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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, December 14, 2021

7:00 PM

Chromebooks for Geeks

APCUG Webinar

Via Zoom

Bill James, Vice President of the Computer Club of Oklahoma City, explains what a Chromebook is and why it may be a valid alternative to a Windows laptop for your work and play or a computer you might recommend to a family member or friend. He sees the Chromebook offering the advantages of its snappy performance with Google's operating system and the efficiency of using cloud-based apps that can handle word processing, spreadsheets, photo editing, and other apps in place of the typical desktop programs found in a Windows desktop. 🖥️

Note: All TC/PC Meetings and SIG Groups will be virtual until further notice. Visit tcpc.com for info.

Tech Topics with Jack Ungerleider via Zoom at 6pm before the General Meeting.

TC/PC is a Member of



24-Hour Information • www.tcpc.com

Application form inside back cover

The Digital Viking

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

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Visit www.tpc.com for meeting details.

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Up to 5 newsletters mailed to
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Newsletter Staff Editor Sharon Walbran

Safe Experimenting

By Dick Maybach, Brookdale Computer User Group

www.bcug.com, n2nd (at) att.net

At the dawn of the personal computer age, life was simpler and more fun. Malware didn't exist, nor did the Internet, and the most valuable thing on our PC was the BASIC program Hunt the Wumpus. We continually tried new software (usually discarding it immediately). Now our PCs contain vital data, such as family photos, financial records, tax returns, and email history, which makes many reluctant to experiment. While the Internet is full of free and cheap software, much of it is tainted, and we are hesitant to take a chance with anything. Moreover, modern operating systems are complex, making tinkering with their organizations hazardous. As a result, we are sitting in a huge virtual library, but afraid to take a book off the shelf.

You can restore the adventure to PCs by setting up an environment, separate from the one presently on your machine, where you can experiment safely. However, remember that an effective backup discipline is always your last and best defense. Let's examine three such environments, virtual machines (VMs), dual-booting, and separate hardware.

No matter which environment you choose, you will need an operating system for it. If you use Windows, you have to purchase a separate copy, as the Microsoft license allows Windows to be installed in only one environment. Windows 10 is available (from Amazon) for as little as \$50, which lets you achieve greatly increased security and yet stay in familiar surroundings. You also could use Linux, which opens up a whole new world of open-source software and which is generally malware-free, but the environment change may be traumatic.

The easiest separate environment to set up is a virtual machine, such as Oracle's VirtualBox, but it requires competent hardware, at least eight Gbytes of RAM (16 is better), and 30 to 50 Gbytes of available disk space. When the VM is running, your hardware is supporting two environments, the one on your PC (called the host) and the one on the VM (called the guest). As a result, the guest environment may be noticeably slow, but less so if your hardware supports virtual environments. The key features on the CPU are VT-x on Intel and AMD-V on AMD processors, and these are now common, even on laptops. Be sure to check your VM documentation, as these features may be disabled in your BIOS.

