GoPro Cameras, Accessories, and You

by Linda J. Cober

GoPro cameras were first conceived by Nick Woodman in 2002 when he wanted to get good photos of his surfing exploits in Australia, but professional photographers could not get close enough to the action to get the job done. The first GoPro cameras of 2004 used 35mm film. In 2006 GoPro debuted its Digital Hero line, which could store 10 seconds of video. The company generated \$800,000 in revenue that year. The next year GoPro sales were 3.4 million. In 2014 the company was selling the Hero3+ that filmed in a 16:9 aspect ration, supported 4K video and 12MP still photographs. The Hero3+ Black is the camera I will be showing you at our meeting on October 20. I will also be showing you many of the accessories available for the GoPro cameras, and will give you some tips on purchasing accessories that will save you a bundle! I used my GoPro this summer while scuba diving in Bonaire, Dutch Caribbean, and will have ample examples of photos from the camera, both movies and still shots, ranging in depth, from a couple feet, such as you would get while snorkeling, to shots taken at about 130 feet. Since I also have an underwater movie light, you will also see the difference it makes at deeper depths. Once you have the movies and photos, you need to do something with them, and that is where your Mac comes in. If you have any interest in action photography, whether for yourself or for family vacations at the shore, the lake, or a theme park, come to our October 20th meeting and get acquainted with the GoPro camera.

Meet us at

Bethany Village Retirement Center

Education Room 5225 Wilson Lane, Mechanicsburg, PA 17055

Tuesday, October 20, 2015 6:30 p.m.

Attendance is free and open to all interested persons.

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Keystone MacCentral is a not-for-profit group of Macintosh enthusiasts who generally meet the third Tuesday of every month to exchange information, participate in question-and-answer sessions, view product demonstrations, and obtain resource materials that will help them get the most out of their computer systems. Meetings are free and open to the public. The *Keystone MacCentral printout* is the official newsletter of Keystone MacCentral and an independent publication not affiliated or otherwise associated with or sponsored or sanctioned by any for-profit organization, including Apple Inc. Copyright © 2015, Keystone MacCentral, 310 Somerset Drive, Shiresmanstown, PA 17011.

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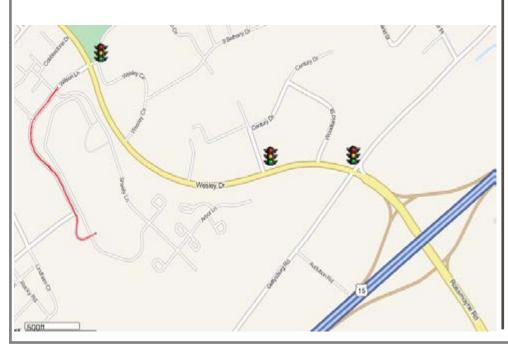
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Keystone MacCentral Minutes September 15, 2015

Business Meeting

Linda Cober announced that she would be bringing in a GoPro camera for the October program. She will show some photos she has taken with it. Don Fortnum and Linda brought in some cookies that we enjoyed, along with the leftover birthday cake Linda also brought in. Webmaster Thomas Bank II reminded members to check our Facebook page for Mac-related updates.

Q&A & Comments

Eric Adams asked Tom Owad about his flying toasters screensaver as Tom was setting up for his program. Google Mac OS screensavers and you might be able to find a version that works for you. Tom Bank is looking for an old Mac OS Maze game.

The update from Lion to Yosemite can be accomplished in one step. Be sure to back everything up first. If you download the install file and copy it to another Mac before installing it, you will be able to install it on another Mac without downloading it again.

Program Notes

Tom Owad brought in a Mini Fabrikator 3D printer. This is a small model that can produce small objects. Tom brought in many examples of the items he has created. Tom explained the different types of plastic, PLA and ABS, that his printer could use. Many patterns can be found at Thingiverse.com. Tom uses a program called Rhino for Mac to create his own patterns. Others apps for design are SketchUp and OpenSCAD. The resulting .stl files are converted into printer language for the actual 3D printing.

Better quality 3D printers can cost upwards of \$2500, but the printer rated second best costs around \$600. There are many models to choose from.

We also talked about recent announcements coming from Apple. Eric Adams said he was interested in the new Apple TV. New iPhones with better cameras and in more colors are coming from Apple. New monthly purchase plans for iPhones were also announced. A new iOS for iPhones will be released.

Linda Cober mentioned a recall of some iPhone 6 Plus models manufactured from November 2014 to January 2015. The recall was for faulty cameras. You can check Apple's site for additional information.

The new El Capitan operating system is comprised of improvements to Yosemite more so than adding a lot of new features.







Comparing U.S. iPhone Plan Costs in a Contract-Free World

With Apple's launch of the iPhone 6s (see "iPhone 6s and iPhone 6s Plus Get Touchy Feely," 9

September 2015), many people are considering an upgrade. But if you're on one of the four major U.S. cellular carriers, things are likely to be quite different this time around. Depending on your situation, this may also be an excellent opportunity to switch to a different carrier.

Most Americans have become accustomed to the contract model of cellular service. Instead of paying the full \$649 for a low-end iPhone, for instance, you paid \$199, with a two-year service agreement. The carriers essentially subsidized the \$450 difference, making up for it (and usually generating more profit) by increasing your monthly service charge and ensuring that you'd stay a customer for the duration of the contract.

That contract model is going the way of the DVD, with T-Mobile leading the way and Verizon dropping the contract entirely. Going forward, most people will shell out full price for an iPhone, either all at once or spread out through monthly payment plans. All the carriers offer some type of payment plan, and Apple, AT&T, Sprint, and T-Mobile also have plans that make upgrading easy. In exchange, you'll pay less for service and won't be stuck in a contract. This is how most of the rest of the world has long purchased mobile phones and service.

Here's a rundown on how getting your next iPhone will work, but note that prices (and even the availability of an installment plan) may vary depending on your credit score.

