



PATAACS Posts

Newsletter of the Potomac Area Technology and Computer Society

November, 2022

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My turn.....

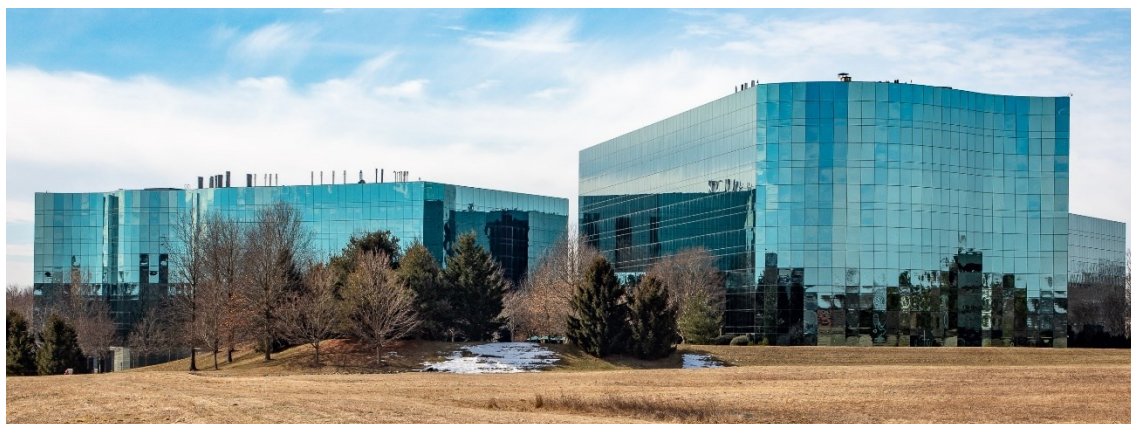
Things seem to be very busy over here in Maryland. What about where you are?



I have returned from a 2050-mile trip with stops in Mt. Vernon, Iowa, Lanark and Rockford, Illinois, and Ann Arbor, Michigan. Then I got sick with some kind of bug. The question is, is it Covid? I have tested negative four times in the past week, but according to this NYTimes article (<https://www.nytimes.com/2022/06/02/well/live/covid-testing-household-transmission.html>), I could still have it! Someone else I know hasn't been so lucky. She's getting over her second bout in ten months! As Sgt. Phil Esterhaus of **Hill Street Blues** (a 1980s TV show) would say "let's be careful out there".

I am looking for some newsletter-related help. It should take less than one hour for each issue.

I need someone to go through the newsletters from the beginning of my "editorial leadership"—if you want to call it that! 😊 (Aug/Sept 2021) and send copies of each issue to each of the article authors in that issue. If you would be interested in doing that, please get in touch. I see this as an ongoing activity that needs to be done for each issue when a new newsletter comes out—every 6-7 weeks. There are usually no more than five or six authors in each issue and their email address is typically with the article. I do not see this as needing to be done if the author is a member of PATAACS or hasn't supplied an email address. If you volunteer, I will assume that you are doing the job unless you tell me you're not. A proof-reader has volunteered, so you're off the hook—for now!



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in Rockville,
MD.

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Thank this issue’s proofreaders: Barry DeMaio, Doris Bloch, Lorrin Garson

From Gabe Goldberg a **Letter to the Editor:**

Regarding John Krout's article on Windows 11 virtual memory -- I'm curious about his source for saying Windows 11 “inevitably sets a size limit far too small to be useful”.

<https://www.makeuseof.com/how-increase-virtual-memory-windows-11/> says:

If you begin to run out of virtual memory, Windows 11 will display the following error message: Your system is low on virtual memory. Windows is increasing the size of your virtual memory paging file. During this process, memory requests for some applications may be denied. For more information, see **help**.

Windows 11 will automatically manage your virtual memory, ensuring that the paging file has enough capacity to handle your system demands. However, you can also manually increase the size of your paging file on Windows 11 if you're comfortable making decisions regarding how much RAM you have installed.

Windows sets the initial virtual memory paging file equal to the amount of installed RAM. The paging file is a minimum of 1.5 times and a maximum of three times your physical RAM.

