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TC/PC Exists to
Facilitate and Encourage
the Cooperative Exchange of
PC Knowledge and
Information Across
All Levels of Experience

January 2020

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General Meeting Tuesday, Jan. 14, 2020 7:00 PM

Current State of Smart Home Technology Presenter: Jack Ungerleider

> Summit Place 8505 Flying Cloud Drive Eden Prairie, MN

The ever changing world of streaming video deserves an update for the new year. Join us as we breakdown the various streaming services and how you can switch from cable/satellite to streaming. Bring your questions and your experiences with various services and be part of the discussion. Lots of good and practical information you will want to learn about.

Tech Topics with Jack Ungerleider at 6:00 PM. Software to go with the Crafting hardware from last month.

TC/PC is a Member of



The Digital Viking

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Editor Sharon Walbran

Lock Up Those Photos

Author: Bill Crowe, Director, Sarasota Technology User Group, FL

October 2019 issue, STUG Monitor

www.thestug.org, director1 (at) thestug.org

Last month I lost my wallet. Not a good day. I knew the last time I had used the card, and from there I went straight home. They did not have the card at my last stop, so I had either lost it on the way to the car or at home. After an extensive search, I had to go about cancelling and replacing all my credit cards. I had to do the same for all my other cards like medical cards, Driver's license, Costco's, and others. Not a fun job. The job would have been so much easier if I had kept a record of all my cards. I got to thinking that if I had taken a picture of each card (front and back), I would have had them on my iPhone. That would have solved the problem.

Thinking about it further, what if someone got my phone or was able to access my iCloud and gain access to my info? All my cards were there for the taking. I was hoping that there was a way to lock photos on my iPhone, but Apple has not yet provided one. I knew there must be an app for that, and 'By Golly' there is.



Credit: www.privatephotovault.com

[Editor's note: This app is also available for Android.]

password-protect them on your private album.

There are, of course, many applications that can do it, but one of the best is called Private Photo Vault. The following is a brief introduction to Private Photo Vault. Private Photo Vault is one of the best free applications to protect your personal photos and videos by password/pattern-locking. This feature-rich app allows easy album organization by allowing you to transfer images and videos from iPhone's photo app to your new protected album. All you need to do is select photos you want to hide and

Private Photo Vault has a tri-protect system. You can either hide your photos via a secure password system or a nifty pattern lock system. There's also a pin lock option that lets you hide an image by entering a 4-digit pin.

Of many additional features, my favorite is the decoy password option. It allows users to enter two passwords – one for general access and another for those albums you want to really secure. With a smooth interface, and simple yet extremely secure protection option, the app is a good way to hide your photos on your phone.

By the way, the end of my story is that after I cancelled most of my cards, I found the wallet. It was in about the only place in the house I had not turned upside down.

See the tutorials at https://privatephotovault.com/tutorials/

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New to the Library

Google Apps Made Easy – Learn to Work in the Cloud

Author: Terry Flanagan, Club Librarian, GVR Computer Club, AZ

October 2019 issue, Greenbytes

www.ccgvaz.org, Newsletter (at) ccgvaz.org



Just added to the club library is GOOGLE APPS MADE EASY – Learn To Work In The Cloud. Google Apps is Google's response to Microsoft Office and LibreOffice. The table below lists the various functions and the names used.

FUNCTION	GOOGLE APPS	M/S OFFICE	LibreOffice	
Word Processing	Docs	Word	Writer	
Spreadsheet	Sheets	Excel	Calc	
Presentation	Slides	PowerPoint Impress		
Database	N.A.	Access	Base	
Forms	Forms	N.A.	N.A.	
Note Taking	Keep	OneNote	N.A.	
Photo Organizing	Photos	N.A. N.A.		
Vector Graphics	N.A.	N.A. Draw		
Email	Gmail	Outlook	Thunderbird	
COST	Free	\$100/yr.	Free	

What makes Google Apps different? First and foremost Google Apps are web based. You do not download and install a program on your computer. You use your web browser, preferably Google Chrome, to go to www.google.com and log into your account and there they are. You do not have to be concerned with updates, maintenance, and backup issues. They are also platform or operating system independent. It does not matter if you are using a M/S Windows, Apple MAC or Linux computer, an Android smart phone, iPhone or iPad. The applications and your files are there in the cloud for you to access from wherever you are.

