easy to unsubscribe quickly with an "Unsubscribe" link at the top of each message that the app recognizes as being from a mailing list.

Tapping that link will prompt Mail to send a message to the mailing list's "unsubscribe" address from your account. That's it. What a relief, right?



One-tap filtering

Apple has a problem with burying settings in layers of menus. So it was with filtering, which required you to choose an inbox than tap "Edit" to view unread messages or show emails with attachments. With iOS 10, Mail gets a new Filter in the update bar that lives on the bottom of your Mail screen. You might not know it by looking at it, because the new icon's three lines don't exactly scream, "Tap me to filter!" But this new shortcut is a big time-saver.

The new filtering shortcut makes finding unread messages so much easier.

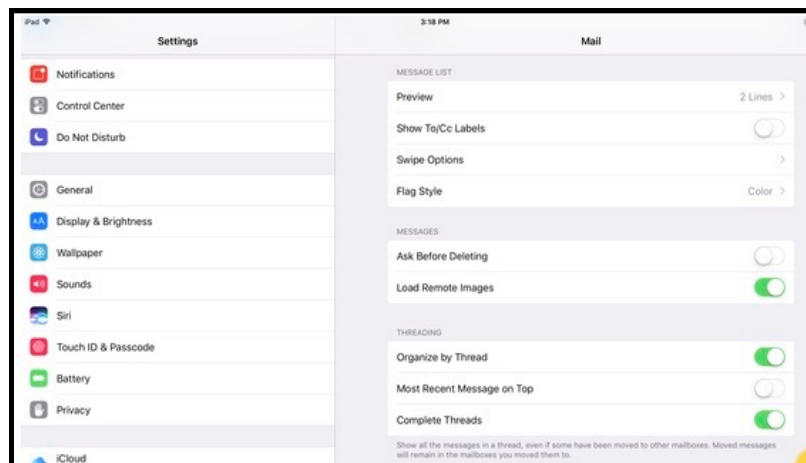
New view on the big Pro

There aren't a whole lot of [iPad-specific features in iOS 10](#), which is really disappointing. But in the next-gen OS, Apple is finally taking advantage of the 12.9-inch iPad Pro's screen real estate with a new three-pane view in Mail (as seen above). You can glance at all of your mailboxes and their respective folders in one pane, scroll through messages in the middle pane, and read in email in the far right pane. Being productive on a Pro is much easier when you can see more information at a glance, which is exactly what the three-pane view delivers. To toggle between two panes and three, just tap the new icon in the top left bar.

Threading settings

iOS 10 finally splits up Mail, Calendar, and Contacts into their own respective Settings tabs. This means you get more options for each, plus it cracks down on the confusion of having three totally different apps shoved into one tab.

Under *Settings > Mail*, there are a couple of new threading settings that will simplify inbox organization. Before iOS 10, you could organize by thread, and that's staying the same. But now, you can choose to view the most recent message in a thread at the top and view a complete thread in one threaded view, regardless of whether you moved some of the messages to different mailboxes.



Mail gets its own tab in Settings and a few new threading options.

None of these changes are radical, but for those of us who rely on the iOS Mail app to manage our inboxes, new organization options are always welcome.

What changes would you like to see in the Mail app in iOS 10? Personally, better Siri integration would be a huge help. Now that Siri is [getting more powerful](#) (and [arriving on the Mac](#)), it would be great if I could use my voice to search for emails about specific events or from certain contacts. Right now, Siri still stumbles.



David Segal posted the following article to nytimes.com on July 16, 2016. tinyurl.com/gqq9yv6. © The New York Times Company. In 2013, David Segal was part of the team awarded the Pulitzer Prize for Explanatory Reporting.

Spotify And Apple Music: The Goth Vs. The Stoner

The Haggler

By David Segal



In this episode, we depart from the familiar letter-and-intervention format for a dive into the world of music streaming services. It is a topic that fascinates the Haggler, who can still barely fathom that for a mere \$10 a month, he can get access to just about any musical recording on the planet.

But which streaming app is the best? The Haggler has been mulling this question for a while, and after a lot of dabbling he regards Spotify as the gold standard. It is sturdy and remarkably fast; when you play a song from the cloud, it starts so quickly it seems to be waiting for you.

The system is also easy to use. Streaming services, at least to the Haggler, are all about creating playlists — grabbing albums and

songs and putting them in a place where you can find them quickly. That process is simple and intuitive on Spotify.

If the system has a weakness, it is a less-than-lovely user interface, which is black and a Halloweenish shade of green — a little too goth for the Haggler's tastes. Far more important, it isn't great at introducing you to new albums and acts. It has features and algorithms designed to help you find undiscovered music, but they aren't compelling or visually appealing enough to be much help. The Haggler winds up listening to the same stuff over and over.

This is why the Haggler has been rooting for Apple Music since an Android version of it was unveiled in November. The user interface is gorgeous — bright, airy and dominated by album art — and it is the finest new music introduction system ever created. It's like a professional matchmaker who never sleeps. It is always trying to find you something to love.

