



# The Candy Apple

May 2017

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**Basic Mac Tip**  
By Christopher Phin &  
Matthew Bolton, [tehradar.com](http://tehradar.com)

## Crop, resize and tweak images

**Preview** is one of the most under-appreciated apps on a Mac; especially in later versions of OS X, it became hugely powerful, and even for us at MacFormat, it does much of what we'd traditionally use a more elaborate and expensive application such as Photoshop for. Do yourself a favor: open an image in Preview and poke around the app's menus and interface to see what it can do.

For example, you can crop your image. Draw a selection with the regular Rectangular Selection tool then either hit Command+K or choose Crop from the Tools menu. Alternatively, show the Edit Toolbar and make


a more complex selection either with the Instant Alpha tool (like in iWork) or use the Smart Lasso.

With this tool, you draw as carefully as you can around the outline of the object and then Preview works out as closely as it can where the edges are. In either case, cropping will, if the image isn't already a PNG, convert it so that you can have the thing you're cutting out on a transparent background. (You might need the Invert Selection command, too!)

You can also resize images, and even do some tweaks to the colours with the Adjust Color pop-up. Select Adjust Color... from the Tools menu, and you get some handy sliders and a histogram to help you tweak things. Plus, hit the backtick symbol (to the left of Z on a UK Mac keyboard, and to the left of 1 on a US Mac keyboard) to bring up a loupe so you can see what's happening at 100% as you make changes.

## Google Docs warning: There's a phishing scam going around

By Jefferson Graham and Brett Molina, USA TODAY

 **CLICK** for full article

LOS ANGELES— Quick warning: if there's an e-mail in your inbox asking you to open a Google Docs from someone, and you don't know who it is, don't open it.

It's probably a phishing email disguised as a contact attempting to share a file from Google Docs, says Google.

# BULLETIN BOARD



## Quick Tip

“macOS” refers to Sierra OS 10.12

“Mac OS X” refers to El Capitan OS X 10.11 and earlier.

## 2017 Meeting Schedule

May .... 20\*

One Week Earlier  
Due to Memorial Day  
Weekend

June ..... 24

July ..... 22

August ..... 26

September .... 23

October ..... 28

November .... 18\*

December .... 16\*

\* 3rd Saturday due to holiday

**MAY MEETING**  
**WILL BE HELD**  
**IN THE MAPLE ROOM**  
**TOPIC: Q&A**  
**What's on your mind?**

To err is human  
- and to blame it  
on a computer is  
even more so.

-Robert Orben



## Candy Apple

### Edit & Design

Editor & Layout ..... Carol Sierzega

### Contributors

Regular and occasional contributors may include: Small Dog Electronics' Tech Tails and Kibbles & Bytes staff, TidBITS staff; Macworld's Chris Breen and The MUG Center Staff. Each contributor may have specific copyrights in place. The Candy Apple abides by these copyright rules.

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Newsworthy material relating to computers, classified advertisements and any other CandyApple related material may be emailed to: [carol@sjaug.org](mailto:carol@sjaug.org).

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# Articles, Tips & How-Tos

Click on the **Article Title** to access the full article in your web browser

## A Hangout for Old Desktop Notifications

By J. D. Biersdorfer, Personal Tech, The New York Times

If the pop-up alerts that bring you news and information from your Mac's apps disappear before you can read them, check the Notifications Center.

To open the Notifications Center, click the three-line icon in the top-right corner of the Mac's main menu bar and then click the Notifications tab to see recent messages from your apps and websites.

## What is a Denial of Service?

by Bradley Mitchell, lifewire.com

The term Denial of Service (DoS) refers to events that render systems on a computer network temporarily unusable. Denials of service can happen accidentally as the result of actions taken by network users or administrators, but often they are malicious DoS attacks.

## Five Resolutions to Simplify Your Tech Life

By Brian X. Chen, Personal Tech, The New York Times

Follow these tips to improve the maintenance of your passwords, devices and tech infrastructure. Also, shop smarter and reduce waste in 2017.

## What is a Bot Net?

by Andy O'Donnell, lifewire.com

Has your computer become a zombie slave without you even knowing it?