There are several advantage and disadvantages to working in the cloud. Being on the cloud makes it easier to share your files with others, which makes collaboration easier. There is no need to send email attachments back and forth or copy files onto flash drives. Also, all of your data will be consistent between your devices. If you make changes in Google Docs on your PC and later open the file on your iPad the changes are there. Even if you save the file locally to your computer it will be synchronized to the cloud version. The disadvantages

are that you must have an internet connection since most of the things you will do with these apps are cloud-based and done online. The applications do not have as many features as the other office suites and some may have security concerns about their data being on the cloud.

From the chart above, you will note that each office suite has applications that the other does not. Google Apps does not have a database module, but this is not a frequently used application by home users. Many common database functions can be handled by a spreadsheet. M/S Office and LibreOffice do not have a photo editing module, but there are a number of good stand-alone programs to perform those tasks.

Google Forms stands out as a unique application. Forms does what the name implies. You can easily create forms to gather information or take surveys. The data is automatically transferred to a spreadsheet and reports created to summarize the results and display them in easy to understand charts.

One final point to mention – notice the bottom line in the chart above. Google Apps are free along with 15 gigabytes of cloud file storage. More space is available for a fee.

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Microsoft's AARD Code

Author: Jim Sanders, Director, North Orange County Computer Club, CA September 2019 issue, Orange Bytes www.noccc.org, jsanders (at) ligasmicro.com

Déjà vu all over again???? From Wikipedia, the free encyclopedia Window 3.1 was released April 6, 1992. At that time, one had to boot DOS and then load Windows. In January of 1992, DR-DOS was being wildly accepted as a better DOS than MS-DOS. Not liking the loss of market share, Microsoft (led by Bill Gates) decided to sabotage the competition.

The **AARD code** was a segment of code in a <u>beta release</u> of <u>Microsoft Windows 3.1</u> that would determine whether Windows was running on <u>MS-DOS</u> or <u>PC DOS</u>, rather than a competing product such as <u>DR-DOS</u>, and would result in a cryptic error message in the latter case. This <u>XOR-encrypted</u>, <u>self-modifying</u>, and deliberately obfuscated machine code used a variety of undocumented DOS structures and functions to perform its work, and appeared in the installer, <u>WIN.COM</u>, and several other executables in the OS.

The AARD code was originally discovered by <u>Geoff Chappell</u> on 17 April 1992 and then further analyzed and documented in a joint effort with Andrew Schulman. The name was

derived from Microsoft programmer Aaron R. Reynolds (1955–2008), who used "AARD" to sign his work; "AARD" was found in the machine code of the installer. Microsoft disabled the AARD code for the final release of Windows 3.1, but did not remove it, so that it could have become reactivated later by the change of a single byte in an installed system, thereby constituting a "smoking gun".

DR-DOS publisher <u>Digital Research</u> released a <u>patch</u> to enable the AARD tests to pass on its operating system in 1992.

The rationale for the AARD code came to light when internal memos were released during the <u>United States v. Microsoft Corp.</u> antitrust case in 1999. Internal memos released by Microsoft revealed that the specific focus of these tests was <u>DR-DOS</u>. At one point, Microsoft CEO <u>Bill Gates</u> sent a memo to a number of employees, reading "You never sent me a response on the question of what things an app would do that would make it run with MS-DOS and not run with DR-DOS. Is there <u>[sic]</u> feature they have that might get in our way?" Microsoft Senior Vice President <u>Brad Silverberg</u> later sent another memo, stating: "What the <u>[user]</u> is supposed to do is feel uncomfortable, and when he has bugs, suspect that the problem is DR-DOS and then go out to buy MS-DOS."

Following the purchase of DR-DOS by <u>Novell</u> and its renaming to "Novell DOS", Microsoft Co-President <u>Jim Allchin</u> stated in a memo, "If you're going to kill someone there isn't much reason to get all worked up about it and angry. Any discussions beforehand are a waste of time. We need to smile at Novell while we pull the trigger."

