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The Digital

# viking



## Twin Cities

PC USER GROUP

NEWSLETTER

Minneapolis & St. Paul, Minnesota USA • Vol. 34 No.11 • June 2014

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

**June 2014**

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## General Meeting

**Tuesday, June 10, 2014**

**7:00 PM**

### Building a 3-D Printer From a Kit

**Presenter: Bill Ryder**

**Location: Summit Place**

**8505 Flying Cloud Dr**

**Eden Prairie, MN 55344**

Bill Ryder, active member of TC/PC and President of Ryder Engineering, has taken on the formidable task of building a 3D Printer from a kit. At the June meeting he will explain all phases of the project, from cost of the kit, where to purchase one for yourself, what's included in the kit, and just how challenging the project has been and whether you want to undertake a similar project yourself. He will demonstrate how the printer works and explain the process and possibly build a 3D object during the hour-long meeting for us to witness.

Bill has extensive knowledge of 3D printing on a commercial scale since so many engineering projects have made use of 3D printers that cost thousands of dollars. But when the possibility of building a 3D printer of your own from a kit costing less than five hundred dollars his interest was piqued and he just had to try it for himself.

This will be a particularly timely and fascinating presentation...not to be missed! Let's have a great turnout. ☺

TC/PC is a Member of



**24-Hour Information • [www.tpc.com](http://www.tpc.com)**

Application form inside back cover

## TC/PC Business Members

Friendship Village

Metro Sales

**Thank You!**

## The Digital Viking

The Digital Viking is the official monthly publication of the Twin Cities PC User Group, an all-volunteer organization dedicated to users of IBM-compatible computers. Subscriptions are included in membership. We welcome articles and reviews from members. The Digital Viking is a copyrighted publication and reproduction of any material is expressly prohibited without permission. Exception: other User Groups may use material if unaltered and credited.

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## Advertising

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

*Multiple insertion discounts available.*

Contact Sharon Walbran at: SQWalbran@yahoo.com

Deadline for ad placement is the 1<sup>st</sup> 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  
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**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 2013-2014 Board of Directors

Meets second Thursday of each month at 7:00 PM. All members welcome to attend.

Call **Ross Held** (612-386-3172) for meeting details.

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## Newsletter Staff


**Editor Sharon Walbran**

**Contributors:**

**Jeannine Sloan**

**Jack Ungerleider**

## Last Month's Meeting—What's New in Digital Video?

Last month we met at National Camera Exchange in Roseville. Pete Anderson, originally set to give the presentation, handed the baton to Christopher Ludtke, Manager of the Video/Digital Department. Chris walked us through the history of digital video from its beginnings. Video has always challenged the capacity of the computer it runs on and still can be used as a benchmark to test the performance of your computer. The last few years have seen the addition of high definition video capability to digital SLR cameras. The top-of-the-line 4K/HD camcorders are the “hot” items for professional videographers and cost in the \$2000-\$5000 range. Chris is an expert on this technology and gave us a very informative presentation. 

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### Upcoming Meetings:

**Tuesday, July 8, 7:00 PM** Social and Annual Meeting and Board Elections.

We're working on recruiting some speakers for the fall meetings. Nothing firm yet. 

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## Programming with Jack—Building a Solvable Tower of Hanoi in Scratch and Python

By Jack Ungerleider, TC/PC User's Group, Twin Cities, MN

The Tower of Hanoi is a classic puzzle and exercise in computer programming. As long as micro computers have been around the Tower is one of the programs people use to learn how to code. (More on that later...) At the May Linux on Saturday session we reviewed two Tower of Hanoi programs. The first is an interactive program in Scratch. The second is a Tower “solver” written in python. Files for these programs are available on the TCPC web site in the Linux/Open Source SIG Forum attached to a message entitled Files for May Meeting.