That last sentence makes no sense -- it's initially set to the amount of installed RAM but its minimum is 1.5 times and maximum of three times physical RAM. So its initial value is lower than the minimum? Someone's confused. But back to John's article's comment -- citations?

###

Editor's note: Two PATACS members in addition to John reported small paging files, unlike the 'automatic' setting claimed in the makeuseof.com article.

Backup

By Dick Maybach, Brookdale Computer User Group
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Life is constantly changing, meaning we should occasionally review our habits to see if they are still appropriate, and this is true for PC backups. So let's take a high-level look at the subject. Your situation is undoubtedly different from mine, and your approaches will most likely differ.

Two basic backup techniques are copying the entire drive (cloning) and file-by-file. Cloning saves both your software and your data but requires that your backup medium be at least as large as your drive. In addition, there may be complications if you restore to a different PC, as old software may not be compatible with its new home. On the other hand, file-by-file backups can be updated far faster because only changes are saved. You can also do partial restores, replacing only corrupted files or restoring only missing ones. However, a complete restore of a file-by-file backup is slower (perhaps significantly so) than a restore of a clone because the data is scattered throughout the backup medium.

Full drive backups protect against drive failure, software malfunction, and malware, as a restore returns the drive to its state when you backed it up. Of course, this means you lose any changes you've made since then. It's less satisfactory if you want to restore to a new PC. Most users buy PCs with an installed operating system (OS) with an OEM (original equipment manufacturer) license valid only for that machine. When you copy the entire drive contents to a *new* one, it now has an OS whose license isn't valid.

Further, the software is *configured* for the *old* PC. All is not lost, however, as you may be able to mount the backup drive on your new PC and copy just the data you need from it. Be sure to test this before you need to do it, as there are possible complications, for example, if your drive is encrypted. When moving to a new PC, you'll probably want to retain the OS and any applications you bought with it and install your other applications from their installation media.

File-by-file backups allow you to save just your data and thus will enable you to move it to a new PC, but you must be careful. For example, Windows users should back up the entire contents of [C:\Users](#) and Linux users the entire contents of /home. Be sure you get everything, as many important items are hidden.

Consider using both strategies: clone the drive after upgrading old software or installing new, and make frequent file-by-file backups to preserve your data.

The terabyte capacities of modern drives leave you only two choices of backup medium, hard drives, and the cloud. (Editor: incorrect! There are also solid-state drives.) (Resist the temptation to back up to a separate partition of your system drive, as a drive failure will affect your system and your backup.) For example, backing up a 3-Terabyte drive to the cloud, assuming an upload rate of 3-Megabytes per second, would require close to 100

hours. However, I see rates around 100 Mbytes/second when writing to USB-3 external drives, meaning a 3-Tbyte drive backup would need a more reasonable three hours.

Your backup software can limit your choices for your next PC. For example, I use **Back in Time**, available only for Linux, and the backup drive is formatted as ext4. If considering changing operating systems, use different backup software and a different drive format. Currently, USB is the most common interface for external drives. Using something else increases the risk that a new PC may not have the same interface or replacement drives may become unavailable.

Backup drives can be either internal or external. An internal drive is always available, making it suitable for scheduled backups. However, a serious PC problem, for example, overheating or a power surge could damage both the PC and your backups. An external drive, especially if connected to the PC only when in use, makes it more likely to survive a mishap. Leaving a USB drive always connected makes it function as an internal one and can support scheduled backups. Also, it's less likely to be damaged by a catastrophic PC failure.

What do you back up, and on what schedule? I use open-source software, and I prefer to install software from current distribution media rather than from a backup if there is a problem. This ensures the software is up to date and free from the inevitable configuration problems that seem to accumulate over the years. This solution is less desirable with proprietary software, where you would have to reinstall from the original installation media (or the recovery drives) and then do all the updating. A better solution here is to clone your drive when you install a new program or perform a significant upgrade. Then make file backups of only your home directory.

I've found that backup programs do a poor job of error reporting. Even experienced PC users are sometimes surprised to find their backups have failed without warning. Frequently check the backup program logs. I have one scheduled every Tuesday, and once found that my medium had failed three weeks before, meaning the last three backups had failed. If you make file-by-file backups, occasionally check the process by restoring one or a few, preferably to a different location, so that you can compare the originals with the backup versions.

