



FOUNDED MAY 1989
MEETINGS - SECOND
SATURDAY OF THE MONTH

EDITOR COMMENTS

How about 47 alternatives to Wikipedia? tinyurl.com/h9s27f5.

And how about Adam Engst debunking the myths about Sierra the curmudgeon brigade has dredged up. tinyurl.com/jfmfwfb.

You might want to save this extended explanation of how to use Siri on a Mac. We will be shortly talking to our Macs a lot more. tinyurl.com/jswcyng.

Lastly, read this if you are considering choosing between an iPad Air tablet and an iPad Pro. tinyurl.com/j37owcz.

SIERRA & APFS ISSUE



MLMUG ON VACATION!

No meeting this month.
Enjoy a vacation, but try to
keep current on
technology.

CONTENTS

Meeting & Editor Comments.....1
 Mlmug And Newsletter Info.....2-4
 Bookmarks: Clones, Copies And SnapShots.....5
MacOs Sierra FAQ: What You Need To Know.....6-8
 Podcasts,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,8
8 Hidden Features Of Macos Sierra.....9-11
 2016 Speaker Roster.....11
Use Picture In Picture In Macos Sierra.....12
Download The Macos Sierra Default Wallpaper.....13
10 Fantastic Features Of iOS 10.....14-15
Apple Previews Apple File System To Replace.....16
HFS+ In 2017
Details On Apple’s New File System APFS.....17-18
What We’ve Learned About Apple’s.....19-20
New File System APFS
What APFS File System Means To You.....20-23
 Mission Control And Split View.....23-24
 How To Use Separate Spaces With.....25
 Multiple Monitors
 Open Winmail.Dat Attachments.....26
 Pasting Text Into Emails, Much Faster.....27
 15 Cool Siri Tricks.....28-29
 Dog Days Of Summer.....29
 Bluetooth's Soft Limits In Os X.....30
The Top 5 Online Scams; How To Avoid Them....31-32
 How Do I Test Backups?.....33-34
 How To Install And Use Dropbox.....35-36
 Review: Creative Capsule.....37-38
 Portrait Of An Artist.....39
 How I Learned To Love Snapchat.....39-40
 Ai: On The Road.....41-43

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Typical Meeting Agenda

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

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

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

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

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

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

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

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

11:50 - Noon: Raffles and silent auctions.

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

MLMUG Email list

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

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

New Users SIG

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

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

Macintosh Programming SIG/ Philly Mac Programming Group

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

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

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

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

- **Monthly meetings**, where you can learn, share, and meet everyone from working Mac professionals to new Mac users from all backgrounds.
- **Monthly newsletter**, which is full of interesting Mac news, tips, and information.
- Useful free items at the monthly **Raffles**.
- **Discounts**. Vendors offer special prices to User Group members.
- **Web Site** with 12 months of MLMUG newsletters, meeting information, a member directory, directions to our meetings, and much more! Our web site is www.mlmug.org.
- **MLMUG Mailing List**, to post technical questions or comments to each other and the experts within the group.
- **Reviewers** keep items reviewed.

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

Treasurer, MLMUG

P.O. Box 1374





Bookmarks

Clones, Copies And Snapshots

By Mark Bazrod

Reports on Apple's new file system, APFS, indicate that two big features are cloning and snapshots. Cloning is said to be faster than copying and takes up no extra space beyond the first copy.

I wasn't sure what was meant so I did some research and although I now know more, I still don't have a firm grip on the meaning and technology stated in the first paragraph. So I'm writing this column to give average users a better understanding of the situation, although it probably won't make much difference in their use of Macs and iDevices.

Clones and Copies

A clone, sometimes referred to as disk image, is a copy of every sector on the drive, including those that are not used, as well as their physical layout. Thus, a disk restored from a clone will contain all the files and all the unused sectors in the same physical location as the original.

A copy doesn't make a copy of unused sectors and files may not necessarily be in the same physical location as they originally were. My assumption is that such copies defragment files (although fair amount of defragmentation is done automatically by Apple's current file system).

I think that cloning is faster than copying because it has a smaller instruction set, but I'm not sure and for most of us it doesn't matter and is just nice to know.

An unanswered question: Does the fact that APFS does cloning mean that you will not need to continue to use backup utilities, such as Carbon Copy Cloner and Superduper! to make backup clones. My assumption is that the cloning process is internal to Apple's system and is not usable for backups. We shall see.

Snapshots

A snapshot is a picture of the files (but apparently not including unused sectors) at a particular point in time. There are many different kinds of snapshots and different implementations. I read that "the time and I/O needed to create the snapshot does not increase with the size of the data set; by contrast, the time and I/O required for a direct backup is proportional to the size of the data set."

I don't understand the quoted language and the more I read about snapshots, the more I understand that my knowledge is limited. Mike Inskeep and Bob Barton gave me links to two excellent articles on snapshots: tinyurl.com/gwrm4mo from arstechna.com and tinyurl.com/zpz72sh from techtarget.com.

Some systems provide for subsequent snapshots which sound a lot like incremental backups.

Conclusions

The average user will need more explanatory articles about APFS to better understand it.

It really helps to be a professional IT person to really understand APFS.

Cloning is faster than copying.

Snapshot is somewhat of a blackbox to me - for the moment.

Roman Loyola posted the following article to macworld.com on June 13, 2016. tinyurl.com/gqd75gw. © IDG Consumer & SMB. A Senior Editor, Macworld, he has covered technology since the early 1990s.

MacOS Sierra FAQ: What You Need To Know About The New Mac Operating System

Got questions about Apple's upcoming Mac operating system? We have answers.

By Roman Loyola



This fall, Apple will release macOS Sierra, a major update to the Mac operating system. This FAQ will answer some of the general questions you may have to help you learn what it's all about and whether you should install it on your Mac. We'll update this FAQ with more questions, answers, and details as the release date approaches.

macOS? What happened to OS X?

Apple decided to change the name in order to fit with the names of iOS, watchOS, and tvOS. So no more Roman numerals (or that annoying person who insists on calling it "OS eks").

Some trivia, if you're interested: macOS isn't entirely a new name. Before version 10, Apple used to call its Mac operating system

Mac OS, with the last version being Mac OS 9. Apple changed the name to OS X when version 10 was released in 2001.

Does Apple still name its Mac operating systems after California locations?

Yup. This one is macOS Sierra.

More trivia: *Sierra* refers to a mountain range in central and eastern California. It's also called Sierra Nevada, and a small part of the range lies in the state of Nevada. (*Sierra* is Spanish for mountain range and *Nevada* is Spanish for snowfall.) [Lake Tahoe](#), a popular snow-sport location in the winter and a frequently-visited lake in the summer, is located in the Sierra. [Yosemite National Park](#) (which is home to [El Capitan](#)) is also there. [Mount Whitney](#), the highest peak in the contiguous United States, is in the Sierra.

What version of the Mac operating system is this?

10.12.



iCloud Drive will now let you access documents on saved to the Desktop on any Mac.

When will it be available?

The final version will be available in the fall. Apple released OS X 10.11 El Capitan on September 30, 2015, so if you use that as a

guideline, the release date will probably be in late September or early October.

How much will it cost?

Apple makes its operating systems available for free, and macOS Sierra will be no different.

Can I try a beta before the final is released?

You can by [joining the Apple Beta Software Program](#). The public beta will be released in July, and you have to sign up to get it.

Remember, it's beta software, so there will be bugs and interface issues. Be sure to back up your data before installing the beta. And use the Feedback Assistant app to report any issues you encounter. You'll help make a better final version.

Will it run on my computer?

Here's the list of Macs that will run macOS Sierra.

- MacBook (Late 2009 and later)
- MacBook Air (2010 and later)
- MacBook Pro (2010 and later)
- Mac mini (2010 and later)
- iMac (Late 2009 and later)
- Mac Pro (2010 and later)

Should you upgrade to macOS Sierra?

Once you've determined that you have compatible hardware, deciding to upgrade is a personal choice. If you absolutely depend on a specific app and would be crippled without it, you should wait to make sure from that app developer that their software will work with macOS Sierra.

If you do decide to upgrade on macOS Sierra's ship date, make sure you back up your data first. If you end up having a serious problem, you can revert back using your backup.

I heard that Siri is in macOS Sierra. True?

It's true. There will be a Siri icon in the dock. Clicking on it activates Siri. You can use it as you would with your iPhone, like say, if you need directions, are trying to find a nearby restaurant, or want information on a topic.

You can also use it to find files on your Mac. For example, you can tell Siri to find all the files with with word "report" in it, and Siri will list those files.

Siri also lets you work with other Apple apps. You can take Siri results for, say, an image, and then drag and drop the image into a Keynote presentation. You can have Siri find a location in Maps, and then drag the location into an email.

Apple has not announced a third-party API for macOS Siri, so Siri may not work with third-party Mac apps.

I also heard that Apple Pay is coming to the Mac. Yes?



Yes. When you're shopping online and you see an Apple Pay button, you can click on it to use Apple Pay to pay for it. You still need your iPhone, however. Apple Pay on the Mac uses the iPhone's Touch ID to verify your purchase; you can also press your Apple Watch side button twice.

Speaking of the Apple Watch, why can't I use it to unlock my Mac?

Well, with macOS Sierra, you can. When your Mac has been inactive or you're powering it up and you get to the login screen, a feature called Auto Unlock will sense your Apple Watch and instantly log you in. No more typing your password.

What are the other new features?

Here's a [list of the major new features](#) showcased at Apple's Worldwide Developers Conference. They include iCloud Drive Desktop access, Optimized Storage, Picture in Picture, Tabs, and Universal Clipboard.

Some of the other neat features:

- [Apple File System](#), a new file system not only for macOS but also for iOS, tvOS, and watchOS.
- enhanced Messages
- support for third-party app integration with the Contacts app
- Apple Music improvements

Photos for Mac gets new features, too. A new Memories tab automatically creates slideshows based on events, places, or people. There's also support for extension for Photos that will allow for editing of Live Photos. When you make an edit, it will apply to the whole Live Photo, not just the one sequence you edited.

Safari will have a major change in the way it handles content that uses plug-ins like Flash, Silverlight, and QuickTime. You'll see an alert that tells you the plug-in is not installed, and you'll need to click on a "Click to use" button to see the content. Apple is doing this to force websites to load—if it's available—HTML5-compliant media implementations.

PODCASTS - JULY 2016

I am going to present a small monthly snippet on great and interesting podcasts which I think you might enjoy. This month's choice is **Freakonomics Radio**. The podcasts tend to be about an hour long. Recent subjects have been:

The Suicide Paradox

How Much Does The President Really Matter?

Why Do We Really Follow The News

Are We In A Mattress-Store Bubble?

Why Does Everyone Hate Flying?

The Longest Long Shot (Leicester City Football Club)

How To Win Games And Beat People

Being Malcolm Gladwell

How To Be More Productive

How To Become Great At Just About Anything

Jason Snell posted the following article to macworld.com on June 23, 2016. tinyurl.com/gqd75gw. © Mac Publishing, LLC. Jason has been a technology writer for more than 20 years and has a Master's degree in journalism. He was Macworld Editorial Director.

8 Hidden Features Of MacOS Sierra

By Jason Snell

It's been a week since macOS Sierra was announced by Apple, and I've gotten a chance to [spend a few days using it](#). If you've only seen the highlights from Apple's keynote, though, you may have missed a bunch of cool features that have flown beneath the radar. Here's a look at some interesting features that you might have missed.

Storage management is complicated

Apple's pitch about Sierra being better about freeing up your disk space (especially on comparatively cramped flash-storage drives) is true, but on stage Apple's Craig Federighi presented a very simplified version of the concept. The reality is that this isn't a single feature, but a whole collection of them.

Yes, you can now sync your Desktop and Documents folders with iCloud, and (separately) give your Mac the option of deleting local copies of documents that are also stored in iCloud. But that's just one small way Apple is giving the system the opportunity to reduce storage space.

There's an entire new Storage Management window, located in the System Information app, that provides a suite of tools to help you free up disk space. Some aspects of the window are based on turning on or tweaking settings, like how Mail stores attachments and if iTunes should delete video files that have already been watched. You can also set if you'd like items that have been sitting in the Trash for 30 days to be automatically removed.

But there's also a feature called Reduce Clutter that's reminiscent of a third-party spring-cleaning utility. This feature ferrets out large files in your system—giant iOS device backups (often unnecessary

if you've moved backups to iCloud), DMG files you downloaded to install software, and the like.



Sierra focuses on storage.

Then there are some tweaks Apple is making behind the scenes to save space. If you use Safari to download a file you've already downloaded before, Safari downloads the new version and removes the older versions of the same file, so you don't end up with five different copies of the same software installer in your Downloads folder. The operating system is also more aggressive in cleaning up log files, which most users never see or need, but can take up a lot of room.

