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September 2016 CONTENTS

Meet Swift Playgrounds, the learn-to-code iPad app that feels like a puzzle game **83**

How my Apple Watch's heart rate monitoring saved my life **93**

MacUser

Three reasons to run your own server **7**

How to verify your Twitter account **13**

LaCie Rugged RAID and SanDisk Connect Wireless Stick **17**

MacUser Reviews **23**

Hot Stuff **41**

iOS Central

Home control for your wrist: 10 great smarthome apps for the Apple Watch **45**

Language apps for iOS: Rosetta Stone, Duolingo and Babbel **53**

4 ways to be a considerate late-night iPhone or iPad user **61**

iOS Central Reviews **67**

What's new at the App Store **78**

iPhone Cases **79**

Working Mac

Installing OS X: Verification Error **101**

QuickBooks Self-Employed **105**

Next-gen Apple Pencil could work with Mac trackpads **109**

How to use iCloud Drive's new Desktop and Documents access **112**

Play List

Apple improves iCloud Music Library matching **119**

Everything you need to know about playing music with AirPlay **123**

Ask the iTunes Guy **129**

Help Desk

Mac 911: Use iCloud Photo Library selectively, work between Pages versions, erase a Mac, and secure printer disposal **135**

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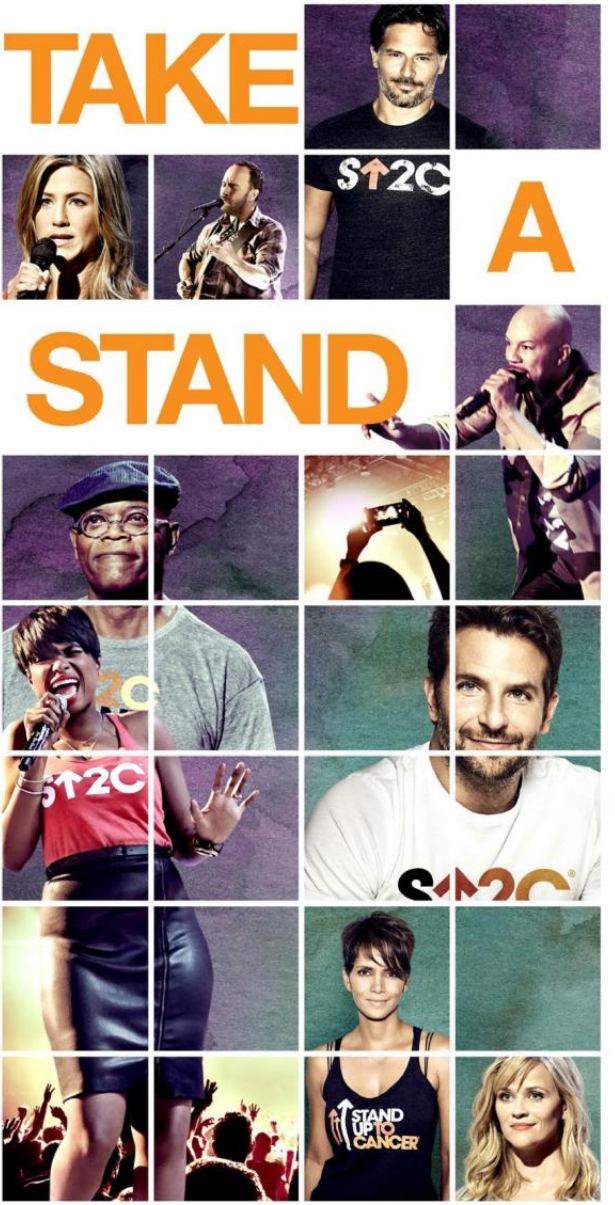

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Three reasons to run your own Mac server

Running a server isn't as scary as you'd think. Here are three reasons why you should consider it, too.

BY DAN MOREN

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When it comes to technology, the word "server" might bring to mind, for some, a warehouse-sized room not unlike the end of *Raiders of the Lost Ark,* but with fewer crates and more racks of computers. For others it might be the cause of sweaty palms and glazed-over eyes.

But servers don't need to be mysterious or scary—after all, a server is just a computer that serves up information (and/or services) that can be accessed by other computers. Sure, it can get more complex than that, but it can also be a fairly simple and invaluable tool.

I run a Mac mini server on my home network for a handful of reasons that are fairly mundane, but all of which help at least provide some peace of mind, especially when I'm not in the house.

THE PORTAL

One of the primary uses of my Mac mini is as a portal into my home network. When I'm away from the house, or on a business trip or

BEHOLD! This Mac mini could be your new server.

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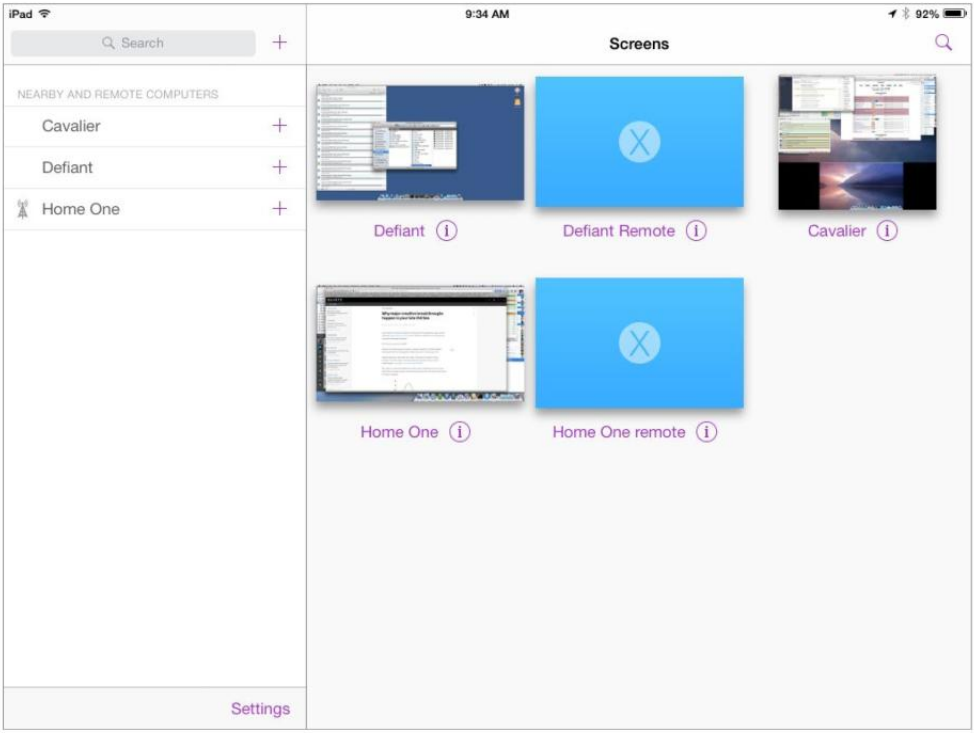

vacation, this means I can not only access the data on my home machines, but even see and control them.

I maintain several different services to let me access my home machines. Most basic is the Secure Shell (SSH) command-line interface (OS X calls it Remote Login in the Sharing system preferences pane) and its associated Secure FTP (SFTP) file transfer service. These services allow me to quickly interact with my home machine as well as download files to whatever Mac or iOS device I happen to have with me at the time.

I've also taken the somewhat more complex step of setting up OS X Server to host a Virtual Private Network (VPN)—essentially an encrypted tunnel that lets me securely route my data and my Internet connection back through my home network. In some cases it might be slow, but it does help protect my data when I'm using a

SCREENS LETS YOU store connections to multiple computers, and can even provide a screenshot of their last known state.

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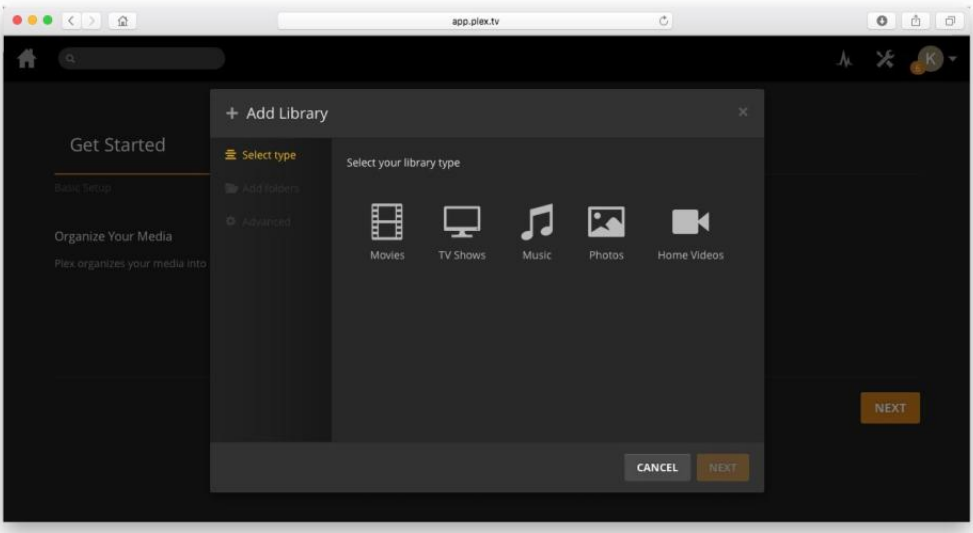
spurious Wi-Fi network.

Sometimes I want to check on an app that's running on one of my computers, and for that I turn to the invaluable Screens by Edovia (edovia.com/screens). If you know your way around a little firewall trickery, you can use OS X's built-in screen sharing to the same effect. (Before I started using Screens, I sometimes used to screen share into my Mac mini, and then screen share from there into my iMac, since my iMac wasn't directly accessible.) Beyond the ability to access programs on the remote Mac, I've also availed myself of another benefit: If you have a desktop Mac that's turned on and has a FaceTime camera, you can remotely launch Photo Booth on it to take a look around your home while you're, say, on vacation.

THE MEDIA

In this day and age, what self-respecting server doesn't serve up media? I have a full copy of my iTunes Library on my Mac mini, and in those cases where iCloud Music Library is a bit under the weather (go.macworld.com/icloudmusicnla), I can use iTunes Home Sharing to stream from my mini to my iOS devices and Macs alike. It also lets me access some types of media that iTunes doesn't store in the cloud by default,



YOU ACCESS PLEX'S settings in a web browser, too.

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such as audiobooks.

My non-iTunes content, mostly video, is stored in Plex (go.macworld.com/plexshieldserver), a home media server with apps for the Mac, iOS, Apple TV, and a few of those other platforms, too. You can stream video (and music and photos, if you so prefer) from your Plex server to those other devices, whether it's the Apple TV connected to the big TV in your living room or your iPhone when you're traveling halfway around the world, as long as you have a usable Internet connection.

THE VAULT

Most importantly, my Mac mini is my vault. That's where I archive all my documents, store the downloaded copies of my iTunes and Photos libraries, and keep any other data that's not in the cloud. I use SuperDuper! (go.macworld.com/clone) to create a nightly clone of the entire server, and have online backup via CrashPlan, just to be on the safe side.

With three Macs in the house (server included), it can be a pain trying to make sure that files don't get lost in the shuffle. To simplify matters, I generally consider my server to be the "canonical" versions of my files.

In truth, I could stand to be more vigilant about making sure that I shuttle files onto the mini more regularly. Since I do most of my day-to-day work on the iMac, I generally only remember to move files from there every once in a while. (Critical files that I'm working on all the time on a variety of different devices live instead in Dropbox or iCloud Drive.) But many of the files on that mini go back a long way, in some cases all the way back to the very earliest documents I created on my original Macs.

SERVICE INCLUDED

In many cases, a lot of these server-based technologies are being obviated by services that run in the cloud and handle common tasks like file storage or streaming media. Cloud services are just fine—I use plenty of them—but in some cases, they're simply not the right fit. The one major advantage to running your own server is that you have control over everything, from soup to nuts. That can have its downsides too—when something goes wrong, you're usually the one who has to fix it—but sometimes there's just no substitute for doing it yourself. ■

CLOUD SERVICES ARE JUST FINE—I USE PLENTY OF THEM—BUT IN SOME CASES, THEY'RE SIMPLY NOT THE RIGHT FIT.

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How and why to verify your Twitter account

You can finally request that coveted blue verified Twitter badge that has eluded you for seven years.

BY MATT KAPKO

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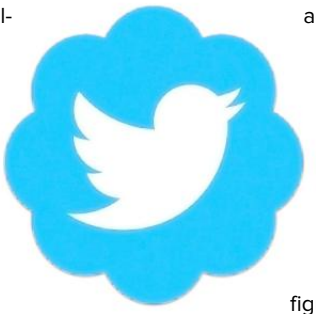
The equally vaunted and ridiculed blue checkmarks on Twitter are no longer exclusive to elites or those with connections who have an "in" at Twitter. The company recently opened the verified account designation up to all users and put some rules in place for consideration (go.macworld.com/twitterreqverifyacct). Many of Twitter's 310 million monthly active users don't qualify for verification, but the company is opening the secretive and invite-only process up to anyone.

Accounts of public interest, particularly those maintained by individuals and organizations in "music, acting, fashion, government, politics, religion, journalism, media, sports, business, and other key interest areas" are all up for consideration, according to Twitter. "We hope opening up this application process results in more people finding great, high-quality accounts to follow, and for these creators and influencers to connect with a broader audience," Tina Bhatnager, Twitter's vice president of user services, said in a prepared statement.



WHY YOU SHOULD GET VERIFIED ON TWITTER

Twitter originally introduced account verification in 2009 and has verified almost 187,000 accounts to date, according to the company. The designation is largely symbolic, but also a defensive move against the untold number of impersonators, satirists, trolls, and hatemongers who roam freely on Twitter. Oftentimes the dynamic between fans and celebrities or public figures on Twitter is only rewarding if the authenticity of the user being followed is endorsed.

Trust matters on Twitter and that's exactly why anyone who wants to be verified should take steps to do so. If you carry any impact in your community, field of work or areas of heightened awareness and visibility, a verified account will let your followers know you're the real deal.

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HOW TO GET VERIFIED ON TWITTER

Follow these steps to give yourself the best chance of getting verified.

1. Open your Twitter account settings and make sure you have a verified phone number, confirmed email address, a bio, profile photo, header photo, a website, and a birthday (required for personal accounts only). Your tweets must also be set to Public in your privacy settings.
2. Improve your chances of approval by having a user-name that reflects the real name of the person or company. The account's profile or header photo should also reflect the person or company's branding, according to Twitter.
3. Fill out and submit the form to request account verification (verification.twitter.com/welcome). Explain why Twitter should verify your account and provide examples to help the company understand your impact. Provide at least two URLs to showcase your newsworthiness or relevancy in your field. Finally, Twitter may also request a scan or photo of a government-issued ID to confirm your identity.

Twitter says that it will respond to all requests via email, and users who get denied can submit another request 30 days later. ■

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LaCie Rugged RAID and SanDisk Connect Wireless Stick keep you backed up on the go

There's no excuse for not backing up everything, thanks to these hardware solutions for the Mac, iPad, and iPhone.

BY SÉAMUS BELLAMY

IMAGE COURTESTY OF LACIE

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As great as Apple's tablets, smartphones, and computers are, nothing's perfect. All hardware eventually fails. Your iPhone or MacBook can get lost or stolen. Files can be corrupted. If any of these things happen at a time when backing your data up to the cloud isn't an option, you're gonna have a bad day. For a guy like me, who travels as he works, one bad day's worth of lost data can add up to a ton of lost revenue.

That's why I always pack some additional hardware to make sure that I can back up my files, no matter where I roam. And if the external drives I rely on also allow me to bring along a whack of music and movies to keep me occupied while I'm on a plane or train? All the better! Depending on whether I bring my 13-inch MacBook Pro with Retina Display or my 9.7-inch iPad Pro with me, you'll find one of two backup solutions jammed into my backpack: LaCie's Rugged RAID 4TB (go.macworld.com/

LACIE'S RUGGED RAID 4TB can be configured as RAID-0 for a full 4TB of storage, or RAID-1 for a 2TB volume that backs itself up to the other drive.

PHOTO: SÉAMUS BELLAMY

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LACIE'S RUGGED RAID can connect via Thunderbolt or with a USB 3.0 cable. You'll need to use its AC adapter for the latter, though.

lacieruggedraid) for my laptop, or SanDisk's 200GB Connect Wireless Stick to use with my iPad and iPhone.

FOR macOS

As its name suggests, LaCie's Rugged RAID 4TB comes packing four terabytes of physical storage, spanning across two 2TB hard drives. Depending on your needs (go.macworld.com/mirroredraid), you can opt to use all 4TB in a RAID-0 configuration, or, if you're paranoid about your data like I am, set the Rugged RAID up to function as a RAID-1 device. A RAID-1 will write your data to one of the device's 2TB drives and duplicate it on the second one, essentially backing up your Mac's backup.

Measuring 1.3 by 3.6 by 5.8 inches and weighing in at 1.2 pounds, the Rugged RAID is a little chunky for a portable drive, but the thing is built like a tank. With its beefy enclosure and iconic orange rubber bumper, it comes with an Ingress Protection rating of 54, meaning it has limited protection from dust and water, can survive a drop (while not operating) from a height of five feet, and can withstand up to one ton of pressure. If you're interested in testing the latter, be my guest: Drive over it with your car and let me know how it works out. I'm willing to take LaCie's word for it.

PHOTO: SÉAMUS BELLAMY

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Ideally, you should connect the Rugged RAID to your laptop via the portable drive's integrated Thunderbolt cable. Doing so allows you to operate the Rugged RAID via bus power and achieve transfer speeds of up to 240MB/s when using it as a RAID-0 device.

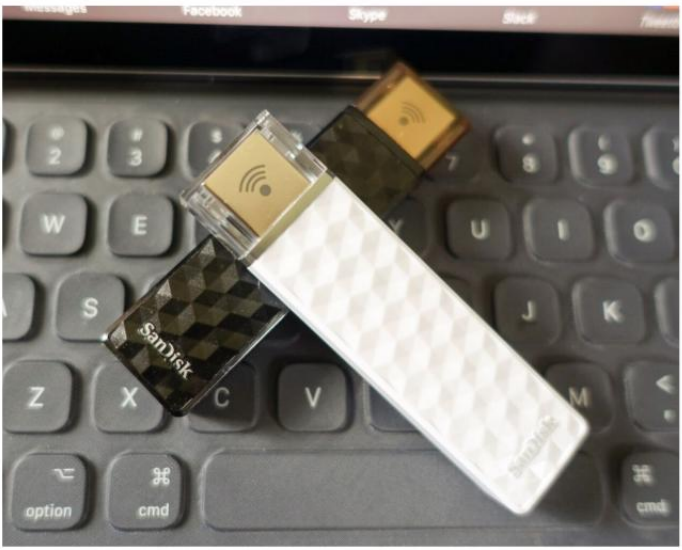
No Thunderbolt port? Don't sweat it. You can also connect the Rugged RAID to your computer via USB 3.0. Unfortunately, going this route means that bus power is out the window. To power the Rugged RAID's drives, you'll need to use its included power adapter.

In my travels, I've found that the Rugged RAID handles file transfers like a champ. The movies and music I store on it are quickly shuttled to my iPhone and iPad via iTunes and are ready to watch almost instantly on my computer. It also makes quick work of RAW photos as well as Adobe Lightroom and Time Machine backups.

Priced at $379 on Amazon (or $399 list, go.macworld.com/rugged-raidamz), the LaCie Rugged RAID doesn't come cheap. But you'll be hard-pressed to find a more reliable, rough and tumble backup solution. Having one on hand makes me feel loads better about my spending months on end in Mexico and Central America next year, where Internet connectivity will be iffy, and I'll need a reliable way to ensure that my photos and documents will survive long enough to find their way to my editors.

FOR iOS

Until late last year, I was in the habit of packing Seagate's 1TB Wireless Plus (go.macworld.com/seagatewirelessplus) mobile hard drive to use with my iPad. But its size, weight, and lousy app interface left me feeling



THE SANDISK Connect Wireless Stick comes in multiple sizes, from 16GB up to 200GB.

PHOTO: SÉAMUS BELLAMY

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like I was almost better off bringing my laptop with me instead of just rolling with my iPad. Happily, I stumbled upon the SanDisk Connect Wireless Stick (go.macworld.com/sandisk-wirelessstick) and never looked back.

Available in 16GB, 32GB, 64GB, 128GB, and 200GB capacities, the Wireless Stick looks like a USB stick because it is: Pop off the device's end cap and you can plug its USB 2.0 adapter into your computer to transfer files or charge it. I know, USB 2.0 transfer speeds? Not cool. But you know what is cool? Being able to use the same storage stick to simultaneously connect, wirelessly, to up to three iOS or Android devices at once, allowing them to share files or back up files, or stream movies and music.

The aptly named Wireless Stick does this by creating its own Wi-Fi network. All you have to do is download the companion app to your phone or tablet, push a button on the side of the Wireless Stick to start up the device's hotspot, connect to said hotspot, and boom, you're in business. The Wireless Stick's wireless range is surprisingly strong for a device that only measures 3 by 0.75 by 0.375 inches in size. I found that I was still able to access the Wireless Stick's contents up to 40 feet away in a house packed with mid-century furniture and wireless electronics. Not bad!

THE SANDISK Connect Wireless Stick can stream data to and from three wireless devices at once, or connect via USB 2.0 to any computer.

The Wireless Stick's battery provides about 4.5 hours worth of streaming video and can be completely recharged in about two hours. Admittedly, that's not a lot of juice. But I've gone weeks between charges when I was only using it to back up my photos and documents. It's worth noting that you can extend the device's battery life by plugging it into an external battery pack or a spare USB power adapter. The Wireless Stick will keep on working its magic as it charges.

The Wireless Stick's not going to take the same amount of punishment as the Rugged RAID will, but as it relies on solid-state storage as opposed to a hard drive, I feel that

IMAGE COURTESY OF SANDISK

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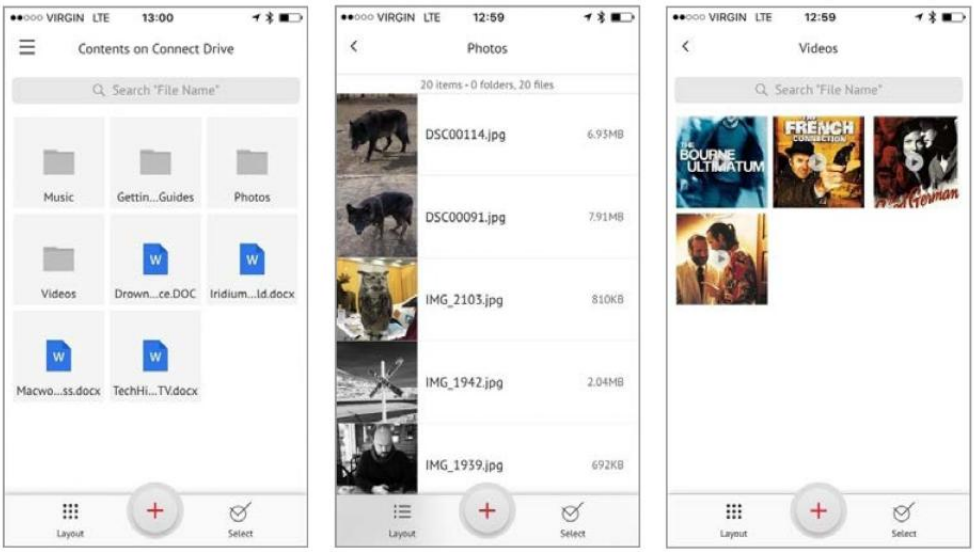
the level of data resiliency it offers is still solid. So far, mine's survived a ton of casual abuse being banged around in my backpack, and it still works after being left on a patio table during a downpour.

Over the past few months, I've used the 64GB version of the Wireless Stick in coffee shops to shuttle sensitive files from my phone to my laptop and tablet, to back up pictures for work at the end of a photo shoot, and to pack a few extra movies to watch on a cross-country flight, saving my iPad's storage for music and apps. I liked it so much that I sprung for the 200GB version (currently $94 on Amazon, go.macworld.com/sdwlstickamz), knowing that I'd never regret the investment. ■



THE WIRELESS STICK'S iOS interface is a minimalist, easy-to-use dream.

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MAC GEMS ARE APPS THAT OFFER STANDOUT UTILITY OR UNIQUE FEATURES AT A GREAT PRICE.

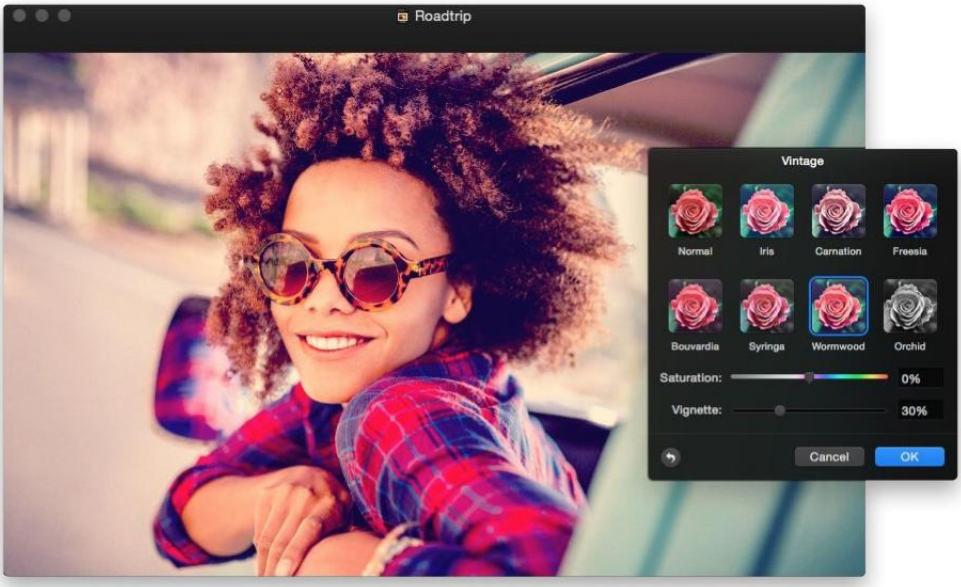
PHOTOGRAPHY

PIXELMATOR 3.5 CANYON: BETTER SELECTIVE EDITING AND A NEW APPLE PHOTOS EXTENSION

BY JEFF CARLSON

AS YOU START moving beyond the basics of editing images—past general exposure and color adjustments—you'll discover a semi-secret truth: a lot of your time is spent selecting specific areas for editing. Making a foreground object brighter, for instance, can reveal a telltale halo if the selection doesn't match well with the object.