### Building a Solvable Tower of Hanoi in Scratch

At the core of the Scratch program is a complex sprite with 8 costumes and 2 scripts. Three copies of the sprite are used, one for each peg of the Tower of Hanoi puzzle. The 8 costumes represent the eight states that a 3 stack Tower of Hanoi peg can be in. The 2 scripts are a reset script when the program starts and the script that processes interactions with pegs. A fourth sprite, the stock Scratch Cat, is also included as a way to provide messages to the user. This feedback uses the Scratch concept of a “message” that allows one object to trigger a response from another object. The following is an explanation of the structure and scripts in the program. It is recommended that you download the files from the web site to best follow along.

### Global Variables and Scratch Cat scripts

The program uses some global variables to keep the numeric “value” of each peg (peg1, peg2, peg3), where in the turn you are (movestep) and the “value” of the disc selected (pickvalue). The Scratch Cat (labeled Sprite1 in the downloadable program file) has 4 scripts. One that is triggered by the user pressing the start flag to begin the program. The others are responses to “messages” broadcast from one of the peg sprites. These cause the cat to “say” something. The message *badmove* results in the cat displaying message *Not there...* for 2 seconds. The message *emptypeg* results in the cat displaying *Nothing to move* for 2 seconds. If either the second or right

hand peg has all of the discs on it ( $value=7$ ) then the message *gameover* is broadcast and the cat congratulates the user with a *Well Done!* message. The start script sets initial values for the global variables and displays a series of instruction messages for the user.

### The Peg sprite scripts

The peg sprite has one local variable that holds the current costume number (*curlook*). This allows updating what the costume should be during the move process and then assigning after the processing is done. Scratch 1.4 does not support user defined functions except as scripts attached to a sprite. This results in a level of redundant code as each sprite needs to have its own copy of the script. If a change is made to one it will have to be made to the others as well.

The start flag script for each peg sets its costume to match the initial value given to its global variable and sets that value into the variable *curlook*. The left peg (Peg1) is set to costume8 (all three discs) and the other pegs are set to costume1 (no discs).

The main script for each peg sprite is executed when that peg is clicked. First the script looks at the value of *movestep*. If it is *pick* the following steps are performed:

- The value of the top disc is determined by the current value of the peg and the value of that disc (1, 2, or 4) is placed into the variable *pickvalue*.

- The value of the peg global variable and the sprite *curlook* variable are decreased by this value

- The sprite costume is changed to the new value of *curlook*

- The value of *movestep* is changed to *place*.

If the value of *movestep* is *place* the following steps are performed:

- Based on value of *pickvalue* it is determined if the disc can be placed on this peg

- If not the message *badmove* is broadcast and the cat responds

- If the disc can be placed on the peg then the script continues with:

- Increasing the value of the peg global variable and the sprite *curlook* variable by the value of *pickvalue*

- Changing the sprite costume to the new value of *curlook*

- Changing the value of *movestep* to *pick*.

The three stack Tower of Hanoi simplifies the above sequence because the only condition for placing the largest disc ( $value=4$ ) is an empty peg ( $value=0$ ). The middle disc ( $value=2$ ) can only be placed on pegs with a value of 0 or 4, which are the only two even values available when the *pickvalue* is 2. So using the mod function we know that only if  $pegvalue \bmod 2$  is 0 can we place that disc. The smallest disc ( $value=1$ ) can only be placed anywhere.

That's the basic walk through of the Scratch version of the Tower of Hanoi puzzle. Again it is recommended that you grab the files from the web site and load the scratch program file (*towerFinal.sb*) into Scratch and examine that with these notes handy.

### A Simple Tower Solver in Python

The Python program included in the files on the web site will show you the moves needed to solve a 3 stack Tower of Hanoi in the minimum 7 moves. The algorithm used is based on the solution we use at the Science Museum of Minnesota when teaching people to do the Tower of Hanoi puzzle. The basic feature of the algorithm is that the smallest disk is moved every other move and it is always moved in the same direction. Example: if all the discs are on the left peg to begin with and

the smallest disc is moved to the center peg on the first move then the direction is “right”, otherwise it is “left”. When you get to the end of the pegs you wrap around to the other end. With a three stack we then move the largest disc that can be moved in the other moves.

