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Volume 35 Issue -- 3

March 15th General Meeting:

Data Recovery

Knights of Columbus
2533 Main Street,
Glastonbury, CT

Q&A Session: 7 PM–7:15PM

Meeting starts at: 7:15PM



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MEETING LOCATIONS

**Knights of Columbus
2533 Main Street,
Glastonbury, CT**

From The Editor

by Stuart Rabinowitz

This month's meeting is about Data recovery software and the process. Still trying to figure out how to present a meeting on the cloud.

In the news: Countless computers vulnerable to MouseJack attack through wireless mice and keyboards.

uKnowKids.com database error exposed sensitive information on 1,700 kids.

Thousands of gamers' passwords were easily cracked in 3 minutes.

There is a new favorite Wi-Fi router name -- FBIVan1 as opposed to virus.exe.

Nissan apologizes, shuts mobile app that left the Leaf EV hackable. The app would let you remotely control any vehicles' functions. All you needed was the VIN/

Researchers in Southampton have developed a permanent 'Superman crystal' style holographic storage media etched with the Bible, Magna Carta

Apple is replacing defective MacBook cables

The Internet Archive has started a malware museum to take you back to the days of cheeky viruses, just remember don't touch the malware.

Send your comments to editor@huge.org

Until next month...

Happy computing!!

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A Little Computer Quiz

- 1 Today we have the App store to get our software, but 20 years ago you had to drive to a real store unless you had a specific CD. What was it called?
 - 2 How many 'great applications' were available?
 - 3 In 1976 what company sold the first electronic music visualizer? (To see what I'm talking about, start 'iTunes', play a song, & press 'command-t'.)
 - 4 What was it called?
 - 5 About 15 years ago, what company released an OS code-named 'Kodiak'?
-

February Quiz Answers

Answers from February:

- 1 On Nov. 7, 2015 Orly airport in Paris had to ground all flights because the computer that linked the weather network to air traffic control crashed. What operating system (& version) was running on the computer that crashed?
A Windows 3.1
 - 2 We've all seen the dreaded "Error 404 — Page not Found" message while surfing the Internet. We may soon see a new one "Error 451", what does "Error 451 signify?"
A It means the content has "legal obstacles" (i.e. censorship)
 - 3 Why that particular code number?
A It was inspired by Ray Bradbury's book 'Fahrenheit 451' and suggested by Tim Bray, formerly of Google
 - 4 On 11/20/1985 Microsoft announced a new piece of software that only worked on an IBM PC. What was it called?
A Microsoft Windows
 - 5 What did it do?
A It was an "Operating Environment" that put a graphical interface on MS-DOS
-

How to Unlearn Misspellings and Sync Your User Dictionary in OS X

by Adam C. Engst: <ace@tidbits.com>, @adamengst

article link: <<http://tidbits.com/e/16241>>

17 comments

Don't you hate it when you accidentally tell OS X's spelling checker to learn a misspelled word, rather than correcting it? Let me show you how to fix that.

This just happened to me. I was editing some text and ran across the misspelling "stegonography" (when properly spelled as "steganography," it means the practice of concealing messages within other seemingly innocuous text or data). OS X's spelling checker alertly underlined it in red to indicate that it was wrong. I Control-clicked it to get the proper spelling, but my finger slipped, and I inadvertently chose Learn Spelling, which added it to my local user dictionary. Curses!

<<http://tidbits.com/resources/2016-02/Learn-spelling.png>>

(Just to make sure we're all on the same page of the Mac 101 textbook... when you type a word that the spelling checker doesn't recognize, it will be underlined in red. Control-click it to display a pop-up menu that offers correctly spelled alternatives along with commands to learn the word if it's right or ignore it if it's correct in context.)

If you're in Pages, TextEdit, Nisus Writer Pro, BBEdit, or the like, you can Control-click the word, which will no longer have that red underline, and choose Unlearn Spelling to reverse your action. But if you're in Safari, Google Chrome, or any other app that supports spell checking without implementing it fully, no Unlearn Spelling command is available.