Siri control of system settings

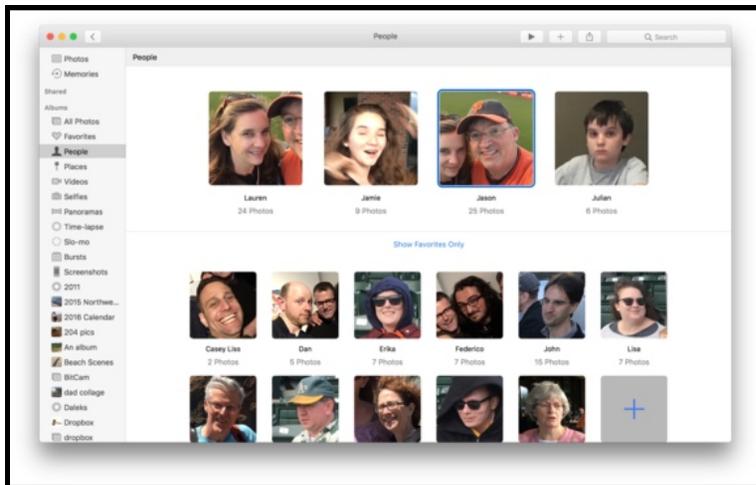
At the keynote we saw Siri do the usual stuff that Siri can do on iOS, and of course Siri results can be pinned in Notification Center or even dragged out into other apps. But Siri can also perform a bunch of commands that directly affect Mac hardware.

As you can on iOS, you can tell Siri to make the screen brighter or darker. You can also tell it to turn Wi-Fi on and off, adjust the system volume, put the Mac to sleep, and start the screen saver. Siri also has access to some system information, like the speed of its processor, how much memory it has, the Mac's serial number, and how much free space remains on the drive.

Photos takes a new approach to faces

Apple discussed updates to Photos in the context of iOS, not macOS, but of course Photos for Mac is getting the same new machine-learning-based image categorization as Photos for iOS.

This new feature—which detects scenes, moods, animals, and of course people's faces—replaces the venerable Faces feature, which has been around since the iPhoto days. Apple says the new face-recognition engine is far more modern and efficient than the old Faces engine was, though in my testing it seemed to not catch as many faces. Let's hope there's more tweaking to do there.



Photos replaces Faces with People.

In any event, Photos now has a new People album that replaces the old Faces window. Photos identifies faces and tries to group the same faces automatically. If you have pictures of people's faces attached to their contact information, Photos will use that to

try to automatically name them. Otherwise, you can identify faces directly within the People album, by clicking and typing. If the person's already in your Contacts list, you can add them quickly, but if not, you can just type their name and press Return. Adding an existing name to a set of faces causes those images to merge together, building up the facial recognition database.

Apple Pay knows when your phone is nearby

On stage, Federighi said that Apple Pay works with either an Apple Watch or an iPhone to let you buy stuff on the Web from right within Safari. What he didn't mention is that since your Mac is aware if there's an Apple-Pay eligible device within range, Safari can actually be instructed by web pages to show or hide Apple Pay buttons *based on a device's proximity to the Mac*. That's right, if you're browsing an Apple Pay-enabled web site without your iPhone or Apple Watch nearby, a website can opt to make the Apple Pay button vanish. And then if you bring your iPhone within range, the Apple Pay button can magically reappear.

Picture in Picture anywhere

The new Picture in Picture feature in macOS Sierra is basically the same feature as in iOS 9 on the iPad. It's great because you don't have to fuss to keep other windows from covering up the video you want to watch. On iOS, you can stick the video in the corners of the screen, and that was demonstrated at the keynote, too.

If the corners of the screen don't work for you, though, have no fear! If you hold down the Command key while moving the Picture in Picture window, you can drop it anywhere you like.

Rich URL previews in Messages

Like Photos, all of Apple's improvements to Messages were covered in the iOS portion of the keynote. While Messages for Mac can't create most of the cool effects added to iOS 10, it can play most of them back. But one improvement to Messages works both ways: the addition of rich URL previews. Now when you send or receive a message that contains a URL, Messages will load the

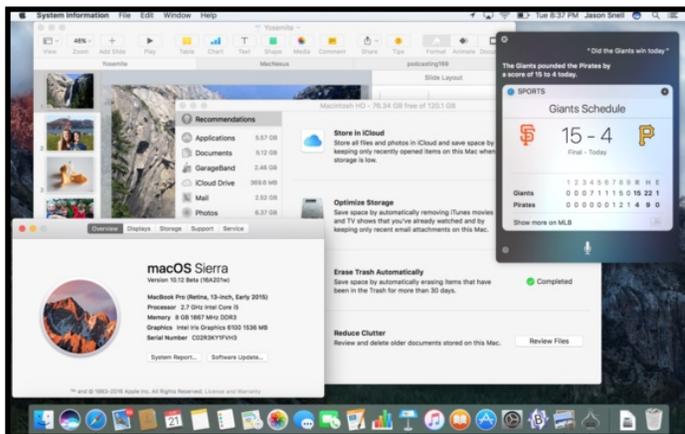
name (and if possible, an image) of the page you're referencing and display it in an attractive preview box. That's way more friendly than a bare URL.

Sharing in Notes

iOS 10 features iCloud-based sharing of notes in the Notes app, but guess what? Yep, the Mac gets this feature too. Just click on the Share button at the top of the Notes window and choose your method of sharing—you can send a share link via Messages, Twitter, or even just pop it on the clipboard and do what you want with it. Once someone else is sharing your note with you, they can edit it at the same time you are, and changes show up within a couple of seconds. This should be great for families and friends alike.

Brilliance comes to Photos

A new effect in the editing window of Photos is called Brilliance, which does a whole bunch of different things—brightening dark areas, dropping down highlights, and increasing contrast. It's also been added as a dimension in the automatic enhance tool, changing how that tool behaves.



Siri is in the menubar as well as the Dock, and there are new tools in the Storage tab of System Information.

Compatibility with fewer Macs

The last three releases of OS X all added features without dropping compatibility from *any* Mac models. That's right, the system requirements for Mountain Lion, Mavericks, Yosemite, and El Capitan were all identical. (This isn't to say that some *features* of those versions didn't work on some Macs... but you could install all of them on the same group of Macs.)

With macOS Sierra, though, some old Macs have finally fallen by the wayside. Losing compatibility this time: iMacs from mid-2007 through mid-2009, MacBooks from mid-2007 to mid-2009, MacBook Pros from 2007 to 2009, Mac minis from 2009, Mac Pros from 2008 through 2009, and the Xserve. Basically, if you're running a Mac released in 2010 or later, you can definitely run macOS Sierra.

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

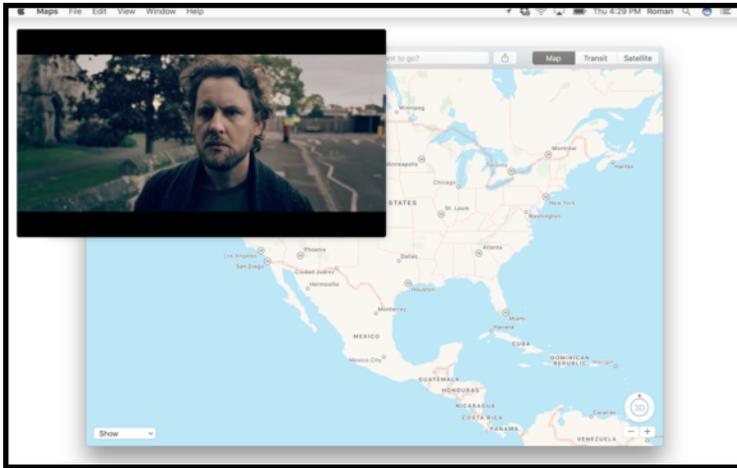
- January 9 Podcasts - Mark Bazrod
- February 13 MS Office & Apple TV - Stan Horwitz
- March 12 Special Interest Groups
- April 9 iOS Security - Mike Inskeep
- May 14 Tips & Tricks To Make Your Images "Pop" - Bill Achuff
- June 11 Picnic
- July 9 Recess - Summer
- August 13 Recess - Summer
- September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

Roman Loyola posted the following article to macworld.com on June 24, 2016. tinyurl.com/ijpb3xm. © IDG Consumer & SMB. A Senior Editor, Macworld, he has covered technology since the early 1990s.

How To Use Picture In Picture In MacOS Sierra

Watch video while you're working on your Mac.

By Roman Loyola



Picture in Picture (PiP) is one of the features I'm looking forward to the most in the new version of the Mac operating system, macOS Sierra. PiP displays a small video window that stays on top of the screen and is open at all times. If you switch apps, the video window doesn't get buried under everything else on your screen.

If you are like me and you like to watch sports events in other parts of the world, PiP is a great way to watch a game while working. Or maybe you want to watch more productive programming, like a Ted Talk or a training video, while you're getting stuff done.

In order for PiP to work with web video, the site need to implement it. Apple provides an API that web developers can use to make PiP available to visitors. This article was written using the macOS Sierra developer preview and PiP wasn't available on Facebook or YouTube, but it work with Vimeo.

(Since this hands-on was written using pre-release software, it will be updated when macOS Sierra is officially released in the fall.)

Using Picture in Picture

With web video, you'll see a PiP icon on the video control bar once you start playing the video. When you click on it, a small video window pops up and places itself in a corner of your screen. In case you forget that you are playing the video in PiP, the webpage in Safari says, "The video is playing in Picture in Picture."

You can change the corner placement by dragging the PiP window to the desired corner. The window always has to be in a corner. You can't place it in, say, the middle of the screen—it will snap to the nearest corner.

You can resize the PiP window by clicking on an edge and dragging. Also, when you click on the window, three buttons appear: a close window button in the upper left, a pause/play button in the lower part of the window, and next to that, a button to switch the video back to Safari.

If you want to scrub through a video, rewind, fast forward, or click to a certain point in time, you have to go to the Safari page for the video and use the scrub bar there. The PiP window doesn't have a way for you do any time shifting.

When you switch apps or desktops, the PiP window stays on top. It also works if you switch to full-screen mode or to split view.

Apple says that PiP will work in iTunes, but it wasn't available in the pre-released version I used for this article. We'll update this article with the iTunes experience when it is ready.

The following article was posted to osxdaily.com on October 15, 2015. tinyurl.com/gp3gg5a. © OSX Daily. Try the site. Lots of tips and good info.

Download The MacOS Sierra Default Wallpaper

When Apple debuted macOS Sierra to the world, we all got a glimpse at the gorgeous wallpaper of a sunset alpenglow hitting a mountain range on the screens of the demo Mac. Apple has also given us a look at that beautiful mountain range wallpaper on their preview page for macOS Sierra too. But you don't have to download macOS Sierra 10.12 or wait the final release to get the wallpaper right now, and in fact you can get two slightly different variations of the same great desktop background.

Click on either of the thumbnails below to launch the full sized macOS Sierra wallpaper into a new window so that you can download and save it for your own desktop.

The first version of the macOS Sierra default wallpaper comes from Apple.com preview page, it has a bit more sky and mountain than the one bundled in the macOS Sierra installation and is sized at a generous 5120 × 3200 resolution (hosted via Apple):



The second version of the macOS Sierra default wallpaper is the one included in the macOS Sierra developer beta of the operating system, which has more mountains and a bit less sky, it's also available at generous resolution of 5120 × 3684 pixels (hosted via [9to5mac](http://9to5mac.com)):



Both are beautiful variations of the same picture that are just cropped a bit differently, and the differences are subtle.

Wondering which mountains are shown in the macOS Sierra wallpaper? Well, it may not be much of a surprise, but macOS Sierra is named after the Sierra Nevada mountain range, which runs north south through the state of California near the border with neighboring Nevada. It's an absolutely beautiful stretch that includes many sights, monuments, parks, and recreational activities, and the scenic beauty is simply stunning and world class, making it easy to see why Apple picked the Sierra mountain range as both the name of their new macOS and also as the relevant desktop wallpapers.

Sam Costello posted the following article to about.com on June 14, 2016. tinyurl.com/jrtmlja. © About.com. He is a consultant and writer providing Macintosh training, advice, and support since the Mac Plus. He has written hundreds of articles, tutorials, and product reviews.

10 Fantastic Features Of iOS 10

By Sam-Costello

The announcement of every new version of the iOS brings with it a set of exciting new features that expand and transform what the iPhone and iPod touch can do. That's certainly true of iOS 10.

The new version of the operating system that runs on the iPhone was revealed by Tim Cook at Apple's Worldwide Developers Conference (WWDC) in San Francisco today. While iOS 10 won't actually be released until the fall, here are the 10 most exciting features to get excited about while we wait.

1. Smarter Siri

When Siri debuted back in 2011, it seemed pretty revolutionary. Since then, Siri has lagged behind competitors that came later, like Google Now, Microsoft Cortana, and Amazon's Alexa. That's about to change, thanks to the new and improved Siri coming in iOS 10. Siri is smarter and more powerful in iOS 10, thanks to being aware of your location, calendar, recent addresses, contacts, and much more. Because it's aware of that information, Siri can make suggestions that help you accomplish tasks faster. For Mac users, Siri is debuting on macOS and brings even cooler features there.

2. Siri For Every App

One of the major ways that Siri is getting smarter is that it's no longer so limited. In the past, Siri only worked with Apple apps and limited parts of the iOS itself. Third-party apps that users get at the App Store couldn't use Siri. Not anymore. Now, any developer can add support for Siri to their apps. That means you'll be able to ask Siri to get you on Uber, send a message in a chat app by using your voice rather than typing, or send money to a friend using

Square whenever you say so. While this may sound a little unimpressive, it should actually change the iPhone pretty profoundly if enough developers adopt it.