Selections have traditionally been a strength of Adobe Photoshop, but the granddaddy editor is overkill for many people who don't need



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THE QUICK SELECTION TOOL accurately selected only the edge of this barn roof as I made the selection (in red), even when the brush was a comparatively large size.

its extensive feature set, or don't want to pay a Creative Cloud subscription fee (which starts at $10 a month with an annual plan, and can cost up to $80 a month for the full CC suite).

Instead, Pixelmator 3.5 Canyon (pixelmator.com/mac) has been a popular and inexpensive ($30) Photoshop alternative. The main improvements in version 3.5 make it easier and less time-consuming to create good selections. This version also brings selective editing to Apple's Photos app by introducing a new Photos Editing Extension, Pixelmator Retouch, that brings many of its retouching tools to images in your Photos library.

SELECTIVE SERVICE

The challenge when making selections is that there isn't always a clean line you can follow by drawing with the Lasso tool—and even when there is, defining it by hand is painstaking. Let the software assist in a big way.

The Quick Selection tool (which replaces the Paint Selection tool) detects edges and shadows, and pays attention to the direction the mouse pointer is moving as you drag to figure out which areas to select. In general, the tool does a pretty good job of selecting only the areas I want, even when the tones are similar (like a metal barn roof against a

PIXELMATOR 3.5 CANYON

AT A GLANCE

Pixelmator 3.5 Canyon improves its selection tools and adds an editing extension for the Photos app, further positioning it as a top affordable Photoshop alternative.

PROS

- Improved selection tools
- Pixelmator Retouch extension adds selective editing to Photos
- Inexpensive

CONS

- Control settings aren't retained between edits
- Modal control windows appear on top of image you're editing (but can be moved, and the position is remembered)

PRICE

$29.99

COMPANY

Pixelmator

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gray cloud background) and when the tool's brush size was larger than the item being selected. I also like how Pixelmator highlights the sections using a red swath of color, which is immediately identifiable as you work.

Don't expect the Quick Selection tool to work miracles, though. It will do a good first pass in difficult situations, like hair, but you'll need to refine the selection later.

For areas where you do have well-defined lines, the Magnet Selection tool helps you avoid a lot of work and frustration. Click a starting point and then drag (without holding the mouse button) along the edge of the item you wish to select. The selection automatically clings to edges.

As you might expect, the tool can be thrown off by similar tones, and sometimes it jumps away from where your eyes think it should go. That's why you can refine the line as you go: click to set a point, press Delete to remove a previous point, and, when the line starts to stray like a puppy learning to walk, hold Option to temporarily switch to the Polygonal Lasso tool and define your own line; doing so doesn't abandon the magnetic selection work you've done so far. Overall, the tool works well and provides plenty of flexibility to make a selection while the Magnetic Selection tool remains active.

THIS INITIAL SELECTION—sandy hair against a similarly colored and textured background—was made in a single pass using the Quick Selection tool.

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THE MAGNETIC SELECTION tool hews to clear lines, sometimes with a little help.

Ultimately, making good selections doesn't happen with just one or two tools. As you do more, you'll combine the program's other tools, such as painting in Quick Mask mode and using the Refine Selection command, for better selections. But the Quick Selection and Magnetic Selection tools in Canyon make the process much easier.

It's worth mentioning that the company has also implemented the Quick Selection and Magnetic Selection tools into Pixelmator for iOS 2.3 (pixelmator.com/ios). One of Pixelmator's strengths is the ability to synchronize editing projects between Mac and iOS, complete with layers and adjustments. Being able to make better selections, especially in a touch interface where you can immediately see what's being selected, is a helpful addition.

PIXELMATOR RETOUCH EXTENSION

Most of the editing tools in Apple's Photos application apply to an entire image, so if you keep your photo library there, you may feel like your options are limited. (Although to be fair, it's a more powerful editor than most people realize; see "The hidden editing power of Photos for OS X." go.macworld.com/editphotoosx)

That's where Photos extensions come in. The new Pixelmator Retouch extension gives you several controls for editing selected portions of a photo, without having to export the image to edit it in the Pixelmator application. Lighten or darken areas, adjust color saturation, heal imperfections or remove unwanted items, clone sections, and sharpen

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THE PIXELMATOR RETOUCH extension is great for healing or removing unwanted objects in a shot without making a full trip to the Pixelmator application.

SoftGozar.com

or blur areas.

All of the features worked well, although it's important to note that applying them is additive: If you lighten an area, and then go back over it again with the brush, it will become even lighter. That's not always a negative, but don't expect that you can adjust the tone as if it were on its own layer (that's when you might consider exporting to Pixelmator itself). Also, as with all Photos extensions, when you click Save Changes, the edits are burned in; you can revert the image to its original state, but can't walk back any recent edits.

GENERAL OBSERVATIONS

Pixelmator represents that percentage of Photoshop's features most people actually use on a regular basis. Though it's not without its quibbles. At the top of my list is erratic application of adjustments.

FOR A LARGE AMOUNT OF IMAGE EDITING TASKS, PIXELMATOR IS AN EXCELLENT, AFFORDABLE ALTERNATIVE TO PHOTOSHOP.

For example, let's say I use the Brightness and Contrast control to increase brightness by 10 percent, but then later decide that was too much. When I return to that control, the sliders are set back to zero, so I need to apply a –10 percent brightness adjustment to go back to where I was (assuming I remembered that 10 percent was the amount earlier). Worse, this isn't consistent; some controls, like Black & White, do provide the last edit values. I look forward to the day when Pixelmator implements real adjustment layers that can be independently edited.

BOTTOM LINE

For a large amount of image editing tasks, Pixelmator is an excellent, affordable alternative to Photoshop. Its enhanced selection tools work well and add to its utility, while the Pixelmator Retouch Extension for Photos is a good way to add selective edits while remaining within your Photos library. ■

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EMAIL UTILITY

MAILBUTLER: THE SUPER-CHARGED PERSONAL ASSISTANT FOR APPLE MAIL

BY J.R. BOOKWALTER

CRITICS ARE QUICK to dismiss Apple's built-in Mail app on OS X, but I prefer Mail over the new kids on the block, simply because it works and doesn't try to reinvent the wheel. Of course, that doesn't mean there aren't some features in those rival apps I'd like to see make their way into Mail; the ability to schedule outgoing emails for a later date or save messages to Evernote, for example. As it turns out, I don't have to abandon an old favorite for greener pastures to get these cool features.

MAILBUTLER

4½

AT A GLANCE

MailButler enhances Apple Mail with additional features including Direct Inbox, follow-up reminders, tracking, scheduling, cloud upload, and more.

PROS

- Adds awesome new features to Apple Mail
- Delay or schedule outgoing messages
- Send attachments via popular cloud services
- Message list avatars

CONS

- No OneDrive support
- Free accounts limited to 30 actions per month without referrals
- No unified inbox in menu bar

COMPANY

Feingeist Software

SoftGozar.com

AT YOUR SERVICE

Billed as "your personal assistant for Apple Mail," MailButler (feingeist.io/mailbutler) is a bundle of plug-ins that extend the capabilities of Apple's email client. I'm talking about new features like uploading attachments to cloud services other than iCloud Drive, following up on sent emails that have gone unanswered, and both of my wish-list features noted earlier.

Installing MailButler adds a new toolbar icon to Mail's preferences window, where you configure the various options available. Settings are consolidated into seven categories for displaying account information, connecting to cloud services, or managing the many user interface

MAILBUTLER ADDS AWESOME new features to Apple Mail that look and feel like a natural extension to the email client.

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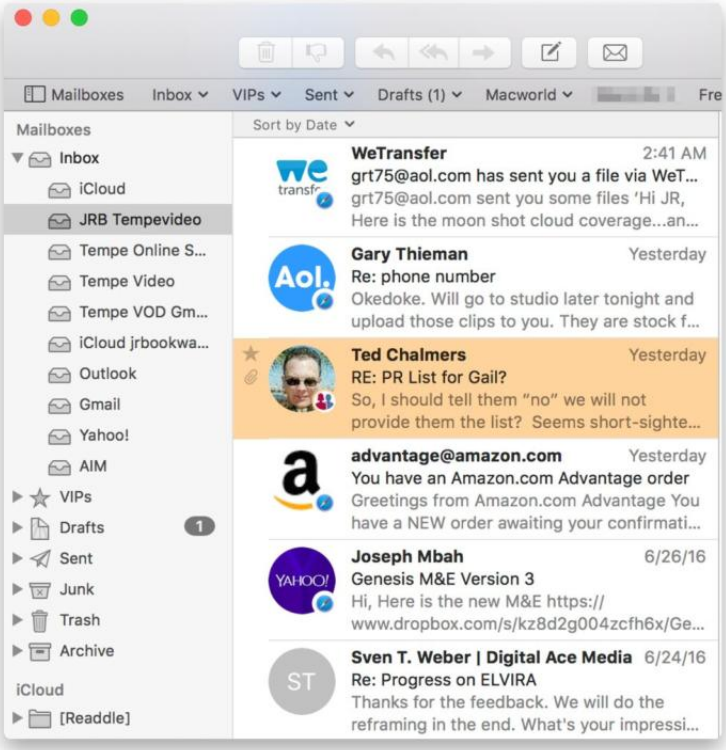

MAILBUTLER MAKES IT easy to see who you're communicating with thanks to message list avatars.

enhancements added by the software.

One of the most obvious improvements are message list avatars, which help identify senders and recipients at a glance. (For example, emails from Amazon.com are magically adorned with the company's logo.) MailButler extracts a sender's image from your address book or connected social networks (Google+, Flickr, Gravatar); if all else fails, the software inserts a grey circle with the sender's initials instead.

If you frequently work with attachments, MailButler will be your new best friend. In addition to uploading attachments to services like Dropbox, Google Drive, and Box (OneDrive support is curiously absent), the software intelligently scans outgoing emails before they're sent and reminds you if files referenced in the message haven't been attached. (Raise your hand if you've done that before!)

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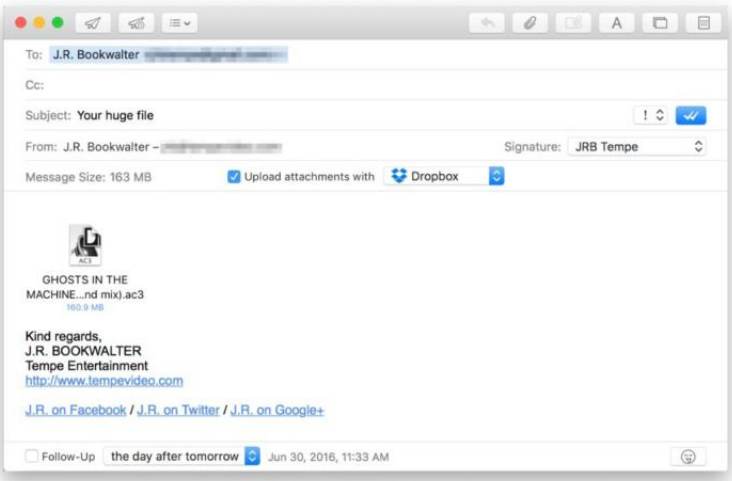
TAKE ACTION

The latest addition to the lineup is Direct Inbox, which displays the last weeks' worth of incoming messages in a compact panel right from the menu bar. Users can not only compose new messages here, but also act upon existing ones as well. Unfortunately, MailButler doesn't display messages in a unified inbox view (they're sorted by account), but a handy toggle switch shows only unread emails.

For those who habitually click Send before proofreading, MailButler can be configured to delay outgoing messages by a few seconds or more in case you change your mind. And yes, you can queue up one or more emails in the outbox and MailButler will send them at designated times in the future, perfect for newsletter publishers wrestling with the hourly sending limits imposed by hosting providers.

Unlike Mail plug-ins I've used in the past, MailButler doesn't feel like a Frankenstein's monster of pieces and parts haphazardly bolted onto the host software. Instead, everything works as a natural extension of Mail, like these features have been there all along and have only now been unlocked.



STEP ASIDE, iCLOUD Drive—MailButler allows any popular cloud storage service to upload large attachments right from Apple Mail.

MailButler is free, with one catch: You can only use its unique features 30 times per month, but additional "actions" can be obtained through referrals; paid subscription tiers enable unlimited use and premium support. It's a great value and I can't imagine going back to regular Apple Mail after using MailButler; frequent updates also give me hope that things won't break when macOS Sierra arrives this fall.

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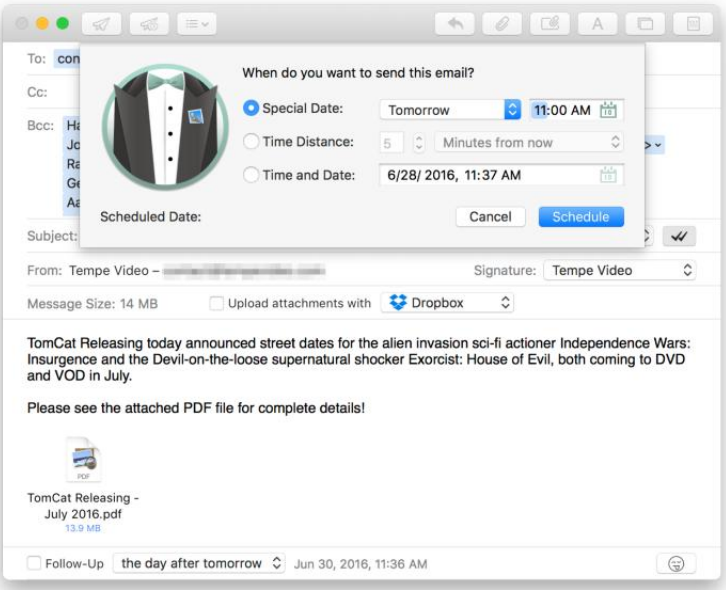

DON'T WANT TO send an email right now? Schedule it to automatically be sent at a later date with MailButler.

BOTTOM LINE

There's no need to abandon Apple Mail for a fancier third-party email client. MailButler delivers the features you want in the software you already use. ■

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SOCIAL MEDIA

VIDEOTWEET: SHARING MAC VIDEOS ON TWITTER JUST GOT A WHOLE LOT EASIER

BY J.R. BOOKWALTER

TWITTER IS GREAT for sharing short bursts of information with followers, but the official Mac app is restrictive when it comes to videos—files must be progressive, no larger than 15MB in size, and on it goes. Wouldn't it be great if you could just open a video, select the best part, and tweet without having to worry about all those specifications?

ARCTIC WHITENESS VIDEOTWEET

AT A GLANCE

VideoTweet takes the drudgery out of sharing QuickTime videos on Twitter from an easy-to-use app, Final Cut Pro X, or your favorite OS X sharing extension-friendly software.

PROS

- Super-easy way to tweet trimmed segment from any QuickTime video
- Final Cut Pro X and OS X sharing extension support
- Works with multiple Twitter accounts

CONS

- Videos currently limited to 30 seconds (Twitter limitation)
- Trim handles lack precision with videos longer than 15 minutes
- Rendering inconsistencies with older 4:3 videos
- No audible feedback when tweet is sent

PRICE

$3

COMPANY

Arctic Whiteness

SoftGozar.com

ON THE COUNT OF FOUR

That's exactly what VideoTweet (go.macworld.com/videotweet) does. This free app for OS X Yosemite and later allows Twitter users to open any QuickTime compatible video, use trim handles to quickly select the segment you want to share, compose the accompanying text, then send your message to the world. Tweets automatically include a #VideoTweet hashtag and product link, but this can be permanently removed by purchasing a €3 (approximately $3.33) license.

Aside from Twitter's usual 160-character limitation (116 including video link), videos must be between 0.5 and 30 seconds. (The developer is hard at work on an update that increases the duration to Twitter's new limit of 140 seconds.) VideoTweet warns you when the selection is too long, in which case only the first 30 seconds will be uploaded.

VIDEOTWEET MAKES IT easy to share up to 30 seconds from any QuickTime-compatible video directly to Twitter in as little as three steps.

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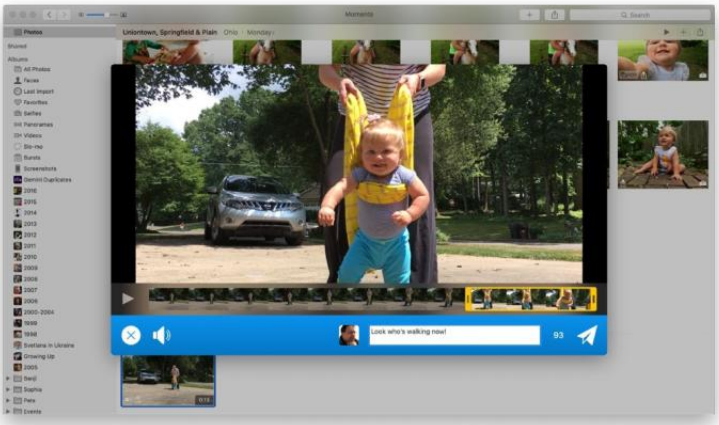
SHARE FROM ANYWHERE

After authenticating via web browser with an existing Twitter account, there are no settings to fiddle with. Multiple accounts are supported (click the avatar to switch between them), and VideoTweet handles all compression and formatting to the social network's exacting specifications. The app installs an OS X sharing extension and Final Cut Pro X destination, making it easy to share directly from your favorite software.



YOU DON'T EVEN need to open VideoTweet to share videos, thanks to the sharing extension with support for OS X Photos and more.

VIDEO PROS CAN tweet their favorite segments directly from Final Cut Pro X in just a few clicks of the mouse.

I did find it somewhat cumbersome to trim videos over 15 minutes long; there's no way to mark in and out points, zoom into a selected area for greater precision, or slide the trimmed region to another part of the same video. VideoTweet also shifted the framing of older content shot in the 4:3 aspect ratio, leaving a bit of excess black along the right edge, but worked great with modern 16:9 digital video.

BOTTOM LINE

VideoTweet is a slick, hassle-free way to share videos on Twitter in a few clicks of the mouse. ■

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INPUT DEVICE

MX MASTER: LOGITECH'S MOUSE IS SMOOTH, STURDY, AND VERSATILE

BY ROMAN LOYOLA

MY FAVORITE MOUSE is Logitech's Performance Mouse MX ($100 MSRP go.macworld.com/mousemx; $59 on Amazon go.macworld.com/mousemxamz). I've been using it for years, and it's still going strong. Logitech has another mouse that's just as good: the MX Master ($100 MSRP go.macworld.com/mxmaster; $70 on Amazon go.macworld.com/mastermxamz). The MX Master is a lot like the Performance Mouse MX, but it has features that make it stand out.

BUTTONS

The MX Master is a mouse with five buttons for righties. There are the left and right buttons, as usual. Along the left side of the mouse are back and forward buttons that are set by default to be used as the back and forward functions in your browser. The fifth button is

LOGITECH MASTER MX

AT A GLANCE

The Master MX mouse feels good in the hand and has plenty of buttons to customize. Its battery raises some concerns, though.

PROS

- Five customizable buttons and two scrollwheels
- Feels solid and sturdy
- Option to connect wirelessly either by Bluetooth or 2.4GHz wireless

CONS

- Battery not user replaceable
- Questionable battery life

COMPANY

Logitech

PRICE

$70

SoftGozar.com

located on the thumb cradle, and by default, it's set as a "gesture button," where you hold the button down and then move the mouse up, down, left, or right to perform the same three-finger gestures you can perform on Apple's Multi-Touch touchpad (go.macworld.com/multitouchpad). All the button functions can be customized from their defaults using the Logitech Options software, which is accessible through System Preferences after installation.

You'll also find not one but two scroll wheels. The main scroll wheel between the left and right buttons scrolls windows vertically and also has button functionality that can be customized. The scroll wheels on the side scrolls windows horizontally, and in Safari, can also be used to go back or forward a webpage. If you want to change the side scroll wheel's function, to, say, control the volume, you can do so in the software.

I never use the back and forward buttons on the MX Master or on the Performance MX; I actually find the placement of these buttons on the MX Master awkward for me to use. I've embraced the side scroll wheel, though; I use it to zoom in and out of the screen when I encounter type that's a bit small for my aging eyes, or when I'm editing an image.

TRACK AND FEEL

Like the Performance MX, the MX Master uses Logitech's Darkfield Laser Tracking, and I never had any tracking issues while testing on different surfaces, including glass tabletops.

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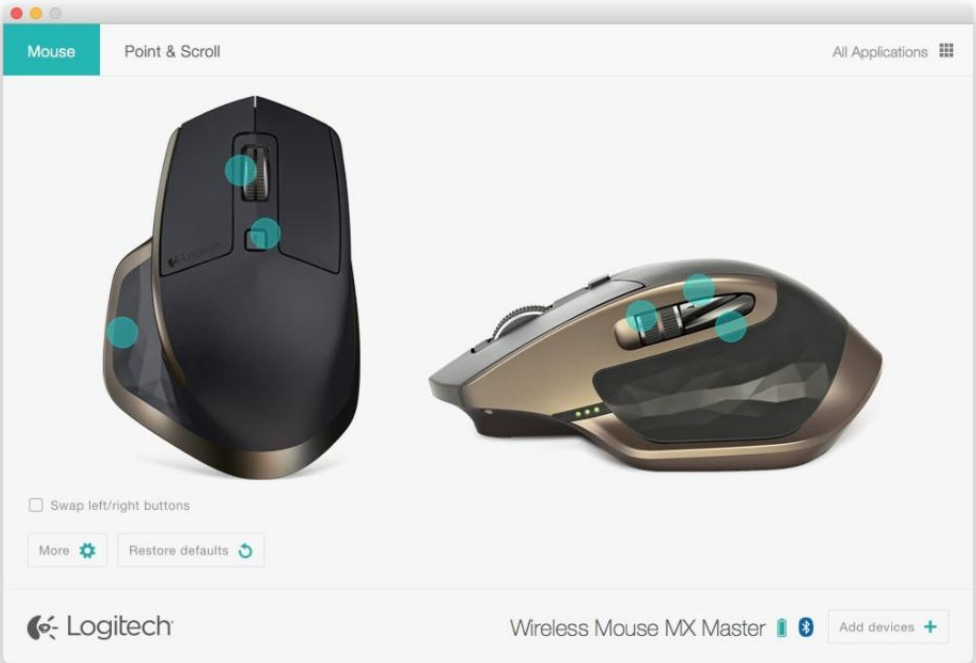

The mouse moves very smoothly and effortlessly.

Both mice look very similar, but I felt like the MX Master had a body that's a bit straighter than the Performance MX. The Performance MX's curve felt more natural in my hand, but the Master MX felt good and comfortable and never triggered any pain in my wrist or hand. (I don't suffer from repetitive strain injury, for what it's worth.) Of course, how a mouse fits is a completely subjective thing and varies from person to person, so if you can spend a few minutes with a mouse before buying, it's a good idea.

The MX Master feels solid and sturdy, and its 5.1 ounces (with the battery) is just right for me. I prefer heftier mice. A mouse like Apple's Magic Mouse 2 (go.macworld.com/magicmouse2rev) ($79 on the Apple Store go.macworld.com/magicmouse2) doesn't suit my wants and needs.

THE LOGITECH SOFTWARE to customize the buttons is accessible in System Preferences.

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BATTERY, BLUETOOTH (OR NOT)

The Master MX has a built-in, non-replaceable rechargeable battery. Logitech includes a micro USB cable that's for charging only. I've been using the Master MX for several months, and usually I can go a whole work week without needing to charge the battery. (I charge it over the weekend.) I've had about a dozen instances toward the end of the week when the battery needed charging. Logitech says it takes 2 hours, 45 minutes to fully charge the battery, and that should last 40 days on six hours of use per day. You can still use the mouse while it's plugged in.

ONE OF THE NICE FEATURES OF THE MX MASTER IS THAT IT GIVES YOU TWO OPTIONS TO CONNECT WIRELESSLY TO YOUR MAC.

I prefer the removable AA battery of the Performance MX. It provides more options for charging (I can replace the battery if I don't feel like being tethered to the charging cable). And I don't have to worry about the battery's long-term viability.

One of the nice features of the MX Master is that it gives you two options to connect wirelessly to your Mac. Usually, a mouse connects by Bluetooth or through 2.4GHz radio frequency (RF), which requires a USB receiver to be connected to your Mac. Logitech includes both. I used the MX Master via Bluetooth without a hitch.

If you use other Logitech devices, you may want to use the USB receiver. It's compatible with other Logitech devices that are equipped with the company's Unifying technology. You can connect up to six devices to one receiver.