<<http://tidbits.com/resources/2016-02/Unlearn-spelling.png>>

The clumsy solution is to copy the offending word, paste it into TextEdit or a similar app, Control-click it there, and choose Unlearn Spelling from the pop-up menu. Effective, but awkward, particularly if you've ended up with a number of misspelled words in your dictionary over the years.

Here's an alternative solution — you can edit your list of learned words directly, since it's just a text file. Follow these steps:

1. In the Finder, press the Option key and choose Library from the Go menu to open your account's Library folder.
2. In the Library folder, find the Spelling folder, and open it.
3. Double-click the LocalDictionary file to open it in TextEdit (or whatever app you use for text files). If you are in a different English-speaking part of the world or use a different language, you'll instead want to look for a file named for your region or language, such as en_CA for Canada or nl for Netherlands.

<<http://tidbits.com/resources/2016-02/LocalDictionary-in-TextEdit.png>>

4. Scroll through, deleting any incorrect words.

You can also add words here, but make sure to keep them in strict alphabetical order or sort the list with an app (see below). This would be a good way to add a lot of technical, medical, or scientific terms quickly. Either way, maintain one word per line.

When you're done, save the file.

5. Finally, launch Activity Monitor from /Applications/Utilities, click the Process Name

column header to sort by name, and look for AppleSpell. (If you use a different language, you may have a different process; a Greek reader reported that his was called GRspell. Search for “spell” in Activity Monitor if you don’t see AppleSpell.)

Select it and click the X button in the upper left corner of the Activity Monitor window, then click Quit in the dialog that appears.

<<http://tidbits.com/resources/2016-02/Quit-AppleSpell.png>>

Without this last step (or a restart), AppleSpell won’t see your changes in LocalDictionary. After you quit AppleSpell, it restarts automatically after a few minutes, or the first time you Control-click a word.

****Sync Dictionaries across Macs**** -- If you think about it, knowing that all your learned words are in a file gives you another interesting capability. If you have multiple Macs, and want the same set of learned words on each of them, you can copy the LocalDictionary (or whatever your system uses) file from one Mac to another and then quit AppleSpell or restart.

You could even merge two of these learned word files from different Macs, as long as you have some way of sorting the lines alphabetically — I’d do that in BBEdit or the free TextWrangler, both of which have a Sort Lines command in the Text menu.

<<http://www.barebones.com/products/textwrangler/>>

There is one quirk that I haven’t yet been able to figure out entirely. In the `-/Library/Spelling` directory on my iMac, there’s also a text file called `en`, which contains a subset of the words in LocalDictionary. (On my MacBook Air, it has only a handful of words.) In my initial testing,

learning a word updated the `en` file instead of LocalDictionary, which caused me some confusion. But when I realized what was happening and started some rigorous testing, that behavior stopped and nothing I do affects `en` any more.

I believe the use of a file other than LocalDictionary is related to language settings in the Language & Region pane of System Preferences, since I now have confirmation from people in other countries that their Macs use learned word files named for their language or region, such as `nl` for Netherlands and `en_CA` for Canada. And a Greek reader reported that his file was called `Greek`, not `gr`. But no matter how I fiddle with the language settings, I can’t make anything interesting happen with the `en` file on my Mac.

This minor mystery notwithstanding, I hope you find this advice useful in cleaning up your learned word list and ensuring that spell checking works the same on all your Macs.

read/post comments:

<<http://tidbits.com/e/16241#comments>>

tweet this article: <<http://tidbits.com/t/16241>>

Storage Media, Interfaces, and Backups
Recap of December 2013 Meeting by Anne
Moss, Secretary, Northern Neck Computer Users' Group, NJ

January 2014 issue, The Computer Link

www.nncug.org

mcmillan (at) va.metrocast.net

Rob Mink, President NNCUG, was the speaker at the December NNCUG Meeting. Rob's discussion about storage media and interfaces was designed to pick up from Brian Riley's October discussion about the use of external hard drives for computer backup. Throughout his talk, Rob passed around examples of different storage media.

There are two basic types of storage media – Magnetic and Solid State. However, optical storage may still provide a method of relatively long term data storage.