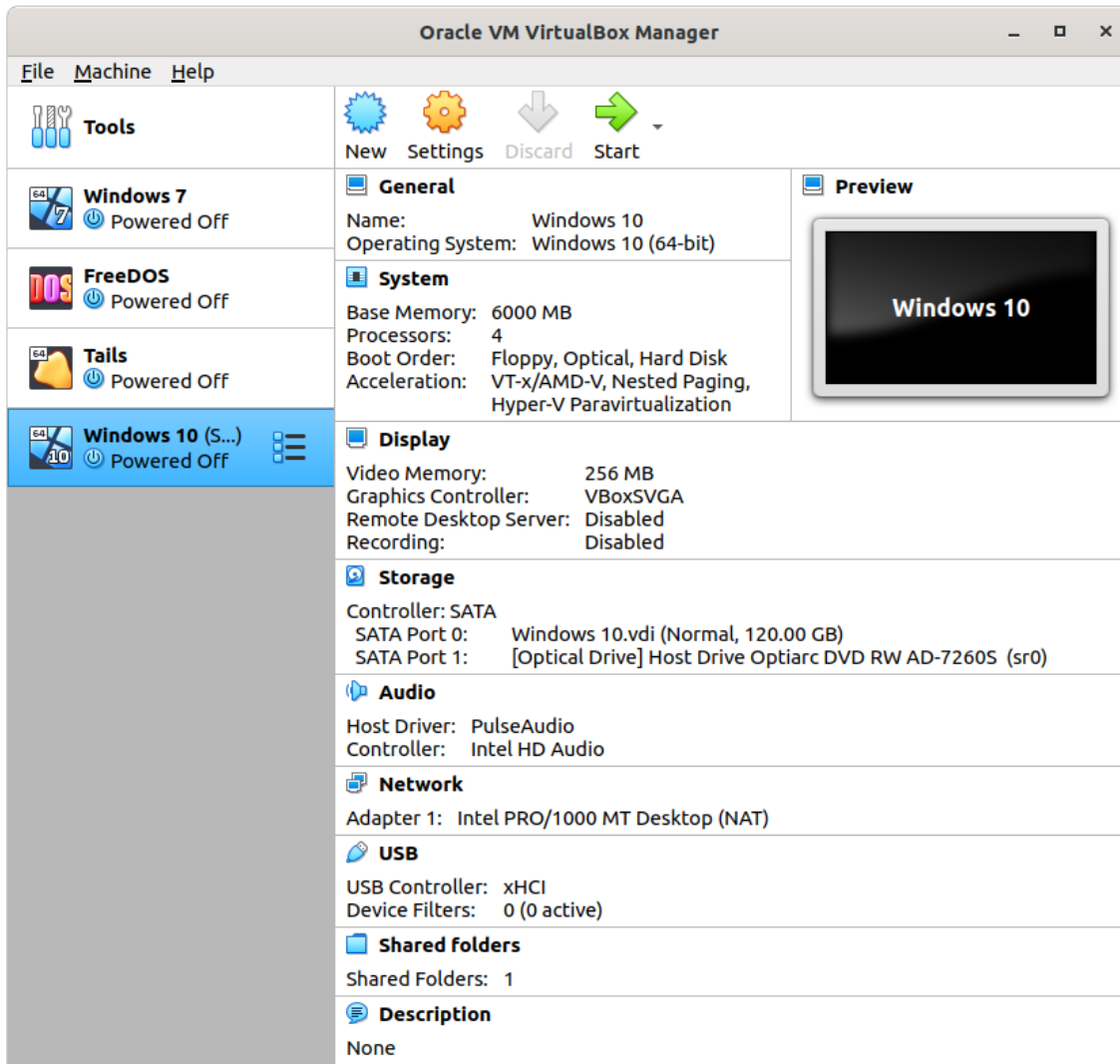


Figure 1. VirtualBox Manager.

In operation, a VM looks like an application to the host; see Figure 1, which shows the VirtualBox manager. You use a virtual manager to add, delete, and configure VMs, and this PC has four, Windows 7, FreeDOS, Tails, and Windows 10. The figure also shows a summary of the VM running Windows 10.

The VM snapshot feature is useful for experimenters. Making a snapshot is equivalent to cloning the environment, and if the current experiment isn't successful, you can restore things with a click or two. Also, since VMs are just files on the host when you back up the host, you also back up the VMs.