The function *moveOther* has the following code definition:

```
def moveother():
    onepeg = discs[0]
    if discs[0] == discs [1]:
        curdisc = 2
        curpeg = discs[2]
        newpeg = pegs.index(0)
    else:
        curdisc = 1
        curpeg = discs[1]
        if discs[1] == discs[2]:
            newpeg = pegs.index(0)
        else:
            newpeg = discs[2]

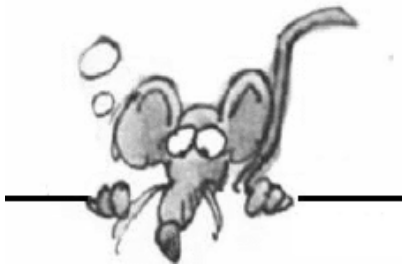
    discs[curdisc] = newpeg
    pegs[curpeg] = pegs[curpeg] - 2**curdisc
    pegs[newpeg] = pegs[newpeg] + 2**curdisc
```

The first thing we do is find out where the smallest disc is and assign it to the variable *onepeg*. We know that the peg we will be moving a disc to is not going to be *onepeg*. If the second disc is on the same peg as the smallest then we can't move it either because its not on the top of the pile. With a three stack that leaves only one choice to move the large disc. The new peg location is stored to the variable that holds the current disc location. The peg values are updated to show the move results.

After each move sequence the program displays these values to show you what its done. The result is output that shows all the moves need to solve the puzzle.

## Summer Programming

Over the summer I will provide some updates via the web site, the Digital Viking and my Playing with Programming blog. So please watch for this information. At the start of this article I hinted that the Tower of Hanoi has been around as a program used in helping programmers learn their craft for a long time. One example that is out there from the “golden age of 8-bit computing” is the program **Tower** in the classic book **Basic Computer Games** by David H. Ahl. David Ahl was editor of the magazine **Creative Computing** that was popular in late 1970s into the 1980s. He released several books that included many programs that were published in the magazine. Many of these books and others are available online at the **AtariArchives.org** site (<http://www.atariarchives.org>). These books provide great programs from the era when magazines contained BASIC programming code you could type into your Apple II, Commodore 64, Atari 400/800 or TRS-80 (Model 1 and Color Computer mostly). If you understand BASIC, translating these programs to Scratch or Python is a good way to boost your ability with those languages. I will be doing some of this over the summer and will put files on the TCPC web site and the Playing With Programming blog. We'll discuss some of those programs when Linux on Saturday resumes in the fall. 📄 [Go to Page 1](#)



# NIBBLERS

By Jeannine Sloan

## The Downsides to Desktop Storage

The urge to save files to the desktop is understandable. It provides immediate access with a single click, which means that it's tempting to turn the desktop into a de facto headquarters for storage. But unless you are strict with maintenance, you'll eventually succumb to these issues: **No file protection, No file backups, Clutter, clutter, clutter.**

<http://www.makeuseof.com/tag/3-better-ways-store-files-desktop/>

*Editors note: This article has more good info about Windows OS. I recommend reading the whole thing.*

## Browser Blowout

The browser that's the performance pick of the current browser crop: Chrome.

<http://tinyurl.com/lx6s9x2>

## New Feature in Windows 8.1 Update

Among other new features in Windows 8.1 Update you can now select multiple tiles by holding down the Ctrl key and clicking or tapping the tiles you want to select. Another new feature is a context menu for tiles: right-click, or on touch screens **press and hold** on a tile and a context menu appears. Once multiple tiles are selected open the context menu for the group.

## Spring Cleaning

Subject: Spring cleaning for Facebook, Twitter accounts.

Separate your Facebook friends into two groups: "close friends" and "acquaintances." Facebook will feature your close friends' posts more prominently in your news feed. Cut out annoying ads. On Facebook, pull down the arrow next to the post in your news feed and choose the option to hide all ads from that brand.