You can streamline your backups by organizing the file system on your PC. For example, you can create an archive area where you keep old, seldom-accessed files. If you move files to it only once a year, you need back it up only once a year. As a result, your other backups will be faster and smaller. Of course, we all should delete far more old, obsolete files than we do, but an archive accomplishes almost as much and involves less agony.

The recovery process depends on the damage. An operator error or drive failure usually involves just restoring from a backup. This can require recovering a complete copy of your drive, which I've had to do after mistakenly restarting Windows during an update. As I noted above, PC failure is more troublesome if you use proprietary software. The safe

course is to use the OS you bought with the PC, restore your home directory from your last file backup, and reinstall the installation media software whose licenses permit such things.

I prefer to keep at least one backup offline that is disconnected from the PC, making it safe from even a catastrophic power surge. Once a week, I back up my home directory automatically to an internal drive, and once a month, I back up to an external one. The large capacities of our drives mean that our backups are most likely stored near our PCs, where they could be damaged by catastrophic events, such as a house fire or flood. While these are unlikely, they happen, and taking special precautions with your valuable data, such as passwords, key financial records, and contacts, is worthwhile. In my case, these occupy less than 20 Mbytes and are easily stored on a USB memory stick or a cell phone. Because these are sensitive data, they should reside in an encrypted volume. Memory sticks are so small that asking a friend or relative to keep one for you is reasonable.

When you think about your needs, you will likely decide to use more than one backup technique. After all, there is more than one risk.

###

A Cautionary Tale of Cloud-Based Apps

By Joel Ewing, President, Bella Vista Computer Club
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Insteon Home Automation

Around 2014 I started using Insteon home automation devices to control some plug-in electrical devices around my house. Insteon produced several different modules using a proprietary peer-to-peer communication protocol to communicate with an Insteon hub in your house, which used an Ethernet connection to your router and your home LAN to connect to Insteon-owned cloud servers on the Internet.

The Insteon devices and hub use a unique combination of wireless RF (not Wi-Fi) and powerline signaling. Each device module acts as a repeater to ensure all modules can communicate with the hub. In addition, there was a smartphone/smartpad Insteon app that, in concert with the Insteon cloud service, allowed one to schedule state changes (turn-on, turn-off, dim) for the individual Insteon modules, manually change the module state remotely, or monitor the condition of modules in the case of sensor modules.

The smartphone Insteon app allowed you to monitor the state of the various modules while away from your house as long as you had Internet access on your smart device. Manual remote control of lights from outside the house was not that useful to me but could, I suppose, be used to add some randomness to simulate people in an empty house or turn off a light unintentionally left on. On the other hand, remotely controlling lights or other plug-in devices while in your house from the comfort of an easy chair or bed was very convenient, as was the scheduling of lights that should always go on and off at regular times.

The peer-to-peer communication between the modules and the hub made the system very reliable. Over the years, I've only had one module fail—after one of our cats marked it as his territory in the usual cat fashion. Unfortunately, I've also had two hubs die on me in four years. After the 2nd one failed, I did some research and found that I shouldn't have plugged the hub into a UPS, as some of the high-frequency components of the AC output of a typical home UPS unit running on the battery tends to stress the hub power supply and cause early failure. Since then, I've plugged the hub into an outlet with only surge protection and have had no other hardware failures.

The modules I found most helpful were those that would plug into a regular outlet and provide a module-controlled outlet for the controlled light or other device. The most useful aspect of these modules was that they could be easily moved and redeployed for a different use. Over the years, we acquired three different varieties: an un-grounded dimmer (which could be used as a switch), an un-grounded switch, and a grounded switch rated for outdoor use. We also acquired a water-leak sensor, which was deployed in a storage area under the house near the water heater.

Over the years, we have made good use of the Insteon system. For example, we have used Insteon to control several table lamps in several rooms, indoor and outdoor Christmas lights, and heating devices in the cats' outdoor houses. Until April 13 of this year, we had never (outside of testing) gotten a warning from the water-leak sensor, but it proved its worth when torrential rain and a drainage problem outside resulted in water under the house. The leak sensor did its job and made it possible to resolve the issue before damage could be done.