But for all its upsides, Apple Music for iOS has been criticized for randomly deleting both songs and playlists. On Android, though, the app behaves even more weirdly. It took the Haggler a while to figure out what was happening. Then, a few weeks ago, it all became clear: Apple Music is stoned.

Not dinner-party stoned, either. Apple Music is fried. It has the kind of "Where am I?" buzz that should worry its friends. To wit: When the Haggler tries to turn an album into a playlist, only half the songs make the journey. Or all the songs make the journey but there are three copies of many. Or two copies. Sometimes, inexplicably, the songs are arranged alphabetically.

"Heh heh heh," says Apple Music, or so it seems to the Haggler's ears. "I'm really high right now."

You sure are! Just as bad, the system is supposed to learn what music you like, but no matter how many times the Haggler presses the "I don't like this suggestion" button on jazz albums, Apple Music keeps serving up Chet Baker and Bill Evans in a "For you" list on the main menu. That's especially vexing because each time

that button is pressed, up pops this message: “Got it. We’ll keep that in mind.”

But Apple Music forgets. Do you know why? It’s totally baked.

When someone consumes this amount of weed, for so long, it’s time for an intervention, and fortunately Apple Music just completed one. On July 8, the company updated the program, promising a fix for an assortment of bugs. A fix for the iOS version was released a few weeks ago.

The Haggler doesn’t own an iPhone, so he can’t comment on whether it has improved, though the “My music has vanished!” online complaints do seem to have died down. But he is happy to report that on his Android smartphone, the fixes work. Since the program update, playlists have been rationally sorted. No more triple copies, no more alphabetized albums.

So is it time to ditch Spotify? Not so fast. Apple Music is still missing essential features. It doesn’t let users make and share their own playlists, à la Spotify, which is how the Haggler got to know every song from the HBO show “Silicon Valley.” (Some fan of the show just made a compilation.) Apple Music also lacks crossfade, which allows the next song to fade in, over a customizable number of seconds, as the last song fades out. This is invaluable if you listen to music in part to block out the noise made by the rest of the universe.

Also, while it’s off recreational drugs, Apple Music is still balkier than Spotify, and is more likely to leave you staring at a spinning red line as it gathers its wits and looks for songs. And Apple Music has failed to streamline its playlist adding system. On Spotify, a playlist of Drake’s album “Views” is automatically designated “Drake — Views.” On Apple Music, when you create a new playlist, it has no idea what to call it. The name is blank. So you have to type it yourself. This isn’t exactly hard labor. But it adds to the sense that Apple Music needs more tweaks.

The Haggler contacted [Apple](#), but the company would not discuss whether any of these tweaks were coming, because it generally does not discuss future iterations of products.

What’s odd is that Apple is the user interface master of the world. If anything, you would expect it to take the bar established by Spotify and then leap over it. Instead, at least in a few crucial areas, it’s lagging.

Yet recently, after a few hours of rummaging around the “Radio” section of Apple Music — a bunch of shows curated by artists and D.J.s — the Haggler fell hard for a fantastic indie band from Oklahoma called Broncho and its song “Class Historian.” On Dr. Dre’s radio station, the Pharmacy, he was reacquainted with A Tribe Called Quest’s “Oh My God” which he hadn’t heard in years. The “For you” list last week included an album of Beethoven’s string trios that the Haggler will never again live without.

If only someone could splice together the best parts of Apple Music and the best parts of Spotify, and then subtract each of their flaws. Unlikely, yes. But the Haggler can dream.



Jason Parker & Jaymar Cabebe updated the following article to cnet.com on March 14, 2014. tinyurl.com/lkcewhc. © CBS Interactive Inc. Jason has been at CNET for more than 13 years. Jaymar writes about software and other manifestations of tech-geekery.

Instagram Review

Video features keep Instagram on top

By Jason Parker, Jaymar Cabebe

THE GOOD Instagram is an excellent way to turn mundane images and video into cool-looking projects you can share with friends.

THE BAD Map features default to showing all your geotagged shots, which could be dangerous under some circumstances. There's no option to separate videos and photos in your feed.

THE BOTTOM LINE With addition of 15-second video clips, Instagram is tough to beat for photo and video sharing with an enormous and lively community.

OVERALL **9.0**

•SETUP **10.0**

•FEATURES **8.0**

•INTERFACE **10.0**

•PERFORMANCE **9.0**

Instagram is a popular photo- and video-sharing app that requires only a couple of touches to produce retro-looking projects and then share them with friends and other Instagram members. With recent updates, the app adds video, letting you add filters and post to your feed much like you do with photos. It also got a new way to adjust brightness and contrast in the most recent update with a new Lux slider. But what's really special about the Instagram phenomenon is how users have used the app to create a story about their everyday lives through stylized photos and videos.

Getting started

You start by signing up with Instagram with an e-mail address, username, and password. From there you can configure Instagram to autopost to Facebook, Twitter, Flickr, Tumblr, Foursquare, and Posterous, or just choose to share images from within the app or via e-mail. You can also turn any of these options on or off if you don't want to share your shots with everyone.