Who can tag you: go to Settings, and then select Timeline and Tagging. For "Who can add things to my timeline?" you can set it so that only you can post to your timeline. You can also require that you review all posts in which you're tagged. More info at:

<http://www.startribune.com/lifestyle/256770841.html>

Contributed by Sallie Northrop

## Use An Open Wi-Fi Hotspot Safely

In order to be safe using unsecured Wi-Fi hotspots be sure to follow some important practices :

Turn on the firewall

Secure your desktop email program

Secure your web-based email

Secure all your other online accounts

Use a VPN

Use different passwords

Consider not using free Wi-Fi at all/ Most mobile carriers offer one or more of the following options:

Use your mobile device.

Tether your phone.

Use a dedicated mobile modem.

Use a mobile hotspot.

Don't forget the physical

Each topic is explained in the article, travelers need to check each item in their system. Remember, security and convenience are always at odds, opt for security. <http://tinyurl.com/kdxebpf>

## What Is Javascript And Why Do I Need It

In a nutshell, HTML, DHTML and Javascript are all programming languages that are used to make your web pages look and act the way they do.

[http://askleo.com/what\\_is\\_javascript\\_and\\_why\\_do\\_i\\_need\\_it/](http://askleo.com/what_is_javascript_and_why_do_i_need_it/)

## Repeat Automatically

All you need to do is replace the "youtube" part of a video's URL with "listen on repeat," and it will automatically replay and replay and replay in a new tab.

## Defining Net Neutrality

The cable and telephone companies that control important parts of the plumbing of the Internet shouldn't restrict how the rest of us use it. Basically that is how it stands now. However, the F.C.C. has signaled its intention to grant cable and telephone companies the right to charge content companies ... for speeding up transmissions to people's homes. A good article is here:

<http://tinyurl.com/mp5jegy>

## Cell Phones/plans

Compare cell phones and plans from all major carriers in the US. You enter the number of calls, texts and data and how that info is used to narrow down a suitable product that best meets your needs. <http://www.whistleout.com/>

## Search on a Page

You can search for an individual word on any page on the Internet (or in any Windows document) that you have open.

Whenever you're reading something and want to know if a particular word has been mentioned in that article, simply click CTRL+F and type in that word. Your cursor will then jump to every instance on the page that word is used.

## R.A.T.

Random Access Trojan

## Connected Standby

If you have a typical PC or Mac with an Intel or AMD chip, your computer has several different power states. Your computer is either on, off, or in a power-saving state.

In contrast, the smartphones and tablets most people use work differently; the device goes into a very low-power mode but does do some work.

Connected Standby is a low-power state that allows Windows 8 and 8.1 to function more like a tablet or smartphone than a typical PC. It's all about Intel vs. ARM and Intel is trying to catch up. Read the article here: <http://www.howtogeek.com/189224/>

## Amazon & Twitter Share Shopping Cart

Amazon is now allowing consumers to add items to their shopping cart simply by sending a reply on Twitter. Users who connect their accounts on the two services can add a product they see in a Twitter link to their Amazon shopping cart simply by replying to the tweet with the hashtag #Amazon Cart -- or #Amazon Basket if they are located in the UK. - See more at:

<http://www.ecommercetimes.com/story/80392.html?rss=1>

## Browser Shortcut Keys

Press Alt + D to move the cursor into the address bar.

Hold down the Ctrl key and press the + or - to increase and decrease the size of text. Ctrl + 0 will reset the text.

Press the backspace key or hold down the Alt key + left arrow to go back a page.

Press F5 to refresh or reload a web page.

Press F11 to make the Internet browser screen full screen. Press F11 again to return to the normal view.

Press Ctrl + B to open your Internet bookmarks.

Press Ctrl + F to open the find box to search for text within the web page you are reading.