Buying the iPhone — First, let's look at what's familiar: contract pricing. The two-year contract price for an iPhone 6s will start the same as previous iPhones: \$199. But where can you still get a contract?

From AT&T, for one, but only directly from AT&T. If you buy an iPhone through the Apple Store, you have to sign up for the AT&T Next installment plan or the iPhone Upgrade Program, which we'll explain shortly. On the flip side, Verizon no longer offers contracts directly, but if you purchase an iPhone from the Apple Store, you can still get it with a two-year contract. Finally, Sprint still offers old-fashioned two-year contracts by itself and through the Apple Store, but it has new options as well. In general, though, contracts aren't good deals, since the monthly embedded subsidy cost is often more than subsidized price of the iPhone.

So, let's look next at what is arguably the simplest option: all four carriers will let you pay the full price for the iPhone

6s or iPhone 6s Plus. Here's what each model costs from Apple:

- iPhone 6s 16 GB: \$649
- iPhone 6s 64 GB: \$749
- iPhone 6s 128 GB: \$849
- iPhone 6s Plus 16 GB: \$749
- iPhone 6s Plus 64 GB: \$849
- iPhone 6s Plus 128 GB: \$949

Depending on your carrier and plan, paying full price may save you money in the long run. Because no-contract plans don't include the cost of the device in your monthly bill, you're incentivized to keep the phone as long as possible. If you don't mind dropping big money up front and you can keep your phone working for more than two years, you'll enjoy lower monthly payments and thus less money over time.

Not everyone will be able to swing \$649–\$949 up front for a phone. That's OK, Apple and the carriers have you covered there, too, letting you split up the cost of the phone into 24 payments — making your bill similar to what it was under the contract system. Happily, we saw no finance charges for spreading out the cost in this fashion.

Verizon and T-Mobile make this payment plan simple. For either, the monthly payment for a 16 GB iPhone 6s is \$27.08, for a total price of \$649.92. Sprint offers an Easy Pay option that costs \$27.09 per month. All three are fair deals.

The AT&T Next plan offers more choices, but is wildly confusing (note that the upgrade requires trading in your old phone in working order):

- AT&T Next 24: Divided into 30 installments; upgrade after 24 installments
- AT&T Next 18: Divided into 24 installments; upgrade after 18 installments
- AT&T Next 12: Divided into 20 installments; upgrade after 12 installments
- AT&T Next with down payment: Pay 30 percent of the iPhone cost as a downpayment, divided into 28 installments; upgrade after 12 installments

If you purchase an iPhone 6s via AT&T Next 18 (confusingly split into 24 payments), you would pay \$27.09 per month for your iPhone 6s, the same as Sprint.

To add further chaos to the mix, T-Mobile and Sprint offer different payment plans that let the tech-savvy upgrade more often. Let's look at each in turn. T-Mobile offers JUMP! On Demand, which lets you trade in your phone for another one up to three times per year. Of course, you still have to make the monthly payment, but as a launch promotion, T-Mobile offered the 16 GB iPhone 6 for only \$15 per month. Folks who got in on that promotion will be able to upgrade to a newer iPhone for no additional cost, and they'll get priority on available stock. Pretty good deal, if you got it.

T-Mobile is also offering a new JUMP deal for the iPhone 6s. You can get an iPhone 6s for \$20 per month or an iPhone 6s Plus for \$24 per month. Presumably these are 16 GB models, and there's no word on how much larger storage sizes will cost.

Sprint is offering an iPhone Forever deal, where if you trade in a working smartphone, you can get an iPhone 6s for \$15 per month, with a 22-month plan, but you can trade it in at any time. The \$15-per-month price is a limited-time promotion — the usual price is \$22 per month, which is what you'll pay once you upgrade the \$15-per-month iPhone 6s to the next model.

Be aware that with the early upgrade plans from AT&T, T-Mobile, and Sprint, you will have to trade in your old phone to upgrade, though you may be able to pay a fee to keep it. These plans are largely for those for whom the latest tech is important. Be sure to read the fine print carefully; the details can be tricky.

And now Apple has entered the iPhone installment game as well, making the carriers almost irrelevant.

iPhone Upgrade Program — With the iPhone 6s, Apple is launching the iPhone Upgrade Program, which lets you upgrade every year and includes AppleCare+ protection.

Here are the monthly prices for the iPhone Upgrade Program:

- iPhone 6s 16 GB: \$32.41
- iPhone 6s 64 GB: \$36.58
- iPhone 6s 128 GB: \$40.75
- iPhone 6s Plus 16 GB: \$36.58
- iPhone 6s Plus 64 GB: \$40.75
- iPhone 6s Plus 128 GB: \$44.91

Note that the iPhone Upgrade Program is more expensive than the carriers' installment plans, thanks to the addition of the \$129 AppleCare+ (it was \$99 for iPhones prior to the iPhone 6s).

There are other catches as well. To sign up, you must go to a physical Apple Store, though you can schedule an appointment online. Also, the AppleCare+ accidental damage fee is rising from \$79 to \$99 for the iPhone 6s and iPhone 6s Plus. Like the other early upgrade plans, you'll have to trade in your iPhone 6s if you upgrade to the iPhone 7. Lastly, the program requires iPhone activation with a national carrier — AT&T, Sprint, T-Mobile, or Verizon, so you can't take advantage of it and then go to an off-brand cellular reseller.

The cool thing about the iPhone Upgrade Program is that the iPhone comes unlocked, so in theory, you could switch between national carriers at any time.

Let's see what those plans look like now. Note that I'm not including taxes, fees, and miscellaneous discounts, so if you want to compare to a current contract plan, look carefully at a recent bill and take those numbers into account.

T-Mobile — To call T-Mobile CEO John Legere a "character" would be an understatement. With his pink shirts, leather jackets, long hair, and profane tirades, you'd be forgiven for mistaking him for a rock star. Well, he is a rock star of sorts, and he is single-handedly changing the American cellular market.