Once you're connected, you'll be able to snap a photo wherever you are, move and scale the image, add an effect with a touch of your finger, and then touch Done to share your photographic moment with the world. The app comes with several free custom-designed filters that can give your image various retro effects, a grainy black-and-white look, or even adjustable tilt-shift options. There's also an auto-straightener that you can use to get your horizon right. An included slider also lets you fine tune the effect. For even more control, the latest update adds an adjustable Lux slider (shown as the sun icon), where you can When you're satisfied with your shot, you can add a caption along with geotagging, then share it right away.

Video features

With Instagram, you can now shoot videos and add filters much like you would with photos. The Instagram app has a second button to switch from photo to video. Just like Twitter's **Vine app**, when shooting a video, you touch to shoot and let go to stop shooting. Where Vine has 6 seconds of shooting time, Instagram lets you shoot for 15 seconds. You also can delete sections of your video as you're making it, letting you quickly fix a section of your video without having to start over from scratch. You can then pick from 13 new filters and you can preview each of them live as your video is playing -- no need to wait for a render. To make your videos more stable, Instagram also has what the company calls Cinema. The added stabilizers make your video much smoother if you shoot while moving.

After only a few minutes of use, it's easy to see how Instagram's video features could unseat Vine as the go-to social video app. With Instagram, you get more time to shoot, you can choose from several filters, you can pick your cover frame, and you get the

giant Instagram audience to showcase your work. There will still definitely be an audience for creative, 6-second videos on Vine, and the continuous loop is something not found on Instagram, but for the most part, Instagram is the new best of class.

MLMUG PHOTO OF THE MONTH



Pete Torello shot this beautiful photo on a cloudy late afternoon/early evening in Melbourne Beach, Florida.

Séamus Bellamy posted the following article to Macworld.com on July 20, 2016. tinyurl.com/jv37c38. © IDG Consumer & SMB. He is a journalist, author, and curmudgeon who writes about technology.

Scrivener For iOS Review: A Sophisticated Writing And Research App For On-The-Go

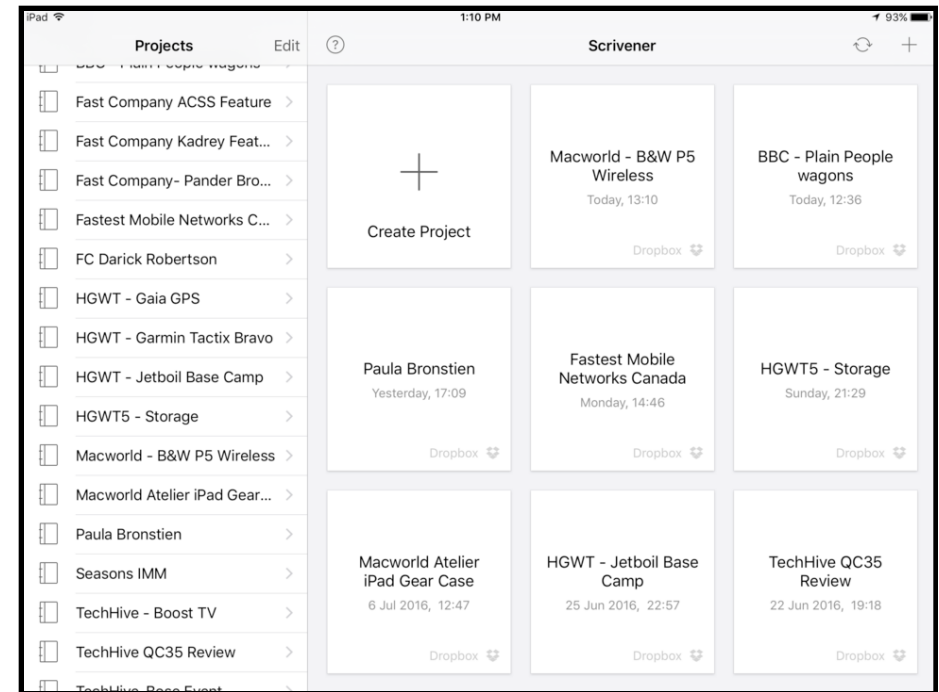
Like its desktop counterpart, Scrivener has the features you need for research and writing projects.

By Séamus Bellamy



There's no shortage of word processing software in the world, but few have the cult following that Scrivener does. Long available for OS X and Windows, it's finally ready to be downloaded by anyone who owns an iOS device for \$20.