## Electronic Mapping for Interiors

IndoorAtlas has figured out how to map the interior of a building using the unique magnetic "fingerprint" of the structure. Combine that ability with a Smart Phone app and you can navigate cube farms with ease. Read about how its done in this New York Times bits blog article: <http://tinyurl.com/nrvf7ut>

## Open Windows 8.x in Apps View

Make the App screen your default Windows 8.x Modern interface. In the Search charm, type **taskbar and navigation** and select *Taskbar and Navigation*. You can also right-click the Taskbar and select *Properties*. Click the *Navigation* tab. Check *Show the Apps view automatically when I go to Start*.

Contributed by Don Thompson from PCWorld

Note: A quick keyboard shortcut to open the all-apps screen from the start screen is to tap ctrl and tab simultaneously.

## Microsoft Releases Windows Store Update For Windows 8.1 Update 1

The title is a convoluted sentence! Hope you understand it.

If the Store interface has this bar at the top then your machine is up to date as of May, 2014.



## Memory Aide

Facebook has a new app called "On this day". It should be on the left column on everyone's FB page and you can go back year by year to see what would have been in your news feed 'on this day' x number of years ago. The app is limited to how many years you have been using FB, of course.



## Safe Surfing

- Know how to recognize advertisements
- Understanding Fake Websites
- Recognize “phishing” emails
- Research “free” downloads
- DO NOT post private info on social networks

<http://www.makeuseof.com/tag/5-ways-youre-using-web-wrong-avoid-frustration-embarrassment/>

## Zero Day

Why it's called a *zero-day*, because even a well-prepared user would have had zero days to install the patch, because there wasn't one.

## What Became of Hamm's Brewery?

A futuristic farm is housed inside a long-vacant structure on the former site of Hamm's Brewery in East St. Paul, the home of Urban Organics. The “secret sauce” for growing that electric green kale, chard, and leafy herbs is the nutrient-rich wastewater pumped from four 3,500-gallons tanks of tilapia, which flows through a system of pipes and filters to irrigate and fertilize the plants before returning, clean, to the fish.

<http://www.fastcoexist.com/3029452/>



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## Reminder—Summer Saturday Schedule Changes:

No Saturday SIGs meet during the summer months –from June through August. Our SIG leaders need a much-deserved break.

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## Deadline for APCUG Photo Contest Still a Few Days Off

Deadline: June 10, 2014. Get clicking.

Guidelines Here: [Contest Guidelines](#)

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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](http://www.tpc.com)

## Board of Directors\*

All members are welcome! Call for location.

### Selected Saturday mornings

Ross Held RHeld83745@aol.com

## Community Outreach\*

To request services or volunteer to help  
Contact:

Ross Held RHeld83745@aol.com

## Linux/Open Source 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

## Picture Perfect

Explore how to use your digital camera and learn how to use a variety of software for editing, organizing, and sharing images and video.

Second Tuesday 6:00—7:00 PM

Every other month

Right before the general meeting

Sharon Walbran SQWalbran@yahoo.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  
steve@kuhlmeysystems.com

## Microsoft Office

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

Combined with Systems on Saturday

Third Saturday of the Month

Note: No Meetings June-August

Steve Kuhlmeier 952/934-8492  
skuhlmeier@gmail.com

## Web Page Design

Discussion and demonstration of HTML, web publishing software and page design.

Second Tuesday @ 6:00-7:00 PM

Every other month

Right before the general meeting.

Jack Ungerleider 612/418-3494 c  
jack@jacku.com

## Microsoft Word for PC & Mac

Any level user can be proficient and efficient in basics and advanced features of Word..

