



Midland Michigan

BITS AND BYTES

February 2015

<http://mcc.apcuq.org/>

President Piper's Ponderings....

For some time I have been making noise about using Skype at our General Meeting. Well this February 25th we are going to make it happen.

The idea is that Skype will allow us more flexibility in who can speak at our meetings, and who can digitally attend our meetings.

We need to figure out how to connect to all our members. You can help by making sure you have a Skype account. The best plan is for you to attend the February meeting, and bring your Skype-device with you. For most people this would be a phone, tablet or laptop.

Skype, which is now owned by Microsoft, appears to be a viable and free method of reaching 15-20 members on a single phone call. The trick, of course, will be to make the necessary connections in a timely manner. Quality of signal will also be a factor.

Skype is not our only choice of software. Google's Hangouts and TeamViewer are other possibilities that we may explore.

On a related subject, a suggestion was received to record our General Meetings. We will be running an experiment with SnagIt software at February's meeting to accomplish this recording.



The Club has a new projector. Come see how it works, and help us discover all the ways we can wirelessly project our programs.

So sign up for a Skype account, and bring your portable device to the February meeting. Don't have a tablet? I just bought an \$80 tablet, 9" Envizen, that does everything my \$300 Galaxy Tab 2 does, at a slightly reduce screen quality.

(The above comments are the opinion of the author and do not necessarily reflect the views of the Midland Computer Club.)

GENERAL CLUB MEETING

4th Wednesday of the month at the
Midland Community Center, 2001 George St., Midland, MI

7:00 P.M.

This month's date: February 25, 2015

This month's topic: Skype

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Please let Howard or Bill know of topics you would like covered at future meetings.

PUBLICITY

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Useful, useless and strange (in no particular order) Web Sites:

<http://tinyurl.com/lr7do82>

This is a nerdy website, but what do mathematicians do with their spare time? They study prime numbers, what else! This article details a recent discovery in the study of prime numbers.

<http://www.neowin.net/forum/>

Neowin is a technical site that provides current tech news along with a series of forums that may assist you in any computer related problem you might have. They provide help on a wide variety of software and hardware. You can search the forums to see if your question has already been addressed. If not, you may pose a question by becoming a member. Joining the forums is free.

<http://www.businessweek.com/articles/2014-03-28/how-scammers-turn-google-maps-into-fantasy-land>

How scammers turn Google Maps into fantasy land.

<http://assist.aol.com/>

For many people, AOL was part of their early on-line experience, providing their first email address and dial-up access to the Internet. Millions of people still use AOL mail. AOL also provides 24x7 technical support, covering a wide range of products, not just computers. Per incident support is available, as well as subscription. Customers who pay for other AOL services may get this support for free.

Board Meeting

First Thursday of the month
 7:00 PM

Chapel Lane Presbyterian Church,
 5501 Jefferson Ave., Midland MI

Membership Enrollment Form

NAME _____ PHONE _____

ADDRESS _____

CITY _____ ZIP _____

EMAIL ADDRESS _____

Membership dues FAMILY (\$20) STUDENT (\$15) New Member _____ Renewal _____

Please fill out the above form and mail it along with payment of check or money order to :

MIDLAND COMPUTER CLUB
 1816 Bauss Ct
 Midland, MI 48642-4023

Attn: Membership Chairman

You may also pay for membership at a regular club meeting

Tips, Tricks & Techniques

How Inkjet Printers Work, Tips and Hints

Jere Minich - APCUG Spring 2014 Virtual Technology Conference - May 3, 2014

Video of presentation: <https://www.youtube.com/watch?v=kJleelkgHgI>

Slide presentation: <http://apcug2.org/sites/default/files/How%20Inkjet%20Printers%20Work%2C%20Tips%20and%20Hints%20-%20Jere%20Minich%20-%20APCUG%205-3-14VTC.pdf>

Microsoft Signature Edition

Many new PCs come pre-installed with programs, toolbars, utilities and screensavers that you might not want and may never use. When you buy a new PC at Microsoft Store, they ensure there's no third-party junkware or trialware installed.

[http://www.microsoftstore.com/store?](http://www.microsoftstore.com/store?SiteID=msusa&Locale=en_US&Action=ContentTheme&pbPage=MicrosoftSignature&ThemeID=33363200)

[SiteID=msusa&Locale=en_US&Action=ContentTheme&pbPage=MicrosoftSignature&ThemeID=33363200](http://www.microsoftstore.com/store?SiteID=msusa&Locale=en_US&Action=ContentTheme&pbPage=MicrosoftSignature&ThemeID=33363200)

Problem Steps Recorder

This little-known tool creates an HTML slideshow of your actions, recording your moves step-by-step so that you can show your IT admin or resident PC geek *exactly* what you're doing when you run into a problem. It's a huge boon during especially tricky troubleshooting situations.

To open the Problem Steps Recorder, simply search for *psr* in the Windows 7 Start menu or Windows 8's Start screen. The tool should pop right up and is very straightforward to use.

unchecky – PCWorld Power Tips – 06-19-2014

Unchecky works in the background, monitoring the desktop programs you install. If a program tries to sneak in some extra bundleware, Unchecky will deselect the option for you.

<http://unchecky.com/>

New Distress Call Trick

There's a new variation of the distressed call or grandparent scam.

Crooks comb through Facebook looking for details of people's travel plans.

They identify friends of the vacationer and contact them by phone or email, posing as the traveler, claiming to be in trouble and in urgent need of money.

This is much more convincing because the crook already knows both the name of the person they're impersonating, their relationship with the traveler and where they are supposed to be vacationing, so the call can seem quite genuine.

What gives this trick and so many others away is that the crook always asks for money to be wired or a prepaid debit card to be used.

That's a red flag. But if you have reason to think it may be genuine, invent the name of a relative who might be with them and ask how they're doing.

Finally, ask for full address and contact details and check them out independently. For example, ask where they're staying, then get the accommodation phone number from the Internet and try to call them.