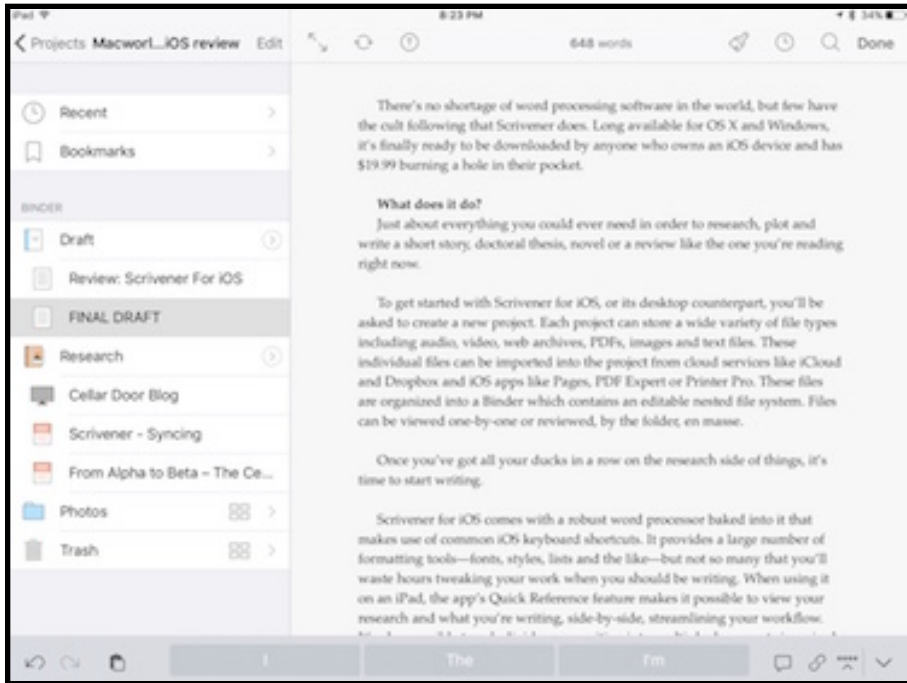
Scrivener for iOS ([iTunes Store link](#)) does just about everything you could ever need in order to research, plot, and write a short story, doctoral thesis, novel, or a review like the one you're reading right now.



Writing in Scrivener starts with a Project, where you organize your research.

To get started with Scrivener for iOS (or its desktop counterpart), you'll be asked to create a new project. Each project can store a wide variety of file types, including audio, video, web archives, PDFs, images, and text files. These individual files can be imported into the project from cloud services like iCloud and Dropbox, and iOS apps like Pages, PDF Expert, or Printer Pro. These files are organized into a Binder that contains an editable nested file system. Files can be viewed one-by-one or reviewed, by the folder, en masse.

Once you've got all your ducks in a row on the research side of things, it's time to start writing.



Scrivener's word processor has all the necessary tools to help you put your thoughts down.

Scrivener for iOS comes with a robust word processor that makes use of common iOS keyboard shortcuts. It provides a large number of formatting tools—fonts, styles, lists, and the like—but not so many that you'll waste hours tweaking your work when you should be writing.

When using it on an iPad, Scrivener's Quick Reference feature makes it possible to view your research and what you're writing side-by-side, streamlining your workflow. It's also possible to subdivide your writing into multiple documents in a single project, making it easy to find and work on a particular draft or chunk of text. Once you're satisfied that your writing is ready for prime-time, your work can be compiled into a single document and output as a PDF, Microsoft Word file, RTF, or plain text.

When you're done typing for the day, projects can be saved locally or synced between multiple computers, iPhones, and iPads using Dropbox (iCloud compatibility may be added at a future date), or by pushing project files from device-to-device using iTunes.

If all of this sounds a little intimidating, don't worry: Scrivener for iOS comes with a comprehensive tutorial file to help you get up to speed. And if you're a seasoned user of Scrivener's desktop incarnation, you'll find that the iOS version uses a similar interface design, making for a comfortable transition to mobile.

What doesn't work

While a universal app, iPhone users don't have access to the Quick Reference view that's available on iPad, as it was omitted due to usability issues. I was disappointed to find that while you can view offline web archives in a project, it's not possible to create them using Scrivener for iOS.

Finally, Scrivener for iOS costs \$20. In a world where 99-cent apps are the norm, its steep price could deter some frugal iOS users from discovering one of the most powerful, flexible productivity tools to ever hit the App Store.

Bottom Line

No matter what you're writing, whether you plan on using it to compliment its desktop counterpart or want to use it solely on your iPad or iPhone, Scrivener for iOS is a robust, flexible writing tool that will serve you well.

AT A GLANCE

Literature and Latte Scrivener 1.0 for iOS

MACWORLD RATING 4.5 Stars

Like its desktop counterpart, Scrivener has the features you need for research and writing projects.

Pros

- Keeps your research and writing in one place
- Projects can be synced across multiple devices and platforms
- Projects can be used solely on an iOS device or synced across multiple devices and platforms
- Easy to use; helpful tutorials are available if needed
- Quick Reference mode accelerates some workflows

Cons

- Universal app, but some features not available on iPhone
- Due to technical limitations, syncing is currently limited to Dropbox-only
- Web archives can be viewed on iOS devices, but not created

Jackie Dove posted the following article to macworld.com on July 21, 2016. tinyurl.com/h9g7g99. © IDG Consumer & SMB. A tech writer and editor, her specialties include Apple hardware and software, art, design, photography, video, AR, VR and 3D. Note - A number of images have been omitted by the Editor.

Liquidtext For iPad Review: All You Need For Deep Research Projects

Gesture-based app smoothly integrates multiple document annotation.

By Jackie Dove

Research can be tough, whether it's paper-based or online. From collecting and assembling documents to reading and extracting enough wisdom to formulate judgments and conclusions, the process of absorbing knowledge is a challenge.