The Demise of Insteon

After the water-leak detector saved the day (talk about fortunate timing), our Insteon automation stopped working. Trying to use the Insteon iPhone app to manually control the lights also failed with the app's inability to log on to Insteon. The Insteon hub's normal green LED was red. It was unclear whether there was some failure in our hub or what. After some research, some people had been concerned about the long-term prospects of Insteon in 2021, that others were now reporting similar failures like ours, and that the Insteon forum for discussing device problems also seemed to be down. One of the possibilities for a red hub light was an inability to communicate on the Internet, but Internet access was otherwise working. Power cycling the hub produced no change. The conclusion at the time was there was some problem with the Insteon Internet service, but no indication the problem was permanent.

After being down for a day, speculation continued to increase, but no official word. By April 16, the consensus finally became that "Insteon is dead." The only semi-official notification received was an email finally sent to my Insteon account email on April 21 from SmartLabs Inc (the parent company of Insteon) revealing "Insteon Users: Important Notice to Creditors": a notice dated April 12, indicating that SmartLabs Inc had on March 22 assigned its assets for liquidation. A week after the initial April 14 failure, the insteon.com

website now has a general notice that "the company was assigned to a financial services firm in March to optimize the assets of the company," which I guess is legalese for "expect an end of all service on some arbitrary date after March 22". It's beyond me why they couldn't just spend the same amount of effort and have the website clearly state that all Insteon cloud services for support of Insteon hubs have been discontinued as of April 14, 2022, so people wouldn't have to guess what's going on.

I was a little ticked off that Insteon gave no heads-up on what was about to happen. Even notification as they pulled the plug would have been an improvement to avoid wasting time diagnosing a problem that couldn't be fixed. But, unfortunately, in retrospect, Insteon's business model probably doomed them: they provided a free Internet service with an increasing number of users and very little long-term income from those like me once they had all the automation modules they had needed. Add to that the reduced sales from financial and supply chain disruption during the pandemic...

Perhaps the lesson to be learned here is that products that require a free cloud service to function should be regarded as having planned obsolescence and *you* don't know what the plan is.

There are alternatives, but for most people that aren't technically savvy, or have access to someone that is, this means that their Insteon hub and device modules have become expensive doorstops.

Finding an Inexpensive Free Alternative

Having to replace all your Insteon modules and hub with a different system and hardware means throwing out hardware that may represent a sizable investment of hundreds of dollars. Unfortunately, there don't appear to be any suitable commercially available solutions that can utilize the Insteon hardware.

A cheaper Open Source alternative can restore the functionality of an Insteon hub and all the Insteon modules. Still, it requires some technical expertise to set up another machine on your home network with a specialized Operating System. That machine could be a Raspberry Pi with 2 GiB RAM, or an older (but not too old) retired machine. On the other hand, if you have a system that runs 24x7 that can support running a Virtual Machine with a UEFI boot and that can be network "bridged" to appear on your local LAN subnet, then it is possible to use a Virtual machine with 1.5 GiB of RAM. on existing hardware.

The Open Source software that will do the job in Home Assistant. The Home Assistant server is available in image downloads of Home Assistant OS (HAOS) for installation on an x86-64bit or Raspberry Pi architecture. In addition, there are corresponding Home Assistant (HA) apps for smartphones that will allow you to configure and control the Home Assistant server, or it can be done using any browser and the exact LAN IP address and port for the HAOS server.

Conceivably you could run Home Assistant OS on an older retired computer, but it would have to be recent enough hardware to support 64-bit architecture and UEFI (non-secure) boot. If you use a virtual machine rather than actual hardware, it is required to set up bridged networking so the virtual machine gets its address on your LAN. In the case of my Linux system and KVM virtual machines, bridged networking was the most challenging part of the process. The Home Assistant OS must be on your primary home LAN subnet for the iPhone apps to find the Home Assistant server and for the Home Assistant server to detect your Insteon hub (and other IoT devices in your house that it can support). It would probably also be a good idea to configure your router to assign a fixed LAN IP address to the Home Assistant server machine.