Have you noticed that your PC has suddenly slowed to a crawl for no apparent reason? It might be nothing, but it could be that your computer is busy doing other things, and by other things I mean attacking other computers as part of a bot net controlled by hackers, or other assorted bad guys.

## I've Been Hacked! Now What?

by Andy O'Donnell, lifewire.com

How to Turn Your Zombie PC Back to Normal Without Cutting Off Its Head

You opened an e-mail attachment that you probably shouldn't have and now your computer has slowed to a crawl and other strange things are happening. Your bank called you saying there has been some strange activity on your account and your ISP has just "null routed" all traffic from your computer because they claim it is now part of a zombie botnet. All this and it's only Monday.

## How to Encrypt Your Files And Why You Should

by Andy O'Donnell, lifewire.com

Don't end up being the guy who just lost a million social security numbers

We've all seen stories in the news, where someone had a laptop with a million social security numbers on it stolen from them. None of us want to be 'that guy', a.k.a the person who had the sensitive information on their computer end up in the wrong hands. If you're the person who had the laptop stolen, chances are, you're going to be fired, sued, or both.

## That Fingerprint Sensor on Your Phone Is Not as Safe as You Think

By Vindu Goel, Technology, The New York Times

Pressing a finger inside a banking app allows the user to pay bills or transfer thousands of dollars. While such wizardry is convenient, it has also left a gaping security hole.

New research suggests that the fingerprint security features on iPhones and Android devices can be easily fooled by so-called MasterPrint fakes.

# Articles, Tips & How-Tos

Click on the **Article Title** to access the full article in your web browser

## How to Add a New Email Account to Mac Mail

OS X Daily

Many of us have multiple email accounts, whether they are for personal uses or work purposes, and thus Mac users may find it helpful to add a new email account to the Mail app in Mac OS. This guide will walk through the process of adding an email account to the Mac so that it can be checked, managed, and used from the Mail app.

## Colonel Mustard in the Library with the Shift Key

by Adam C. Engst, tidBITS.com

I love a good mystery... as long as it has a solution. The case of the Library's changing modifier key had me stumped for a while, but thankfully, our buddy Rob Griffiths figured it out.

## How to Run MacOS Sierra in a Virtual Machine for Free, the Easy Way

OS X Daily

Advanced Mac users may find it useful to run macOS or Mac OS X in a virtual machine atop their existing Mac operating system. Creating a virtual machine for Mac OS is now easier than ever before, and we'll show you how to set up easy Mac virtual machines on a Mac.

## In praise of the versatile Mac mini

By Dan Moren, Contributor, Macworld

Apple's cheapest Mac deserves a little love from Cupertino.

The Mac mini has never been a hot topic with the folks in Cupertino. Now in its twelfth year, the little Mac that could has been infrequently updated and often underestimated. But while it may not get the limelight as often as its siblings, I think that

the mini has earned its spot as the unsung hero of the Mac lineup.

## How to fix Safari when popups block usage in iOS and macOS

By Glenn Fleishman, Senior Contributor, Macworld

Apple fixed a bug that allowed scammers to hijack your Safari screen in iOS, but a macOS flaw remains.

## How to selectively migrate files from Time Machine

By Glenn Fleishman, Senior Contributor, Macworld

You can selectively migrate files, but you still have to create a new account, but not a new partition, to do a partial migration. You can then transfer those files into your main user account.

## How to Check iOS App Compatibility to List Older 32-Bit Apps

OS X Daily

It is assumed that Apple will stop allowing older 32-bit applications to run on future iOS system software releases. Essentially this means that it's possible some older apps will stop working on an iPhone or iPad after the device has updated to some system software release, unless the developer updates those apps to include modernized 64-bit support.

## 4 easy ways to keep your iCloud password safe

By Ben Patterson, PCWorld

Your iCloud account will be easy pickings for hackers unless you take these few basic security measures. In just a few basic steps, you can secure your iCloud account from the most common threats.

# Articles, Tips & How-Tos

Click on the **Article Title** to access the full article in your web browser

## How to get Remove Attachments back in Mail for macOS

By Glenn Fleishman, Senior Contributor, Macworld

If you can't access this feature, here are a few things to do that could fix it.