BOTTOM LINE

There's a lot to like about The Logitech Master MX mouse. It has a good number of customizable buttons, it's solid, and I found it comfortable. If you like your mouse to be light, low profile, and have a minimal number of buttons, look elsewhere. The fixed battery may cause the Master MX to be a non-starter for some, while the two wireless connection options is an attractive feature. The Performance Mouse MX is still my favorite (it fits my hand a little better), but I'll use the Master MX without hesitation. ■

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Hot Stuff

What We're Raving About This Month

WATERFIELD DESIGNS ATELIER iPAD GEAR CASE AND iPAD PENCIL CASE

WaterField Designs' $69 Atelier iPad Gear Case and $29 iPad Pencil Case (sfbags.com) are beautiful, bespoke products that fulfill roles that less expensive, or even free alternatives, could sort out nicely. At 7.5 inches by 1.25 inches by three inches, the Atelier iPad Gear Case is just long enough to store an Apple Pencil and wide enough to accommodate the Pro's power adapter, lightning cables, extra tips for your Apple Pencil and any other wee bits and pieces you might want to stash in it; I found that the Gear Case kept everything well organized and easy to access. The Atelier iPad Pencil Case is made from the same smooth, supple full-grain leather as the Atelier iPad Gear Case is, but sized solely for storing an Apple Pencil. They may seem like luxury items, but they are extremely well made—if you've got money to burn and feel the need to add a dash of class to your everyday carry, the duo could be worth your attention. **–SÉAMUS BELLAMY**

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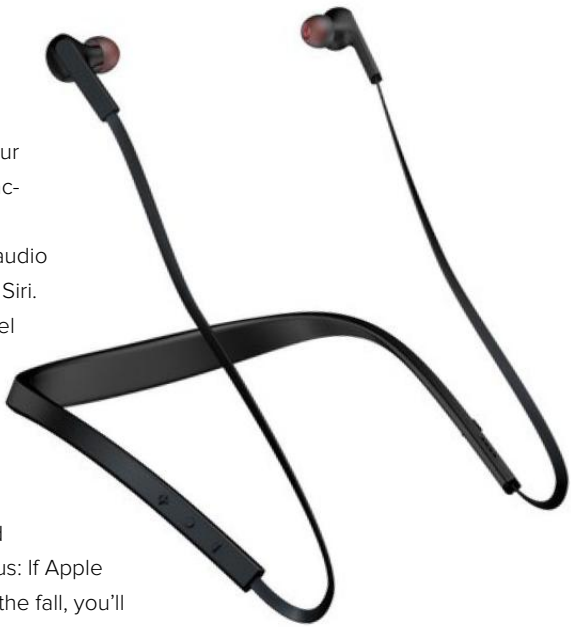
Hot Stuff

JABRA HALO SMART BLUETOOTH HEADSET



Jabra's $80 Halo Smart Bluetooth (jabra-halo-smart.png) headset lets you seamlessly switch from calls to music without swapping out one pair of earbuds for another. The headset has four controls: two volume buttons; a multi-functional button that powers it on, answers incoming calls, and pauses or resumes audio playback; and a voice button to activate Siri. The wireless headset comes with four gel tips of varying shapes and sizes in the box, and has a lightweight, flexible neckband, so you can adjust it to fit just right. Plus, the earbuds are magnetized so if you remove them from your ears, they'll snap together and pause whatever you're listening to. Bonus: If Apple ditches the iPhone's headphone jack in the fall, you'll be ahead of the curve with an affordable Bluetooth pair on standby. **–CAITLIN McGARRY**

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LOGITECH CREATE KEYBOARD FOR THE 9.7-INCH iPAD PRO

Just like Apple's own Smart Keyboard, Logitech's $130 Create cases (logitech.com) were designed to work exclusively with the iPad Pro's Smart Connector—and now they're available in models for both the 12.9-inch and 9.7-inch iPad Pro. This allows iPad Pro users to bypass the need to charge their Create case or pair it using Bluetooth—you just hook it up, and it instantly works. Unlike on Apple's Smart Keyboard, however, typing on the Create keyboard feels more similar to typing on a laptop. The Create keys are even backlit (which you can adjust) to make it easier to type on your iPad Pro in dark-lit places. The keyboard also has a row of iOS-specific shortcuts and commands. You can go back to your Home screen, search your iPad Pro or the web, adjust the brightness, and control audio from the keyboard without having to tap on the iPad at all.

—OSCAR RAYMUNDO

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Home control from your wrist: 10 great smart-home apps for the Apple Watch

BY MICHAEL ANSALDO

DAVE HERHOLZ VIA FLICKR/CREATIVE COMMONS

SoftGozar.com

Plenty has been said about how the Apple Watch changes the way we do everything from working out to making purchases. What's been glossed over is that it's also ideal for interacting with our homes. Simple interfaces like tapping, pressing, swiping, and glancing make for a fluid way to access and control smart-home products. And it's always on your wrist, so you don't have to dig for it in your pockets or between the couch cushions when you need to dim the lights or take a peek at the security cameras. Apps abound for connecting with and controlling the most popular smart-home appliances. Here are 10 of the best. Not sure the Apple Watch is for you? Read our in-depth review (go.macworld.com/applewatchrev).

HUEMOTE FOR PHILIPS HUE LIGHTING

A must for Philips Hue users, this third-party app gives you complete remote control of the energy-efficient lighting system. Huemote (go.macworld.com/huemote) goes beyond the basic functions of Philips' official Hue app, enabling you to control up to 16 lights simultaneously, save your favorite light settings as "scenes," and sync your settings across devices via iCloud. (Free)

PHILIPS HUE WHITE AND COLOR AMBIANCE A19 BULB STARTER KIT 2ND GENERATION

PRICE $179.99 View on Amazon (go.macworld.com/philipshue)

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WETAP FOR BELKIN WEMO DEVICES

Belkin's WeMo technology powers a range of smart-home products, from cameras to coffee makers. Read our review of the WeMo-enabled Mr. Coffee here (go.macworld.com/wemomrcoffee). The company's official app doesn't yet support all its devices, but it does allow you to easily manage your WeMo lights and switches. The only requirements are that you have at least one switch installed and all devices are on the same Wi-Fi network. ($2)

BELKIN F7C033FC LINK NETWORKED DIMMABLE LED BULB

PRICE $37.64 View on Amazon (go.macworld.com/belkinbulb)

HONEYWELL LYRIC

What could be better than having your thermostat controls close at hand—or wrist—during the dog days of summer? This app (go.macworld.com/honeywelllyric) allows you to adjust the Honeywell Lyric's temperature settings and fan and system modes remotely. It also uses geofencing to recognize when you're away from home and automatically change thermostat settings to save energy until you return. (Free)

HONEYWELL LYRIC WI-FI THERMOSTAT—2ND GENERATION (RCH9310WF)

PRICE $179.99 (MSRP $249.99) View on Amazon (go.macworld.com/honeywelllyricamazon)

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DRIP FOR DROPCAM

The Nest Cam (go.macworld.com/nestcam)—formerly Dropcam—is the granddaddy of home security cameras (go.macworld.com/homesecurity). Owners of either model would do well to download this app (go.macworld.com/dripdropcam). While it doesn't show live camera feeds, it does display a live image from the selected camera every three seconds, so you can keep an eye on the homestead. It supports multiple cameras, and you can turn each of them on and off from the app. Future versions will allow you to enable/disable night vision and view motion events. ($3)

NEST LABS NEST CAM

READ TechHive's full review (go.macworld.com/nestcam)

PRICE $196.98 (MSRP $199) View on Amazon (go.macworld.com/nestcamamazon)

WITHINGS HOME

This app (go.macworld.com/withingshome) connects to the Withings Home, a DIY security camera with night vision, two-way audio, and a 135-degree viewing angle. It streams the camera's live feed and sends motion- and sound-detection alerts right to your wrist. You can even access the camera's "Homelapse" feature, which condenses the day's events into a few seconds of video for digest-sized viewing. (Free)

WITHINGS HOME WI-FI SECURITY CAMERA

PRICE $199.90 (MSRP $199.95) View on Amazon (go.macworld.com/withingshomeamazon)

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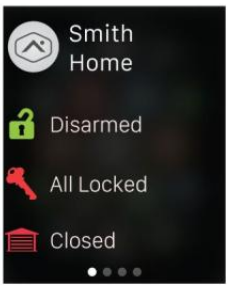
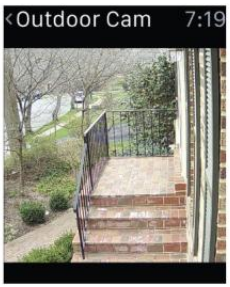
ALARM.COM

Alarm.com (alarm.com) is a SHaaS (smart home as a service) provider with more than $2 million subscribers. If you're one of them, this app (go.macworld.com/alarmcomapp) allows you to remotely arm or disarm your security panel, control lights, lock and unlock doors, watch live and recorded videos from your security cameras, and receive Glances on your home status. You can also get alerts about specific events, such as when your kids arrive home from school or your garage door is left open. Feature availability depends on your service plan and compatible equipment. (Free)





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SMARTTHINGS MOBILE

Samsung's SmartThings Hub allows you to wirelessly integrate hundreds of compatible smart devices. (Read an in-depth review (go.macworld.com/smartthingsrev) of the SmartThings Home Monitoring Kit.) This app (go.macworld.com/smartthingsapp) doesn't support all of them, but it lets you control lights, thermostats, and security devices via pre-configured settings for mornings, nights, and times when you're away. (Free)

SAMSUNG SMARTTHINGS HOME MONITORING KIT

READ TechHive's full review (go.macworld.com/smartthingsrev)

PRICE $199.99 (MSRP $249) View on Amazon (go.macworld.com/smartthingsamazon)

SIMPLE CONTROL

Run your home entertainment system from your wrist, and you'll never have to worry about misplacing your remotes. That's the idea behind this app (go.macworld.com/simplecontrolapp), a universal control for TVs, Blu-ray players, cable and streaming boxes, receivers, lighting, cameras, and thermostats. It's compatible with many of the biggest brands in home automation and home theater, including Dish Network, Sonos, TiVo, Nest, Roku, Sony, Panasonic, Samsung, JVC, and more. Depending on your subscription plan, you can control up to three, 20, or 100 devices. ($10 for the app, plus subscription fee.)

SoftGozar.com

ECOBEE3 WI-FI THERMOSTAT APP

Ecobee introduced the first Wi-Fi–connected smart thermostat in 2009. Its flagship product, the ecobee3, uses multiple remote sensors to help deliver the right temperature based on where you are in your home. This app (go.macworld.com/ecobeeapp) allows you to remotely manage temperature and humidity settings; change fan modes; and view system status, sensor data, and local forecasts so you can create the optimum environment. (Free)

ECOBEE3 SMARTER WI-FI THERMOSTAT

PRICE $249.00 (MSRP $249.00) View on Amazon (go.macworld.com/ecobee)

INSTEON FOR HUB

Users of the Insteon DIY smart home system should download this app. Once you pair your Apple Watch with your Insteon Hub, you can remotely control (go.macworld.com/insteonforhub) your thermostats, lights, ceiling fans, and other appliances; view camera feeds; receive alerts from motion and water leak sensors; and more. You can also create "scenes" to activate multiple appliances at once. (Free) ■

INSTEON SMART HUB PRO

READ TechHive's full review (go.macworld.com/insteonreview)

PRICE MSRP $150 Learn more on SmartHome.com (go.macworld.com/insteonhubpro)

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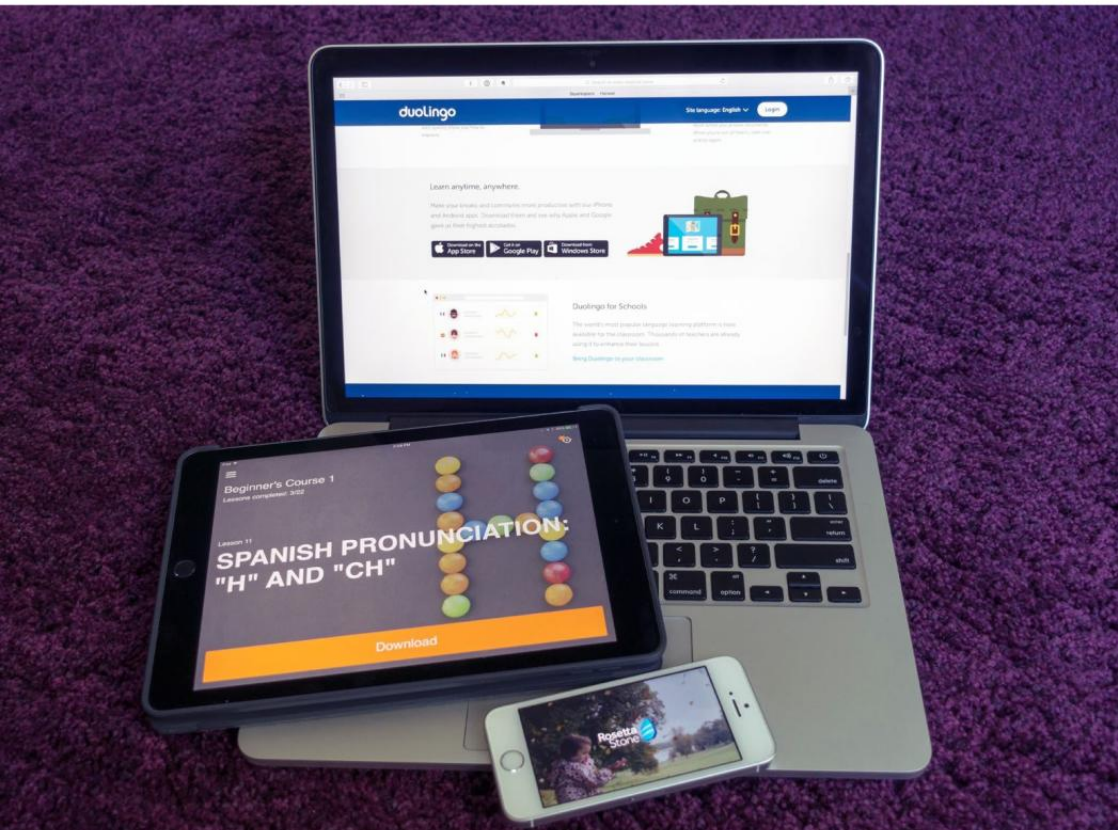

Language apps for iOS: Rosetta Stone beats Duolingo and Babbel

Learning a second language can be fun with an app to gamify the process—but tried-and-true Rosetta Stone works the best.

BY SÉAMUS BELLAMY

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Two months ago, I promised to give you (go.macworld.com/languageapps) the lowdown on my favorite iOS language learning app. But there was a catch: at the time, I didn't know which one to pick. So, I spent hours researching iOS language apps, both free and paid, before deciding on three to take for a spin: Duolingo, which is free to use, plus Babbel and Rosetta Stone, both of which come with a brief trial period, but require a monthly subscription thereafter. I dedicated myself to using each app for 20 minutes a day, on my iPhone or iPad, for two months, with the intention of uncovering which one I liked the most...or at the very least, which one ticked me off the least.

HONORABLE MENTION: BABBEL

Initially, Babbel (babbel.com/mobile) sounded great: a language-learning app that teaches you between 2,000 to 3,000 words for each language it offers, audio clips from native language speakers, and a constantly

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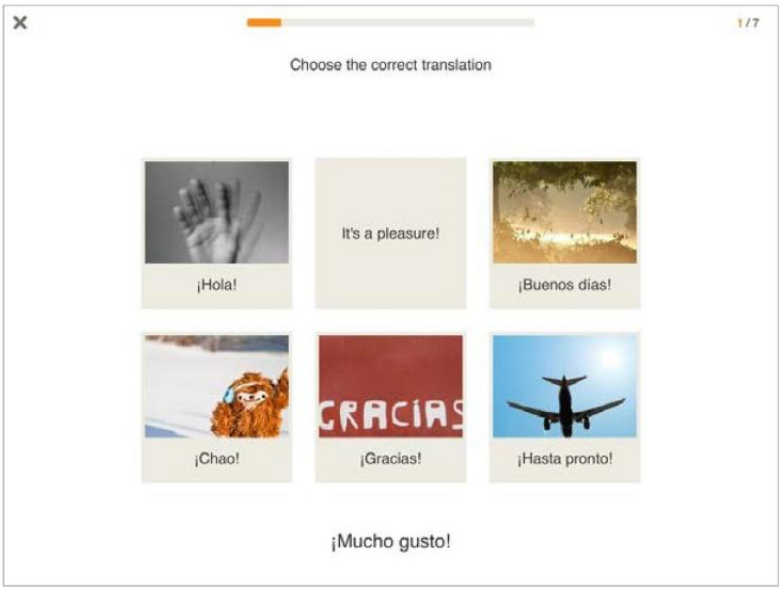

BABBEL'S CONFUSING, DISJOINTED visuals make it a hard app to love.

evolving database of words to review that grows as you progress through each stage. But the app has enough frustrating quirks that, after two months of use, I can't recommend it. Babbel doesn't do anything terribly wrong. Rather, its faults can be found in 1,000 little irritants spread throughout the app.

Instead of using mission-specific illustrations or photos that speak to the lesson being taught like Duolingo or Rosetta Stone do, Babbel seems to rely on stock photos that sometimes, sort of, have something to do with the word or phrase the app is trying to drive into your skull. One will be in black and white, the next in color or even run through a filter that smacks of Instagram. It makes for a jarring visual experience. The disjointed feel of Babbel's user interface carries on throughout the app. While each learning module is introduced by a slick splash screen, the educational components within lack the sort of design quality I would expect from an app that demands a $13 monthly subscription. To be blunt, Babbel feels unpolished.

Beyond this, I found that the Babbel was occasionally slow to respond to my answers, no matter the speed of my Internet connection—or the fact that lesson modules need to be downloaded to your iOS

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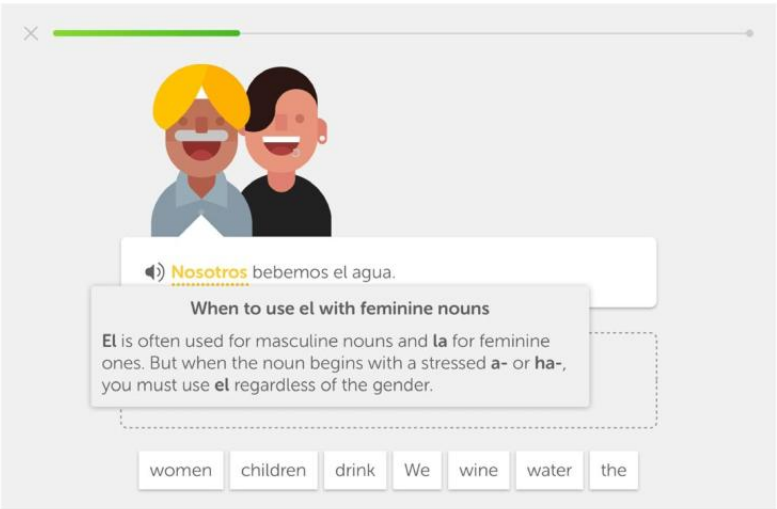
device. And frustratingly, audio would frequently cut out half way through a new word or phrase being conveyed to me. Worst of all, I found that phrases I intentionally fudged to test the app's ability to judge my verbal skills would be accepted as correctly pronounced.

If I wasn't bound by the two-month test period I'd set for myself to vet the app, I wouldn't have continued on with using Babbel beyond, maybe, a few weeks.

RUNNER-UP: DUOLINGO

Duolingo's (duolingo.com) greatest assets are its colorful design, charm, and the gentle way that the app reintroduces you to new words, phrases, and grammar that have caused you difficulty in past lessons. Unlike Babbel, it offers a consistent user interface that makes learning mostly easy throughout the app's various modules. A respectable variety of different quizzes and learning games proved adequate to keep me interested and happy to open the app on a daily basis. However, over the course of my two months with Duolingo, I found that there was one thing about

A RESPECTABLE VARIETY OF DIFFERENT QUIZZES AND LEARNING GAMES PROVED ADEQUATE TO KEEP ME INTERESTED AND HAPPY TO OPEN THE APP ON A DAILY BASIS.



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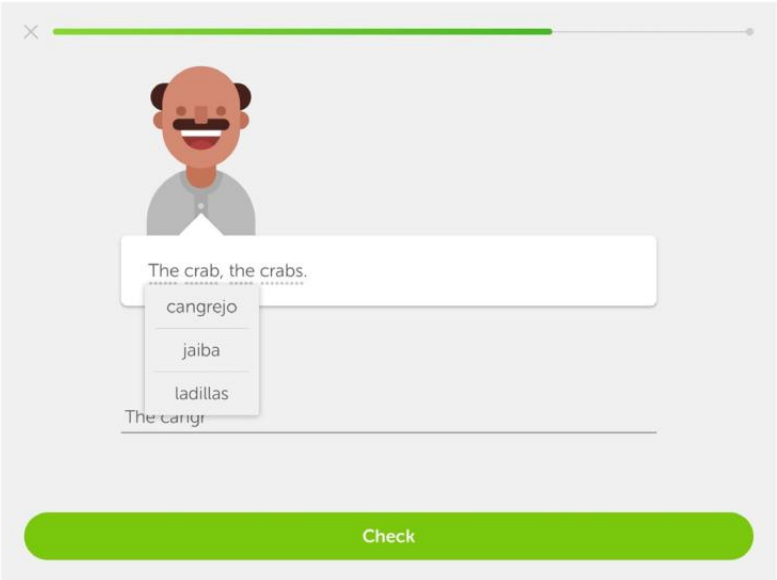

DUOLINGO CREATES a friendly learning environment, but can be short on instructions and visual prompts.

it that made me a little mental: Its lack of instructions.

On more than one occasion, I stumbled across features that the app didn't bother to fill me in on. For example, a few weeks into using it, I was surprised to find that tapping a word in a sentence sometimes provided a drop-down menu with clues to its meaning. At other times a tap lets you hear what the word sounds like when spoken by a native speaker. Having that pointed out to me early on, or having a substantial visual prompt to encourage touching the words I was working with on my iPad's display could have made for a smoother learning experience.

Another example of the app's lack of instructions came up when I was asked to speak a Spanish word or phrase to vet my pronunciation. There was no prompt detailing how to start or stop recording. So, I had to figure it out on my own, which took me a couple of minutes. Not cool.

It's also worth mentioning that, overall, Duolingo lacks the depth of features that our first-place winner provides. But hey, it's a free app. When you weigh its non-existent cost and the large amount of educational value it provides against the few problems I had with it, Duolingo is still pretty great. If you're on a tight budget or only looking to pick up

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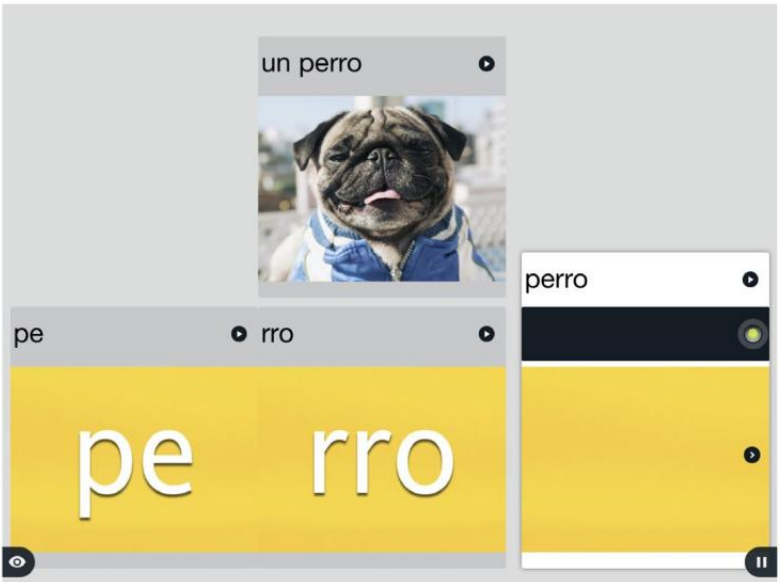
some new words or phrases before a trip abroad, I recommend checking it out.

WINNER: ROSETTA STONE

With its excellent user interface, clear instructions, wide variety of games and challenges, and the ability to call upon a native speaker for a little one-on-one tutoring if you get stuck during your education, Rosetta Stone (go.macworld.com/rosettastone) has got it going on. Simply put, it has a feature set that neither Duolingo nor Babbel can match.

In a departure from what I experienced with Babbel, Rosetta Stone used photos to teach a new word or phrase that are mission-specific and speak to the situation at hand. Not having to struggle with a vague connection between a photo and the word associated with it was like a breath of fresh air. That said, Rosetta Stone doesn't always make it easy. You might, for example, be asked where a woman in a photo is going. The only way to figure out the answer is to look at what she's holding or wearing. In this case, she was standing in the street with a plane ticket in her hand. Boom: airport. In another scenario, a lost traveller looks at a sign in a city with a puzzled expression on her face. I had to guess that she needed a map.



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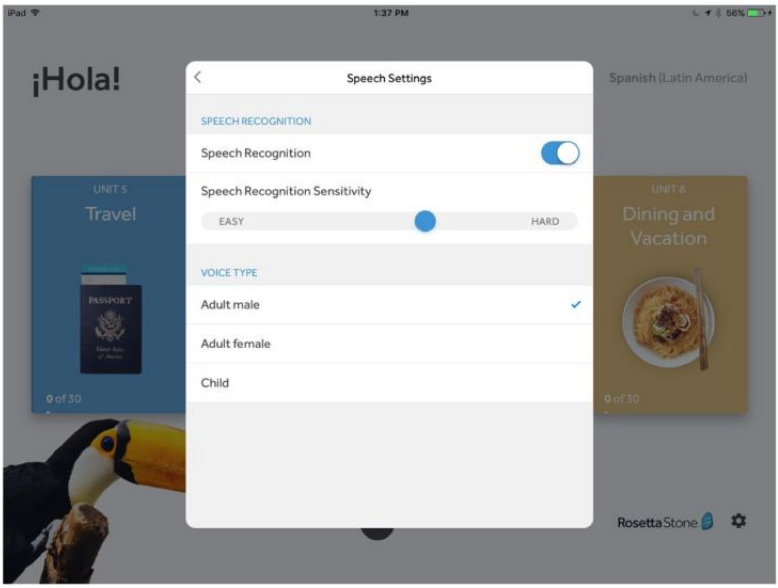

ROSETTA STONE LETS you scale its difficulty to match your verbal abilities.

By providing a context and then forcing me to figure out a response, Rosetta Stone had me earn my education, making it all the more rewarding when I got a correct answer.