3. Improved Lockscreen

The functionality of the iPhone's lockscreen has lagged behind Android in recent years. Not anymore, thanks to the new lockscreen options in iOS 10. There are too many to cover here, but a few of the highlights include: light up your lockscreen when you raise the iPhone; respond to notifications directly from the lockscreen using 3D Touch without even unlocking the phone; easier access to the Camera app and Notification Center; Control Center gains a second screen for music playback.

4. iMessage Apps

Prior to iOS 10, iMessage was simply Apple's platform for text messaging. Now, it's a platform that can run its own apps. That's a pretty big change. iMessage apps are just like iPhone apps: they have their own app store (accessible from within the Messages app), you install them on your phone, and then you use them within Messages. Examples of iMessage apps include ways to send money to friends, to place group food orders, and more. This is very similar to the apps available in Slack, and chat-as-platform is becoming increasingly popular thanks to bots. Apple and its users are staying abreast of the latest communication techniques with apps.

5. Universal Clipboard

This is another feature that sounds a little minor, but should actually turn out to be super useful (it's only really useful if you have multiple Apple devices, but still). When you use copy and paste, whatever you copy is saved to a "clipboard" on your device. Previously, you could only paste that on the same device you were using. But with Universal Clipboard, which is based in the cloud, you can copy something on your Mac and paste it into an email on your iPhone. That's pretty cool.

6. Delete Pre-Installed Apps

More good news for people who want more control over their apps: with iOS 10 you can delete the pre-installed apps. Apple has always required that users keep all apps that come with the iOS installed on their devices and taking up precious storage space. The best users could do was put all of those apps into a folder. In iOS 10, you'll be able to actually delete them and free up space. Almost every app that comes as part of the iOS can be deleted, including things like Find My Friends, Apple Watch, iBooks, iCloud Drive, and Tips.

7. Revamped Apple Music

The Music app that comes with iOS, and the Apple Music streaming platform, are major long-term successes for Apple (especially Apple Music. It's racked up over 15 million paying customers in less than 2 years). That success has been in spite of many complaints about the app's overly complex and confusing interface. Users of iOS 10 unhappy with that interface will be happy to learn that it's been overhauled. Not only is there a generally attractive new design and bigger art, it's also add song lyrics and removes the superfluous Connect feature that let users follow artists. Using Apple Music looks like it's going to be a lot nicer.

8. New Ways to Communicate in iMessage

Your options for communicating in the Messages app have been a little limited. Sure, you could send texts and photos and video, and then audio clips, but Messages didn't have the kind of fun features found in other chat apps—until iOS 10. With this release, Messages gains all kinds of cool ways to communicate more clearly and with more verve. There are stickers that can be added to texts. You can add visual effects to messages to make them look louder, to require the recipient to swipe them for a dramatic reveal, and you'll even get suggestions for words that can be replaced by emoji (which are now three times bigger). That's a lot of ways to get your point across.

9. HomeKit App

Most iPhone users have never heard of HomeKit. It's not a surprise, since it's not used in many products. However, it could change their lives. HomeKit is Apple's platform for smart homes that connect appliances, HVAC, and more to a single network and allows them to be controlled from an app. Until now, there hadn't been a good app to manage all HomeKit-compatible devices. Now there is. This app won't be totally useful until there are more HomeKit-compatible devices and more people have them in their homes, but this is a big start towards making your home smarter.

10. Voicemail Transcriptions

This gives new meaning to the Visual Voicemail feature. When Apple introduced the iPhone, Visual Voicemail meant you could see who all of your messages were from and play them out of order. In iOS 10, you can not only do that, but every voicemail is also transcribed into text so you don't have to listen to it at all if you don't want to. Not a major feature, but a really helpful one for the people who will use it.



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Susie Ochs posted the following article to Macworld.com on June 13, 2016. tinyurl.com/jha24tz. © Mac Publishing.LLC. She is Executive Editor, Macworld, a proud Mac geek and writer who has been covering Apple since 2006.

Apple Previews Apple File System To Replace HFS+ In 2017 *The Current File System, Hfs+, Is Starting To Show Its Age. At Wwdc 2016, Its Successor Was Finally Born.*



By Susie Ochs

Some changes are big for users: Siri on the Mac, fireworks in the Messages app, a new Breathe app on the watch! Others are a more seismic shift that end users may or may not notice. Apple's operating systems have used the HFS+ file system for more than 18 years, but that era is coming to an end. At the Platform State of the Union after the WWDC keynote, Apple took the wraps off the replacement for HFS+, its new Apple File System.

Now, the file system is pretty well hidden from most users. It's entirely possible that you've used the Mac for 20 years and only come across a reference to HFS+ when formatting a new drive in Disk Utility—I know this because that's the kind of user I am. But Apple File System will have some benefits that should be a really big deal for developers.

According to [a document on Apple's Developer site](#), Apple File System improves on HFS+ while supporting “nearly all” of its features. But it's optimized for flash and SSD storage, with modern touches like 64-bit support and strong encryption.

In the Platform State of the Union, Apple highlighted two big features of the Apple File System. The first is cloning. As you use any operating system, some files are duplicated, and even if the OS can clean all that up for you later, it still hogs resources and disk space while it's happening. Apple File System *clones* these files rather than copying them because that's faster and takes up no extra space beyond the first copy. It can clone files, directories, and hierarchies.

The second big addition is Snapshots. Those are, well, snapshots of a full volume. Snapshots can be mounted, and support reverting to an older version, to let you back up a view of the whole file system at a certain point in time. The example given onstage involved a classroom: Say you're a teacher and you set up your classroom's Macs or iPads with certain content, apps, and settings for a lesson. Then the kids come in and start monkeying around. At the end of class, instead of having to undo all those changes, the teacher can roll back the device's content and settings to the previous Snapshot, so everything is ready for the next class of students.

Apple File System, which Apple is also calling APFS, is a developer preview in macOS Sierra (aka OS X 10.12), and Apple says it won't ship until 2017. Because while SSDs and cloning files are fast, changing the file system across all of Apple's operating systems and devices—well, that's going to take a little while. APFS has a way to go until it's ready for prime time as well. As of today, APFS volumes can't be encrypted with FileVault or backed up with Time Machine, and Fusion Drives can't use APFS yet either. Baby steps.

John Martellaro posted the following article to macobserver.com on June 14, 2016. tinyurl.com/jostcr8. © The Mac Observer, Inc. A scientist and author, he has worked for NASA, the Oak Ridge National Laboratory, & Apple.

Details Emerge On Apple's New File System APFS - What Does It All Mean?

By John Martellaro



A very important and geeky technology that Apple has been working on surfaced after the WWDC keynote, namely that Apple has been working on a new file system for the Mac and other Apple devices. It was probably too geeky to make the cut for a keynote broadcast live, but it's still incredibly important. Here's the background and what we know about APFS.

What is a File System?

A file system is method used by a computer to store and retrieve data. A simple way of thinking about it is an old-fashioned phone book. A phone book stores names, addresses and phone numbers alphabetically by name. When we look up a name, we know how to scan alphabetically, read across what we found, and retrieve the phone number on the same line.

Similarly, a computer files system is a set of protocols and code that specifies how data (and metadata) is stored, found, retrieved. In simple terms, things like multiple write contentions, buffering and file integrity, and file size and number limits are set.

Evolution

Computer file systems have evolved over the years to meet the need of ever advancing hardware. When hardware and processors were slow, it didn't make sense, nor was it possible, to design very advanced file systems. And, so, periodically we go through a technology convulsion as the vendor designs a more capable file system and we (carefully) migrate with it.

We've gone from floppy disks to hard disks to SSDs in the lifetime of the Mac, and the amount of user data has expanded by many orders of magnitude. File systems are revised, hopefully with backwards compatibility, so that users can continue to access older devices while dealing with terabytes and perhaps petabytes of data.

The file system Apple has been using since 1998 for both the Classic Mac OS as well as the evolution of Mac OS X, OS X, and now macOS is called HFS+. It was suitable for the Classic Mac OS in the 1990s and perhaps barely suitable for a UNIX file system, BSD, that Apple called Mac OS X back in 2001. But then, it generally worked well, Apple had control of it, and it could be designed at will to meet the UI and UX needs of Apple's customers. Today, iOS, tvOS and watchOS have inherited HFS+.

Over the years, it became clear that HFS+ was not a file system that could take the Mac and inheritors of HFS+ into the future. Apple experimented briefly in 2009 with Sun's ZFS file system, but there were issues that prevented its deployment. That's beyond the scope of this discussion.

Other events that have driven Apple's quest for a new file system, especially on the Mac, have been the need for more robust security, the nagging problem of how Time Machine volumes are managed (and encrypted) and the widespread use of SSDs/Flash storage, especially as boot drives in Macs today.

Criticism of HFS+

Back in early 2015, the father of Linux, Linus Torvalds, had some sharp comments to make about the weaknesses of HFS+. ["Linus](#)

[Torvalds: Apple's HFS+ is probably the worst file system ever.](#) Mr. Torvalds critiqued HFS+ in several important technical areas, and he was right. Thin-skinned Apple enthusiasts bristled at the comments, but Torvalds was right. And it stuck.



HFS+ lacks fine grained time stamps, checksumming, snapshotting, and sparse file support, to name a few. Also, it's also incapable of operating, by design, beyond early 2040.

What emerged in the past few years was a nagging feeling in the community, and likely Apple engineers, that HFS+ could endure not much longer, but for the technical reasons cited above, not the criticism of Mr. Torvalds. I pondered the dilemma back in April. "[As Apple Moves From OS X to MacOS, What's in Store for Users?](#)"

My guess is that a solution was already in the works when Torvalds made his comments in January, 2015.

WWDC 2016

After the WWDC keynote on June 13, the titles of some secret sessions were revealed. Notable was a session on Apple's development of an HFS+ replacement, APFS, for "Apple File System." Lee Hutchinson at ars technica wrote the best summary I've seen: "Digging into the dev documentation for APFS, Apple's new file system." There, you'll find an excellent technical description of APFS if you want to dig deeper.

When Will APFS be Released?

File Systems are tricky to develop. One software bug can lead to the loss of gigabytes of data forever. Customers are particularly touchy about the integrity of their data and have a low tolerance for even the most idiosyncratic file system bugs. And so, Apple is rolling out a pre-beta of APFS to developers this week. It will require a long period of testing and certification before this file system is released to customers as part of macOS and its siblings, iOS, watchOS and tvOS.

It won't be in macOS Sierra released this fall, nor iOS 10. When will it be released? All we know is Apple's target date of 2017.

Even the most curious Mac developer may take pause at the current limits of APFS in its early stages. For example, APFS volumes cannot be used as startup disks or Time Machine backups. Or use FileVault. Data could be lost and likely will be at this early stage in development.

My guess is that APFS will be rolled out gradually on the Mac. First, it will be available to format external drives only. Then, new Macs will ship with APFS on the boot drive, perhaps in late 2017. (iPhones and other devices will follow.) Customers using El Capitan, Sierra or later will be able to reformat and do a clean install with APFS if desired. Every step of the way, starting in 2017, there will be gentle, careful migration and disciplined, cautious testing across all devices.

But when we finally arrive, there will be great rejoicing. Integral to APFS is file level security, and Apple's initiatives with the security and privacy of the iPhone in 2016 will carry over, at last, to the Mac in 2017-18. There will likely come a day when casual Mac users don't even think about not having their Mac and all external drives as highly encrypted as their iPhones and iPads. I surmise that the optional FileVault will be replaced with easy to implement, more fundamental encryption. (But users can still elect 'no encryption' if necessary for, say, thumb drives.)

There will be great joy in Appleville.

John Martellaro posted the following article to macobserver.com on June 21, 2016. tinyurl.com/jpqz96c. © The Mac Observer, Inc. A scientist and author, he has worked for NASA, the Oak Ridge National Laboratory, & Apple.

What We've Learned About Apple's New File System, APFS, In The Last Week

By John Martellaro



It wasn't discussed in the WWDC keynote. But Apple's has been developing a new file system for all its devices called Apple File System. It's been a hot topic of discussion over the last week. Here are some of the notable things we've learned since the first day of WWDC along with some context.

This is exciting news. To hear that Apple has finally decided to do something about its obsolete file system, HFS+, warms the heart. It lifted the spirits of all those who were grumbling about the technical

inadequacies of HFS+, the absence of security and encryption as a first-class citizen, the coarseness of its time stamps, and the overly strained mechanism behind Time Machine, just to name a few things.

Before I go on, for an introduction to what a file system is and why Apple wanted to replace its aging HFS+, see: "[Details Emerge on Apple's New File System APFS - What Does it All Mean?](#)"

Some Interesting Details

1. Inception. Likely the reason Apple didn't go with the name AFS is because that's been in use for a long time by [Andrew File System](#). We learned that Apple has been working on APFS since 2014, and that was well before Linus Torvalds made his very public, [stinging remarks](#) about HFS+. Apple engineers could only smile and get back to work.

2. Going it Alone. We've learned that Apple debated internally about adopting a currently available, modern file system like ZFS or rolling its own. It's typical for Apple to have this kind of debate internally. Ultimately, the decision was made to design a new file system that recognizes the scale of Apple's products, from Apple Watch to Mac Pro.

