CONTENTS

APRIL LOCATION

Good Samaritan Church, 212 West Lancaster Ave, Paoli, PA 19301. Go to www.mlmug.org/GoodSam.html for location map & directions.

MLMUG Journal
MAIN LINE MACINTOSH USERS GROUP

FOUNDED MAY 1989
MEETINGS - SECOND SATURDAY OF THE MONTH
WWW.MLMUG.ORG

PASSWORDS & APPLE WATCH

FILEMAKER

Our main presenter at Saturday's meeting will be Marc Adler, VP of Application Development for IT Solutions Consulting, Inc., a Platinum member of the FileMaker Business Alliance. He titles his presentation *Zero To 60 With Filemaker Pro 13 And Filemaker Go 13 For iOS.*

He will review FileMaker as a platform and where it might be a good fit for an organization and what its capabilities are. He will also take two spreadsheets and with them, build an application on the Mac and share it with an iPad.

Marc Adler has been working with FileMaker Pro for almost 20 years and has been a developer, project manager and now manages a team of FileMaker developers who consult in the Philadelphia area and around the country.

MAC TIPS #57 - APRIL 2015

SEARCH SPOTLIGHT BY CONTENTS OR BY NAME. If you want to do a Spotlight search within the contents of the file, you only need to use Command + F. If you want to search for filenames, use Command + Shift + F. MB

Typical Meeting Agenda

Second Saturday of each month
See www.mlmug.org for the meeting's topic.

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

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

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

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

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

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

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

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

11:50 - Noon: Raffles and silent auctions.

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

MLMUG Email list

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

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

LOCATION

Good Samaritan Church, 212 West Lancaster Ave, Paoli, PA 19301, about 3 blocks west of Paoli train station. Go to www.mlmug.org/GoodSam.html for location map & detailed directions.

New Users SIG

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

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

Macintosh Programming SIG/ Philly Mac Programming Group

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

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

Newsletter Editor
Mark Bazrod

Graphics Editor
Sally Bazrod

Copy Editor
Deane Lappin

Contributors & Authors
Mark Bazrod
Damon Beres
Brad Chacos
Jim Dalrymple
Glenn Fleishman
Kathy Garges
George J. Harris
Jeremy Horwitz
Thorin Klosowski
Steve Lohr
Daniel Nations
Susie Ochs
David Pierce
Bob Rankin
Lisa Vaas

MLMUG Journal Masthead
Designed by Dale Fletcher
Based on prior designs by Marc Robinson, Steve Evans & Bobby Foster

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

BeeNet

Apple User Group

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

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

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

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

Treasurer, MLMUG
P.O. Box 1374
Southeastern, PA 19399

MLMUG March 14, 2015 Meeting Minutes

By Mark Bazrod, Secretary

Susan Czarnecki, our Vice President, opened the MLMUG meeting at 9 AM at the Church of the Good Samaritan in Paoli. There were about 60 attendees, including 7 guests.

OS SIG. Adam Rice, OS SIg Co-Chairperson, gave a very educational presentation on passwords in general and Safari passwords in particular.

You should have a password on all your devices because you will have a major problem if the device is stolen. It would be better if the files are encrypted which can be opened by the login password.

It is a big convenience if you allow Safari to store your passwords so you don't have to manually input them. Go to Safari - Preferences - Passwords, click *AutoFill user names and passwords*. Do the same thing in the AutoFill tab. You can also save credit card information, except for the three or four digit security passcode. It's also a good idea to customize the Safari Toolbar to put the AutoFill button in the menubar. It's handy to use when you go to a new site and you don't want to have to remember the password another time.

Password managers are a great help. Adam uses 1Password. It has a password generator and you can have several databases (which are called vaults).

It's good to have long passwords for security purposes. He tends to use about 16 characters for most passwords, although 1Password will take up to 50 characters. A website might not allow that many characters. **FOUR RANDOM WORDS ARE MUCH MORE SECURE THAN GIBBERISH OF THE SAME LENGTH**. They can take years to decode. Adding a space, an exclamation point or some other symbol can add years to the decoding (hacking) time.

When you first use 1Password you can generate a new password for the sites, but you have to do them individually by deleting your current password and then having 1Password generate a new better one. [Editor - I think Dashlane will do all automatically.]

You can sync your 1Password vaults across various devices by using either Dropbox or iCloud. 1Password generally costs cost $50 for Mac and $5 for all iDevices.

Adam prefers 1Password to other password managers. It has a large staff and he thinks it will be around a long time. You can sort your passwords by strength, by age, and by length. You can also create smart folders.

You should create a very strong password for 1Password. I got the impression that four words with two exclamation points would be ideal.

Sue Czarnecki opened the general part of the meeting by giving an overview of MLMUG. We have about 150 members and she introduced the 15 Board members and gave a brief review of their duties. She also gave a listing of the benefits of membership. We had three new members at the meeting.

Inside The Tin Man's Heart was the name of Sue's presentation of do-it-yourself upgrades and repairs. As she said, our Macs work well, except when they don't. They are rugged. There's a 200 MHz processor used in the Mac G3 in the Mars Rover.

Do some reading about your problem before you start working on it. There are many sources for Mac specs and other information. Everymac.com is excellent. If you type in the serial number of your Mac, it wil llist all it's original equipment and specs, e.g., hard drive size, memory, etc. Also take a look at mactracker.com, Apple support, Apple manuals, service manuals, YouTube videos and ifixit.com.

Next, assemble your tools. You can assemble your own set rather than purchase one. You'll find it's handy to have a magnifying lens, flashlight, small screwdrivers, forceps, tweezers, and compressed air/vacuum. Sewing machine stores may have many of these.

It's best to work on a stone or wood table to avoid static. Avoid carpeted floors if possible. Unplug the device you're working on. Ground yourself by touching some metal. She touches metal before and during the work. Some people use a wrist strap to do the grounding. One thing for sure - you should be patient.

Sue and Daniel Berger, another of our members, brought in six 15-year-old Power Mac G4s, a MacBook Pro, and an old clamshell. The Power Macs are easy to upgrade and repair and easy to understand all the parts. The current Macs have the same parts, but they are miniaturized. She showed images of all the various parts and passed around a number of them.

Sue's diagnostic techniques include: reset the PRAM, Safe Boot, Disk Utilities, Single User mode, reset open firmware, reset PMU, and boot from an external hard drive or installation disk.

She reported on a charitable organization which repairs and has given over 10,000 Macs and PCs to needy people. It's Team Children, its website is teamchildren.org and it's located in Audubon, PA. It is always looking for additional machines and devices. Contributions are very much appreciated.

Lastly, the members worked on taking apart and putting back together the Power Macs. They removed and tested the PRAM battery, removed and arranged the memory sticks with the slowest in the first slot, and removed a hard drive, adjusted its jumpers and added it to a ribbon cable as a second hard drive. It was a very interesting and educational time for all.

Member Rainmakers

Bookmarks

Almost All Passwords Are Crackable!

By Mark Bazrod

350 billion password guesses a second! That's what a cluster of five computers with 25 graphics processors could do several years ago. The number is undoubtedly greater today.

How uncrackable do you think your passwords are?

I think the greatest danger to password security is the hacking of website databases which are downloaded, cracked offline with extremely high-speed processors, and then published so that other hackers can use them. Among the many examples are Target, Home Depot, Staples, McDonald's, Domino's, EBay, Sears, and Neiman Marcus. If you have used any of them, some of your passwords are likely to have been deciphered.

This column stems from a presentation which Adam Rice gave at the MLMUG OS SIG at our March meeting. I thought it was both fascinating and educational and made me look more deeply into the subject of passwords.

Examples

Ars Technica indicated that In 2013 a team of hackers managed to crack from 62% to 90% of a list of passwords, including 16-character passwords with a mix of numbers and letters, as part of a hacking experiment. The hacker who cracked 90% of hashed (encrypted) passwords did so in less than an hour. He used a mixture of brute-force attempts, i.e., using different passwords one at a time, wordlists, statistically generated guesses using Markov chains, and other rules to turn a list of hashed passwords into plain text. The brute force part was accomplished using the 25-processor cluster described above.

Do you still think your passwords are uncrackable?

Two security researchers looked for strings of words online to create a large cracking dictionary. They took a single article from USA Today, isolated select phrases, and inputted them into their password crackers. Then they expanded their sources to include the entire contents of Wikipedia and the first 15,000 works of Project Gutenberg (leaving the remaining 27,000 works for later). They eventually compiled 1.36 billion unique phrases from the 15,000. Almost immediately, they cracked hashed passwords from leaks that had remained uncracked for months. One such password was "crotalus atrox" ,the scientific name for the western diamondback rattlesnake. Such is the power of dictionaries if you can amass enough names.

Are you starting to have doubts about how uncrackable your passwords are?

A PC using just one Radeon HD7970 graphics processor can make 8.2 billion password guesses every second, depending on the algorithm used to scramble them. Ten years ago, such speeds were only possible using supercomputers.

A series of leaks over the past few years containing millions of passwords have provided crackers with important new insights about how users construct passwords, particularly what patterns are used, and enabled them to write rules that make cracking algorithms faster and more accurate.

The most significant single leak came in 2009, when an attack against online games service RockYou.com exposed 32 million passwords. The number was reduced to 14 million after duplicates were removed. These were posted online. Almost overnight, the unprecedented body of passwords changed the way hackers and defenders alike cracked passwords.

Just six days after the leak of 6.5 million LinkedIn password hashes in June 2012, more than 90 percent of them were cracked. A security consultant said more than 100 million passwords have been published online, either in plain text or in ciphertext that can readily be cracked.

Not surprisingly, the RockYou list confirmed that nearly all capital letters come at the beginning of a password; almost all numbers and punctuation show up at the end. It also revealed a strong tendency to use first names followed by years, such as Julia1984 or Christopher1965.

Although the RockYou dump indicated that most people use poor passwords of 8 characters or less, increasing password length up to 15 characters rarely impedes password crackers. Further, far too many passwords are used at multiple sites. One estimate is that 66% of entries from the typical unsalted (no additional charcters added to a password before encryption) hash list can be cracked by a single person in less than two days.

There are many techniques to protect simple passwords from traditional dictionary attacks. One is adding numbers or symbols, usually at the end, but better somewhere in the middle. Another, known as "mangling," transforms

words such as "super" or "princess" into "sup34" and “prince$$. Better to use a password manager since hackers can code such use into their attack rules.

Another powerful technique is a hybrid attack. It combines a word list with rules to greatly expand the number of passwords those lists can crack. Rather than brute-forcing the five letters in Julia1984, hackers simply compiled a list of first names for every single Facebook user and added them to a medium-sized dictionary of 100 million words.

Most authorities state that a 16-character password is currently uncrackable by a brute-force attack. However, other methods, discussed later, may crack those passwords. A 20-character random password is still uncrackable by any method, but very few people choose that option. For everyone else, passwords are much less secure. How long does it now take to crack a 16-character password? (I never did find a definitive answer to that question.)

The advance in the last few years of hackers’ ability to guess passwords means that passwords which may have been secure a few years ago can be guessed in hours today. And what is secure today may well be crackable in 3 to 5 years.

So - unless you are using passwords of at least 16 characters, your passwords are crackable.

Microsoft has said that there is no need for passwords to be longer than 16 characters since the vast majority of attacks are through phishing, malware infected machines, and the reuse of passwords on third-party sites – none of which are helped by very long passwords. I now understand that Microsoft is examining extending the permissible length of passwords, but that the code is in so many different places that it is not a trivial change.

Password Reuse

It’s a dangerous practice to reuse passwords on different sites. Once a hacker has cracked passwords from one site, he generally can hack into other sites with the same passwords. One security expert said the most important attribute of any password is that it be unique to each site (in addition to length). Since you have no idea about how sites store your password, if they get hacked, you get hacked. If you only use a password at one site, your risk is more limited.

Measurement of Password Effectiveness

The key measure of password effectiveness is the time it takes to crack the password. The length of the password is the key component; complexity matters, but not as much. We all have seen rules for passwords in the sites we have visited - upper and lower case, a number, a symbol, nonrepetitive characters, etc. There is much criticism of these rules. Stanford University, a major computer science center, relaxes the rules as the length of the password increases. If a password is 20 or more characters , a user can do just about anything he wants, including all lower case. The system allows people to use less complex passwords, so long as the length of their choices compensates for the reduced number of character types.

But what most writers ignore is whether the guessing speed is measured when the hacking computer is working offline on a database obtained in some fashion (up to 350 billion password guesses a second) or when the guesses are being made at an attack on an online site. In the latter case, the speed is the number of guesses per second which can be accepted by the site. It appears that most sites will accept no more than 25 - 100 guesses per second. Many articles don’t indicate how many guesses per second were used in their calculations. As you can appreciate, the difference is extremely important!

One 2011 article indicated that it tested Google's site and was not able to send more than 25 password requests per second to their servers. Thus, the author’s calculations result in very long cracking times for certain types and lengths of passwords. However, note that this article is more than 4 years old; such articles tend to assume online attacks and use woefully low guesses per second.

When you add a character to a password, you exponentially increase the difficulty it takes to crack it by a brute-force attack. For example, an 8-character password has 95^8 combinations, while a 20-character password has 95^20 combinations. The "95" comes from the standard 95 characters on a US keyboard. 26 upper, 26 lower, 10 digit, and 33 special characters.

However, this only applies to brute-force attacks. If your password is weak, it often does not matter how long it is, as it will likely fall to other attacks such as dictionary and common word lists. On the next page are two charts from Thomas Baekdal’s seminal 2007 article, The Usability of Passwords.

I think Baekdal’s computations are based upon computers attacking individual computers or websites with guesses limited to about 100 guesses per second. Most of the attacks were brute-force attacks which was the common method at the time of the article, 2007. Attackers have gotten a lot more sophisticated since then.

Type	Password	Method	Time	Security level
6 random characters	jskerv	Brute-force	1 month	risky
6 random characters with numbers	ergs43	Brute-force	8 months	Low risk
6 random characters with mixed case, symbols and numbers	J4fS<2	Brute-force	219 years	Secure for life
6 character common word	orange	Common words	3 minutes	useless
6 character uncommon word	woosaa	dictionary	1 hour 22 minutes	useless

Type	Password	Method	Time	Security level
2 common word password	alpine fun	Common word	2 months	Low risk
3 common word password	this is fun	Common word	2,537 years	Secure forever

Although the calculations are out of date, they do indicate that word passwords are more secure than random character passwords.I believe the reason is that word passwords have more characters.

If you cannot use “this is fun” because the website does not allow spaces in a password, substitute a symbol (but not an exclamation point since that is used by many people) for the space so that the password length is not reduced.

Methods of Attack

Here are at least six proven ways to hack a password - asking someone, guessing, brute-force attack, common word attacks (brute-force using different words), dictionary attacks (using a full dictionary of words), and rainbow tables (tables of millions of hash entries generated by encryption algorithms).

Password Complexity

Complex login passwords don’t work because you can’t remember them and you have to write them down somewhere. Wouldn’t it be better to have usable passwords composed of words which you can remember, are simple and easy to type?

Most of us have only one computer so that's one password we need to remember because password managers don't operate until the computer has been activated. The other password we need to remember is the password to activate a password manager. Thus, these are the two passwords we need to remember. I suggest using 4 words chosen at random which have no connection to each other and which are separated by 3 different symbols, at least one word should be an uncommon word, and another word could be in a foreign language.

