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The Digital

Viking



Twin Cities

PC USER GROUP

NEWSLETTER

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

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General Meeting


Tuesday, January 12, 2015

7:00 PM

Backing Up Your Computer And Other Devices

**Location: Summit Place
8505 Flying Cloud Drive
Eden Prairie, MN**

Every month it seems the newspapers and other media announce a new threat to our computer data. A hard drive failure or a stolen computer present another hazard to our data. If you are storing important information on your computer such as your tax information, your memoirs, your family photos or anything else you would hate to lose, backing up that data is critical. Businesses, generally, set up a daily backup regimen, but for the individual it takes self discipline, and backing up is often allowed to slide. At our January presentation Jack Ungerleider will cover the topic of backing up your computers and your tablets and smart phones. He will walk us through the step by step process of backing up files, testing to make certain the backup worked, and how to recover files that have been lost. He'll talk about the different applications and hardware you can use for your backups, where to store the data—locally, in the cloud, off-site—and the difference between full backups and incremental backups and when each is used. Make that New Year's resolution to backup your data often in 2016 and don't miss this meeting to find out the best backup practices and techniques. 

Tech Topics 6PM: Jack Ungerleider will do a thorough review of available mobile plans as well as new smartphone options. 

TC/PC is a
Member of



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Application form inside back cover

TC/PC Business Members

Friendship Village

Thank You!

The Digital Viking

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Advertising

Full page (7½ x 9½)	\$100.00
Two-thirds page (7½ x 6)	80.00
Half page (7½ x 4¾)	65.00
One-third page (7½ x 3)	50.00
Quarter page (3½ x 4¾)	40.00
Member Bus. Card (2 x 3½)	10.00

Multiple insertion discounts available.

Contact Sharon Walbran at: SQWalbran@yahoo.com

Deadline for ad placement is the 1st of the month prior to publication. All rates are per issue and for digital or camera-ready ads. Typesetting and other services are extra and must be requested in advance of submission deadlines.

Payment must accompany order unless other arrangements are made in advance. Place make checks payable to: Twin Cities PC User Group

TC/PC Member Benefits

Product previews
and demonstrations

Special Interest Groups
Monthly Newsletter

Discounts on products
and services

Contests and prizes

Business Member Benefits

All of the above PLUS:

FREE ½ page ad on
payment of each renewal

20% discount on all ads
Placed in the *Digital
Viking* Newsletter

Up to 5 newsletters mailed to
your site
(only a nominal cost for each
additional 5 mailed)

TC/PC 2015-2016 Board of Directors

Meets once or twice per year. All members welcome to attend.

Visit www.tccpc.com for meeting details.

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Tech Topics SIG: Starting the new year right

The following is the current plan for the Tech Topics SIG in early 2016. Please note that all topics are subject to change.

January 2016 - The new landscape in mobile access Most of the major carriers dropped their 2-year contract periods to go with month-to-month service plans and direct purchase (with finance options) for the phones. This is good news for people who plan to keep a phone beyond the end of a contract period. It also allows for changes to your plan components much more easily. We will look at comparison of the major carriers and also discuss a couple of the minor carriers. We will also discuss the current smartphone offerings. Bring your questions, comments and personal experiences.

February 2016 - The Tech Topics Book Club: Design for 3D Printing and the Internet of Things I recently purchased two books that should be interesting in the context of this SIG. The first is a good intro to the terminology and technology of 3D printing. The second is a guide to "smart" technology that is popping up in all areas.

March 2016 - Browsers: Why you want more than one March 2016 will be the six month anniversary of Google turning off support for NPAPI in Chrome. As a result there are some websites that won't work with Chrome anymore, or at least until they remove the need for NPAPI plugins like Java and Silverlight. Many of Google's apps work best with Chrome and may lose features in Internet Explorer. We will explore the strengths, weaknesses, and limitations of the major browsers. 