3. Time Table. It takes about four years to design, from scratch, and ship a new file system. At that point, the file system is reliable, but may still be tweaked. Given that Apple has been working on APFS for two years, the goal of having it ready in 2017 is very ambitious. But then, ambitious goals tend to get products out on time rather than suffering endless delays.

4. APFS Snapshots. A snapshot is just what it sounds like. The state of the file system can be periodically saved and reverted to that identical state at a later time. This, combined with the fact that APFS doesn't currently support the hard links that Time Machine uses suggests that a different mechanism will have to be invoked if Time Machine, or something akin to it, is to endure.

We have two notions that seem incompatible. It's one thing to go back in time and retrieve a single file that was deleted months ago. It's quite another to return the whole file system to a previous state. Just how we'll move forward on these two seemingly contradictory fronts isn't yet clear.

5. Checksums. Perhaps the biggest controversy about APFS I've seen is the business of checksums. Checksums are used to detect and correct errors (corruption, "bit rot") of data. Right now, APFS

plans to checksum only its own data not the user data. The argument is that checksumming all the user data consumes added power and has a (small) space penalty. The discussion continues with Apple currently claiming that their standards for the hardware they ship is so high, it isn't a problem.

Also, because of the way APFS duplicates data, making copies of files won't stave off possible corruption. It remains to be seen. However, APFS has the facility to implement user data checksums at some future point if called for.

There is also a philosophical issue here. If the user backs up data by saving copies on the same drive, that really isn't a backup. Data that's important will get saved to two or more separate drives. And so, it may be that Apple's decision about checksums lies with how it devises a Time Machine replacement.

6. Effaceable Memory. The reason you can take an iPhone into an Apple store and recycle it with confidence has to do with special hardware: effaceable memory. That's a protected part of memory that holds the hardware encryption key. After you do a reset of the iPhone, that key is destroyed and all that remains is an unreadable, encrypted jumble in Flash storage. APFS will support this, and with that special hardware in future Macs, we can also sell our Macs with confidence knowing that all our private data is unrecoverable from SSD/Flash storage.

7. Performance. APFS has been optimized for overall performance especially with SSDs. The special characteristics of Flash data managers, called the Flash Translation Layer (FTL), are taken into account. Also, there is a focus on reducing I/O latency. Operations that are exposed to the user are given priority. Eventually, the spinning beachball may become as rare as a Corvette owner without a [baseball cap](#).

APFS has a long and glorious future ahead of it. We'll be hearing much more about it over the coming years. At this point, information is just dribbling out, but what we know so far has been cause for much joy.

Now, if only Apple would ship a new Mac Pro to put APFS on next year.

References

If you are hungry for yet more technical details, I highly recommend this discussion by Adam Leventhal. "[APFS in Detail: Overview](#)." Michael Tsai has also collected some [community comments](#) in his blog.

Michael E. Cohen posted the following article to [tidbits.com](#) on June 24, 2016. [tinyurl.com/jgbbauz](#). © TidBITS Publishing Inc. He has worked as a teacher, programmer, Web designer, multimedia producer, and certified usability analyst. He's the author or co-author of a number of Take Control books.

What Apple's Forthcoming APFS File System Means To You

By Michael E. Cohen

Among the tidbits Apple revealed to its developer audience at the recently completed Worldwide Developers Conference was a new file system for the whole range of its products (see "[macOS 10.12 Sierra to Succeed OS X 10.11 El Capitan](#)," 13 June 2016). Dubbed "APFS" (an acronym that Apple doesn't completely spell out even in its developer documentation), the file system is meant to replace HFS+, the file system that in turn replaced 1985's HFS (Hierarchical File System) in 1998. (HFS+ has received numerous updates since 1998, so don't get the impression that it's completely obsolete.) Apple released a developer preview of APFS with macOS 10.12 Sierra, and the company says APFS will become the default file system in all of its operating systems — macOS, iOS, watchOS, and tvOS — by late 2017.

Changing the default file system for an operating system is a big deal, since the file system is responsible for keeping track of all of

the data on the device. But what does such a change mean for users?

The Finder Is Not the File System -- Unless you're one of those rare individuals who lives on the Terminal command line and who can type `ls -la` faster than you can double-click a folder icon, the Finder, along with the Mac's Open and Save File dialogs, is normally how you see what's on your Mac and how you navigate among your files and folders. This won't change when APFS takes over from HFS+.

That's because the Finder is a *client* of the file system. The Finder shows you a view of the items you have stored on your Mac and lets you arrange files and folders in a manner that works for you. The Finder, along with its folder and file icons, has been on the Mac since before even HFS came around, and has worked more or less the same from the user's point of view since the first Mac came out of a bag and said "Hello" back in 1984.

The file system works behind the scenes, providing information to the Finder and to applications about the files and directories that are stored in some fashion on a device connected to your Mac — whether in magnetic fields recorded on a spinning platter or charged cells in a solid-state device. The file system keeps track of how much storage capacity files take up on the device, where on the device the data that make up the files are stored, and all sorts of metadata about those files, such as their names, when they were created and last changed, which users are allowed to open them, and a great deal of other stuff.

The Finder is thus an intermediary. Its job is to present us ordinary mortals with an easily understandable view of the data that the file system actually manages, and to instruct the file system about what you want to do with that data. As long as the Finder can communicate adequately with a file system to enable that view and pass along your instructions, the actual file system being used on a storage device doesn't matter much.

In fact, if you have ever used a thumb drive or an SD card with your Mac, you may have already seen the Finder working with a file system other than HFS+. Most thumb drives and SD cards come formatted for Windows computers and use the FAT (File Allocation Table) file system, and yet you can still see and manipulate the files and folders on them with the Finder.

APFS is designed to understand nearly all of the same instructions and information requests that the Finder, or any other Mac application, issues regarding storage devices managed by HFS+. You'll still be able to move files, rename files, copy files, open files, delete files, tag files, and so on just as you always did.

But You Will Notice Some Differences -- However, APFS does provide some benefits over HFS+, and they're significant enough that you will likely notice them in action.

HFS+ came along well before large storage devices containing gigabytes, let alone terabytes, were common, well before flash memory was commonly used for file storage, well before file encryption was something that ordinary users cared about, and well before Mac OS was replaced with OS X and its virtual-memory-enabled multi-tasking capabilities.

Support for large data volumes, encryption, flash drives, and virtual memory was more or less bolted onto HFS+ instead of being integrated into it. APFS has that support, and more, built in and will thus have an impact on your experience as a user.

- **Faster file copying and saving:** Saving files and duplicating them on the same device will happen much more quickly and without using as much space. That's because APFS has been designed to reduce data duplication by sharing data between files as necessary. When you copy a file to another folder in APFS, no data is moved. Instead the copy points to the original file's data on the device. If one of those copies is later changed, only the changes are stored: APFS handles which bits belong to which files. APFS's capability to change only parts of files also speeds up file saving, and, especially, automatic saving

using versions. Viewing and restoring from a previous version in an app should be faster too.

Apple's goal of optimizing APFS for flash storage and solid-state storage devices (SSD for short) is behind this shared data approach. When you save a file repeatedly over time, the actual data making up the file can't be stored in one contiguous chunk on the drive, and thus it becomes "fragmented." That's normal, but on a spinning disk, file fragmentation reduces performance by forcing the read/write heads to seek more in order to access the widely separate parts of the file. On a spinning disk, the shared data approach will mean more disk fragmentation.

But fragmentation on an SSD does not affect speed nearly as much. On an SSD, rewriting memory cells is much more costly, both in terms of speed and in terms of the cells' usable life: rewriting SSD cells gradually wears them out. Writing just the changed file contents, and doing so in scattered physical locations on an SSD, is an efficient way to increase wear-leveling as well as to reduce the number of write operations. That's a win-win now that most Apple devices, including Macs, rely on flash storage.

However, APFS is designed to work with spinning disk drives as well and should be smart enough to take disk location and rotational latency into account when choosing locations to store file changes on such devices.

- **Snappier backups and restores:** APFS can create read-only snapshots of a volume's file contents. Once again, this capability comes courtesy of the shared data approach. Since file changes are scattered in different locations on a device, APFS can keep track of the data locations that comprise a file at any given time and make sure they are preserved. New versions of Time Machine, as well as other backup utilities, should be able to take advantage of APFS snapshots, making incremental backups that much more snappy.

- **Flexible partitions:** APFS creates physical *containers* on a device, which can then be subdivided, or partitioned, into individual storage volumes. Unlike the partitions managed by HFS+, APFS partitions share their space with each other within the same container. This means that if you have a 500 GB APFS container, you can create multiple volumes within it that each will show up in the Finder as having 500 GB capacities. As a consequence, the amount of free space shown for each volume reflects the free space available in the container, not the individual volumes.

Although this approach could lead to user confusion, it might be mitigated by one other APFS feature: fast directory sizing. Under APFS you will no longer have to wait for seconds or even minutes while the Finder shows you the exact amount of storage used by a folder in a Get Info window. Fast directory sizing makes that information much more quickly available — useful if you want to know if your photo library will fit on the portable drive you're bringing on your vacation.

- **More encryption options:** macOS Sierra, like versions of OS X since 10.7 Lion, offers full disk encryption via FileVault 2. Similarly, although this isn't obvious to the user, iOS has offered individual file encryption since iOS 4 and has encrypted all user files created by third-party apps since iOS 7. APFS provides both full-volume and individual file encryption: you can use full volume encryption on one volume in an APFS container and use individual file encryption on another volume in the same container.

In addition, APFS provides not only single-key file encryption but multi-key encryption, allowing a file's data and its metadata to be encrypted separately. For example, you could have a volume that allowed a file cataloging utility to decrypt metadata about a file, such as its name and creation date, but not to decrypt the actual file contents.

Regardless, although it's difficult to know how Apple and other developers will take advantage of these capabilities, it's safe to

say that you'll have more encryption options available to you when APFS is in charge of your device storage. Plus, since Apple built encryption into APFS, encryption should be snappy.

Transition to APFS -- Apple intends the transition to be as painless as possible. When you buy a new Mac once APFS is the default file system, you should have no transition hassle at all: Setup Assistant should move your data from your old Mac to the new one pretty much as it has all along. And, since macOS will continue to support HFS+ as well as APFS (just as it supports other file systems), you'll be able to mount and use older HFS+-formatted external drives with no problems.

Apple also plans to provide an in-place APFS migration utility for users who upgrade older Macs to a macOS version that uses APFS as its default. Most likely, the migration process will take some time (minutes or hours) to convert an existing HFS+ device to APFS, but Apple's goal is to make the process as simple and as safe as possible.

Let's all hope Apple meets that goal: APFS is a big deal, offering notable performance, space-saving, and security benefits to users while promising to work its magic unobtrusively behind the scenes — as any good file system should.



The following article was posted by Andrew Cunningham to arstechnica.com on September 9, 2015. tinyurl.com/j74dxau. He is a graduate of Kenyon College with a B.S. in Classics! He is a Senior Products Specialist at Ars Technica.

Window Management: Mission Control And Split View

By Andrew Cunningham



Mission Control in El Capitan.

El Capitan's single most transformative feature is the overhaul given to Mission Control, a revamp that also affects Spaces and the Full Screen mode. It feels like a marriage of OS X's window management and some of Windows 10's more promising new features, driven by Macs' large, accurate trackpads. The fact that Windows 10's window management and multitasking features borrow so much from the Mac means that comparisons are inevitable.

Start by swiping three fingers upward to open Mission Control. This should look broadly familiar save for a couple of tweaks. You don't see thumbnails of all your open desktops and full screen

apps at the top unless you move the mouse pointer up there, only text labels. And windows from the same app are no longer stacked atop one another by default, but displayed separately (this was an option in older OS X versions, it's just the default behavior now). If you have a bunch of Chrome or Safari windows open at once, you know this could be annoying in Yosemite—Mission Control becomes way less useful if you can't actually see the window you're opening. If you prefer the old behavior, you can still enable it in the Mission Control settings, but it's off by default.

You can still use Mission Control pretty much the way you did before. Switch between windows, open and close spaces, drag windows from one desktop to another, and drag spaces between multiple monitors. The biggest new feature is Split View, which places two full screen apps side by side in a way that looks a whole lot like that iPad multitasking feature from iOS 9.

There are a few different ways to do this. Long-click the green stoplight button of an app that supports full screen mode, and the OS will ask you to drag it to the left or right half of the screen. A mini-Mission-Control-type collection of your other windows will then fill the other half of the screen. Apps that can take advantage of Split View will look like they normally do, while those that can't do it will appear faded. Click an app and you'll see them both side by side, divided by a vertical black line.

You can also put an app into full screen mode as you normally would, open Mission Control, and drag another full screen app over top of the first app to create a Split View. Unlike in iOS, you can put two separate windows from the same app side-by-side if you need to compare two Word documents or Safari windows.

That black line can be clicked and dragged to change how much space each app takes up. The default view is 50/50, but most apps support a 25/75 split (though some, like Calendar, won't shrink down that far). iOS enforces those strict 50/50 and 25/75 splits, but in OS X the divider can go pretty much anywhere as long as the app supports it. 60/40, 57/43, whatever you want.