I also liked that, with its adjustable speech-recognition engine, I was able to tweak the app to reflect the level of pronunciation that my mouth was capable of expressing. Can't roll an R to save your life? No problem—Rosetta Stone will forgive your untalented tongue. This combination of a well-thought-out UI, difficult but surmountable challenges, and an understanding that not everyone will be able to blather away like a native speaker of the language they're learning kept me coming back for more.

While its $200 annual subscription fee is steep, if you're serious about learning a language, Rosetta Stone is well worth your money. ■

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4 ways to be a considerate late-night iPhone or iPad user

Keep your iPhone or iPad dark and quiet by switching to dark mode in Safari, inversing screen colors, tweaking your Do Not Disturb settings, and more.

BY BEN PATTERSON

PHOTO: COURTESTY OF APPLE

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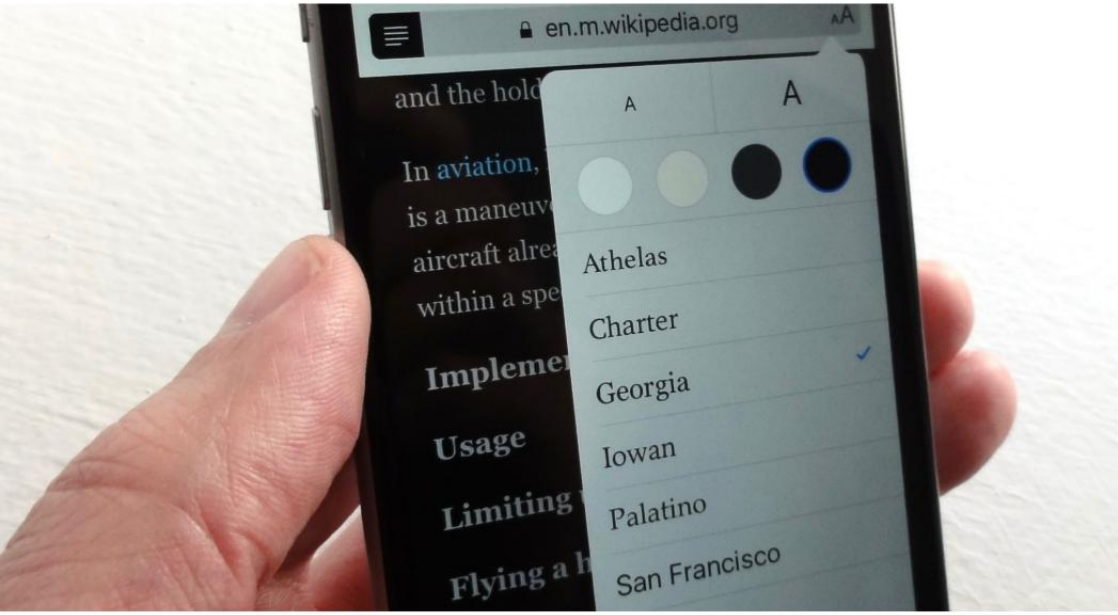

SAFARI'S READER MODE boasts a way to switch to white text on a black background, which dramatically dims the display.

There's nothing like a late-night chapter of a Kindle book to put me right to sleep, but the glow of my iPhone's screen tends to keep my wife awake—and if a jarring iOS notification sounds or buzzes, well, that certainly doesn't help her slumber.

While the new Night Shift mode (which finally works even when iOS's low-power mode is enabled) will supposedly help you sleep by filtering out the brightest colors from your iPhone or iPad's display, it won't do much good for a bedfellow who sleeps best in total darkness and silence.

I've collected a quartet of tips that'll take Night Shift one step further by dimming your iPhone or iPad screen as much as possible while you read, as well as silencing any intrusive alerts or buzzes.

BROWSE THE WEB IN DARK MODE

Even with Night Shift mode turned on, your iPhone or iPad display will still throw off an impressive amount

PHOTOS: BEN PATTERSON

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of light during a late-night web-browsing sessions. If you want to wade into an epic feature story on the Safari web browser without keeping your significant other awake, here's a handy trick.

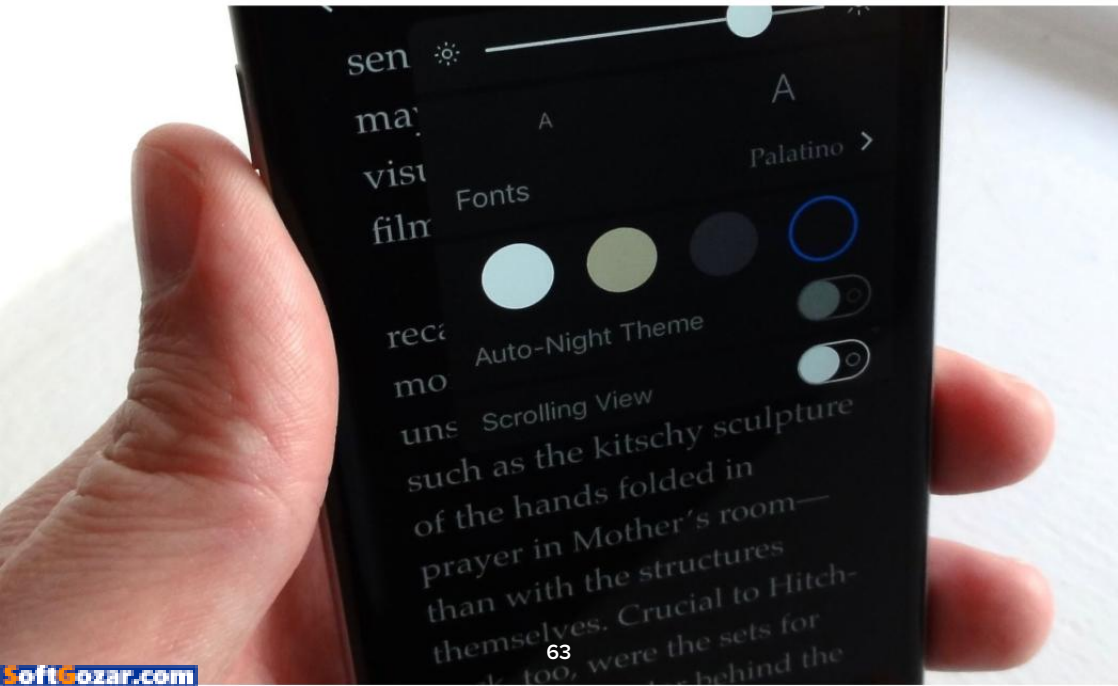
First, activate Safari's Reader mode by tapping the three-line button at the left end of the address bar. Reader mode strips out extraneous page elements while keeping the text intact, although it won't do much to dim the screen...well, not yet, anyway.

Next step: With Reader mode activated, tap the font button in the right side of the address bar (it's the "aA" one), then tap the dark, rightmost circle in the pop-up window.

Presto! Your reader-friendly webpage will have switched to white text on a dark background, slashing the brightness of your screen in the process.

TURN ON DARK MODE IN iBOOKS, KINDLE AND OTHER DEDICATED READER APPS

If curling up with a good digital book is your favorite way to doze off, there's an easy way to do it without lighting up the bedroom late at night. If you're cracking open an iBook, tap the font button in the top corner of the screen (the same "aA" button as in Safari) and tap the darkest circle



iBOOKS FOR iOS can keep the screen dim automatically if you enable the Auto-Night Theme setting.

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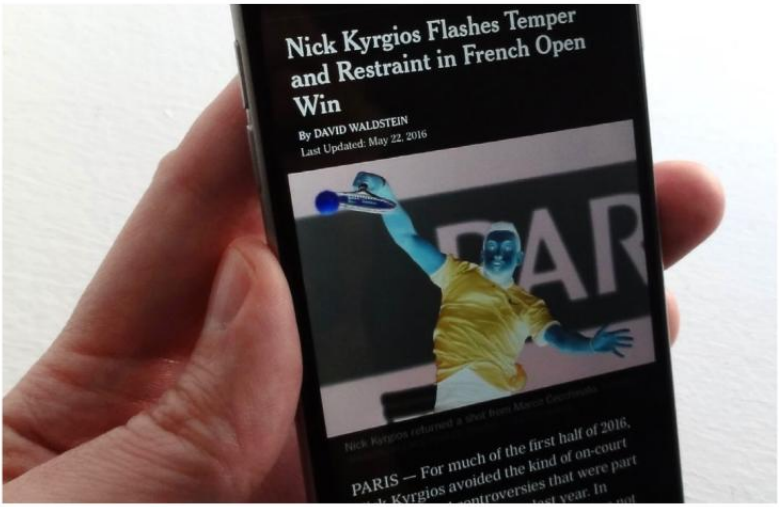

iOS'S INVERT COLORS setting results in groovy-looking images, but it also makes for a handy, de facto dark mode.

for white text on a black background. There's also an Auto-Night Theme setting that automatically turns on night mode if the iPhone or iPad's ambient light sensor thinks it's dark enough.

Got the Kindle app? Tap the "aA" button in the bottom corner of the screen and tap the big Black button for white text on a dark background. The Kindle app also has its own screen brightness slider that works independently of the main iOS brightness setting, perfect for making the screen ultra-dim. (I typically drift off about five minutes after starting to read a Kindle book at the lowest brightness setting and with the black background on.)

Many other popular iOS readers have their own night modes, too. For example, you can tap the "aA" button in Instapaper to change the background setting; same thing in Reeder (the excellent iOS RSS reader). For Pocker, tap the three-dot button in the bottom corner of the screen, then tap Display Settings.

REVERSE THE COLORS ON THE SCREEN

Unfortunately, not all reading apps have a night mode, including some of the most popular newspaper and magazine apps (and yes, I'm looking at you, *New York Times*). You'll also strike out if you're looking for a night-mode setting in the Mail app, meaning you'll be lighting up the whole room while checking your inbox.

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REVERSE THE COLORS ON THE SCREEN

There is a way, however, to be a considerate late-night iPhone or iPad reader even when there's no dark-mode feature in sight.

Tap Settings ➔ General ➔ Accessibility, then toggle on the Invert Colors setting. When you do, all the colors on your iOS display will reverse themselves, resulting in some very groovy visuals on the home screen and in your photos albums.

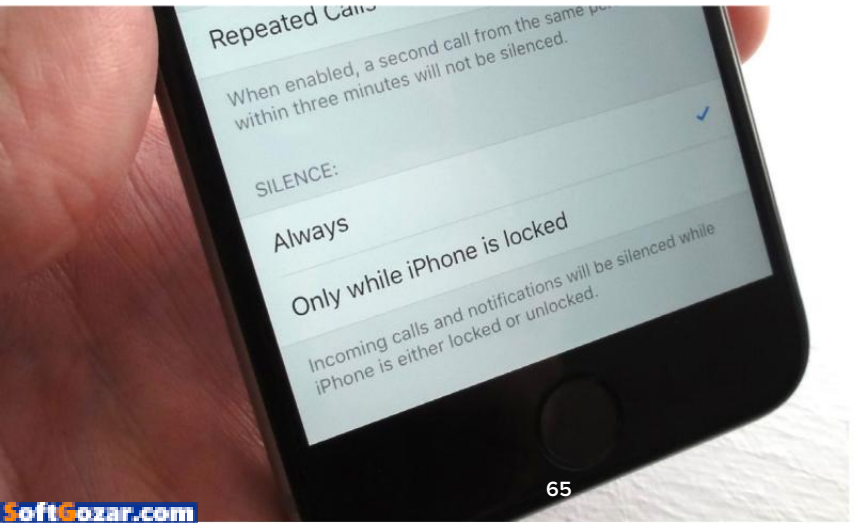
Neat, but beyond its novelty value, the Invert Colors setting also acts as a de facto night mode. Jump to your Mail inbox, the New York Times app, or any webpage in Safari that doesn't support Reader mode, and you'll see what I mean; yes, we're talking white letters on a dark background.

BONUS TIP: You don't need to jump through three iOS settings screens to get to the Invert Colors toggle. Instead, just set up a shortcut. Tap Settings ➔ General ➔ Accessibility, scroll all the way down and tap Accessibility Shortcut, then select Invert Colors. Now, just triple-press the Home key to turn the Invert Colors setting on and off.

TURN OFF SILENCE-SHATTERING NOTIFICATIONS

It's late at night, you're reading your iPhone with a dark-mode setting on and your partner is dozing contentedly beside you.

All is well with the world—and then, without warning, your iPhone buzzes to remind you of a friend's birthday tomorrow, and now your bedmate is stirring. But wait, you have Do Not Disturb mode enabled. How did that happen?



DO NOT DISTURB mode won't silence notifications on an unlocked iPhone or iPad unless you set the Silence setting to Always.

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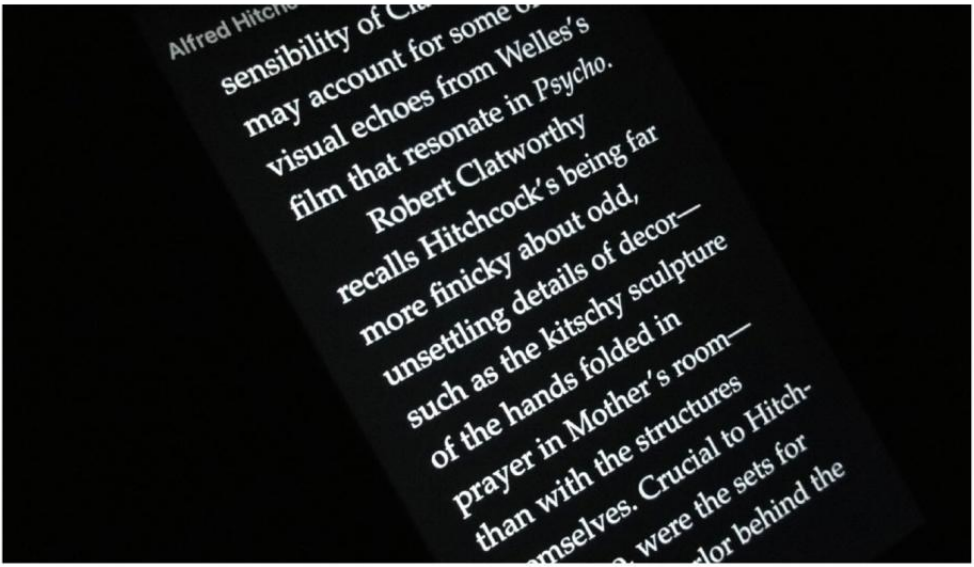

Even when it's active, iOS's Do Not Disturb mode will still allow notifications and alerts to fire when your iPhone or iPad is unlocked. That's handy if you're expecting an important call or iMessage, but not when you're trying to read without making a peep.

Try this: Tap Settings ➜ Do Not Disturb, scroll down to the Silence setting, then check the Always option.

Once that's done, Do Not Disturb mode will muzzle all iOS notifications even when your iPhone or iPad is unlocked.

Note: Under certain circumstances, Do Not Disturb mode may let a call through even with Always selected under the Silence setting. Tap Settings ➜ Do Not Disturb, then check your Allow Calls From and Repeated Calls settings. If you don't want any calls getting through, change the Allow Calls From setting to No One and turn off Repeated Calls. ■

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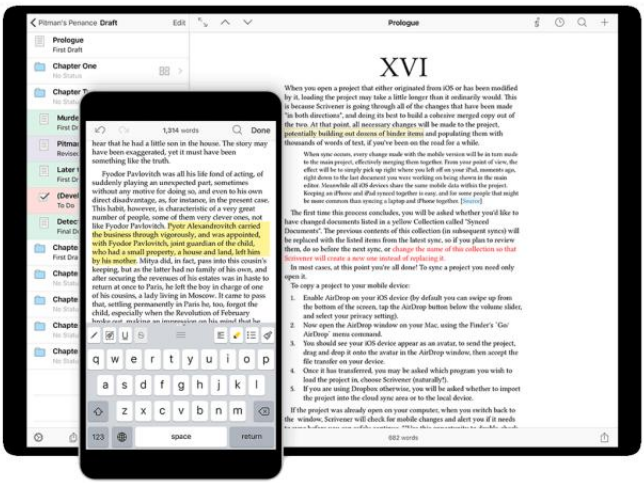

WRITING SOFTWARE

SCRIVENER FOR iOS: A SOPHISTICATED WRITING AND RESEARCH APP FOR ON-THE-GO

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 go.macworld.com/scrivener) 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.

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

LITERATURE AND LATTE SCRIVENER 1.0 FOR iOS

4½

AT A GLANCE

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

PRICE

$60

COMPANY

Literature & Latte Ltd.

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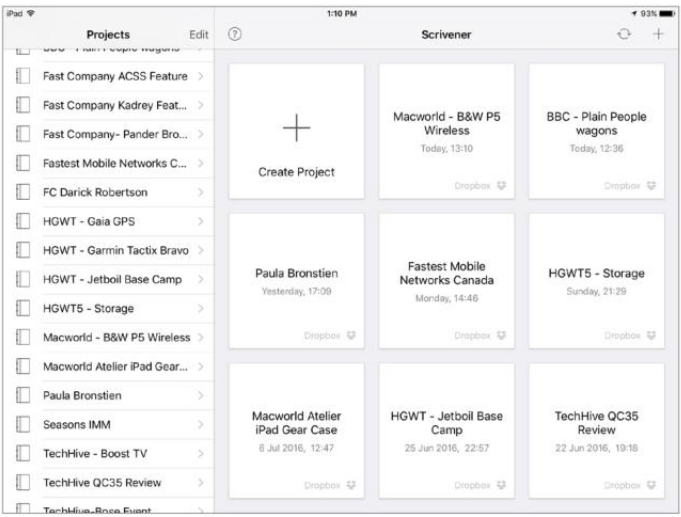
variety of file types, including audio, video, web archives, PDFs, images, and text files. These individual files can be imported into the project from cloud services like iCloud and Dropbox, and iOS apps like Pages, PDF Expert, or Printer Pro. These files are organized into a Binder that contains an 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 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.



WRITING IN SCRIVENER starts with a Project, where you organize your research.

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.

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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.

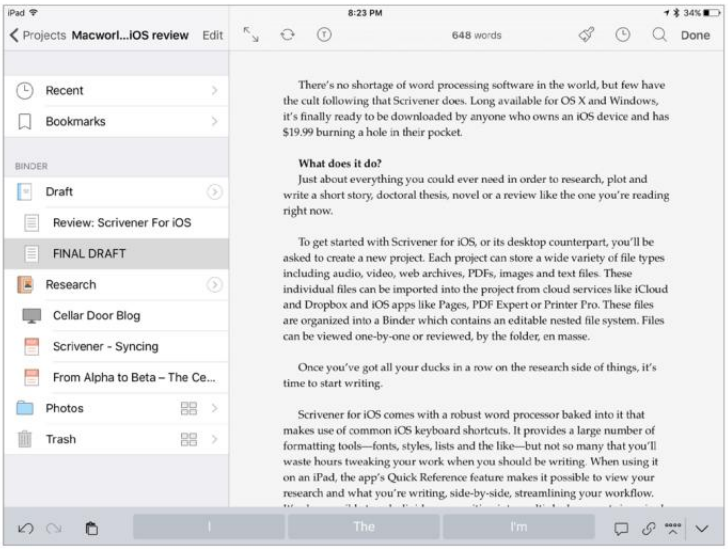
WHAT DOESN'T WORK

While Scrivener for iOS is a universal app, iPhone users don't have access to the Quick Reference view that's available on the 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. ■



SCRIVENER'S WORD PROCESSOR has all the necessary tools to help you put your thoughts down.

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HEADPHONES

OPPO PM-2 PLANAR MAGNETIC HEADPHONES: AS EXQUISITE AS THEY ARE EXPENSIVE

BY THEO NICOLAKIS

THE OPPO PM-2 (oppodigital.com/headphones-pm-2) are all-around spectacular headphones, as well they should be considering their $699 price tag. These cans deliver an uncolored, neutral, and engaging musical presentation with an uncanny knack of revealing the finest details from just about any musical source. While you can drive them with a smartphone, you'll be duly rewarded by pairing the PM-2 with the highest-quality headphone amplifier or digital audio player you can afford (we review four of the best DAPs in this story, go.macworld.com/4bestdaps).

OPPO DIGITAL PM-2 PLANAR MAGNETIC HEADPHONES

4½

PROS

- An ability to reveal the finest details and most delicate nuances from your music
- Incredibly clean and tight bass reproduction
- Exceptional sound, from top to bottom

CONS

- Open-back design requires a relatively quiet listening space
- Some might find its deep bass reproduction unsatisfying

PRICE

$699 (MSRP $699)

COMPANY

Oppo Digital

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If you're not familiar with Oppo, you're not alone. For much of its existence, the company made a name for itself by producing some of the best and most acclaimed Blu-ray players (and before that, DVD players) money could buy. But you wouldn't find those products in any big-box store; you had to shop specialty retailers or buy direct.

So when Oppo announced it was entering the high-end headphone market with the $1,099 PM-1 planar magnetic headphone and $1,199 HA-1 headphone amplifier and DAC, many were taken aback. What does a niche player in the Blu-ray market know about manufacturing high-end personal audio gear? A lot, as it turned out. Universal praise and industry awards quickly silenced the doubters, but it didn't make those spectacular products any more affordable.

OPPO'S PM-2 has a sci-fi styling reminiscent of *Dr. Who*'s "Cybermen."

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EVEN WITH COSMETIC differences between the two models, you'll be hard-pressed to tell the difference between Oppo's $1,099 PM-1 (left) and $699 PM-2 (right).

Now people wanted a cheaper version of the PM-1 that delivered the same sound quality. Oppo heard those cries and voilà! The PM-2 was born.

OPPO PM-1 COMPARED TO OPPO PM-2

You'll be hard-pressed to tell the PM-2 apart from its more expensive sibling, the PM-1. You might also swear that the industrial design of both sets of headphones was inspired by the 1975 *Dr. Who* episode "Revenge of the Cybermen."

As for performance, Oppo says that aside from some minor adjustments to the voicing in the treble (based on feedback about the PM-1), there isn't much difference in the technology, design, or component parts in the two models. The biggest differences between the PM-2 and PM-1 are cosmetic matters that don't impact audio reproduction.

The PM-2 doesn't envelop you in luxury like the PM-1 (which is not to say that the PM-2 feels cheap). The PM-1's lambskin headband and ear cups give way to a synthetic leather on the PM-2; the metal trim around

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the PM-1's grill, and the silver trim between its headband and ear cup body, are replaced by high-quality plastic on the PM-2; and the gorgeous wooden storage case that comes with the PM-1 yields to a more casual, soft-shelled, selvedge denim carrying case.

PLANAR MAGNETIC TECHNOLOGY

Oppo's take on planar magnetic technology is the same in both models. Where more traditional headphones use dynamic drivers (like those in loudspeakers), a planar magnetic design uses an extremely thin and light diaphragm to reproduce sound. A magnetic system drives the entire surface of the diaphragm evenly in a pull-push manner. Oppo says that the benefits of its proprietary, double-sided diaphragm include less distortion, greater efficiency, and better consistency.

Oppo went for an open-back design that offers many benefits, but there are also some trade-offs: You get a greater sense of musical space

THE PM-2'S EAR cups are removable, replaceable, and/or upgradable. Removing the ear cups reveals the headphones planar magnetic drivers.

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and depth, but the drivers are open to the world around you, so you hear everything around you. There's practically no isolation from outside noise and very little to stop the music from leaking out into the environment. To get the best experience with the PM-2, you'll want to listen in a quiet space.

SUPERB FIT AND FEEL

You'll never be at a loss finding the perfect fit with the PM-2. The ear-cup arms swivel effortlessly 90 degrees in either direction, and the ear cups themselves tilt up and down. The headband click-adjusts every few millimeters.

Many high-end headphones—including some competing planar magnetic models—are heavy. The PM-2 are not, they weigh just 385 grams (about 13.5 ounces). Long listening sessions were no problem in my testing. I could listen for hours without the headphones feeling heavy.

THE OPPO PM-2 earcup tilts up and down and swivels a full 90 degrees for an almost infinitely adjustable fit. The left arm has a small raised dot so that you tell the left from right with your sense of touch.

As with most circumaural headphones, the PM-2 did get a bit hot. But they also did an above-average job of resisting sweat, and the hypoallergenic, natural latex cushions kept their shape. I still prefer the feel of natural leather to the PM-2's synthetic material; if leather ear cups are a must-have feature (they are for me), Oppo sells lambskin ear pads as a $59 accessory (go.macworld.com/oppoearpads).

Oppo includes both 1/8-inch and 1/4-inch cables. The 1/8-inch cable is much shorter than I'm accustomed to—it's about an arm's length. After extended use, I found the shorter cable a blessing. I could connect the PM-2 to a digital audio player or smartphone and pop the player into my

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back pocket without excessive slack. No more catching my hand in the slack. The included 1/4-inch adapter is a soft, highly flexible nylon braided cable about 10 feet long, which is perfect for plugging into an external DAC or headphone amp. Aimed at audiophiles, you won't find an inline microphone or remote control on either of the included cables.

For my listening tests, I paired the Oppo PM-2 with a variety of players, including a Questyle QP1R (go.macworld.com/questyleqp1r), an Onkyo DP-X1 (review forthcoming), Astell&Kern's AK 100II, Sony's NWZ–A17, and an Apple iPhone 6s. The Onkyo DP-X1 also features a balanced headphone input that will accept a 2.5mm, four-pole cable. While Oppo doesn't provide such a cable, you can purchase one that is compatible with the PM-2 from Double Helix Cables (doublehelixcables.com/store).

A MUSICAL EXORCISM

The PM-2 has the pedigree, price point, and accessories of a high-end pair of headphones, but the important question is, "How do they per-

THE PM-2 COMES with both 1/8-inch and 1/4-inch cables. You can use the PM-2 with either your favorite music player or high end DAC/ headphone amp.

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form?" Let me put it this way: If the Devil is in the details, then the Oppo PM-2 will perform an exorcism on your music.

These are beautiful, neutral-sounding, and highly engaging headphones. The PM-2 have an uncanny knack of revealing seemingly every nuance out of your music. I also found the PM-2 to be exceptionally clean—even at high listening volumes. I can't recall a single instance where I noted signs of compression or strain when playing a variety of musical genres.