Magnetic Storage: First, Rob noted that physical media, for example punch cards, is extinct for computing. The most common form of magnetic storage is found in hard drives. Soft drives (such as tapes and floppy disks) are obsolete. Currently the maximum capacity of hard drives is 4 terabytes (TB). The 4 TB limits of hard drives dictate the use of a desktop computer. A hard drive in a desktop computer can have 4 or 5 platters to store data on each surface area. Additional storage usually can be installed in a desktop computer or attached to it. A desktop will use a 3.5 inch drive and a laptop will use a 2.5 inch one. A laptop hard drive uses a lower number of data storage platters with a maximum a capacity of about 1.5 TB. Laptop capacity can be expanded by the use of a USB flash drive which functions as an external drive. In addition, an external hard drive may be attached to a laptop via a USB port. Magnetic storage devices can fail quickly or gradually. They sometimes give warning of forthcoming failure.

Solid State Storage: These storage devices commonly can be Solid State Drives (SSD), USB Thumb drives or "sticks", and flash memory cards. Basically, these devices are made of transistors and capacitors in the desired format and size. Data life can be from 8 years to over 100 years, depending upon the temperature in which they are used and stored. The greater the capacity, the higher the price! However, over time, the prices for a given size device usually drop. The drawback for these solid state devices is that they can suffer sudden and catastrophically failure.

Solid State Technology: This comes in single layer or multilayer forms. It is made from Floating gate MOSFET NAND FlipFlops. Floating gates keep data for a very long time - 80 years was mentioned. Even though the technology is quite difficult for the average user to understand, one sees the products everywhere – for example, tablets and memory cards. Rob was asked why sudden failures occur. Reasons can be a bad interface with a chip or sudden drops can kill a device. The technology still is immature, so it is not good at recognizing failure. He does not trust flash drive backups considering the risk of sudden failure. (In response to a question about photograph storage, Rob indicated that, in actual practice, photos by the average home user could be stored on magnetic media. Alternatively, while photos can be stored on flash drives, Rob counseled that it is probably safest to burn a CD.)

Optical Storage Technology: This includes CDs (read only and read-write), DVDs (in various types such as read only, read-write, dual layer that are burned on each side), and Blu-ray disks (in similar types). Optical storage media can be normal or archival in nature, depending upon the dye material used. Best is gold or silver dyes found in the more expensive disks. Normal grade disks are other colors such as green or blue. (Rob noted that it is best to stay away from DVD's with a purple colored dye.) Expect

a burned disk to last from 2 to 25 years. For critical data, Rob advised that it is wise to burn pairs of disks. Then if it is needed, recovery can be made by combining data from both disks. It is unlikely that both disks would fail in the exact same place. Optical media is cheap and comes in capacities of 650 megabytes to 125 Gigabytes. Data can be burned in a single write session or multi-write sessions depending on the media used. The former is locked after the initial write session, and the latter can be written to or erased many times. The latter method is less reliable, and somewhat less readable by devices other than the one that was used to create the original disk.

Interfaces: Rob described a wide range of interface types. Internal interfaces in computers include SATA, IDE, and SCSI/SAS types. Some need a connector to the power supply to function. External interfaces include Serial Peripheral Interface (SPI), SATA, USB, and Firewire.

Backups: There are two major strategies for data backups. First, backups can be kept offsite using cloud storage firms such as Carbonite or Spider Oak. Costs vary, but one should estimate about \$1.00 per gigabyte per year. Relatively limited cloud storage may be available for free. Second, one can use onsite storage. There are a few different types of onsite storage. Onsite magnetic storage includes using RAID and NAS hard drive configurations. (Different RAID type numbers indicate different configurations of hard drive storage.) Onsite optical storage, such as CD's or DVD's is a good means of back up storage, but is labor intensive for burning the data to disks. (Burn disks in pairs and not automatically.) Tape backups have changed and now are smaller than cassettes. However, tape backups are slow, and there are may be a number of failures. Rob indicated that the best approach is to have backups on two optical disks and another type of storage such as hard drives. Some computers have a removable hard drive bay and one can use several hard drives to have a rotating

backup plan. This approach is useful for whole hard drive backups.

To sum up, Rob presented an extensive list of the available choices when choosing to back up data, as well as highlighting the changes in standards that has occurred over a relatively short time in computer technology.