Many people say you should not write these passwords down, but I suspect that if you store them in an unusual place (wherever that is), you will probably be okay.

One last point. Why bother with strong passwords if there is little loss if a password is compromised? And in such situations, why not use the same weak password for many sites where there is little loss? For example, I could use the same weak password for all the newspapers and magazines I read online. I don’t care if other people know what I read and I doubt the newspapers do more than track what I read.

Web Site Design

Sites could prevent automatic hacking scripts from working effectively by (1) adding a 5 second delay between sign-in attempts (it forces the hacker to only be able to make sign-in requests once every 5 seconds instead of 100 times per second) and (2) adding a penalty period if a person has typed a wrong password more than 10 times - of something like 15 minutes to an hour.

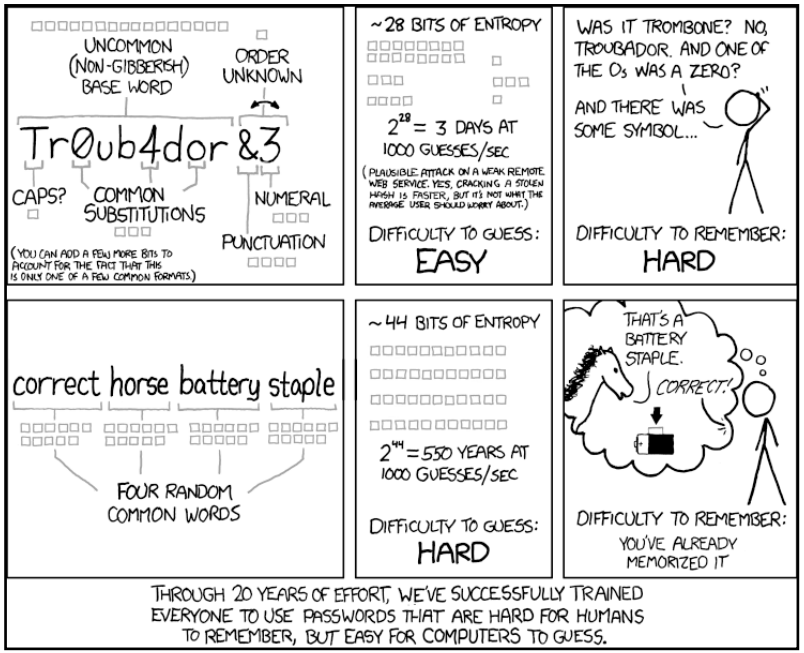
How a site stores your password is a server problem and the complexity of your passwords cannot solve laxness in server protection. It is clear that more complexity results in better security, but the place to make a password more secure is at the server level and not at the level of the user who generates the password.

Perhaps the security problem should be looked at in reverse. Why are servers accepting so many incorrect responses and why are we still building software that allows that.

However, when there is a more widespread security failure at a server, the attackers can often grab the portion of the database that stores the encrypted passwords. Once they have that, the login controls on the website no longer matter. They can operate on the database directly and do thousands or millions of attempts per minute. **Thus, the calculations based on 100 attempts a second are no longer relevant.** Strong password policies are made to hedge against this eventuality.

The mathematics of the efficiency and security at both the server and the user level are incredibly complex, at least when looking at the computer side of the

equation. The extensive comments to the web site of the article XKCD #936 (below) are fascinating reading, albeit technically complex. xkcd.com/936/



Some of the comments addressed the human side of the equation. I concluded that the question of usability and the ability to remember the password are most important and that, therefore, for the great majority of us, we are better off using passwords composed of words or phrases which can be remembered.

If you really want to get a better understanding of the complexities of password generation and cracking, go to arstechnica.com and search on *password.* Pay particular attention to articles by Don Goodin, Ars Technica's Security Editor. They are excellent.

Password Managers

You should definitely use a password manager. They allow users to create long, randomly generated safe passwords and to store them securely in a cryptographically protected file that's unlocked with a single master password. Experts recommend SplashID Safe, LastPass, KeePass, 1Password, Dashlane, and PasswordSafe.

One writer said that if your passwords are simple enough to remember, they are too simple. No exceptions. He said the one and only way to have strong passwords is to use a password manager which can generate truly random strings.

However, password managers represent a single point of failure which, if cracked, means every one of your passwords is compromised. Thus, you need an extremely strong password to use as a master key for the password manager. The director of enterprise security for IBM Trusteer told Ars Technica that he expects that password managers will soon come under more widespread assault. That was in July 2014. **I suggest 4 to 6 words, (at least one uncommon and one foreign) and several different connecting symbols. Maybe some lower and upper case. And maybe a word made up from the first letters of all the other words if you are dealing with online banking or ecommerce.**

Passphrases

A passphrase is a password composed of a sequence of words or other text. The goal of encouraging passphrases is to create credentials that are entirely nonsensical to a password cracking utility, but memorable to the human who needs to access a given system every day. As awareness has grown about the growing insecurity of passwords that were presumed strong only a few years ago, many people have turned to passphrases, often pulled from what they believe are overlooked songs, books, or other sources. The idea is to generate a long passcode that contains upper- and lower-case letters and possibly punctuation that's nonetheless easy to remember. This turns out to be largely an exercise in futility. As is the case with passwords, the same thing that makes passphrases easy to remember makes them susceptible to easy cracking.

The race to decipher long passphrases is still in its infancy compared with password cracking, but it's already showing a similar trajectory.

There are roughly 750,000 words in the English language. The average adult vocabulary is 20,000 - 35,000 words. Assuming that people who voluntarily test their vocabulary are probably on the high-end, assume that the average vocabulary is about 10,000 words which means there are 10^16 ways to combine them. Assuming four words were picked at random to make a random test phase, it might take over 100 days to go through the combinations. If you did some capitalization, put in a random space, a symbol etc., the cracking times become astronomical.

The inventor of Diceware, which is based upon a list of 7,776 English words, now recommends a passphrase with either six Diceware words or five words

with an extra character placed at random. He says that based upon 350 billion guesses per second, attacking a five-word Diceware passphrase would take about 10 months to find the correct passphrase, assuming they knew you were using Diceware and developed equally efficient software designed to try only valid Diceware words.

Conclusion

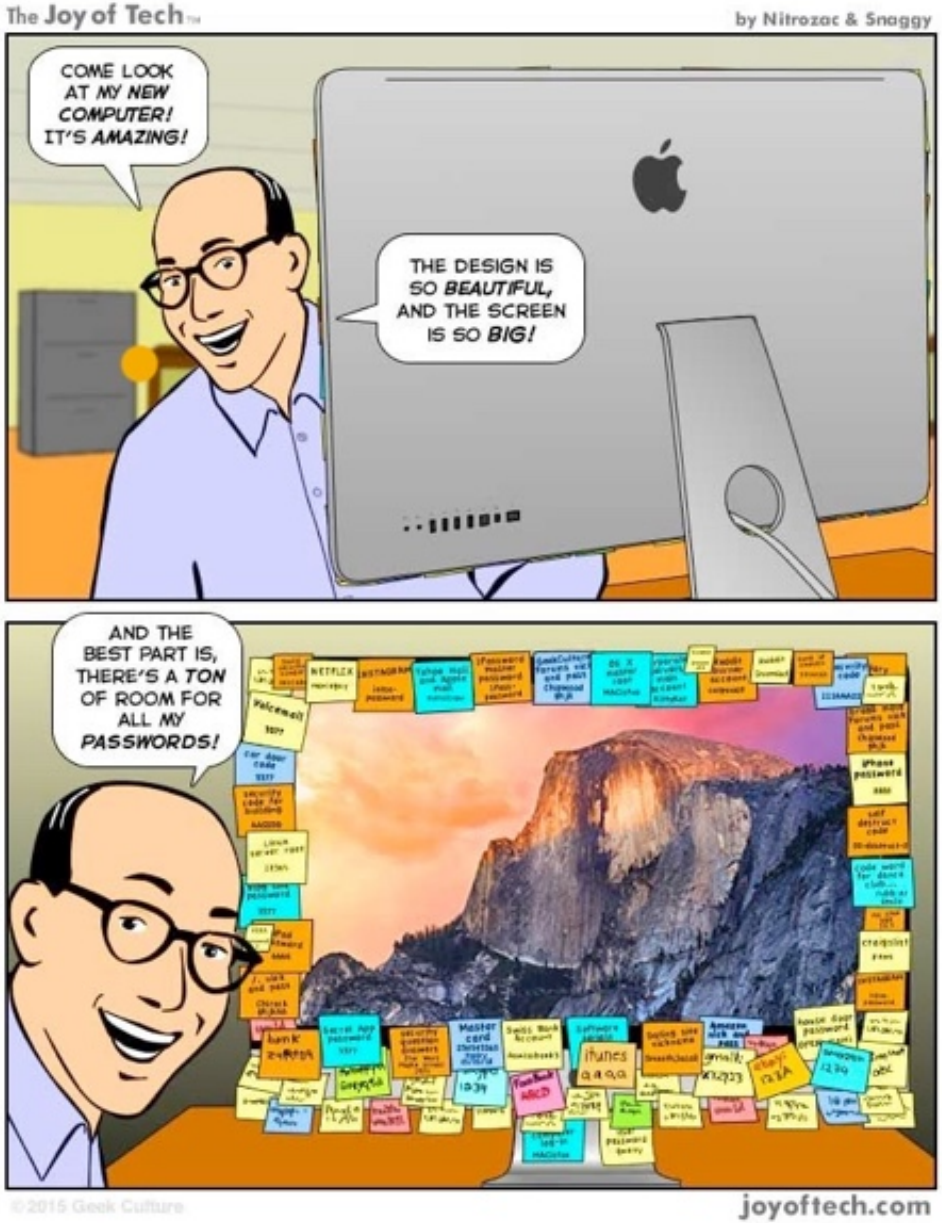
1. The greatest danger to password security is the hacking of web site databases.

2. Use a password manager.

3. For passwords you construct, I suggest 4 to 6 words, (at least one uncommon and one foreign) and several different connecting symbols. Maybe some lower and upper case. And maybe a word made up from the first letters of all the other words if you are dealing with online banking or ecommerce.

4. Don't reuse a password at multiple sites, except perhaps for unimportant sites where any consequence in the event of a breach would be trivial.

5. For the important sites, use at least 16 characters.



Lisa Vaas posted the following article to nakedsecurity.sophos.com on May 25, 2012. tinyurl.com/oqxlndb. © Sophos Ltd. She was Executive Editor for eWeek and currently is a freelancer writing for Sophos' Naked Security, CIO Mag, Computerworld, PC Mag and others.

How Long Would It Take To Crack Your Password?

By Lisa Vaas

About three years ago, developer Cameron Morris had a personal epiphany about passwords, he recently told ZDNet's John Fontana: The time it takes to crack a password is the only true measure of its worth.

Not whether it has a minimum of x or a maximum of y characters, not whether it's got blah-blah amount of numbers, not whether it includes your frou-frou leetspeak ch@r@ct3rs, not whether it contains the verboten from lists of taboo words.

Syntax laws like those make up the typical password policy creations most organizations use and that many security practitioners preach.

But if you religiously follow such policies, Morris notes, you get situations like this: Facebook graded as "weak" a password he made up of 35 characters using the first letters of a random phrase, while it deemed a password "strong" when it matched the social network's creation policies, which allow for use of common words.

Morris's Facebook-appeasing password?

"cracked1!"

The time it would take to crack that supposedly strong password, according to tools that Morris has created to estimate password strength: less than one day.

Morris, a developer at defense contractor Partnet, told reporters that he came to his realisation after a half hour spent creating a tough-to-crack password.

That 30 minutes of password creation labor was followed by the realization that he'd have to go through the whole rigamarole again when he had to change it in a month's time.

Stop right there. That has the aroma of a password myth.

As Paul Ducklin and Chester Wisniewski discussed in a Sophos Techknow podcast, "Busting Password Myths", the idea that regular password changes lead to better security dates back to the days when passwords were stored in plain text files on Unix systems.

Regular password changes actually decrease security, for a few reasons: 1) your poor users are going to start using sucky passwords because they're easy to remember and to increment, and 2) doing something security-related on a regular, predictable schedule (quarterly? monthly?) is a gift to hackers.

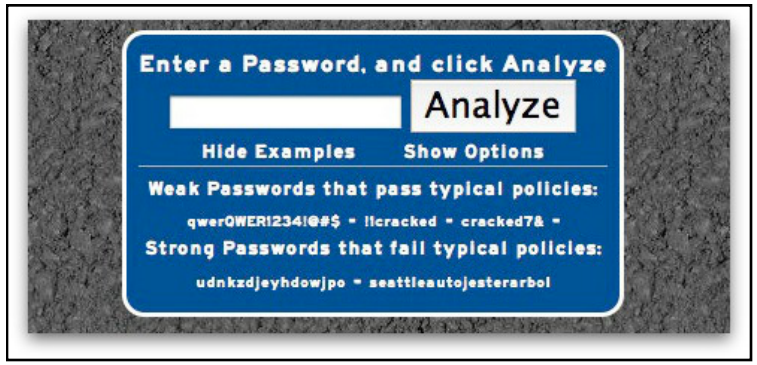
This regular password change-out distracts the IT department for a predictable chunk of time on a predictable schedule. Predictability is a gift you don't really want to hand to attackers.

At any rate, being influenced by the myth that regular password change equates to good security, Morris thought it would be neat to set password expiration based on the strength of a password. He couldn't find a way to measure password strength, though.

Hence, he started building a collection of tools to do just that.

Those open-source tools are out now. Morris handed them over to the Open Web Application Security Project (OWASP) in January.

Morris is inviting people to give them a try. One tool, called Passfault Analyzer, predicts how long it will take to crack a given password.



He also created a Password Creation Slide-Tool that lets administrators configure password policy based on the time to crack, the possible technology that an attacker might be using (from an everyday computer on up to a $180,000 password attacker), and the password protection technology in use (from Microsoft Windows System security on up to 100,000 rounds of the cryptographic hash function SHA-1/).

The tool lets users move a slider bar to increase or decrease the amount of time passwords should take to crack.

All good, yes? But then came the next step in what came to be a password kerfuffle: Morris's premise and tools quickly lit a fire under SecurEnvoy, maker of two-factor authentication technology.

SecurEnvoy blogged that, basically, Morris was right about password creation policies, but he didn't take it far enough, because, in fact, conventional ID/password security is toast.

The company's blog quoted co-founder Steve Watt as putting it this way:

> "This isn't to say that Cameron is wrong - far from it - it's just that the reasons why passwords are coming to the end of the line in today's online environment are multi-faceted, with company password policies being only one issue of concern."
>
> "One of the other major issues we have observed is that people have great difficulty remembering more complex passwords than the six or eight alphabetic strings that most Internet users rely on. Because of this, they fall back on an eight digit passphrase that is usually a family member's name or place of birth, and which—unfortunately—are all too easy to hack using brute force password attacks."

It will not shock many readers to find that Watt proposes that the answer is what his company sells: i.e., tokenless two-factor authentication.

Watt does have good points about corporate password policies: they spawn mutant, impossible to remember passwords. Users wind up storing them on their mobile phones or, worse, writing them on sticky notes or on the undersides of their keyboards.

This is, in fact, the heart of the matter that Morris got right, SecurEnvoy says: overly complex passwords prompt users to find easy ways to remember them.

Yes. But the idea that passwords are going away is nuts.

The reasons for this were well laid out by ZDNet's Manek Dubash.