There's an outside chance that a friend or relative might be in trouble and need money but it's highly unlikely.

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Frank Ramsey Akron Canton PC Users Group Newsletter Editor

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17 Tips to Extend your iPhone/iPad Battery Life, Part 2

By Bill Crowe, 2nd Vice President, Sarasota TUG, FL

July 2014 issue, Sarasota Technology Monitor - www.thestug.org - presentations (at) thestug.org

Anyone who's used an iPhone for even a few days has discovered that while these phones are more powerful, and more fun, than perhaps any other cell or smart phone, that fun comes with a price: battery use. Any halfway intensive iPhone user will recharge their phone almost every couple of days.

There are ways to conserve iPhone battery life, but many of them involve turning off services and features, which makes it a choice between all the cool things that the iPhone can do and having enough juice to do them.

Here are 17 tips to help you extend your iPhone's power, including new tips for iOS 7, which has features that can drain battery faster than earlier versions.

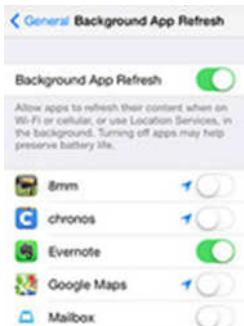
You don't need to follow all of them (what fun would that be?)—just use the ones that make sense for how you use your iPhone—but following some will help you conserve juice.

10. Prevent Background App Refresh (iOS 7)

There are a number of new features in iOS 7 designed to make your iPhone smarter and ready for you whenever you need it. One of these features is Background App Refresh.

This feature looks at the apps you use most often, the time of day that you use them, and then automatically updates them for you so that the next time you open the app, the latest information is waiting for you. For instance, if you always check social media at 7:30 am, iOS 7 learns that and automatically updates your social apps before 7:30 am.

Needless to say, this useful feature drains battery. To turn it off:

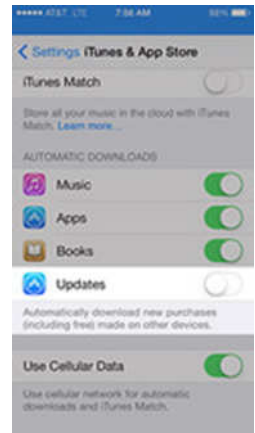


Settings -> General -> Background App Refresh -> Either disable the feature entirely or for specific apps

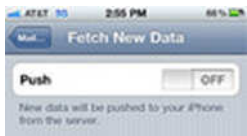
11. Don't Automatically Update Apps (iOS 7)

If you've got iOS 7, you can forget needing to update your apps by hand. There's now a feature that automatically updates them for you when new versions are released. Convenient, but also a drain on your battery. To only update apps when you want to, and thus manage your power better:

Settings -> iTunes & App Store -> Updates -> move slider to off/white



12. Turn Data Push Off



The iPhone can be set to automatically suck email and other data down to it or, for some kinds of accounts, have data pushed out to it whenever new data becomes available. You're probably realized by now that accessing wireless networks costs you energy, so **turning data push off**, and thus reducing the number of times your phone connects to the network, will extend your battery's life. With push off, you'll need to set your email to check periodically or do it manually (see the next tip for more on this).

Find it in Settings -> Mail, Contacts, Calendar -> Fetch New Data -> Slide to Off

13. Fetch Email Less Often



The less often your phone accesses a network, the less battery it uses. Save battery life by setting your phone to **check your email accounts less often**. Try checking every hour or, if you're really serious about saving battery, manually. Manual checks means you'll never have email waiting for you on your phone, but you'll also stave off the red battery icon.

Find it in Settings -> Mail, Contacts, Calendar -> Fetch New Data -> Select Your Preference

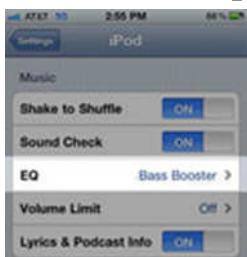
14. Auto-Lock Sooner

You can set your iPhone to automatically go to sleep – a feature known as **Auto-Lock** - after a certain amount of time. The sooner it sleeps, the less power is used to run the screen or other services. Try setting Auto-Lock to 1 or 2 minutes.

Find it in Settings -> General -> Auto-Lock -> Tap your Preference



15. Turn off Equalizer



The iPod app on the iPhone has an **Equalizer** feature that can adjust music to increase bass, decrease treble, etc. Because these adjustments are made on the fly, they require extra battery. Turn the equalizer off to conserve battery. This means you'll have a slightly modified listening experience - the power savings might not be worth it to true audiophiles - but for those hoarding battery power, it's a good deal.

Find it in Settings -> Music -> EQ -> Tap off

16. Buy an Extended Life Battery



If all else fails, just get more battery. A few accessory makers like mophie and Kensington offer extended life batteries for the iPhone. If you need so much battery life that none of these tips help you enough, an extended life battery is your best bet. With one, you'll get days more standby time and many hours more use.

17. Do Less-Battery-Intensive Things

Not all ways to save battery life involve settings. Some of them involve the way you use the phone. Things that require the phone be on for long periods of time, or use a lot of system resources, suck the most battery. These things include movies, games, and browsing the web. If you need to conserve battery, limit your use of battery-intensive apps.

Computing in the Cloud: Security and Sharing in MS OneDrive

Part 2 of a Two-Part Series

Nancy DeMarte, 1st Vice President, Sarasota Technical User Group, FL
www.thestug.org, ndemarte (at) Verizon.net

Last month I introduced OneDrive, Microsoft's storage location on the Internet which is available to anyone with a Microsoft account. MS Office 365 home, personal, and university account owners, however, got a surprise in late June: their storage capacity on OneDrive was increased to 1 terabyte. Since 1 terabyte = 1000 gigabytes, most home users can consider this "unlimited" storage. This month we'll explore how to keep OneDrive files secure and how to share OneDrive files with other people.