Since 2013, T-Mobile has branded itself the "Un-carrier," dropping contracts and subsidies in an attempt to become more profitable. The moves weren't always popular, such as when T-Mobile abandoned employer discounts, but T-Mobile's business has been booming since it became the Un-carrier.

If you've been with T-Mobile for a while, none of this comes as a surprise. As for plans, the **Simple Choice** plans are well named: they include unlimited voice minutes and SMS text messaging, and a given amount of data for a fixed monthly price.

- 1 GB of data for \$50 per month
- 3 GB of data for \$60 per month
- 5 GB of data for \$70 per month
- Unlimited data for \$80 per month

Plan prices get more complex but cheaper with a family plan. Two lines cost \$80 per month: \$50 for the first line, \$30 for the second. Both lines feature unlimited talk and text and 1 GB of data. Three lines will run you a total of \$90 per month, including the third line at \$10 per month, again with unlimited talk and text, plus 1 GB of data for each line. Each additional line, up to six total, costs another \$10 per month.

If you need more than 1 GB of data per month, things get tricky, but stick to the same pattern. For the first line, each higher tier of data is an extra \$10 per month: \$60 for 3 GB, \$70 for 5 GB, and \$80 for unlimited. The same is true for the second line, but prices are \$20 lower: \$40 for 3 GB, \$50 for 5 GB, and unlimited for \$60. Additional lines follow the same pattern, but are \$20 cheaper than the second line, so unlimited would be \$40.

For an individual, T-Mobile is cheap and easy: \$50 per month for 1 GB. But let's say that you and your spouse each want 1 GB of data every month. That family plan would cost \$80 per month total. Add a child with 1 GB of data to the plan and the total increases only by \$10, to \$90.

There is good news about T-Mobile's data usage caps. For one thing, you will not be charged overages. The plan covers only 4G data; once you run out, you're merely dropped back to 3G speed, but you can buy more 4G data if you

choose. Second, T-Mobile includes a Music Freedom feature that excludes many popular music services, including Apple Music, from the data limits.

T-Mobile also has a compelling international story for those who frequently travel to other countries. The Simple Choice plan includes unlimited calling and texting in Canada and Mexico, and unlimited 4G LTE data. For another 120 countries, the Simple Choice plan includes unlimited data and texting; calling will be billed different rates depending on the country.

The main problem with T-Mobile is that the **company's coverage** isn't as good as Verizon Wireless's or AT&T's, though it's steadily improving.

Verizon Wireless — Following in T-Mobile's lead, Verizon also recently dropped contracts. If you're currently in one, you can keep it until it expires, switch to one of the new, simpler, contract-free plans (but with a higher device fee until your contract is paid off).

The Verizon Plan now comes in four main tiers:

- 1 GB of data for \$30 per month
- 3 GB of data for \$45 per month
- 6 GB of data for \$60 per month
- 12 GB of data for \$80 per month
- Additional plans go up to \$750 per month for 100 GB of data

Like T-Mobile, all of Verizon's options come with unlimited talk and text. Unlike T-Mobile, Verizon charges overages of \$15 for each additional gigabyte of data, though you can upgrade your plan at any time. Verizon no longer has family plans as such, but data is shared among all devices on the plan.

These plans may sound cheaper than T-Mobile's, but you also have to pay a monthly access fee per device: \$20 for a smartphone, \$10 for a tablet, or \$5 for a connected device, like a Wi-Fi hotspot or an LTE-enabled smartwatch (not the Apple Watch). If you're still on a contract and switch to one of the new Verizon plans, the access fee will be doubled for the device on contract, so it would be \$40 for a smartphone instead of \$20.

For an individual with 1 GB of data and an iPhone, the total cost would come to \$50 per month — identical to T-Mobile. For a couple sharing 3 GB of data, each with an iPhone, the total would come to \$85 per month, \$5 more per month than T-Mobile but for an additional 1 GB of data. For a three-person family, it would be \$105 — \$15 more than T-Mobile.

When Josh does the math to compare this to his family's current contract plan, it's not a terrible deal. He and his wife share 3 GB of data, and pay a total of \$133.76 per month for service (not counting taxes, fees, and discounts). With the new Verizon Plan, they would be paying only \$85 (after their existing contracts end), but of course the cost of their iPhones wouldn't be included in that.

On the international side of things, Verizon has a variety of plans that aren't bad for Canada and Mexico, but which seem ludicrously expensive (particularly for data) for other countries.

AT&T — The new AT&T Next program may be complicated, but what hasn't changed are the AT&T Mobile Share Value plans. Like plans from other carriers, they feature unlimited talk and text and let you share data with other lines. As with Verizon, there are numerous tiers of data, but the most comparable to the other carriers are:

- 300 MB of data for \$20 per month
- 2 GB of data for \$30 per month
- 5 GB of data for \$50 per month
- 15 GB of data for \$100 per month
- The largest plan offers 50 GB of data for \$375 per month

As with Verizon, there's a monthly access charge that varies by device: smartphones on AT&T Next or No Annual Contract cost either \$25 (for 5 GB or lower data plans) or \$15 (for 15 GB or higher data plans), tablets and LTE wearables are \$10, and Wi-Fi hotspots are \$20.

So an individual with 2 GB of data would pay a total of \$55 per month, or a bit more than T-Mobile or Verizon, but with 1 GB more data. A couple sharing 2 GB of data would pay \$80 per month, the same as T-Mobile. A family of three sharing 2 GB of data would pay \$105, or \$125 if 5 GB of data was necessary.

Each additional gigabyte of data costs \$15 extra (\$20 on the 300 MB plan), though unused data from one month rolls over into the next month (but only month-to-month, not cumulatively).

Adam, Tonya, and Tristan share a 2 GB family plan now, and pay about \$130 per month for it. Only one of their iPhones is ever under contract, but it looks as though switching to a contract-free plan would save about \$25, or roughly the per-month cost of a new iPhone. So it's essentially a wash, though occasional overage and international charges increase their bill (see "More Problems with iCloud Photo Library Uploads," 19 June 2015, and "How to Avoid Data Overage Charges When Traveling to Canada," 31 July 2015).