Alternatives to Apple's Wi-Fi Base Stations

by Glenn Fleishman: <glenn@glennf.com>, @glennf

article link: <<http://tidbits.com/e/16109>>

14 comments

As the author of “Take Control of Your Apple Wi-Fi Network”, you might think that I’d be biased in favor of the fruit company’s products. Yes and no! For Mac and iOS users who need access to specific features and want the simplicity of configuring a base station through native software for both OS X and iOS, or who want to extend a network wirelessly, Apple’s long-in-the-tooth lineup remains the right choice, though it’s currently overpriced for what it delivers.

<<http://tid.bl.it/tco-apple-wifi-tidbits>>

If you don’t need specific AirPort-only features and are willing to brave Web-based router administration and a steeper learning curve, you have a couple of alternatives that cost substantially less and offer capabilities Apple doesn’t include and likely never will.

****The Apple Advantage**** -- Apple was one of the first companies to incorporate advanced features into its consumer-oriented 802.11n base stations, which have evolved into the current 802.11ac models. (That’s 802.11ac _wave 1_, which I’ll explain further below.) Apple’s base stations offered relatively affordable simultaneous dual-band networking — data flowing over 2.4 GHz and 5 GHz at the same time — with access controls, radio and channel choices, guest networking, USB printer sharing, hard drive sharing (except the AirPort Express), dedicated backup storage (Time Capsule), and music streaming (only on the AirPort Express).

But those advantages are in the distant past — most of these previously innovative features date to 2009 for the AirPort Extreme and Time Capsule and 2012 for the AirPort Express. Especially

with the AirPort Extreme and Time Capsule models, which have had an identical tall “cracker box” form factor since their update in 2013, subsequent improvements have been solely in radio systems, with additional antennas and the move up to 802.11ac wave 1. But that’s not unusual — nearly every base station you can find has similar radio systems.

The AirPort Express is even further behind the curve. Last updated in 2012, it remains stuck with 802.11n and 10/100 Mbps networking, two Ethernet ports (one dedicated to a wide-area networking — WAN — or broadband connection), and no hard drive or multiple USB printer support. It uniquely sports an audio output (for analog and digital connections) that enables AirPlay streaming. (That audio-only output option was removed from the fourth-generation Apple TV.)

In contrast, the AirPort Extreme and Time Capsule have three switched LAN and one WAN gigabit Ethernet ports, and can handle multiple printers and hard drives, although even their USB ports remain USB 2, rather than the ubiquitous and 10x faster USB 3 standard.

So why pick an AirPort Extreme, Time Capsule, or AirPort Express, given how long it has been since Apple has paid them much attention?

* AirPort Utility remains a relatively friendly and easy way to configure one or more base stations. It runs only in OS X and iOS. (The Windows version hasn’t been updated in several years.)

* Plugging one or more printers into a base station via USB makes them available to OS X machines. (If a printer supports AirPrint, you don’t need to plug it in to the base station; in fact, doing so disables AirPrint, according to Apple.)

* You want to use AirPlay to stream music through the audio port on an AirPort Express. AirPlay isn’t found in many third-party receivers

or other devices. (A refurbished third-generation Apple TV can be a better deal, though.)

<<http://www.apple.com/shop/product/FD199LL/A/refurbished-apple-tv>>

* Apple's implementation of extending a network via wireless base station connections — using Wireless Distribution System (WDS) — can work well, but it's reliable only among Apple's own devices. (I switched to an Ethernet backbone in my house years ago due to earlier WDS issues, but I know many people who use it, especially when stringing Ethernet is impossible or they're renting and can't put holes in the wall.)

* You want to use Back to My Mac to modify or check a base station's status or to access attached USB drives.

* Apple is easy to work with for warranty repair and replacement, and some base stations models were problematic enough that people were able to get free replacements years later. Apple includes base stations as a warrantied accessory when you purchase an AppleCare extended service agreement for a Mac: any base station purchased up to 2 years before the Mac's date of sale, or bought during the 3 years of AppleCare, is covered till the end of the AppleCare term.

While the term "Apple tax" is often used to ridicule people who prefer a product that works well and costs more to one that is cheap and bad, in the case of Apple's base stations you're not getting what you pay for unless one or more of the above factors is important.