Dubash suggests that two-factor authentication isn't going to save us, given that we're all bringing our smartphones to work and logging on to Facebook in the enterprise:

> "The reality today is that the division between enterprise and personal environments has all but evaporated."
>
> "In the course of their jobs, people increasingly access their personal services at work using their personal devices. And enterprises cannot mandate two-factor authentication for access to Facebook, for example, which might well be the chosen method of communication of a key supplier, or a way of communicating with potential customers."
>
> "All FB wants is a password, and it's not alone."

So if two-factor authentication isn't going to save us, what's the answer?

I rely on password generation using the scheme that Sophos's Graham Cluley teaches in this video. https://www.youtube.com/watch?feature=player_embedded&v=VYzguTdOmmU

So I put one of my Graham-inspired passwords - containing seven characters - through Morris's Analyzer and found that it would take approximately one day to crack it.

I would prefer that it get up into the range of a year, at least, if not a few centuries, and that is exactly what happened when I appended a range of characters from the keyboard, left to right and then the same string right to left.

Presto! Up in the centuries range.

That points not to a flaw in Graham's technique, of course, but rather a confirmation of Carnegie-Mellon's 2011 study (PDF) that concluded that length was the only thing that really influences password strength.

ZDNet's Dubash, for his part, writes that he uses a "tiny portable password generator," as well as KeePass, an open-source password manager that can even be bolstered with two-factor authentication.

It's all good. We have a technique from Graham that shows us how to create easily remembered passwords. We have password managers. We have a bunch of busted security myths from Chet. We have the Carnegie Mellon study that shows that making them long makes them strong.

And now we have a tool to analyze that strength in terms of how long it takes to crack a given password.

0nw@rd&upwrd!

Bob Rankin posted the following article to rankin.com on December 22, 2014. tinyurl.com/namd828. © Bob Rankin. He is a computer programmer, author of several books, publisher, and online entrepreneur. His work has been in Yahoo! Internet Life, ComputerWorld, NetGuide, NY Newsday and other publications.

Dashlane's Free Automatic Password Changer is a Game Changer

By Bob Rankin

The "best practices" for password security are 1) make your passwords long and obscure; 2) never write them down where they can be stolen; and 3) change them every 30 days. Unfortunately, all of that is so difficult that it seldom gets done. The key to password security is to make is easy. Read on to learn how you can strengthen and change all your most important passwords in just a few seconds…

Password Changer is a Game Changer

Software such as RoboForm and LastPass simplify password management by storing many passwords in an encrypted "vault" and filling them in automatically when they are requested on websites. They all will generate long, complex passwords on demand. You just have to remember one master password to unlock the vault and set a reminder to change passwords monthly.

Password managers have evolved additional features such as auto-filling forms, backing up data and passwords to the cloud, syncing passwords across devices, adding support for two-factor authentication, importing bookmarks and competitors' password file formats, and so on. Like other security software, password managers are locked in an ever-escalating features war.

Into this fray jumped Dashlane. It does all of the above, including two-factor authentication in version 2.0. If you enable two-factor authentication, Dashlane will text to your phone a code that you must enter manually before your master password will unlock Dashlane's vault.

Dashlane Automatic Password Changer

It also does a great job of minimizing keystrokes, the second most important function of a password manager. For example, when you want to log in to Facebook you don't have to choose a profile from a drop-down list, as you do in some other programs. Dashlane recognizes the Facebook log-in screen, fills in your username and password, and even "clicks" the log-in button for you. The log-in screen flashes by so fast you may miss it if you blink.

Dashlane version 2.0 introduces a "security dashboard" where you can review all of your passwords. It highlights weak and outdated passwords, nudging you to strengthen your defenses.

Automated Password Changing

But the more interesting news in the latest version is the Password Changer, which lets you update your passwords with a single click. You select the sites on which you want to change your passwords (about 75 popular sites, including Facebook, Twitter, Google, Amazon and Dropbox are supported). Dashlane will generate new passwords, then automatically login and change your passwords on the selected sites in just seconds.

This is pretty awesome in light of the fact that security breaches like HeartBleed and ShellShock are occurring at an alarming pace, and the best course of action when these things happen is to change all your passwords. Doing it manually is a huge nuisance. Clicking a button to make it happen is (almost) fun.

LastPass, a Dashlane competitor, introduced a password changer feature just a day after Dashlane announced theirs. It supports the Chrome, Safari, and Firefox browsers, but not Internet Explorer. It also lacks the automation offered by the Dashlane password changer. You'll need to select a site, do the password change, select the next site, and so on. But still, it's a time saver over logging into each site and navigating to the password change page. I'll admit that not having this feature in RoboForm has made me dread the task of updating some of my own passwords on a regular basis.

On the downside, cross-platform syncing with Dashlane now costs $39.99 a year. That means passwords and form data that are stored on your PC are not available on your phone unless you pay. Earlier free versions feature syncing; users are urged to donate voluntarily.

Dashlane also acts as a digital wallet, storing your credit card and even PayPal data securely and filling in their details wherever needed. If you have multiple versions of a profile (e. g., different shipping addresses you've used on Newegg.com), Dashlane stores them all and lets you pick one from a drop-down menu.

Dashlane cannot work in the iOS Safari browser thanks to Apple's developer rules; neither can any other password manager. Dashlane gets around this with its own mini-browser, which you must open whenever you want to supply a password on an iPhone or iPad. Aside from the premium syncing fee, Dashlane is a fine option for a password manager and digital wallet. I've been using the paid version of RoboForm for years, so I'll be considering a change when my next renewal comes due.

David Pierce posted the following article to to wired.com on April 2, 2015. tinyurl.com/o48rnp7. © Conde Nast Digital. He is a senior staff writed at WIRED, covering personal technology. He had previously been at The Verge and PC Mag.

iPhone Killer: The Secret History Of The Apple Watch

By David Pierce

In early 2013, Kevin Lynch accepted a job offer from Apple. Funny thing about the offer: It didn't say what he would be doing. So intense is Apple's secrecy that all Lynch knew was his vague title, vice president of technology, and that he'd be working on something completely new. ¶ It was odd that Apple even offered him a job. During his eight years at Adobe, most recently as chief technology officer, he was best known as the only person dumb enough to publicly fight Steve Jobs over the iPhone's lack of support for Flash videos. When Lynch announced his move, the reaction was immediate: They want this guy? Apple blogger John Gruber called Lynch "a bozo, a bad hire."

Lynch had a lot to prove—and, apparently, a lot to do. When he showed up at 1 Infinite Loop on his first day, he was instructed to skip the usual new-employee orientation. His boss at the time, hardware czar Bob Mansfield, said to head straight to the design studio and get to work. He could learn about his 401(k) later.

As soon as he walked into the studio, he found out the project he'd been hired to run was already on deadline. In fact, it was behind schedule. There was a design review in two days, he was told, with the Apple brass. Lynch had better be ready.

There were no working prototypes; there was no software. There were just experiments—the iPod crew had made something with a click wheel—and lots of ideas. The expectations, however, were clear: Apple's senior vice president of design, Jony Ive, had tasked them with creating a revolutionary device that could be worn on the wrist.

It was either hubris or an entirely justifiable expectation. Or both. After all, over the past 15 years, Apple has upended three major categories of consumer electronics and, in the process, become the most valuable company on Earth. There were MP3 players before the iPod, but Apple made you want one. The iPhone transformed the smartphone from business gear into pop culture. The iPad brought tablets in from the fringes, blowing past years of work by the likes of Nokia and Microsoft. For its fourth act, Apple chose a watch. This was to be the next step in a dynasty—the first without the guidance of Steve Jobs. **Expectations and scrutiny would be impossibly high; the watch had to be, in the company's parlance, insanely great.**

No pressure, Kevin.

Apple decided to make a watch and only then set out to discover what it might be good for (besides, you know, displaying the time). "There was a sense that technology was going to move onto the body," says Alan Dye, who runs Apple's human interface group. "We felt like the natural place, the place that had historical relevance and significance, was the wrist."

The purpose of the wrist-mounted technology, what problems it might solve—that was something the Watch team would come up with slowly, during the process of inventing a bunch of new ways to interact with the device. But one thing was clear from the start: **The Watch would succeed or fail on the strength of what's prosaically called the user interface.** The interface would determine whether the Watch ended up displayed in a dozen museums or remembered as Apple's biggest flop since the Newton.

That's where Alan Dye comes in. As chief of Apple's human interface group, he's in charge of creating the ways you tell your device what to do and how that device responds. Those cool little experiences you have with your laptop and phone and tablet, like when the app icons quiver because they're ready to move around your screen? That's the human interface team.

A graphic designer by training, Dye is much more Burberry than BlackBerry: With his hair swept deliberately to the left and a Japanese pen clipped to the inside of his gingham shirt just so, he's clearly not leaving any details to chance. He came to Apple in 2006 with a résumé that included stints as design director at fashion house Kate Spade and as a heavy hitter at Ogilvy & Mather doing branding work for the likes of Miller and Levi's. After working in Apple's marketing division, helping design the company's now-iconic product boxes, Dye was handed the reins to the human interface group.

Ive began dreaming about an Apple watch just after CEO Steve Jobs' death in October 2011. He soon brought the idea to Dye and a small group of others in the design studio. At the time, they were in the midst of a marathon push to overhaul Apple's mobile operating system. "We were literally living in the design studio," Dye says, "a small group of us, working on iOS 7." The seventh iteration

of the iPhone's operating system, iOS 7 was much more than a redesign of smartphone and tablet software: It was an inflection point at the company, marking the ascendance of Jony Ive to the throne atop all Apple design. Dye and the human interface crew had to rethink every interaction, every animation, every function.

Saturday Night Live producer Lorne Michaels famously encourages his staff to work crazy hours because, he maintains, people tend to be most creative and most fearless when they're deliriously tired. So it went in the Apple design studio: As the team worked away on app-launch animations and the new iOS 7 Control Center, daytime conversations about smartphone software led to late-night discussions about other devices. Questions started coalescing around the idea of a watch: What could it add to people's lives? What new things could you do with a device that you wear? Around this time, Ive began a deep investigation of horology, studying how reading the position of the sun evolved into clocks, which evolved into watches. Horology became an obsession. That obsession became a product.

Along the way, the Apple team landed upon the Watch's raison d'être. It came down to this: **Your phone is ruining your life**. Like the rest of us, Ive, Lynch, Dye, and everyone at Apple are subject to the tyranny of the buzz—the constant checking, the long list of nagging notifications. "We're so connected, kind of ever-presently, with technology now," Lynch says. "People are carrying their phones with them and looking at the screen so much." They've glared down their noses at those who bury themselves in their phones at the dinner table and then absentmindedly thrust hands into their own pockets at every ding or buzz. "People want that level of engagement," Lynch says. "But how do we provide it in a way that's a little more human, a little more in the moment when you're with somebody?"

Our phones have become invasive. But what if you could engineer a reverse state of being? What if you could make a device that you wouldn't—couldn't—use for hours at a time? What if you could create a device that could filter out all the bullshit and instead only serve you truly important information? You could change modern life. And so after three-plus decades of building devices that grab and hold our attention—the longer the better—Apple has decided that the way forward is to fight back.

Apple, in large part, created our problem. And it thinks it can fix it with a square slab of metal and a Milanese loop strap.

The goal was to free people from their phones, so it is perhaps ironic that the first working Watch prototype was an iPhone rigged with a Velcro strap. "A very nicely designed Velcro strap," Lynch is careful to add.

The team built a simulator that displayed a life-size image of an Apple Watch on the screen. Software was moving much more quickly than hardware, and the team needed a way to test how it worked on your wrist. There was even an onscreen digital crown—a facsimile of a watch's classic knob—that you could swipe to spin, but it hardly replicated the feeling of twisting a real crown. Swiping, after all, is what the knob was supposed to replace. So they made a custom dongle, an actual watch crown that plugged into the bottom of the phone through the cord jack. In a sense the first true Apple Watch prototype was, like 10,000 Kickstarter projects, just a weird iPhone case with a strange accessory sticking out of it.

Clumsy prototype in hand—well, on wrist—the Watch team could start testing some of the core functions they hoped the device would take over from the phone. Figuring out how to send a text was illuminating. Initially the process was a lot like texting on an iPhone: addressee here, message here, confirm message. Tap to send. "It was all very understandable, but using it took way too long," Lynch says. Also, it hurt. Seriously: Try holding up your arm as if you're looking at your watch. Now count to 30. It was the opposite of a good user experience. "We didn't want people walking around and doing that," Dye says.

So they came up with what they call Quickboard, basically a robot that reads your messages and suggests a handful of possible responses. When your date asks if you want to do Mexican or Chinese for dinner, "Mexican" and "Chinese" automatically show up in the list—tap one and you've replied. "We were like, OK, you don't really need to see another confirmation screen and press another button to send the thing," Lynch says. "You're in the moment; just send it." **For more complicated communication, the team equipped the watch with a microphone for dictating a message or command using Siri.** Too complex for voice control? At that point, use your phone.

As the testing went on, it became evident that the key to making the Watch work was speed. An interaction could last only five seconds, 10 at most. They simplified some features and took others out entirely because they just couldn't be done quickly enough. Lynch and team had to reengineer the Watch's software twice before it was sufficiently fast. An early version of the software

served you information in a timeline, flowing chronologically from top to bottom. That idea never made it off campus; the ideas that will ship on April 24 are focused on streamlining the time it takes a user to figure out whether something is worth paying attention to.

Take the feature called Short Look: You feel a pulse on your wrist, which means you've just received a text message. You flick your wrist up and see the words "Message from Joe." **If you put your wrist down immediately, the message stays unread and the notification goes away. If you keep your wrist up, the message is displayed on the Watch's screen.** Your level of interest in the information, as demonstrated by your reaction to it, is the only cue the Watch needs to prioritize. It's interactions like this that the Watch team created to get your face out of your tech.

And so it went: The team developed notifications that let you see information and take action without opening apps. They built a screen called Glances: a single place for quick hits like sports scores and news. "We rethought the UI," Lynch says. "We rebuilt the apps—messaging, mail, calendar—more than once, to really get it refined."

The team had to build software that presented everything you needed without being overwhelming. Fall short of that goal and users might start taking their Watches off, annoyed by the incessant buzzing, at which point the Apple Watch becomes the most personal device you ever bought and then immediately returned. By the time Lynch and his team had finished their third round of software, Ive, Dye, and everyone else believed that they'd nailed the balance.

But if the software was complicated, the hardware was straight-up alien; the human interface team had latched on to the watch's ability to vibrate on your wrist and was working with engineers to create a new kind of interactivity. The so-called Taptic Engine was designed to feel like a finger tapping on your wrist. **Because our bodies are enormously sensitive to taps and buzzes, the Watch can deliver rich information with only slight variations in pace, number, and force of vibrations.** One sequence of taps means you're getting a phone call; a subtly different one means you have a meeting in five minutes.

Apple tested many prototypes, each with a slightly different feel. "Some were too annoying," Lynch says. "Some were too subtle; some felt like a bug on your wrist." When they had the engine dialed in, they started experimenting with a Watch-specific synesthesia, translating specific digital experiences into taps and sounds. What does a tweet feel like? What about an important text? To answer these questions, designers and engineers sampled the sounds of everything from bell clappers and birds to lightsabers and then began to turn sounds into physical sensations.