When configuring Home Assistant for your Insteon hub, you will probably need to supply the login name and password on the base label on the hub. Once it connects with the hub, it should go through device discovery and gradually locate all the powered-up Insteon modules, except perhaps for sensor modules. I had to press the reset button on the module to get it to see my leak sensor module. The LED light on the hub will remain red -- apparently, that only turns green if the hub can talk to the Insteon cloud server and no longer exists.

The discovered Insteon modules will initially only be identified in Home Assistant by their Insteon hex ID value of the form hh.hh.hh and by the module type. If you haven't saved documentation that maps the module IDs to their location, you may have to power modules On/Off from Home Assistant one at a time so that you can associate meaningful names with the modules. Where I had only one module of that particular type, the module type was sufficient to know the related module location.

The Insteon scheduling was in the Insteon cloud, which is all lost and will have to be built again on Home Assistant. The approach is different, but I found it more convenient than what Insteon used. In Insteon, a schedule belonged to a device, or you had to define a "scene" of multiple devices if you wanted a schedule to affect multiple devices; you couldn't have more than one schedule set to trigger at the same minute. In Home Assistant, you have Automation Entities, which include one or more triggers that initiate the automation and one or more actions that should be performed when the automation is triggered. The actions can change the state of one or more device modules within the same automation definition. If an automation action is triggered while a previous action is still in progress, you can specify if and how you want them to interact. To me, the Home Assistant approach is more natural and more flexible.

If smartphones are running the Home Assistant app, one of the possible automation actions is sending a message to the HA app on that smart device. The connection between the server and the smart device app is by LAN IP address, which can only work while your phone is on your home network. I don't know if a message to a phone not currently on the home LAN is queued to be sent when possible or what. If it is an alert that you need to receive promptly no matter where you are, there is probably some way to do that (email?), I haven't had the time to research that yet.

There are ways to make a Home Assistant server running HAOS at your home accessible from the Internet, but to do this securely on your own is a *non-trivial* exercise. The native communication for the HA server on HAOS uses an insecure HTTP protocol on port 8123. You wouldn't want to open that port to the HAOS system on your router because your HA login credentials would be sent over the Internet in the clear, potentially exposing your home automation to attack. I don't know how to do it yet, but I know there are ways to create an HTTPS secure interface that could be used to either directly or indirectly access the HAOS system. That, in turn, requires that you own (at an annual charge) an Internet domain name that is defined to point to your external Internet IP for your home, and if you don't have a business IP account with a fixed Internet IP address, you also need some process to update the IP address of your domain name if your Internet provider changes your Internet IP address. I see this getting complicated in a hurry. Suppose you only want access to your HA server from the Internet to receive notification alerts from HA on your iPhone when you are away from home. In that case, I think it may be less work to find solutions that address the notification issue.

There is another secure and simple option if you must have access to all your Home Assistant automation away from your home over the Internet, but it is not free. You can subscribe to the Home Assistant Cloud service provided by Nabu Casa, Inc. at either \$6.50 monthly or \$65 annually. This service offers a secure Internet interface between your smart device and their service, which in turn uses a secure interface to the Home Assistant machine at your house. Since it is a charged subscription service, it is probably more likely to stay around than Insteon's free cloud service, but that does mean you can again become dependent on a third-party cloud application that is not under your control and become locked into one more continuing payment for the indefinite future.

It took almost a week to get all the bugs out, mostly trying different ways to get a virtual machine properly bridged to my home LAN. Still, I finally got everything I needed working: automation with HAOS running on its own [virtual] machine with remote control over my home Wi-Fi and LAN from the HA app on iPhones, all controlling the Insteon hub and Insteon modules. I have found the HA interfaces and flexibility more convenient than what was originally provided by the Insteon apps and Insteon cloud servers. The best part is that all the pieces required to keep it working within my home are now under my direct control with no added cost but time.

###

Freshly Squeezed Reviews

[Freshly Squeezed Review: Podcasts That Uncover Buried Treasure | YMP Now](#)

By Frank Petrie, Jr.

In this review, I want to tell you about three podcasts I have found indispensable. They range in length anywhere from 7 minutes to 15 minutes. However, they have in common one thing: revealing hidden, extremely productive features cloaked in **Apple's** apps.