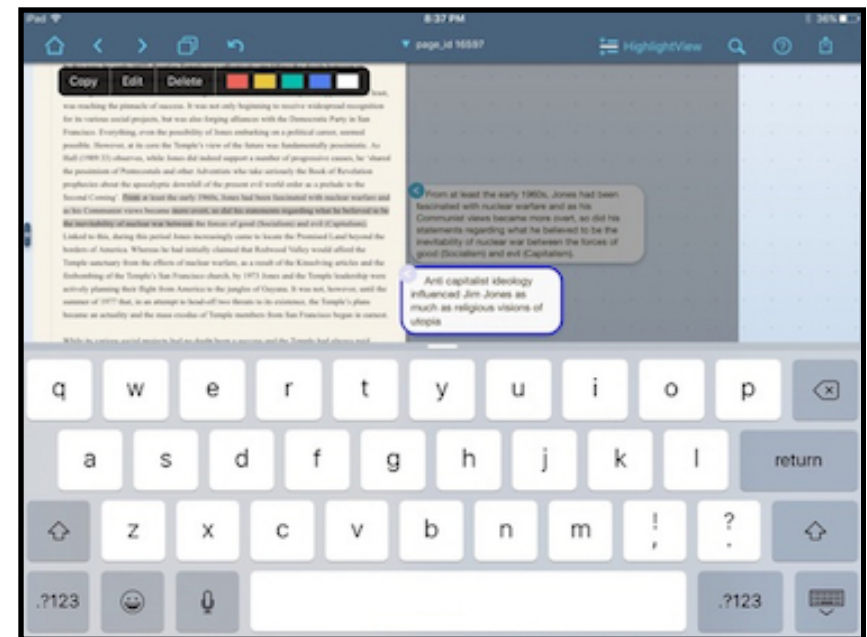
LiquidText ([iTunes Store link](#)), an iPad-only app, seeks to impose some order in the new chaos of gathering and referencing information, with an innovative interactive interface that, in version 2, allows you to integrate multiple documents on one screen.

Used for reviewing and annotating PDF files, Word and PowerPoint documents, and web pages, the app's recent update boosts the

price from free to \$10. You pay that price only if you download the in-app purchase that facilitates multiple document handling. Otherwise, you can continue to use LiquidText for free, viewing one document at a time.

The gesture-based LiquidText is designed specifically for *active reading*, an academic pursuit that involves highlighting, annotating, searching, and note-taking. The app is especially useful when paired with an iPad Pro because of its spacious canvas and companion [Apple Pencil](#) stylus. With LiquidText, Pencil has special powers, such as the ability to auto highlight text, firm-press to select images, and simultaneous scroll and excerpt function. But no worries if you have a different iPad model: LiquidText works with iPads running iOS 9.

The app also integrates with popular online storage apps like Dropbox, Box, iCloud Drive, or email. You can import web pages into LiquidText directly from mobile Safari or work with the app's own browser.

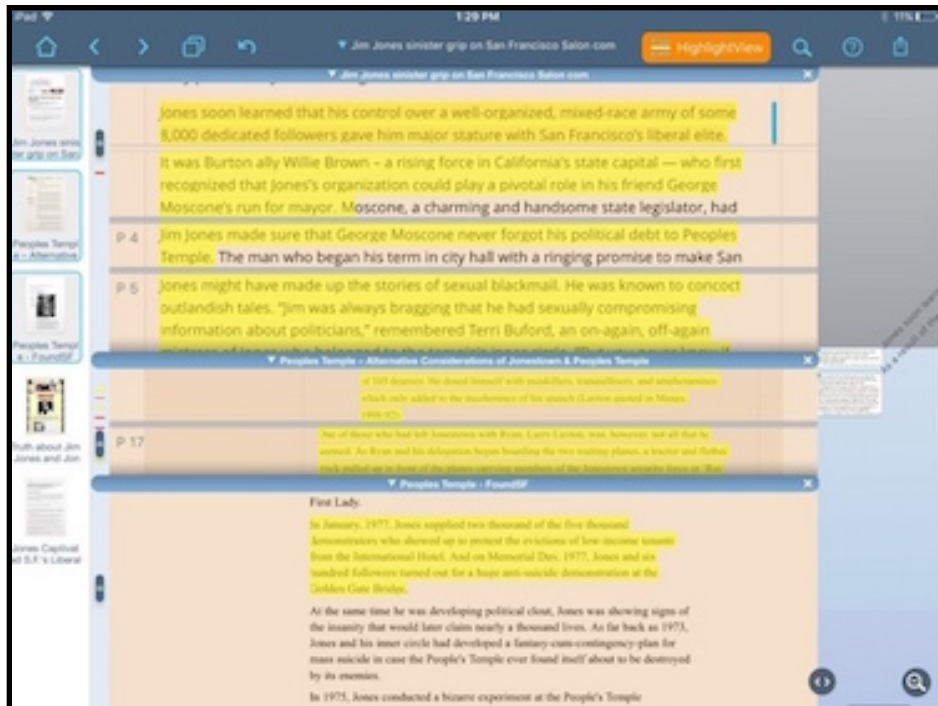


Commenting in LiquidText.