SECURITY: The main reason people avoid using online storage is the fear that files may not be secure. Of course, there is always the possibility that files can be hacked no matter where they are stored. But there are a few ways Microsoft keeps files safe on OneDrive besides just your account password. Microsoft uses a code verification system when logging into OneDrive, which requires two pieces of verification. If you need more security, MS also offers more security options. You can get tips on creating strong passwords and setting up other security measures for OneDrive at <http://windows.microsoft.com/en-us/onedrive/security>. If you are still unsure, you can always add extra security through an external provider, such as with the free program, Boxcryptor, <https://boxcryptor.com>.

SHARING: The easiest way to share files stored on OneDrive is to start at the OneDrive website: <https://onedrive.live.com>. (Fig. 1) Click the blue buttons on the right side of the home page for useful tutorials on using OneDrive. Once you sign up or sign in using your Microsoft account, you can do several things on this site: share files, get the OneDrive app for your tablet or phone, view and edit your files, upload more files from your computer, and create files using the Office Online applications.

There are two types of sharing your OneDrive files: share them with individuals or make them public. First

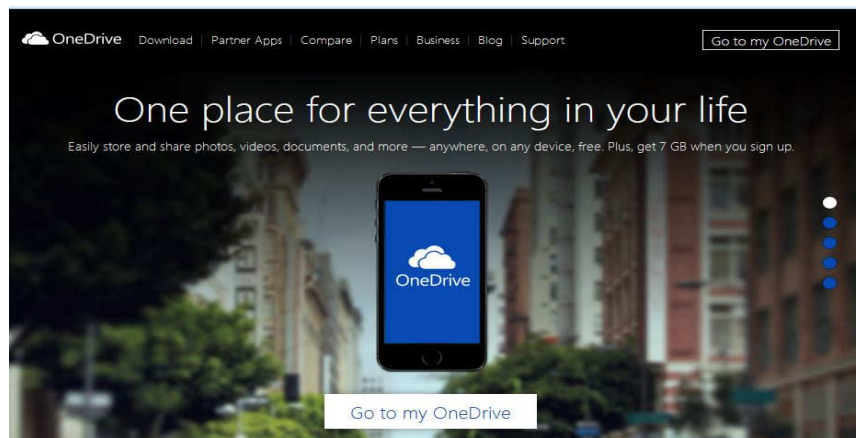


Figure 1 -- Home page of onedrive.live.com website

choose the files or folders you want to share by clicking the checkbox in the top right corner of each file or folder. Then click Share in the top toolbar. This gives you two options for how to share: *Invite People* or *Get a Link*.

To invite specific people to view your selected file(s), click *Invite People*. (Fig. 2) Type email addresses or names from your contact list in the address bar. Add a quick note and, if you want recipients to be able to edit the file, click "Recipients can edit." When ready, click Share, and a link is sent to the recipients via email.

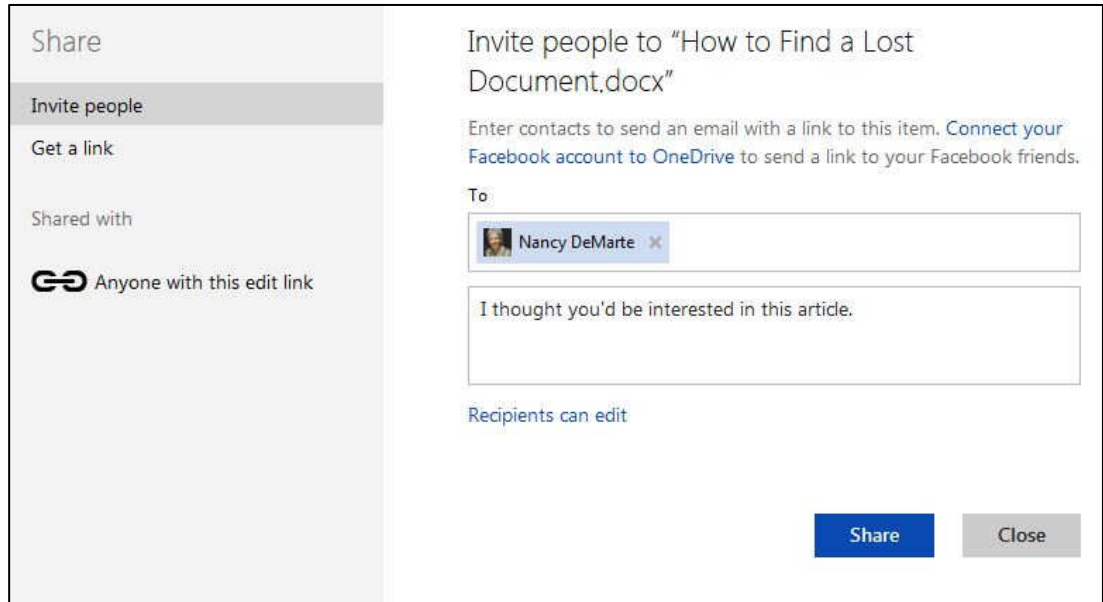


Figure 2 -- "Invite People" dialog box in OneDrive

If you want to send a file to a group of people or link to it from a website, use the *Get a Link* option. (Fig. 3)

First select the file's checkbox, and then click Share in the toolbar. This time click *Get a Link*. Click the down arrow at the right end of the link box and choose which kind of permission you want on this link.