What had been DR-DOS changed hands again. The new owner, <u>Caldera, Inc.</u>, began a lawsuit against Microsoft over the AARD code, <u>Caldera v. Microsoft</u>, which was later settled. It was believed that the settlement ran in the order of \$150 million but was revealed in November 2009 with the release of the Settlement Agreement to be \$280 million.

Today, few people are aware of the above piece of history. Having shot, killed and buried the competition, when MS was assessed the DR-DOS funeral fee, instead of crying all the way to the bank, likely it was with a smile and a smirk about what had become chump change to MS.

What's the point?

Achieving commercial success by making "shrewd business moves" is often applauded by Wall Street even if they are unlikely to win any "nice guy" awards. As noted on Wikipedia, https://en.wikipedia.org/wiki/Microsoft_litigation#Caldera_v_Microsoft, the DR-DOS episode was not an isolated incidence. Indeed, current Windows 10 events reminded me of this history.

What am I talking about? Two of my favorite, free, programs. The first, Irfanview, is a free program that I have praised for years. While primarily a program that displays, manipulates and converts an amazing range of still image file types, it also addresses a few audio and video file types. In addition, it contains a number of utility routines that I frequently use. It

crams an impressive amount of functionality into a relatively small amount of program code. Amongst which is a Slide Show routine with many options. Copy Shop, which scans and prints a document in one continuous pass. Single and batch scanning routines. Screen Shot cropping. And a really fast to load and play, image viewer and MP3 player. Those are a few examples of its array of capabilities. Much more information is available on Wikipedia: https://en.wikipedia.org/wiki/IrfanView. A more awe-inspiring comment on its range of functions has to do with keyboard shortcuts. Depending on which routines are in use, there are close to two hundred, that's 200, keyboard shortcuts. And, yes, I know how hard it is to remember 20 keyboard shortcuts, much less 200. But if I use an application a lot, some are worth remembering. One Windows 10 keyboard shortcut that I find myself using a lot is the Windows key + d command. That takes you back to the desktop, regardless of how many windows you have open or which one is active.

The second free program is 'VLC media player', AKA 'VideoLan media player', commonly referred to simply as VLC. Best known as the premier player of most existing video file types. Less well known is its ability to play a very large number of different audio file formats. If you don't already use this program, or at least know about it, you should visit: https://en.wikipedia.org/wiki/VLC media player. There, you will learn what the 'C' in VLC stood for. You will learn about its 22-year history, evolution and the long list of formats and platforms it supports. If you Google VLC reviews, you will find that they are overwhelmingly both effusive and positive.

Both of these programs, and several others, have been around for years. Both have been coded by some very smart people. VLC in particular is a **Free and open-source software** program. A full definition and explanation of that description is available at: https://en.wikipedia.org/wiki/Free_and_open-source_software. Basically that means that the smartest (granted, and dumbest) programmers in the world can look at the source code for VLC. They can and do, find errors, coding that can be improved, submit additions to VLC and/or simply look for inspiration in some very clever code.

How does that relate to AARD code?

These two programs, and others, have been subject to an interesting occurrence in Windows 10 for some time. Say for instance that you are at a friend's house and she wants to show you a recently taken picture. You are impressed with the fact that almost as soon as you heard the second click on the icon, the picture is displayed on the screen. That's fast! She then shows the several ways you can quickly navigate between displayed files in a folder, zoom in/out, rotate, crop, etc. So when you get home, you Google 'Irfanview download.' You learn that it is available from a lot of download sites, including the authors. One of them will likely be www.MajorGeeks.com, my personal favorite, and you will notice there are two parts to Irfanview. The main program and Irfanview plugins, which is much larger. You see each one is available in both 32 bit and 64-bit versions. You download both in the version that matches your OS, install the main program, install the plugins, and run the program.

One of the setup screens lets you choose which file types will be associated with Irfanview as the default application. Choosing 'All' works well. Windows will go through your files and change the icon by the file name to the Irfanview icon: With the

program up and running, you double click on a .jpg file and up pops your picture. A little while later, a little box pops up in the bottom right corner of your screen. If you notice it at all, you hardly have time to read it before it disappears. If you click on the messages icon at the right end of the taskbar it will show up there. It will open and display the message one time and then go away. This is what you might have missed:

After that message popped up, Windows went back through your files and changed the icon next to your jpg pictures to the icon for 'Photos.' The same type of thing happens with the MP3 files and the video files.