From there, work with the apps (and take them out of full screen mode) just as you would have before. This feature isn't exactly necessary in an OS with full support for traditional windowed multitasking, but for people like me who like to use full screen mode to reduce clutter or to ease the pain of working on one small laptop screen instead of a big multi-monitor desktop rig, there's definitely some utility here.

Embedded video omitted.

This is all a bit easier to learn by watching rather than by reading, so refer to the embedded video above. Other tricks: drag a window to the top of the screen and hold the cursor there for a second to invoke Mission Control (this was unreliable in early betas but is easier and more consistently invoked in the final build). And shake the mouse cursor a couple of times to make it larger and easier to find, a smart tweak if you frequently lose the cursor on those multi-monitor setups.

If there's one thing that makes the new Mission Control a bit less usable than the old one, it's that showing app windows individually instead of by group strips them of the icon and label that told you, in quick and unmistakable terms, what app you were looking at. El Capitan only shows you a text label if you hover the cursor over the window. Also, not all apps that support full screen mode will automatically support Split View, though again this has improved since the early betas. Judging from the documentation, it looks like developers will need to use Auto Layout to take advantage of the feature. If your app's developer isn't on board, the feature becomes less useful.



John Martellaro posted the following article to macobserver.com on June 25, 2016. tinyurl.com/pwm6ajf. © The Mac Observer, Inc. A scientist and author, he has worked for NASA, the Oak Ridge National Laboratory, & Apple.

OS X: How To Use Separate Spaces With Multiple Monitors

By John Martellaro

OS X Yosemite (and Mavericks), by default in a clean install, provide for each monitor, in a multiple monitor system, to have its own display Spaces. The immediate symptom is a rather confusing presentation of a full menu bar on each display, with the one that's inactive dimmed. Here's what's going on.

This story started when I did a clean install of Yosemite on an [external drive](#). When I fired up my Mac Pro from that drive, I noticed that each of my two monitors had a menu bar. One was dimmed, and one was not. If I clicked on the display with a dimmed menu bar, it came to life. For a minute, I was mystified because this is not how I normally work and not what I expected.

After a bit, I realized that this default behavior is a long lost remnant from the early days of my Yosemite install when I changed the behavior of my work Spaces. The setting I need to tweak is found in OS X: [Apple menu > System Preferences > Mission Control](#). There, nicely low key and easy to overlook is the setting: "Displays have separate Spaces." Here's a screen shot.

Here's what that means.

1. **Box Checked:** Each of your displays works independently when it comes to the menu bar and its associated Spaces that are defined in Mission Control. Think of each display as a separate stack of Spaces, independent of the other display.

For example, on display #1, you could have Desktop Spaces # 1,2,3 and 4. On display #2, you could have Desktop Spaces 5,6 and 7.

2. **Box Unchecked:** The two displays can be thought of as one large display with only **one** menu bar. As you cycle through Spaces, the same Space spans both displays.

For example, you could have both displays supporting Desktop Spaces #1,2,3 and 4.

The advantage of the first option is that you can keep one Space on one display fixed and cycle through the Spaces of a second display. The advantage of the second option is that your Space is larger, spans two displays, and the displays remain in sync as you jump through your defined Spaces. (**CTRL <-** or **CNTL ->** by default.)

One lesson here is that after a year with my OS X, starting from beta testing of Yosemite, it's easy to lose track of all the UI refinements I made to suit me as I went along. A clean install of OS X often presents us with startling UI defaults that we've long forgotten about.

Come to think of it, a log in OS X that documents every UI departure that was made, different than the default, would be a nice thing to have. Then, after a clean install the user could step through the list and recover every (or selected) favorite setting(s). How about it Apple?

Finally, and this is another one of those infamous mysteries of OS X, how does one create a new Space?

1. On the keyboard, press F3, Mission Control.
2. Hold down the Option key
3. Look for the "+" symbol on the upper right of the display (if your Dock is at the bottom).
4. Click the "+" symbol to create a new Space.
5. Press ESC to exit.

It's good to visit these nuances of OS X from time to time. They're easy to forget and often not very intuitive.

The following article was posted to osxdaily.com on April 25, 2016. tinyurl.com/hbn97jt. © OSX Daily. Try the site. Lots of tips and good info.

Open Winmail.Dat Attachments Files On iPhone & iPad With TNEF Enough

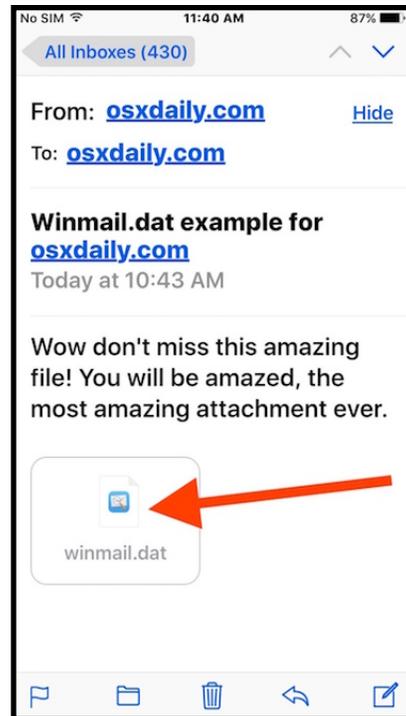
iPhone and iPad owners who regularly receive emails from Windows-based users may find 'winmail.dat' files attached to the email messages, a file type which Mail.app can struggle to identify or open. Since winmail.dat files can be anything from a simple styled rich text email, to a calendar invite, vcf contact card, or even a legitimate email attachment, it can sometimes be necessary to open and read the winmail.dat file in iOS, which is what we're going to show you how to do.

The ability to read, open, and interpret winmail.dat files in iOS Mail app is natively missing, for now anyway, but similar to opening a winmail.dat file on the Mac side of things, you can use a third party app to accomplish the task. It's free and easy to use too, here's how it works:

How to Open Winmail.dat Attachments in iOS Mail

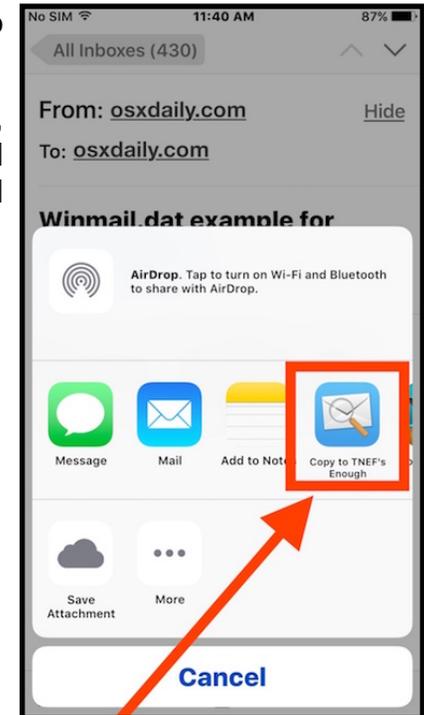
TNEF's Enough will open, read, and allow access to any data contained within a winmail.dat attachment file that has been encountered in the iOS Mail app, the process is the same on any iPhone, iPad, or iPod touch.

1. Exit Mail app in iOS
2. Click here to download TNEF's Enough from the iOS App Store
3. Re-launch Mail in iOS and open an email containing the winmail.dat attachment file
4. Tap on the "winmail.dat"



attachment file and choose "Copy to TNEF's Enough"

5. Assuming the file is readable, TNEF's Enough will open in iOS and show you a list of items contained within the winmail.dat attachment.



Vcards and calendar files can be accessed and imported just like they would be able to if encountered elsewhere in iOS.

If you don't want to install the app onto your iPhone or iPad, you can use Handoff to move the open message to a Mac with the TNEF utility installed instead, or use the various tips here to open and read winmail.dat files received in Mac OS X.

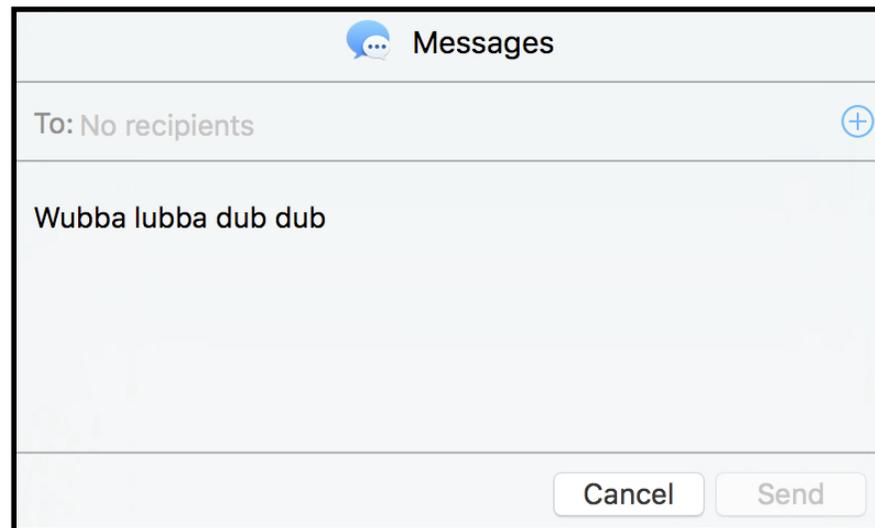
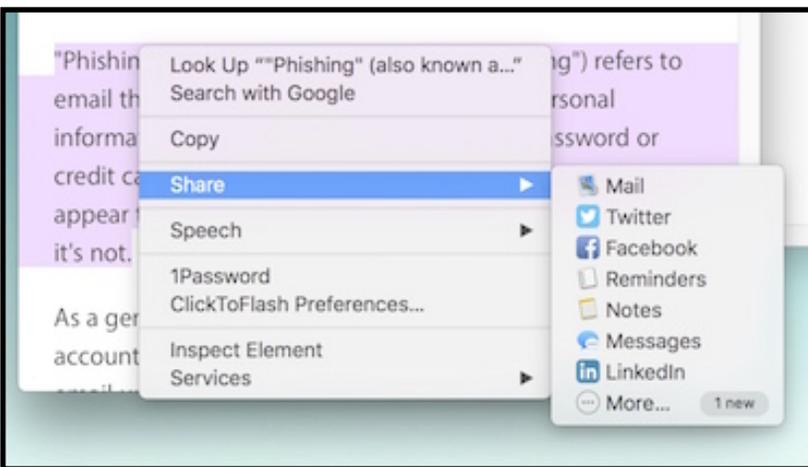
Melissa Holt posted the following article to macobserver.com on June 9, 2016. tinyurl.com/jvcqrjd. © The Mac Observer, Inc. She is an Apple Consultant who lives and works along the Front Range in Colorado.

OS X: Pasting Text Into Emails, Much Faster

By Melissa Holt

So if you’ve gotta copy some text on your Mac and paste it into a new email, how do you typically do that? I’d say that most people select the text, press the keyboard shortcut for Copy (**Command-C**), go to Mail, open a new message, move their cursor to the body, and then press the shortcut for Paste (**Command-V**). There’s a way that’s just so much faster that I love it to bits, and I think you’ll like it too.

What you’ll do is select the text you’d like to email (or send through Messages, or tweet about, or add to Notes, etc.) and then right- or Control-click on it. When you do so, a contextual menu will appear, and one of the available options is “Share.” If you hover over that, you’ll see your choices.



Pick “Mail,” and the text you selected will be inserted right into the body of an email, ready for you to pass it along. That sure does make things faster! And if you select “Messages” or a few of the other options, you’ll instead get a little box overlay for you to compose and edit as you see fit.

This works in quite a few places around the operating system, including Safari and Mail, so if you need to forward only a bit of a message to someone else, for example, you can do so. That’s awesome. I just love step-skipping!



Daniel Nations updated the following article on about.com on March 03, 2015. tinyurl.com/q3kktqt. © About.com. He has been writing, programming and following technology since back in the Commodore Vic 20 days.

15 Cool Siri Tricks That Are Both Useful And Fun

By Daniel Nations

[Siri](#) is one of the best additions to the iPad since its introduction. There are a [number of ways Siri can help you be more productive](#), from settings reminders and events to looking up nearby restaurants and movies to telling you who won the football game. If you haven't discovered Siri yet, I would recommend [going through my Siri tutorial](#) to find out what she can do to help you. If you are already familiar with Siri, these not-so-well-known tricks might just teach you something new.

[How to Use Voice Dictation on the iPad](#)

1. Hey Siri. Let's start this list of tricks with the newest way to activate Siri. You can always hold down the home button to get Siri's attention, but beginning with iOS 8, you can also say "Hey Siri" while your iPad is charging. Want to get Siri's attention when your iPad isn't charging? So long as Siri is activated, you can use the "Hey Siri" command to get her attention. So if you [delay your iPad's Auto-Lock](#) in settings, you can use this feature without charging though you may find your battery running down rather quickly.

2. Convert measurements, currency. Want to know how many miles are in 5 kilometers? Or what 300 British pounds are in American dollars? Just ask her.