"Edit" (the default) means people can view your selected file and use Office Online to make minor edits

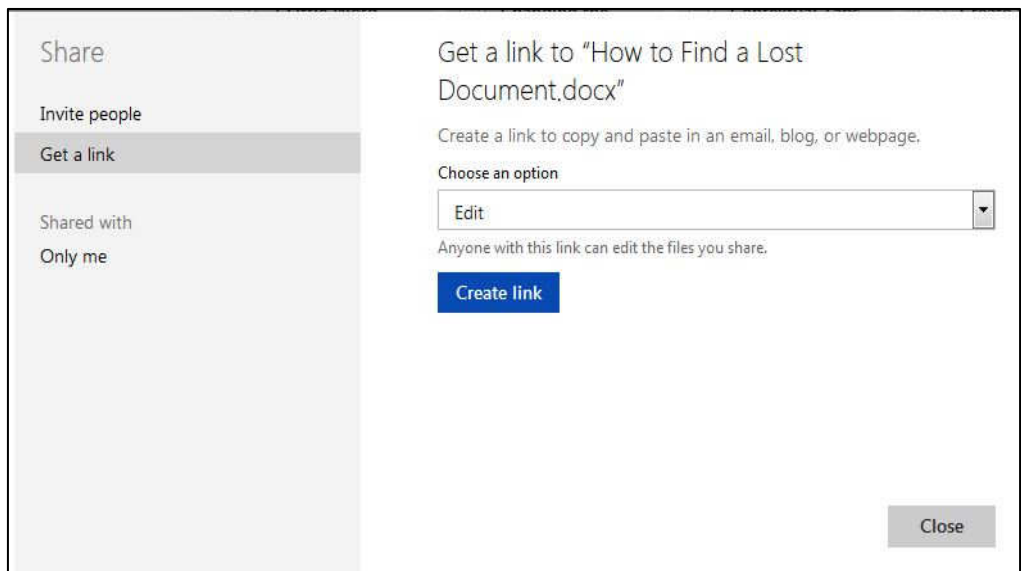


Figure 3 - "Get a Link" dialog box with Edit permission selected

without signing in to Microsoft. Other permission choices are "View only" (best for web pages or blogs) and "Public," which make files searchable by anyone, even without a link.

After you have chosen the permission level, click "Create link," and a long web address will appear in the box. (Fig. 4)

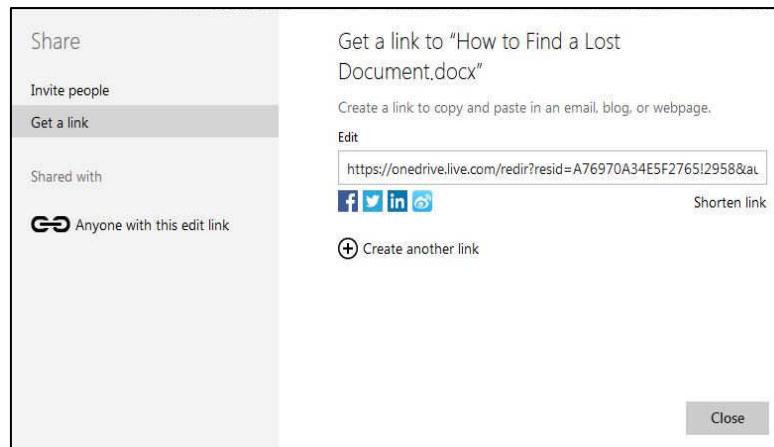


Figure 4 -- Long link option in the "Get a Link" dialog box

You can shorten the link by clicking "Shorten link" below the box, which is useful for posting the link to a website, but also makes it easier to guess. The last step is to copy the link to the clipboard and paste it into an email, web page, or a social media page if that option is checked. See more about sharing files at this link: <http://windows.microsoft.com/en-us/onedrive/share-file-folder>. With a little practice, you will find the sharing process much easier than when SkyDrive (OneDrive's ancestor) first was introduced.

Sharing files is one valuable benefit of OneDrive. Even if sharing is not something you intend to do, remember the other big advantages to OneDrive storage: your files are safe in the cloud in case of a computer failure, and you can access them any time from any computer and most tablets/smart phones with your Microsoft password.

Honey, A Robot Shrunk my Job!

By Greg Skalka, President, Under the Computer Hood User Group, CA
September 2014 issue, Drive Light, www.uchug.org, president (at) uchug.org

I recently took a day trip alone with my 23-year-old daughter, which gave me the opportunity to find out more about her thoughts on the future. For the last five years she has lived about two hours away, so these opportunities for me to gain insight into her life and attitudes are rare. I was a little surprised to find one of her concerns was that robots would eventually occupy all jobs. She said she and her boyfriend had discussed this and wondered if one day everyone would be unemployed except for those that made robots (and she with a business marketing degree, of course).

I could write off some of her apprehension to the nine months so far spent looking for employment in her field of study, but this concern over technology eliminating jobs is a real issue. Modernization and mechanization have changed the career landscape in the past, but today's changes due to computer and communications technology, combined with increased globalization, may be coming faster than our society can cope with.

Since ancient times, mankind has sought to improve living conditions and decrease the labor required for a fulfilling existence. With the majority of early humans involved in agriculture, innovations were sought to reduce the labor in growing crops. The use of hand tools and plows and of animals in place of human labor allowed fewer people to grow more food. This allowed some who would otherwise be farmers the opportunity to pursue other professions and develop other innovations.



My daughter is only two generations away from an agrarian life. My father was raised on a farm with no electricity or indoor plumbing. As a young boy, he mostly ate only what his parents obtained from their land and their animals. Over the last 70 years, with tractors and implements, better agricultural science and improved transportation, farm production has improved such that a fraction of the farmers can now provide many times the previous agricultural output. Today GPS-guided tractors optimize the land for planting and farmers can use drones to monitor their crops and livestock. These changes have greatly reduced the labor required to feed the world, providing inexpensive food to a global market. With agricultural labor requirements reduced, rural towns and cities of the Midwest shrank as young people were forced to find work elsewhere.



The Industrial Revolution began 200 years ago, transforming manufacturing and industrial activities. Through most of the last century, the improvements brought by technology reduced the manual labor required to produce products. Though fewer workers were required to produce the same products, new industries were created that provided new jobs. As some classes of occupations became obsolete (like the ice delivery men that stocked the residential ice boxes), others came into being (like refrigerator repairmen). Though the changes to society were great, they came over a number of generations, allowing society to adapt.