As noted in our previous coverage, AT&T's international story isn't great, with the 30-day AT&T Passport packages offering unlimited texting, but expensive data and voice minutes:

- Passport: \$30 for 120 MB and \$1.00/minute calling
- Passport Silver: \$60 for 300 MB and \$0.50/minute calling
- Passport Gold: \$120 for 800 MB and \$0.35/minute calling

Sprint — Sprint has an easy \$60 unlimited plan (\$85 if you stick with a contract). That's unlimited talk, text, and data.

However, the Sprint Family Share Pack gets more complex, since there's no unlimited option. Sprint offers a number of data plans, including:

• 1 GB of data for \$20 per month

- 2 GB of data for \$25 per month
- 4 GB of data for \$40 per month
- 8 GB of data for \$70 per month
- Additional plans topping out at 60 GB for \$225 per month

The confusion comes with the access fees, which cost \$40 per device for smartphones under contract, but which are discounted by \$15–\$25 for non-contract customers, based on the selected data plan. (AT&T works like this too, though it's not as obvious since the company is deprecating contracts.)

So, for 2 GB shared between a couple not on a contract, the monthly fee is \$25 for the data, plus \$25 per device, for a total of \$75 that's cheaper than all the others. For three people sharing 2 GB, the bill would be \$25 for the data plus \$75 for the access fees, for a total of \$100; bump up to 4 GB and that increases to \$115.

If you go over your data limit, each additional megabyte costs 1.5 cents, which equals out to \$15.36 per gigabyte, which is comparable to the competition.

For international travelers, the free Sprint Global Roaming includes unlimited texting, free 2G data, and \$0.20/minute calling. 100 MB of 3G data for 1 day can be added for \$15, 200 MB of 3G data for 7 days costs \$25, and 500 MB of 3G data for 14 days is \$50. The "included countries" are quite restrictive, including Canada, Mexico, Australia, New Zealand, and the UK, for instance, but only a handful of other countries in Europe and Asia. Confusingly, the Sprint Open World program, which is also free, provides unlimited calling and texting, plus 1 GB of high-speed data in Canada, Mexico, and most other countries in Latin America. If you're sticking to the Americas, you're probably fine; otherwise, read Sprint's fine print carefully.

As with T-Mobile, Sprint's challenge is coverage, which isn't as complete as Verizon's or AT&T's.

The Bottom Line — Many of you are stuck with whatever cellular carrier has the best service where you live. But for those with a choice, here's a quick breakdown for an individual looking for a non-contract plan with 1–2 GB of monthly data:

T-Mobile: \$50 (1 GB)
Verizon: \$50 (1 GB)
AT&T: \$55 (2 GB)
Sprint: \$60 (unlimited)

Here's a breakdown based on a two-person family plan with 2–3 GB of monthly data:

Sprint: \$75 (2 GB)
AT&T: \$80 (2 GB)
T-Mobile: \$80 (2 GB)
Verizon: \$85 (3 GB)

For the couple with a child, again trying to aim for 1–2 GB per person, here's how it works out:

T-Mobile: \$90 (3 GB)Verizon: \$105 (3 GB)

• Sprint: \$100 (2 GB) or \$115 (4 GB)

• AT&T: \$105 (2 GB) or \$125 (5 GB)

It took us hours to sift through the carrier sites to put together these lists, and frustratingly, it's difficult to make exact comparisons, due to the carriers offering differently sized data plans. Nonetheless, here are our conclusions.

We were surprised to find that Verizon, which generally has the best coverage in the United States, was competitive in pricing and reasonable for travel within Canada and Mexico. But avoid Verizon if you do a lot of other international travel.

T-Mobile does generally well, and has the most compelling set of bonuses, including free international roaming, free music streaming, data rollover for 3 GB and larger plans, and reduced speeds instead of overage fees if you exceed your data cap. Its weak network coverage is bolstered by Wi-Fi calling.

AT&T was a solid middle performer, and when it was notably more expensive, that was generally due to having a larger data plan than the others. Rollover data is welcome, but AT&T's international plans are weak.

Sprint is just weird. It had the most expensive individual plan, but with unlimited data. Then it was the cheapest for a two-person family plan, but expensive again for the three-person family. The company's international story is complicated and restrictive, but largely free in supported countries. Even data overages are unusual, being billed per megabyte, rather than per gigabyte, even though the raw cost is the same. Like T-Mobile, Sprint's coverage is weak, but is bolstered by Wi-Fi calling.

What Does It All Mean? — We've been pondering the move to contract-free plans coupled with installment-based iPhone purchases all week, and Apple's introduction of the iPhone Upgrade Program threw in yet another variable. It seems safe to make the following conclusions:

- Overall cost of ownership won't be much different for most people under contract-free plans, unless you can keep using your iPhone for more than two years. You do get more flexibility to switch carriers, which you may be able to parlay into lower bills. (In the future, we'll look into whether it's possible to save a lot more via pre-paid plans or MVNOs.) If money isn't an issue, these plans make it easier to upgrade more frequently.
- Companies prefer small regular monthly payments to larger one-time payments in order to even out revenues, and customers are less likely to switch to a competitor. Consumers also often prefer this approach as a way of regularizing a limited budget. Regardless, it's nice to have the choice.
- The iPhone Upgrade Program will undoubtedly make Apple money due to the forced inclusion of AppleCare+. It's also possible, even likely, that carriers buy iPhones

from Apple at a discount, so by selling direct to consumers at full retail, Apple would make more.

• Regardless of the revenue deal, the iPhone Upgrade Program will reduce the likelihood of people switching to Android smartphones and create a tighter relationship between Apple and iPhone users. That's good for Apple, and comes at the expense of the carriers. Could it be a long play on Apple's part to have a customer base for its own cellular carrier? The company has emphatically denied

such rumors, but it wouldn't acknowledge such a project if it were true (see "Apple Denies Plans to Become a Cellular Carrier," 4 August 2015).