There were weekly meetings where the software and interface teams would test out, say, the sound and feeling of receiving a phone call. Ive was the decider and was hard to please: Too metallic, he'd say. Not organic enough. **Getting the sounds and taps to the point where he was happy with them took more than a year.**

The taps weren't the only expression of such **maniacal attention to detail**. On such a small display, small things assume outsize importance, and the human interface team designed some novel ways of interacting with the device. There's the digital crown, of course, and also the so-called Force Touch that lets you press a little harder on the screen to access hidden menus. They also designed an entirely new typeface, called San Francisco, which is more readable on a small display than Apple's standard Helvetica. The letters are more square, Dye says, "but with gentle, curved corners," mimicking the Watch's case. It's wide and legible at small sizes, but when it gets larger the letters tighten up a little more. "We just find it more beautiful," he adds.

Everyone involved with the project seems to take seriously the difficulty of making a machine that people will strap to their arms. But maybe that's not asking so much: Swiss watch designers do it all the time. Taking cues from them, the Apple team broke away from the company's long-standing practice of offering a narrow range of options. Instead they made three very different levels of Watch: Sport, Watch, and Edition. The aluminum $349 Sport may perform exactly the same functions as the gold $17,000 Edition, but Dye maintains that they're very different products.

That's what he learned from the watch industry: **Personalization and beauty are everything, and the only way to get one company's product onto different people's wrists is to offer options—sizes, materials, bands—for a wide range of tastes and budgets.** "If you're going to put something on your body and wear it and it's going to be on your wrist, we can't not pay attention to that," Dye says.

Options were central to the plan from the beginning: two sizes, three tiers, easily interchangeable straps, and tons of watch faces and so-called complications,

digital add-ons that show relevant information like the weather and your activity level, to make your Watch uniquely yours. (The term complication is a nod to high-end watchmaking and refers to a function a watch performs beyond telling the hour and minute.) **"We didn't want to have three variations, we wanted to have millions of variations," Dye says. "Through hardware and software, we could do that."**

With the Watch, Apple takes the next logical step toward status as a maker of premium products, even in an era of ubiquitous technology. Because the Watch is more than just a cool way to get notifications and make phone calls: It's a fashion statement. Now Apple has to persuade users, who are drowning in a sea of commoditized gadgets, that this thing is worth adding to their lives. The stakes are huge: If Apple can establish itself as a company that sells $17,000 watches, it will be positioned to conquer other luxury markets. Like cars.

Ben Bajarin, an analyst at the Silicon Valley–based market research firm Creative Strategies, thinks the company could pull it off. "Apple has the most profitable, high-spend customer base on the planet," he says. "That's essentially who watch companies are already trying to sell to: more affluent customers." The luxury watch industry generates more than $20 billion a year in revenue, money that comes from the same kind of customer already drawn to Apple. And Apple is targeting those people, likely spending more on creating its new Watch than has been spent to make even the most extravagant Patek Philippe.

The business implications are important to Apple, of course, but the problem the Watch aims to solve is legitimately important outside of Cupertino. **If the Watch is successful, it could impact our relationship with our devices. Technology distracts us from the things we should pay the most attention to—our friends, moments of awe, a smile from across the room. But maybe a technology can give those moments back.** Whether Apple is the company to make that technology is the three-quarters-of-a-trillion-dollar-market-cap question.

Lynch is leaning forward in his chair, telling me about his kids: about how grateful he is to be able to simply glance at his Watch, realize that the latest text message isn't immediately important, and then go right back to family time; about how that doesn't feel disruptive to him—or them.

A moment later, he stands up. He has to leave; he owes Dye and Ive an update on something important. In all the time we've been talking, he's never once looked at his phone.

The MLMUG Book Library

By Helge Gunther, Librarian

One additional benefit of coming to MLMUG's monthly meetings is the opportunity to borrow books from MLMUG library.

To borrow books, visit my Library Table at the meeting, where you can see the actual items. You borrow them this month and return them next month. All you have to do to borrow a book is to sign and date the index card inside the selected book's back cover and give the card to me. When you return the book, hand it to me.

There is no particular limit on the number of books you may borrow at one time – it is first come, first served. You may even take out a book for an additional month provided nobody else has reserved it.

We are somewhat restricted by how many books can be 'lugged' in to every meeting. Thirty is about the limit. A suggestion: if you come across a book that you have found really helpful and which you think might be useful to other members, let us know and we will try and get a copy for the library.

For a listing of the books, go to www.mlmug.org/mlmugsecure/BookLib.html.

NEEDED

New Product Reviewers. If you want to obtain a **free** Mac-related application, hardware, book, accessory, or training package, all you have to do is review them for the MLMUG Website and Newsletter. Just contact Maria Arguello, our Vendor Liaison, at arguello10@verizon.net with the product's name and the vendor's URL. She will try to get you a review copy. You keep what you review.

Photographers for the MLMUG Photo of the Month column or MLMUGERS Caught-in-the-Wild. You don't have to be a professional photographer. Contact our Graphics Editor, Sally Bazrod, at sallybazrod@mac.com.

Damon Beres posted the following article to huffingtonpost.com on March 9, 2015. tinyurl.com/ly9qbjv. © TheHuffingtonPost.com, Inc. He is an Associate Editor at HuffPost Tech and was previously with Reader's Digest, NY1 News, and Hearst Digital.

Everything You Need To Know About The Apple Watch

By Damon Beres

You can put the Apple Watch on your wrist April 10.

That's according to Apple CEO Tim Cook, who stepped on stage Monday at the Yerba Buena Center for the Arts Theater in San Francisco to unveil the final details about the wearable device, which was first announced back in September. April 10 is the preorder date and the first day you'll be able to try the Watch on in an Apple Store. The product will be available to own April 24.

The most basic version of the watch, Apple Watch Sport, will start at $349 for the 38mm watch face. The 42mm face is priced at $399. Upgrading to the stainless steel version takes the starting price to $549. Finally, the 18-karat gold Apple Watch Edition starts at $10,000.

"It's not just with you, it's on you," Cook said of the new gadget.

The Apple Watch's basic features haven't changed since it was first announced in September, but Kevin Lynch, Apple's vice president of technology, went through highlights Monday. We've got the details here.

Keep in mind that for many of the features to work, the Apple Watch needs to be paired with an iPhone 5 (or later) running the latest version of iOS 8.

Here's a recap of the Apple Watch's features:

Fitness

A big draw for the Apple Watch is its suite of health and activity trackers. The built-in Activity app shows you how many calories you've burned in a day, how much exercise you've gotten, and how much you've stood up. It offers goal-tracking for each.

The device will also show you a weekly summary of your activity every Monday, and it will offer suggestions to improve your fitness in those reports. Its built-in heart sensor helps keep track of your exercise during workouts. It's water-resistant (not waterproof), so you don't have to worry about destroying it with all of your technology-enabled sweating.

Finally, outside of the basic information in the Activity app, there's a Workout app that will keep tabs on the nitty-gritty: total distance when running, average pace and so on. When you achieve personal milestones, the Fitness app will display an achievement badge on the screen, perhaps in a bid to make rigorous physical activity feel more like an Xbox game.

Glances

Important information is just a glance away on the Apple Watch. Use your finger to swipe up from the bottom of the watch face and you can check the weather, look at your calendar, control your music or check your heart rate.

Apps

It's always been clear that Apple Watch would support apps made by third-party developers. On Monday, Apple showcased a few examples and announced that they can be downloaded via a connected iPhone. Apple Watch supports WeChat, a popular Chinese messaging app, and Uber, which now lets you summon a ride straight from your wrist. An app from the W hotel will allow users to unlock their hotel room using the Apple Watch by holding it up to a "lock pad near the door handle."

Siri

Everyone's favorite digital assistant is on the watch, because of course it is. Apple Watch owners will be able to say, "Hey, Siri" into their devices and then ask for turn-by-turn directions or information about upcoming events. Siri will also allow you to dictate text messages to contacts simply by speaking into your Apple Watch.

The "Taptic Engine"

Apple Watch will tap you on the wrist when you receive a notification. Cook said Monday that any notification you get on your iPhone will be viewable on the Apple Watch.

If you want walking directions, for example, it will tap you when it's time to turn. Apple says it will provide a different "tactile sensation" depending on the alert.

It will also allow you to tap other Apple Watch wearers or share your heartbeat with them, which Apple characterizes as "simple and intimate," rather than a sobering example of mankind's inexorable march toward technological singularity.

A Screen You Can Draw On

Texting is great and all, but Apple Watch owners will be able to communicate with one another by drawing on the device's screen. The doodles will be animated, illustrating how they were drawn, and then they'll vanish from the display.

That may seem a bit inconsequential, but you might have said the same thing about Snapchat's short, self-destructing messages -- and that company is valued at $19 billion now.

Instant Messages

When you get a text message on your iPhone, the Apple Watch will be able to display it on your wrist and offer you quick ways to respond based on "the context of your message," like if someone is asking you to meet for coffee at 2 p.m. Those responses can be along the lines of, "Leaving now," or they could simply be an animated emoji.

The Apple Watch also lets you see new email messages, of course.

Phone Calls On Your Wrist

Unlike certain competitors -- like the Moto 360 smartwatch for Android -- Apple Watch allows you to answer incoming calls and have a conversation straight from your wrist, using the device's speaker and microphone. (The Moto 360 allows you to answer calls with the watch, but you have to speak into your actual phone.)

Different Watch Faces

Mickey Mouse watches are classic, and now you can have a modern version on your wrist, thanks to Apple's different watch faces.

The wide array of face options includes an astronomy-themed faceh showing the planets, a minimalistic analog display and many more.

Battery

The Apple Watch powers up via a magnetic charger on its back, and Cook said it will last for 18 hours.

***

Cook's announcement capped off weeks of speculation that turned the invitation to the event into a news item itself. Anticipation for the gadget, and its success or failure, reached a fever pitch following a new 12-page advertisement in Vogue, a cover image for Self magazine and rumors about how it could shift the company's strategy for its Apple Stores.

The Apple Watch is the company's first foray into a new product category under Tim Cook, who became Apple's CEO when Steve Jobs stepped down in 2011. It follows a record-setting, $18 billion quarter for the Cupertino tech giant.

Apple now faces the challenge of getting people to buy the wearable, which could be perceived as little more than a luxury item complementing the technology one already owns. The $10,000 gold variation of the Apple Watch, also announced Monday, does little to dispel that notion. Industry experts seem split on whether anyone will want it, though some have reminded readers that the iPhone was met with similar skepticism upon its announcement.

The Consumer Electronics Association has estimated that 10.8 million smartwatches will be sold in 2015 -- about 14 percent of the number of iPhones Apple sold in the last three months of 2014 alone.

Susie Ochs posted the following article to Macworld.com on March 10, 2015. tinyurl.com/pmsupb9. © Mac Publishing.LLC. She is Executive Editor, Macworld, a proud Mac geek and writer who has been covering Apple since 2006.

Why Trying An Apple Watch Made Me Want To Buy One

By Susie Ochs

I had a $17,000 Apple Watch Edition strapped to my wrist today. Rose gold. 38mm. Rose gray strap that felt like butter, with a modern buckle also in solid 18-carat gold. It was beautiful. But as luxe as the materials are, my hands-on demo time with the Apple Watch made me confident that I can go with the entry-level Apple Watch Sport and be just as happy.

Why? It's the software, silly! The Apple Watch's apps, glances, and notifications are so easy to use and well-thought-out that once I started tapping, pressing, and scrolling around the tiny display, I quickly forgot what materials were in the case and strap. Here's what I found so compelling in my brief demo time, and why I'm looking forward to strapping an Apple Watch (Sport, natch) onto my wrist come April 24.

Attention to detail

The Apple Watch has so many delightful little details, and I'm not even talking about how the clasps on the gold Apple Watch Editon's bands are also made of gold. Again, it's the software. Scrolling around the tiny screen is smooth, and even though the home screen's tiny app bubbles look like you'd need to tap them with fingers the size of Q-Tips, I found them easy to hit.

Strapping on a $17,000 hunk of wrist candy can really raise the heart rate.

If you nudge an app's icon toward the center, it bulges a little bigger, and you can tap it with more ease, or twist the digital crown to open it. The animation from home screen to app even varies in speed based on how quickly or slowly you twist the digital crown. I immediately faded an app in and out with glee, over and over, like a kid in the back seat of a car who just found out about power windows.

Using the Digital Touch feature was a wow moment too. Press the button below the watch's digital crown to bring up your favorite contacts—from this screen you can call them, send a message, or enter Digital Touch if they also have an Apple Watch. Then you can draw an image with your finger, tap out a pattern that will be tapped on their wrist, or even send your heartbeat.

Tapping the teensy-weensy app icons was much easier than I thought it'd be.

We knew that all already, sure. But seeing—and *feeling*—it on my wrist was next-level cool. The image I drew of a pink heart faded out only to flicker back to life on the other Apple Watch, in the same way I drew it. I received a subtle wrist-tap from a very nice Apple employee I'd just met, and got as excited as if it had been from my best friend. And holding two fingers over the watch's face prompts Digital Touch to tap out your heartbeat on the other person's wrist—less invasive than a phone call, but just as intimate (and infinitely less risky than racy photographs). I predict this will be the biggest mover of his-and-hers Apple products since FaceTime.

Questions remain

I'd hoped Apple would get specific about the Apple Watch's battery life, and the company claimed 18 hours on stage, and broke that down in painstaking detail on its website. Apple is good about not overestimating battery life, and from what I saw in my demo, these figures seem reasonable. The watch is designed to get you the info you want quickly, both in how the information is presented

and how easy it is to move between it. You probably won't be staring at it for huge stretches of time unless you're trying to read all your email or something.

Being able to unlock a door at the W Hotel is cool, but I was hoping the event would have more HomeKit demos. All we saw was an app from Alarm.com.

For example: To see your glances, you'll raise your arm to wake your watch to its clock face. Stop for a second. Depending on the clock face you're using, you could get some detail right there, like your next calendar appointment, progress toward your steps goal, or the temperature. Otherwise, just one swipe up from the clock face gets to your glances, and then you swipe between each one. It only takes a fraction of a second to absorb what they're trying to tell you: Stock up. Text mom. Your team won. Your appointment is clear across town. You better leave.

This means that just one swipe up and a half-dozen swipes right-to-left can show you a lot of information, and pressing any of the single-screen glances sends you to a more fleshed-out experience in the full notification or app. Notifications can be seen by swiping down the clock face from the top. Apple did a lot of work to make using a smartwatch with so many features this simple.

But not every feature could really be tested in Apple's demo room. It'll be interesting to see if the watch is a good workout partner even if you don't have your paired iPhone with you. The watch's accelerometer can count your steps as you run, but that uses math to extrapolate your distance. If you bring an iPhone, your whole route is tracked with the iPhone's GPS. The watch has iPod shuffle-like storage to play some songs during your run, as long as you have Bluetooth headphones.

Why I'm buying one

It's striking that the Apple Watch's best features solve a problem I didn't have before I had an iPhone. The problem is: I look at my iPhone too much. Throwing more technology at that problem seems frivolous, but if the right balance of notifications and glances actually succeeds to sift the signal from the noise? If it can reduce the number of times I unlock my iPhone to do a simple little thing like reply to a text, only to fritter away time on three or four apps? That could change my game.

Apple begins taking preorders April 10. The Apple Watch collection will be on display at the Apple Store, so you can try them on if you're in the area. The watches ship April 24. Have you decided if you're getting one? Which watch? Which band?