## How to fix a "can't be moved" permissions problem on your Mac

By Glenn Fleishman, Senior Contributor, Macworld

What to do if you can't save a file in macOS  
Noelle Oliveira says her Mac isn't letting her save files from several different programs. She consistently receives the error (with various filenames and folder locations).

## Wouldn't it be nice if Mac error messages actually told us what's wrong?

By Kirk McElhearn, Senior Contributor, Macworld

Apple's vague or cryptic error messages leave users even more confused than before.

The error messages you see when something goes wrong with your software or hardware often offer you no help, nor give you any clue as to what is causing the problem.

## How to Speed Up or Slow Down YouTube Videos

OSX Daily

You can easily speed up YouTube videos or slow down video playback, all by adjusting some simple but largely hidden and little known settings on the YouTube web site. This is a helpful trick for many reasons, for example if you're watching something boring that you want to accelerate, if you want to speed up a conversation or interview you're watching, or maybe you want to slow down a video to enjoy it at a more casual pace or to understand it better.

## How to create a folder on your iPhone or iPad

By Nick Mediati, Macworld, iOS Basics

It isn't exactly obvious to new iOS users, but it's easy to do once you know how.

## Undercover In An iPhone Factory

By Kif Leswing, Business Insider

What it's really like to work in a Chinese mega-factory, according to a student who spent 6 weeks there. To see what the situation was like firsthand, [Dejian] Zeng went to work undercover in Pegatron's ChangShuo factory last summer, armed with a fellowship from NYU. The factory he worked at was profiled by the BBC in 2014 and Bloomberg in 2016, with the reporting focusing on whether some workers were forced to work overtime shifts.

## The Week in Apple News and Rumors

By Macworld Staff @macworld.com

Apple Podcasts, using the Apple Watch to fight diabetes, working at an iPhone factory, and more

## Email Attack Hits Google: What to Do if You Clicked

By Nicole Perlroth, Personal Tech, The New York Times

Google said it was investigating an email scam winding its way through inboxes across the country and had disabled the accounts responsible for the spam. Here's what to do if you clicked on the spam message.

## Moving Your Music Out of iTunes

By J. D. Biersdorfer, Personal Tech, The New York Times

If you want to use a different jukebox program or just want to put your library in the cloud, pack up your files and go. To move the music library, you just need to find and move the folder to the external hard drive or the cloud service you wish to use.

# Articles, Tips & How-Tos

Click on the **Article Title** to access the full article in your web browser

## How to Resend Email in Mac OS Mail

OS X Daily

Every once in a while an email might fail to send, not get through to a recipient, or is just plain lost in the midst of a busy inbox. Or maybe that email was so fantastic you just want to send it again for fun?

## How to disable GPS coordinates when texting photos

By Glenn Fleishman, Senior Contributor, Macworld

A reader was disturbed to find a recipient of a messaged image had the coordinates of her home address.

## 4 easy ways to keep your iCloud password safe

By Ben Patterson, PCWorld

Your iCloud account will be easy pickings for hackers unless you take these few basic security measures. In just a few basic steps, you can secure your iCloud account from the most common threats, and you can take all those steps directly from your device.

## See All the Mac's Open Windows at Once

By J. D. Biersdorfer, Personal Tech, The New York Times

Mission Control is one of the many features built into the Mac operating system designed to let you find your stuff faster.

## How to Save as PDF from iPhone or iPad with a Gesture in iOS 10

OS X Daily

It may not be well known, but iOS has several ways to save things as PDF and print webpages and other documents as PDF files. It works on iPad as well as iPhone and iPod touch

## Comparing Five iOS Travel Management Apps

by Mike Matthews, TidBITS.com

Airlines now offer booking Web sites, their own apps, and mobile boarding passes. Plus, you can quickly and easily research flights, hotels, rental cars, and more with apps that are dedicated to that purpose.

## Some password-manager apps that store data centrally get it right

By Glenn Fleishman, Senior Contributor, Macworld

You might be concerned from recent attacks that secrets stored by 1Password and LastPass are at risk. The details say they're not.

## 6 ways to make the most of 1Password for iOS and Android

By Ben Patterson, PCWorld

You'll be a happier 1Password user once you master these mobile tips and tricks, from unlocking 1Password with your fingerprint to entering passwords with the 1Password keyboard.