Online Passwords May Be Coming Obsolete

by Ira Wilsker, iwilsker(at)sbcglobal.net

WEBSITES:

<https://www.grc.com/sqrl/sqrl.htm>

<http://www.usatoday.com/story/tech/personal/2015/10/16/yahoos-new-mail-app-drops-password/74041040/>

<http://yahoomail.tumblr.com/post/131227029456/introducing-the-new-yahoo-mail-app-multiple>

<http://abcnews.go.com/Technology/yahoo-mail-killed-password/story?id=34503554>

<http://www.engadget.com/2015/10/15/yahoo-mail-update>

<https://www.turnon2fa.com>

<https://www.turnon2fa.com/tutorials>

<http://yahoo.tumblr.com/post/131217400419/yahoo-account-key-signing-in-has-never-been>

<https://www.turnon2fa.com/tutorials/how-to-turn-on-2fa-for-yahoo/>

<https://en.wikipedia.org/wiki/SQRL>

<https://www.grc.com/sqrl/demo.htm>

In a recent column here, I wrote about the insecurity of many of the passwords that we commonly use. Most users still use the easy to guess passwords, with about one in seventeen still using "password", and about the same number of users have "123456" as their passwords. According to a recent report released by the password manager "LastPass", only about one percent of users have passwords that are properly complex and relatively secure. Usernames and passwords are often targeted by hackers when they break into the servers used by online financial service organizations, retailers, auction websites, online payment services, and other financially attractive targets. What is especially striking about personal password vulnerability is the fact that the majority of online users use the same password on multiple websites; this can

create a cascading type of identity theft whereby a hacker in possession of a single password and username can access multiple online services, wreaking financial havoc on the victim.

Also referenced in my earlier column was the free service already implemented by thousands of shopping, financial service, email, and other sensitive websites, known as "Two Factor Authentication", or "2FA" (turnon2fa.com), which instantly sends a unique digital code as a text message to a cell phone registered on the respective website. This code, which typically expires within a few minutes of being sent, is required in order to access the participating website. This was exemplified a few days ago when I accessed the website of a financial services company to view my quarterly statement; almost instantly after entering my username, my cell phone alerted me to the arrival of a new text message. This text message was from the financial services company, and contained a unique six digit number that I had to enter on the website in order to access my account; the text message also informed me that the access code would expire in ten minutes. Without that access code, I could not access my account, even with the password that I had previously used on that website. A comprehensive listing of thousands of websites and services using this two factor authentication, as well as instructions for implementing the protection on each of those websites, is online at turnon2fa.com/tutorials.


Since passwords are one of the most valuable items to purloin in a massive cyber theft which may also lead to massive identity theft, and most of us are still using insecure passwords, it has become evident to most security professionals that the password is one of the most vulnerable "weak links" in cyber security. Because of this susceptibility, these security experts have been developing secure methods to bypass the need for users to have passwords in order to access our online accounts.

Some computers and smart devices have a fingerprint reader, retinal scanner, or utilize facial recognition to access those particular devices, and it would be a natural "next step" to implement this already existent biometric technology to access online services. By purely anecdotal experience, my laptop which has a fingerprint reader, and my wife's laptop with facial recognition software, have both been repeatedly proven to be slow and unreliable in allowing access to those particular devices. On my laptop, it typically takes several reads of my fingerprint in order to boot up the computer, with the fingerprint reader often failing to recognize me at all, requiring an alternative, less secure, username and password to boot the computer. The facial recognition security on my wife's newer laptop, which uses the integral webcam to scan the human face, has been very unreliable, requiring her username and password in order to boot the computer. Obviously the biometric hardware and software for our future computers, smart phones, and tablets will inevitably be improved to the point where it is far more accurate and reliable, but at present, with some inevitable few exceptions, the biometric verification is not quite ready for routine home users at a reasonable price. Once it is improved to a point that it becomes more reliable and more widely adopted, then biometrics could be a viable alternative for usernames and passwords when accessing sensitive websites and related services.


Recently, the well known Yahoo! announced that it is releasing a new email app that gives the user the option of doing away with the obsolescent and insecure username and password by instead using a new "Yahoo Account Key". According to Dylan Casey, Yahoo's Vice President of Product Management, in a blog posting "Yahoo Account Key – Signing in Has Never Been Easier" dated October 15, 2015, "Today, we're excited to take user convenience a step further by introducing Yahoo Account Key, which uses push notifications to provide a quick and simple way for you to access a Yahoo account using your mobile device. Passwords are usually simple to hack and easy to forget. Account Key streamlines the sign-in process with a secure, elegant and easy-to-use interface that makes access as easy as tapping a button. It's also more secure than a traditional password because once you activate Account Key – even if someone gets access to your account info – they can't sign in. Account Key is now available globally for the new Yahoo Mail app and will be rolling out to other Yahoo apps this year. We're thrilled about this next step towards a password-free future!" Somewhat similar to the "Two Factor Authentication" mentioned earlier, the user enters his username at a traditional looking Yahoo! sign in page, but instead of entering a password, clicks on a button which initiates the sending of a unique digital key or link to a registered smart device via text message. A simple click will then open the app. Details on how to implement this more secure method of accessing email is available online at turnon2fa.com/tutorials/how-to-turn-on-2fa-for-yahoo. What is especially intriguing is the cryptic statement made by Dylan Casey where he stated " ... and will be rolling out to other Yahoo apps this year." Apparently Yahoo email is but the first in the family to use this security method, but it will soon also be available on other Yahoo apps. With this logon security enhancement, Yahoo email joins an ever expanding