Bass lines in Adele's "Send My Love" and the percussion on "Sweetest Devotion," both from *25,* were ridiculously tight. When listening to "Send My Love" or "I Miss You" with other headphones—even very good ones—the beat is a loose, thumping sound. With the PM-2, you hear precise, pristine bass extension and fine decay. Why does that matter? When you hear really good, clean, authoritative bass, it completely transforms your listening experience. There was nothing muddy or veiled in the music. Instruments started and stopped with surgical precision. If there was punch in the dynamics, the PM-2 delivered each blow. And Adele's vocal nuances and inflections were always crystal clear.

UNLIKE THE PM-1'S luxurious wooden storage box, the PM-2 comes with a more modest selvedge denim carrying case.

Reproducing the grandeur of classical music is a tough act for headphones to pull off, but the PM-2 did an exquisite job. On the Naxos 192/24 Hi-Res recording of Saint Saëns' Symphony No. 3 in C Minor, conducted by Marc Soustrot with Carl Adam Sandstorm on the organ, I noted an uncanny sense of soundstage space and depth with remarkable instrument separation. Strings were delicately rendered, and the majestic organ pipes beautifully reproduced and easily discernible even during complex movements with other instruments.

Calling up the Hi-Res versions of Metallica's "The Unforgiven," Patricia Barber's *Cafe Blue,* the "Lush Life" from Tony Bennett and Lady Gaga's

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Cheek to Cheek, or Pink Floyd's "Wish You Were Here" showed that if you wanted to speed it up, slow it down, or just mellow out, the PM-2 could keep up with all of it.

As resolving and detailed as the PM-2 were, they tended to be polite in the bass (though this is a relatively common drawback with open back headphones). Doing an A-B comparison of the PM-2 to either my B&W P7s or even my reference two-channel audio system anchored by Revel loudspeakers showed the difference in the impact of the bass response.

THERE AREN'T MANY NO-BRAINERS IN LIFE. THE OPPO PM-2 IS ONE OF THEM.

WE RECOMMEND

While certainly not the most expensive headphones on the market, Oppo's $699 PM-2 planar magnetic headphones still represent a significant financial investment. If you've been saving your dollars in the hopes of one day finding a killer pair of headphones, that day is here: Oppo's PM-2 will endlessly engage you, beautifully unwrapping the hidden nuances of your musical collection one layer at a time. There aren't many no-brainers in life. The Oppo PM-2 is one of them. Very highly recommended. ■

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What's new at the App Store

ANGRY BIRDS 2

In celebration of its first birthday, Angry Birds 2 (freemium, iPhone and iPad, go.macworld.com/angrybirds2) has been updated with 80 news levels, a "Ring of Fire" to make "those bad piggies feel the burn," as well as birthday hats for all your favorite characters. Need more? Here's the trailer (go.macworld.com/angryb2trailer) for the game's birthday celebration.

Polaroid Swing

Polaroid Swing (free, iPhone) (go.macworld.com/polaroidswing) lets you "capture one-second moments that magically come to life when you touch them or swing your iPhone." You can also reverse the moving photo, or take 3D selfies by rotating your phone around you.

Read

Read (go.macworld.com/readapp) is a 20-lesson program designed to help young elementary school students learn to read. There are 120 exercises, 150 interactive stories, and more.

Tayasui Color

Have you joined the adult coloring book trend? Tayasui Color ($2, iPhone and iPad) (go.macworld.com/tayasuicolor) offers 12 illustrations and four in-app drawing tools that come with their own "tool sounds." "Our patented Sound Engine provides realistic sounds while you're coloring for a genuinely soothing and immersive experience," the developers say. The result, they hope, is a relaxing coloring book experience.

Wonder

Wonder (free, iPhone and iPad) (go.macworld.com/wonderapp) is like a Pandora for indie music lovers: Create instant playlists based on tracks you like, and save favorite tracks for later listening. Artists you like can be shared with your hipster friends via social networks, naturally, so you can let them know you were first to discover the coolest bands.

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Powered on the go

This month's roundup of iPhone cases features two sharp ways to protect your cash and phone, a case that's designed for add-ons, a slim solution to charging, and a bonus screen protector that zaps cooties.

BY JOEL MATHIS

DANNY P.

The Leather Wallet Case ($129 MSRP; fancy.com) doesn't have a battery, as do other purses and clutches we've featured recently. But it does have room for your iPhone, five credit cards, and an ID.

OTTERBOX

The Universe Case ($49.95 MSRP, otterbox.com) is more than protective gear for your iPhone 6 or 6s. It accommodates the full range of Universe-compatible attachments—everything from tripods to thermal imagers and more. In other words, it's an accessory that lets you add even more accessories—and it's a pretty nifty system.

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Powered on the go

COVR

Covr Photo ($50 MSRP, bitemyapple.co) is an iPhone 6/6s case with a built-in sliding camera lens; hold the phone like you would a TV remote to take photos and video unobtrusively.

LIFESHIELD

The $30 LifeShield screen protector (spyderstyle.com) doesn't just protect your iPhone screen from getting cracked—it offers a shield against cooties, too. OK, that's not the technical term, but the LifeShield includes antimicrobial protection as one of its features: If there are germs or viruses that end up on your screen, the LifeShield will kill most of them.

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CLUTCHETTE CHARGING CLUTCH

The Clutchette Power Charging Clutch ($50 MSRP, fancy.com) is a small, hand-held purse that includes a backup battery for charging your iPhone, which can also be stored inside.

THINCHARGE

ThinCharge ($130 MSRP, chargetech.com) calls itself "the world's thinnest iPhone battery case." It holds 2,600 mAh of power in reserve, and uses your iPhone's Lightning charging cable to charge itself and your phone at the same time.

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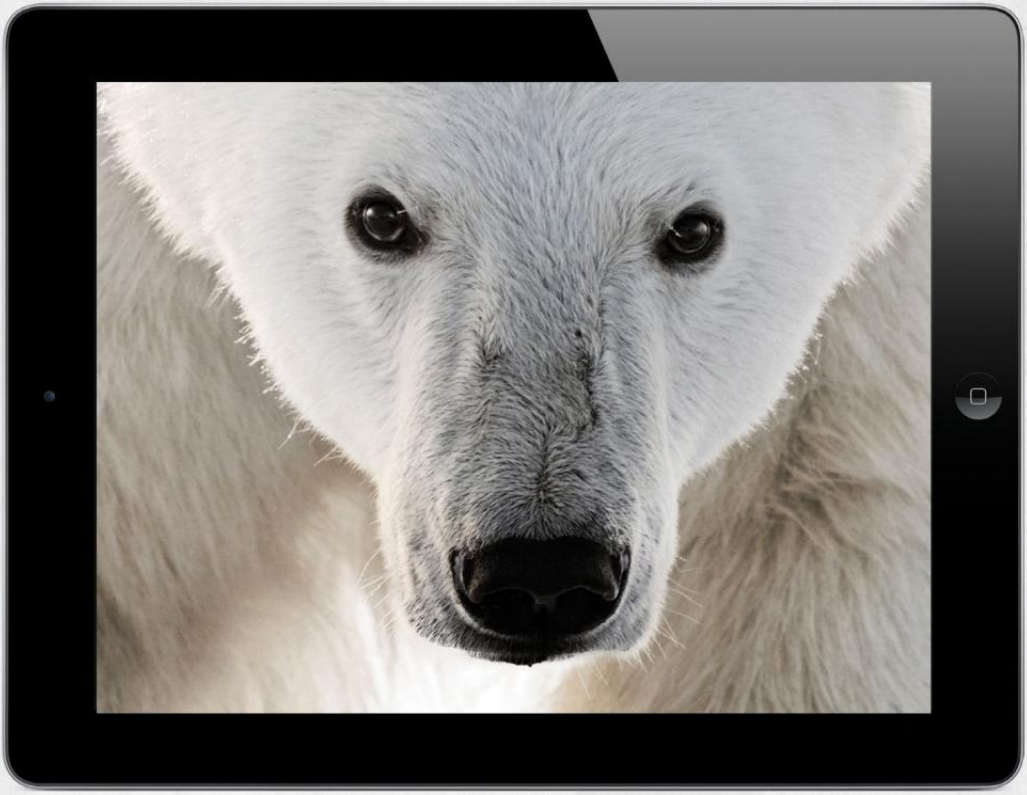

THE CLOSER WE GET, THE MORE WE SEE

Experience the world's most amazing animals in one app. **WWF TOGETHER**—the new free app from World Wildlife Fund. Download it today.

worldwildlife.org/together

WWF

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Meet Swift Playgrounds

THE LEARN-TO-CODE iPAD APP THAT FEELS LIKE A PUZZLE GAME

Apple's first foray into teaching kids how to code is a triumph.

By Susie Ochs

IMAGES COURTESY OF APPLE

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Learning to code isn't supposed to be this fun. Apple's new Swift Playgrounds (go.macworld.com/swiftplayg) app for iPads running iOS 10 is aimed at teaching the Swift programming language to middle-school-age children and adults, no coding experience necessary. But it feels like a puzzle game—one that just happens to be solved with commands and functions and For loops, instead of with a slingshot full of birds.

LEARN TO CODE 1 and two Challenges are available now, with Learn to Code 2 and more playgrounds coming later.

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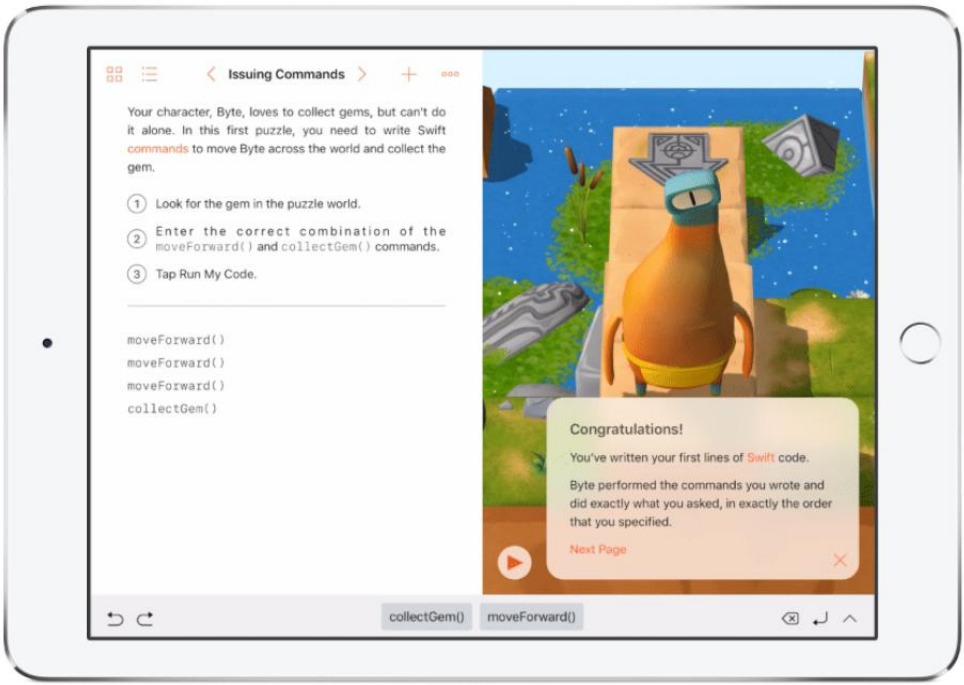

And I'm totally hooked. In fact, Swift Playgrounds is my favorite thing to come out of this year's WWDC by far, and I think it's going to be one of the highlights of iOS 10 when it's released this fall.

You can try out the free Swift Playgrounds app today by putting the iOS 10 public beta on a compatible iPad (fourth-generation or later). The app is automatically added to your home screen when you join the beta, but when iOS 10 launches this fall, Swift Playgrounds will be a free download from the App Store.

Finding lessons

When you fire it up, you'll see a Featured section with lesson packs named Learn to Code 1: Fundamentals of Swift, and then Learn to Code 2: Beyond the Basics. Below that are the Challenges, starting with Drawing Sounds and Blink. More lesson packs and challenges will be added over time, and the lessons are RSS-based, so Apple can add new content without having to update the app itself.

Downloading a lesson pack or challenge adds it to the My Playgrounds tab, which looks like the

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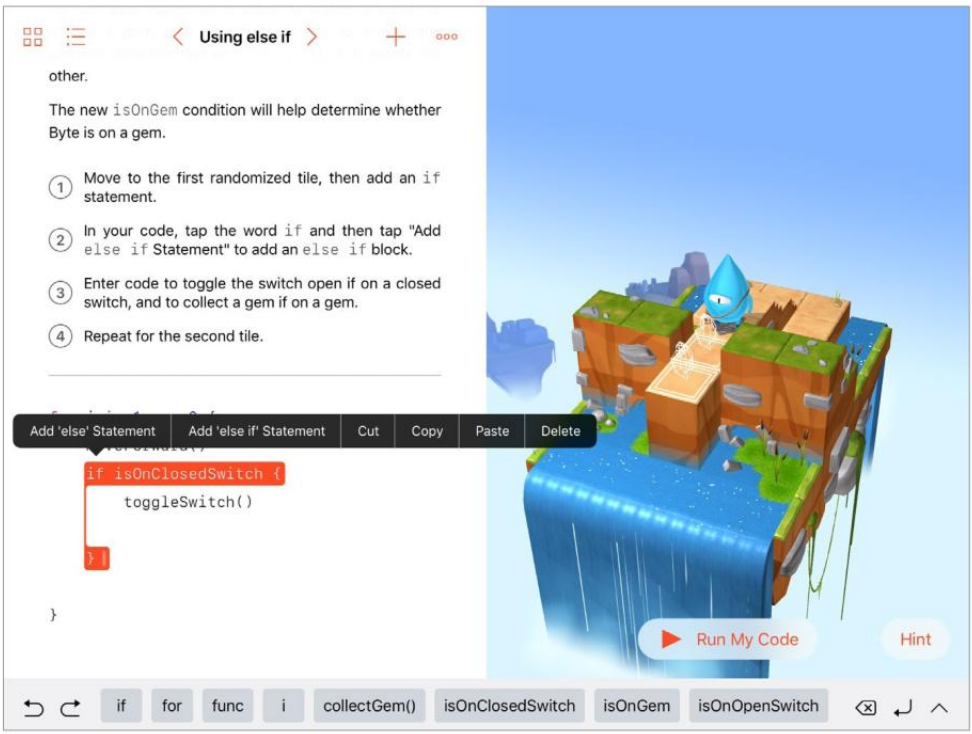
shelf in iBooks. You can create new playgrounds too, or download them from other sources. For example, Apple made a Sphero playground to demo at WWDC, showing how Swift Playgrounds can use all of the iPad's hardware and software features, in this case connecting via Bluetooth and issuing commands to a Sphero robotic ball. Sphero could actually make its own playground and distribute it on its own site, explained Wiley Hodges, Apple's director of tools and technologies product marketing.

From this shelf, you can also duplicate a playground or reset it. Say your child is halfway through a lesson her little sister wants to try, too. You can duplicate the playground to make a copy, then reset the copy to its original state. (Swift Playgrounds will also work with the classroom-management features



SWIFT PLAYGROUNDS TAKES advantage of the iPad's touchscreen interface. You can tap commands from the list along the bottom, pull up to get a full keyboard, or tap individual items in your code (like the For loop highlighted in red) for contextual items.

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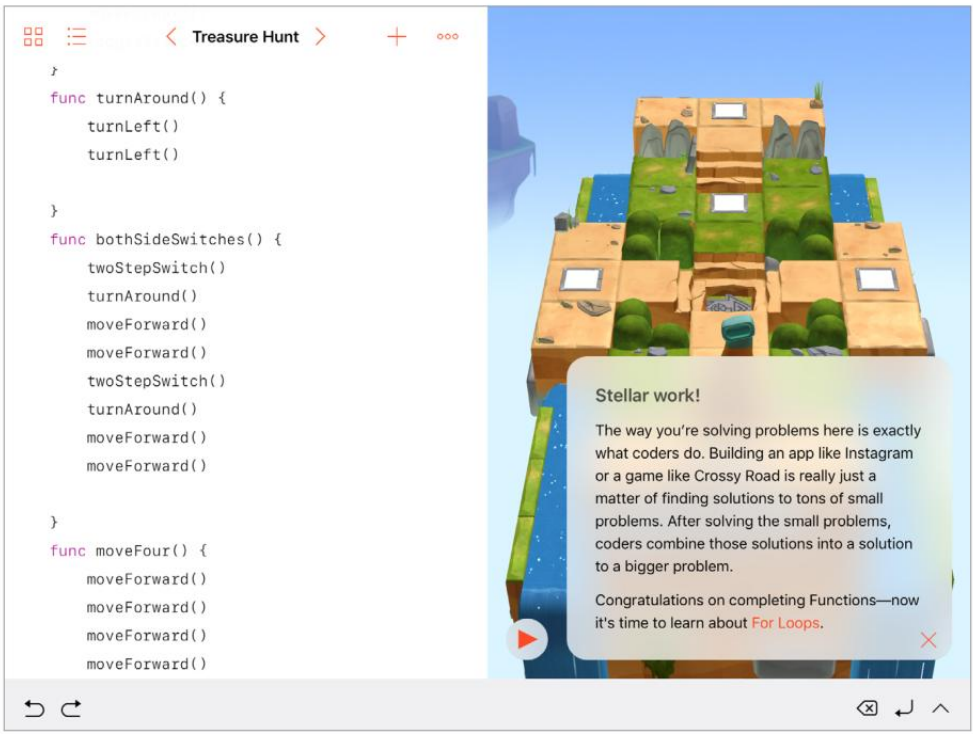

Apple added for teachers in iOS 9.3, go.macworld.com/ios9-3.)

Learning to code

Since I had no Swift experience, I plunged right in to Learn to Code 1, which assumes no prior knowledge. A friendly cut-scene introduces each new topic and explains it in a way anyone can understand. The first group of lessons, for example, covers basic commands, so the cut-scene makes the analogy that these are like following a recipe or set of instructions. Later, when introducing For loops, the analogy is breaking down a task, such as planting a flower garden, into small steps you'll repeat over and over.

But once the concepts are introduced, the lessons use the real terms for everything: call a function, loop commands, if statement, conditional code. Anything jargony in the instructions is colored red, and all you have to do is tap a red word for a definition.

THE APP IS extremely encouraging, and constantly reminds you that you're learning a real skill.

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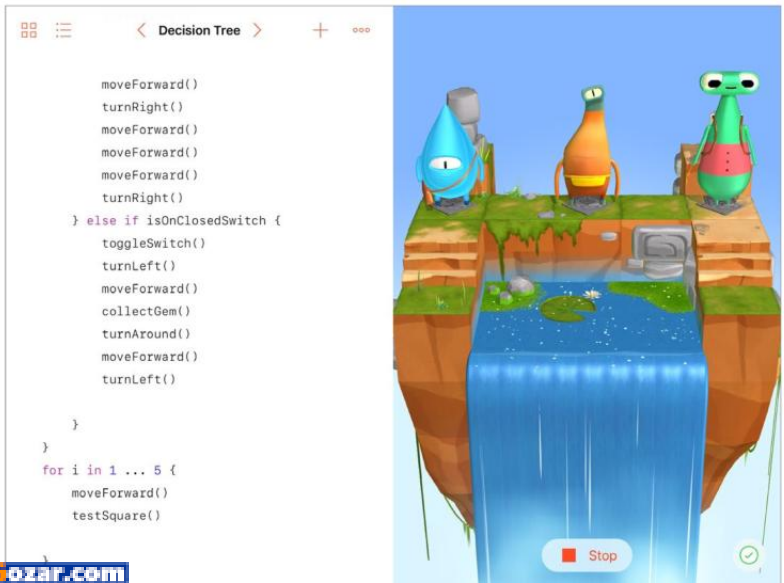
The interface is split into two panels. The left side is text: Your challenge is explained at the top, with a space below for you to compose your program. The right side of the screen shows the results, with a big red Play button you can tap, labeled Run My Code. For the Learn to Code 1 lesson, I'm giving commands to Byte, a goofy cartoon-ish mascot who's moving around a game board collecting gems and flipping switches. (Easter egg: Tap on Byte to change the character model; there are three to choose from.)

You're given some commands to get started: You can tell Byte, for example, to `moveForward` and `turnLeft`, which are both examples of how Swift commands really appear. But there's no `turnRight` command out of the gate, so one of my first challenges was writing a `turnRight` function that combined three `turnLeft` commands. You can run the program after entering each command, or try to write the whole thing out at once by tapping the commands in the QuickType row or expanding the whole keyboard. The preview pane supports Multi-Touch, so I was able to scroll around the game world and zoom in and out to count, for example, how many squares Byte needed to move forward before he turned left.

Learn to Code 2, which will launch with the final version of Swift Playgrounds this fall, has a different world than the gem-collecting, switch-flipping realm of Byte, which is meant to



THE PREVIEW PANE is interactive: you can zoom around to get a look at things, and tap on Byte to change the character.

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show that Swift's tools can be used for tons of different applications, as well as to cut down on repetition.

Thinking like a coder

Swift Playgrounds encourages creative problem-solving—there isn't one single solution, or even one "best" solution. You aren't graded on how few lines you can use or how many functions you come up with. But the app does teach good coding habits like looking for patterns that repeat, and using descriptive names for functions so you can more easily remember what they do. If you break out ahead, say, adding a loop to your code before you are formally taught loops, the app gives you props for your advanced skills.

The whole experience is heavy on praise, which made me want to keep going lesson after lesson—it's really motivating! And a progressive Hint button cuts down the frustration factor if you do hit a wall. At first, the Hint pop-up offers ways to think about the challenge. If you need more help, it will supply clues about how to break down the challenge into parts, and finally just shows you the correct code if you're really stumped. But you can't copy and paste from the Hint bubble into the code editor—you have to type it out manually, which will help you learn.

It's a lot of fun to tinker Swift Playgrounds, learning the concepts behind making good code as well as the syntax, but your code isn't trapped there. You can record and share movies of your code, even give them voiceovers bragging about your skills, or even share entire playgrounds via AirDrop, Messages, and Mail. The iPad isn't a full development platform just yet (and naturally, Apple wouldn't discuss its plans for the future), but you can also export code from your playgrounds back into Xcode on the Mac.

THE BENEFITS OF SWIFT IS THAT IT'S FAST AND POWERFUL LIKE COMPILED LANGUAGES SUCH AS OBJECTIVE-C, WHILE ALSO BEING MORE FRIENDLY AND EASY TO READ, LIKE A SCRIPTING LANGUAGE.

Why it's so unique

Apple introduced Swift at WWDC in 2014, and made it open source this past December. It's already being used in more than 100,000 apps in the App Store, including heavy-hitters like Lyft, Slack, and Strava. "We've gotten a great response," said Hodges, adding that Swift is the fastest-growing programming language.

The benefits of Swift is that it's fast and powerful like compiled languages such as Objective-C, while also being more friendly and easy to read, like a

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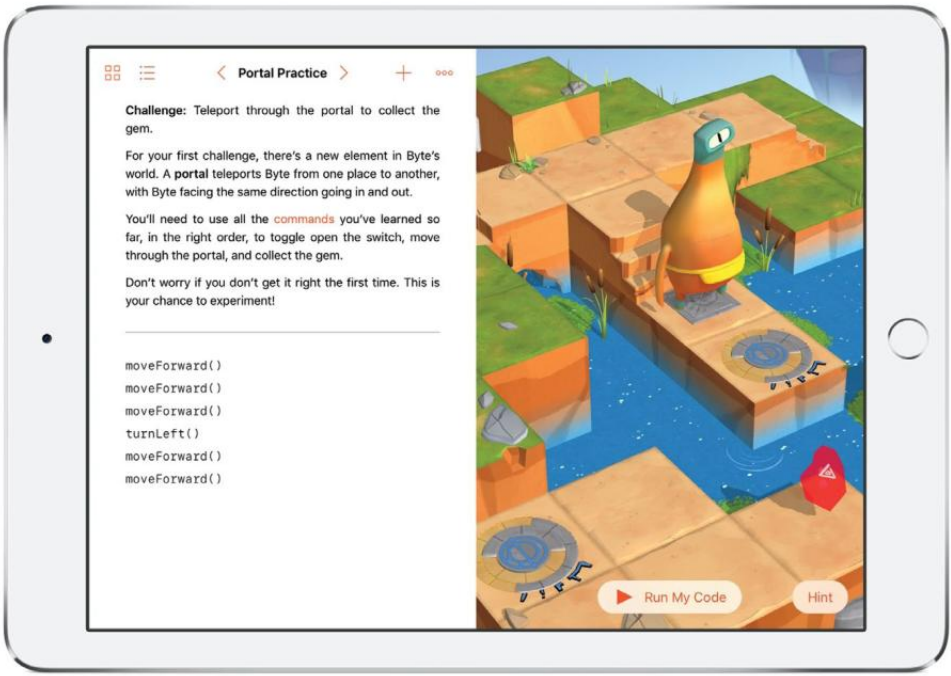

scripting language. Commands and functions are built with human-readable words. My first encounter with writing code was back in the ’80s, when I learned BASIC at a summer day camp for nerdy children, and I loved how I could tell what it was going to do before I actually ran it, just by reading the code. Swift reminds me of that, and Swift Playgrounds’ split-screen view makes that visualization even easier, the code listed on the left, next to the virtual world where it’ll run.

In fact, Swift Playgrounds is (naturally) written in Swift, and the code you create in the code editor is inserted directly into the program running on the right side of the screen. Once I accidentally deleted a bracket and broke the code. It wasn’t a problem of the on-screen Byte character not reaching his goal because I’d given him the wrong commands and sent him in the wrong direction. He wouldn’t move at all until I fixed the syntax, an in-my-face reminder that every keystroke matters. The game world uses SceneKit, Metal, and 3D acceleration, the same technologies used all over iOS.