It took months of hemming and hawing before I finally broke down and bought a password manager—and soon after I did, I couldn't believe I waited so long.

## How to Change the Sent From Email Address on a Mac

OS X Daily

Mac users with multiple email addresses and email accounts configured in the Mail app will likely find themselves wanting to change the email address that a particular email is sent from. This is different from changing the default email account on a Mac, as this approach allows the Sent From address to be changed anytime on a per-email basis without setting the default email to something else

# Articles, Tips & How-Tos

Click on the **Article Title** to access the full article in your web browser

## Apple's confusing method of device authorization and association

By Kirk McElhearn, Senior Contributor, Macworld

Why does it have to be so difficult when all you want to do is watch an iTunes video on one of your devices?

## Top Ways to Get Infected Online

by Mary Landesman, lifewire.com

How your online habits leave you and your computer at risk

Keeping safe online takes more than just installing a few security programs. To protect both you and your computer, here are the top ten bad habits you need to avoid.

## Want to recover a FileVault-encrypted drive without a recovery key? You're out of luck

By Glenn Fleishman, Senior Contributor, Macworld

One of the downsides of protecting your data from others is how easy it is to lose it all.

## The Risk in Using a Public Phone Charger

By J. D. Biersdorfer, Personal Tech, The New York Times

Connecting your phone to public charging stations or rental cars may put your device and personal information at risk. But there are precautions you can take.

## 4 Chrome extensions that make you more productive in Gmail

By Michael Ansaldo, Freelance Contributor, Pcworld

Have your email read to you, hide your inbox, master keyboard shortcuts, and more.

Here are four Chrome extensions that help reduce the time you spend in your inbox so you can focus on the work that really matters.

## How to set up an external drive as a Time Machine destination for multiple Macs

By Glenn Fleishman, Senior Contributor, Macworld

Step-by-step directions on connecting Macs to a shared hard drive for backup.

## Here's how the sneaky Gmail phishing attack fooled victims with a fake Google Docs app

By Michael Kan, U.S. Correspondent, IDG News Service

The phishing emails, which circulated for about three hours before Google stopped them, invited the recipient to open what appeared to be a Google Doc. The teaser was a blue box that said, "Open in Docs."

## Email Attack Hits Google: What to Do if You Clicked

By Nicole Perlroth, Personal Tech, The New York Times

Recipients who clicked on the email and followed its instructions probably gave spammers access to their contact lists, letting them send more email.

Google said it was investigating an email scam winding its way through inboxes across the country and had disabled the accounts responsible for the spam.

## How to Protect Your Privacy as More Apps Harvest Your Data

By Brian X. Chen, Personal Tech, The New York Times

In the real world, your personal life is a private space. But in tech, your personal data is a ripe resource for businesses to harvest in their own interests.

Most free online services will probably cost you some personal information, but a few simple tips can help stem the tide.

# Articles, Tips & How-Tos

Click on the **Article Title** to access the full article in your web browser

## How to Show a Wi-Fi Password When Typing It on Mac

OS X Daily

While plenty of wi-fi networks use obvious passwords that aren't complex, if you've ever joined a wi-fi network with a wildly complex wireless router password you know it's easy to fumble and erroneously enter a character or two. Of course while you're typing the password it appears as little bullet points that are indecipherable, this is a security feature designed to obfuscate a password from preying eyes. A wise feature, but this can lead to an inability to join a network due to typos or to a delay as you correct them, so sometimes it's nice to make the password field visible as you input it and join a network.

## 5 Hacks Seen In Movies That Are Totally Legit

by Andy O'Donnell, lifewire.com

Hacking has been in movies for years. My first introduction to hacking was in the 1983 movie WarGames with Mathew Broderick, who played a high-school age hacker that finds himself way over his head when he hacks a system that turns out to be in control of the US missile defense system.

While most of the hacker movies have far-fetched plots, many of the hacks that go on are rooted in reality and some of the acts aren't just works of fiction.

## Create Your Own (Nearly) Unhackable Email Password

by Heinz Tschabitscher, lifewire.com

How secure is your email? We all know that unencrypted emails can be intercepted and read freely, but one of the prime dangers still is people hacking into your email account.