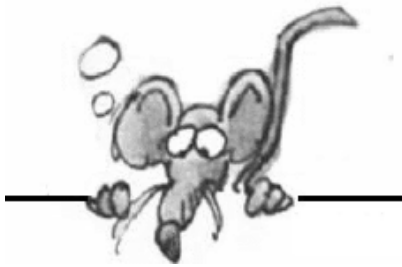
club of email services utilizing "Two Factor Authentication", with similar security enhancements already available for Google's Gmail, Hushmail, Microsoft's Outlook, and several other popular email services.

While the Two Factor Authentication Technology is rapidly becoming the defacto industry standard for doing away with the vulnerable password based security system, it is not the only exciting new password replacement technology being developed. Another example of a password free method of secure connections to web services has been developed by Steve Gibson, of Gibson Research, a well known software utility publisher who has published the popular Spinrite hard disk utility, and the immensely popular Shields Up online service that can test the security and vulnerability of any computer. His creation is called "Secure Quick Reliable Login" better known as "SQRL." Gibson self describes his system as, "A highly secure, comprehensive, easy-to-use replacement for usernames, passwords, reminders, one-time-code authenticators . . . and everything else. With SQRL (Secure Quick Reliable Login) you either tap, snap, or click a login page's QR code and YOU are securely logged in. The SQRL system (pronounced "squirrel") revolutionizes web site login and authentication. It eliminates many problems inherent in traditional login techniques." The simplicity of the SQRL is based on a QR code icon (a small square box, composed of smaller squares and a complex image of black dots and lines) placed on a login page, often directly adjacent to the space for a more traditional username and password. Rather than entering a vulnerable username and password, the user has the option of scanning the QR code with the camera in his smart device, tapping on the QR image with a finger or stylus, or clicking on the QR image with a mouse. This initiates a rapid sequence of totally automated events which displays the domain name contained in the SQRL code, allowing the user to visually verify the accuracy of the domain name, which prevents the "phishing" method of identity theft. The user then permits the SQRL system to instantly authenticate his identity, followed by a click or a tap on the included login button, which opens the connected website. There is no need for the user to manually enter a username or vulnerable password with the SQRL system. What the user does not see is behind the scenes, where a complex series of sophisticated cryptographic events are rapidly taking place, verifying both the user's identity and the authenticity of the website; this entire process occurs in just a few seconds, often unnoticed by the user. Steve Gibson has made his SQRL technology "open & free" and released it to the public domain so it may be freely used by the greatest number of web services. While available freely, and possibly one of the most secure methods of replacing the traditional username and password combo, SQRL has not yet been widely adopted by a significantly large number of web services, but there has been an active and vocal group of geeks who have been heavily promoting the technology.

With biometrics, 2FA, SQRL, and other secure logon technologies coming into wider use, the vulnerable and insecure password may soon become a vestige of the past.  [Go to Page 1](#)

News of the Weird: Paris airport has problem with Windows **Minneapolis Star Tribune, Dec. 11, 2015 issue**

After certain takeoffs and landings were delayed on Nov. 7 at Paris' Orly airport (several days before the terrorist attacks), a back trace on the problem forced the airport to disclose that its crucial "DECOR" computer system still runs on Windows 3.1 software (introduced in 1992). DECOR's function is to estimate the spacing between aircraft on fogbound, visually impossible runways, and apparently it must shut down whenever the airport scrambles to find an available 3.1-qualified technician.  [Go to Page 1](#)



NIBBLERS

By Jeannine Sloan

Rug Warrior

Joe Jones came up with the idea for the Roomba in 1989. Here's a history of its development, from the early models to the present version. This is the "Rug Warrior" -- the mostly LEGO robot Joe Jones built for the AI Olympics in 1989. It's Roomba's earliest ancestor. <http://tinyurl.com/p8cuwfv>

Off-Brand Prepaid Wireless Services

Be cautious. There are some catches you should be aware of before you ditch your old plan for a low-cost one offered by your carrier. This article from Cnet contains comparison charts for each of the four major carriers.