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Apple developed the curriculum for Swift Playgrounds itself, based on what its own software engineers think is the best way to learn software engineering. This isn't a purely academic exercise: Swift Playgrounds is designed to get you thinking like a coder, decomposing problems and applying logic. "It's made by Apple, by the people who write the real software," said Tim Triemstra, who handles product marketing for Apple's developer tools, "so we're teaching programming how it's actually done."

THIS ISN'T A PURELY ACADEMIC EXERCISE: SWIFT PLAYGROUNDS IS DESIGNED TO GET YOU THINKING LIKE A CODER, DECOMPOSING PROBLEMS AND APPLYING LOGIC.

But Apple also brought in professional educators, and of course kid testers, to tweak things like the leveling and the motivating language. "We worked with educators to hit the important notes of how to teach computer science," explained Cheryl Thomas, Apple's vice president of software engineering operations. "We wanted to be egalitarian, with a wide appeal to both boys and girls," she said.

All the lessons are available right away, so you don't have to unlock them one by one or play them in a certain order. The goal was to create excitement, so a lot of thinking went into how to keep users engaged—and it really shows. Swift Playgrounds feels more like a game than an academic exercise, with a "just one more lesson" addictiveness that made me want to keep building on the skills I'd just learned.

Swift Playgrounds is available with the iOS 10 public beta, including Learn to Code 1 and two Challenges. More lessons will come later with the final shipping version of the app, launching with iOS 10 this fall. For more on Swift Playgrounds, take a listen to Macworld Podcast episode 514 (go.macworld.com/podcast514), with special guest Fraser Speirs. ■

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HOW MY APPLE WATCH'S HEART RATE MONITORING SAVED MY LIFE

CHUCK LA TOURNOUS HAS A SCARY STORY WITH A HAPPY ENDING. WHEW.

ILLUSTRATION BY JOHN UELAND

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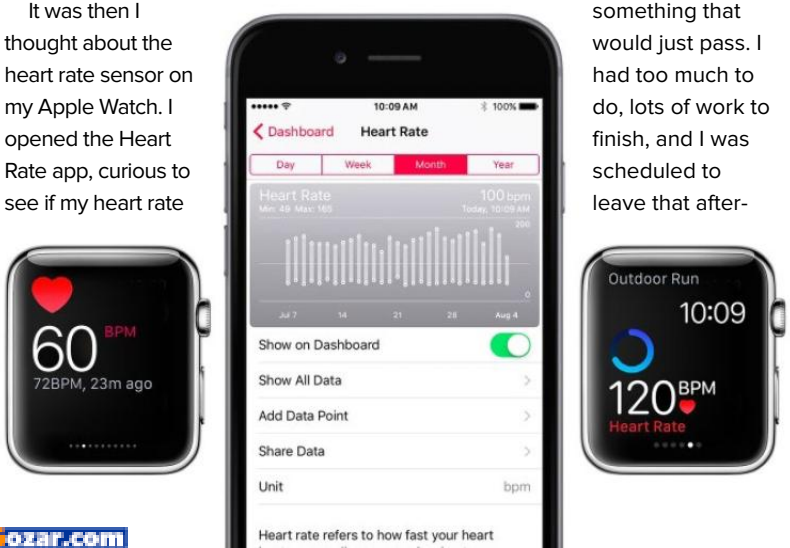
I'll begin this story the same way I began the phone call to my wife: "I'm OK, but..."

The "but" began on a Tuesday morning, after I started walking from the parking lot to the front door of my office building. I began feeling short of breath. No matter how deeply I inhaled, it felt like my lungs weren't filling up completely. At first, the feeling just seemed odd—nothing serious, just...weird.

By the time I climbed the flight of stairs to my floor, the feeling had grown worse. Along with the shortness of breath, I could feel my heart racing in my chest. Stopping to talk to a colleague on the way to my office, the mere act of speaking left me practically gasping for air. I cut the conversation short and continued to my office. Sitting still made me feel better, but not great.

It was then I thought about the heart rate sensor on my Apple Watch. I opened the Heart Rate app, curious to see if my heart rate was actually elevated or if it was just my imagination. It read 118 beats per minute. Definitely not my imagination—my normal resting heart rate is in the low 70s.

As I sat at my desk that morning, I frequently checked my heart rate with my watch. No matter how long I was at rest, it never dipped below 100 beats per minute. Still, I kept trying to convince myself it was something that would just pass. I had too much to do, lots of work to finish, and I was scheduled to leave that after-



IF NOT FOR the Apple Watch, I wouldn't have known what my resting heart rate should have been, or that my elevated heart rate was definitely a cause for concern.

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noon on a 780-mile drive with my family to celebrate my daughter's graduation from her Master's program. It was a trip I'd been looking forward to for months—and I wasn't about to let a little shortness of breath mess it up.

STAIRWAY TO HEAVEN

By lunchtime, I had made up my mind not to mention anything to my wife and to go ahead with our trip. I was thinking about packing lists and making a mental note not to forget my Apple Watch charger as I walked down the two flights of stairs to the cafeteria. The shortness of breath returned, but I was determined to ignore it. I started to carry my lunch back up the stairs and the gasping returned. The pounding of my heart became so strong I could feel it in my ears. I felt so winded I had to pause on the stairwell—I just didn't have the strength to go on.

I raised my Apple Watch again and swiped up to view the heart rate glance: 138 beats per minute. 140. 144. That's usually my heart rate during a good elliptical workout, and here I was, standing still on a flight of stairs.

I WAS THINKING ABOUT PACKING LISTS AND MAKING A MENTAL NOTE NOT TO FORGET MY APPLE WATCH CHARGER AS I WALKED DOWN THE TWO FLIGHTS OF STAIRS TO THE CAFETERIA.

In the end, it was that cold, objective number staring at me from my watch that finally got me to believe there was something real going on, something I couldn't just ignore or wish away. Reluctantly, I went to my company nurse's office, salad still in hand, and told her what had happened. (It was a story I'd repeat to seemingly endless teams of doctors over the next six days.)

My nurse ran the rest of my vitals, including blood pressure (very high) and an EKG, which she sent to the company doctor on call. Although she never said it outright, I'm pretty sure she suspected a heart attack. So did the paramedics who came and took me from my office in an ambulance and fed me nitroglycerin. In what was probably not my brightest move of the day, I tried to bargain with them to let me drive myself to the hospital, and when that failed, insisted on walking to the ambulance instead of being wheeled out on a stretcher.

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THE LEG BONE'S CONNECTED TO THE...

The rest of the story is fairly straightforward. It wasn't a heart attack after all—in fact, my heart was very strong, which probably saved my life. As it turned out, my leg was throwing out blood clots—*lots* of clots, I learned. Those clots were traveling up to my lung, where they were blocking the arteries to my heart. One became what's called a "saddle clot," meaning it was wrapped at the fork of two pulmonary arteries, blocking the flow of blood in both. It was that blockage that was making it hard for my heart to move enough oxygenated blood to keep my body going. That's what was causing both my shortness of breath and rapid heartbeat.

What confounded the doctors is that I didn't have any of the usual triggers for blood clots: I had no recent trauma, no recent prolonged airplane travel, and no family history of blood clots. My job is fairly sedentary, but not unusually so, and my commute is long, but not long enough to convince the doctors it was a contributing cause. A blood test would later reveal that I have "Factor V Leiden," a genetic condition in which 5 percent of those age 50 and older who have it develop clots. I also later learned that a grandfather who I thought died of a heart attack actually died from a cardiac embolism, a blood clot that reached his heart. If I hadn't gone to the nurse when I did, I might have shared his fate.

IN THE UPCOMING
watchOS 3, I'll be able to hold down the side button to engage the SOS feature, which can call 911 for me if I ever have another medical emergency.

My blood is now kept therapeutic—or "non-clotty," as I like to think of it—by a blood thinner that I'll most likely have to take for the rest of my life. That's a small price to pay for remaining upright. But even more, it's given me a big incentive to stay on top of my health, and in this age of technology, there are a lot of things that make that easy to do.

For me, the key metrics to watch

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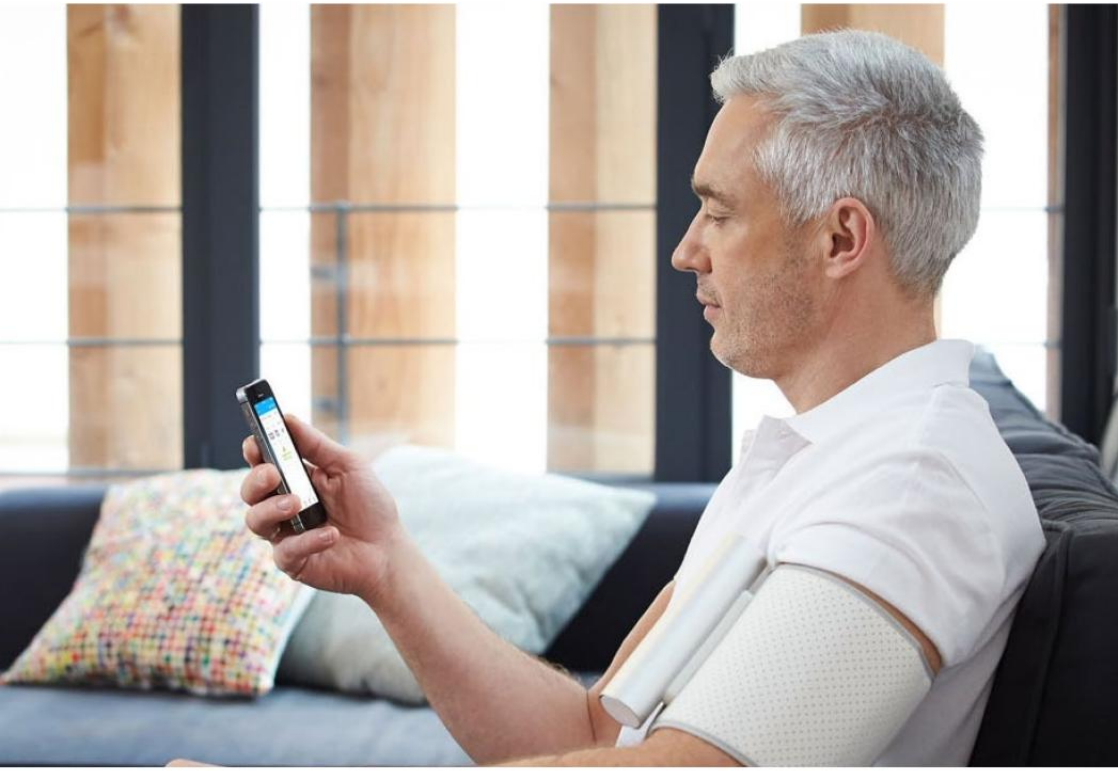

are my blood pressure, my heart rate, and my "pulse ox"—the amount of oxygen present in my blood. The amazing health team that cared for me in the hospital did that using very expensive technology that they wheeled into my room every couple of hours. I get those same tests when I go for follow-up visits to my doctors, but I wanted to stay on top of my numbers in between visits too.

WE CAN REBUILD HIM. WE HAVE THE TECHNOLOGY.

I looked into the available options and ultimately chose two pieces of equipment. The first is Withings' Wireless Blood Pressure Monitor (go.macworld.com/wbpm). Like a conventional cuff, it wraps around my arm and inflates to measure my blood pressure.

Unlike conventional monitors, it's

WITHINGS' MONITOR is easy to use, and I love that it supports HealthKit to send all my data to the Health app.

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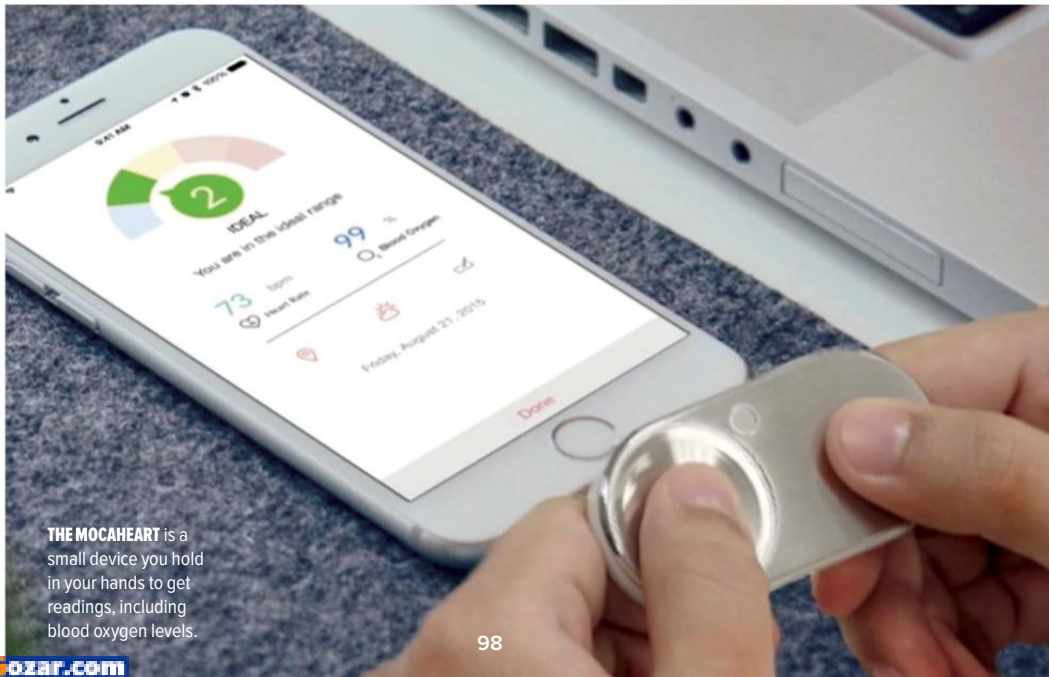
operated through an iPhone app (go.macworld.com/wcha) and is completely wireless, requiring no stethoscope or other cables. Just press a button on the tubular device attached to the cuff and an app automatically launches, controls the measurement, and delivers your results. To ensure consistent results, you can set the cuff to take three consecutive measurements. All results are stored in the Withings app, so you can see trends over time, and the information can be shared with Apple's Health app if you want.

The other device is the MocaHeart (go.macworld.com/mh), a small, flat, rounded rectangular device about the size of a stick of gum. It measures your heart rate (yes, your Apple Watch already does that), but more impressively, it measures your pulse oxygen level. And again, it keeps track of historical data so you can view trends over time, and it shares data (with your permission) with the Health app.

Having gotten the chance to compare these consumer-level devices against hospital equipment (not an experience I'd recommend), I'm blown away by the accuracy of both the Apple Watch heart rate monitor, Withings blood pressure cuff, and the



THE MOCAHEART is a small device you hold in your hands to get readings, including blood oxygen levels.

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MocaHeart. And it's been incredibly reassuring to have such immediate and easy access to vital health information. Armed with this information, I can make on-the-fly adjustments to the things that impact my health.

And although my weight and overall fitness weren't contributing factors to my health scare, my experience has made me much more aware of the things that influence my health. I keep a much closer eye on the Activity Rings that my watch reports on every day, and I've been keeping a more active lifestyle. That includes things like exercising—and tracking that exercise—on a treadmill and elliptical, and getting out more on my kayak and my bike (a "thanks for not dying" present from my wife).

I'M A BELIEVER

Did the Apple Watch really save my life? I'm convinced it did. Without it, I believe I would have found a way to rationalize my symptoms. I believe I never would have gone to the nurse. And I believe I would have gone on—or at least started—that 780-mile road trip that afternoon.

I don't know for sure what I would have subjected my wife to on that long drive, far away from home, but I shudder to think of what she might have had to deal with. But because I saw the cold, objective, incontrovertible data my Apple Watch showed me, I made a different decision. I chose a different path.

And that, as Robert Frost might say, made all the difference. ■

DID THE APPLE WATCH REALLY SAVE MY LIFE? I'M CONVINCED IT DID. WITHOUT IT, I BELIEVE I WOULD HAVE FOUND A WAY TO RATIONALIZE MY SYMPTOMS.

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Installing OS X: What to do when 'this copy of the install OS X application cannot be verified'

If you encounter an error when trying to install a fresh operating system, it could be a problem with the date and time.

BY ROMAN LOYOLA

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The other day a coworker needed to borrow a Mac, so I grabbed an older MacBook Air from storage. I decided to wipe out the laptop's flash storage and install a fresh version of OS X. I created a bootable USB flash drive installer (go.macworld.com/bootableusb), plugged it into the laptop, pressed the Option key as the machine booted, and then selected the USB drive as the boot disk.

I then ran Disk Utility to reformat the drive and then ran the installer to install OS X. It looked like things were moving along, until an error message appeared on the screen.

I created another boot disk using a different storage drive, in case it was a hardware problem, but I got the same error. I figured that the fact that the laptop had been in storage for a while had something to do with it, and it did.

Note: This should work with OS X Mavericks and El Capitan. It also worked for me with the macOS Sierra Public Beta, which shows a

THIS IS THE ERROR message I got while trying to install OS X from a USB installation disk.

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different error message (“The installer payload failed signature check” pops up near the end of the installation) than the one that appears for El Capitan and Mavericks.

HOW TO FIX THE PROBLEM

The installer checks the date on the computer. If the date isn’t current, you get the error shown on the previous page. The fix involves correcting the date on your Mac.

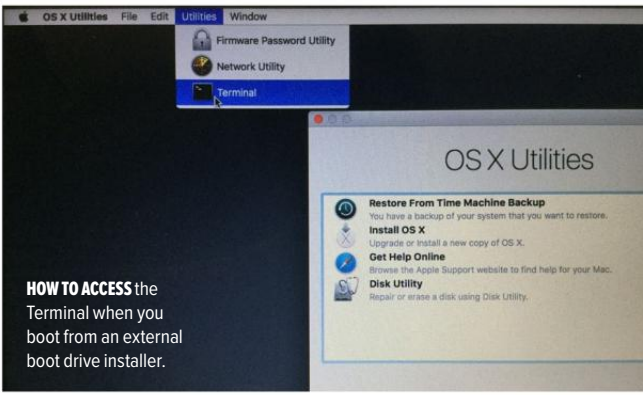
If you have an older OS on the Mac

If you have a complete OS on the Mac already, boot into it. Fix the date in the Date & Time system preference (Apple menu ➜ System Preferences). Reboot using the USB boot disk, and you should be able to proceed with the installation.

If you don’t have an OS on the Mac

If you are in a situation like I was, and you don’t have a complete OS on your disk (you reformatted it), you’ll find that there’s no way to access the Date & Time system preference when you use an external USB boot installer drive. The Apple menu doesn’t give you access to System Preferences. You have to use the Terminal to set the date and time.

If you use an external boot disk, your Mac starts up into OS X Disk Utilities. You can access the Terminal by clicking on the Utilities menu and selecting Terminal. Once the Terminal has launched, follow these steps.



HOW TO ACCESS the Terminal when you boot from an external boot drive installer.

> At the prompt, type **date** to see the date that’s on the Mac. For example, here’s the date of the MacBook Air I worked on.

```
[-bash-3.2# date
Mon Dec 31 18:28:36 PST 2012
-bash-3.2#
```

> If your Mac is connected to the Internet, you can tell your Mac to check online for the current date and time. You can do this by typing at the prompt **ntpdate -u time.apple.com** and then pressing Return.

```
[-bash-3.2# date
Mon Dec 31 18:28:36 PST 2012
[-bash-3.2# ntpdate -u time.apple.com
19 Jul 14:17:45 ntpdate[468]: step time server
17.253.26.125 offset 111955684.783683 sec
[-bash-3.2# date
Tue Jul 19 14:17:52 PDT 2016
-bash-3.2#
```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Your Mac should now have the current date and time. If you enter **date** again (as I did in the previous screenshot) the information that appears will be current. You can now run the OS installer.

If you don't have an Internet connection

You can still use Terminal to set the date. Go into the Terminal as described earlier, then follow these steps.

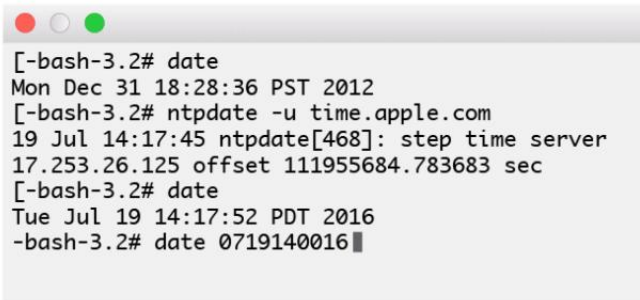
> At the prompt, type **date** to see the date that's on the Mac.

> Figure out the numerical representation of the date and time. The pattern you need to follow:

- **Month**: in two-digit format. For example, July is 07.
- **Day:** in two-digit format. For example, the 7th is 07.
- **Time:** in military format of hours and minutes. For example, 2:00 p.m. is 1400.
- **Year:** Last two digits.

In my example, the numerical representation is 0719140016. This stands for July (07) 19, (19), 2 p.m. (1400), 2016 (16).

> At the prompt, type **date *[numerical]***, with ***[numerical]*** being the representation you figured out. In my example, I typed **date 0719140016**. Then press Return.



The date should be set. You can check the date again by typing **date** at the prompt. You can now run the installer. ■

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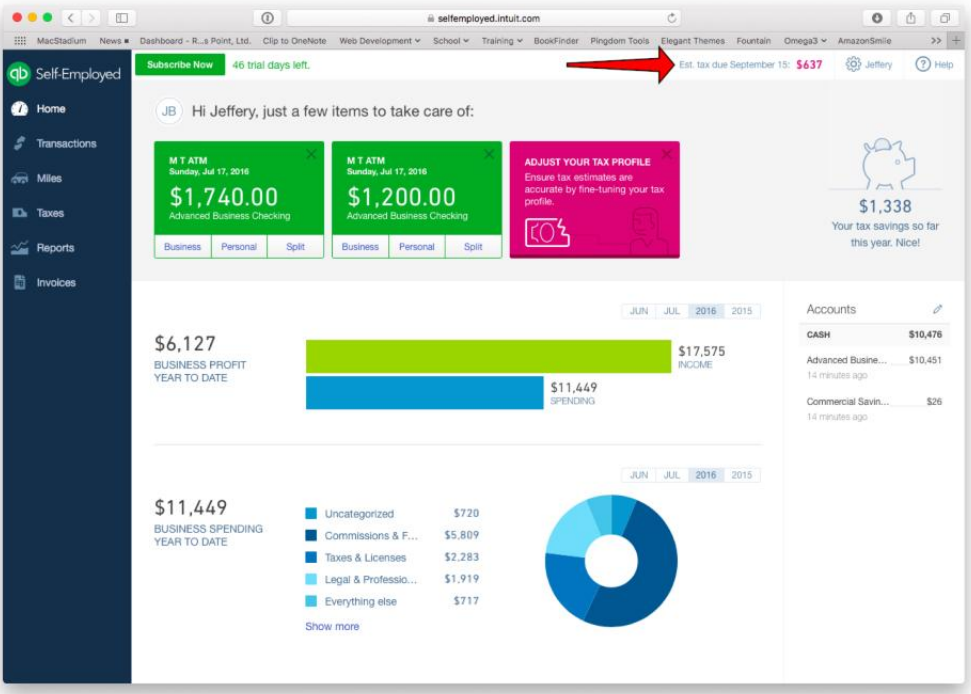
QuickBooks Self-Employed: A much-improved business finance app

Self-employed users can use this app to track income and expenses.

BY JEFFERY BATTERSBY



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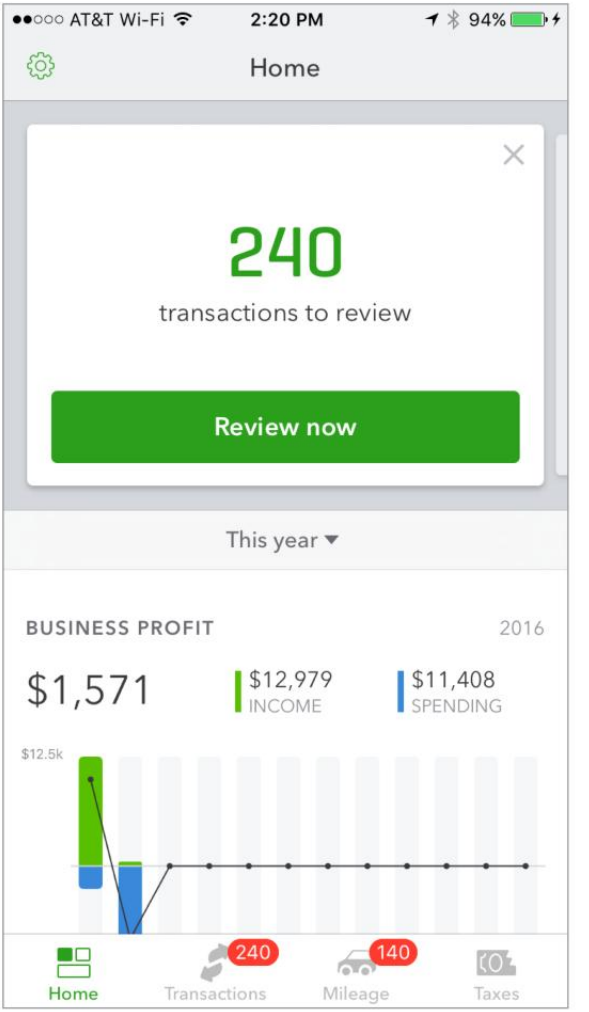
It's been about a year and a half since I last looked at QuickBooks Self-Employed (go.macworld.com/quickbooksself), Intuit's business finance app aimed directly at self-employed business owners who don't have a corporation and who often have their personal finances mingled with their business finances.

When last I visited the app, there was a lot to like about it, but, as is the case with most version 1 apps, there was also much that could be improved. I'm happy to say that QuickBooks Self-Employed has evolved into an even more powerful tool.