Features turn what you thought was a basic, mundane, unimaginative app into a tiny, powerful gem.

And that's the reoccurring theme that draws me to all three of these podcasts. You'll find that Apple has quietly "borrowed" features from other third-party apps and incorporated them into their stable of included apps to make them much more valuable. You only have to know where the treasure is buried.

1) ScreenCastsOnline. (DISCLAIMER: I'm a contributor to their monthly magazine.) ScreenCastsOnline has been around forever. Every Tuesday, they produce short tutorials; on Fridays, they produce half-hour deep dives. In addition, ScreenCastsOnline has numerous presenters who will walk you through apps that you never heard of and show you how they could fill a hole in your everyday computing life.

But I would like to focus on the short-length Tuesday episodes. These cover a range of topics. For example, many episodes introduce you to apps you weren't aware of that are included in your Setapp subscription. Once introduced to said app, you're taken through its paces and how it could benefit your daily routine. And when Apple releases a new macOS, they like to point out new features added to some apps as basic as Notes.

(ScreenCastsOnline requires a subscription that avails you of a back catalog of their podcasts and magazines. It also has its own Mac, iOS, and Apple TV apps for consumption.)

2) Macmost. Hosted by Gary Rosenweig, Gary takes this idea and gives it a slight twist. He'll not only show you things you didn't know you could do with something like Number's tables but proposes simple yet innovative ways to incorporate them into your professional or personal workflow.

The fun part is he starts with, "I was wondering if... ". He then tells you what he's setting out to achieve, explains his thought process on accomplishing his objective, and finally, the solution he arrived at to make it a reality. Even if you don't wind up using the formula he figured out, it's fascinating to simply watch his process of sussing out the problem. He reminds me of Bill Nye, the Science Guy, only with a keyboard. (Ed: Proofreader Lorrin Garson suggests <https://www.youtube.com/user/macmostvideo> as a source for many excellent MacMost videos.)

3) Proper Honest Tech (YouTube). I stumbled on this channel a month ago but was immediately hooked. So much so that after one episode, I started binge-watching. The host uncovers so many buried features in Maps alone; I have watched that episode alone numerous times with my iPhone firmly in hand, learning every uncovered function available.

It's not unusual for me to finish an episode of these podcasts and start deleting apps that can be accomplished with Apple's provided apps once I know how to achieve the same outcome you had procured the third-party app for. One less app means

more space on your drive and possibly one less thing to irritate your collection of apps or your OS. Take part of your afternoon and check them out. You won't regret it.

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###

Tech Travels 2.5

by Greg Skalka, President, Under the Computer Hood User Group

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My wife and I are back from another vacation trip, a week-long stay in northern Arizona to celebrate our anniversary. This comes not long after a week trip to Idaho in August to visit friends. Every time we travel, we can learn what tech techniques work when away from home and what does not. I thought I'd have everything worked out for the Arizona trip for smooth tech travels, having had the recent rehearsal on the Idaho trip. Things change, new experiences come up and situations are different, however, so I always find something new to add to my list of tech travel do's and don'ts.

Different circumstances bring up new problems as well as new solutions. We found rental cars in short supply and expensive when we were planning our Idaho trip, so we chose to fly instead of drive. This limited what we could bring along, so I left some things at home. I brought only my 14" HP Windows 10 laptop, leaving my Chromebook behind. For the Arizona trip, rental cars had come back down in price, allowing us to drive and have the luxury of more cargo space in a small SUV. The default for this trip became "take it if we might need it," so extra clothes, several coolers, plentiful snacks and water, and the extra tech got came along.

I had in the past always traveled with one of my Chromebooks since they are so small, light, and quick to start up and connect to the web. The Idaho trip was the first I'd done with the Win10 laptop, and I found it to be nearly as light and quick as my Chromebook. In addition, the laptop had the advantage of superior application compatibility and greater processing power with its I7 processor, so it could run my Thunderbird email client, which the Chromebook could not do. Despite my prior travel experience, I decided to take both on the Arizona trip since I had the space. I only used the Chromebook once (reading the newspaper PDF while riding in the car on the first day), so I think I will go with what I learned and leave the Chromebook at home in the future.