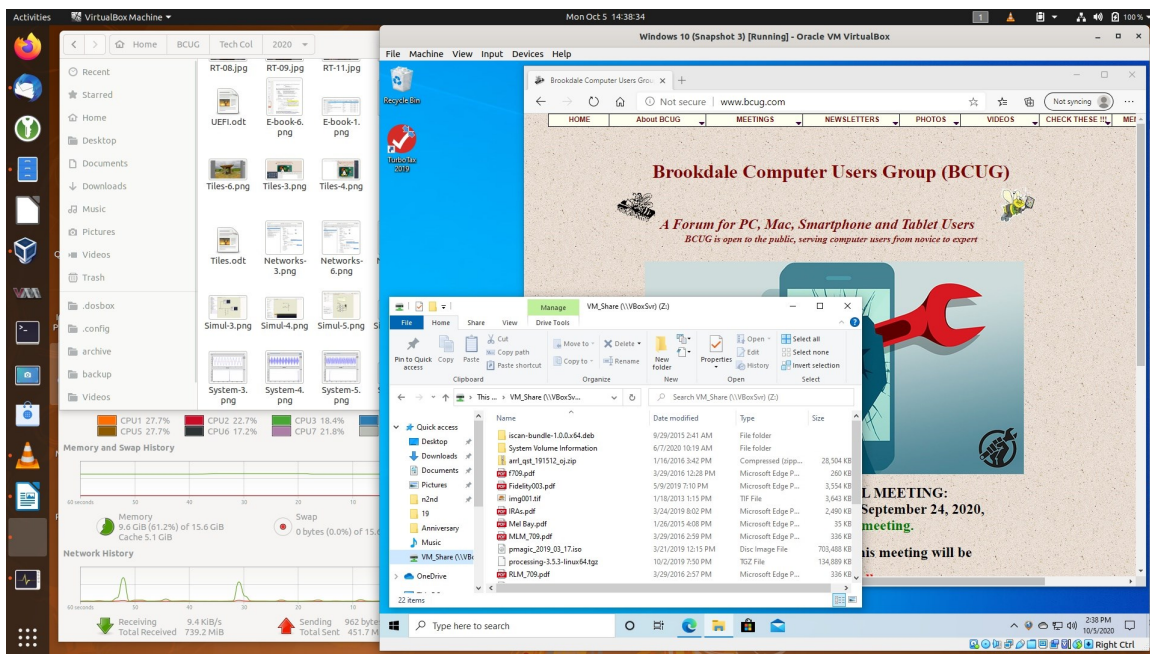


Figure 2. Host Desktop with a VM Running.

Figure 2 shows Windows 10 running in a VM on a Linux host. As you can see Windows has access to the Internet. Note also the file-manager window, which is looking at a directory on the host. Both Linux and Windows can access files in this directory, making it easy for the two to exchange information. You can also copy and paste between the two. However, these features require that you install the Guest Extensions to VirtualBox (see its documentation).

Before VMs became available, I used dual-booting for experimenting. This has the advantage of making all the resources of the host machine available to both environments; using VMs of course means that resources are shared between the host and the guest. The drawback is that setting up dual-booting requires some expertise and adds some risk. Here are the steps.

- Back up the system.
- Defrag the operating system to ensure that nothing is stored at the high addresses.
- Shrink the partition to make space for a second one above it. The second partition should contain at least 100 Gbytes. If you are short of space on your disk, you'll have to install a second one.

Install the second OS in the second partition.

This involves more risk than installing an application, so do your homework before attempting it. You also must be careful to back up the second environment separately.