QuickBooks Self-Employed works just like it did before. There's an app for your iPhone (go.macworld.com/quickbooksselfapp) and web apps that work equally well on every device you own. I still find the best user experience to be on my iPhone, but the browser-based apps are more than serviceable.

The iPhone app has been significantly updated, offers a simplified and more streamlined way of reviewing your income, expenses, and mileage.

For income and expenses the phone app connects to your bank accounts and you swipe left for business expenses and right for personal expenses. Each time you review a transaction, the app asks whether you want to create a rule based upon what you've just done,



QUICKBOOKS Self-Employed iPhone app.

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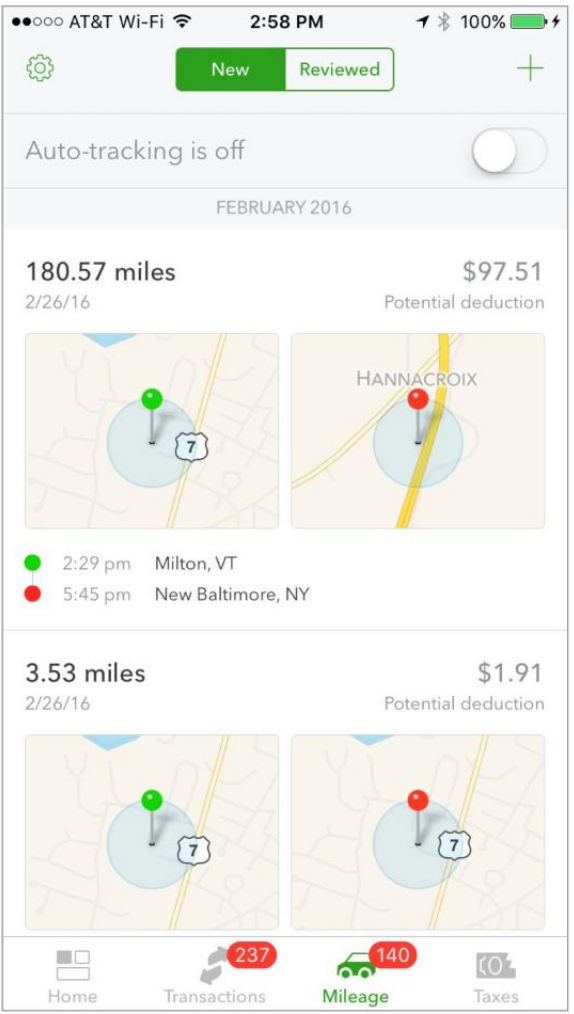
so future transactions of the same type will be handled in the same way.

QuickBooks Self-Employed's automatic mileage tracking is one of its best features. I confess to some initial skepticism about this feature, as every app I've ever used with similar capabilities has sucked the life out of my battery and never proved to be very accurate. Not so with QuickBooks Self-Employed. Due to some kind of tracking magic that Intuit won't disclose, the app always tracks your mileage in the background, but, as far as I could tell, uses almost no excess battery. The app automatically determines start and stop locations based upon your time in transit and the amount of time you spend at a location and, as is the case with expenses, you can look at your tracked mileage and swipe left for business miles or right for personal miles. QuickBooks Self-Employed does the mileage math for you, based upon current IRS mileage rates.

Version 1 of QuickBooks Self-Employed lacked a basic invoicing tool that allows you to easily provide a client with a receipt for services rendered. The latest version of QuickBooks Self-Employed nails this feature by providing simplified invoicing with no invoice tracking and also gives you the option to receive online payments. You may question the value of invoices with no tracking, but QuickBooks Self-Employed is aimed at businesses that are most likely to invoice and collect payment at the time of service. If you need

MILEAGE TRACKER



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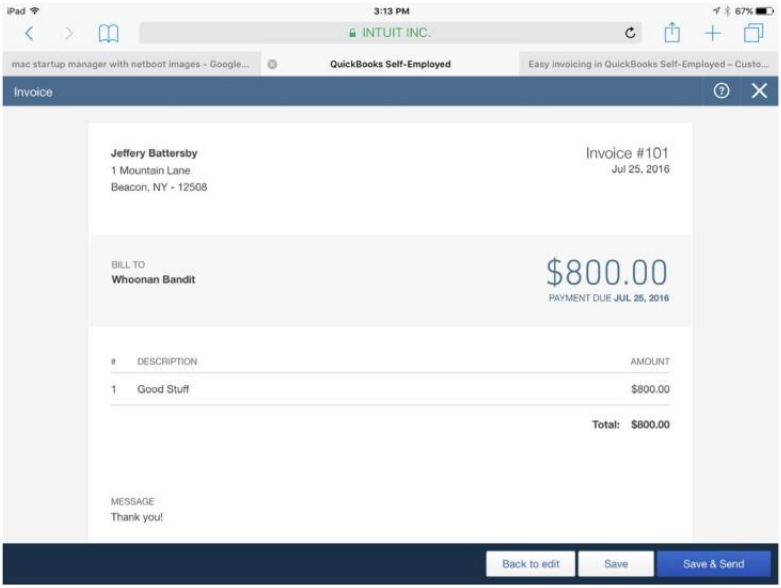
tracking and aging, you'll need to step up to QuickBooks Online (go.macworld.com/quickbooksonline). Additionally, if you use the invoicing feature, you're offered the option of receiving credit card payments, a nice feature for collecting money quickly if you need it.



QUICKBOOKS Self-Employed's invoices.

Another great feature for self-employed business owners is its automatic tax tracking. Because you categorize your income, expenses, and mileage as you go along, QuickBooks is able to determine your quarterly tax liability, and lets you print out the appropriate IRS forms for making those payments. This feature works best when you go through the app's interview process, which helps to determine what your home office deductions are and what other expenses and deductions you may have that limit your tax liability.

Additionally, the app offers profit and loss reports and at the end of the year QuickBooks Self-Employed offers IRS-ready Schedule C statements in both PDF and CSV formats.

If you're a business owner who receives 1099 income or if you work for yourself without the benefit of a corporate identity, I highly recommend QuickBooks Self-Employed. It's easy to use, will help you make quick work of tracking income, expenses, and mileage and, with some luck, may even save you a few bucks when the IRS comes calling. ■

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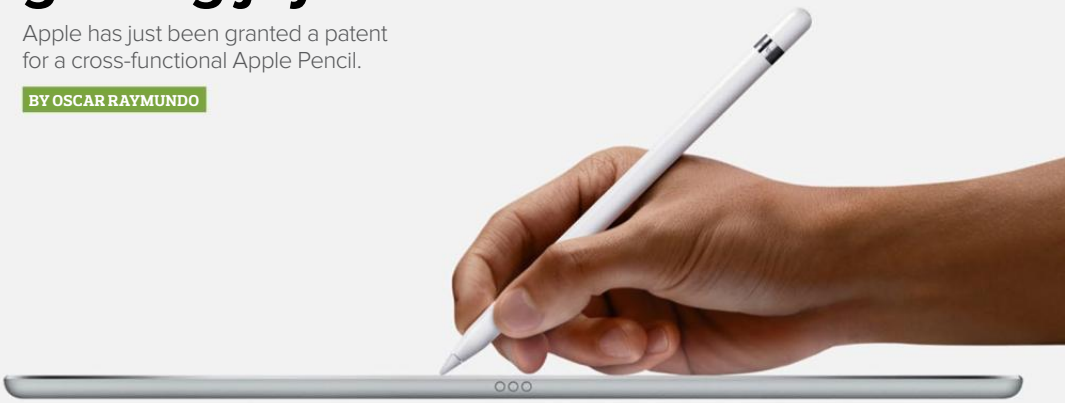
Next-gen Apple Pencil could work with Mac trackpads and be used as a gaming joystick

Apple has just been granted a patent for a cross-functional Apple Pencil.

BY OSCAR RAYMUNDO



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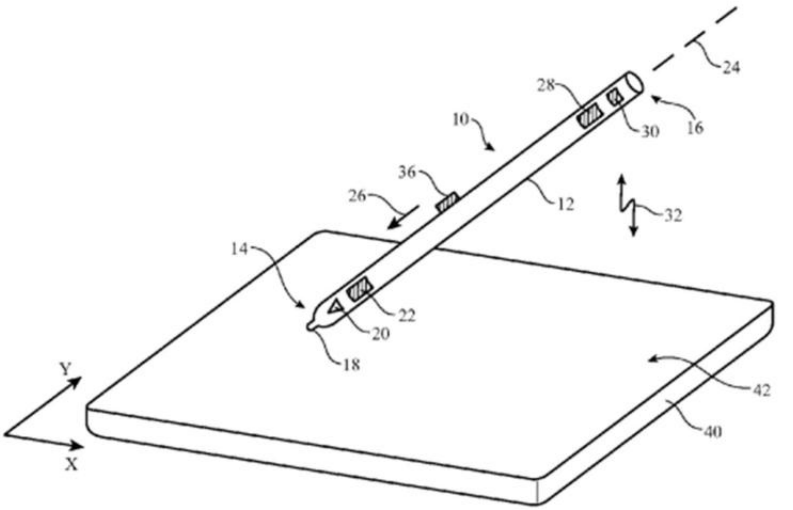

FIG. 1

What does the future hold for the Apple Pencil? Perhaps you'll use it with your Mac. Recently, Apple was granted a new patent (go.macworld.com/pencilpatent) that would make it possible for future versions of the Apple Pencil to work with Magic Trackpads on the Mac. According to Patently Apple (go.macworld.com/pencilontrackpad), Apple originally filed for this patent in 2014; right now, the Apple Pencil can only be used with the iPad Pro, both the 12.9-inch model and the 9.7-inch model.

This new cross-functional version of the Apple Pencil will be more powerful than the first generation. In addition to having pressure-sensitive sensors at the tip, this forthcoming Apple Pencil will also be able to detect in-air gestures. So, you'll be able to use it to change slides in Keynote or swipe pages in Microsoft Office while giving a presentation or lecture.

Most curiously, the patent applica-

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tion also reveals Apple's intent of using this Apple Pencil as a joystick in certain games, so it can act as a wand, a sword, or a lightsaber. Harry Potter and Star Wars fans, rejoice!

The impact on you: The fact that Apple was granted this two-year-old patent is no sure indication that the company will actually create this feature-packed Apple Pencil. Apple applies for a bunch of patents and most of them never come to fruition.

But considering how great the Apple Pencil works (go.macworld.com/applepencilrev) on the iPad Pro models, we would like to think Apple has plans to incorporate it with other products—and if it's not compatible with the next iPhone (go.macworld.com/iphone7pencil), then bringing the Apple Pencil to the Mac seems like a logical next step for Apple's stylus. ■

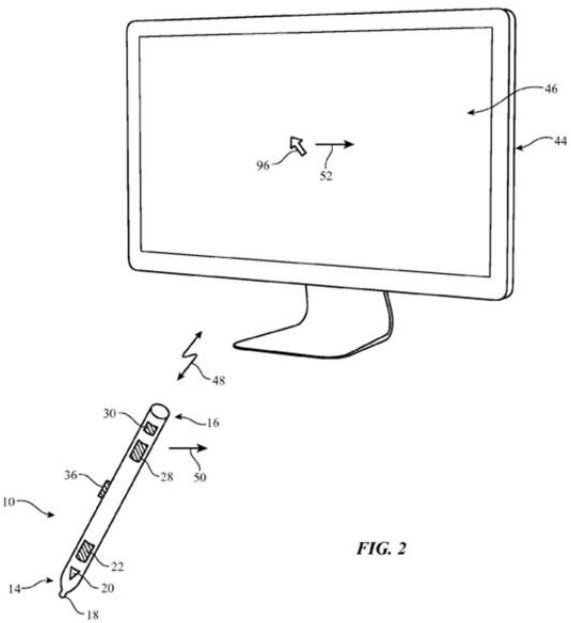

FIG. 2

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How to use iCloud Drive's new Desktop and Documents access in macOS Sierra

With this new feature, files saved to the Desktop and in Documents are automatically saved to your iCloud Drive.

BY ROMAN LOYOLA

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With macOS Sierra, iCloud Drive has the ability to automatically save files saved on your Desktop and in your Documents folder to the cloud. Apple says these are the places where most files are saved, so this feature will be very useful for anyone who uses multiple devices.

If you want to rely on this feature, make sure you have enough iCloud Drive storage space. All files saved to Desktop and Documents count against your iCloud Drive storage allocation. For example, if you have 1GB worth of files in your Mac's Documents folder and you want to save it to iCloud Drive, your allocated storage will take a 1GB hit. Apple provides 5GB of free iCloud Drive storage per Apple ID, and it may not be enough. Here are the prices for iCloud storage upgrades:

- 5GB: free
- 50GB: $0.99 per month
- 200GB: $2.99 per month
- 1TB: $9.99 per month

Apple has instructions on how to buy more iCloud storage.

HOW TO TURN ON iCLOUD DRIVE DESKTOP AND DOCUMENTS ACCESS IN macOS SIERRA

Here's an overview on how iCloud Drive's Desktop and Documents access works. I used a 13-inch MacBook Pro running the macOS Sierra Public Beta 2. (If changes are made in beta updates and the official released version, look for updates on Macworld.com.)

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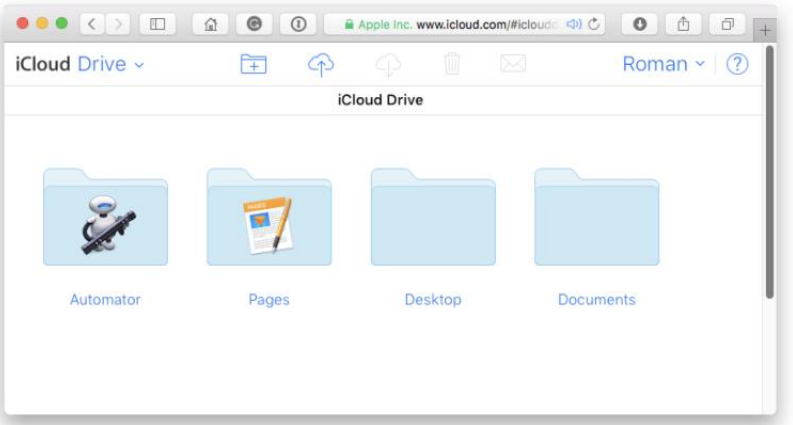

iCLOUD DRIVE ACCESSED through the iCloud website: The new Desktop and Documents folders show up when you activate Desktop and Documents access in macOS Sierra's iCloud system preferences.

1. In macOS Sierra, go to the Apple menu ➔ System Preferences ➔ iCloud.

2. iCloud Drive appears at the top of the list in the main section of the window. Check the box for it, and click on Options.

3. In the Documents tab, there is a section labeled, "Apps that store documents and data in iCloud will appear here." At the top of the list will be a new Desktop & Documents Folders listing. Check the box to activate it.

That's all you have to do to activate it. iCloud needs a few minutes for your files to save to iCloud; how long depends on how many files you have.

DESKTOP AND DOCUMENTS: iCLOUD WEBSITE

When you go to your iCloud Drive through the web, there are now Desktop and Documents folders.

The files you saved to these folders on your Sierra Mac are accessible through the iCloud Drive website. If you save files to the website, they will be synced to your Sierra Mac. If you delete files on the website, they will be deleted from your Sierra Mac.

DESKTOP AND DOCUMENTS: ACCESS FROM iOS

Your iOS device can access files in the Desktop and Documents folders if you have iCloud Drive turn on on your device. This can be done in Settings ➔ iCloud ➔ iCloud Drive, and then turn on the Show On Home Screen setting.

Tap on the iCloud Drive app on your Home screen. You'll see the folders you can access, including Desktop and Documents. Tap on a

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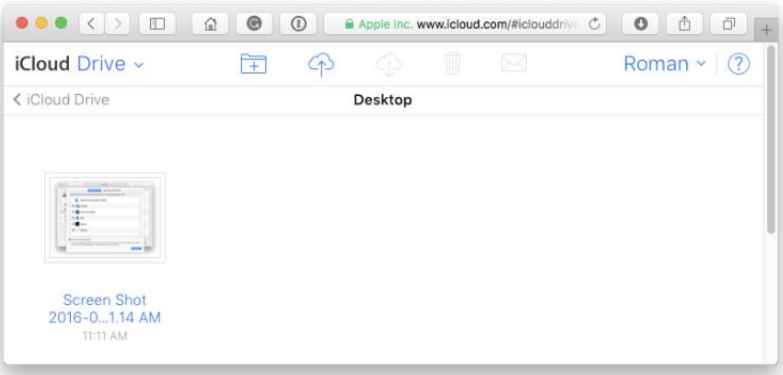
folder, and you can get to the files.

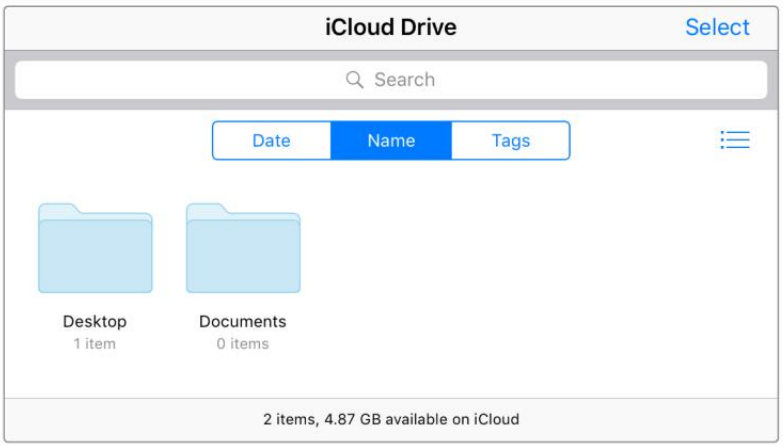
DESKTOP AND DOCUMENTS: ACCESS FROM ANOTHER MAC

To get to the iCloud Drive Desktop or Documents folders from a different Mac, iCloud Drive access first needs to be turned on through the iCloud system preference (Apple menu ➔ System Preferences ➔ iCloud).

iCloud Drive will appear under Favorites in any Finder window. If you're in the Finder, you can also click on the Go menu and select iCloud Drive, or you can press Command-Shift-I.



I SAVED THE first screenshot in this article to the Desktop. Here it is in my iCloud Drive website.



ACCESS TO THE Desktop and Documents folders on iCloud Drive through iOS 9.

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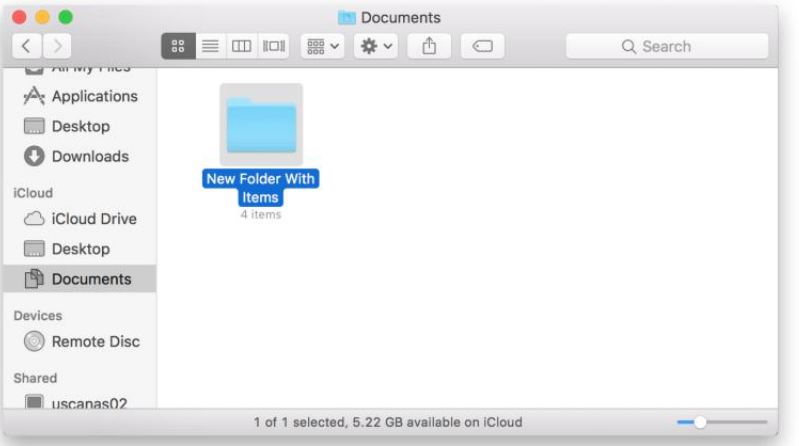

IN SIERRA, the Desktop and Documents folders have moved to the iCloud section from the Favorites section.

WHEN THE OTHER MAC IS RUNNING SIERRA

If you're using another Sierra Mac, then the files will automatically appear in that Mac's Desktop and Documents folders, provided that that Mac has Internet access.

In Sierra, you may notice that in a Finder window, Desktop and Documents appear in the left column under iCloud, and not in Favorites as in previous versions of OS X.

WHEN THE OTHER MAC IS NOT RUNNING SIERRA

If the other Mac you are using doesn't have Sierra, you can still access the Desktop and Documents folders that were created by the Sierra Mac. You will need Internet access.

In a Finder window, iCloud Drive appears under Favorites. Also, in the Finder, you can click on the Go menu and select iCloud Drive, or press Command-Shift-I. Go to the iCloud Drive, and you'll see Desktop and Documents folders. You can access the files from the Sierra Mac this way.

However, there are a few things to note:

- Your Desktop and Documents files on your non-Sierra Mac's local storage device won't be automatically saved to iCloud Drive. Files from your non-Sierra Mac need to be manually saved to the Desktop and Documents folders on iCloud Drive if you want your Sierra Mac to access those files.
- As of the Sierra Public Beta 2, the default action when drag-

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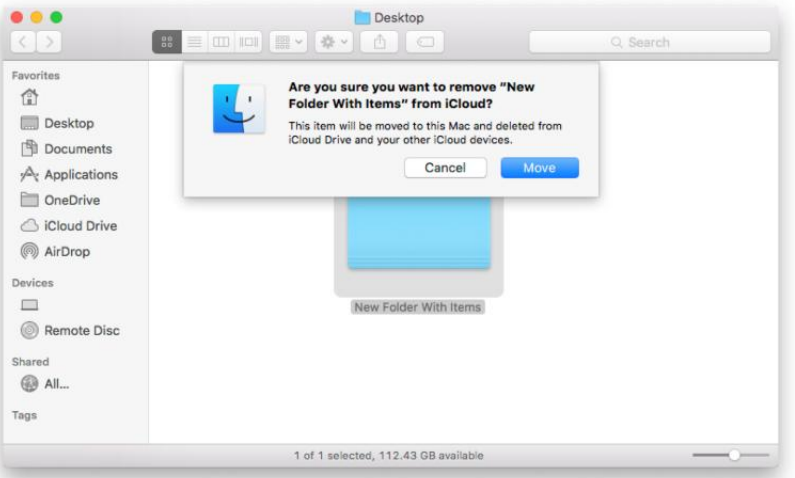
ging and dropping from the iCloud Drive Desktop or Documents folders is to move the file, not copy it. You'll get a warning (see image below).

To copy files from the iCloud Drive Desktop or Documents folders when using a non-Sierra Mac, you have to hold down the Option key while dragging and dropping, or right-click the file and select Copy, then on your non-Sierra Mac, right-click on the destination and select Paste Item.

Sierra is currently in beta, which means there's a chance changes could be made to how this all works. Stay tuned to Macworld.com for updates. ■



IF YOU TRY to use drag and drop to copy files from iCloud Drive's Desktop or Documents to a non-Sierra Mac, you'll see this warning.

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PEACE CORPS

RESPONSE

3-12 MONTHS CAN MAKE A LIFETIME OF DIFFERENCE

Peace Corps now offers short-term Volunteer assignments overseas for 3 months to 1 year for especially skilled professionals with at least 10 years experience.

Browse the opportunities on our website and register to receive alerts when new postings become available.

peacecorps.gov/response

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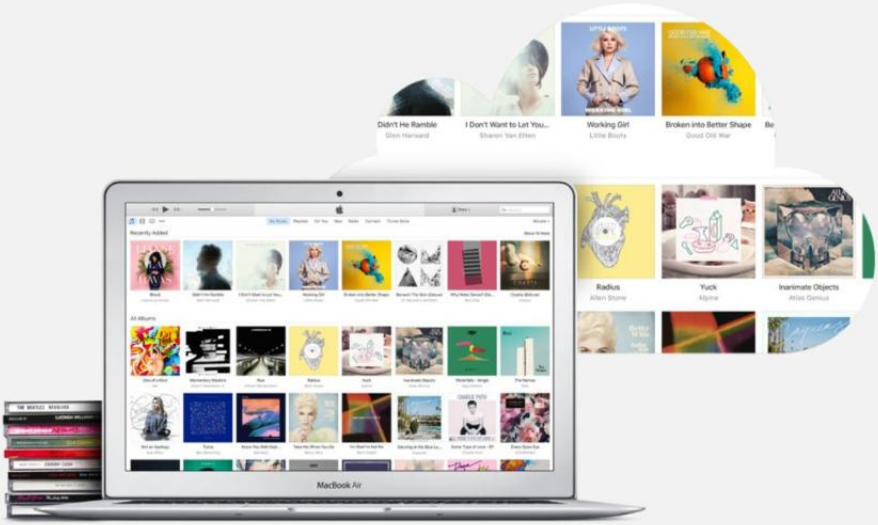
Apple improves iCloud Music Library matching, ditches copy-protected matched files for Apple Music users

With both services using the same matching method, your iTunes library should be less cloudy.

BY KIRK McELHEARN



IMAGES COURTESY OF APPLE

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When Apple Music was released just over a year ago, Apple also debuted iCloud Music Library, a way of storing your iTunes library in the cloud. There were two ways to seed the cloud, either with iTunes Match or Apple Music. If you were an iTunes Match subscriber, matching your songs in your local library to your cloud library was done one way, and if you were just an Apple Music subscriber, matching was done differently.

This created some confusion about the way tracks were matched and stored in iCloud Music Library. Now, Apple is changing this, and will use the same matching method for both services. The company said in a briefing that Apple Music now uses acoustic fingerprinting and provides matched files without digital rights management (DRM), or copy protection, just like iTunes Match.

ACOUSTIC FINGERPRINTING VS. METADATA

As I explained just over a year ago, iTunes Match and Apple Music were, as Apple said, “independent but complimentary.” Both matched tracks you owned that were in your iTunes library, but in different ways.

If you had an iTunes Match subscription, matching was done using acoustic fingerprinting; a way of analyzing the music in your audio files to find the correct track in Apple’s huge library of music. If a track didn’t match, it was uploaded.

If you only had an Apple Music subscription, matching was based only on metadata: the track name, artist, and album. And if nothing could be found with this metadata, the track was uploaded. This way of matching tracks is much less precise than acoustic fingerprinting.

If you subscribed to both iTunes Match and Apple Music, then the iTunes Match matching won out; you

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got the fingerprinting algorithm to match your music. But if you only subscribed to Apple Music, then you get the simpler, less efficient matching. This led to two issues. The first was matching that wasn't as accurate, and the second was that when you re-downloaded files to another device, those Apple Music matched files had DRM (go.macworld.com/matchvsicloudmusic) or copy protection. If you let your Apple Music subscription lapse, then you wouldn't be able to play those files.