3. Pronounce Your Name. If you have a name like Mike, Sam, Ashley or Susan, Siri probably doesn't have much of an issue with your name. But if Siri is mangling your name, you can correct her by saying, "That's not how you say that." [Get more information on correcting Siri's pronunciation.](#)

4. Give someone a nickname. Nicknames aren't just a fun addition to Siri, they can also be rather useful. For example, if you

nickname your manager "boss" in your contacts, Siri will understand "Call Boss" or "Text Boss" commands. Simply go into your Contacts list, go to the contact in question, click Edit at the top, scroll down and tap Add Field, choose Nickname and type in whatever nickname you want to give the contact.

5. Siri is a comedian. If you are simply bored, you can ask Siri all kinds of questions. Just think up something bizarre to ask her and see how she responds. Some especially funny ones include "Sing a song", "What's your favorite color" and "Show me the money." [Find more funny questions to ask her.](#)

6. Get Calorie Information. Can Siri help with your diet? Yes she can. One great aspect of Siri is the connection to [WolframAlpha](#), which has all kinds of useful information in it. And while asking her how many calories are in a pizza won't give you the exact amount for that slice you are contemplating -- that would depend on the toppings and the size of the slice -- she'll give you a good ballpark figure.

7. Get the time... anywhere. If you regularly contact people in different parts of the country or different areas of the world, this trick is very handy. Just ask Siri what the time is in that location and she'll tell you the local time. No more waking someone up at 3 AM because you didn't know how early it was in London!

8. What song is playing? Thanks to [Shazam](#), Siri can now recognize music just by listening to it. This is great if you hear a song while out and about and are thinking about buying it. She'll even give you the option to buy right then via iTunes.

9. Open App Settings. By now, most of us are aware that Siri can launch an app for us by saying "open [app name]". She can even [open the iPad's settings](#) by saying "Open iPad Settings". But did you know she can open an individual app's settings? Just say "Open [app name] settings" to find out what sort of tweaks you can make to that particular app. For example, "Open Music Settings" will let you change the EQ and turn off Shake to Shuffle.

10. Turn off Bluetooth. If you have Bluetooth speakers, a Bluetooth headphone or other accessories, you might get annoyed at the need to go into settings to turn off Bluetooth when you want to save some battery life. With [iOS 7](#), Apple made it easier to turn off Bluetooth via the control panel. But an even faster way to toggle Bluetooth on or off is to simply ask Siri to do it for you.

11. Change the day, time and content of a reminder. Did Siri garble your reminder? If she got the day or time wrong or even the content of the reminder, you don't need to start from scratch. Simply say, "Change the time to..." or "Change the reminder to..." in order to change parts of the reminder.

12. Reminders can have categories. This one will require you to go into the Reminders app, but it can be worth it. If you create a category of reminders such as Grocery List, you can add items to that category via Siri by saying "Add lettuce to grocery list".

13. Take a picture. The fastest way to get ready to snap that shot? Just say "Take a picture" and Siri will open the camera app.

14. Flip a coin or roll dice. Head or tails? No problem. You can even tell Siri to roll dice and she'll give you the results of two six-sided dice being rolled. **15. Find airplanes flying overhead.** I'm not sure exactly how useful this one is, but Siri has the ability to tell you what airplanes are in your area. So if you see a DC-10 and want to figure out where it is going or where it departed, ask Siri about airplanes flying overhead.

[How to Get the Most Out of Your iPad](#)

Did You Know? Siri works even if you are on the lock screen, but if you are worried about security, you can [disable her from activating while the iPad is locked](#).



Glenn Fleishman posted the following article to macworld.com on June 7, 2016: tinyurl.com/hr3ttbf. © IDG Consumer & SMB. He is a Senior Contributor to Macworld and a regular contributor to the Economist, Fast Company, and Boing Boing. He appears regularly on public radio to discuss the tech industry.

Bluetooth's Soft Limits In OS X: Count Your Devices

A reader finds a common problem: Too many Bluetooth devices connected to one Mac can perform inconsistently.

By Glenn Fleishman

Steve Johnson wrote in with a complaint I hear regularly (and experience myself):

I have a Mac mini with a Bluetooth trackpad and keyboard. I recently received a Bose radio and play music from the Mac via Bluetooth. Sometimes the radio signal gets garbled. I can temporarily disable the keyboard and trackpad and get the music working, then re-enable. Is there a way to correct this situation without the workaround?

Bluetooth is a great short-range wireless technology that uses frequency hopping (FH) to rapidly switch narrow bands of frequency used to carry data, avoiding interference and competing uses. This should mean you can have a lot of Bluetooth and other wireless in the same 2.4 gigahertz (GHz) band in the same place. (A version of FH was first developed in the 1940s by actress and genius Hedy Lamarr and avant-garde musician George Antheil.)

In practice, though, a combination of saturation of those frequencies and Bluetooth's functional limits makes it all work less well than you'd hope. You can try to reduce competing use of the spectrum—if you have a baby monitor, remote-door bell, older cordless phone, or other wireless stuff that uses 2.4 GHz, you might move or replace it. (Check the labels and manuals for frequencies used.)

A Wi-Fi base station too close to your Bluetooth equipment and computer can be a problem, too. Every consumer Wi-Fi access point uses 2.4 GHz, and many also use 5 GHz. They use a swath

of 2.4 GHz that can deny about one-quarter to one-third of the band to nearby Bluetooth devices. If you're in a highly congested area, like an apartment building in an urban area, you may have so many Wi-Fi base stations and devices active, you simply can't avoid it.

Even then, the Bluetooth controller on a Mac may not be able to keep up. I've spoken many times to folks at the Bluetooth SIG, which handles standards and certification for devices using that technology, and despite the ostensible capability of Bluetooth, you may see more limits in practice.

Apple is quite blunt on its page about Bluetooth input devices and Macs in describing constraints:

The official Bluetooth specifications say seven is the maximum number of Bluetooth devices that can be connected to your Mac at once. However, three to four devices is a practical limit, depending on the types of devices used. Some devices require more Bluetooth data, so they're more demanding than other devices. Data-intensive devices might reduce the total number of devices that can be active at the same time.

If you can't make the Bluetooth work reliably and there's an audio input, you might switch to running an audio cable for more reliability.

Wendy Boswell updated the following article on about.com on June 16, 2016. tinyurl.com/h8hXu83. © about.com. She has been the editor of About Web Search since 2004. She has worked closely as a digital consultant with several Fortune 500 companies, including the New York Times, Intel, and IBM.

The Top Five Online Scams And How To Avoid Them

By Wendy Boswell



We've all come across content that seems too good to be true in our Web surfing travels. How can you be sure what you're looking at is the real deal? If you're concerned about your [safety on the Web](#) (and who isn't), then you'll want to learn how to spot the fakes, the phonies, and the downright silly before you get bamboozled. In this article, we'll take a look at the top five online scams, and what you can do to ensure that you don't get caught in the trap.

The Freebie

Say you come to a website that promises you a free computer if you just answer a few quick questions and give up your email address, phone number, and home address. Here's the catch: not only do you have to opt into a ton of shady advertising, you also have given up your most precious asset on the Web - your [privacy](#). Get ready for a ton of junk mail, intrusive ads, and cold calls; after

all, you did just give them your permission. And that computer? It was never going to happen.

How to Beat This Online Scam: Let's face it, nobody is going to give you a free computer or other high-ticket item without getting something in return. Next time, use [BugMeNot](#) to register anonymously, or try an [anonymous email account](#).

The Hidden Virus

You get an email about a popular event, news item, holiday, etc. that asks you to click on a video or attachment to see something truly spectacular. Click the link, and five minutes later your computer starts acting strangely, ominous messages start appearing, and worst of all, content that you've saved starts disappearing or becomes corrupted. You've just introduced a virus into your system.

How to Beat This Online Scam: There are many, MANY email scams that give you the links to all sorts of great stuff on the Web, and sometimes, these emails are actually sent from someone you trust whose system has unfortunately already been infected. However, these clicks can cost you. Not only can you infect your computer with some pretty intrusive adware, you also run the risk of downloading nasty viruses that can literally destroy your machine. The next time you receive something that has a link to something on the Web that you might be interested in, check out the excellent About [Urban Legends](#) site and search for bogus email hoaxes. You'll also want to use [free antivirus software](#) that can scan your computer and get rid of malicious software.

Crazy Images, Quotes, and Stories That Are Too Good To Be True

A picture of an amazing tsunami? A photo of the world's biggest dog? Quotes from Abraham Lincoln that sound strangely contemporary? They're on the Web, so they have to be legitimate, right?

How to Beat This Online Scam: There are a lot of images, content, and stories on the Web that aren't real. We all have the gift of common sense and it's imperative to use this when we view content that seems too good to be true online. Make sure that before you pass something on to other people that you have verified facts with reputable sources - such as the ones in this list of [best reference sites](#).

Fake Websites That Promise Fake Services

Believe it or not, you won't always find accurate information on the Web. In fact, you might come across a site that promises to deliver amazing services for free: like a website that offers to search for social security numbers, or a site that promises free money in exchange for your personal information.

How to Beat This Online Scam: If you come across a website that is promising something that most likely is impossible to deliver, you've most likely come across a website that is attempting to scam you somehow. Use [How to Evaluate a Web Source](#) to keep you on the straight and narrow.

In addition, one of the most common online scams is charging people a fee to find information about other people online. These scams prey upon vulnerable people who are desperate to access information about their loved ones, and take advantage of their mindset to charge them ridiculous amounts of money. Read [Should I Pay to Find People Online?](#) to understand why you should never pay for this information.

Coupons and Vouchers for Amazing Deals

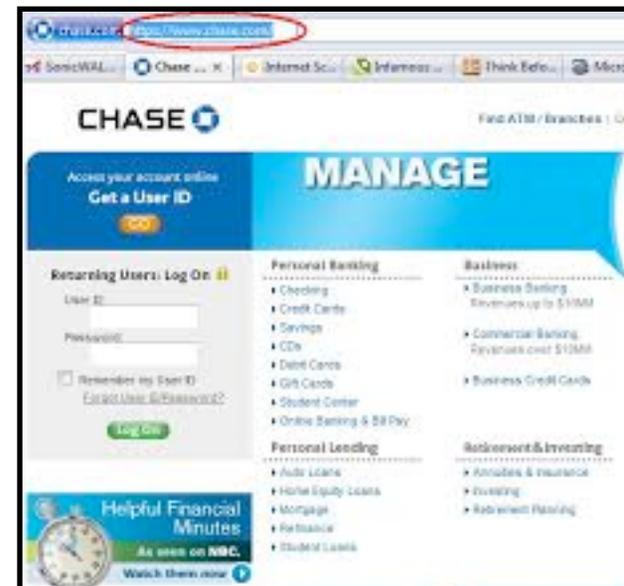
A coupon for a free Applebee's meal? How about a voucher for a free copy of Windows Vista, a mountain bike, or maybe even a car? Yes, you've probably seen all these and more in your email or on the Web, but are they for real?

How to Beat This Online Scam: There are a few easy ways you can check to see if that coupon is actually for real. The best way to figure this out is to simply use your common sense: if it seems too

good to be true, it probably is. Anything from free Disneyland vacations to free copies of Microsoft's latest operating system has been offered in these online coupon scams, and unfortunately people fall for them constantly. No matter how tempting it might be to click on that coupon or offer and take advantage of this amazing deal, resist the urge to do so; all these scammers are doing is collecting your email address and personal information in order to pull you further into their trap.

Common Sense is the Best Defense

Scams, hoaxes, and online trickery will continue to be around as long as the Web is, and unfortunately they just keep getting more and more sophisticated. However, even though the technology behind these scams is evolving, common sense still wins the day. By utilizing the tips and tricks outlined in this article along with the gift of common sense, savvy Web searchers will be able to avoid these common online pitfalls.



Leo A. Notenboom updated the following article to askleo.com on ay 26, 2016. tinyurl.com/zebo565. Using computers since 1976 he "retired" in 2001 after 18 years at Microsoft and started Ask Leo! in 2003 to answer to common computer & technical questions.

How Do I Test Backups?

By Leo A. Notenboom

It's a good idea to test backups before disaster strikes. Unfortunately, a complete test can be risky. I'll look at some alternatives.

I do backups of my data using Windows but it's not maybe as retrievable as I would like it to be. I don't know exactly how to test backups to know whether they're really there. It says they are but are they? I've had to use the system image to restore function once when my computer became infected with something. I basically just transferred the system image back to my C drive and it solved all my problems. I must say I'm thankful to you for strongly encouraging everyone to do backups. I can't tell you how many friends and family have lost stuff – everything – because of not backing up. Pictures, important data. Loss of pictures seems to be the most heartbreaking.

Yeah, I hear those heartbreaking stories all the time, and yes, it is indeed one of the reasons that I talk so *much* about backing up.

Your concern about not knowing whether the backups are there or not is actually very common, as is the desire to test backups. It's so common that I include a chapter about it in each of my books about backing up with specific tools.

Let's review how you can get a little bit of confidence that what you have will be there when you need it.

A full restore is the ultimate test

The ultimate way to test backups, of course, is exactly what you ended up doing: performing a full restore of an [image backup](#).

A full restore is the most important to have work, since it's what can save you from almost any problem. Malware infection? Restore to an image created before the infection, and it's gone. Hardware failure? Replace the drive, restore the most recent image, and you're up and working again.