You can go into settings and change it back to Irfanview, or VLC, or whatever your favorite program is that suffered the same fate. Soon after you do that, or perhaps not till after you re-boot, Windows 10 will pop out the "An app default was reset" window and change everything to: THE MICROSOFT DEFAULT APP.

Now, if you have been a computer geek for a few decades, like me, you suspect the only problem my Irfanview app and the other apps caused was having the audacity to install themselves as a default app in competition with the Microsoft app. It strikes me that there is some similarity between what is happening in Windows 10 and what happened to DR-DOS in Windows 3.1. There is one notable difference between the two scenarios, with the AARD code, a phony error code was generated. With Windows 10, there is no error code. The implied message is: "We are Microsoft, trust us, when we say your APP caused a problem, there is something wrong with your APP."

To paraphrase the internal memo quoted in the AARD finding: : "What the [user] is supposed to do is feel uncomfortable, and when he has bugs, suspect that the problem is (with his APP) and then stick with the default Microsoft APP." That is exactly what I would guess a huge number of Windows 10 users have done. This URL is just one of several where users were complaining.

https://answers.microsoft.com/en-us/windows/forum/all/windows-10-issues-with-setting-photo-viewer/5ec485ad-199f-4d7f-880a-42039ac3b4cf

While at that URL and others, there are a number of useless suggestions and a couple of workarounds that do work, one thing stands out by its ABSENCE. "Your APP violated Microsoft Windows 10 programming guidelines by doing this....... and causing error code xxxxx." Another thing that seems odd, the following URL is dated February 23, 2016: https://canswers.microsoft.com/en-us/windows/forum/windows 10-start/an-app-default-was-reset/cee24e42-f55e-47e7-b88c-30698f8b6706

Consider that last week I did a clean install of the latest release of Windows 10, version 1809. That when I ran that installation, and installed the latest versions of Irfanview and VLC,

that is the installation from which I obtained the above screenshot. That means that at least THREE YEARS has gone by since "An app default was reset" started showing in Windows 10. Can anyone honestly believe that considering the sheer number, quality, and experience of the programmers writing, reviewing, and donating to the VLC code, that if Microsoft told them what "problem" the VLC app (and the other apps) actually caused, it would have been fixed years ago!

So how do you fix this issue? Windows 10 will not let you go to Setting, Apps, select Groove and choose uninstall. I tried that! So I Googled the problem. As I am sure you are aware, how you word a query in Google can result in very different answers. I don't remember how I worded my question, but one of the first responses referenced using Powershell and displayed the command lines to uninstall Groove Music. I cut and pasted the lines into Powershell, and uninstalled Groove Music, Photos, and Movies&TV. When there was no MS default music app to reset itself to, Windows 10 stopped complaining about the Irfanview MP3 music player, and the Irfanview MP3 music player continued to function just fine. Ditto the other two, and I was happy. My immediate problem solved, I stopped researching the problem.

While writing this article, I did some more Googling of the subject and was impressed with the number of different apps the complaints were about, the huge number of complaints overall, the length of time the issue has existed, the number of times non-functional or silly solutions were presented, the few workarounds that actually work, and the length of time that MS has seemingly stonewalled the issue. One find of possible interest to those that are skittish about editing the Registry or using Command lines, checkout this URL: https://www.thewindowsclub.com/stop-windows-10-resetting-default-apps.

There you can download and run a free program called "Stop Resetting My Apps" that deals with six of the more frequent complaints. The reviews I looked at were mostly favorable. Caveat emptor, do your own due diligence.

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President's Corner

Security is Important - Why Does it Take So Long (and Cost So Much)? Author: Greg Skalka, President, Under the Computer Hood User Group, CA October 2019 issue, Drive Light www.uchug.org, president (at) uchug.org

I am a technology user. I use all sorts of tech products, applications and services. I have laptops, desktops and Chromebooks. I have mobile devices - smart phones and tablets. I have home Internet access and I access the web from other places as well. I have a home network and I have smart home devices (cameras, TVs, voice-controlled assistants, smart lights and appliances). I use lots of software. I search the web, bank and buy things online and send emails and texts. I'm not much for social networks, but I do appear in posts by others, especially my wife. I've got a lot of the things a typical middle-class American would have.