Interactive interface

LiquidText is not, at first glance, the most intuitive app, so the developer has devised a multi-faceted interactive instructional help system. A question mark icon at the upper right reveals on-screen instructions that clarify how to comment, highlight, work with multiple documents, and more. The app also provides various animated help cues, a chat interface, and a label system that users can summon when needed.

The layout is simple, and you can view your iPad in either landscape or portrait position. In landscape, the app places original documents on the left and an open work space on the right. In portrait, the workspace is below the document. The work space is the place to pull text excerpts or images, and type comments. Gestures let you highlight parts of the document and drag them to the work space or view all highlighted material at once via a HighlightView function.

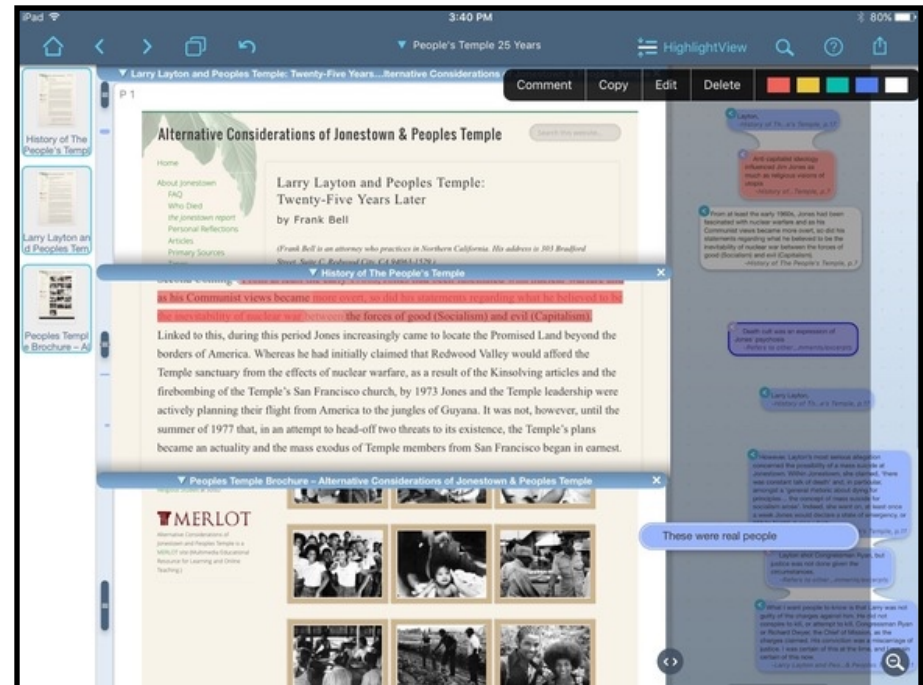


HighlightView: Pinching to reveal highlights in three documents.

Building research

Choosing an excerpt involves highlighting, selecting, and dragging it into the empty work space. You can comment using the comment command in the floating toolbar and link text pieces together with a nudge. A tiny button on the side of the document allows quick navigation through long or multiple narratives.

As you build a collection of comments, excerpts, text boxes, and images, you can move them around, drag to group them together, and pinch in and out to alter the size of the view. You can even do a multi-document search. The ability to pinch and shrink documents to compare different sections simultaneously on one screen is a powerful feature, as is the ability to assemble and connect notes, and passages from the text. You can even have one comment refer to two sources at once. Double tap an in-line image to select it and then drag it to the workspace as you would text.

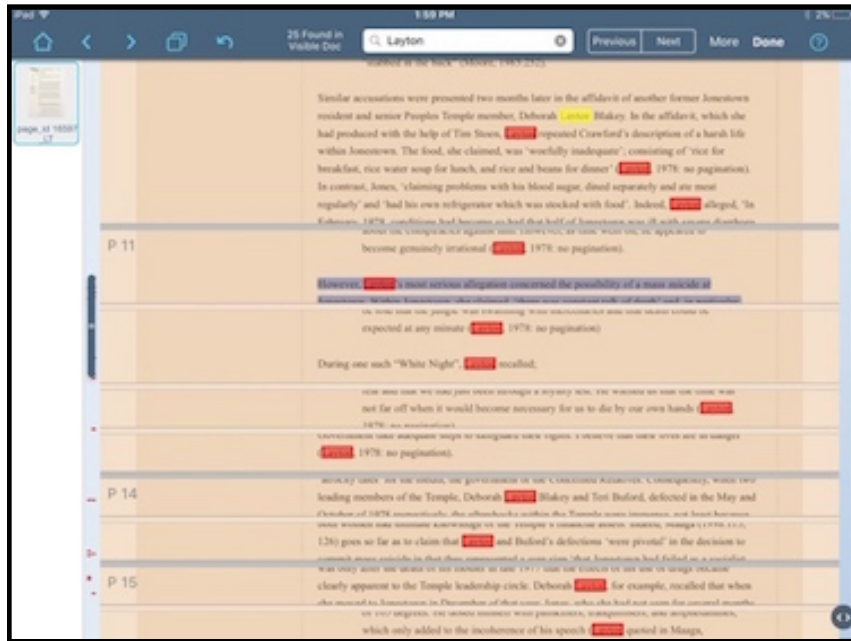


Workspace lets you build carefully referenced documentation for projects.