The electronics and computer revolutions that started at the end of the last century have continued the increases to our productivity, but at a much greater pace. In addition to saving manual labor, computers reduce the mental efforts required in design and production, displacing workers with greater skills. New computer, telecommunications and consumer electronics industries were created as a result of this technology, creating new occupations as others were made obsolete. These profound changes to society now occur in a much shorter time, in a generation or two, or less. When I was growing up, I could not consider a career as a Blockbuster Video sales clerk, as consumer videocassettes had not yet been invented. My daughter watched videos we rented for her as a child; now as a young adult, the video rental stores are gone, and she watches DVDs from the Redbox machine in front of the grocery store or views streaming videos on her iPad. The video rental clerk is an occupation that came and went in my lifetime; Netflix, Hulu and that big red robot dispensing DVDs caused all those jobs to go away.

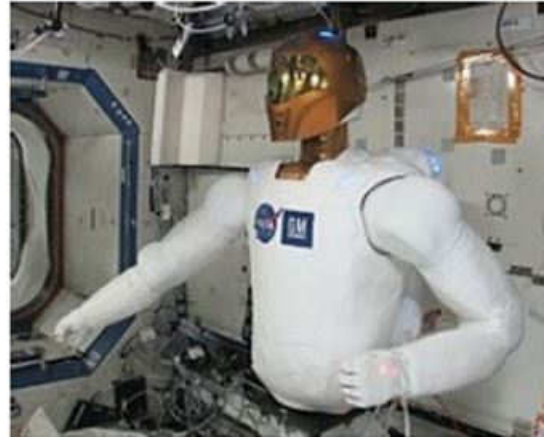
The video store clerk is the classic example of workers displaced by modern technology (and not replaced elsewhere in a successor industry in the same numbers), but there are plenty of others. Bank employment has been reduced, thanks to automated teller machines (ATMs), online banking and even Internet banks. I don't know if there were ever 400,000 bank tellers employed in the U.S., but today there are that many ATMs here. Now with the ability to deposit a check by taking a picture of it with your smart phone, the need for physical banks, and their branch employees, is reduced further.

Postal and parcel deliveries have been greatly improved by computerization and automation. FedEx, UPS and the other parcel delivery companies have used technology to improve service, open new markets and keep costs down while getting more out of fewer employees. They have taken a lot of business away from the U.S. Postal Service, which has had to automate extensively to compete. I love the "postal robot", the automated mailing kiosk in my local post office. It is available to me at all hours of the day to weigh and mail my letters and packages and sell me postage. It does not require overtime pay or a pension, so I'm sure it reduces the USPS's labor costs.

The state Department of Motor Vehicles is another place where computers should have cut the number of employees required (but considering it is a government activity that might not be the case). Since most simple DMV activities like car registration renewals and address changes can be performed online, most people can avoid for years the unpleasant prospect of visiting the a DMV office in person. Even when you do, you can make an appointment online.

San Diego Gas and Electric used to employ legions of meter readers; now with the new smart meters they have installed over the last few years, all your energy usage is transmitted back to them electronically. Most grocery and general merchandise stores have installed at least a few self-checkout registers, reducing the number of employees needed. A Cupertino, CA hotel is introducing a robotic butler to make deliveries to guests; it motors around like R2-D2. Even NASA has installed a Robonaut on the International Space Station to help humans work and explore in space.

These days it is hard to think of a job that does not require the use of computers and related technologies. Computers and microcontrollers are being built into everything; these smart, networked devices improve our lives and save us labor. They also may be eliminating a lot of lower-paid jobs. If a robotic vacuum can clean your floors, you may not need to hire a maid. Some restaurants are introducing tablet-like devices customers can use to order food and pay their bills, reducing the wait staff required.



I think the next big technology innovation will be the autonomous vehicle. The military already has unmanned aerial vehicles for surveillance and munitions delivery; some are remotely piloted, but others are truly autonomous. Once the private sector can legally use drones for business, mass production will make them less expensive and more capable, opening up more possibilities for their use. Small surveillance UAVs may one day replace many police helicopter, patrol car and foot patrols. If Amazon has its way, all your packages will be delivered not by people but by quadcopters.



The self-driving cars being developed by Google and others will really provide benefits to mankind but will also cost jobs. A fully autonomous car would be a great help to those too disabled (or too impaired) to drive, and could have the potential to greatly reduce traffic accidents. Though the technology may already be here, once again the legal and social systems will need time to catch up. Meanwhile, we are getting bits and pieces of the self-driving car now, in the self-parking car and the car that automatically brakes to avoid a collision. Once the fully self-driving car is legal, look for taxi, bus and truck drivers to be in the unemployment lines.



Then the self-driving trucks will transport the raw materials to the robotic factories, so that more robots and self-driving vehicles can be manufactured.

Data Creators and Consumers - In a mobile computing environment

By Phil Sorrentino, Staff Writer, The Computer Club, Inc., Sun City Center, FL
August 2014 issue, The Journal, www.sccccomputerclub.org/, philsorr (at) yahoo.com

Some computer devices are good at creating data and some others are better at consuming data. This is only a consideration now that we have a selection of devices to choose from, and that the devices have become smaller, lighter and therefore, mobile. In the beginning, when all we had was a computer, it was

both the data creator and the data consumer. We really didn't think about creating or consuming; when you wanted to work with, or look at, a document or picture, you went to the computer, which was usually in some area set out just for the computer. Nowadays we want to have the benefits of the computer wherever we are; we don't want to have to go to the special location, where the computer used to be. Now we have laptops, ultrabooks, netbooks (a few of us have these), tablets and smartphones that go wherever we go. All of which can be considered platforms for mobile computing. Now it's all about Mobility, or computing on the go.

Mobile computing is having access to, and being able to, view or create data whenever and wherever you want. Mobile computing requires mobile hardware, software, and communications networks. Mobile computing is "taking a computer, with access to all necessary files, out into the field" for use on the go. This type of computing, unlike computing at your computer workstation, is subject to a few considerations and maybe even limitations. Good wireless communications becomes a critical factor in mobile computing. The network type, the communication properties, protocols, and data formats become considerations for success. Most of these considerations are handled by our Internet Service Providers (ISP), through their routers; or Commercial cell phone providers through their cell phone towers. But mobile computer users should be aware of some of the basics and some of the limitations of the communications networks that are providing the linkage.