## Why Amazon Wants You to Order Detergent With a Button

by Sarah Silbert, lifewire.com

From toilet paper to snacks, getting necessities doesn't get any easier than this. Do These Hardware Gadgets Improve the Online Shopping Experience?

## How to Clear All User Log Files on a Mac

OS X Daily

Mac OS has an elaborate application level logging system that monitors and logs various system level and app level functionality, including app crashes, problems, and internal errors within apps. Most of this logging information is only relevant to debugging and developer usage and has little practical usage to the average Mac user, but when you submit a bug report for a crashed app these are the types of logs that are generally gathered and included in that crash report or bug report.

## 6 ways to make the most of 1Password for iOS and Android

By Ben Patterson, PCWorld

You'll be a happier 1Password user once you master these mobile tips and tricks, from unlocking 1Password with your fingerprint to entering passwords with the 1Password keyboard.

## How to find all the media not in an album in Apple Photos

By Glenn Fleishman, Senior Contributor, Macworld

Use a Smart Album to find those photos that have avoided sorting.

Now you have an album that will only show what you want. As you add media to albums, the smart album updates results.



# Small Dog – News, How-Tos, Tips & Tricks

THESE ARTICLES ARE COMPLETE. THE TITLES DO NOT LINK TO THE INTERNET

## NOTES!

By Emily Dolloff, [smalldog.com](http://smalldog.com)

I have been a fan of Notes for years! I started out using the Notes program on my mac and used it for everything, and sadly, I mean everything including usernames and passwords. Thankfully I learned many years ago safer means of account login storage and abandoned my sticky note ways on my Mac.

What I missed most about my sticky notes was a quick and all in one location for things I needed to jot down, hello and welcome notes! Notes has been out for many years and it's certainly nothing new on iOS or macOS. Notes is an incredibly versatile program and one that I rely on heavily as another tool for keeping me organized and in order. I've written in the past about reminders, but I admit, try as I might I just can't get away from Notes and find its versatility in features to be something that reminders just can't compete with. There are several features within the notes program that go beyond just taking a simple note, and I want to share some of my favorite features.

### Syncing

I think the ability to sync my notes across all of my devices is hands down the number one reason I use and just can't break away from this handy little app. I can write a note on my computer and it automatically sends the note to my iPad and iPhone. With iCloud turned on and note syncing your notes update across all devices that are logged into your iCloud account. There is one catch to the auto syncing that is new in the last year or so. In order for your iOS devices and your Mac to get your notes you do need to make sure that in addition to to iCloud being turned on, all of your devices need to be running the latest OS. Last week

I had an issue where my notes were syncing from my iOS devices to my Mac, but not from my Mac to my iOS devices. A quick look at my devices revealed I hadn't run my most recent software updates.

### Drawing

Did you know that you can draw within the notes program? Notes allows you to actually write a note in your own handwriting, but also allows you to draw and there is even a handy ruler so you can draw straight lines. There are a variety of colors to choose from to put a pop of color in and you have a choice of a pencil, and two marker options. The details aren't as responsive or detailed as that of say the iPad Pro. But this little feature allows for handy on-the-go creations. You can easily and quickly sketch out an idea via e-mail, text and even social media. This feature only really works on the iOS, you can do some similar actions on the Mac via Mark Up.

### Mark Up

Within notes you can insert a pictures from your photo library (on the Mac you can just drag and drop the image into your note) and then you can mark it up! You can draw over the image, add text, shapes and more. I recently used this feature specifically when I was working to re-model and paint a room in my house. We took pictures of the room and used the mark up feature to finalize what colors and changes we were going to make in the room.

### Locking Notes

Another cool feature with the notes program is that you can lock the notes. The only information that is viewable in the note is the title. A passcode must be entered on the computer or iOS device in order to see what is in the note. This is a great way to keep things

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just a little bit more secure on your devices. While you should keep things like passwords and account information securely stored in your keychain, this is another option. Admittedly if you're given a code or access to something and need the information temporarily, it's more practical to jot it in Notes and lock it. Likewise if your a busy mom or spouse and you find yourself making notes about a special event or gifts it's nice to know you can keep wondering eyes away from your information and keep the surprise.