In the end, not much is really that different, and the move away from contract plans seems to be generally positive for both consumers and Apple, but dangerous for carriers, who may end up becoming generic utility providers before long.

by Josh Centers

How to Disable Auto-Play Videos on Social Media

You're scrolling through your Facebook or Twitter feed, minding everyone else's business, when suddenly a video starts playing on its own. Most of the time, these videos are distracting, or perhaps annoying, but as we've learned in recent events, they could show something gruesome, like a murder. To ensure that you have control over what you see, here's how to disable those auto-playing videos on at least Facebook and Twitter.

Google+ doesn't seem to have such a setting, but I didn't see any videos that played automatically there either. If you're an aficionado of Instagram or Vine, you're more or less out of luck.

Facebook — On the Facebook desktop Web site, click the arrow in the upper-right, and then click Settings in the menu that appears. On the Settings screen, select Videos in the left sidebar, and then set Auto-Play Videos to Off.



To play videos on the Facebook Web site in the future, you will need to click the play button in the center of the video.

However, the Facebook iOS app will continue to auto-play videos in your feed. To disable that, tap More in the lower right, scroll down, tap Settings, and then tap Account Settings. Tap Videos and Photos, tap Auto-Play, disable Smart Auto-Play, and then select Never Play Videos Automatically.



Twitter — Thankfully, most Twitter clients don't do auto-play videos. However, **Twitter's Web site** and iOS app do. Here's how to disable them on both.

On Twitter's Web site, click your avatar in the top right and choose Settings. Under Account, uncheck Video Autoplay, and click Save Changes (you'll likely have to enter your password to confirm). Again, to play videos in the future, you'll have to click a play button manually.



As with Facebook, Twitter's iOS app will continue to auto-play videos even if they're disabled on the Twitter Web site. In the app, tap Me in the toolbar, tap the gear, and tap Settings. Tap Video Autoplay, and then tap Never Play Videos Automatically.



Instagram and Vine — Unfortunately, **Instagram removed** the option to disable video auto-play in 2013. However, you can block users who post offensive videos. To do so, open a person's profile, tap the ... button, and then tap Block User.

Likewise, Vine, which is based almost entirely on auto-play videos, doesn't offer an option to disable them. If you don't want to see auto-play videos on Vine, your best bet is to avoid the service altogether.

Thankfully, Web browser makers are starting to acknowledge the problem. The Google Chrome team is working on a feature that will prevent videos from playing unless they're in the active tab. It's a start, and a feature we look forward both to having and seeing mimicked in other Web browsers.

by Josh Centers

The Fourth-Generation Apple TV Is Coming at Last

It's coming, for real. The long-rumored, much-speculated Apple TV is officially on its way (for my past predictions, and to taste my claim chowder, see "Finding Clues to the Next Apple TV in iOS 9," 6 July 2015 and "The Future of Apple TV," 21 February 2014). Arriving in late October 2015 for \$149 (for the 32 GB version) and \$199 (for the 64 GB version), the fourth-generation Apple TV has improved hardware, a new touch- and Siri-enabled remote, a new iOS-based tvOS that runs apps, and its own App Store.

Check out the demo video.



"Our vision is simple, and perhaps a little provocative: the future of television is apps," Apple CEO Tim Cook proclaimed. (Though maybe not that provocative: Amazon, Microsoft, Roku, and Sony have been doing TV apps for years.)

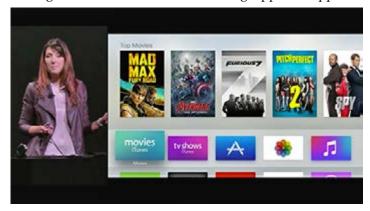
Let's start with the **new Apple TV hardware**. At 1.3 inches (33 mm) tall, the new box (yes, it's still a black box) is a bit

thicker than the second- and third-generation models, and omits the optical audio port found in those models. The new Apple TV has four ports in the back: power, HDMI, and 10/100 Ethernet, plus a USB-C port for diagnostics and support. Inside is the A8 processor found in the iPhone 6, 2 GB of RAM, 802.11ac Wi-Fi with MIMO, and Bluetooth 4.0. The new Apple TV does not support 4K resolutions, but it does do 1080p at 60 frames per second.



More impressive is the new Siri Remote, which is a reimagining of the previous Apple Remote. It features dual Siri microphones, a glass touch surface, Menu and Home buttons, a new Siri button to activate Siri voice control, and even volume buttons to control your TV or receiver's volume. Also built in are Bluetooth 4.0, an IR transmitter, an accelerometer and gyroscope, and a rechargeable battery. The Siri Remote uses a Lightning connector for recharging, but you shouldn't have to do that often: Apple claims that the Siri Remote can last for 3 months on a single charge!

tvOS — Based on iOS 9, but, as Apple's Eddy Cue put it, "designed for the living room," the new tvOS doesn't look all that different from what Apple TV users are already accustomed to, though there are now neat parallax animations for icons. Behind the main menu facade are redesigned versions of all of the existing Apple TV apps.



The Apple TV's interface has been retooled for the new touch surface on the remote and for Siri, enabling you to rewind and fast-forward with swipes on the touch surface instead of with presses on the previous remote's directional ring.

Siri on the Apple TV looks as though it will be even more impressive than I had imagined. Of course you'll be able to open apps with Siri, but you can also search for movies and shows by name, director, actor, or even age rating. And that search is supposed to work not only with iTunes content, but also with Netflix, Hulu, HBO, and Showtime, with support for more services on the way.

With Siri, you will be able to narrow down a search like this: First say, "Show me some movies," then "Show me some James Bond movies," and finally, "Just the Sean Connery ones." You can even ask Siri stuff like, "What are some good movies to watch with kids?"

What may be the *killer* feature of the new Apple TV is, "What did she say?" Ever watch a show, and miss a line of dialog? On the new Apple TV, you'll be able to ask Siri, "What did she say?" (or "What did he say?") and Siri will rewind the video 15 seconds and temporarily turn captioning on. I know that will get a lot of use at my house.