Typically your mobile computer or tablet is at the end of a wireless network, either Wi-Fi, or the commercial cell phone network. Wireless communications networks are subject to certain limitations that are not present in a wired computer network. Range (distance) and Bandwidth (data transfer speed) are two limitations associated with wireless communications networks. For successful mobile computing, your computer has to be within range of either a Wi-Fi access point or a commercial cell phone tower (and, of course, you have to have the appropriate wireless radio functionality built into your hardware).

When using Wi-Fi, the Wi-Fi portion of the communications is typically not the limiting speed factor. Wi-Fi typically operates at greater than 50 Mbps. The limitation is typically the ISP upload speed, which may be only around 1 Mbps.

When using the commercial cell phone network, the network is a limiting speed factor in that a 3G network can only transfer data at approximately 2Mbps. (However, the newer 4G networks are less of a limitation because they transfer data somewhere around 10Mbps.)

Transmission Interference is another limitation associated with wireless communications networks. Cell phones use radio frequencies where weather, terrain, and objects (like mountains) can affect signal reception. Reception in some buildings, and in rural areas, can often times be limited.

Power consumption is a mobile hardware limitation. Mobile computers rely typically on battery power. Laptops may operate on battery for only 3 to 5 hours. Tablets, on the other hand, have operating times close to a day's work, maybe 8 to 10 hours.

Security is a mobile computing software consideration. Mobile computing on Wi-Fi public networks can be a security nightmare. VPN (Virtual Private Network) software is a must for all secure mobile computing.

Now that we are aware of some of the limitations of mobile computing due to the nature of the wireless network or the size and power constraints of the devices, we can look at which devices could be used for what tasks. Laptops and ultrabooks, (and desktops for those few of us who still have them), with their hardware keyboards, larger display screens, and in some cases more abundant USB ports, are probably the best candidates to be data creators. Data creators will typically have more sophisticated software installed that will let the user create lengthy document, spreadsheet, PowerPoint, graphical, and image files. Looking at the big picture, scanners and cameras are also data creators. Scanners are typically found connected to a Desktop or Laptop computer in a fixed location, but there are a few small portable scanners available. Cameras are, by their very nature, portable data creators.

Tablets and smartphones, on the other hand, with their lower battery usage, smaller size, and lower weight, are probably the best candidates to be mobile data consumers. Tablets are good for viewing data and maybe making small modifications or changes, like adding a sentence to a document or placing some data into a spreadsheet. But a tablet, with its virtual keyboard, is certainly not the device to use if you are writing your memoirs. Tablets are ideal for storing large numbers of documents, pictures, and videos, using their onboard memory and their microSD memory devices (if the tablet supports this). Tablets are also perfect for accessing large databases in the cloud or on a home computer. (Remember Teamviewer?) The tablet can be a way of bringing large amounts of data to be viewed or reviewed by people on the go. This convenience has found its place in many areas such as the medical profession, and in providing User or Diagnostic information to users or technicians. These categories of Consumer and Creator are, by no means, hard and fast, but only help to provide a way to decide on what device to use in a particular situation.

How to restore an Android device

By Frank Ramsey Akron Canton PC Users Group Newsletter Editor

Aframsey at yahoo.com

Editor's note: Article on using Helium Backup is in January 2015 issue of Bits & Bytes

This article will discuss the method and preparation to be able to restore an Android device.

I must mention that this is not a cookbook of instructions. The article is some guiding principles. If you decide to perform a factory reset of your device or try to migrate to a new device, you and you alone are totally responsible for the outcome.

Your first question is why would I want to/need to restore my Android device? There are a number of possibilities. One is you were requested to perform a factory reset of the device by technical support in response to your call about a problem. Another is you feel the device has slowed down over time to the point it's time to rebuild it from scratch. Perhaps you got a new device either as a replacement or upgrade. The last reason is you found yourself with a few hours to kill and decided to be adventuresome while learning some new skills.

If you haven't figured it out by now, restoring the device means the device has all of your information/data/pictures/applications/... completely removed. Gone forever! Not to be recovered!

Needless to say, performing a factory reset is not something to be done without the proper preparation. That's one of the things we'll talk about. Proper preparation.

The preparation begins with backing up everything you will need on the device. Typically this involves, photos, applications, application data (more on this in a minute), perhaps SMS messages and on and on.

I realize that one option for restoring is from your Google account. You have the ability to backup lots of stuff to your Google account. For backing up contacts, calendar entries, Wifi networks and passwords it's great. To me what's not great is backing up the applications you use to your Google account. And application data? Forget about it!

Now you ask, what is application data? Application data is the information each Android application stores/tracks/preserves. Things like your high score in a game, your userid and password for your online banking app, your credentials for applications that require you to sign on.

Backing up the applications used to Google, does not preserve the application data for the application. You have to enter it all anew or have some other means of preserving it.

Some applications provide an export/import feature to relieve you of having to enter all the stuff again. Most do not.

Some preserve application data along with configuration information in the standard locations Google suggest, the folders Android and/or data on the internal storage of your device. Many do not.

Fortunately, there is a free application in the Google Play store that backs up application data. That application is Helium from the clockworkmod folks. There is a free version that gives you the ability to backup application data and a premium version that adds the ability to store the backup in the cloud and schedule backups. I recently wrote a how-to for Helium.

The first step in backing your device is to obtain two backup utilities. Why two are required will become apparent shortly. One of these is Helium. The other is any good general purpose backup utility. For the purposes of this discussion I use App Backup and Restore. Also free on Google Play.

The steps to perform a full backup and restore are:

- Obtain copies of the backup applications.