Jim Dalrymple posted the following article to loopinsight.com on March 15, 2015. tinyurl.com/khhzqyj. © The Loop Media. *Jim has been following Apple for years, first as one of the original members of MacCentral, then at MacWorld for 10 years, last as Editor at Large, before leaving in 2009 to co-found the Loop.*

Should You Buy An Apple Watch?

By Jim Dalrymple

"This is the most personal device we have ever created." – Apple CEO, Tim Cook.

That quote from Tim Cook speaks volumes to me, and I believe it to be true. Apple has never created a device that can be personalized like Apple Watch, but it goes much deeper than that. The intricacies of Apple Watch are more complex than switching out a Sport Band for a Milanese Loop, and it's not about learning to use Apple Watch, but how *you* will use it.

One of the things that concerned me about Apple Watch is that it would only be a reactionary device. What I mean by that is you would only be responding to things that happened on your phone and getting feedback on your watch. That to me is a very expensive notification system, and perhaps not worth even the low-end price of $349.

However, after attending the keynote on March 9, I realized that Apple built-in a way for Apple Watch to also initiate actions without using the iPhone. That brings things to an entirely different level of usefulness and sophistication. Now we're talking about a completely different type of device, and that may change the answer to whether or not you should buy one.

There is no doubt Apple Watch is a beautiful piece of craftsmanship. There are very few people in this world that have even seen Apple Watch, let alone wear one, but I've had that opportunity twice. I can tell you, it's stunning.

The decision on whether or not you should buy one is probably going to be one of the most personal device decisions you've made in some time. It's personal, it's fashionable and it's functional—only you can determine the importance of those three things.

If I can offer one piece of advice—don't listen to those people telling you that you need to buy one, and don't listen to the naysayers who say it will be a flop. Judge for yourself and your lifestyle.

I have yet to use an Apple Watch for an extended period of time, but from what I've seen, it will fit into my life pretty well. The question is for how long—I won't know the answer to that until I get to spend some time with it.

SPEAKER ROSTER FOR MLMUG'S 2015 MEETINGS

January 10	iTunes University & New Website Ben Romney & Deivy Petrescu
February 14	Lightroom - Bill Achuff
March 14	Become Your Own IT - Sue Czarnecki
April 11	FileMaker Pro - Marc Adler
May 9	Mac, iPad & iPhone Security - Mike Inskeep
June 13	Picnic
July 11	MLMUG University - Member Presentations
August	Summer Recess
September 11	TBA
October 10	TBA
November 14	Bob "Dr. Mac" LeVitus
December 12	Holiday Party & More

And he's from MLMUG!

Steve Lohr posted the following article to nytimes.com on September 15, 2014. tinyurl.com/lq4upft. © The New York Times Company. He reports on technology, business and economics. A Pulitzer Prize winner and author, he was a foreign correspondent for The Times for a decade, before covering technology, starting in the early 1990s.

What the Apple Watch Says About Apple

By Steve Lohr

Timothy D. Cook, Apple's chief executive, channeled Steve Jobs's iconic presentation style before he announced the company's new smartwatch.

Watching Timothy D. Cook last week as he introduced the Apple Watch to the world was almost touching, in his channeling of his predecessor. The back-and-forth pacing of the stage, the hand gestures, the cadence of his speech and the script unabashedly filled with superlatives — "We set out to build the best watch in the world" — were all reminiscent of the late Steven P. Jobs.

Of course, Mr. Cook lacks the track record, life story and the showman's flair of the Apple co-founder. But while leaders all leave the stage sooner or later, corporate values can endure. For decades, Apple has stood out in the business world for three things: taste, trust and utility. These are not words scribbled on a white board or printed in an annual report, but values that have guided Apple's product and design decisions. The Apple Watch reflects and interprets those values — how well it has done that will be its test of success or failure.

Taste was a touchstone for Mr. Jobs. It was a term he used often. To him, taste was a value and a journey, acquired through curiosity, learning and life experience. Seek out the best that your culture has to offer, he would say, and your work will be enriched with taste, whether you are a software programmer or a sculptor.

Years ago, in his Palo Alto home, Mr. Jobs pointed to the wooden chairs in his living room, made by George Nakashima, a Japanese-American woodworker. Mr. Jobs explained that Nakashima had a cross-cultural blend of experience, studying architecture, traveling on a free-spirited tour of the world, and working in different cultures. Nakashima's designs were original, Mr. Jobs said, because he had a distinctive sense of taste, shaped by his life experience.

The pursuit of taste was a value Mr. Jobs instilled in the Apple corporate culture, including a "The Best Things" course in the company's internal training program, the so-called Apple University.

People possess taste, but products are designed and built by teams of such people. Jonathan Ive, who was made senior vice president for industrial design in 1997, shortly after Mr. Jobs returned to Apple, is the field marshal of the company's corps of designers. And under Mr. Cook, Apple has recruited top talent in design and fashion from companies including Burberry, Nike and Yves Saint Laurent.

"Tim Cook has done an excellent job of retaining and recruiting critical people," said David B. Yoffie, a professor at Harvard Business School.

How well does the Apple Watch do on the taste test? The consensus is that it is a stylish piece of personal technology, given all that's in it. The critique among outside designers is that Apple has crammed too much in it. The watch, according to a former Apple designer, had its origin with a tiny iPod Nano Touch, introduced in 2010. People attached a strap to the minuscule media player, and wore it on their wrist, listening to music while jogging.

The iPod heritage, however, gave way to a more iPhone-style concept. "And it's very hard to make big things small," said the former Apple designer, who asked not to be named because he still has business contacts with the company. "This feels more like it was designed by committee."

The Apple alumnus also said the relatively short battery life of the watch — company executives said they expected users to recharge daily — suggests the industrial design team has the upper hand over the hardware designers these days. Recharging a watch daily, he said, is a hardware-side compromise. In the past, the hardware group often prevailed in such trade-off decisions. For example, he said, the industrial designers wanted to have wireless headphones on the iPod. But that would have sapped power, requiring more frequent recharges, so that idea was shelved, he observed.

Another former Apple designer, Paul Mercer, agreed that the Apple Watch is chock-full of digital offerings. "They went very wide in terms of the feature set," he said.

But Mr. Mercer added that the "system experience," like turning the watch's crown to zoom in and out on the screen, and to scroll through lists, was innovative and "very fluid." Mr. Mercer, a software designer, said, "It has the hallmarks of a classic Apple product."

On the trust front, the Apple Watch should benefit from a trailing wind of good will. People like Apple products, to say the least. Its offerings have a well-earned reputation for feeling intuitive and personalized. Apple products respect the individual. People trust Apple. They often give the company the benefit of the doubt that when there is a slip-up, such the recent incident when some risque celebrity photos were hacked from iCloud, things will be fixed and quickly.

The Apple Watch, among other things, is a powerful health-monitoring device, which will harvest troves of personal data, if users so choose. That raises privacy concerns, and the matter of trust in a different context for Apple. In addressing that worry, Mr. Cook observed that Apple has a different business model from companies whose financial lifeblood is advertising, like Google and Facebook. If the product is free, as they say, you are the product. Not so for Apple. It owes its vast sales and immense corporate wealth to products people can hold in their hands, and that customers pay dearly for.

But health data is particularly private, and how it is used will depend not only on Apple but on outside software developers who make health apps that run on Apple devices. The company's recently revised guidelines for health apps say developers cannot use the data for marketing purposes and that data cannot be shared with third parties without a user's consent. But how closely will Apple police outside developers, when more developers making more apps means more reasons for people to buy Apple products?

"I think Apple is certainly aware of the privacy issues with health data," said Marc Rotenberg, executive director of the Electronic Privacy Information Center. "But whether it really enforces those guidelines to uphold its privacy commitments will be the real test."

The value of utility, in the Apple context, has meant redefining whole product categories and how people use them. That has been the story of the media player (iPod), smartphone (iPhone) and tablet (iPad).

The utility questions surrounding the Apple Watch come in a few dimensions. Will it feel too much like an iPhone on your wrist? Here, Apple is endangered by its past success. The communications and notification features on the Apple Watch look neat. So now people will be walking around staring at their wrists instead of their smartphones. Is that a big addition to utility?

Then, there is a question of how many people will find utility from the device? Will the health-monitoring features, when combined with other offerings on the Apple Watch, for example, be enough to make large numbers of consumers buy it? Much of that audience, presumably, is already wearing a fitness wristband like Fitbit or Jawbone.

And is Apple limiting the market for the Apple Watch with its strategy? Under the current plan, the Apple Watch works only with iPhones. But about 85 percent of smartphones worldwide run Google's Android operating system, according to IDC.

There is a precedent here. The iPod took off as a hit product after Apple shifted course and decided to make it sync with computers running Microsoft's Windows as well as Apple computers. The Apple Watch, said Michael A. Cusumano, a professor at the Massachusetts Institute of Technology's Sloan School of Management, will "only be as big in share as iPhone allows it to be. A missed opportunity, I think."

Mr. Cusumano and Mr. Yoffie are co-authors of a book to be published next spring, "Strategy Rules: Five Timeless Lessons from Bill Gates, Andy Grove, and Steve Jobs," based on their study of the three tech industry pioneers and the challenges of their successors. Their conclusion, Mr. Yoffie said, is that the successors were successful as stewards in maintaining and sometimes enlarging the existing businesses. "But they struggled to deliver the same kind of revolutionary change" as their predecessors, Mr. Yoffie said. "Apple Watch appears to fit that model."

We'll see. It's worth remembering that the iPod, iPhone and iPad, in turn, were greeted with initial skepticism. Apple Watch seeks to be the next in that lineage, routing the skeptics and delivering a massive payoff for Apple. How much of the Apple magic remains is uncertain. Like others, Mr. Mercer, the former Apple software designer, has questions about the Apple Watch and its fate. The answers that matter most will begin to come next year, when the Apple Watch goes on sale. "I can't wait to get mine," Mr. Mercer said.

Brad Chacos posted the following article to macworld.com on March 9, 2015. tinyurl.com/op2ussd © IDG Consumer & SMB. He is an Senior Editor at Macworld, covering gaming, graphics cards, and how-to beats for PCWorld, and runs the news desk for PCWorld, Macworld, & Greenbot.

Apple's Radical 12-Inch MacBook Is The Slimmest, Lightest Macbook Ever

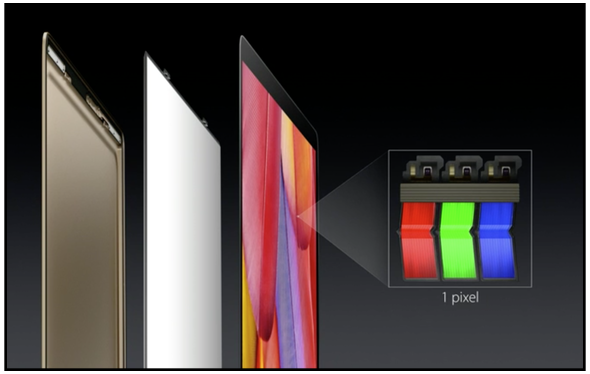
By Brad Chacos

There's a reason Apple hasn't changed the MacBook Air's core design for years now: It's basically perfect—the epitome of a thin-and-light laptop, from its luxurious, razor-thin exterior to its majestic glass trackpad. But even perfection can't coax Apple into sitting on its heels.

On Monday, Apple revealed a new 12-inch MacBook, a radical revamp that shakes up the winning MBA design by dumping virtually every conventional port—Thunderbolt, the SD card slot, a power connector, *everything*—in favor of a pair a single USB Type-C connection and an audio jack. That, paired with numerous other advances, helped the 12-inch MacBook become the slimmest, lightest MacBook ever—and it's silent, too.

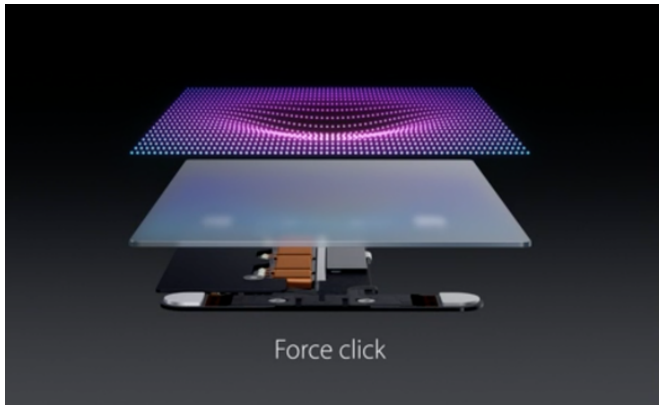
"Can you see it?" a grinning Tim Cook asked, holding one aloft onstage. "I can't even feel it!"

The overhaul slims the notebook down to a ridonkulous 2 lbs. and 13.1mm—the slimmest MacBook by a full 24 percent, according to Apple's Phil Schiller (though it's still not quite as light as Lenovo's 1.72 lb. LaVie Z HZ550 or as thin as Lenovo's 12.7mm Yoga 3 Pro). And that's with a full fanless design. Achieving such thinness required Apple to redesign the machine from the ground up.



First, the display on the 12-inch MacBook—which packs a Retina-class 2304x1440 resolution—now reaches edge-to-edge, with barely there bezels. It measures just 0.88mm thin and uses 30 percent less energy than other Retina displays, while still offering the same level of brightness.

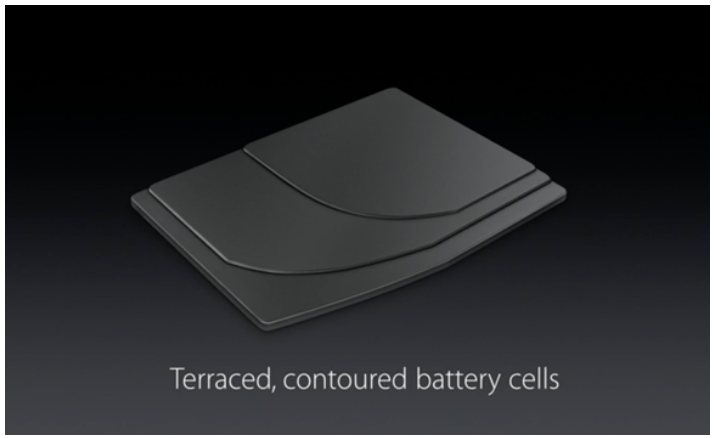
The keyboard now sits edge-to-edge, sporting closer-together keys than the new MacBook's counterparts. Apple actually created a new keyboard switch for the 12-inch MacBook, to replace the scissor switches that power most laptop keyboards. The "Butterfly mechanism" uses a single assembly with a stainless steel dome, which Schiller claims is four times as stable as scissor switches despite being 40 percent thinner.



The MacBook also introduces a new "Force Touch trackpad." It's covered in glass like Apple's previous models, but also sports four force sensors under the hood to create a uniform tapping feel. Together with the introduction of a "Taptic engine," similar to watch you'd find in the Apple Watch, the 12-inch MacBook introduces the idea of light and "force"clicks—the laptop registers a new class of deep clicks that it uses to automatically open certain programs depending on

where you click. Force clicking on a word in Safari, for instance, opens a Wikipedia entry for it, while force clicking a date opens a calendar entry.

One of Intel's new energy-efficient Core M "Broadwell" processors powers the 12-inch MacBook, sitting in a logic board 67 percent smaller than Apple's previous record. The processor sips a mere 5 watts of power, running at 1.1GHz that can Turbo Boost to 2.9GHz when more *oomph* is needed.



Around the Force Touch trackpad and itty-bitty logic board, Apple crammed the 12-inch MacBook with batteries, using a new layered, terraced battery design that lets the company use all the available space inside the unibody chassis. The 12-inch MacBook will get 9 hours battery life while web surfing, or 10 hours while watching video.