Combined with Systems on

Third Saturday 9:00 AM—Noon

Note: No Meetings June-August

Tom Ostertag 612/951-5520 w  
651/488-9979 h

Curt Trout 651/484-4569 h  
ctrout@troutreach.com

## Systems on Saturday

For all levels of computer challenges and any type of computer-related question. Incl. Q&A

Meets 3rd Saturdays 9:00 AM-Noon

Note: No Meetings June-August

Curt Trout 651/484-4569 h  
ctrout@troutreach.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](http://www.tpc.com)

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

# June

SUN	MON	TUES	WED	THU	FRI	SAT
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8	9	10 Gen Mtg: 7:00 PM 3D Printer from a Kit—Bill Ryder 6PM Web SIG	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	1	2	3	4	5
6	7	8 Gen Mtg 7:00 PM Social and Annual Board Meeting 6PM Picture Per- fect SIG	9	10	11	12
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# July

# Bitcoin — a New Currency?

By Phil Sorrentino, Staff Writer, The Computer Club, Inc., Sun City Center, FL, April 2014 issue, The Journal, [www.scccomputerclub.org/](http://www.scccomputerclub.org/), philsorr (at) yahoo.com

Bitcoin is basically a payment system. It provides the ability to transfer some type of value from a payer to a payee. (There are no physical coins, only entries in a software ledger.) If you have been monitoring the news with your tablet or laptop, or you have been reading the daily papers, you probably already know a lot about Bitcoin. (Mostly negatives lately, I suspect.) But the interest here is mostly on the technology. Bitcoin uses fairly complex peer-to-peer software technology and operates with no central authority (or banks). (It reminds me of the operation of the Bit Torrent file sharing networks, only “value” files are being transferred instead of “entertainment” files.) I must say, up front, that I am not a proponent of this type of software currency. With the current levels of computer security, I feel that there is too much opportunity for problems, like hacking, spoofing and down-right dishonesty. However, progress will probably move this technology forward. I must also admit that I missed some major changes like MySpace, and Twitter, so my opinion of Bitcoin should probably be taken with a grain of salt. The idea of a digital currency, convenient and untraceable, and far from the oversight of governments and banks, has been an interesting software technology topic since the beginning of the Internet.

Bitcoin is a network of computers running Bitcoin software. The Bitcoin network manages the transactions and the issuing of bitcoins. All this is carried out collectively by the network participants. Bitcoin is open-source. Nobody owns or controls Bitcoin, yet anyone with the proper software can take part in its operation. Proponents say that “through many of its unique properties, Bitcoin can enable uses that could not be accomplished by any previous payment system,” but I’m not sure what that really means. Bitcoin is not the only peer-to-peer based digital currency, but it is certainly the most notable. Peercoin and Primecoin are also mentioned in the literature, and in fact a research team at Johns Hopkins computer lab is developing a similar digital currency called Zerocoin. Maybe this type of currency will really be in our future.

Bitcoin, as a new currency, was created in 2009 by an unknown person using the name Satoshi Nakamoto. Satoshi Nakamoto, it is said, is almost certainly a pseudonym for the actual individual, or individuals. Transactions are made with no middle men, meaning no banks. There are no transaction fees and no need to give your real name. Some internet merchants have begun to accept Bitcoins. Supposedly, you can use bitcoins to buy things on the internet like web hosting services. There are even indications that you can buy everyday items like pizza using bitcoins. Because bitcoins are used to transfer wealth, people can send bitcoins to each other using their computers, or mobile phone, or tablet apps. It is supposed to be similar to sending cash digitally. Bitcoins can be used to buy merchandise anonymously, a characteristic that has certainly caught the interest of the government. In addition, international payments are easy and cheap because bitcoins are not tied to any country, country’s currency, or subject to any regulation. (But the lack of regulation may actually encourage volatility and add risk to the value of a Bitcoin in the future, so this may not be as good as it sounds.) Small businesses may like bitcoins because there are no, or very low, fees. Some people have even been buying bitcoins to have as an investment, hoping their value will appreciate. But bitcoins have been extremely volatile, not really like an investment, but more like a speculation similar to a roulette bet at a casino.