<http://tinyurl.com/pwcm56j>

Windows 10 Search

You can search for anything and everything from the Windows 10 desktop, but the results may sometimes be confusing. Here is what you should know. Five features to be aware of: Bing, Safe Search, Web Results, My Stuff, and Some Searches are Forgotten. This article from Tech Republic explains how each feature effects a search.

<http://tinyurl.com/oqlqn9s>

The Internet of Things

What does the Internet of Things offer us today? It's far more than you might realize. You might be familiar with products such as the Nest thermostats and smoke alarms; or wearables such as Fitbit devices that monitor health and exercise. But IoT is rapidly expanding into more prosaic things; for example, a BBQ propane-tank sensor that will notify you that it needs refilling or that you forgot to turn off your gas grill. And then there's that pool pump that can be monitored and controlled via a smartphone app. Read the article:

<http://windowssecrets.com/newsletter/future-computing-the-internet-of-things/>

Windows 10 Privacy Settings

Check that your privacy settings in Windows 10 are set as you wish. Do a system search for privacy settings. This dialog will come up.

Make changes as needed.

Get IE11

Starting **January 13, 2016** Microsoft will just support the latest version of its flagship browser Internet Explorer, which is version **IE 11**. The company will end support to older versions: IE 10, IE 9, IE 8 and earlier, meaning that as users you won't get any security updates or

patches leaving your older browser versions all but vulnerable. Microsoft said that it will continue to support IE 11 for the life of Windows 7, Windows 8.1 and Windows 10. While it seems to be good news, you may want to read the specific support lifecycle policy of the individual operating system. <http://news.thewindowsclub.com/microsoft-support-internet-explorer-11-starting-january-2016-81007/>

Browser Tweak: Vertical Tabs

Hate losing screen real estate to a row of browser tabs? The answer: Vertical tabs along the side of the screen. Here's the problem: vertical tabs are available *only* in Firefox. Problem is if you keep more than a few tabs open at the same time, it eats up your computer's memory and makes everything, especially the browser itself, run slower.

<http://www.vox.com/2015/6/1/8695555/browser-tabs>

Thanksgiving Myth

The story of the first Thanksgiving, as told to American children, isn't exactly inaccurate. But it omits several key details that are crucial to understanding why this truce between the Plymouth colonists and the Wampanoag confederation was reached — details of both dreadful tragedy and political scheming.

<http://www.vox.com/2014/11/25/7279083/thanksgiving-charles-mann-1491> new line

Got a Question?

Try this site to get an answer to almost any question. Categories include Lawyers, Mechanics, Dr. & Nurses, Electricians & Plumbers, Vets, Computers & Education and more. Simple to use: Ask Your Question, Get an Answer ASAP. A new question is answered every 9 seconds.

<http://www.justanswer.com/>

Windows 10 File Explorer Hint

If you right-click the File Explorer icon, you are presented with a submenu showing pinned and recently opened files and folders. You can use this feature to pin any folder or file you want to this submenu. All you have to do is grab a folder or file displayed in File Explorer and drop it on the File Explorer icon on the Taskbar. Once you do, that file or folder will be pinned to the submenu.

http://www.techrepublic.com/article/two-ways-to-make-windows-10-file-explorer-open-specificfolders/?tag=nl.e064&s_cid=e064&ttag=e064&ftag=TR Ee331754

Microsoft Takes Down The Windows Compatibility Center Website

Windows Compatibility Center website has been taken down. The URL of Windows Compatibility Center home page is automatically redirected to the Windows home page.

<http://news.thewindowsclub.com/microsoft-takes-windows-compatibility-center-website-81096/>

Sell or Recycle Old Electronics

I recently tried out three programs for getting rid of used electronics. The programs, Amazon, Gazelle and Best Buy, are available nationwide. Each one was simple to use and headache-free, and I even managed to get a decent amount of money for my old electronics, like my outdated video game controller and a used smartphone, to spend on holiday gifts. Good read:

http://www.nytimes.com/2015/12/03/technology/how-to-sell-or-recycle-oldelectronics.html?ref=technology&_r=0

How Smiling Evolved

By mining a vast database of high-school yearbook photos, a machine-vision algorithm reveals the change in hairstyles, clothing, and even smiles over the last century.