The problem, of course, is that to *test* backups, a full restore is really, really risky.

By definition, a full restore is a destructive operation. By that, I mean it erases what's currently on the hard drive and replaces it with the contents of the backup image. If that operation fails part way through, you're actually worse off than when you began. You found out that your backup didn't work, but you trashed what was on the hard drive in the process. The very restore you would want to be able to fix that failure is the restore your test just discovered doesn't work!

So, here's my approach to test backups.

Use the rescue media, prepare for a restore, and stop

First, if you haven't already done so, create the rescue media from your backup program: the CD, DVD, or USB stick that you would boot from in order to perform that full restore. Then boot from it. Getting this to work is important, because booting from something other than your hard drive can be complicated, [particularly in newer machines](#).



Once the software on the rescue media is running, make sure it can actually see the drive that contains your backup images.

Then follow the steps to do an image restore, **stopping** at the very last step before the restore would begin. This verifies that your

recovery disk works, and that the backup program can access what's necessary to perform the restore.

That's about as far as you can go without actually performing the restore, but it's actually tested quite a bit.

Extract files

Most backup programs allow you to extract individual files from your full system backup image. Doing so is another way to test backups.

I recommend simply restoring a single file.

Exactly how to do that varies depending on what backup program you're running, but the scenario is the same: delete or rename an unimportant file on your hard disk, and go through the steps for your backup program to restore it from a backup.

You shouldn't need to boot from the rescue media – this is something you can typically do simply by running the backup software and using it to extract individual files from wherever your backups are stored.

If you succeed, great! You now have a relatively good level of confidence that the files contained in that backup image can be restored in the event of an actual disaster.

If you fail, however, you know you need to revisit how you're backing up to make sure you're backing up what you need in the appropriate way.

Check the image

There's one final test I like to perform to make sure the files you *think* are in your backup are in fact in your backup.

For example, in [the Maximum Reflect book](#), I outline how to mount a backup image as a virtual hard drive. You can do this with Windows 7 backup as well. Then you can examine the entire contents of the image to make sure it contains what you expect.

Poke around in the backed-up Windows folders to make sure all of Windows is there. Browse through the folders that contain your data to ensure the same. Basically, look around inside that image to ensure it has what you might need should the worst ever happen.

There is no 100% guarantee that your backup will work when you need it, but these tests can give you confidence that issues that often get in the way of a working backup won't get in the way for you.

The ultimate way to test backups, done safely

There's one more way to test backups that involves more work and some additional cost, but it'll prove, beyond a doubt, that your backups work.

1. Buy a new hard drive.
2. Actually replace the hard drive in your machine with this new hard drive.
3. Restore an image for real.

If this works, you can leave the new hard drive in your machine and keep the old as a spare.

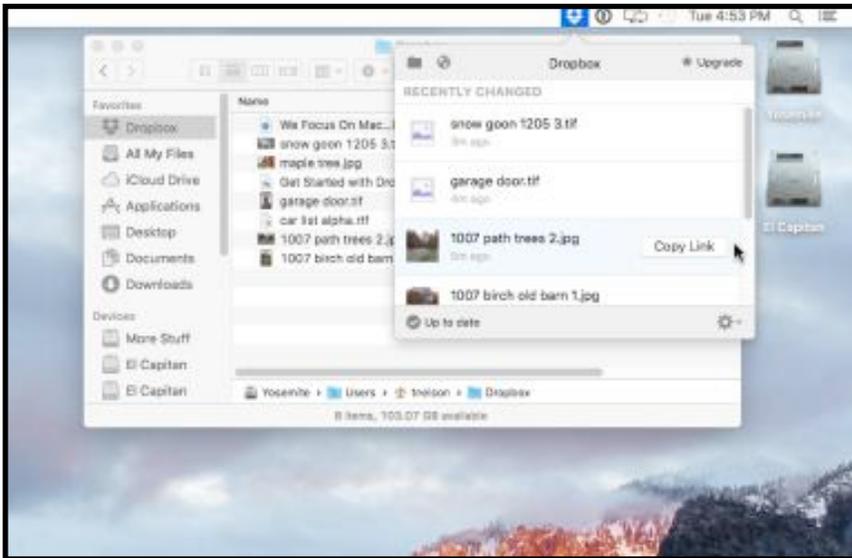
If it fails, you can simply put the old hard drive back in your machine, and move on to diagnose what failed and why.

Tom Nelson updated the following article on about.com on May 10, 2016. tinyurl.com/hteigma7. © About.com. He is a consultant and writer providing Macintosh training, advice, and support. He has written hundreds of articles, tutorials, and product reviews.

How To Install And Use Dropbox On Your Mac

An Easy-to-Use Cloud Storage System

By Tom Nelson



Dropbox for Mac showing Dropbox folder and Dropbox menu item.

Installing and using Dropbox on your Mac can simplify sharing files with other devices you may own. It can also serve as an easy way to share photos or send large files to others. It's no wonder that Dropbox is one of the most popular cloud-based storage systems.

While we'll be looking primarily at the Mac version, Dropbox is also available for Windows, Linux, and most mobile platforms, including iOS devices.

Once you set up a Dropbox account, and download and install the application, it will appear on your Mac as a special Dropbox folder. Anything you place inside the folder is automatically copied to the

cloud-based storage system, and is synced with any other devices you use that are also running Dropbox.

This means you can be working on a document on your Mac, head off to work, and go back to work on the document, knowing it's exactly the same version as the one you were just fiddling with at home.

Dropbox isn't the only cloud-based storage and syncing service for the Mac, but it's currently one of the most popular. It does have some pretty stiff competition, though, including Microsoft's SkyDrive, Google's Google Drive, Box.net, and SugarSync.

As a Mac user, you also have the option of using Apple's native cloud service, iCloud. When iCloud first came to the Mac, there was a glaring omission: it lacked any general storage capability. Sure, you could save files to iCloud, provided the app that created the files was iCloud-savvy.

In later versions of iCloud, Apple included a general-purpose cloud-based storage system, making iCloud a very handy and easy-to-use service that's already integrated with your Mac.

Our [iCloud Drive: Features and Costs](#) article includes a cost comparison of popular cloud-based storage systems.

So, why consider Dropbox?

There are many reasons, including making use of multiple cloud-based services to keep your costs for storing data in the cloud down. Almost all cloud services offer a free level, so why not take advantage of the no-cost storage? Another reason is app integration with cloud-based services. Many apps integrate themselves with various cloud-based storage services to offer additional features. Dropbox is one of the more commonly used cloud-based systems used by third-party apps.

Dropbox is available in four basic pricing plans; the first three let you expand the amount of storage you have by referring others to the service. For example, the basic free version of Dropbox will give you 500 MB per referral, to a maximum of 18 GB of free storage.

Dropbox Pricing			
	Dropbox Plan	Comparison	
Plan	Price per month	Storage	Notes
Basic	Free	2 GB	plus 500 MB per referral.
Pro	\$9.99	1 TB	\$99 if paid by the year.
Business for Teams	\$15 per user	Unlimited	5 user minimum

Installing Dropbox

You can grab the installer by downloading it from the [Dropbox](#) website.

- Once the download is complete, look for the installer in your Downloads folder. The file name is DropboxInstaller.dmg. (At times, Dropbox's name for the download included the version number.) Open the installer image file by double-clicking the Dropbox Installer.dmg file.
- Within the Dropbox Installer window that opens, double-click the Dropbox icon.
- Dropbox will download any updates the installer needs, and then start the installation process.
- Once the basic installation is complete, a Dropbox icon will be added to your Mac's menu bar, the Dropbox app will be installed in your /Applications folder, and you'll be presented with the Dropbox sign-in window.
- If you have an existing Dropbox account, you can enter your email address and password; otherwise, click the Sign Up link near the bottom right corner of the window, and then provide the requested sign-up info.
- After you sign in, the Dropbox window will display a congratulations message for successfully completing the installation. Click the Open My Dropbox Folder button.

7. Dropbox needs your account password in order for the new Dropbox folder and system to work correctly with your Mac. Enter your password, and then click OK.

8. Dropbox will add itself to your Finder's sidebar, as well as deposit a Get Started with Dropbox PDF into your Dropbox folder.

9. Take a few moments to read through the getting started guide; it provides a good outline for working with Dropbox.

Using Dropbox With Your Mac

Dropbox installs a login item into, as well as integrates itself into, the Finder. This configuration can be changed at anytime using the Dropbox preferences. You can find the Dropbox preferences by selecting the Dropbox menu item, and then clicking the gear icon in the bottom right corner of the drop-down window. Select Preferences from the pop-up menu.

I recommend keeping the Finder integration option, and the option to start Dropbox whenever you start up your Mac. Together, both options make Dropbox act just like another folder on your Mac.

Using the Dropbox Folder

The Dropbox folder acts like any other folder on your Mac, with a couple of slight differences. The first is that any file you place within the folder is copied (synced) to the Dropbox cloud, making it available to all your devices either through the Dropbox website or via the Dropbox app you can install on all your devices.

The second thing you'll notice is a new flag associated with files and folders within the Dropbox folder. This flag, which is seen in the list, column, and cover flow Finder views, shows the current sync status of the item. A green checkmark indicates the item has been successfully synced to the cloud. A blue circular arrow indicates syncing is in process.

One last thing: While you can always access your data from the Dropbox website, it's easier in the long run to install Dropbox on all the Macs, PCs, and [mobile devices](#) you use.

SOFTWARE REVIEW**By Maria O. Arguello****Product Name:** Creative Capsule for Mac or Windows**Company:** Creative Computing**URL:** www.creativecomputing.com/creativecapsule/**Price:** Student Package: \$19.95 per year

Business Package: \$34.95 per year

Consumer Package: \$24.95 per year

Server Package: \$249.95 per year

*An extra charge of \$5 if computer was not purchased from Creative Computing

System Requirements: Compatible with Apple and Windows Computers**Level:** For the beginner, intermediate, or advanced**Date:** June 2016**Rating:** Excellent

We always hear 'backup, backup, backup' to avoid losing precious data. Your hard drive WILL crash; the only question is WHEN. It is recommended that you have triple redundancy, one on your computer, one on an external hard drive, and another off site in case of fire, flood, or other catastrophe. We have heard of some services such as Google Drive, Carbonite, and CrashPlan among others but there is one that stands out from the rest for its ease of use, installation, technical support, and affordability and that's the Creative Capsule from Creative Computing. You set it and forget it. To date I have 573.04 GB of uploaded data. There is nothing out there that would give me that for \$24.95 per year (or \$29.95 for a computer not purchased from Creative Computing). There is no other backup system that I could find at this extraordinary price.

I've been using the Creative Capsule, Creative Computing's Secure Cloud Storage Backup Program for 6 months. It is free for a year with the purchase of a new computer from Creative Computing at 423 Wall St, Princeton, NJ 08540. Jeffrey Gorman, the owner, is a member and SIG leader of the Princeton Macintosh Users Group (PMUG) in Princeton. Creative Capsule is extremely affordable for what you get: "Unlimited data, unlimited bandwidth, Infinite possibilities."

Livedrive 3.0.3 is the app that does all the heavy lifting and it is easily customizable. When you download Livedrive you will see an icon on the Menu Bar. Clicking on it will give you the following choices: Open Control Center, View Your Files Online, Log Out, and Exit Livedrive. There are several tabs to explore when you choose Open Control Center.

The Dashboard tab shows any backup in progress and the percentage of backup with estimated time remaining and how much data was uploaded and the rate. You can also see your account and the account usage.

In the Settings tab of Livedrive you can choose Backup Selection to choose the computers and folders Livedrive backs up and how often during the day or daily at a set hour. Under the Security Settings tab you can configure options to secure your data if you lose your computer.

There is an Advanced button to tweak Bandwidth, Backup Exclusions, Proxy, System Status, and Integrity Check.

To view or download your backed up files go to the Restore tab. Once there you will see the list of computers you've chosen to backup. Double click the computer whose data you want to see. There you will see the list of folders you chose to backup. You can choose to Restore a folder manually with several choices: Restore to original folder, Skip the file, Keep the newest file, or Overwrite anyway. From there you can choose what you want to open and/or download. It can be either a folder or a file. Very nice.

The Web tab takes you to Livedrive on the Web where you can view your files online. A menu on the side bar offers more options. The Devices menu shows information about the devices that you have chosen to backup with Livedrive. The Account menu submenus for changing your password or closing the account, as well as upgrading and viewing your payments. The Download menu lets you choose which version of Livedrive to download depending on whether it's for Mac, Windows, iPhone, iPad, Android, Windows Content Viewer or Windows Phone. And The Support menu gives you information on the Service Status to see if there is any scheduled maintenance on your current Livedrive. And lastly, in File Exclusions there are several examples of the file types that are excluded for the Mac and Windows to optimize the service for all users.

Livedrive does everything seamlessly in the background. It is all very simple and it works! Knowing that my precious data is safe and off-site and that I can access it from anywhere gives me peace of mind that is well worth the price.

The Certified Apple Specialists at Creative Computing will help with the quick and painless install. The interface is simple and easy to navigate. I expect that from an Apple Authorized Provider and they did not disappoint. Any questions you may have will be quickly answered by their excellent customer support.