****Picking an Alternative**** — In the past, non-Apple routers suffered from a lack of OS X-compatible drivers and options for services like USB printer and hard drive sharing. Some routers required you to download and run a Windows app to update firmware. Others relied on Java or even Internet Explorer. Most of that

nonsense has disappeared, and simple browser-based administration is generally effective. I have seen a few situations where Safari behaves oddly with an admin interface, but in those cases Chrome or Firefox usually works fine.

I recently needed to replace one of the three base stations in my house, because I upgraded my broadband service to gigabit fiber, which required locating the broadband modem in a totally different part of the house. I use Ethernet as the backbone between three Apple base stations of different vintages, and had forgotten that the one closest to the broadband modem was limited to 802.11n, was a single-band-at-a-time model, and topped out at 100 Mbps Ethernet. That would drag down a 1 Gbps symmetrical Internet connection, and it also meant I hadn't been getting the best use of my LAN, either.

<<http://www.macworld.com/article/3005261/internet/life-in-the-fast-lane-what-gigabit-internet-makes-better.html>>

I'm an editor-at-large at The Wirecutter and recently helped in a late-stage edit of its revised guide for the best all-around Wi-Fi router. The reviewer picked the 802.11ac simultaneous dual-band TP-Link Archer C7 (v2), which typically sells for about \$90, or half the price of an AirPort Extreme.

<<http://thewirecutter.com/reviews/best-wi-fi-router/>>

<<http://www.amazon.com/dp/B00BUSDVBBQ/?tag=tidbitsselectro00>>

<<http://tidbits.com/resources/2015-12/AirPort-alt-s-Archer-C7.jpg>>

I had considered the new Google OnHub routers, one made by TP-Link and one by Asus, but the prices (\$200 and \$220) are nonstarters and most of the interesting features aren't enabled or seem awkward ("Google's OnHub

Router Gets Rough Treatment in Early Reviews,” 31 August 2015).

<<https://on.google.com/hub/>>
<<https://tidbits.com/article/15897>>

There are literally hundreds of inexpensive 802.11n and 802.11ac routers, but few have consistently outstanding reviews or include as many features as the TP-Link unit. After reviewing what I needed, I opted to buy the Archer C7: it checks off all the Wi-Fi boxes I need and a number of others. While it lacks the AirPort-only features mentioned above (AirPort Utility configuration, AirPlay, and Back to My Mac), I’m not troubled by the omissions, and I suspect many people won’t even notice these features are missing.

Like most non-Apple routers, the Archer C7 has an absurd number of configuration options. Most router manufacturers adapt reference designs made by chipmakers, which includes microcode that runs the router. The manufacturer typically creates a physical case, customizes and extends the software, and packages administrative tools in its own user interface. Because so many options are available in the chipset and reference design, they’re generally presented to the user as equally valuable, though some are hidden in an Advanced section. Most people never need to change more than a few settings, but for those who need extras, you’ll find options in the Archer C7 Apple doesn’t and will never offer.

<<http://tidbits.com/resources/2015-12/AirPort-alt-s-Archer-general-UI.png>>

For instance:

* Guest networking goes far beyond Apple’s approach, with settings to throttle inbound and outbound bandwidth usage, set different network names and security parameters for 2.4 and

5 GHz guest networks, set access time limitations, and opt to let guests use LAN resources.

<<http://tidbits.com/resources/2015-12/Airport-alt-s-Archer-Guest-Networking.png>>

* If you use Dynamic DNS to cope with an ISP changing your publicly facing IP address, the router can log in to several DDNS services to keep the domain-to-address connection up to date.

<<http://tidbits.com/resources/2015-12/AirPort-alt-s-Archer-DDNS.png>>

* Security controls abound, including options enabled by default to prevent malicious behavior from passing through your router, and other controls that can be turned on to block denial-of-service attacks. The Archer C7 even has a way to restrict actions for devices on the local LAN reaching out to the Internet, and a separate section for fine-grained parental controls.

* WPS (Wi-Fi Protected Security) is fully supported, whereas Apple offers it in only a limited way. WPS lets you add devices, particularly those that lack a screen or full interface, to Wi-Fi networks without entering long WPA2 passphrases.