<http://www.technologyreview.com/view/543871/>

Huge Hacks Are Legally Secret

It's not just the energy industry. Every company that's considered "critical infrastructure" can keep major hacks secret: the telecom industry, big banks, major chemical makers. The only reason you hear about the small time stuff -- such as when a retailer loses your credit card -- is because some states have laws demanding disclosures. The potentially dangerous hacks stay in the dark permanently.

<http://money.cnn.com/2015/11/30/technology/secret-deals-hacked-companies/index.html>

Facebook on a Smart Phone

On your smartphone or tablet, just head to Facebook.com in your mobile web browser of choice. There are a couple of reasons why using the website is better anyway:

- You can enable "Private" browsing in a mobile browser, which can help block pesky Facebook ads.
- It will save your battery! The Facebook app is notorious for sucking battery life.
- You'll use less of your mobile device's memory by not downloading another app. The Messenger app is only about 35 MB for iOS, but it still means more room for photos and videos!
- It can work just like an app. For iPhones and iPads, tap the "Share" button and then "Add to Homescreen." The Facebook mobile site will show up as an icon just like any other app.

More at: <http://www.popsugar.com/tech/How-Send-Facebook-Messages-Without-App-35470835>

Save Posts for Later on Facebook

In order to save a post for later viewing on Facebook simply click on the arrow near the top right of a post and then click on "Save post". The link to view saved posts is in the left column under Favorites.

Bing Political Index

Compare candidates' stances on top political issues with that of the American public. Understand the difference between their ranking based on ontheissues.org data and Bing Predicts analyzed public sentiment on the issues. To learn more see the About Bing Political Index page.

<http://www.bing.com/search?q=bing+political+index&src=IE-SearchBox&FORM=IENTTR&conversationid=>

Extensions vs. Plug-ins

Extensions add features you can use, while plug-ins add features websites can use.

<http://colonelpanic.net/2010/08/browser-plugins-vs-extensions-the-difference/>

Key to Opting Out of Personalized Ads

What exactly is that small turquoise triangle, often in the upper right corner that appears in many online ads? It is the logo for AdChoices, and the idea behind AdChoices is that it provides an option to forgo the targeted ads. <http://tinyurl.com/q6h6qpr>

Undersea Internet Cables Power Our 'Wireless' World

Undersea cables transport nearly 100% of transoceanic data traffic. These lines are laid on the very bottom of the ocean floor. They're about as thick as a garden hose and carry the world's internet, phone calls and even TV transmissions between continents at the speed of light. A single cable can carry tens of terabits of information per second. How vulnerable are they? <http://tinyurl.com/qxkmk85>

Download Facebook Photo Albums

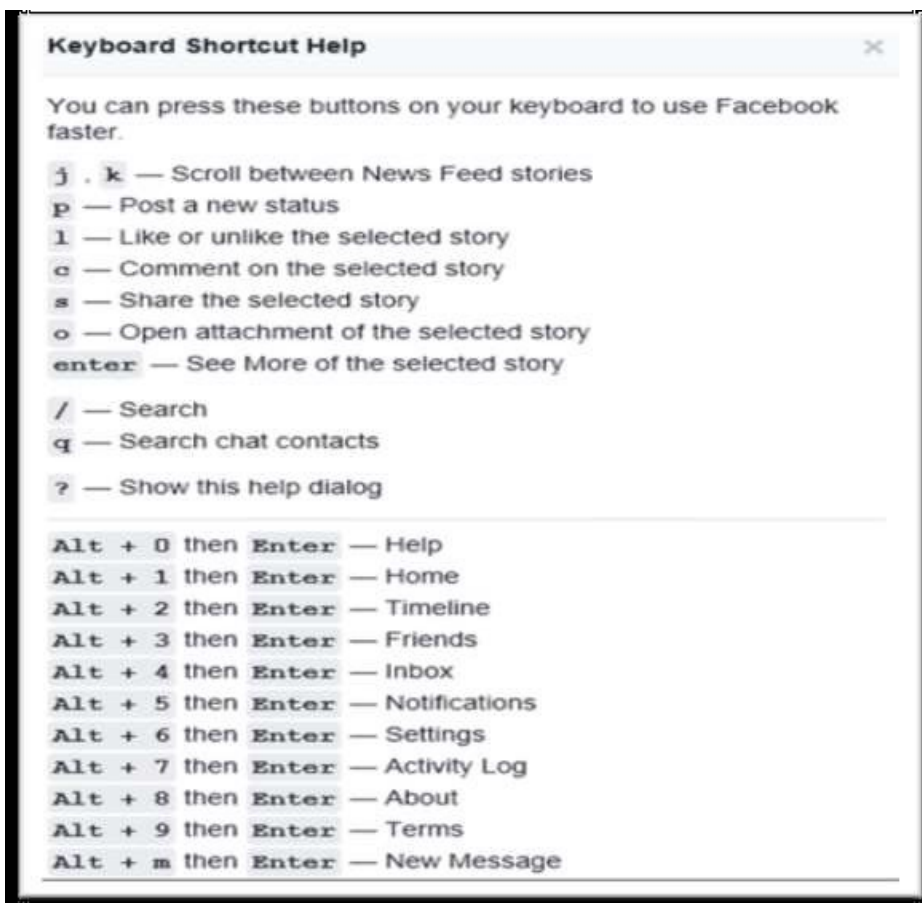
Open the album to view all the pictures on one screen. Click on the little gear icon near the top right corner. Click on Download Album. You will receive a message when the album is ready and you can save it.