- Get Helium working by downloading, installing and configuring its required desktop piece (if performing an application data backup were easy everyone would do it. It's not. Especially if your device is not rooted which 99.9% of Android devices are not.

- Install the general purpose backup utility. Our example is App Backup and Restore.

- Perform a full backup using App Backup and Restore. This captures the installed applications

- Perform a full backup of application data using Helium. This captures the current state of the data associated with each application.

- Copy key recovery folders to a recovery device. Why? Well it's easier.

- Copy the backup folders for both products to a recovery device.

- Perform a factory reset on the device. This erases ALL data.

- Sign onto the factory reset device using your Google ID. Deselect any options to restore the device from your Google account.

- Install App Backup and Restore and Helium and get them working.

- Perform a restore using App Backup and Restore for the desired applications.

- Perform a restore of application data using Helium for the desired applications.

- Reboot the device

- Restore contacts from the export.

- Test, test, test

Now's a good time to discuss why two backup tools are used. Because we have two types of information to backup, the application itself and the application data. And we want maximum flexibility when it comes to restoring the device using the backups. I will say here that you could use just Helium to backup both the application and associated application data.

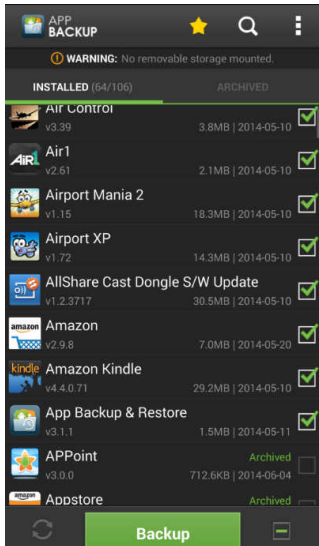
What I feel this approach lacks is flexibility. I like to be able to confirm the installation of each application. I know; picky perhaps. Yes it's a pain. But one reason you perform a factory reset is to clean the device of old/stale/not used applications. I prefer selecting all applications for install, then being able to say yes or no to each as its being installed. This does take longer. And it makes me feel more in control.

If you don't want to be queried about installing an application, use just Helium, select restore all and grab yourself a cup of coffee.

My method is to backup the apps using App Backup and Restore. When restoring the apps to the new device, select restore all. Then review each as it is to be installed, cancelling the install of the ones I don't want.

Once the applications are installed, fire up Helium, select Restore All and recover the application data for the installed apps.

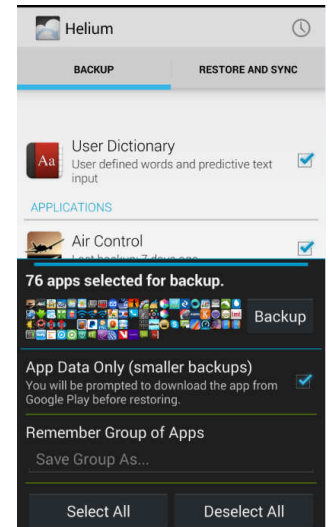
Reboot your new device. You can now recover pictures, music, movies, whatever is left. Providing, of course, you preserved them in the first place.



The first step is backing up applications using App Backup and Restore. Open App Backup and Restore. Select the backup tab, select all (don't see this option? It may be below the screen. Swipe the screen up. Click backup and watch the status as backups are performed. Once App Backup and Restore is finished, exit the app.

Next open Helium, activating using the Carbon desktop if required. Select the backup tab. Touch select all. Leave the App Data checked. Click backup, specify the location as local storage and wait for it to finish.

Once Helium is completed, exit it.

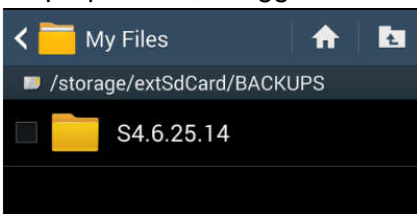


App Backup and Restore and Helium place the backups into folders on internal storage of the device. This same storage is formatted during the factory reset process. Therefore, we must copy the folders to something else before performing a factory reset. Or everything is lost.

Typically this something else is an internal microSD card as most Android devices support inserting a microSD card.

Another possibility is a USB flash drive connected with an OTG (On-the-Go) cable or a dual connector USB device such as the SanDisk dual Extreme USB device.

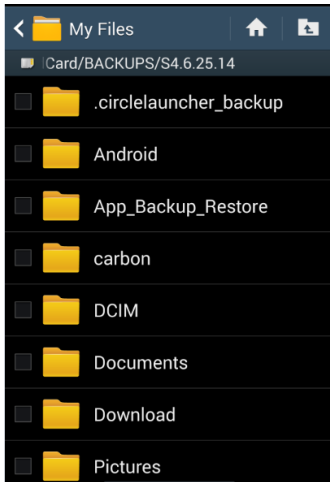
In preparation, I suggest creating a new folder on your microSD card/flash device to contain the backups. I call mine BACKUPS. Since you may make backups at various points in time, I further suggest creating a subfolder in the BACKUPS folder with the date and possibly device type.. This way if you have multiple Android devices like me, you can consolidate the backups on your laptop and keeping easy track of which is which.



App Backup and Restore backs up to the App_Backup_Restore folder. Helium backs up to the carbon folder.. These are two folders at a minimum we must copy and preserve. Some applications store configuration information in either the "Android" or "data" folders on your device storage. These are two more folders that I typically copy.

Additional folders I copy are my photos, typically called "DCIM", "Downloads" (which has anything you may have downloaded), "Documents", and a folder called "Pictures" (containing typically screenshots you made).

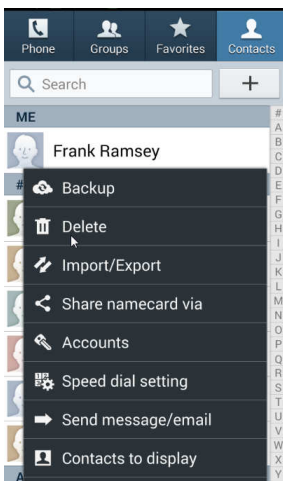
Lastly, you may want to copy configuration folders of applications that don't use the standard Android or data folders. How do you know which they are and where they store configuration information? Basically check with the developers of your critical applications.