I use a lot of technology, but all I want to do is use it. I don't want to have to struggle to make it work, fix it or spend a lot of time and money keeping it working safely. I want it all to work every time as I expect it to work. Unfortunately, there is a lot more to our tech lives than that. None of the tech revolution we have seen in the last decades would have been possible without money. It is commerce, capital and the desire to make a profit that brought us most of this, including Microsoft, Google, Uber, Tesla and all the rest. Some key government investments in technology, in the space program, DARPA and the military-industrial complex helped with fundamental research, but the capitalist entrepreneurs filled in the rest. Money made tech great, but money also made it unsafe.

Entrepreneurs take legal risks to gain rewards; criminals try to find the least risky ways to make money, legal or not. Each new tech device, app or service that comes out is studied for vulnerabilities by the criminal elements intent on exploiting it for monetary gain. Now that technology has interconnected the world, we can be the victims of crime originating from all over the globe. Even nation states can get in the game, trying to steal information for economic and political purposes.

All this leaves the poor tech user vulnerable. The rapid rate of change, the ease of use and ubiquitousness of these product and services just add to the risk. How does a user evaluate the threat and defend against it? Is it all worth the cost?

The criminals are out there, ready to hack, snoop, steal and deceive. They want your personal information to steal your identity and your passwords to steal your money. They want to trick you into sending them gift cards and Bitcoin. Who is going to protect the tech user from all the cyber threats? Can the government protect us? Laws may be passed, regulations put in place and enforcement attempted, but citizens are still victimized. Unfortunately sometimes the government is part of the problem, not protecting the sensitive data we entrusted to them.

Can the companies we buy products and services from protect us? Their desires for profit over all else have created some of our tech problems. They will sell us devices that are not secure if they think it makes business sense. They'll collect and monetize our personal information and then often fail to protect it adequately. It seems we as tech users must find ways to protect ourselves, as no one else will take responsibility for our security. Unfortunately, that means additional costs in terms of money and time are required to keep our assets (money, identity,

personal safety) secure when using all these tech items and services in the new global digital electronic world.

There is no practical way to remain 100% secure in our modern connected world. Even if you turn off all of your devices, disconnect them, put them in a box and seal it up (and cancel all your related services), you are not safe. The government still has your personal information, and even if you are not on Facebook, others could post about you. You will have to go back to paying with cash, shopping and banking in physical locations and communicating through personal visits and letters. Unless you want to step back into the 1950's, you will have to adopt some additional safeguards with every new tech item you acquire.

Safety as a tech user is not an absolute, but a matter of degree. More time and money spent to safeguard our activities will provide more relative safety and security, but tradeoffs will need to be made. More security comes at a higher cost and usually a greater inconvenience as well. A user can make their tech life more resistant to attacks by cyber criminals and become more resilient should bad things happen, but it will require more time, money and effort on their part. Lots of articles are written about protecting ourselves online and describing precautions we all should take, yet cybercrime is still prevalent.

I think I take care of my tech household pretty well, though there is always more that can be done. The things I value most (finances, identity, property) I protect the most, while things of a lesser consequence I am a bit looser with. In some ways I probably go overboard in caution, but there are probably some risks I don't take as seriously as I should. I'm pretty careful with physical security, using strong passwords, encryption, a VPN and two-factor authentication where appropriate.

I'm pretty resistant to social engineering threats and am very careful with my personal information. Exercising care and vigilance online is good, but it requires effort and some investments. I have several laptops and desktops that my wife and I use, as well as a couple of Chromebooks. All the computers we regularly use run Windows 7, so I am presently working towards replacing at least some of them with Windows 10 computers ahead of the Windows 7 security sunset in January 2020. This considerable cost in new hardware and software and in time to set everything up is strictly due to Microsoft's desire to make Windows 7 obsolete; I would be perfectly happy staying with Windows 7 otherwise. I'll be spending money on new systems, probably buying new software and spending time teaching my wife how to use the new OS. I'll probably compromise by keeping a couple of old Win7 computers or laptops to run software I can't convert to Win10 or don't want to spend more on. I still have a Windows XP computer that I keep off-line to run certain programs. I'm actually writing this article on it; I've yet to find a Microsoft Word version I like overall as much as version 6.