Synthesizing information

With LiquidText, excerpted text stays connected to the source document. This is helpful in double-checking facts and analysis, comparing narratives, and avoiding accidental plagiarism.

Whether you keep each document separate or merge them into a single file, you will be able to view only three documents at the same time. If you want to see a different document in your file, you can toggle an open one off and a new one on.

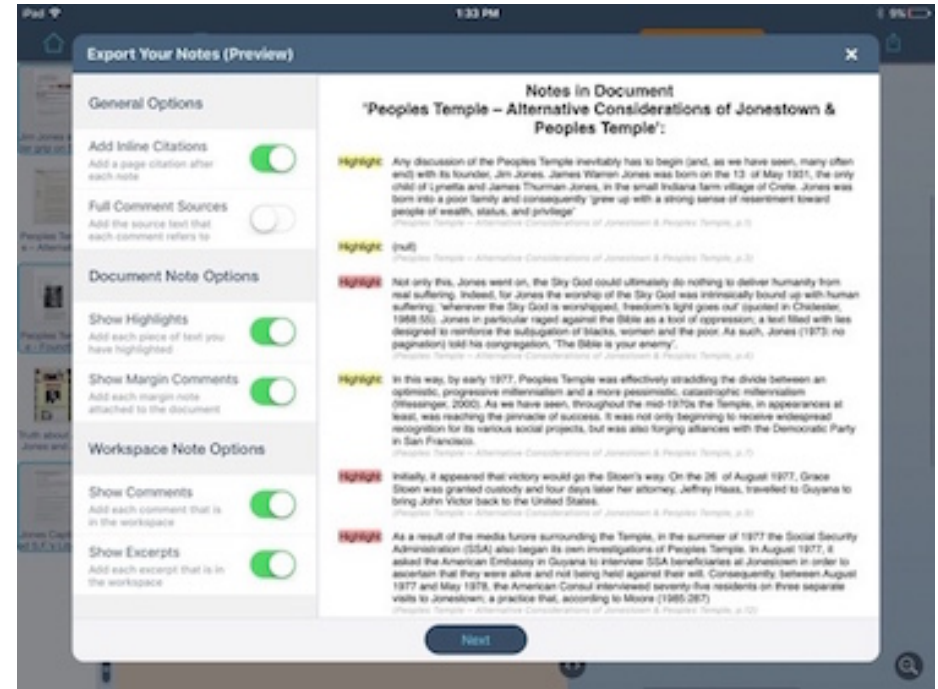


Global search of three documents.

While it would be great to use LiquidText on an iPad Pro, the vast majority of iPad owners have a smaller model. While keeping the canvas' right side completely open would be optimal, that also renders text smaller and harder to read. The solution is to use the button at the bottom of the interface to expand and contract the document views. You can also use pinch gestures to make visual adjustments to the text as you read, annotate, and color code excerpts, comments, and highlights to visually distinguish between

topics. Nonetheless, there is a finite amount of work space, and it can fill up quickly.

When you're done, you can save, share, email, or send your research to your favorite cloud service in a choice of three formats that can include your selections, comments, and notes.



Export notes and color-coded highlights via email or cloud service.

Bottom line

LiquidText is a deep and complete productivity tool for students, academics, and businesses. Once you get familiar with all of its features, it proves hugely flexible in helping to collect, retain, and even create new information. The interface is friendly enough at first glance, but I urge you to check out the tutorials to get the app's full value.

The upgrade costs \$10, which, for a mobile app, might seem a bit steep. However for those who stand to benefit from LiquidText's

advanced functionality, the price will prove reasonable. Check out the free version first; depending on your projects, it may be all you need.

AT A GLANCE

MACWORLD RATING 4.5 Stars

Research tool with a deep feature set, ideal for students, academics, and businesses

Pros

- Lots of helpful hints in the form of animations, chats, and dialogs
- Lets you create new ways of absorbing and viewing information from disparate sources
- Easy navigation through longer documents
- Good import and export functionality

Cons

- Less than intuitive at first glance
- Work space gets crowded with lots of notes



AI Design Mastermind

By Kathy Garges

Innovations in design of hardware, software and manufacturing methods may not have as much “wow” factor as the invention of

new materials (see the June 2016 column “Molecular Spectacular”), but they have at least as much potential for revolutionizing computer science and artificial intelligence. Here are just a few of the recently-reported breakthroughs in design. (Note: The links below have graphics and videos that make it easier to understand these new designs. Take a look.)

Scientists at Delft University in the Netherlands built a data storage device that slides chlorine atoms to record information, one atom for one piece of information. The new device will have a storage density of 500 terabits per square inch (Tbps), 500 times denser than the best currently available commercial hard disk drive.

The team leader cites the inspiration of physicist Richard P. Feynman’s famous 1959 talk to the American Physical Society about what later became the field of nanotechnology. He compares the nanoscale mechanics of the storage invention to a sliding puzzle with one empty tile space. The chlorine atoms create a stable structure over a surface of copper atoms so that a tiny needle can slide a single chlorine atom between binary (on and off) positions. The design also has a marker square for each block of memory, inspired by QR codes, that carries location information and indicates error or damage in the block.