DNS: Domain Name Server

DNS is extremely important, to the point that the internet would be unusable without it. Each DNS reply contains a Time To Live number, or TTL, that says how long to remember the answer, typically somewhere from 1 minute to 1 hour, after which the result is thrown away. Read this article to get a better understanding.

<http://tinyurl.com/jte45dh>

Facebook Keyboard Shortcuts



The image shows a screenshot of a 'Keyboard Shortcut Help' dialog box from Facebook. The dialog box has a title bar with a close button (X) and contains the following text:

You can press these buttons on your keyboard to use Facebook faster.

- j** , **k** — Scroll between News Feed stories
- p** — Post a new status
- l** — Like or unlike the selected story
- c** — Comment on the selected story
- s** — Share the selected story
- o** — Open attachment of the selected story
- enter** — See More of the selected story

Below this list, there are several shortcuts for navigation:

- /** — Search
- q** — Search chat contacts
- ?** — Show this help dialog

A horizontal line separates these from a list of shortcuts for navigating to different parts of the site:

- Alt + 0** then **Enter** — Help
- Alt + 1** then **Enter** — Home
- Alt + 2** then **Enter** — Timeline
- Alt + 3** then **Enter** — Friends
- Alt + 4** then **Enter** — Inbox
- Alt + 5** then **Enter** — Notifications
- Alt + 6** then **Enter** — Settings
- Alt + 7** then **Enter** — Activity Log
- Alt + 8** then **Enter** — About
- Alt + 9** then **Enter** — Terms
- Alt + m** then **Enter** — New Message

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Special Interest Groups (SIGs)

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

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.

Get SIG announcements!
Link from www.tpc.com

Board of Directors*

All members are welcome! Check www.tpc.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.

First 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 Kuhlmeier 952/934-8492
skuhlmeier@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 Kuhlmeier 952/934-8492
skuhlmeier@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.tpc.com

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

January
February

SUN	MON	TUES	WED	THU	FRI	SAT
					1	2 Linux and Open Source on Saturdays 9:00—Noon
3	4	5	6	7	8	9
10	11	12 Gen Mtg 7:00 PM How to Back Up Your PC 6PM Tech Topics: Mobile plans	13	14	15	16 Windows & MS Office (including Access) 9:00-Noon
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6 Linux and Open Source on Saturdays 9:00—Noon
7	8	9 1Gen Mtg 7:00 PM TBA 6PM Tech Topics: Book Club-3D Printing & IoT	10	11	12	13
14	15	16	17	18	19	20 Windows & MS Office (including Access) 9:00-Noon
21	22	23	24	25	26	27
28	29					

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Many Devices Utilize New Charging and Data Transfer USB-C Cables

by Ira Wilsker, iwilsker(at)sbcglobal.net

WEBSITES:

<http://www.cnet.com/news/usb-type-c-connections-better-soon-confusion-first/>

https://en.wikipedia.org/wiki/USB_Type-C

<https://en.wikipedia.org/wiki/USB>

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Recent purchasers of smart devices, including many new phones, laptops, Apple devices, and other new high tech electronics probably noticed that the USB cable used to charge the device and transfer data between devices is the same on the "big" end, but slightly different on the "small" end. The traditional "Micro-B" (the "small") end of the USB cable that has been widely used for several years to connect chargers and data devices to billions of smart devices is a somewhat asymmetric shape resembling a flattened trapezoid. Because of its shape, the common micro USB cable can only be inserted in one direction, which countless users have found as an inconvenience, but engineers intentionally designed so as to assure that the tiny conductors in the plug could only mate with appropriate matching connectors within the device. Likewise, millions of Apple device users have been using the popular, but somewhat fragile "Lightening" connector connected to an otherwise somewhat identical USB cable to charge their devices and to connect to external devices.