I probably need to think about buying a new Chromebook by June 2022 since mine will no longer receive any further Google Chrome OS and browser updates. Every Chrome OS device has an AUE (Auto Update Expiration) date, which Google sets. After this date, the Chromebook will run but not be eligible for security and feature updates. So, just as Windows users are eventually forced to buy new computers when their old ones don't run new OS versions, Google is culling out the older, weaker Chrome devices and generating sales for their device maker clients.

We stayed in three different locations on our Arizona trip. Our first two nights were in Cottonwood, AZ, about 30 minutes southeast of Sedona. This allowed us to enjoy Sedona at about 1/3 of the Sedona hotel costs. Next, we did some hiking, took a jeep tour, and visited many local scenic locations. We then traveled to Flagstaff and stayed two nights, visiting the local meteor crater, Sunset Crater Volcano National Monument, and Wupatki National Monument. We also drove to higher elevations northwest of Flagstaff to see the fall colors of the aspen trees.

Our final two nights were in Williams, AZ, where we stayed at the Grand Canyon Railway Hotel. On our last full day, we rode on the Grand Canyon Railway to the Grand Canyon, took a bus tour along the south rim, and returned to Williams on the train. The railway, hotel, affiliated Fred Harvey Restaurant, and many of the facilities at the Grand Canyon are run by Xanterra, a concessionaire for the National Park Service. Though we planned our vacation initially as a visit to Sedona, for me the highlight turned out to be the train ride and visit to the Grand Canyon.

We used lots of technology on our trip. I brought AAA paper maps as backups, but we relied primarily on Google Maps (run on my Android smartphone) for our navigation. I connected to the hotel internet and used my laptop to find attractions and dining options, plan our next day, and get my email and San Diego e-newspaper from home. Checking the weather online became necessary, as it snowed a little in Flagstaff the night before we arrived.

In addition to Google Maps, I ran the Gas Buddy app on my phone to find low-cost gas on our travels (when we were not near a Costco). The phone camera was handy for taking photos of trail maps posted at the trailheads when we didn't have paper maps. It was helpful to have photos of the car and the license plate on our phones for reference with a rental car. Finally, I could use the smart home camera and control apps on my phone to check on our house while we were away and confirm we had no intrusions or other issues.

Since we would be hiking, I brought my handheld GPS receiver as a backup should we get confused on a trail. We didn't do much hiking, as my wife preferred photography to exertion. We both brought digital cameras to record our adventures; I took more than 2000 pictures on the trip. I brought my action cam (small video camera) but only used it on the jeep tour in Sedona.

One thing that became important in taking so many photos was battery management. I have two batteries for my Panasonic Lumix digital camera, and I tried to make sure both were charged before each day of adventuring. The power adapters and charging cables came out every night at the hotel, each one seeking a wall outlet. I brought an ac travel power adapter, providing three outlets from one wall socket, but didn't have to use it, as our hotels usually had an ample supply of ac connections. We also brought my car dash cam to use in the rental car, so we had to keep the two battery packs I brought for it to charge up. So any time we were in the car, I was charging my phone from the car USB socket or the 12V to USB adapter I brought.

We had one long day on the road where I did run low on camera battery power. So rather than cut back on picture taking, I alternated with a small Nikon pocket point-and-shoot digital camera I had brought "just in case." I was also concerned about my phone battery one day, and we were not in the car much, so I switched the phone to airplane mode for a time to conserve power.

To carry cold drinks and snacks in the car, I brought my 12V-powered electric cooler. A 110V ac converter provided the 12V for it when we were in our hotel room. In addition, I brought a towel to cover the cooler and keep the sun off it when we were parked somewhere during the day. The towel also kept things in the back of the car hidden from theft-minded eyes.

Our hotel internet access was pretty good most of the time. Our three stays were with three different hotel companies, resulting in three different experiences. The first two hotels required a password for access to their Wi-Fi. So I always connected using my VPN, Private Internet Access (PIA), though I didn't do anything more sensitive over the connection than accessing my email. A VPN was essential for our third hotel stay, as they had open Wi-Fi. I sure was glad I had verified my PIA VPN was working and up to date before we left.