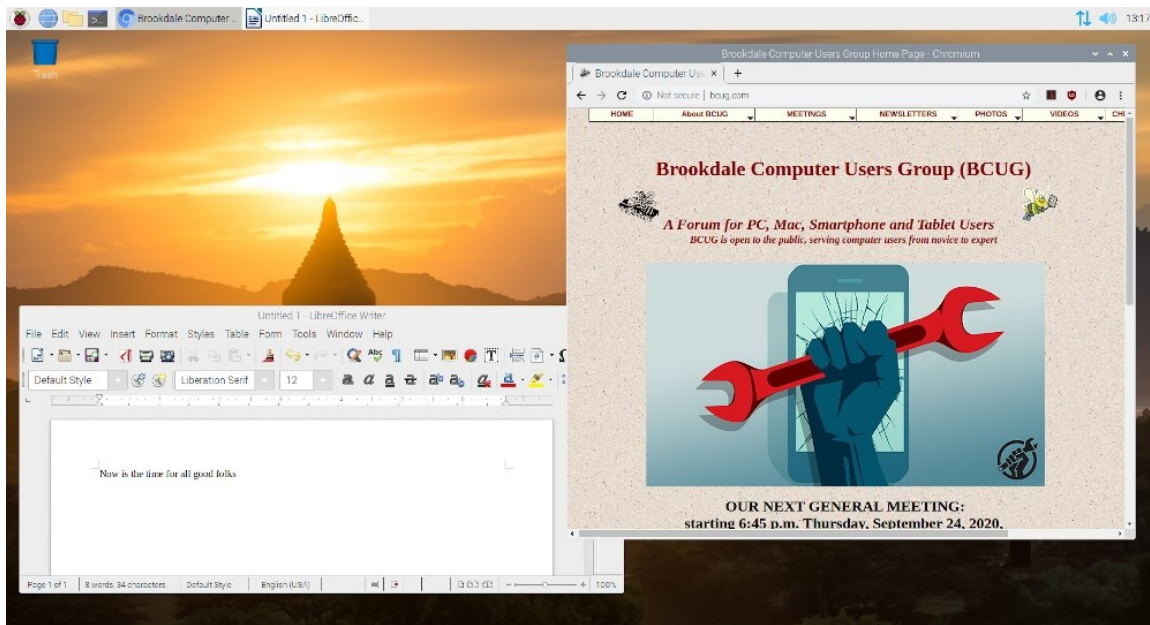


Figure 3. Raspberry Pi Desktop.

The last and safest method of obtaining a test environment is to use a separate PC. Many of us have old, unused machines, making this approach very cheap indeed. Its main disadvantage is the space occupied. If you don't have an unused PC or are short on space, consider a Raspberry Pi; it is model 4 that has as much power as a PC of not that many years ago; see Figure 3. If you share your PC display, keyboard, and mouse with the Raspberry, it uses almost no space. A KVM (Keyboard Video, Mouse) switch will allow you to do the sharing conveniently. Alternatively, you can set up a remote desktop to access the Pi from your PC, making the former appear as an application on the latter. It doesn't even have to be in the same room; all both need is a connection to your home network. If you haven't used a Raspberry Pi, you should first read the introductory material on its website, <https://www.raspberrypi.org/>. Setting one up is quite different than getting started with a new PC. Instead of a hard disk, it uses a microSD card, which you'll buy separately and on which you must install the operating system that you'll download from the Raspberry Pi website. The OS is a Linux variant, which probably involves yet more study, but the whole idea of experimenting is to learn.

Once you have hardware for your test environment, you'll need an operating system. A VM and dual-booting give you the most flexibility, as you can use anything your host PC supports. With a Raspberry Pi, you'll be running Linux. Your options on a second PC depend on its age; older units may not support Windows 10 for example. You might also consider switching to Linux, as many distributions support older hardware. It also has thousands of free applications available.

Regardless of how you choose to do your experimenting, continue to exercise care if you transfer files to your home PC, as they can carry malware. Also, when you use virtual machines and dual-booting, you are not completely isolated from your home environment. Cross-contamination, while unlikely, is not impossible. 🖥️

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President's Corner

Smart Home, Smarter Home

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

www.uchug.org, president (at) uchug.org

Everyone wants some control in their lives. Having the ability to control things in our homes can provide added safety, security, and convenience. Technology to enable consumer home automation and control has been around for decades and is constantly improving. It can provide useful assistance to those with disabilities involving hearing or sight loss, or those with reduced mobility. Home automation and smart home technologies can provide benefits as we get older, allowing us to stay in our homes longer. As we spend more of our time at home due to the coronavirus, a smart home can be brilliant.

The desire for home control has been around for a long time. Ever since the early days of TV, when viewers wished they did not have to get up out of their La-Z-Boy recliners to turn the knob on the set to change to the other channel (I was once told by someone that was what children were for), there has been a market for remote control. Remote controls became popular for televisions, entertainment systems, and garage door openers. What many longed for was a remote control for our houses.

One of the first and most popular home automation systems was the X10 line of devices, which was introduced in the late 1970s. They were sold under many names over the years, including X10, Radio Shack, Leviton, Sears, Stanley, Black & Decker, IBM, RCA, GE Homeminder, and Smarthome, and the company passed through many owners. X10 products and systems are still available, mainly through the x10.com website. For more information, look up X10 on Wikipedia.