Reach out and touch someone

The spartan redesign also wouldn't have been possible without the cutting-edge USB 3.1 standard and new Type-C connection. This backward-compatible wonder cable does it all: It's capable of delivering 100 watts of power, 10Gbps data transfer speeds (twice that of USB 3.0), *and* even audio and video signals using the DisplayPort protocol. Goodbye, power cords, HDMI, VGA, DisplayPort, and Thunderbolt. And the Type-C connector is reversible, too, just like Apple's MagSafe connector, so you'll never have to fumble with shoving your USB cable in the right way again.

"This is the most extreme, efficient notebook we've ever created," Schiller beamed.

There is a downside to streamlining things down to a lone humble, potent port, as Michael Simon noted in his original coverage of the 12-inch MacBook rumors. You're going to need a lot of adapter cables to reproduce the lost functionality of the originals. Sure, Apple's embraced the new USB tech, but the legion of external peripherals and displays currently available haven't. Connecting those Type-C cables to a wall socket or a DisplayPort-equipped monitor will require adapters, and you'll need other adapters to connect to Thunderbolt, Ethernet, or standard USB devices. Want to plug in multiple devices? You're going to need a hub, too.

Apple's software ecosystem is already built around wireless connectivity.

But that's where Apple's software ecosystem comes into play. Schiller touted that features like Continuity, AirDrop, and AirPlay allow you to wirelessly share data between your Apple devices without ever touching a cable.

The 12-inch MacBook will be available in silver, space grey, and—wait for it—gold, on sale on April 10. The $1,300 base model includes a 1.1GHz dual-core processor, 8GB of RAM, and a 256GB solid-state drive. A $1,600 model will pack a 1.2GHz dual-core processor and a 512GB SSD.

The rest

While the focus was squarely on the new Mac, Apple didn't leave the old Macs untouched. The entire MacBook Air line is being upgraded to Intel's new fifth-generation "Broadwell" processors, which should offer increased battery life and a modest performance boost over the last-gen Haswell processors. The 13-inch MacBook Pro with Retina will also receive Broadwell.The 13-inch MacBook Air models will also be outfitted with flash storage two-times faster than before, while both the 11-inch and 13-inch Airs will be upgraded to Thunderbolt 2. The 13-inch MacBook Pro with Retina model will also have the faster flash, as well as the new Force Touch trackpad introduced in the 12-inch MacBook. The revamped old-school MacBook Air and Pro models are available today.

George J. Harris posted the following article to tcgeeks.com on October 6, 2014. tinyurl.com/ooq6bk7. © BixBux Media. He is a 32-year-old contract programmer and world traveler.

Remotely Control Your Computer Using Your iPad

By George J. Harris

This step-by-step tutorial will show you how to control your computer using just your iPad and a clever app called Splashtop Remote Touchpad for iPad. You need to have a WiFi connection, and the computer you want to control needs to be connected to the same WiFi network as the Apple device.

STEP 1

Open the App Store on your iPad and seach for Splashtop Remote Touchpad. Once you have found the app, download it to your Home Screen.

STEP 2

Open the Splashtop app using the icon on the home screen. The first time you open the app you will be asked if you want to provide anonymous usage statistics. The choice is yours, and you will not be asked again. The next screen gives you some advice about using the app, including the need to download the desktop version of the app on your computer.

STEP 3

Visit www.splashtop.com and download the correct version of the desktop app for your computer. There is a version for PC and for MAC.

STEP 4

Click on the downloaded file and follow the instructions to install it on your computer.

STEP 5

Launch Splashtop Remote on your PC or MAC and follow the instructions to set it up.

STEP 6

Once the initial setup is complete you will have the option to turn it on, configure security settings, as well as change general settings and network options.

STEP 7

Minimise the Remote Streamer on your computer (a message will tell you that it is still running in the background). You can see the quicklauch icon in the Taskbar. Go back to your iPad and tap the refresh button. The app will scan for available computers on your network with the software installed and list them on screen. Touch the name of the computer you want to connect to. During setup you will have created a password. Enter this when prompted to by the app.

STEP 8

Your iPhone or iPod screen will now look like a laptop touchpad, with two buttons below it. Move your finger over the touchpad and watch as your mouse pointer on your computer moves.

STEP 9

The icon at the top left of the touchpad screen allows you to change to the keyboard function for entering text and using the page up/page down keys, etc. Tap the icon again to switch back to the touchpad.

STEP 10

The Cog icon opens the settings for the touchpad, allowing you to change sensitivity and speed settings, as well as removing the bottom buttons if you don't need them. This will greatly improve your interaction speed with your linked desktop making standard tasks — such as checking email — much more fluid.

STEP 11

This remote solution is great if you have a HTPC and want to be able to control it from the comfort of the armchair or sofa. You can use this app to control every part of your computer, although it takes a little bit of getting used to, you can also access previously unavailable website and web tools.

Glenn Fleishman posted the following article to macworld.com on March 10, 2015. tinyurl.com/mjzmw8t. © IDG Consumer & SMB. He is a Senior Contributor to Macworld and a regular contributor to the Economist, Fast Company, and Boing Boing. He appears regularly on public radio discussing the tech industry.

Thunderbolted: USB-C Is Our New Connection Overlord. Get Used To It.

By Glenn Fleishman

When news of a new Mac notebook leaked two months ago, one of the aspects that seemed most absurd was the omission of multiple ports. Instead, there would be just one hole. Weirder still, it would be USB-C, a format never before seen in a Mac and unfamiliar to most people, as it was only unveiled in production equipment last September.

Turns out, it wasn't absurd at all. With the new 12-inch MacBook, Apple has gone all in for all-in-one, using USB-C to provide power, display output, and USB connections. Thunderbolt is gone. The SD card slot is gone as well. And the MagSafe component of the power connection has disappeared into very thin Air—I mean, thin MacBook. (Magnets? How do they work?)

Apple says that USB-C adapters can provide HDMI, DisplayPort, VGA, ethernet, and USB 3.1 support, and can both power a computer and send power to attached peripherals. Notably, ethernet and DisplayPort options aren't included in the current USB-C accessories list at the Apple Store.

But Thunderbolt is the really big loser in the new 12-inch MacBook: USB-C can't support Thunderbolt devices.

Apple thinks that with all-day battery life and wireless capabilities, we just won't need to connect our new MacBooks to much.

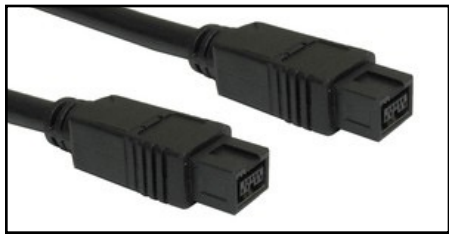
In the pursuit of slimness, sleekness, and simplicity—the same goal that brought us Lightning—Apple has seemingly done with Thunderbolt what it once did with FireWire. But is USB-C a worthwhile shift for users? Well, all interfaces are compromises in one way or another, and Apple believes USB-C meets more customers' needs, even as the new interface throws some people off a cliff.

The upside is compatibility, and thus lower costs and more options. USB-C is also a unifying and universal standard that doesn't involve a single company acting as a licensing gatekeeper, the way Apple protects Lightning cables and adapters. USB-C would seem to have a lot to offer, but first we have to get over the hump of newness.

FireWire in the hole!

We've gone through this before, and every iteration brings pain and joy. The pain comes from having to purchase new adapters and figure out the limitations of the new interface. The joy flows from improvements in performance and flexibility, and simplicity in making connections.

The bump from Apple Desktop Bus (ADB, Apple's original serial peripheral standard for keyboards) and SCSI (for hard drives and scanners, among other uses) to USB 1.1 was a big one in the first iMac circa 1998. ADB was slow, required daisy-chaining, and could be finicky. SCSI was fussy as all get out, despite its relatively high speed. (Remember terminators? Self-termination? Numbering devices? Running out of numbers?)



FireWire had such promise, and Apple even made a FireWire 800-to-Thunderbolt adapter for the most recent Macs. It won't work on the new MacBook at all.

But USB let you plug and unplug, even while devices were in use! Sure, you could leave a hard drive in a weird state by unplugging before it was fully unmounted, but you at least wouldn't fry its circuits by accident.

USB 1.1 was always an intermediate step. At 12Mbps, it was far too slow. and USB 2 wasn't ready when Apple was. FireWire 400's introduction just a year later offered a vast improvement in speed. FireWire 800 doubled that a couple of years after, but despite a path to 1600 Mbps and 3200 Mbps, the standard was mostly single purpose: a way to move data rapidly among storage.

Enter Thunderbolt, the unifier. Originally slated to work over resilient fiber optic cables, allowing low power requirements and long distances, the first release was a bit of a compromise. It used copper wire and could extended only three meters (10 feet) maximum, but could also deliver power, which wasn't part of the optical specification. The first version shipped on a Mac just four short years ago.

The video standard DisplayPort, which has many potential variations of throughput, each of which can support a maximum refresh rate and monitor resolution, was supported as something that flowed over Thunderbolt, allowing forward compatibility. A Thunderbolt connection could support a DisplayPort-equipped monitor. Thunderbolt's first iteration was 10Gbps per channel, allowing an aggregate of 40Gbps (20Gbps in each direction). Thunderbolt 2 doubled that throughput.

But Thunderbolt stalled. While it's available in computers beyond Macs and in peripherals from many companies, it's never become pervasive. The rest of the industry has focused efforts on USB 3. Apple may eat a hunk of the profit in the PC market, but for unit volume among all connection types, USB is orders of magnitude higher.

Apple didn't disregard progress on USB, adding USB 3 ports in Mac models that started shipping in 2012. But you can only shrink a mini-DisplayPort connector used for Thunderbolt so far. It's got one correct orientation, and it can't easily be used to power other devices via a single port.

Not one of these Thunderbolt devices works with the new MacBook. But they don't work with the iPad either, and ports-wise, this MacBook is a lot closer to an iPad than a Mac Pro.

Thunderbolt was essentially too expensive to implement on inexpensive devices. It also has licensing rules that deterred some manufacturers. The USB-C adapter format avoids just these kinds of roadblocks.

The USB-C spec is under the control of the USB 3.0 Promoter Group. Apple wasn't among the key members that drafted version 3.1, but it had heavy engineering participation in developing USB-C. The group engages in no preferential or discriminatory treatment about who may license or use it. Lightning can't support the data rate needed for peripherals, nor the wattage required for a notebook. Nor can it achieve the industry adoption needed for an ecosystem.

Within that worldview, USB-C seems more inevitable than unexpected, and we'll ultimately get used to it.

USB all that you can USB

While USB 3 is a few years old, USB-C only debuted last September, and was clearly designed in part to replicate the advantages of Apple's Lightning connectors. It's slim and reversible. Apple's flavor has a raw data rate of 5Gbps, and passes 29 watts of charge from the included power adapter.

The Dock-to-Lightning transition was painful for iOS devices, because many of us had invested in an ecosystem that relied on the Dock connector. Most of us swapped our iOS device when we got a new iPhone, iPad, or iPod touch (remember those?), and in a home social grouping would pass down an old model. Lightning meant our stereos and cables and docks wouldn't serve old and new, yet the old devices still had plenty of life in them.

Worse, most people I know with an iPhone have two or more cables, sometimes permanently installed in different places, like a car, or stashed as an extra in a satchel or purse. The early Lightning adapters were $29 for a little stub and $39 for a cable. You could wind up with incompatible audio and other gear, and $150 of cable costs. It annoyed people, and rightly so, because it felt like an upgrade penalty instead of benefit.

The new MacBook comes with a USB-C cable for charging. But it's USB-C at both ends, and the charging brick has a USB-C port, so you can't use the same brick to top off your iPhone.

But the situation is different with the MacBook, as you won't lose a lot of sunk costs if you're shifting from one Mac laptop to the MacBook. The only interface types you lose are MagSafe and Thunderbolt. If you need Thunderbolt devices, this isn't the computer for you. Your MagSafe adapters, meanwhile, can clearly continue to be used with your older computer, whether you keep using it or pass it on.

USB-C allows bidirectional charging, which changes the cable equation. The new computer ships with just a USB-C charging cable (two

meters, $29 sold separately) and a 29-watt power adapter with a USB-C jack ($49 separately). The charger can power an iPhone or iPad (with a Type A USB adapter), and ostensibly the MacBook could be charged via any existing USB charger—although a 5-watt or 10-watt charger or a 10-watt or 12-watt car adapter will cause it to use up its battery much more slowly or charge very slowly while sleeping. (I was unable to get confirmation on whether the MacBook could be charged by a non-USB-C adapter, but the spec seems to call for it.)

Apple has announced two $79 Multiport AV adapters. One has HDMI and the other VGA, and they both also sport a USB-C port for charging your MacBook and a standard USB port.

With a USB-C adapter that splits into multiple interface types, you can charge devices over its USB parts just as if they were part of the computer's hardware. Apple is offering three adapters to start with: a $19 USB-C to USB 3.1 Type A port, into which a regular Type A connector can fit; and $79 A/V adapters, one for VGA and one for HDMI, both of which also sport USB-C charging and USB Type A ports. (It's unclear at this writing if that USB-C charging port can be chained into more adapters, but it seems very likely based on the spec.)

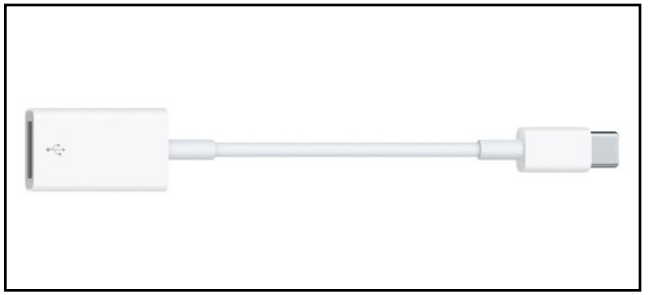
Apple isn't offering gigabit ethernet or DisplayPort adapters in its initial foray, but these adapters should be available soon from third parties. Last year, such adapters were expected in early 2015, and this availability projection may be one reason Apple isn't shipping the new MacBook until April. Its spec sheet says that the MacBook comes with "native DisplayPort 1.2 output," which will support 4K (3840x2160 pixels in dual monitor or mirroring modes), but there's technically no way today to access that stream of video data.

A spec was set last September to encapsulate DisplayPort inside a USB-C to USB-C cable, just like Thunderbolt encapsulated DisplayPort, so we'll likely see some of that in future monitors as well.

The power persists

Thunderbolt isn't dead and USB-C doesn't look like it's going to kill it off soon. Indeed, it seems likely that USB-C will wind up replacing ports on consumer-leaning Macs, like future MacBooks (if 12-inch isn't the only model), Mac minis, and iMacs, while the Mac Pro and MacBook Pro will probably retain Thunderbolt for the highest performance with external drives and other peripherals.

If you're dead set on buying a USB-C machine, make sure you know what you're getting into—especially if you use your laptop as a fully appointed portable workstation like I do. Before ordering, you need to make sure the particular multi-prong adapters you'll need are available, compatible, and affordable.



Wanna plug your iPhone or camera or any other USB device into your new MacBook? That'll be $19 for the USB adapter.

It could be that Apple is signaling the post-peripheral era, appealing to a new majority of users who really only need USB to charge their machines. The current MacBook's SD Card slot is of little use to an iPhone photographer, for instance.