Notes, the little app that does so much!

## LIONS AND TIGERS AND BEARS AND DIGITAL AND ANALOG, OH MY!

By Hadley Markoski, [smalldog.com](http://smalldog.com)

From time to time in Kibbles articles I've written, I've talked about the differences between digital and analog circuits, but it's almost always in passing and tertiary to something else. I decided this week that it was worth doing a whole article about it. Some of this will probably be a bit of a refresher, but that's ok. We have to start somewhere.

People generally seem to understand that computers, smart phones, smart watches, even calculators...all that stuff is digital. We commonly refer to those things as digital, but we don't often explicitly describe what makes them digital. First of all, the word "digital" isn't what I would've chosen if I was choosing to name that class of circuits. We call them digital because they function entirely based on binary digits (0 and 1). This is fine, but if given the chance, I would've called them "discrete" circuits because this is more generic and more descriptive of the actual architecture itself. When I studied computer science in college,

we actually had special math classes we had to take, totally separate from the mathematics department. These classes were called "discrete mathematics" and they revolve entirely around the specific types of mathematics relevant in so-called "digital" circuits and the higher level "computers" they make up. This includes things like boolean algebra (easy), graph theory (harder, but interesting and useful), set theory and combinatorics among many others. Discrete mathematics eventually prepared you for things like computational theory. By far the hardest thing I had to learn in those later classes was linear algebra. The one common thread in all of these classes though is that the units were discrete. There were no gradations, fractions, derivatives or integrations that you'd find in almost any other math class.

The reason for the difference is the fundamental difference between digital and analog. Digital circuits can by definition only operate discretely. They are completely blind to anything that occurs within their discrete ranges. This doesn't mean that digital circuits themselves can't do analog tasks, or do things involving real numbers, but their operation does not use these things.

Analog circuits on the other hand exist over an entire domain. Analog circuitry can be described by conventional mathematics (primarily algebra and calculus). Much like digital circuits are not ideal at perfectly replicating analog systems, analog systems are poor at functioning in discrete terms. A single digital circuit can be configured to calculate any number of different things and can even be reprogrammed for new tasks. Analog circuits can also "calculate" things, but they do so in a very different, specialized and limited way. I remember asking this question when I took

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an electrical engineering class. Why create some complex circuit that effectively calculates the integral of some signal when a digital circuit could be programmed to do the same thing? The answer is that digital circuits have a lot of overhead and take time to calculate something (due to clock cycles). The time they take is totally dependent on the efficiency and accuracy of the programming. An analog circuit doing the same thing would be accurate every single time and would do so at the speed of electricity (the speed of light). It would also be simpler in construction.

An example of an analog circuit that's performing a function would be an amplifier. The amplifier's job is to take an input signal and boost its amplitude. A digital circuit could be programmed to do this, but to do so at virtual instantaneous speed and accuracy would be a tall order. The analog circuit would also be able to follow the input signal exactly at every single infinite point on its waveform. A digital circuit, because it's discrete and slave to a clock, would miss all the pieces of the input signal that occur in between its clock ticks.

People don't often contrast analog and digital circuits this way, but I find it to be very accurate: digital circuits are flexible and generic, analog circuits are simple, fast and specialized. Different situations call for different circuits, which is why decades into the digital age, analog circuits are still incredibly useful. However, as digital electronics become faster, cheaper and more robust, they become able to approximate the specialized analog circuit performance at more and more acceptable levels. You can already see this happening in some applications. In 1971 you could buy a Dodge Challenger with a 6.98L Hemi V8. A powerful and complex engine in its day, it would have relied completely on analog

electronics to run, to the extent it even used electronics at all. A carburetor doesn't need a computer to help it mix fuel and air. Starting in 2011 the same car was available with a 6.4L HEMI V8. This engine uses computer-controlled fuel injection as well as a fleet of sensors measuring everything at every level of operation. The sensor data is fed to a computer that can adjust inputs to the engine allowing it to run cleaner and produce more power. Without the computer, the engine would barely run at all. The computer is actually able to work fast enough to deal with all of the inputs and create an accurate output in a timely fashion.