You can ask Siri for information about a video as you watch it, and you can even ask for a weather forecast, which will be displayed on the screen underneath the video. You can then swipe up to pause playback and see the full weather forecast.



The new Apple TV interface also includes high-definition slow-motion video screensavers, shot exclusively for the new device. These screensavers have day and night scenes, and display based on the time of day. Of course, Apple Music and iCloud Photo Library will (finally) be supported by the new Apple TV.

OK, you've been patient. It's time to talk about what you've been champing at the bit for: the apps.

Please, Tell Me about the Apps! — As I said, the new Apple TV will have an App Store, and developers can sign up for the software development kit now. tvOS won't run iOS apps directly, but developers can offer a universal purchase, so if you buy an app on your iPhone, you may also receive the equivalent Apple TV app.

Gaming is the obvious play here, and Apple had a number of games to show off, including a version of Hipster Whale's Crossy Road with a new multiplayer mode, a racing game, Rock Band, a new Harmonix musical baseball game called Beat Sports, Rayman Adventures, Disney Infinity, and Zola — a new fitness game that works with your Apple Watch.



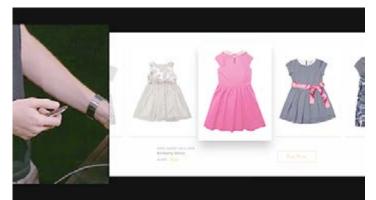
Developer documents indicate that the new Apple TV will support third-party game controllers, but if you're looking at the Apple TV as a replacement for an Xbox or Playstation, you'll likely be disappointed. Most games will likely be built with the Siri Remote in mind, and will thus be designed around motion and touch input. Multiplayer games, like Crossy Road, can use an iOS device as an additional controller.

There has been some confusion over how large Apple TV apps can be. The initial install size is capped at 200 MB, which isn't much, but as iMore's Serenity Caldwell explained, apps can later download an additional 2 GB of data, with up to an extra 20 GB of resources stored in iCloud. Apps can flush unneeded content as you use the app, like the early levels of a game, so Apple TV app storage should be efficient. By comparison, Playstation 4 games are sized anywhere between 1 GB and 50 GB.

But Apple TV apps won't just be games. As always, Major League Baseball offers an impressive app that shows current game stats and highlights. Furthermore the new MLB app can notify you of upcoming games and plays, and even lets you watch two games live side by side.



Perhaps most surprising, the Apple TV will have more traditional apps as well. Accommodation sharing site Airbnb, real-estate service Zillow, designer shopping site Gilt, and even the Madefire comic reader will be coming to Apple TV. Not only will you be able to watch video and play games in your living room, but you'll be able to shop and read comic books too.



Unanswered Questions — For all the cool things Apple showed off, there are still many unanswered questions about the Apple TV.

First, no new content service was mentioned. Rumor has it that Apple has been working on deals to start its own live TV service, or even a Netflix competitor. If that's the case, Apple apparently decided to launch the hardware now, with the new service to arrive later. That also may explain why the new hardware took so long to appear: Apple may have been hoping for content deals that have yet to materialize.

Next is the question about cable authentications. An annoying aspect of using an Apple TV, and one that has become even worse since we published "Take Control of Apple TV," is

the deluge of new apps that require a TV package from a participating satellite or cable provider, with each app requiring an individual authorization. I hope tvOS has a solution for this, even if it's just a unified authorization panel.

There is also the question of which Apple TV model to buy: 32 GB or 64 GB? With apps able to use only 2.2 GB of storage at once (at most), that means you could hold up to 14 of those apps at the 32 GB level, though we doubt most apps will occupy even a fraction of that. The 64 GB model could hold 28 of those mega apps, so that may be a better choice if you plan on doing a lot of gaming with the Apple TV. However, most users will probably be fine with 32 GB. But since many app resources are streamed from iCloud, we wonder what will happen if you experience an Internet or iCloud service slowdown or interruption?

Apple also said that the third-generation Apple TV will stick around at \$69. But in what capacity? Will it receive an update to tvOS or will it maintain its existing software? And if it does see the tvOS update, what features will it support? The third-generation Apple TV features an A5 processor, 512 MB of RAM, and 8 GB of flash storage; that's a far cry from the fourth-generation model's A8, 2 GB of RAM, and 32 or 64 GB of storage. (In the iPhone world, the A5 was last used in the iPhone 4S, which is the oldest device to support iOS 9.)

It remains to be seen how exactly the new Apple TV will measure up to the third-generation model and to competitors like the Amazon Fire TV and Roku. I think it will be an easy upgrade for third-generation Apple TV owners, except for the most budget conscious. The value is more questionable for Fire TV and Roku owners. If you're tied to the Amazon ecosystem, I still think the Fire TV makes the most sense, but if you lean toward Fire TV or Roku for their numerous content options, you'll have to wait to see if the apps you want arrive on the new Apple TV. But if you like the Fire TV for its speed, interface, and voice search, it looks like the new Apple TV will be leaps and bounds ahead on all those fronts.

In any case, it's impossible to complain. This fourth-generation Apple TV was long overdue, but what Apple has shown is impressive. Its Siri capabilities alone look as though they'll blow the competition out of the water. I can't wait to get my hands on the new Apple TV and start updating "Take Control of Apple TV."