I was interested in home control and so became an early adopter in the early 1980s. The devices were relatively inexpensive and systems could be pieced together, making it easy to get started in this addicting hobby. I bought many devices and controllers over the years, including alarm systems and computer interfaces, many of which I still have.

X10 is a fairly simple system that works reasonably well. Like the Smart Home Wi-Fi devices popular today, X10 has control devices that range from plug-in modules that items to be controlled plug into wired-in house switch replacements. There are many types of controllers, from plug-in boxes and timers to computer interfaces and alarm consoles. Almost everything was compatible with everything else; you could have as many controllers as you wanted and could control up to 256 devices in a house.

X10 was easy to use but did have some significant limitations. The control signals were transmitted by modulating digital data onto the house power wiring, so system setup was as easy as plugging things in. The data rates it used were low (20 bits/second), so control messages were very simple (the device address and basic commands like on and off). It did have problems getting messages through reliably, as the 120 kHz carrier frequency it used often received interference from household devices like televisions and computers. It also didn't handle passing signals between the two 120-volt legs in typical home wiring very well. They sell devices to bridge between the two-house circuits, but even then I often had problems transmitting between certain locations in my house.

At my X10 peak, I had about 16 controlled devices, with ten of them wired-in switch modules. Since X10 was constrained to your house wiring, control was limited to immediate control while in your home, or timers. There were wireless remote controls, but these transmitted a short-range RF signal to a plugged-in receiver module, which then transmitted control signals over the



house wiring. I did have a phone controller, which consisted of a base module connected to my phone line and a battery-powered transmitter (about the size of a flip phone). I remember using it in the late 1980s to turn on the power to my garage door opener from my work (I had plugged my opener into an X10 module). I had a timer controller shut off my opener power after I left for work, but because the time I returned home was often variable, I used this phone device to turn the opener back on. At the end of my workday, I could call my home phone from work, and then once my answering

machine is picked up, use this hand-held transmitter to send audio signals over the phone to the module in my home. It decoded the sounds and sent signals over the power lines to turn on the opener. It may seem crude by today's standards, but it was pretty impressive to be able to do that at the time.

Today, of course, all smart home devices can be controlled from almost anywhere in the world through apps on your smartphone. Most smart home components communicate through Wi-Fi so are not tied to house wiring and have more reliable and sophisticated control (a few devices use Bluetooth or Zigbee and need a hub to connect to Wi-Fi).

In addition to your phone, smart speakers like Amazon's Echo (Alexa) or Google's Home Assistant can be used to control your home.

I started buying Wi-Fi smart home devices soon after getting a smartphone. Once again, I was able to buy gradually, building up my new smart home over time. My first device was a Belkin WeMo smart plug; a plug-in module I use to control a table lamp. I now have seven devices installed to control lights; these include smart plugs, smart bulbs, and most recently a smart switch. I retired my X10 plugs some time ago; I'm now starting to replace the wired-in switch modules. Even though the X10 stuff still works, the allure of more sophisticated control through Wi-Fi and Alexa will I'm sure have me replace it all eventually.



Wi-Fi Smart Home Devices

That's not to say that there no downsides to the new Wi-Fi smart home devices. With X10, almost everything worked with everything else. Different parts from different vendors all played together nicely. With Wi-Fi smart home devices, this is only partially true. My seven smart home devices come from three different vendors (Belkin WeMo plugs, TP-Link smart bulbs, and Feit smart bulbs and plugs). Each vendor requires its own app for control on my phone. Each app is different and some are better than others. The one unifying factor is Alexa; almost all devices are compatible with the three voice-operated assistants (Amazon Alexa, Google, and Apple). This app-happy situation also applies to my smart cameras and

smart thermostat, which add another five apps to my phone. Fortunately, Alexa can control my thermostat and two of my four brands of cameras.