Hopefully this was an interesting dedicated look at the differences between digital and analog circuits. If you have any suggestions for topics, or questions that you'd like to hear me answer about electronics, electricity or its applications, send me an email!

## WHAT THE CLOUD?

By Moses Laporte, [smalldog.com](http://smalldog.com)

My work includes quite a lot of explaining about how cloud backup can be configured and updated and how much

Local Hard Drive Vs. Cloud Storage



it should be trusted, among other questions related to redundant server-based data storage. I want to make one thing crystal clear: There is nothing inherently different between the way servers operate and the way your machines operate at home, beyond layers of redundancy, variant OS, and complexity of filesystem organization.

The truth is, at least under the average data storage and bandwidth use of a household,

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a custom-designed personal server is often perfect for daily needs and once it's set up it can be just as reliable in so many ways. One perk is that you don't pay a monthly or annual fee (beyond upgrading / replacing hardware, updating the OS and paying for internet service) and you are able to directly manage and configure all hardware and software without as much restriction and dependence on the IT staff of a cloud-based storage company.

Some folks are intimidated by the concept of setting up a server in their own home, but remember that we are here to help! Some NAS (Network Attached Storage) drives we're currently selling include the Drobo 5N, the Seagate 8TB NAS. If you're serious about having a long-term solution and willing to make the investment in a server rack, we could help you design a system of 1U servers that could theoretically rival the performance of many cloud-storage solutions, especially if your internet connection is strong enough. Plus, you'd be able to share access with trusted individuals in the same manner that iCloud or Google Drive allows you to.

I'm not saying that services like iCloud or Amazon Cloud Drive or Dropbox or Carbonite or Google Drive are at all inferior to a home-based server. In many ways they outperform and can withstand far more catastrophic failure than many local alternatives. It's a bit like apples and oranges – understanding that they each have their place, and neither will ever be fully secure or indestructible. Redundancy is key, but so is security and organization. These may be unreachable goals at their farthest theoretical extent, but we must do what we can to adapt to the entropy and loopholes of the universe and attempt to keep data both

safe and accessible while keeping our tech as intuitive as possible.

## MECHANICAL KEYBOARDS

By Mike Moffit, [smalldog.com](http://smalldog.com)

Okay, I know you're probably asking, "aren't all keyboards mechanical?" While the key mechanism in keyboards are, the "mechanical" aspect is referring to the actual switch mechanism underneath the keys. If you're an old-school computer user like me, you may remember the old IBM Model 'M' keyboard which is what I learned to type on. This brute of a unit was durable, reliable and extremely heavy weighing in at over 3 pounds. More than some modern laptops! It was loud and clicky, the keys would spring back to attention in milliseconds of pressing them and if you could type even remotely fast you'd sound that much more impressive.

Over the years keyboards have evolved to be more compact, lighter and use less materials. While this is great for most users, there is a growing subculture of people who prefer the clicky keyboard days of old. To understand mechanical keyboards you need to learn a bit about keyboards in general. Most modern keyboards are referred to in the mechanical keyboard community as "rubber domes". These keyboards have a sheet of flexible plastic or rubber under the actual keys which provides both the contact point for the underlying circuit board and little domes molded in which provide both the suspension point for each key and the contact point for the circuit board underneath.

Mechanical keyboards operate on the same basic principle, but a different mechanism is used to reach the connection

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and rebound the key back up. There is an individual mechanical mechanism under each key, the design of which can vary depending on the keyboard. These units are known as ‘switches’. They usually have some kind of spring. Mechanical switches come in a number of varieties and therein lies the appeal. Some have a tactile bump, some an audible click, while others are completely smooth and linear.

## Pros to the mechanical keyboard

**Build Quality** Mechanical keyboards are more expensive to make, so they are usually higher quality in general than a standard keyboard. This also relates to how they last longer than standard keyboards. Rubber domes are capable of lasting a long time, but they will have a change in feel. They will become mushier and less responsive over time. Mechanical keyboards are known to feel like the day they were bought for many years.