And with more than 9 hours of battery life, many mobile-first users can comfortably give up their single do-everything USB-C port when they need USB connectivity for, say, a thumb drive. Sure, that USB-C port is also your lifeline to charging power. But the definition of "power" user could be about to change.

Thorin Klosowski posted the following article to lifehacker.com on December 25, 2012 under a Creative Commons License. tinyurl.com/2uptx2v. He works at Gawker and lives in the Seattle area. NOTE - ARTICLE HAS TONS OF LINKS. GO TO THE WEB SITE TO USE.

Set Up and Get to Know Your New Mac

By Thorin Klosowski

You've taken your requisite Apple product unboxing video and boasted about your brand new Mac on Facebook, but now it's time to get down to business. Whether you're new to the Mac or not, here's how to set up and get started.

Before you dive right into your new Mac, there are a few things you ought to do first:

Run Software Update: Chances are your new Mac isn't as new as it could be. Since OS X was probably pre-installed on it quite awhile back, you're probably due for an update. To get things started, head on over to the Apple menu and choose Software Update. This will launch—you guessed it—Software Update and it will check for new updates. When it's done, install everything available. After you restart, repeat this process again to see if there are new updates. Some updates can't install until others have already been installed, so keep checking until Software Update reports that there are no new updates available

Get to Know System Preferences: If you're new to the Mac, you should probably take a leisurely stroll through System Preferences (which you can access through the Apple menu and likely find in your dock). Take a look at each of the preference panels so you can become acquainted with your options. You'll eventually find yourself spending a fair amount of time in here so it helps to know where things are.

Set Up Your Sharing Preferences: In System Preferences, there's a panel called Sharing. Open that up and you'll be presented with a long list of sharing services. Many of these services are very helpful if you need to share with another computer (whether it's your own or someone else's). Take a look at them all and enable the ones you'd find useful—just make sure to only allow your user or any future users created on the machine may end up with access to the enabled services.

Repair Disk Permissions: Once you're all done, it's always good form to repair your disk permissions so nothing gets out of whack. To do this, go into your Hard Drive —> Applications —> Utilities and open Disk Utility. Choose your hard drive from the list on the left, select the First Aid tab, and click the Repair Permissions button. This will take a few minutes and may not end up repairing anything at all, but it's always good to run it on a regular basis and after you've made significant changes to your machine.

Tips for First-Timers

If this is your first time with a Mac, we've got you covered with switching guides and a look at the latest version of Mac OS X Mavericks.

Hack Attack: A guide for switching to a Mac: *If you're new to the Mac platform—fresh off the Windows world—this guide to switching explains how to make sense out of all the differences between Windows and OS X, highlighting how to accomplish the same things in OS X you're already completely familiar with doing in Windows.*

Everything You Need to Know About Yosemite In 3 Minutes: *Yosemite brought all kinds of cool new features. Familiarize with them quickly with this video.*

The Secret Features of OS X Yosemite: *Yosemite has all kinds of cool hidden features. Before you get too used to anything, make sure you check them out.*

How to Set Up Handoff: *Handoff is a cool new OS X Yosemite feature that lets you easily swap all kinds of stuff between iOS and Yosemite. It takes a little work to get set up though.*

Install Some Killer Apps

Now that you've got a handle on your new machine, let's take a look at some great software just waiting to be downloaded.

Lifehacker Pack for Mac: Our List of the Best Free Mac Downloads: *Looking to beef up your Mac with a few great-and free-apps that cover a whole lot of your productivity and computing needs? Our annual Lifehacker Pack for Mac rounds up the best free downloads for OS X.*

The Best Apps that Take Advantage of Yosemite's Features: *Yosemite has all kinds of cool new features, but it's up to app developers to make use of them. Here's a list of some of the best apps to get you started.*

Most Popular Free Mac Downloads and Posts of 2014: *There is an abundance of great software out there for your new Mac, here are some of the most popular (along with a few great posts) so you can make sure your Mac has everything you need.*

50 Free Apps We're Most Thankful For: *This Thanksgiving you voted on the best free apps you're most thankful for. We tallied the votes and here are the top 50. While not every item on this list are for the Mac, many are and they're all great.*

Superior Alternatives to Crappy OS X Software: *If you realize you don't like how some of the default programs in Lion work you have a few great options for replacements and many of them are free or cheap.*

Adjust Settings and Tweak Your System

Got a grasp on OS X? Check. Installed some great software? Check. Now all you need to do is customize your machine to your liking. Here are some resources to help you out:

Option+Click Everything: *15 OS X Tricks Enabled with the Option Key: The Option key on your keyboard can unlock all kinds of hidden little tricks in OS X. Here's some of our favorites.*

Customize the Look and Feel of OS X: *Make your Mac your own by customizing how it looks and works. With a little work, you can change a lot more than you'd think.*

How to Fix OS X Yosemite's Biggest Annoyances: *If you're not into the ways Yosemite works like iOS, you can get rid of most of the common annoyances.*

Automate Just About Anything on Your Mac, No Coding Required: *Even if you're not a programmer, you can easily create tiny, time-saving applications that breeze through repetitive tasks-renaming large groups of files, executing terminal commands, and much more-with the simple, code-free, drag-and-drop interface of OS X's built-in tool, Automator.*

Customize Your Desktop: *If you use a computer and read Lifehacker, it's probably safe to assume you've customized your desktop. But if you haven't, or you're looking for a fresh new look, here are some great options to explore this weekend.*

The Best Hidden Settings You Can Unlock with OS X's Terminal: *Let your Mac breathe a little with these customization options.*

Simple Desktops Is a Hub for Attractive, Distraction-Free Wallpaper: *There are plenty of great wallpaper resources, but it's hard to find a great image for your desktop that's both beautiful and distraction-free. Simple Desktops aims to do just that by collecting the best, simple wallpapers on the web.*

How to Resize Windows More Precisely in Mac OS X Mountain Lion: *Sometimes a precise control over your windows is all it takes to make your desktop perfect, so it's a good thing there's a dead simple way to do it in Lion.*

***Replace Lions Monochromatic Finder Icons with Old School Colorful Ones**: Don't like the drab, monochromatic look of Lion? Don't worry, you can spice it up with single download.*

***Permanently Disable the OS X Bouncing Dock Icon Effect:** Have you ever been busy getting work done when a random Dock icon starts bouncing up and down, begging for your attention? The Switching To Mac blog writes up how to completely disable the often distracting effect.*

***How to Clean Up Your Mac's "Open With" Contextual Menu:** If you've made good use of your Mac's "Open With" contextual menu, you've probably noticed it can get a bit cluttered with duplicates. Fortunately, there's an easy trick to tidy things up.*

***How do I Protect My OS X Lion Passwords From Being Easily Hacked?:** There has been a bit of worrying around how Lion handles passwords, but it's not hard to lock down Lion and ensure your computer is safe.*

***Do Yourself a Favor: Set Up Mountain Lion's Built-In Text Expansion with These Shortcuts:** Text expansion is awesome, and Mountain Lion makes it incredibly simple to set up right out of the box.*

George J. Harris posted the following article to tcgeeks.com on October 6, 2014. tinyurl.com/ooq6bk7. © BixBux Media. He is a 32-year-old contract programmer and world traveler.

Remotely Control Your Computer Using Your iPad

By George J. Harris

This step-by-step tutorial will show you how to control your computer using just your iPad and a clever app called Splashtop Remote Touchpad for iPad. You need to have a WiFi connection, and the computer you want to control needs to be connected to the same WiFi network as the Apple device.

STEP 1

Open the App Store on your iPad and seach for Splashtop Remote Touchpad. Once you have found the app, download it to your Home Screen.

STEP 2

Open the Splashtop app using the icon on the home screen. The first time you open the app you will be asked if you want to provide anonymous usage statistics. The choice is yours, and you will not be asked again. The next screen gives you some advice about using the app, including the need to download the desktop version of the app on your computer.

STEP 3

Visit www.splashtop.com and download the correct version of the desktop app for your computer. There is a version for PC and for MAC.

STEP 4

Click on the downloaded file and follow the instructions to install it on your computer.

STEP 5

Launch Splashtop Remote on your PC or MAC and follow the instructions to set it up.

STEP 6

Once the initial setup is complete you will have the option to turn it on, configure security settings, as well as change general settings and network options.

STEP 7

Minimise the Remote Streamer on your computer (a message will tell you that it is still running in the background). You can see the quicklauch icon in the Taskbar. Go back to your iPad and tap the refresh button. The app will scan for available computers on your network with the software installed and list them on screen. Touch the name of the computer you want to connect to. During setup you will have created a password. Enter this when prompted to by the app.

STEP 8

Your iPhone or iPod screen will now look like a laptop touchpad, with two buttons below it. Move your finger over the touchpad and watch as your mouse pointer on your computer moves.

STEP 9

The icon at the top left of the touchpad screen allows you to change to the keyboard function for entering text and using the page up/page down keys, etc. Tap the icon again to switch back to the touchpad.

STEP 10

The Cog icon opens the settings for the touchpad, allowing you to change sensitivity and speed settings, as well as removing the bottom buttons if you don't need them. This will greatly improve your interaction speed with your linked desktop making standard tasks — such as checking email — much more fluid.

STEP 11

This remote solution is great if you have a HTPC and want to be able to control it from the comfort of the armchair or sofa. You can use this app to control every part of your computer, although it takes a little bit of getting used to, you can also access previously unavailable website and web tools.

Jeremy Horwitz posted the following article to 9to5mac.com onMarch 4, 2015. tinyurl.com/pybb9zb. He joined 9to5Mac in 2014 after a decade running the editorial side of iLounge. An expert in Apple accessories, he has appeared in New York Times and Los Angeles Times and on CNBC.

How-To: Boost Your Mac's Speed And Prolong Its Useful Life With Easy RAM Upgrades

By Jeremy Horwitz

As I've spotlighted over the past month, the best way to dramatically speed up an older Mac is to replace its old hard drive with a new solid state drive (SSD). The process is super-easy on MacBooks and Mac Pros, surprisingly manageable on iMacs, and challenging on Mac minis, yielding 3X to 5X speed boosts. But there's another option that can speed things up with relatively little effort or expertise: **upgrading your Mac's RAM.**

RAM upgrades are easy and cheap. You can expect to pay $90 or less for enough (Mac-safe) RAM to run OS X Yosemite without hiccups, or $180 for enough RAM to guarantee you won't need more for years. Installing RAM generally doesn't void your Mac's warranty, and except for several models, the only tool you'll need is a small screwdriver. Below, I'll walk you through your best options.

What Is RAM?

Without getting too technical, RAM (random access memory) typically refers to a small replaceable circuit board full of memory chips, designed to give your computer a high-speed temporary work space — the place where apps and data are stored while you're actively using them. More RAM lets your computer run bigger apps and more apps at the same time, reducing or eliminating the need to continuously load data from your hard disk or SSD.

Most current Macs ship with 4 or 8 gigabytes (GB) of RAM. Several years ago, there were more 4GB Macs out there, but today, if you don't have at least 8GB of RAM and are running OS X Yosemite, you probably would benefit from more RAM. I personally have 8GB in my Retina MacBook Pro and 12GB in my iMac; neither has obvious RAM-related issues. By contrast, 4GB Macs are very limited in running multiple apps at once, while 16GB machines aren't much different from 8GB or 12GB Macs except when running professional-quality (generally video editing) apps. If your Mac can run Yosemite, it can probably be upgraded to at least 8GB of RAM, if not more.

Apple typically makes Mac RAM swaps as simple as using a small screwdriver to open a panel, where you push down on clips to release the RAM boards, then pop the new RAM into place. Most Macs have two RAM slots, each arriving filled, such that a 4GB Mac will have two 2GB RAM boards inside, and an 8GB Mac will have two 4GB RAM boards inside. Many iMacs and all Mac Pros have four slots. While the iMac uses high-quality but consumer-grade RAM, the Mac Pro typically uses some of the most expensive RAM available, and the base model currently ships with 12GB of RAM installed.

How Can You Be Smart About Swapping RAM?

I've upgraded the RAM in numerous computers over the years, and learned a hard lesson in the process: do not under any circumstances attempt to cheap out when you're putting new RAM into a Mac. Let me repeat that: whatever you do, do not cut corners on RAM. Windows PCs (and, indirectly, their owners) tend to be somewhat tolerant of imperfect RAM. System crashes, app crashes, failures to boot — these sorts of problems are common enough with PCs that it's hard to trace their causes. I'm not saying this to be snarky; bad RAM is only one of a bunch of factors that can contribute to a PC's instability.

But on Macs, I've found that these sorts of issues very commonly come down to bad RAM, more specifically, cheap RAM that worked fine when it was purchased but started exhibiting problems after a system update. You might save $10 or $20 on RAM that seems trouble-free with OS X Yosemite, but has issues with the next OS X release. I've personally seen this happen, and in the process of trying to figure out what went wrong, I've read hundreds (if not thousands) of identical user complaints on Apple's Support Discussion Forums. Cheap RAM is a far more common failure point for Macs than people realize.

You can replace the RAM boards separately, but it's generally wise to swap pairs of two at the same time to avoid any subtle specification differences between the old and new RAM. Historically, it was considered safest — though not mandatory, and I don't always follow it — to have the same amount of RAM in

each of two slots. (Four-slot machines could have two separately matched pairs.)

Your best move is to buy the right RAM from a reliable vendor on day one. For this particular type of upgrade, I personally recommend Other World Computing's OWC Memory selector page. It's highly visual, cleanly organized by Mac model, and makes very clear what your specific machine's RAM options are — including online installation videos to show you what needs to be done.

I've also used Crucial RAM in the past, with mixed results — one of my "works today, fails a year later" RAM experiences was a Crucial upgrade, but if you're tech-savvy enough to sort through confusing part numbers, Crucial's RAM can be good. Sometimes Crucial's prices are lower than OWC's, but OWC's installation videos and the absence of post-purchase problems have tended to be worth the small premium. I've been very happy with the OWC parts I've purchased for Mac upgrades, including the ones featured in my iMac SSD update guide.

Mac-Specific RAM Guidance

As long as you follow a single guideline — get at least 8GB of RAM for your Mac — pretty much any older Mac you want to upgrade will be better off than it was before. The type and quantity of RAM you'll need will depend both on the Mac you're using and the things you personally do with it. Here are some Mac-specific pointers that could help guide your decision.

MacBook/MacBook Pro. These two-slot machines are typically limited to a maximum of 16GB of RAM, though older models are capped at 8GB. Use this OWC page to find the right RAM for your specific MacBook or MacBook Pro model, and go with a 4GB + 4GB (total 8GB) kit unless you're in one of two situations: if your MacBook/Pro still has a non-SSD hard drive which you don't plan to replace, or you do video editing on your laptop. In those situations, consider 12GB (4GB+8GB) or 16GB (8GB+8GB) kits instead. (Note that the Retina MacBook Pro does not have user-replaceable RAM.)