Software Review

Apple Updates

iOS 9.0.2 Sep 30, 2015

System Requirements

- iPhone 4s or later
- iPad 2 or later
- iPad mini or later
- iPod touch (5th gen)

Available via OTA and iTunes

This update contains bug fixes and improvements including:

- Fixes an issue with the setting to turn on or off app cellular data usage
- Resolves an issue that prevented iMessage activation for some users
- Resolves an issue where an iCloud Backup could be interrupted after starting a manual backup
- Fixes an issue where the screen could incorrectly rotate when receiving notifications
- Improves the stability of Podcasts

For information on the security content of this update, please visit this website: http://support.apple.com/kb/HT1222

iOS 9.0.1

This update contains bug fixes including:

- Fixes an issue where some users could not complete setup assistant after updating
- Fixes an issue where sometimes alarms and timers could fail to play
- Fixes an issue in Safari and Photos where pausing video could cause the paused frame to appear distorted
- Fixes an issue where some users with a custom APN setup via a profile would lose cellular data

For information on the security content of this update, please visit this website: http://support.apple.com/kb/HT1222

iOS 9.0

With this update your iPhone, iPad and iPod touch become more intelligent and proactive with powerful search and improved Siri features. New multitasking features for iPad allow you to work with two apps simultaneously, side-by-side or with the new Picture-in-Picture feature. And, built-in apps become more powerful with detailed transit information in Maps, a redesigned Notes app, and an all-new News app. And improvements at the foundation

of the operating system enhance performance, improve security and give you up to an hour of extra battery life.

Intelligence

- Proactive assistance
- Presents relevant information even before you start typing
- Notifies you when you need to leave for appointments using traffic conditions
- Learns what you listen to in a certain location or at a particular time of day and can automatically display playback controls for your preferred music and audio apps
- Suggested events and contact details are added to apps based on information found in Mail
- Siri improvements
- Search your personal photos and videos based on dates, locations and album names
- Ask Siri to remind you about things you're looking at in your apps, including Safari, Mail, Notes and Messages
- Request directions via public transit
- Spotlight search improvements
- Get sports scores, weather conditions and stock prices
- Simple math calculations and conversions
- Initiate messages, phone calls and FaceTime calls from contact search results

New iPad Features

- Slide Over
- Quickly use a second app without leaving the one you're in
- Easily switch between Slide Over apps
- Support for Apple apps and enabled third party apps
- Split View
- View and interact with two apps at once
- Ability to resize your view to give equal attention to both apps or prioritize one app over another
- Support for Apple apps and enabled third party apps
- Picture in picture
- Continue watching a video while using your favorite apps
- Support for Safari video, FaceTime, Videos and Podcasts and enabled third party apps
- QuickType improvements
- Multi-Touch gestures for easier text selection on iPad
- Quick access to text editing tools with Shortcut Bar on iPad
- Support for hardware keyboard shortcuts
- Support for all Unicode emoji flags

Built-in Apps

- Map improvements
- Support for public transit lines, station details with exits and entrances, schedules and directions in select major cities
- Browse for places around you by category, including Food, Drinks, Shopping, Fun and more
- Apple Pay support is indicated on place cards at participating retail locations
- Place cards include Wikipedia information for landmarks and cities
- Redesigned Notes app
- Add photos to your notes with the built-in camera or from your Photo Library
- Create useful checklists and check off completed items with a tap
- Sketch a quick thought using just your finger
- Save interesting items directly from other apps using the Share menu
- All-new News app
- Read your favorite newspapers, magazines, and blogs, or choose from over a million topics
- Beautiful typography and layouts, photo galleries, videos, animations, and more
- Browse articles that are chosen based on your interests in For You. Find channel and topic recommendations in Explore. News gets more personalized the more you read
- Easily share articles with friends or save them to read later — even when you're offline
- Mail improvements
- Search improvements help you quickly find what you're looking for by filtering results based on sender, recipient, subject or a combination of options
- Support for Markup lets you annotate an image or PDF attachment with text, shapes and even your signature, then send it back — without leaving Mail
- Easily save the attachments you receive or add files from iCloud Drive or other document providers while composing a new message
- Apple Pay and Wallet improvements
- Support for Discover cards
- Support for rewards cards and store credit and debit cards
- To check out even faster, you can prepare an upcoming payment by double-clicking the Home button from the Lock Screen and keeping your finger on Touch ID
- New iCloud Drive app
- Easily search for a file or browse in the new iCloud
 Drive app by date, name, or tags you added on your Mac
- Open files in any compatible app or share with those you choose
- Organize folders and files
- Get the iCloud Drive app in Settings > iCloud > iCloud
 Drive and select Show on Home Screen
- CarPlay improvements

- Plays back audio messages, letting you hear from people in their own voices
- Full support for car knob controls, so you can tilt and spin to scroll through lists or pan around in Maps
- Support for CarPlay apps from auto manufacturers

Foundation

- Longer battery life
- Up to one hour of additional time before you need to charge your battery
- Facedown detection for turning display off when not in use
- Low power mode optimizes device performance to extend battery by up to an additional three hours
- Software updates require less space to download and offer an option to install later
- iOS apps and user interface now use Metal to deliver faster scrolling, smoother animation, and better overall performance
- Improved security with two-factor authentication support and a default 6 digit passcode support for Touch ID devices

Other improvements

- New San Francisco system font
- Leave a message option if recipient isn't available for a FaceTime call
- Share voicemails from the Phone app using the share sheet
- Flight and package tracking for data detectors
- Health app adds support for reproductive health, UV exposure, water intake and sedentary state data types
- HomeKit adds support for motorized windows and shades, motion sensors and home security system accessories
- Podcasts has an all-new design, makes it easy to find the latest episodes of your favorite shows and notifies you when new episodes become available for you
- Support for Wi-Fi calling on iPad, iPod touch and Mac, without iPhone in proximity on participating carriers
- Wi-Fi Assist to automatically use cellular data when Wi-Fi connectivity is poor
- Transfer content from an Android device with the Move to iOS app, visit http://www.apple.com/move-to-ios for more details

Expanded language support

- New PingFang Chinese system font
- Improved predictions, learning and autocorrection for Chinese in QuickType