If you’re concerned about using Bonjour, AirPrint, or AirPlay over a network that’s not all configured with Apple gear — don’t be. The underlying protocol, mDNS, is now used by companies other than just Apple, and it works in general with modern Wi-Fi routers from other companies.

The worst thing I’ve seen, which isn’t terrible, is that the Bonjour names for network devices don’t appear in AirPort Utility when I’m configuring my two remaining Apple base stations, although the names do appear in the Archer C7’s DHCP Clients’ list.

Even without the extra options, the Archer C7's price may be right. I've messed with a few settings, but I was mostly looking for a strong 802.11ac router that would handle DHCP routing and pass traffic through, while also further extending coverage in my house.

I've been using the Archer C7 for several weeks, and haven't hit any roadblocks or consistent problems. I seem to need to reboot it occasionally, but because of a necessary telco-provided modem, I'm never entirely sure where the fault lies, the modem or the router. When I've needed to change settings or look up how I configured a feature, I haven't been stymied. As with most routers, after an initial configuration, you rarely mess with details — set it and forget it.

As I note above, although there are many competing routers, few truly inexpensive models have gotten decent reviews. But TP-Link makes a super-cheap 2.4 GHz-only 802.11n router, the TL-WR841N, which sells at Amazon for \$19 and is generally well liked in over 9,000 reviews, averaging over four stars. It also incorporates a four-port gigabit Ethernet LAN switch plus a WAN port, making it a great spoke end for a network.

<http://www.amazon.com/dp/B001FWYGJS/?tag=tidbitelectro00>

****What Apple Should Do**** -- Apple could reclaim the loyalty of its ecosystem in a few ways:

* Drop the price. Apple likes to maintain high margins, and typically keeps the price the same for given products even as it improves their features. Base station prices have dropped in the past; doing so again by repricing the AirPort Express to \$49 (from \$99), the AirPort Extreme to \$129 (from \$199), and the Time Capsule to \$199 and \$249 (from \$299 and \$399 for the 2 TB and 3 TB models) would bring prices back into line.

* Provide more in terms of features and standards support. The AirPort Express should finally move to gigabit Ethernet and 802.11ac. The AirPort Extreme and Time Capsule need USB 3 if Apple is serious about hard-drive sharing and Time Machine backups with external drives, and they should include a four-port LAN switch (up from three) like most competitors. And the Time Capsule line should add a 4 TB option.

Apple could also step up to 802.11ac wave 2, to which I alluded in passing earlier. Nearly every consumer 802.11ac product on the market uses wave 1, which is a huge improvement over 802.11n in the 5 GHz band. But wave 1 was only the first step towards implementing everything in the 802.11ac spec. Wave 2, which is built into the iPhone 6s and 6s Plus, allows for more efficient targeting (known as beamforming) of individual Wi-Fi adapters, which in turn allows for simultaneous data streams to multiple devices, thus improving network throughput.

<http://www.cisco.com/c/en/us/solutions/collateral/enterprise-networks/802-11ac-solution/q-and-a-c67-734152.html>

* Open up base station configuration. If Apple wants to remain native, it needs Android and Windows 10 clients that are as up to date as Mac versions. Or there needs to be a Web-based interface — perhaps it could be part of iCloud.com.

* Add Bluetooth and HomeKit support. Bluetooth would allow the kind of nifty first-stage setup that the fourth-generation Apple TV includes, in which it uses proximity to bypass security hoops. HomeKit is a long-term direction for Apple to support the Internet of Things (smart home devices and other stuff), and its base stations should include solid support for HomeKit, at least in premium models, rather than requiring yet another networked device to act as a hub.

Apple still makes quality Wi-Fi base stations. But its gear is long in the tooth and desperately needs some attention.

If you're waiting to see if Apple comes up with something new before making a purchase, bidding your time until the middle of 2016 seems sensible — the last few AirPort releases have dropped in June. However, if you need a new Wi-Fi gateway sooner and aren't wedded to AirPort-only features, either of the TP-Link models mentioned will do a fine job while keeping more money in your pocket.

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