Another concern I have about Wi-Fi smart home products is security. In my old X10 smart home, it would be hard to hack my home unless someone physically plugged into a power outlet (kind of like the superior security of wired Ethernet compared to Wi-Fi). It might be possible to send or receive the power line signals in an adjacent house, but unlikely. A bigger concern is that the apps or servers of the many product vendors and Amazon might get hacked. As long as I'm only controlling lights (and not my chipper/shredder), the biggest hack risk is probably to my privacy.

One good reason to phase out my X10 stuff is batteries. All of the X10 wireless remotes use batteries. I've had to throw away many remotes over the years because the batteries in them (AAA, AA, or 9V) had leaked. Almost all my new smart home devices use house power. While cords can be a nuisance, corded devices don't die from leaking batteries.

Smart home technology is beneficial if it makes your life better. A prime task my X10 system used to perform was to make our house look occupied when we were away on a trip. Though we travel much less in COVID times, I can do that with my Wi-Fi smart home devices, though I must set it up using three phone apps.

Recently I've been improving my life through light control in the mornings. I normally get up for work at 4:30 AM, while my wife usually sleeps in until after I've left the house. I try to keep quiet and keep lights off so I don't wake her, but have found it can be dangerous to walk around the house (especially down the stairs) in the dark. I have now set a light in my office to come on about 5 minutes before I would come out of the bedroom, so I have at least a little light to guide me. I've programmed another lamp downstairs to come on a little later so that after I've taken my online COVID health assessment for work and checked my emails, I can go downstairs and see the stairs. I could tell Alexa to shut off the lights behind me, but my wife might hear that. Instead, I use the video screen on my new 5" Amazon Echo Show to silently turn off those lights. I can even turn up the heat on the thermostat a bit so my wife will have it a bit warmer when she gets up, and then set the thermostat back down on my smartphone when I get to work.

With X10, my home over the years may have been smarter than most. Now with these improved smart home devices replacing X10, my home has gotten even smarter. With my smartphone, Amazon Echo, and Echo Show, I can control things away from home, or at home by voice or by touch. With voice control and touch control of my home, what can be next? I wonder if Jeff Bezos is working on Amazon Echo Think. 🖥️

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Audio, Music, & Bluetooth

By Phil Sorrentino, Newsletter Contributor, Sarasota Technology Users Group

www.thestug.org, [philsorr \(at\) yahoo.com](mailto:philsorr@yahoo.com)

As you know by now, or maybe you remember from my article describing Bluetooth (October 2011), Bluetooth is a wireless network supported by many common devices. Devices like smartphones, tablets, laptop computers, certain speakers, certain headphones, newer cars, and possibly others that I have not yet seen. Bluetooth is intended to connect various devices without the use of wires. Technically, it sets up a Personal Area Network (PAN) that is useful within an area. The area can vary depending on the Class of Bluetooth supported. There are three classes of Bluetooth, differing in range and power. Class 1 has a range of 100 meters (with a power output of 100mW), Class 2 has a range of 10 meters (with a power output of 2.5 mW, and Class 3 has a range of 1 meter (with a power output of 1 mW). Most devices provide Class 2, so most of the time, the range will be about 10 meters or about 33 feet. (If you connect two devices of differing Classes, you will only be able to operate over the lower range.)

Bluetooth devices are connected by a process called "pairing". Each device has to have Bluetooth enabled, and the devices have to be "visible to nearby devices". The pairing process may take a few minutes the first time a device is paired. Once the pairing process completes, the two devices can be connected. After the devices have been disconnected, they can be re-connected automatically and reasonably quickly. If one of your devices has a display, like a smartphone, you will see a list of possible pairing candidates, and the pairing and connection process will be pretty straightforward. If neither of your devices has a display and you are trying to connect a speaker to a stereo, the process may be guided only by a flashing light or lights and may seem difficult the first time it is attempted. But eventually, it should be an easy enough routine.