Bitcoin employs the use of very complex peer-to-peer software technology, along with software cryptography. Bitcoin is called a cryptocurrency, because it uses cryptography to control the creation and the transfer of bitcoins among the users. Bitcoin uses public-key cryptography in which pairs of cryptographic keys, one public and one private, are generated. (A cryptographic key is a piece of information that specifies a particular transformation of plaintext into ciphertext, and vice-versa.) A

collection of keys is called a “wallet”. A Bitcoin transaction transfers bitcoin ownership to a new individual. A coded alphanumeric string is created from the use of the individual’s public key. The corresponding private key is then used to decode the transaction. Only the correct private key will complete the transaction. Additionally a digital signature is checked for validity. (A digital signature is a mathematical scheme for demonstrating the authenticity of a digital message or document.) Private key protection is critical for Bitcoin security, because anyone with the correct private key can spend all of the bitcoins sent to that individual. Security is of paramount importance for the success of Bitcoin. Theft of bitcoins has occurred on numerous occasions and the practical day-to-day security of bitcoins remains an on-going concern.

Bitcoins are stored in a “digital wallet,” which exists either in the cloud or on a user’s computer. The wallet is a kind of virtual bank account that allows users to send or receive bitcoins, pay for goods, or save their money. Bitcoin wallet software has been implemented in several programming languages for personal computers, mobile devices, and as web applications. At the most basic, a wallet program generates and stores private keys and communicates with peers on the Bitcoin network. Unlike bank accounts, bitcoin wallets are not insured by the FDIC. Although each bitcoin transaction is recorded in a public log, the names of buyers and sellers are never revealed, only their wallet IDs are recorded. This lets users buy or sell items without anyone having the ability to trace the transaction back to them. This is why it has become the currency of choice for online illicit activities.

Bitcoins can be obtained in exchange for products, services, or other currencies, or by a process called “mining.” Bitcoins are actually created by the mining process. People compete to “mine” bitcoins using computers to solve complex math problems. In other words, Bitcoin’s mining operation consists of the network of its users’ computers solving complex mathematical problems. I’m not sure how this really works, but as a result of the effort to solve the problems, at preset intervals, an algorithm releases new bitcoins into the network. The interval is said to be 25 bitcoins every 10 minutes, with the pace of bitcoin generation halving in increments until around the year 2140. This automated pace is meant to ensure regular growth of the monetary supply without interference by third parties, like a central bank, (of which it is thought might lead to hyperinflation).

Bitcoins can be bought and traded on an “Exchange” website, however the most prominent exchange site “Mt. Gox,” has just recently “gone dark,” and is not to be found online. Another exchange, “SecondMarket,” was about to go online, but the apparent collapse of Mt. Gox may delay, or even eliminate the possibility of any new exchanges.

Because the bitcoin transactions are anonymous, there can be a dark side to this technology. Bitcoin has been the subject of government investigation due to its ties with illicit activities. In 2013 the FBI shut down the website, Silk Road, which came on line in 2011, as the first, or one of the first, websites to use Bitcoin for anonymous purchase of all sorts of illegal products and services. The acceptance of only the digital currency, Bitcoin was meant to add an additional layer of anonymity to buyers and sellers. As of September, 2012, the Silk Road site had over 10,000 listings for drugs including heroin, cocaine and LSD. Silk Road was shut down by law enforcement officials last year. This February Federal officials announced a grand jury indictment of the man accused of creating the online drug marketplace. He is in law enforcement custody, and could be behind bars for the rest of his life. He is charged with engaging in a continuing criminal enterprise, computer hacking, money laundering, and operating a narcotics conspiracy. (Sounds a lot like hacking, spoofing and down-right dishonesty, to me.)