**Aesthetics** Mechanical keyboards tend to be more “old school” and simple in looks, which many enthusiasts prefer. However, there is an increasing popularity of mechanical keyboards marketed towards gamers and those keyboards have the gaming look. There is also a world of custom key caps of all designs and colors. These custom items are most commonly made for mechanical keyboards because there is a market for them.

**Feel** Combining the characteristics of mechanical switches and the higher build quality of the keyboard, mechanical keyboards are preferred by many because they just feel better. The keystrokes feel crisp, deliberate and satisfying. The rubber domes in standard keyboards contribute to a feeling of mushiness, while mechanical keyboards have a visceral mechanical feel.

**Customizability** Mechanical keyboards are a favorite among hardware tinkerers as you can swap in and out components of different switches to make a different feeling keystroke. There are a number of other hardware changes you can make as well such as custom keycaps, bushings to adjust key rebound and more.

## Cons for mechanical Keyboards

**Price** Mechanical keyboards are expensive and are often over \$100

**Niche Market** While these are popular keyboards for those who use them and there are not a lot of companies who have them out on the market. Often folks might purchase these and then not realize how loud they can be as well.

**Weight** This may not matter to most people, but mechanical keyboards, on average, can be heavier than standard keyboards. Some users prefer this as it implies a higher standard and build quality.

**Sound** As mentioned earlier, mechanical keyboards are often loud. Some switches make an audible click, but even those that don’t have a harsh plastic on plastic CLACK at the bottom of the keystroke. Some people love the click and clack sound, but it can drive others crazy.

Generally mechanical keyboards are the best fit for enthusiasts or gamers. I personally prefer the feel of mechanical switches, but there is a good deal of nostalgia baked in as well. If you’ve never tried one, or like me you long for the days of old, it’s worth taking a look at mechanical keyboards to see what you think.

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## TERMINAL TIDBITS

By Nathan Persing, [smalldog.com](http://smalldog.com)

### Disk Usage Command

There might be a time when you need to know how much space is available on your hard drive and you need to do it without a GUI. When trying to do diagnostics to find issues, it's good to know if your hard drive is simply at capacity. Hard drives filled to their limits can display some scary signs, making one think that they have serious issues. When your drive is just stuffed more than your family's thanksgiving turkey you can run into some pretty troubling and difficult issues.

By opening Terminal and going into the Command line you can find out quickly what your disk space is looking like. Within terminal enter the command, that is simply "df".

Once you run "df" you are going to get a weird confusing result. There will be many blocks, so to help your sanity us the -h (human readable) flag so that the overall syntax is "df -h". This will give the result of used space and available space in gigabytes instead of blocks.

## SPRING CLEANING

By Ben Ryan, [smalldog.com](http://smalldog.com)

One of the most common repair symptoms we see at Small Dog is "My computer is slow." Slowness can have many different causes, and it's not always easy to figure out which one it is. However, it is also important to understand that a certain amount of software performance degradation over time is normal and expected.

Every time you use a computer or other device, its operating system is modified. You may not always be able to see it, but most OSes have many background processes that keep logs

of system errors, even invisible errors, and other types of data that it can use for troubleshooting. If you open an application and it crashes, it's a pretty safe bet that a line of text was added to a log file somewhere on your computer.

Installing applications on a computer or downloading files to it also will have a tiny impact on performance and system stability. Each impact is typically negligible, but over several years, it can add up and create noticeable slowness. This is not something that can ever be fully eliminated by an operating system, due to the basic principle that as the complexity of a software system increases, with no change in hardware, the performance will always decrease. The phenomenon is similar to the fact that if a vehicle has a small amount of weight added to it, it will require slightly more fuel in order to travel the same distance as before.

There is a common misconception that computers can easily be "cleaned up" to eliminate software performance issues. It is true that in some cases there are startup items that can be disabled or storage space freed if it is almost full, but in most cases the performance issues are so deeply embedded into the system that the only real solution is to erase the computer, reinstall the operating system, and restore the critical applications and data.

I personally do a full restore of my operating system at least twice per year, even if my computer is not having any problems, as I want to be sure that it is running as efficiently as it can. You can do this on your own Mac by following Apple's instructions here or we can perform this service at any Small Dog location for \$45. As always, make sure you have a full backup of any important data before attempting to perform any repairs or maintenance.