For the past several months a newly standardized connector of about the same dimensions as the older Micro-B plug, and with the moniker "USB-C" has started to appear on recently assembled smart devices produced by several of the major manufacturers, including LG, Samsung, Apple, Microsoft, HP, Nexus (the Google brand made by LG, Huawei, and others), OnePlus, and other

cutting edge brands. This new USB-C connector is more symmetric, in a flattened rectangular shape with rounded corners, is reversible, and can be inserted with either wide side up, easing the ability to perform the simple task of connecting the charging cable or transferring data. In terms of data transfer speed, the new USB-C cables, with its 24 connecting pins, can easily transfer data with speeds somewhat similar to the USB 3.0 standard, which is a potential of 4 GB per second throughput, and possibly even transfer at the screaming USB 3.1 speed of 10 GB per second, but many of the currently available devices with the USB-C connector can only receive data at something resembling effective USB 2.0 transfer speeds of a respectable 280 MB per second. In addition to being a reversible plug and offering generally faster data connection speeds, the USB-C standard also allows the USB cable to transfer more charging capacity than most earlier USB 2.0 cables, with the USB-C cable and connector easily able to handle from 1.5 amps to 3 amps at 5 volts, allowing for the faster charging of connected devices as well as providing more power to other compatible USB powered devices, such as external hard drives. For those USB powered devices that demand even greater power, the new USB-C cable can handle up to 20 amps at 5 volts, for 100 watts of power. Computer notebook designers are considering replacing the existing power point on newly manufactured laptops with a USB-C port, as newly made laptops now only require about 60 watts of power, and some USB-C cables can handle up to 100 watts. While in technical competition with the unusually shaped USB 3.0 and USB 3.1 cable and plugs, USB-C has recently had greater industry acceptance than its competing standards apparently because of its greater capabilities than the more traditional USB cables and connectors.


In addition to the traditional functions of charging devices, and transferring data, the new USB-C cables can do much more. Through a single port and a compatible cable, rather than multiple ports requiring different cables, USB-C can also handle video and audio. This makes it more convenient (and more cost effective) to provide connectivity to video devices such as a TV or monitor as well as audio devices, such as an amplifier or speakers, all from a single port on the device, using a single cable for all of the functions. It has recently been reported in the media that the upcoming iPhone 7, due later in 2016, will be doing away with the traditional 3.5mm headphone jack, and instead connecting the headphone to a traditional (and reversible) Lightning power port, but some leaked images of the iPhone 7 show what appears to be a USB-C style port, which by design can handle headphones as well. Some of the new MacBooks are using the USB-C cable instead of a Lightning cable. (usatoday.com/story/tech/2015/12/01/iphone-7-headphone-jack-rumor-report/76591864)

While the USB-C standard was finally approved and adopted during the summer of 2015, what has happened with the early adoption of other technical standards, has happened to USB-C; that is some of the hardware with USB-C ports and many of the newly manufactured USB-C cables fail to meet the new standards, which can create sometimes serious incompatibility problems. Following complaints from users of new model Google Chromebooks (such as the Pixel 2 model) and newer model Google Nexus phones (Nexus 5X and 6P) that require USB-C cables, a well respected engineer working for Google, Benson Leung, intentionally purchased a variety of cables advertised as USB-C compatible on Amazon, and found that many of them were very problematic. Posted on his Google+ blog, Benson Leung found that, "You may not just get weird behavior from your devices with these bad cables... What some of these vendors are doing is downright dangerous." As quoted in Fortune Magazine (fortune.com/2015/11/05/usbc-google-amazon-reviews), Benson Leung was reported to have said, "Some cables with a type C connector on one end and a legacy connector on the other end do not connect the correct resistor to pin A5 of the type C connector, causing a device connected to the cable to incorrectly determine the amount of power it is permitted to draw from the cable. Cables with this issue may not work properly with certain products, including Apple and Google products, and may even damage power sources such as chargers, hubs, or PC USB ports." Fortune goes on to say, "Leung has taken to calling out bad cable vendors in Amazon reviews under the username LaughingMan. So far, he's reviewed 10 different cords and adapters