Bitcoin as a form of payment for products and services has seen growth, because merchants have an incentive to accept the currency because transaction costs are lower than the 2 to 3% typically charged by credit card companies. Commercial use of Bitcoin, illicit or otherwise, is currently small compared to its use by speculators, which has been the cause of bitcoin’s price

volatility. No one knows what will become of bitcoin. It is mostly unregulated, but that could change. Governments are concerned about taxation and their lack of control over the currency. Maybe the government will take a more active role in the development of a digital currency, but I think the government is happy with its own dollar based currency. It's not clear if Bitcoin will be in our future, but it does look like we will have some form of digital payment technology when we get there. ☞

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## Interesting Internet Finds – January 2014

Steve Costello, President/Editor, Boca Raton Computer Society, FL, Editor (at) brcs.org,  
<http://ctublog.sefcug.com/>

In the course of going through the more than 200 RSS feeds, I often run across things that I think might be of interest to other user group members.

The following are some items I found interesting during the month of January 2014.

### Hashtags Today Are Everywhere – Learn How to Use Them to Get Results

<http://inspiretothrive.com/2014/01/hashtags-today/>

Hashtags are not only for Twitter, this post shows other social media that use them, and how to use them effectively there.

### How to Move Apps to SD Card on Your Android Device

<http://www.maketecheasier.com/move-apps-to-sd-card-android/>

This question was asked at a SIG (Special Interest Group) earlier, but no one had an Android device with an SD card, so could not answer the question. This post refers to an app to do that.

### Google Plus Login, Sign Up and Sign In Security Tips

<http://www.thewindowsclub.com/google-plus-login-sign-up>

Thinking of signing up for Google Plus? If so, and I think you really should check it out, read this post from the Windows Club for how to do it. You can find me on Google Plus at: <https://plus.google.com/111470516433780358624/>

### How to Read a Kindle Book on a Computer

<http://www.wonderoftech.com/how-to-read-a-kindle-book-on-a-computer/>

This post explains how to read Kindle books without a Kindle device, or smartphone, by reading it on your computer via two different methods.

### Remove Personal Information from Your Digital Photos

<http://www.ghacks.net/2014/01/27/remove-personal-information-digital-photos/>

Concerned about personal information showing on your online photos? If so, check out this post for how to remove the information before posting with Windows Explorer.

### If External Hard Drives Can Fail, Should I Bother With One?

<http://askleo.com/if-external-hard-drives-can-fail-should-i-bother-with-one/>

Leo answers with a definitive YES, and explains why.

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Most Fridays, more interesting finds will be posted on the Computers, Technology, and User Groups Blog:

<http://ctublog.sefcug.com/tag/interesting-internet-finds/>

The posts are under Creative Commons licensing. ☞

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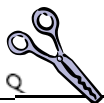
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As a member of TC/PC, the Twin Cities Personal Computer Group, one of the benefits is reading this monthly publication at [www.tpc.com](http://www.tpc.com).

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.  
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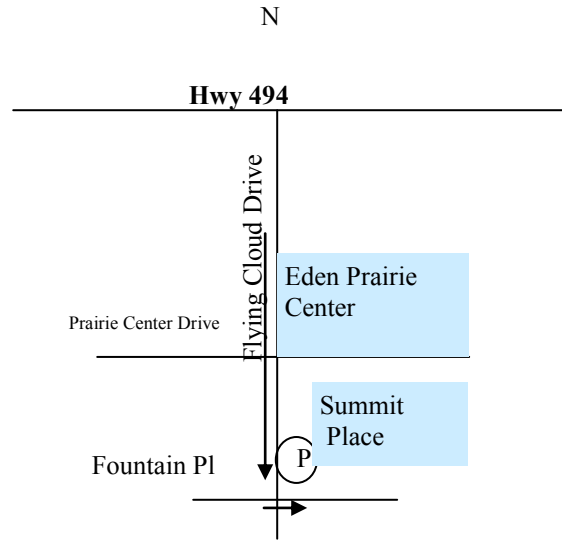


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**June 10, 2014**  
**General Meeting 7:00 PM**  
**Building a 3-D Printer From a Kit**  
**Presenter: Bill Ryder**

**Summit Place**  
**8505 Flying Cloud Dr**  
**Eden Prairie, MN 55344**

**More info and map:**  
**[www.tcpc.com](http://www.tcpc.com)**



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