In my case, the critical application I use is Circle Launcher. Circle Launcher's configuration information is stored in the ".circlelauncher_backup" folder. While we're at it, the dot at the beginning of the name says this is a hidden folder. To see these in the file manager you use, you must enable the Show hidden files and folders option in the configuration details of your file manager.

You're probably thinking doesn't this count as application data? Yes it does, and it does come back when Helium restores application data. Call me paranoid. I'd rather have two methods of getting this back. It's that critical to me.

So I copy the ".circlelauncher_backup", "App_Backup_Restore", "carbon", "Android", "data", "DCIM", "Downloads", "Documents", and "Pictures" folders from my device to the microSD or USB flash drive.



Now, go into your contacts, select settings, and select Import/Export select Export to the desired device (either SD card or USB storage). Confirm the file name and click OK.. This backups all your contacts to a file. It's for the just in case time you need to restore contacts and don't have a backup.



Lastly, let's preserve all this by making a copy to your laptop. Power off your device, remove the microSD or USB device, attach it to your laptop and copy everything from the BACKUPS folder to your laptop. This way, you have it in two places.

After copying the folders listed above, plus any other folders your research shows your applications use AND making a copy, you're ready to perform the restore.

If you are setting up a new device, turn off the old device then remove the microSD or USB flash drive from it. Insert the microSD card into the new device.

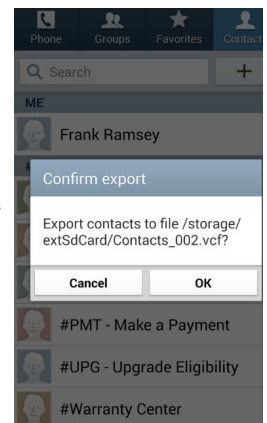
If you are performing a factory reset on the device, now's the time to actually perform the factory reset following your device specific factory reset instructions. I suggest removing the USB flash drive if that's what you used. You can also remove the microSD card if it was used. Typically, a factory reset only formats the internal storage of the device and does not format the microSD card in the device. And you have a copy of the microSD card on your laptop.

If it's not already, turn on the device of interest, either the new one or the factory reset one.

You will be prompted to confirm various things, like location, perhaps time zone. Then you are requested to either sign on with your Google account or create a new Google account.

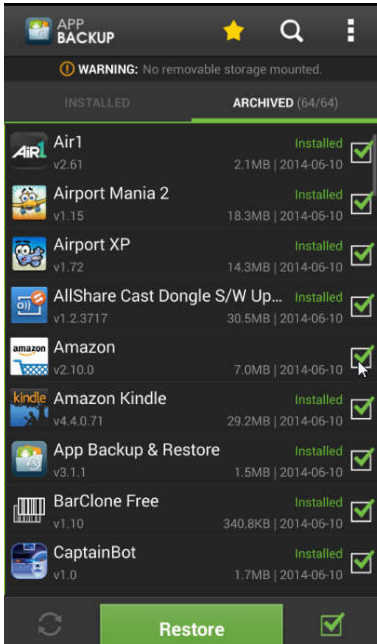
Enter your Google credentials. Do not check the restore my device. We'll do this manually.

Eventually you'll get to the default launcher screen. The fun begins.



Open Google Play and install App Backup and Restore and Helium. Find the file manager typically installed on your phone. Or install your favorite file manager from Google Play.

Open the file manager, browse to microSD card. Browse to the folder you stored the backups in. In my case it's BACKUPS\S4.6.25.14. Open this folder.



Select the App_Backup_Restore and carbon folders. Click copy. The destination is your internal device storage. Browse to the internal storage root. Click Paste Here. Wait for the copy to complete.

Open App Backup and Restore. Click on the restore tab. Click select all or scroll through the list and select the apps you wish to restore. Then click Restore.

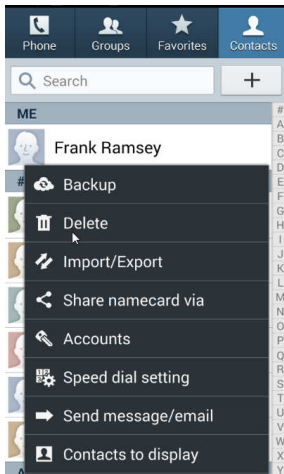
As you are prompted to confirm, either click OK or cancel. Cancel cancels only the install scheduled.

After OK'd or cancelled all the apps you selected, exit App Backup and Restore. Reboot the device.

How open Helium. Activate it using the desktop application. After Helium is activated, click on the Restore tab. Select all, or scroll through the list and select the apps for which you wish to restore application data. Click Restore.

This time, you don't have to confirm. Helium may complain that the app is not installed for the application data you selected. After the restore is completed, reboot your device.

You should have the applications selected restored with the application data.



Now what? If your contacts did not come back when you signed on with your Google account, go into Contacts, click Settings, click Import/Export, select the media (typically microSD), browse for the contact file and import it.

To restore your pictures, copy the DCIM file from backups to the root level of internal storage of your device.

You may or may not want to perform this step as pictures are typically large in size. Storing them internal takes space. Most devices allow you to specify the microSD card as the storage location for pictures, photos, videos. As microSD cards are inexpensive compared to internal device storage, this frees up internal device storage while allowing for lots and lots of pictures, photos and videos to be stored.

Most of the remaining folder that was copied during the backup/preserve phase is there in case you may need a file within it.

For example, if you have to have a download, browse BACKUPS\S4.6.25.14\Downloads till you find it, and then copy it to the internal Downloads folder. Or use it where it is. The choice is yours.

The same case is for all the folders. You've got the files protected just in case you may need one.

Good luck. Backup and restoring an Android device is something we all may have to do at some point in time. Hopefully this article will help you with the process.