and has found seven of them severely lacking. The biggest issue he's found is that the cords won't charge the Chromebook Pixel properly. Although some of the deficient cables will transfer data and power, they do it incorrectly, which could end up damaging your device in the long run." Some of these deficient USB-C cables sold for as little as \$8.99 on Amazon. The Fortune article mentioned that Benson Leung did find a few of the third party made USB-C cables that he purchased on Amazon did work as well as the more expensive name brand cables made by Apple, Google for their own devices. Leung tested a \$19 cable made by iOrange-E (currently priced at \$12.99 on Amazon), and found that it did indeed work well on Google devices, for which he gave it a 5-Star rating on Amazon. Leung also found that the \$20 USB-C cable made by Belkin was "good as the ones that Apple and Google provide with and sell on their stores as accessories" and also awarded it five stars.

Some smart phone makers have also fallen into the trap of providing incompatible and potentially damaging USB-C cables and chargers for use with their newly produced phones. One such example is the recently released OnePlus branded charger and USB-C cable sold on the OnePlus factory website; the chargers and USB-C cables were manufactured by third party suppliers. Because these chargers and cables allegedly do not meet the USB-C standard, and are similar to the problematic USB-C cables discovered on Amazon by Benson Leung, OnePlus has offered anyone who purchased these questionable chargers and USB-C cables from their website a full refund. According to OnePlus, only the "standalone" chargers and USB-C cables purchased on their website will be refunded, but the USB-C cables and chargers bundled with new phones, such as the OnePlus 2, are not eligible for that refund.

Many of the media pundits are referring to USB-C as the primary "go to" cable and connector of the future. It is fast, can carry more electrical power, and can drive a variety of other devices. One cable manufacturer, Monoprice, is already offering connectors and converters for USB-C that can take a signal directly from the smart device, and output the data to HDMI (HD TV video input), gigabit Ethernet (high speed networked data), and other devices. I did a search on Amazon and other websites for USB-C cables, carefully reading the published reviews and ratings (which I know are not always accurate and truthful), finding that many of the listings have changed their wording since Leung and Fortune did their expose' on substandard USB-C cables. Some of those which were problematic now only state that they are capable of USB 2.0 data speeds, but nothing about the alleged electrical deficiencies. Some, such as the \$20 Belkin cable cited positively by Leung, now display a statement that they are certified as compatible by USB-IF, the organization that finalized the USB-C standard and conducts compliance testing.

If considering purchasing a USB-C cable, be sure to read the reviews (acknowledging their sometimes unreliability), and check to see if it is certified by the USB-IF. There is no need to waste money and possibly damage your devices by buying inferior cables. For users of some Nexus devices, specifically the Nexus 5X and Nexus 6P phones, there is a free app available in the Google Play Store called CheckR that can test USB-C cables for proper functionality; at present this app will not yet work on other devices, but a version for the Chromebook Pixel will be available in the future. Also check to see if the transfer speed of the cable is appropriate for your devices, as most are now labeled as compatible with the USB 2.0 480 MB per second transfer rate, but a few that are much more expensive are listed as USB 3.1 compatible with transfer speeds up to 10 GB per second. If your device is listed as USB 2.0, then there is no need to waste your money on a cable with a greater speed potential than that which can be handled by your device.  [Go to Page 1](#)



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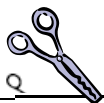
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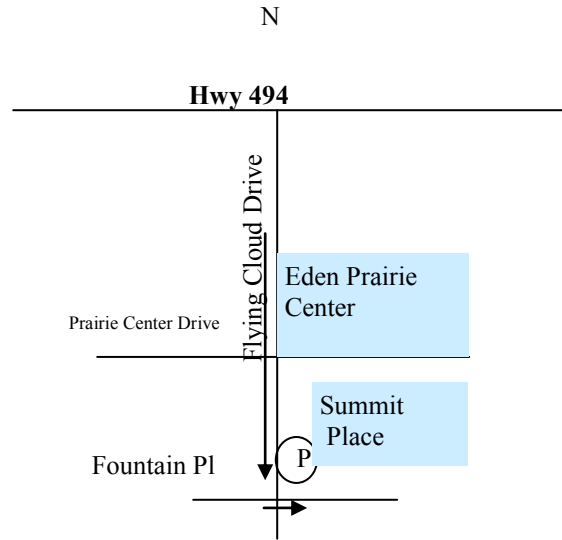
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