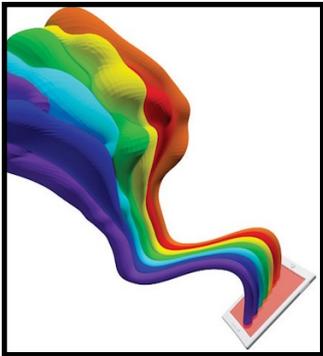
Maria O. Argüello has been an avid user of Apple products. She has been a member of the Main Line Macintosh Users Group since September 1997.



May 18, 2016 Jenna Wortham posted the following article to *nytimes.com* on September 16, 2013. <http://tinyurl.com/nh49frp> © The New York Times Company. She is a, technology reporter for The New York Times, covers technology for the Bits blog, as well as writing feature-length pieces for print.

How I Learned To Love Snapchat

By Jenna Wortham



In the mid-'80s, a German engineer named Friedhelm Hillebrand helped devise a way for cellphones to send and receive text messages. Back then, mobile bandwidth was extremely limited, which meant that the messages needed to be as lightweight as possible. The story goes that Hillebrand experimented with a variety of greetings and phrases and concluded, in very German fashion, that most things that

needed saying could be done so in an economical 160 characters or fewer. "This is perfectly sufficient," he said of his findings. Eventually the infrastructure improved so that there were no limits to how much text we could transmit at once. And by 2007, texting had surpassed voice calls as the preferred, if not default, mode of communication.

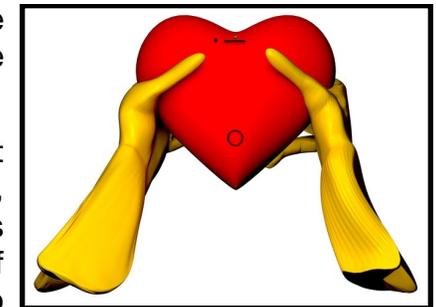
As most rapid advances in technology tend to do, this transition inspired a low-grade, intergenerational moral panic. Many feared that we would become asocial creatures, misanthropes who would rather hide behind the safety of a screen than face the intimacy of a spoken conversation. And maybe there's some truth in that, but there's another way of looking at it. Maybe we didn't hate talking — just the way older phone technologies forced us to talk. Texting freed a generation from the strictures and inconvenience (and awkwardness) of phone calls, while allowing people to be more loosely and constantly connected.

I thought about this shift recently when trying to make sense of the rise of Snapchat, the latest wellspring of technosocial hand-

wringing. Like texting, Snapchat flourished amid scarcity, though of an entirely different kind. We no longer live in Hillebrand's era, when there were hard limits on how much we could say over text; but words alone can be an imperfect technology. So much of what we mean lies not just in what we say, or in the exact words we choose, but also in the light that animates our eyes (or doesn't) when we deliver them and the sharpness (or softness) of the tone we use. Text barely captures even a fraction of that emotional depth and texture, even when we can type as much as we want. Snapchat is just the latest and most well realized example of the various ways we are regaining the layers of meaning we lost when we began digitizing so many important interactions.

Most efforts to approximate normal human behavior in software tend to be creepy or annoying. The oblong gray bubble that pops up when your conversation partner is typing (officially called the "typing awareness indicator") is no doubt intended to be helpful, the virtual version of watching someone inhale and then part their lips to speak. But it becomes panic-inducing if it appears and then disappears — an indication that someone wrote something, then, for any number of reasons, deleted it. Similarly, "read" receipts, designed to let you know that someone opened and read your message, are perhaps best at letting you know when you're being ignored. In a strange turn of events, texting has evolved to become almost as awkward as the phone calls it made obsolete.

In 2012, I calculated that I sent about 7,000 texts a month; now, thanks to the creeping unwieldiness of phones and the misfirings of autocorrect, I can barely manage to peck out half a sentence before I become aggravated by the effort and give up. To combat that fatigue, I've turned to newer ways to talk and interact with friends, primarily



Even more than emoji or their newer bespoke replacements, Snapchat offers users a medium for communication with emotional depth.

voice memos. These function like a highly evolved version of voice mail — there's no expectation of a return call, or even a simultaneous conversation. Freed from that pressure, my friends and I leave one another memos about episodes of "RuPaul's Drag Race" and "Empire," the themes of "Lemonade" or even just a detailed account of a date or run-in with an ex. The trend is catching on elsewhere: According to [an article](#) on Vice's website Motherboard, voice notes have become so popular in Argentina that they've virtually replaced text messages altogether.

This is not to say that text is irredeemable. A significant humanization of our text interactions happened quietly in 2011, when emoji were introduced as part of an Apple iOS software update. They offered a palette of punctuation that clarified intent. Tacking on emoji like hearts, skulls, grins and bugged-out eyes to a short message made it infinitely easier to confidently project sarcasm, humor, grief and love across a medium that had been, until then, emotionally arid. If you want proof that we see ourselves in the emoji we use, consider the ever-present disputes over emoji inclusivity: Initially, the characters all had the same skin tone, and even now, the only "professional" emoji are male. And though the catalog of emoji has expanded in response to user demand, it still struggles to keep up with the multiplicity of human experiences. As a result, a new bespoke-emoji economy has begun to emerge, in apps like Bitmoji, which let people create personalized avatars to adorn their text messages. If our emoji couldn't become us, we would become our emoji.

But messages that include little actual messaging seem to be the wave of the future, and Snapchat is leading the way. The app, which allows users to send short videos and images that disappear after a short period of time, is intimate by design, something that sets it apart from its social-media peers. Most of the "snaps" I send and receive are tightly framed, with angles that could be considered unflattering. They're low resolution too, the images speckled with grain. Snapchat does have filters, but the dumb ones are the most fun, especially the ones that add a

comically hideous effect — bloating your face into a red tomato, or distorting it into an animal mask.

If we are to believe the theories about how people want to communicate nowadays — largely through anesthetized, hypermediated and impersonal exchanges — Snapchat's recent surge in popularity makes little sense. During the first few years of Snapchat's existence, the only people I knew using the service (beyond journalists like me who were trying to understand it) were my youngest relatives, still in high school and college. And of course there was the attendant moral panic: When it first blew up around 2012, the press seemed to assume it would primarily be used by horny teenagers swapping nudes.

If that was ever the case, it has since expanded. Each time I check the app, I'm surprised to see who else in my network has started using the service. My circle includes every demographic, age and locale: co-workers who send snaps of their dogs, friends on strange adventures in the desert, people I talk to mostly online sending videos from their travels. The videos are rarely elaborate: just a few seconds of my favorite people's faces on a large screen, smiling, or singing, or showing off their view, before they fade and disappear.

Its entire aesthetic flies in the face of how most people behave on Facebook, Instagram and Twitter — as if we're waiting to be plucked from obscurity by a talent agent or model scout. But Snapchat isn't the place where you go to be pretty. It's the place where you go to be yourself, and that is made easy thanks to the app's inbuilt ephemerality. Away from the fave-based economies of mainstream social media, there's less pressure to be dolled up, or funny. For all the advances in tech that let us try on various guises to play around with who we are, it seems that we just want new ways to be ourselves. As it turns out, the mundanity of our regular lives is the most captivating thing we could share with one another.



AI

On the Road

By Kathy Garges

You may have daydreamed about what it will be like to live in a world with self-driving cars and airplanes that morph into submarines (a futuristic scenario suggested by inventors of a new metal which was reported in last month's column about advances in materials science). Some humans have gone beyond daydreaming to practical planning and action.

In the private sector, Tesla CEO Elon Musk recently tweeted that the Model S has an "off-label" ability to swim through large puddles because it floats (mostly) and wheel rotation provides some forward power. Musk has a pet project to build a "sports" submarine that can also drive on roads.

Most of the humans who have already started to plan for widespread use of artificial intelligence in transportation are government employees responsible for public transportation or academic experts in urban transportation. Public policy makers have already been drawn into the center of conflict among competing societal interests for the use of AI in transportation.

A few days ago, the Federal Aviation Administration (FAA) issued its first rules for commercial drone use. One notable requirement is that the human flying the drone (or directly supervising the operator) must be licensed for remote plane operation with a new designation for small unmanned aircraft system (small UAS) that requires a security background check. No night flying. The operator must keep the drone in sight. There are various other flight restrictions, and the FAA is providing education on privacy issues and privacy guidelines. These rules, which do not apply to model planes or hobby drones, are just the beginning of FAA involvement in drone issues.

This year the White House went "on the road" with four public workshops on "Preparing for the Future of Artificial Intelligence," and also established an ongoing interagency working group. The workshops were live-streamed online and video is available. The White House has also requested comments via webform to help set directions in AI. (See video and webform links at the end of the column.)

An interesting panel discussion in the second workshop focused on AI in the context of city governments, especially public transportation. Participants included the Chief Innovation Officer for Montgomery County, Maryland, and experts in using logistics and data science in public transportation systems.

Governments invest large amounts in public transit and have to "future proof" these expenditures. A parking garage, for example, is constructed to last 40 to 50 years and has to be easy to renovate if technology leaps ahead during that time.

The panelists agreed that self-driving vehicles and AI traffic systems will dramatically benefit the environment with lower exhaust emissions due to less time spent by vehicles idling in traffic and faster trips. That translates to better air quality and reduced use of energy resources for fuel. The reduced need for human bus drivers will be a big cost saving, but, of course, government is also expected to respond to workforce needs like finding new employment for these workers.

There are currently some adaptive non-AI systems in use in transportation, but they are limited. For example, an adaptive traffic signal at an intersection can sense only traffic that is already at the intersection. AI systems will be fully adaptable in real time with complete system information to change signals and direct traffic more efficiently. It should also be easier for residents to get to bus stops and transportation hubs, because private taxis will be less expensive. It may be that standard bus stops will no longer be necessary. One panelist predicted a reduction in costs by a factor of ten for an AI adaptive traffic control system with self-driving

buses, not even taking into account other possible technology innovations.

Better urban transportation will have positive impacts on other areas of cost of living and quality of life. For example, it will allow residents to get to medical appointments on time and access higher quality food stores, currently big issues in many cities.

Panelists suggested that residents are likely to be willing to give the AI transportation system their planned traffic routes and have their vehicles communicate in real time with the central system, which will increase efficiency even more. They suggested that once residents start to experience the new technology, this resistance to “connected cars” will disappear. One panelist cited the disappearance of initial resistance to smart utility meters which initially raised concerns about brain tumors and invasion of privacy.

Hmm. Not so fast! It’s one thing to give private information to a utility, powerful as they are, and another to give it to the government. In some circumstances, like getting to one’s own wedding on time, the benefits of a “connected car” clearly outweigh the disadvantages. But it seems unlikely that most people will be comfortable letting the government traffic center know they go to choir practice at a religious institution every Wednesday night and/or spend several nights a month at a certain bar. And if someone is willing to provide route information to the traffic center for eighty percent of their trips, isn’t that likely to draw attention to where they might be going and what they might be doing the other twenty percent of the time?

Implementing technology innovations is a learning experience for both experts and the general public. There are unintended consequences in using new technologies, and a lot of unknowns. The Segway was initially touted as a positive innovation for city transportation, but it did not have the predicted impact, in part because it is a single passenger vehicle with no cargo capacity. One panelist noted that government needs to be aware that innovations sometimes benefit affluent areas to a disproportionate

degree or unfairly target specific populations. Another panelist noted that the initial study plans of his organization embarrassingly overlooked pedestrian traffic altogether.

To get a better handle on how self-driving cars will change the transportation experience, research firm Intelligentsia conducted a poll to ask consumers what they would do as passengers inside a self-driving car. Predictably, the answers were pretty much what people do now in cars with human drivers. Accessing the complete results of the survey requires payment, but I’m speculating that changing clothes, grooming, and turning up the volume and singing along with your favorite road song received significant votes along with reported results favoring talking and checking email. Take heed inventors of self-driving cars. We need larger mirrors and more food and beverage holders.

The poll brings to mind other possible changes that self-driving vehicles could bring. Will self-driving cars refuse to pick up hitchhikers? Will road rage disappear when non-human agents are in control of driving? Or will there be the opposite effect, an increase in human passenger frustration due to a reduction in personal control? Should car manufacturers include an AI program to recognize simmering road rage and deploy robotic arms to restrain difficult passengers? An imaginary road trip is just the ticket to planning for our AI future.

Sources and additional information:

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"Press Release – DOT and FAA Finalize Rules for Small Unmanned Aircraft Systems," Federal Aviation Administration, June 21, 2016, <http://tinyurl.com/gsv5uvm>

Links to all the White House AI public workshops: "Preparing for the Future of Artificial Intelligence," The White House, <http://tinyurl.com/hg5j5o7>

“Artificial Intelligence for Social Good” public workshop; scroll down to second video, “Urban Computing;” there is also a presentation on transportation in the third video, “Environmental Sustainability;” <http://tinyurl.com/gkrub56>

Webform to comment on AI to the White House (July 22 deadline), *Take note that your comments could be publicly posted online, <https://www.whitehouse.gov/webform/rfi-preparing-future-artificial-intelligence>

Stephen F. Smith, “Smart Infrastructure for Urban Mobility,” <http://tinyurl.com/jej2wr2>

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