Even when security updates are provided for free, our time is usually required to oversee their installation. If nothing else, the time required to install updates represents time we are unable to use our devices. While Windows 10 may force automatic security updates, they can wind up being applied at the most inopportune times. I don't mind as much the automatic updates my Chromebook gets from Google, as they are downloaded in the

background and quickly applied on the next power-up.

In addition to computer updates, our network items often require security patches. Few users may pay much attention to updates for their routers, however, unless they are alerted somehow. I have a Netgear Orbi mesh Wi-Fi router, which I love for its performance and ease of use (but not so much for the initial cost). Because I'd registered the product and downloaded their app, I recently received an email that an update was available for my router's firmware. I initially tried to apply the update through the app (on my smart phone) but was unsuccessful. I was able to enter into an online chat through the app with their tech support, and thus began a two-hour process to finally get my router system updated.

I assumed I would be able to easily update through the Orbi app, but the support tech told me my installed firmware version was too old, and I instead would need to download and install an intermediate version from a web link. I find the small screen of a phone too difficult to use for this kind of activity, so pulled out a Chromebook, logged into my Orbi router and went to the web link. This also allowed me to keep the support chat going separately through the app on my phone.

Once I got to the web link, I found I would be downloading a zip file. There may be ways to unzip on a Chromebook, but I don't know them, so I switched again and logged in with my Windows laptop. The support tech said to apply the update first to the satellites (my mesh system consists of one router and two satellite units) and then to the router. The update page was a bit confusing, and I inadvertently updated the router first. Fortunately I was still connected to the tech support person, so after a number of additional steps, I successfully updated all components.

It is almost time to renew my anti-virus, and I need to make some decisions about it. I've been using ESET Internet Security for many years and really like it (and think it protects me, but who really knows). I'm not sure what I should use going forward on Windows 10, as I've heard that Microsoft's Win10 built-in protections are as good as anything else, and obviously are at no extra cost. I always buy ESET on sale ahead of when I need it, so I already have new copies to put on my Win7 computers. That seems like a waste, as I won't have these computers on the Internet past January. Still, I shouldn't cut corners on protecting my online banking computer, at least until I am switched over completely to Windows 10.

Though I may be spending a lot of time and money getting my new computers set up, it hopefully will increase the odds that I'll have secure systems that will help protect my data.

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Special Interest Groups (SIGs)

Most SIGs will meet at Edina Executive Plaza, Conference Room #102, 5200 Willson Road, Edina, MN
Confirm with a SIG group if they meet elsewhere.
For more info contact the SIG Leader(s) listed here.

w Work phone h Home phone c Cell phone * Meets at an alternate location

Get SIG announcements! Link from www.tcpc.com

Board of Directors*

All members are welcome! Check www.tcpc.com for location. Selected Saturday mornings

Linux on Saturday

This is for the Linux newbie and those trying to come over from Microsoft to a different operating system.

Second Saturday @ 9 AM-Noon Note: No Meetings June-August

Jack Ungerleider

612/418-3494 c jack@jacku.com

Tech Topics

Technical presentation/discussion on various technical topics from the following areas:

- Web/Internet
- Mobile Devices and Apps
- Playing with Programming
- DIY (3D Printing, R-Pi, other hobby electronics, etc.)

Second Tuesday @ 6:00-7:00 PM Every month Right before the general meeting.

Jack Ungerleider

612/418-3494 c jack@jacku.com

Microsoft Access

All levels. Presentations by expert developers within the group and by MS reps.

Third Saturday 9:00 AM—Noon

Note: No Meetings June-August

Steve Kuhlmey 952/934-8492 skuhlmey@hotmail.com

Microsoft Office

Addresses the use, integration, and nuances of the Microsoft Office applications.