This isn’t the first time a sliding puzzle has figured in computer history. A sliding puzzle shipped with the original Apple Macintosh. Original team member Andy Hertzfeld recalls that the code for the puzzle was 6K, considered “too big,” and the puzzle was nearly scrapped. He rewrote the puzzle code in assembly language over a weekend to reduce it to 600 bytes. (Thanks, Andy!)

One strategy for improving integrated chip design is to specialize the chip for function. A Duke University team designed a processor with a customizable chip for robots that will be used in home environments, where collision avoidance is important for human safety. The design divides the possible space through which the robot arm can move into thousands of virtual three-dimensional voxels (volume pixels), determines in real time whether another

object is present in that space, and adjust the robot arm movement to avoid collision.

Lawrence Livermore National Laboratory recently bought an IBM platform that uses chips wired like human brain neurons and synapses. Each chip has 5.4 billion transistors wired to each other to create 1 million digital “neurons.” The neural network wiring will be used to explore deep learning AI at a savings in the space and energy that would otherwise be required, the same way the human brain economizes on space and energy use.

Other research teams are exploring chip innovations using principles of physics outside the usual. At NASA, engineers are building a modem on optical microchips that uses photonics, the physics of light, including lasers and fiber-optic wires. Up to now, NASA has operated with radio frequency and electronics.

Columbia University engineers are using conventional integrated chips with new “circulator” technology that allows the transmitter and receiver to use the same antenna. (Yes, there are tiny antennas on those chips.) The new technology “breaks” reciprocity, a basic physical law of radio frequency signaling which, up to now, has been a limitation on speed and efficiency. The researchers analogize the result to a conversation in which two people can talk and listen to each other simultaneously.

Just one example of design innovation in manufacturing methods, the MIT AI Lab has programmed a 3D printer to print a mobile robot that is made of both solids and liquids in the same printing operation. The printer prints layer by layer with individual droplets of “photopolymers” and “non-curing” materials and then uses high-density ultraviolet light to solidify only the photopolymers. Voila! A solid robot with liquid inside. The liquid is for hydraulic-driven motion. (Hydraulics in current use lower truck tailgates and power car lifts at service stations, among other applications.)

It’s not surprising that it has occurred to researchers that artificial intelligence could be programmed to design or improve itself, or other AI hardware or software. Software developer Kory Becker has posted online about his experiments with AI self-programming

that uses genetic algorithms. This approach in AI mimics biological evolution, starting from a few “seeds.” (See previous AI and Human columns for more about how genetic algorithms work).

The AI taught itself to program and reproduced some basic standard programming tasks set by Becker. After Becker modified the program to allow it to store and reuse programs it previously invented, it was able to create more complex programs, including a simulation of the 20th-century folksong “99 Bottles of Beer on the Wall,” a standard programming exercise.

Becker’s program requires a human to supply the fitness concept (goal) for the AI genetic algorithm. It’s certainly possible to add an AI goal-setting module, making creation of a fully self-programming AI theoretically possible. Becker proceeded with caution in his experiments. He used a programming language that does not interact with other languages. He advocates conducting AI self-programming experiments only in a “controlled simulated environment” so the program can be tested before it’s used in the real world.

The risks of self-programming AI are just one issue in computer and AI security. Humans need to be concerned about all the possible reasons for unpredictable results, including poor design process, bugs in the code, and “bad actor” humans who exploit code vulnerabilities.

The National Science Foundation recently funded DeepSpec, a research initiative with the mission of “**specification and verification of full functional correctness** of software and hardware.” DeepSpec researchers at several U.S. research universities are working on redesign of the computer design process itself, using software that rigorously applies principles of logic and mathematics.

DeepSpec is exploring how to specify system function precisely, and then test systems rigorously to verify that they meet spec and will do what they are supposed to do, and nothing else. The project also has the goal of educating human designers to meet rigorous guidelines for spec creation and verification testing. The

DeepSpec effort will help assure that humans remain the masterminds of design in software and hardware.

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SEPTEMBER

Safe & Secure Computing in Today's World - Paul Del Rossi

This presentation will cover the 10 most common security threats, their terminology, and a brief description of their similarities and differences. We will next review 10 of the best safe computing tips to avoid these common threats. we will learn the best, and safest, policies, procedures and software to keep our equipment and, most importantly, our information safe.

Paul is a Computer System Consultant /Engineering Manager. For the last 25 years he has been consulting and teaching in Junior Colleges.

1Password - Mike Inskeep

Mike will demonstrate how to use 1Password, a password manager with apps for Mac and iOS (so you can securely sync your passwords between your iPhone and iPad and MacBook). Store unique and very strong passwords for all the websites and email addresses you use, as well as confidential information such as credit card info, software licenses, etc. No need to enter your passwords to login to a site.

Mike Inskeep has been supporting Macintosh computers and other Apple products for 26 years.

Protect Your Privacy Online - Adam Rice

Adam will look at three tools to help protect your privacy online. Learn how to use ad blockers, VPN, and Tor and when to use them. Each of these tools provides a different type of privacy from a different set of observers, so we'll talk about what kind of information can be kept private, and from whom.