- Redesigned punctuation input on 10-key Chinese keyboard
- Redesigned User Interface for right-to-left languages
- Added Siri support for Austria, Belgium (French and Dutch), and Norway
- Added Spotlight search support for Mexico
- New keyboards for French (Belgium), German (Austria), Gujarati, Hindi (Transliteration), Hinglish, Punjabi, Spanish (Mexico), and Telugu
- Predictive input for French (Belgium), German (Austria), Korean, Russian, Spanish (Mexico), and Turkish
- Dictation support for Dutch (Belgium), English (Ireland, Philippines, South Africa), French (Belgium), German (Austria), and Spanish (Chile, Colombia)
- Spell check for Finnish and Korean
- Definition dictionary for Hindi, Norwegian and Swedish
- Bilingual dictionary for French-English and German-English
- New Japanese autocorrection and improved predictions and learning in QuickType
- Option to switch between number systems for Arabic and Hindi

Enterprise & Education

- Assign apps directly to iOS devices without needing to have an iTunes Store account configured
- Improved calendar reliability for customers using Microsoft Exchange ActiveSync v16
- Expanded Per App VPN support for the built-in IPSec and IKEv2 VPN clients
- New networking controls for managed apps to help limit international data roaming costs
- New restrictions to prevent changes to passcodes, device names and wallpapers, or to disable AirDrop on managed devices
- Third party app extension support for VPN, advanced content filtering, and captive Wi-Fi networks

Accessibility

- Touch Accommodations provides additional touch control for those with physical motor limitations
- Switch Control Recipes to customize features or create your own
- Support for Siri Voices for VoiceOver users
- Additional customization of AssistiveTouch

- Hardware keyboard support for Key Repeat, Slow Keys and Sticky Keys
- Improved MFi hearing aid audio routing to choose where audio is played

Some features may not be available for all countries or all areas, for more information visit: http://www.apple.com/ios/whats-new

Pro Video Formats 2.0.3

Sep 21, 2015

File Size: 4.2 MB

This update includes support for the following professional video codecs:

- Apple Intermediate Codec
- Apple ProRes
- AVC-Intra
- DVCPRO HD
- HDV
- XDCAM EX / HD / HD422
- MPEG IMX
- Uncompressed 4:2:2

This update also adds the following MXF support:

- Native import, edit, and share of MXF files with Final Cut Pro X and Motion
- MXF share presets for Compressor
- MXF OP1a export

Apple Watch OS 2.0

This update contains new features and capabilities for users and developers, including the following:

- New watch faces and timekeeping features
- Time-lapse videos of Hong Kong, London, Mack Lake, New York, Shanghai, and Paris
- Photo and Photo Album so you can see your favorite images every time you raise your wrist, including support for Live Photos
- Time Travel with the Digital Crown to see what's coming in the future or what's happened in the past
- Nightstand Mode so your Watch can be used as a bedside alarm clock
- 9 new colors to customize your watch face, and a new multicolor Modular face
- Support for third-party apps to create complications
- Siri improvements
- Start a specific workout, get transit directions, or ask to see a glance
- Support for FaceTime audio calling and replying to email
- Support for HomeKit to control supported devices in your home using Siri
- New support for Austria, Belgium (French and Dutch), and Norway
- Activity and Workout improvements
- Workouts from third party apps on the Watch can be included in your Activity rings
- Activity rings, workouts, and achievements can be shared from the Activity app on iPhone

- Interactive achievements
- On-demand weekly summary
- Mute Activity notifications for one day
- Workouts saved automatically
- Apple Pay and Wallet improvements
- Support for Discover cards
- Support for rewards cards and store credit and debit cards
- Add passes to Wallet directly from third party apps on your Watch
- Friends and Digital Touch improvements
- Add more than 12 Friends directly from Apple Watch
- Multiple Friends' groups that you can name
- Send sketches using multiple colors
- New options for animated emoji
- Maps improvements
- Transit view, showing transit lines, stations and intermodal connections in select major cities
- View the list of directions for your current route
- View station placards with departure information
- Music improvements
- New Beats 1 button to start playing the 24/7 radio station
- New Quick Play button to play a variety of songs from Apple Music
- Reply to emails using dictation, emoji, or smart replies customized specifically for email
- Make and receive calls using FaceTime audio
- Support for Wi-Fi calling without iPhone in proximity on participating carriers
- Activation Lock prevents anyone from activating your Apple Watch without your Apple ID and password
- New developer capabilities including
- Native SDK to build faster and more powerful apps running natively on Apple Watch
- Access to accelerometer to more granularly track your motion
- Access to heart rate sensor for use during a workout
- Access to microphone and speaker to record and play audio
- Access to the Taptic Engine with 8 different types of Haptic feedback
- Access to the Digital Crown for more precise controls
- Ability to play video directly on Apple Watch
- Support for running apps without iPhone in proximity, including access to networking capabilities when connected to known Wi-Fi networks

- Complications on the watch face
- Workouts from apps can be counted towards Activity rings
- Workouts from apps can be included in Activity app on iPhone
- New support for system language in English (India), Finnish, Indonesian, Norwegian, and Polish
- New support for dictation in Dutch (Belgium), English (Ireland, Philippines, South Africa), French (Belgium), German (Austria), Spanish (Chile, Colombia)
- New support for smart replies in Traditional Chinese (Hong Kong, Taiwan), Danish, Dutch, English (New Zealand, Singapore), Japanese, Korean, Swedish, Thai

iTunes 12.3

Sep 16, 2015

System Requirements

- OS X version 10.8.5 or later
- 400MB of available disk space
- iTunes in the Cloud, iTunes Match, and iTunes Radio availability may vary by country
- iTunes Extras require OS X version 10.10.3 or later

This update to iTunes adds support for iOS 9 and is designed for OS X El Capitan. It also:

- Improves Apple Music accessibility with VoiceOver
- Resolves a problem that prevented reordering of songs within Up Next
- Fixes a problem where some radio stations did not appear within Recently Played
- Addresses an issue where songs you loved on iOS did not appear loved on iTunes
- Supports two-factor authentication to secure your Apple

This update also includes improvements to overall stability and performance.

Canon Printer Drivers 3.3 for OS X Sep 15, 2015

File Size: 270 MB

System Requirements

OS X Lion or later

This update installs the latest software for your Canon printer and scanner. **T**







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