I did have one lapse in navigation preparation for our trip. I failed to remember to download offline maps for the areas we would be visiting for Google Maps before leaving. Google Maps relies on two communications channels for navigation - internet access (usually a cellular signal when driving) and GPS signals from overhead satellites. The internet connection allows Maps to search for the destination you enter, plot a route, and get real-time traffic and detour information while on your way. The Maps app loads enough route information when you establish a route to navigate to your destination, even if it is a location where no cell coverage exists. If you have to reroute or start a route in a location without a cellular data signal, however, Maps may not be able to do it. Having a saved file of map data for the area on your phone allows Maps to navigate without a data connection (but with no traffic information, of course). We saw this happen when leaving the Meteor Crater but could follow the road back to the Interstate and a cell signal.

A bigger problem for Google Maps is the lack of a GPS signal. An adequate signal from four orbiting GPS satellites is required to allow a receiver (your phone) to get a 3-D position fix. Unfortunately, occasionally geography or position will cause a loss of line of sight to enough satellites for the receiver to be unable to determine your position. This happened to us twice on our trip; we had to proceed with our best guess for navigation until enough satellites came into view again (glad we had those aforementioned AAA paper maps).

Our trip was a lot of fun, with no real mishaps along the way. Of course, we depended a lot on technology which enhanced our travels, but we were prepared with backup methods and contingency plans when a rare glitch occurred.

###

A Common Computer Problem and How to Fix It

By Mark Presky, Director, Los Angeles Computer Society User Friendly

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Over the years, computer storage drives have gotten larger and larger. But programs and the other files we load onto our computers have also gotten larger and more numerous. Eventually, this often becomes a problem when one's computer starts running slower or informs you that it just cannot hold any more.

One way to deal with this problem is to free up space on the hard (HDD) or solid-state drive (SSD). Use the built-in **Disk Cleanup** tool in Windows 10. Click on the **Start** menu. Choose **All Programs**—select **Accessories**, then **System Tools**. Click on **Disk Cleanup**. Under the **Files to delete** heading, choose which file types you want to remove. If you're unsure which file types to get rid of, select each one in turn and read its description. When you've selected the file types to delete, click OK.

Another method to free up space is to manually go through your files and delete the ones that you don't need or want. Image (photos), audio (music), and video (audio and image) files can take up vast amounts of file space. How many photos of little Tommy or Grandma from your last birthday celebration do you need? I'll bet you have many duplicates of virtually every shot. Delete the copies, at the least. Have music files on your computer that you never listen to? Delete 'em. Now repeat this process with your vacation photos. Lots of old photos of your ex? Remember that song from the movie "South Pacific"? Wash those files right out of your computer.

Another trick here is to reduce the file size of those photos. Most cameras produced in the last several years take photos over two megabytes (MB) in size. Unless you plan to print those large file-size photos, you might think about reducing each image to between 200 and 400 kilobytes (KB). The reduced file-size photos won't look any different when you view them on your computer. One can even reduce the photo file sizes en masse. If taken on your iPhone, the phone will ask you what size you want the file to be when you send them, via email, to your computer. I use IrfanView, but several other programs do this. (*From a different editor, though HSW agrees*): this is **not** good advice. If you reduce the size of the file for on-screen viewing that's OK. **But not if you plan to print.** Then you need all the pixels you can get. Today's phones are producing file sizes that are—a guess here—above 10MB in size. A better idea would be to get a bigger external drive and move your photos to it. But not a thumb drive.)

Going through those extra, unneeded files can be laborious and time-consuming, but that might beat having to buy another computer, having a larger hard drive installed and having all the files transferred, or having your computer crash.

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Meeting schedule (Zoom=Online Only, Hybrid=Online/In-person)

1 st Wednesday	7:00 - 9 PM	Arlington General Meeting	Hybrid
3 rd Monday	7:00 - 9 PM	Board of Directors Meeting	Zoom
3 rd Saturday	12:45 - 3:30 PM	Fairfax General Meeting	Hybrid
4 th Wednesday	7:00 - 9 PM	Technology & PC Help Desk	Hybrid
Arlington Meet: 5711 S. 4 th ST, Arl. VA		Fairfax Meet: 4210 Roberts RD, Fairfax, VA	

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