WHAT DOES THIS MEAN FOR YOU?

Having both services use the same matching method should improve matching and hopefully making your iTunes library less cloudy. More specifically:

> **You don't use iCloud Music Library:** Nothing to see here, move along. You keep playing your music as before.

> **You subscribe to iTunes Match subscription, and not to Apple Music:** Nothing changes. Your life goes on as normal, and you continue paying $25 a year to have your music (up to 100,000 tracks) in the cloud.

> **You have both iTunes Match and Apple Music subscriptions:** You can turn off auto-renew for iTunes Match. You won't need iTunes Match anymore, since Apple Music will now match using acoustic fingerprinting, and your files won't have DRM if you download them on another device. Go into your account in the iTunes Store (Account ➜ View My Account), then go to iTunes In The Cloud ➜ iTunes Match, and click Turn Off Automatic Renewal.

> **You subscribe only to Apple Music:** You won't notice much of a change. The only difference will be that new matched tracks will have an iCloud Status of Matched, rather than Apple Music, and they won't have DRM. You can force older downloaded tracks to change their status by deleting the local copies and re-downloading them; iTunes won't automatically do this for you. And you can play these matched tracks on any device, even one that doesn't have an Apple Music subscription or isn't signed into Apple Music. Note that tracks you add from Apple Music to your library still have DRM; this change only affects tracks that are matched from music you own.

YOU CAN FORCE OLDER DOWNLOADED TRACKS TO CHANGE THEIR STATUS BY DELETING THE LOCAL COPIES AND RE-DOWNLOADING THEM; iTUNES WON'T AUTOMATICALLY DO THIS FOR YOU.

Also, if you are an Apple Music

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subscriber, then you won't be able to subscribe to iTunes Match anymore; which makes sense, since you won't need it.

Apple will be rolling this new system out gradually to the millions of Apple Music users, and you won't be notified when your account gets these new privileges. But you will be able to see that newly added files in your library will have the iCloud Status of Matched, after your account has been updated. Note that Apple hasn't changed the matching algorithm; and your iTunes library won't be re-matched.

This is a good move on Apple's part. There was a lot of hand-wringing over the DRM issue when Apple Music was launched, and the overlap between Apple Music and iTunes Match was confusing. Now there's just one method of matching tracks, and things will be a lot simpler for everyone. ■

PODCAST

Visit go.macworld.com/podcast517 to listen to our weekly podcast about the iCloud Music changes.

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Everything you need to know about playing music with AirPlay

Apple's streaming protocol can send audio to a variety of devices. Here's how to make it work for you.

BY KIRK McELHEARN

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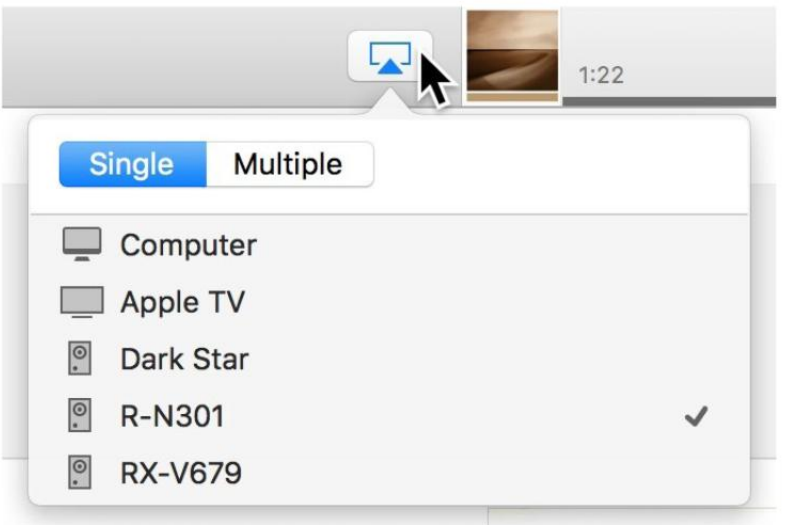
If you use a Mac or an iOS device, you may know about AirPlay, Apple's streaming protocol that can send audio and/or video to a variety of devices. Initially launched in 2004 as AirTunes, for audio only from iTunes to Apple devices, AirPlay is now supported by speakers, amplifiers, receivers, and more, from dozens of brands.

While you don't have many options with AirPlay Mirroring (streaming both audio and video; you can do this from a Mac or iOS device to an Apple TV), using AirPlay with music is incredibly flexible. There are ways to use AirPlay you may never have thought of. Here's an overview of some of the ways you can send music throughout your house using AirPlay.

PICK A SPEAKER

When you're playing music from iTunes, you can choose an AirPlay target by clicking the AirPlay button to the left of the iTunes LCD. Choose a single device, or, if you want to send music to multiple locations, click Multiple and check the devices you want to use.

On an iOS device, tap the AirPlay button in Control Center, or in a



CHOOSE AN AIRPLAY device (or several) from this menu in iTunes.

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SOME AMPS AND receivers display information about the currently-playing track.

music app, and choose a speaker; you can't stream to multiple targets from an iOS device, however.

AirPlay targets include the Apple TV, stand-alone speakers, and hi-fi amplifiers and receivers. You can stream to any system using a $99 AirPort Express; just connect its combination analog/optical audio jack to a device with the appropriate cable. The AirPort Express also lets you extend a Wi-Fi network; but if you simply want a device to use AirPlay, get the third-generation Apple TV, which offers the same streaming options, as well as all the other features of that device.

Make sure to check Enable AirPlay/AirTunes on the Music tab of AirPort Utility when setting up the AirPort Express, if you're using that device.

STREAM TO AN AMPLIFIER OR RECEIVER

More and more home audio hardware supports AirPlay. Not just stand-alone speakers, but full-size amplifiers and receivers. So you can stream from your iTunes library or iOS device to a stereo system. Brands such as Yamaha, Philips, Marantz, Denon, and Sony offer devices that support AirPlay. Some merely play audio, but others also display information about what's playing on their display.

If you want to make your home entertainment system AirPlay compatible, check out which devices

PHOTO: KIRK MCELHEARN

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support the protocol. Even if you don't plan to use AirPlay right now, if you're in the market for new stereo equipment, you might want to get hardware that supports this protocol in case you change your mind.

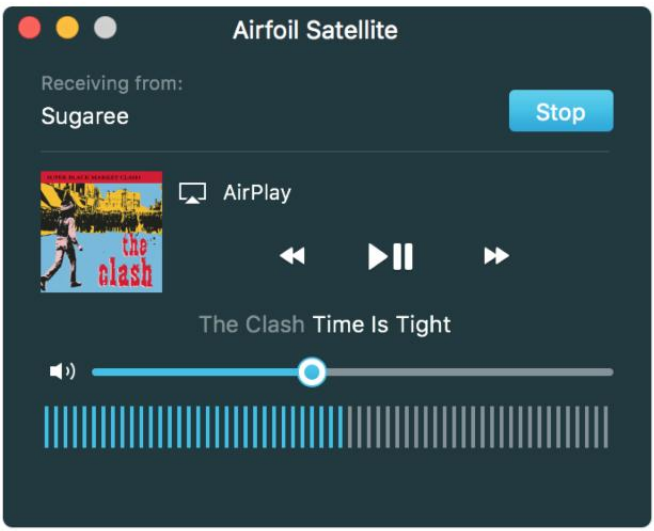
STREAM AIRPLAY OVER ETHERNET

You may have discovered that third-party AirPlay devices aren't always ideal. Some devices lose connectivity, or play back music with stutters and pauses. My experience with such devices has been mixed, and I think the problem is that these devices don't have adequate antennas to pick up Wi-Fi signals efficiently. In addition, some hi-fi separates may offer AirPlay but not have integrated Wi-Fi. With some amplifiers or receivers, you can buy an optional Wi-Fi adapter to use them wirelessly.

You can get around this using AirPlay over ethernet. If you have an amplifier or receiver that supports AirPlay and has an ethernet port, connect it to the network; AirPlay works perfectly. I use the Yamaha R-N301 (go.macworld.com/yamaha-RN301rev, $300 on Amazon [go.macworld.com/yamahaRN301amz]) connected to my network with a powerline adapter. (You don't need very high bandwidth for audio only.) Streaming is always perfect; no glitches, no dropouts.

STREAM AIRPLAY TO A MAC

While Macs can be AirPlay sources, they can also serve as AirPlay targets, with the help of third-party software. I use Rogue Ameoba's Airfoil Satellite (a free addition to the $29 Airfoil [rogueamoeba.com/airfoil] app). When this is running, my Mac is an AirPlay target, and I can stream music to it from any other Mac, or from an iOS device.



STREAM TO A Mac with Airfoil Satellite.

The Airfoil Satellite window shows what's playing (with album artwork)

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and gives you controls to play, pause, skip tracks, and change volume.

Why would you want this? You may want to listen to audio from an iOS app on your Mac, rather than through your iPhone's little speaker, or you may even want to stream from one Mac to another.

STREAM FROM AN ANDROID PHONE

While AirPlay is an Apple protocol, it's wide adoption in the home audio industry has led at least one Android phone manufacturer to support the protocol. The forthcoming HTC 10 (go.macworld.com/htc10pre) will support AirPlay streaming, so even if you don't have an iPhone or iPad, you may be able to use AirPlay.

Streaming to every room is easier now that AirPlay is widely supported. With these tips, you'll be able to get music to any location in your home. ■

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Of all the things Shea's dog is trained to do, the most important is opening doors.

A rare muscle disease keeps Shea confined to a wheelchair. But thanks to her best friend Mercer, she's not confined *by* it. Mercer is at Shea's side 24 hours a day to help her do all sorts of things on her own, from picking things up off the floor to opening the refrigerator and turning on the lights. How inseparable are Shea and Mercer? Take a look in her school yearbook and you'll find his picture right there next to hers.

For more than 30 years, Canine Companions for Independence has been teaming people like Shea with dogs like Mercer completely free of charge. To find out more about making a donation, volunteering, or applying for a dog of your own, visit www.cci.org or call 1-800-572-BARK.

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Ask the iTunes Guy: Bookmarking audiobooks, hard-drive problems, and more

Also: Strange iOS app updates and Apple's cloud offerings.

BY KIRK McELHEARN

ILLUSTRATION: MICHAEL SLACK

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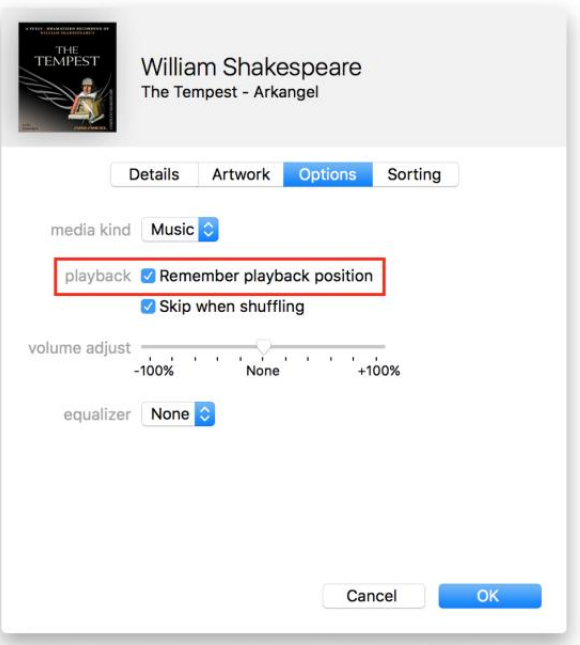
The summer is here, and lots of people want to relax and enjoy the weather. But there are still problems with iTunes that keep them from listening to their music and books in peace. This month, I look at a question about bookmarking audiobook files, help solve a problem with iTunes media on an external hard drive and an issue with app updates in iTunes, and then discuss Apple's cloud offerings for music.

DON'T FORGET

Q: Is there any way to set the Remember Playback Position option so it is on by default for all new tracks? I listen to a lot of audiobooks, and I have to manually set that option each time I add new books to my iTunes library. If iTunes could do that automatically for all new loaded files, it would make life easier.

A: This is an essential setting for listening to audiobooks. When you check this option (to access it, select a group of tracks, press Command-I, click the Options tab, then check Remember Playback Position), iTunes and iOS devices remember where you stop listening to a track. This is useful for audiobooks, so you don't have to rewind and fast forward to remember where you left off. In addition, this position syncs between iTunes and iOS devices, so you can listen to part of a book with iTunes, then pick it up from the exact same location on your iOS device.



USE THIS OPTION to make your audiobooks bookmarkable.

As to it being possible to have it on by default, this would only make sense for those people whose libraries are mostly or entirely made

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up of audiobooks. You wouldn't want your music tagged like this; if you stopped listening to a song, the next time it comes up, it would start up in the middle.

What I would suggest is to create a playlist in iTunes (File ➔ New ➔ Playlist), and add all new audiobooks to this playlist. You can then select all the tracks, make the change, and delete the books from this playlist. This way, you won't have to search your iTunes library to find your new audiobooks.

FUNNY UPDATES

Q: The iTunes app has recently started telling me that the update to the Podcasts app for iOS is only available on iOS. If I follow the instructions "To get Podcasts, search for it on the App Store for your iOS device," I don't find it. Ditto for Find My Friends, another Apple app that now can only be updated on an iOS device. What's going on?

A: Yes, this happened to me as well, right after Apple released the first beta versions of iOS 10. Here's what's going on.

With iOS 10, you'll be able to "remove" apps from your iOS device. (Actually, they won't be removed, just hidden.) To get them back, you'll have to go to the iTunes Store, and "download" them again. (You won't actually download anything, but the iTunes Store will flip a switch to show the app anew.)

As a result of this, a couple of apps—Podcasts and Find My Friends—that were originally available separately from iOS, now show as having updates available. We are seeing this because we originally downloaded those apps when they were first available, and still have versions of them in our iTunes libraries. Other users, who didn't download the apps, but have only used them since they were bundled with iOS, won't see this.

Just delete the apps from your

THESE APP UPDATES are confusing.

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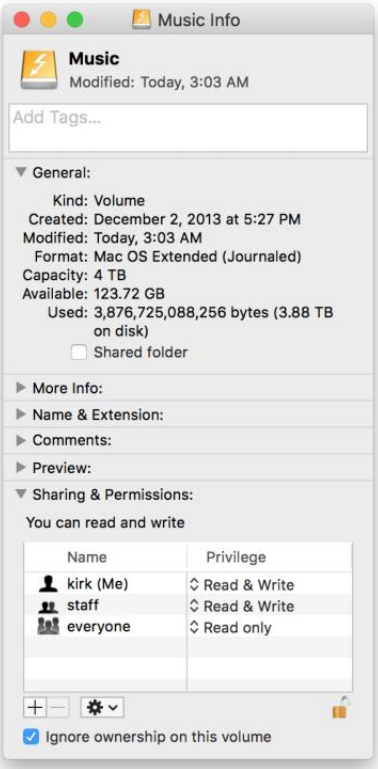
iTunes library, and they won't show as having updates any more.



YOU CAN FORCE a drive to ignore permissions in the Finder's Info window.

CAN'T SAVE, WON'T SAVE

Q: I recently moved my iTunes library from my MacBook to an external hard drive. Everything looked fine until I went to import a CD and iTunes told me it couldn't save the files. The same thing happened when I tried adding some MP3 files. And I can't even download music I've purchased from the iTunes Store. What's going on?

A: It sounds like a permissions issue on the external drive. Select that drive in the Finder, press Command-I, and then click the padlock at the bottom of the window and enter your password. Check Ignore Ownership on this Volume.

I don't know why this happens, but I've seen it off and on over the years. I've long used an external drive to store my media, and even if my user has read and write permissions (as in the image on the left), it sometimes gets stuck. I also find that, from time to time, the box gets unchecked, and I have to go back and change the setting.

WHICH CLOUD IS BEST FOR ME?

Q: Can I use iCloud Music Library with my iMac and iOS devices without subscribing to Apple Music or iTunes Match? I'd like to store my

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iTunes music in the cloud and then be able to stream it from any Apple device.

A: No, iCloud Music Library is part of each of those subscription services; you can't use the cloud without paying for it. If you want to have your music in the cloud, but not stream anything from Apple Music, then iTunes Match is the better deal, at only $25 a year.

While there have been changes announced to iTunes Match and Apple Music, they won't affect the availability of iTunes Match in the immediate future. ■

Ask the iTunes Guy

Have questions of your own for the iTunes Guy? Email him at itunesguy@macworld.com for his consideration.

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Mac 911

Solutions to your most vexing Mac problems.

BY GLENN FLEISHMAN

How to use iCloud Photo Library selectively

Q: How do I take pictures off iCloud, but not have them deleted from my iMac, iPhone, and iPad? My iCloud is full, and I want to clear it up by taking the photos off.

— Brenda Best

A: In the past, I've said, "Sorry, it's all or nothing." Once you opt in to iCloud Photo Library, all of your images are synced across all devices that use the same iCloud login and have iCloud Photo Library enabled, and the full-resolution versions of images and videos have to be stored in your iCloud account.

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But I was being too restrictive in my thinking. There are ways around this situation, neither of which is ideal, but neither is completely a pain, either.

USE A SEPARATE PHOTOS LIBRARY

Only a single Photos library can be synced to iCloud Photo Library. You can maintain other libraries, and those photos and videos remain only locally stored. (Be sure and create an effective backup plan for that media, though, so you don't accidentally lose it all in the event of a drive disaster or unintentional deletion.)

Photos for OS X doesn't let you split libraries; you'd have to export images from your existing library and re-import them into a new one. To switch among multiple libraries, quit Photos, hold down the Option key, and launch Photos. You're prompted to select which library to open.

If you're willing to spend the princely sum of $30, you can purchase PowerPhotos (go.macworld.com/powerphotos), a third-party utility package that can merge, split, and manage Photos libraries. I'm a big fan of this software for adding functionality that Apple didn't include.

While merging is self-explanatory, splitting a library isn't a built-in feature. Follow these steps to do so in PowerPhotos:

1. Create an album (or albums) in your main library that contains items you want to shift to a local-only library.
2. Launch PowerPhotos and create a new Photos library or select a new one to which you want to add media.
3. Copy the albums from your main library to this new local-only library.
4. Return to the Photos app and select your main library, and then delete the photos in the copied albums.

It's possible you may lose some metadata in the process or be unable to revert to the original for images that were modified within Photos, so keep that in mind.

USE REFERENCED MEDIA FOR LOCAL STORAGE

Photos for OS X only syncs media files to iCloud Photo Library that have been imported into the Photos library rather than copied. Photos for OS X copies all media by default, but you can disable this behavior: in the Photos ➔ Preferences ➔ General tab, uncheck Copy Items To The Photos Library. Now when you drag items in or import them, Photos will create a reference to the file's location on an internal, external, or networked volume.

Referenced images can be used in Photos just like any others, but they're not copied to iCloud. This means you should make a local

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backup of these non-imported files just as you would any other data that's not also backed up in the cloud. You can opt to copy referenced images into a library later (select one or more items and choose File ➔ Consolidate), but you can't take an imported image and convert it to a referenced-only one.

The biggest pain with this approach is that you will likely want to include or exclude images at different times from being synced when importing. You have to remember each time to check the Photos preference to ensure that the Copy Items checkbox is set as you want it for that import.

What to do when you're collaborating with someone and you have different versions of Pages software

Q: How do I work between Pages 5 and Pages '09? From my research online, it appears that they do not work compatibly together; I need to be able to open the documents he sends to me and edit them. I was also curious if there was any way for me to download Pages '09 so that I have the same version my work associate has.

— Natasha Scott

A: You've got a few different ways to sort this out, but I'll start with the

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second question first, as it may be simpler. While Apple no longer sells the iWork '09 suite, of which Pages '09 is a part, third-party sellers offer it via Amazon and other sources. Looking at Amazon (go.macworld.com/iworkamazon), I see a number of "new" copies available for about $20. (Check the New box under Condition in the far left column of the Amazon page.) I wouldn't buy "open box" copies, and I'd only purchase from sellers with high ratings and a history at Amazon. As of El Capitan, Pages '09 still runs just fine.

I would avoid any online offers to download the files, as those are likely laden with malware or adware, and it's not a legitimate way to obtain licensed software unless it's from the source in any case.

However, if you'd prefer to get and use Pages 5, you can work between the two versions. It just takes extra effort, and you might wind up with some formatting problems over time. Pages 5 can open Pages '09 files without any extra software or configuration. Pages 5 can also export any opened file to Pages '09 format via Files ➔ Export To ➔ Pages '09.

Some Pages 5 features won't export correctly to Pages '09 and are removed, though you may be warned if something particularly critical would be suppressed. Likewise, opening a Pages '09 file that does something differently than Pages 5 should cause the software to list what's wrong in View ➔ Show Warnings.

I've found going back and forth can introduce problems after a while, but it's definitely a reasonable, if logistically annoying, solution.

How to erase a Mac that seems to lack erasure options

Q: I'm trying to securely erase my poor, sad iMac before donating or recycling it. It's my old workhorse—running 10.6.8. Disk Utility's Erase Security Options is grayed out. I have no OS X disk, and there's no Recovery HD. What should I do?

— Susan Lawlor

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A: It's admirable to erase your system before you sell—especially with secure erasure—to avoid leaking personal data to someone who buys it or obtains the disk drive. While the odds are likely very low someone would be able to extract data (or be interested in it), you can try to reduce those odds to what is effectively zero.

Susan has a number of options of how to proceed, but there's a bit of navigation along the way. She's running 10.6.8 (Snow Leopard), which didn't include Recovery HD. Security Options (go.macworld.com/diskutil-erase) in her version of Disk Utility is grayed out because you can't erase a disk from its startup volume. (That option is always unavailable for SSDs, but an older iMac won't have an SSD.)

Here are the easiest ways to erase that drive securely by degree of difficulty:

> Use Target Disk Mode. With two Macs that both have Thunderbolt or FireWire ports, connect them with the appropriate cable, and follow Apple's instructions (either hold down the T key after restarting the one to erase, or use Startup Disk on that computer before restarting it, go.macworld.com/targetdiskmode). The Mac to erase mounts as a drive, and Disk Utility can be used with it.

> Install OS X on an external drive or borrow one with OS X installed. Booting off that drive will also allow erasing via Disk Utility.

> Upgrade to a newer version of OS X and use Recovery HD (go.macworld.com/recovery). Snow Leopard with the Mac App Store installed should let you download at no cost a later version of OS X. All versions after Snow Leopard include and will install Recovery HD, from which you can then boot and run.

iMac models released starting in 2010 can use Internet Recovery, but first have to be upgraded at least to Lion and some need a firmware update installed, so that's not the simplest path to pursue.

iMAC MODELS RELEASED STARTING IN 2010 CAN USE INTERNET RECOVERY, BUT FIRST HAVE TO BE UPGRADED AT LEAST TO LION AND SOME NEED A FIRMWARE UPDATE INSTALLED, SO THAT'S NOT THE SIMPLEST PATH TO PURSUE.

A related question came in from Becky Steinke, who was trying to erase a 2008 MacBook. She tried to use the Recovery HD startup (holding down Command-R after restarting) and had no luck. Every 2008 and later MacBook Pro and MacBook can install Mac OS X 10.7 Lion, which should be able to install the Recovery

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partition. If possible, upgrade it to Lion, restart, and use Recovery HD to erase, or use one of the other options mentioned.

How to dispose of a printer securely

Q: I have two older printers, an Epson Stylus Photo 960 and an HP OfficeJet 800 Wireless printer, as well as an old CanoScan flatbed scanner I would like to get rid of securely, but I need to know whether these consumer products store any print or scanning jobs as I have scanned receipts and personal documents. There is nothing about that on the manufacturers' sites. If these devices do have [internal storage], how can I find the modules and remove or destroy them?

— Philip Cassir

A: My knee-jerk reaction was, nah, these devices are all "dumb"—they don't contain internal storage that would queue anything once the power was removed. But my knee stopped spasming almost immediately, because it's these sorts of assumptions that come back to bite users (and manufacturers) later, and even inexpensive printers have become more computer-like starting several years ago.

Let's start with internal storage. While corporate-scale multi-function printers (MFPs) and copier/printers may have internal flash or even hard disk storage, depending on what kinds of tasks they carry out, no consumer device I'm aware of has non-volatile storage for documents and scans.

Multifunction printers can have enough volatile memory (regular old RAM) to queue dozens or even hundreds of pages scanned or coming through as a fax or while waiting to be printed, pulling the power instantly erases whatever was stored. Many printers can accept flash memory cards from cameras, so make sure you don't leave one of those inserted, as it may contain personal photos.

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The line between business and consumer hardware has blurred in recent years as the premium for more sophisticated features has dropped, and if you're in a small office or had to purchase an expensive printer/copier for some specific feature, it's possible you've crossed a storage line, too. Just in case you have an oddball model with internal storage, checking the manual for a reference to such a thing isn't a bad idea—though it would certainly be touted as a feature and cost extra, so it's unlikely you'd miss it.

The more important task is to delete settings stored in the small amount of flash memory used to retain values when the power is off, because networked and Internet-connected printers can be configured to receive files and print jobs over the Internet, or email documents to you or store them in a service like Dropbox as they're scanned in or received as faxes.

Most printer utility software or the front panel used for direct setting changes has a factory-reset or restore-to-default option. Make sure and go through that reset process and check that it actually happened.

Consumer scanners that aren't part of an MFP, to my knowledge and experience, have no permanent storage. I can't think even of a high-end single-function scanner that I've ever used that relied on local storage; they all connect to computers or other host devices to pass the data along. ■

Ask Mac 911

We're always looking for problems to solve! Email us at mac911@macworld.com including screen captures as appropriate.

Mac 911 can't provide direct email responses or answers for every question. For that, turn to AppleCare, an Apple Store Genius Bar, or the Apple Support Communities.

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