Combined with Systems on Saturday
Third Saturday of the Month
9:00 AM—Noon

Note: No Meetings June-August

Steve Kuhlmey 952/934-8492 skuhlmey@hotmail.com

Directions to Summit Place for General Meetings:

Proceed to Eden Prairie Center Flying Cloud Drive . [Flying Cloud Drive runs along the West side of the Eden Prairie Center.] Once you have driven past Eden Prairie Center (on the left) along Flying Cloud Drive you will come to a stop light at Prairie Center Drive. The next intersection with a stop light and left turn lane is Fountain Place. Turn left at Fountain Place and go straight into the parking lot. Turn left again to the first covered entry way of Summit Place. There is plenty of parking in the large parking lot in front of the first Summit Place covered entry way. When you enter the door at the first covered entry way, ask to be directed to the Performance Room for the TC/PC meeting. For a map of more detailed directions and *info on Web SIG and Board meeting*, check the TC/PC website.

Directions to Edina Executive Plaza for Systems on Saturday, Access, Word and Picture Perfect SIGs: Take Highway 100 to the 50th Street/Vernon exit. [If you have come from the north, cross back over Highway 100 to the east side.] Take the first right and go past Perkins [The golf course will be on your left.] and continue on the east frontage road (Willson Road) to the next building—5200. There is ample parking in the building's lot.

Conference Room #102 is on 1st floor.

Help yourself by helping others!

Join the team & share your knowledge with others.

Contact TC/PC at www.tcpc.com

Meetings start at 7:00 PM (9:00 AM on Saturday) unless otherwise noted. *Meets at Edina Executive Plaza.

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February

Sun	Mon	Tues	WED	Тни	FRI	SAT
			1	2	3	4
5	6	7	8	9	10	9am-Noon Linux on Sat- urday
12	13	14 General Mtg Smart Home Tech-Streaming 6pm Tech Topics	15	16	17	18 9am-Noon Microsoft Office (including Access)
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8 9am-Noon Linux on Sat- urday
9	10	11 General Mtg TBA 6pm Tech Topics	12	13	14	15 9am-Noon Microsoft Office (including Access)
16	17	18	19	20	21	22
23	24	25	26	27	28	29



You have just read an issue of The Digital Viking.

Would you like to receive this delivered directly to your email or business each month?

As a member of TC/PC, the Twin Cities Personal Computer Group, one of the benefits is reading this monthly publication at www.tcpc.com..

As a member of TC/PC, you may attend any or all of the monthly Special Interest Group (SIG) meetings and be eligible for software drawings. The small membership fee also includes access to real-live people with answers via our helplines, discounts, and various other perks.

Does membership in this group sound like a good way to increase your computer knowledge?

It's easy to do! Simply fill in the form below and mail it to the address shown. (If you use the form in this issue, you will receive an extra month for joining now.)



1/20 I'm signing up for: Here's the info for my TC/PC Membership: O Individual/Family Membership (\$18) O Business Membership (\$100) If an existing member your # Company name Make checks payable to: **Twin Cities PC User Group** 341 County Rd C2 W Roseville, MN 55113 State Zip http://www.tcpc.com OHome OBusiness OChange address: OPerm. OTemp. 'til _____ O Bill me Home phone Work phone O New member O Renewal O Prior member I'm interested in: Online address(es) O Training classes O Volunteering O Special Interest Groups: New User, Access, Where did you hear about TC/PC? List here: O I DO NOT want any of my information disclosed. O I DO NOT want to receive any mailings Administrative Use Only Rec'd

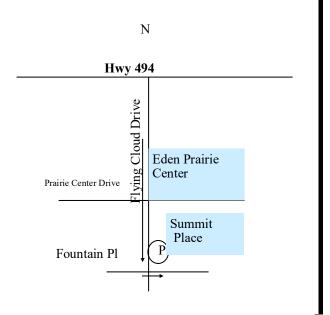
January 14, 2020

General Meeting

Smart Home Technology Presenter: Jack Ungerleider

Summit Place 8505 Flying Cloud Dr Eden Prairie, MN

More info and map: www.tcpc.com





341 County Rd C2 W Roseville, MN 55113 FIRST CLASS MAIL