MacBook Air. Like the Retina MacBook Pro, you can't upgrade the RAM directly in the MacBook Air, and strictly speaking, you're out of luck for RAM expansion unless you're willing to have the main logic board updated. But you can easily add more storage, either through an SSD upgrade (faster, more expensive) or the 13″ Air's SD card slot (cheaper but slower). That slot is capable of holding a 64GB or 128GB flash expansion card that sits almost flush with the laptop's edge. Transcend's JetDrive Lite (64GB/$37, 128GB/$74) is a highly-regarded option with a 4.5/5-star Amazon rating; and The MiniDrive lets you self-supply a Micro SD card of your chosen capacity for $20. These tiny drives also work in the 13″ and 15″ Retina MacBook Pros.

iMac. Every iMac released since 2009 can be updated to at least 16GB of RAM, and quite a few models (mostly but not exclusively 27″ iMacs) can handle up to 32GB of RAM in four memory slots. OWC's iMac memory page will take you to the correct RAM for your machine. I personally have 12GB of RAM in my 2011 27″ iMac and feel that it's the right minimum amount of RAM for my daily professional use, but if you're not planning on doing video editing or running a lot of apps at the same time, 8GB is fine. Similarly, if your iMac is being used heavily for professional, time-sensitive tasks such as creating videos, music, or complex documents, consider a bump up to 16GB of RAM, possibly more.

Mac mini. Mixed news here: starting with the 2014 Mac mini, Apple stopped including user-replaceable RAM in this machine, so that's not an option. But Mac minis sold from 2010 to 2013 can be upgraded to 16GB, and 2009 models are capped at 8GB. This OWC page will guide you to the right RAM for each Mac mini; my general advice is to stick to 8GB unless you're really leaning on your mini as a workhorse for professional apps or numerous apps at once. That's not the common usage scenario for a mini, so a modest upgrade will be fine.

Mac Pro. This beast of a professional computer has the ability to use up to 128GB of RAM — Apple notably says 64GB (using four 16GB RAM boards), and ships with a minimum of 12GB (three 4GB RAM boards) installed. OWC's Memory page spotlights all of the available Mac Pro RAM options, explaining in small print that you'll need OS X Mavericks or newer to make use of over 96GB of RAM. As a general statement, if you're using a Mac Pro, you probably need at least 12GB for whatever professional applications you're using, and 16GB or more certainly won't hurt.

If you're looking for more (and much faster) storage rather than more RAM, check out my guides to replacing Mac hard drives with solid state drives, starting with iMacs, continuing with Mac minis, Mac Pros, and regular MacBooks, then finishing with MacBook Airs and Retina MacBook Pros. The installation of SSDs requires a little more work and precision than swapping RAM, but you'll notice even bigger performance jumps, particularly if you're willing to buy the latest and greatest SSDs recommended inside.

Daniel Nations posted the following article to about.com. tinyurl.com/mrsy7gh. © About.com. He has been writing, programming and following technology since back in the Commodore Vic 20 days.

Apple TV Review (3rd Generation)

By Daniel Nations

The 3rd generation of Apple TV devices boosts the internal processing power and provides long-overdue 1080p HD playback, but ultimately, the stand-alone device falls short of the competition in terms of features and the amount of content you can enjoy through it. But for those with an iPad, iPhone or iPod Touch, Apple TV can go from being a second-class citizen to an essential part of your gadget ecosystem.

Apple TV: **3 1/2 Stars**
Apple TV as an iPad/iPhone accessory: **5 Stars**

Apple TV Features

Rent or buy movies and TV shows from iTunes
Stream video from YouTube, Vimeo, Netflix, MLB, NBA, NHL and WSJ Live
View your photos from Photo Stream or Flickr
Listen to Internet Radio and various podcasts
Access your iTunes library via iTunes Home Sharing
Use AirPlay to interact with your iPad, iPhone, iPod Touch or PC

Apple TV: The Good

Apple TV packs a lot into an unassuming package. The box itself is four inches by four inches, which is about the size of two credit cards placed side-by-side, and stands slightly less than an inch in height. The back of the little black box holds an HDMI input, a network input, an input for the power plug and an input for optical audio. Apple TV also comes with a metallic-colored remote, which is both compact and simple in design, with only seven buttons (including directional buttons) to control Apple TV.

Like most Apple products, Apple TV is a breeze to setup anduse. In only a few minutes, I had Apple TV connected to my wireless network and was browsing through the offerings, which includes Netflix, YouTube, and Vimeo in addition to the iTunes library. The interface is dominated by large icons to take you into the different sections, and if you don't like using the small remote to interact with the device, you can download a free app on your iPhone or iPad.

Want to watch movies from your PC's iTunes collection? No problem. Apple TV can use home sharing to connect with your PC, or if you are at your computer, you can simply click the AirPlay button during iTunes playback to send the video to Apple TV. How to Setup Home Sharing

Apple TV also includes iCloud support, which means you can check out photos in your Photo Stream, and if you subscribe to iTunes Match, you can stream your music from iCloud. Apple TV even uses your Photo Stream for a personalized screen saver. How to Turn On Photo Stream on Your iPad

The inclusion of 1080p video shores up one of the biggest weaknesses found in prior generations of Apple TV, though not all shows in the iTunes database currently support 1080p, and if the show only says "HD" it only supports 720p. You'll need to specifically look for 1080p to ensure the video supports the higher definition playback.

In addition to these features, Apple TV supports a wide variety of Internet radio and podcasts. You can also view photos on Flickr and get the latest news with Wall Street Journal Live.

Apple TV: The Bad

For what it does, Apple TV is great. Set up is simple, video playback is excellent, and it is easy to get the ball rolling with subscription services like Netflix, MLB, NBA and NHL.

The knock on Apple TV isn't what it does. It is what Apple TV doesn't do, which is a lot when compared to similar products like the Roku device.

Here's what you won't get with Apple TV: Hulu Plus, Amazon Instant Video, Crackle, Pandora Radio, HBO Go, Epix, Disney, NBC News, Aol HD, Cnet, Fox News, Facebook, Flixster, Mog, blip.tv, comedy.tv and (believe it or not) much more.

Those are all channels you will get with the Roku device, which is also cheaper than Apple TV if you go with one of the entry-level units. Even the fully-featured

Roku device (which supports limited gaming) has the same retail price as Apple TV.

This makes Apple TV a hard sell for anyone that is not already entrenched within the Apple ecosystem. It's a great device, but it simply doesn't measure up to the competition in the feature department.

How to Use Apple TV With an iPad

Apple TV: A 5-Star iPad Accessory

On the flipside, Apple TV is one of the best accessories you can buy for the iPad. Not only does Apple TV interact well with iPad and iPhone services like Photo Stream and iTunes Match, it also supports AirPlay, which allows you to stream music and video from your iDevice to your Apple TV, and AirPlay Display Mirroring, which means you can stream your iPad to Apple TV even if the app you are using doesn't support video out. This makes Apple TV one of the best ways to connect your iPad to your TV.

Apple TV does three things for iPad owners: (1) The iPad overcomes the primary weakness of Apple TV by granting access to Pandora, Crackle and any other video streaming service offered on the iPad, (2) Apple TV connects the iPad to the TV, allowing you to check Facebook, send email or simply browse the web on your big HDTV and (3) The iPad/Apple TV combination results in a great gaming console, with some games like Real Racing 2 even splitting what's displayed on the big screen and what is displayed on the iPad to enhanced the iPad-as-a-controller experience.

The Top iPad Movie and TV Apps

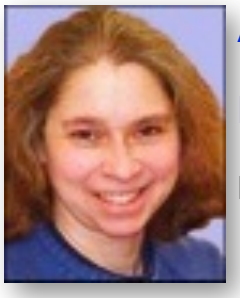
Should You Buy Apple TV?

Like music was a decade ago, we are on the precipice of ditching analog video (i.e. DVDs and Blu-Ray) in favor of digital video (especially streaming video). And while Steve Jobs once called Apple TV a "hobby", it is clear Apple is intent on turning this hobby into a valuable asset.

Luckily, the question of whether or not Apple TV is right for you is a relatively simple one to answer. If you have an iPad or iPhone, Apple TV is a great addition to your household. Don't give the Roku device a second thought. While there are a few features of Roku like Amazon Instant Video that can't (yet) be reproduced by the Apple TV-iPad/iPhone combination, there are many more features of that combination that can't be reproduced on Roku.

On the other hand, if you don't own an iPad, iPhone or iPod Touch and don't see yourself purchasing one of these products in the future, Roku is a better choice. Not only does it offer more content, the Roku device is also cheaper.

That’s what happens



AI and Humans

Brain Terrain

By Kathy Garges

With Facebook about to take social media to the next level with Oculus virtual reality headsets, it seems like a good idea to consider how new technologies might be changing the physiology of human brains. A new book, *Mind Change,* by British neuroscientist Susan Greenfield, surveys neuroscience studies of humans who use digital technology.

In recent decades, neuroscientists have surprised everyone with evidence that the adult human brain is far more changeable, more plastic, than previously thought. As artificial intelligence pioneer Marvin Minsky views it: "The principal activities of brains are making changes in themselves." An often-cited example of neuroplasticity is the enlargement of the hippocampi of London taxi drivers, who are required to memorize a huge number of routes and locations.

Mind Change begins with an admirable plan for evaluating neuroscience studies, giving greatest weight to those that are peer-reviewed, empirical experiments with statistically-significant results. But it's not clear that Greenfield follows these guidelines. Her conclusions seem overly-broad and her discussion of the scientific studies is not technical. The book does give a good overview of studies that have been conducted, a surprisingly large number, and introduces the reader to useful vocabulary and concepts.

"FOMO" is fear of missing out. "FONK" is fear of not knowing. FOMO and FONK are believed to be major drivers of compulsive social media use. The "Google effect" is not bothering to remember information because you know you can always Google it at a later time. "Source amnesia" is not remembering how or from what source you learned something. A "Digital Native" is a human who grows up using digital technologies, while a "Digital Immigrant" is someone who starts using digital technologies in adulthood.

The nature of brain plasticity and the newness of the technologies that are being studied make it difficult to come to any reliable conclusions. Greenfield notes that brain neuroplasticity means that it is often difficult to draw conclusions about whether brain differences lead to differences in behavior, or vice versa. She admits that neuroscience studies do not allow us to predict how a specific individual will be affected by the Internet or other digital technologies. In addition, no direct correspondence can be identified between specific brain changes and skills or behaviors; study results usually are averages for groups of people, and it is not possible to observe the brain changing neuron by neuron. An individual human's subjective internal experience also does not correlate with specific brain changes.

A study shows, for example, that Facebook use correlates with a negative attitude, including a tendency to rudeness and insults. It's not clear, however, whether this correlation is because Facebook attracts people who have a negative attitude, gives people an outlet for their negative attitudes, causes users to develop negative attitudes, increases negative attitudes in users, or whether all of these are true to some degree and might be different for different people.

Another example is that addictive online and video gaming seems to attract young people who are not strong in academics. Or does it reduce interest in academics? Greenfield admits that we do not know. Studies do show that online gaming affects the same part of the brain as compulsive gambling. But different brain chemicals are generated when a human plays first person shooter games or MMORPGs (massively multiplayer online role-playing games). Studies show that some gamers are attracted by the thrill of the game, but others use games as an escape.

Before publishing *Mind Change,* Greenfield spoke out in England against gaming, and attracted a lot of criticism, which continues in some reviews of her book. One could argue that negative reviews of *Mind Change* by gamers are evidence that gaming does increase aggression and low-grade hostility, as she argues that studies have shown. (Such evidence would, however, be anecdotal, not based on peer-reviewed, empirical studies.)

Greenfield's conflict with gamers highlights the problem with focusing neuroscience studies on teenagers. She focuses on teens because she believes they are vulnerable. But young people currently form the majority of Digital Natives, so it is difficult to separate findings about digital technology use from typical teenage development issues that existed long before digital technology.

In the American musical *The Music Man,* set in the small mid-western town, River City, in the early 1900s, a con artist is easily able to rile up citizens by ranting about game playing by young people. The "game with fifteen numbered balls is a devil's tool!" The dangerous game referred to is pool, not World of Warcraft.

Strangely, Greenfield argues that television viewing, which served as the focus of concern for stunted development of the Baby Boom Generation, is preferable to using digital technology. She believes television provides a beneficial narrative or story framework for information and reduces attention span less than gaming.

The most interesting aspect of Greenfield's discussion is the connection she makes between privacy and personal identity. She cites neuroscience studies that show that social media is interfering with a healthy development of personal identity in teens. Greenfield worries that Digital Natives are developing a sense of self that is less private, less resilient and more changeable than previous generations. Online, identity has become a list of one's online contacts and one's likes and dislikes, an "airbrushed" online portrait. Greenfield is concerned that humans are willing to trade the perceived benefits of social media for their privacy.

Whether or not one believes Greenfield or the negatives suggested by neuroscience studies in this area, the connection she makes between identity and privacy suggests why Internet privacy issues seem so confusing to most humans and so difficult to resolve. Exploring the connection between a healthy sense of self and privacy could be the key to finding solutions to privacy issues on the Internet.

Greenfield gives too little weight to the important point that human intelligence has created exactly the digital technologies that she finds troublesome. If Facebook didn't exist, wouldn't a human create it? Neuroscience studies are useful in bringing to light hidden effects of digital technologies, but most of the effects are intentional ones that fill genuine needs, and humans do indeed decide that the trade-offs are worth it. *Mind Change* mentions positive digital applications only briefly or in a footnote, including ECHOES, a successful learning environment for autism spectrum children.

Mind Change uses as a kind of benchmark neuroscience studies that show that exercise and an "enriched environment" are good for all human brains. Hard to argue with that. But Greenfield fails to appreciate that her own environment as a research neuroscientist (specializing in dementia) and member of the House of Lords is an enriched environment not available to the average human teen or adult. A fair perspective is that the Internet provides significant enrichment for most humans.

The Internet and other digital technologies, and the Digital Natives generations, are still young. *Mind Change* offers useful information for understanding the current state of neuroscience knowledge, the impact of digital technologies on humans and some ideas for improving our use of them. It seems likely that "River City" humans will be just as able to mold digital technologies to our benefit as our ancestors were to foil con artists and transform pool players into marching bands.

Sources and additional information:

Troy Wolverton, "Facebook's enthusiasm and Oculus technology aside, virtual reality still faces challenges," San Jose Mercury News, March 30, 2015, tinyurl.com/nexkchx

"Brain Plasticity – What Is It?", Neuroscience for Kids, tinyurl.com/25aje66

"London Taxi Drivers' Brains," National Geographic, tinyurl.com/pylycbf

Susan Greenfield, *Mind Change: How Digital Technologies Are Leaving Their Marks On Our Brains,* Random House, 2015.

Review of *Mind Change* by a Digital Native:
Maya Sapiurka, "'Mind Change': Does Technology Really Harm Our Brains?", Neuwrite, March 5, 2015, tinyurl.com/oqw5doq

Review of *Mind Change* by a Digital Native:
Martin Robbins, "Mind Change: Susan Greenfield has a big idea, but what is it?", The Guardian, October 3, 2014, tinyurl.com/q3st3na

ECHOES, technology-enhanced learning environment for autism spectrum children, www.echoes2.org/

MLMUG PHOTO OF THE MONTH

MOUNT RUSHMORE NATIONAL MEMORIAL

Taken by Marian Berray

Marian and Jim Berray were a on a tour through Utah, Wyoming and South Dakota, ending in Rapid City where they go to see the Mount Rushmore National Memorial. And so they got to see - and photograph - the sculpture of the faces of four great American presidents, George Washington, Thomas Jefferson, Theodore Roosevelt and Abraham Lincoln.

Sally Bazrod
Photo of the Month Editor

Technical Details

Date: September 9, 2014
Place: Rapid City, South Dakota
Camera: CanonPowershot G11
Focus: Autofocus
Aperture: f/4.5
Speed: 1/800
ISO: 100