One of the most common uses for Bluetooth is in newer cars with newer information/entertainment systems (the car radio). These cars allow you to pair a few smartphones to the infotainment system. Initially, each phone is individually paired with the car system. Then when the smartphone is brought into the car, it automatically connects to the car system, as long as the phone's Bluetooth is turned on. (The smartphone can remain in your pocket or bag.) This lets the driver receive calls through the car's infotainment system while keeping his hands on the steering wheel. Outgoing calls can be made by choosing the contact to call using the car system display, but this requires a co-driver in order for the driver to keep his hands on the wheel. On some car systems,

outgoing calls can be made using voice commands, so the driver can keep his hands on the wheel. So, by using Bluetooth devices, one can still contact their friends and associates while safely traveling the highways.



Another use of Bluetooth is to connect a smartphone to a pair of headphones. I see people using these while running, walking, or using exercise equipment. The fact that no wires are connecting the headphones gives the wearer a sense of freedom you don't get with wires hanging down from the headphones to the smartphone. Pairing and connecting these devices is relatively easy because the smartphone has a display. Just enable Bluetooth on both devices, and look at the Bluetooth display on the smartphone. The headphone device should show up in the list of devices. Choose the headphones for pairing. Once paired, connect to the headphones. Once connected, all the audio from the smartphone will be routed to the headphones via the Bluetooth connection. After the headphones have been disconnected, they can be re-connected by finding them in the paired devices list and choosing them. Once you can listen to audio on the headphones, it is time to choose something to listen to. If you use an audio streaming service like Pandora or Spotify, you can start the App and begin listening to the streaming music. Most smartphones do not come with any music pre-installed, so if you want to listen to your own music from the smartphone, you will first have to get the music onto the smartphone. The specific procedure for putting music files onto your smartphone will probably be different for Apple iPhones and Android phones. You can probably use iTunes on your home computer and transfer your music files over the Apple iPhone hardware interface to the home computer with an iPhone. (Though I haven't tried this, I am told it should work.) With an Android smartphone, you may be able to connect your phone to your home computer via a micro-USB interface, and then if the phone shows up in the computer's File Explorer, drag and drop your music files into the "Music" folder on the smartphone. (You might have to click the "USB charging this device, Tap for more Options" notification and then select Transfer files.) I have found that it works in most cases, especially on smartphones with the latest Operating System. But if that doesn't work, you can use the Wi-Fi File Transfer App.

You can get the free Wi-Fi File Transfer App at the Google Play Store. There are over 100 Apps that purport to do the job. I have used the free App, from the "smarterDroid" developer. Once you have the App installed on your phone, you can use it with a browser on your computer to transfer files between the two

devices. For example, if you are moving music files (remember those have an .mp3 file type) to the phone, move them into the "Music" folder on the phone. (If you are moving pictures from your phone to your computer, remember that the pictures from your phone camera are stored in the "camera" folder, which is under the DCIM folder in your "internal memory.") Once the music files are on the smartphone, you have to start a music player and select the music you want to hear from the music library.



Another use of Bluetooth is to pair a Bluetooth Speaker with a Stereo system so that you can listen to music at a remote location (a location that cannot be reached by unsightly wires but is close enough for Bluetooth; maybe outside by the pool). Once paired and connected, the stereo music will play on the Bluetooth speakers and the regular stereo speakers (of course, the stereo has to have Bluetooth). These are just a few uses of Bluetooth; I am sure there are others, and there probably will be many more in the future. 🖥️

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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.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 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 Accord, 1515 Energy Park Drive for General Meetings:

From I-94 in St. Paul, take the Snelling Avenue exit, then go north on Snelling Avenue about one mile to Energy Park Drive. Take Energy Park Drive and take the first left into the driveway to 1515 Energy Park Drive.

From I-694 or Hwy 36 in St. Paul, take the Snelling Avenue exit, then go south on Snelling Avenue past Como Avenue to Energy Park Drive. Take Energy Park Drive and take the first left into the driveway to 1515 Energy Park Drive.

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. *Virtual Meetings during Covid pandemic.

December January

SUN	MON	TUES	WED	THU	FRI	SAT
28	29	30	1	2	3	4
5	6	7	8	9	10	11 Linux on Saturday SIG 9am-Noon
12	13	14 7pm General Mtg Chromebooks for Geeks 6pm Tech Topics	15	16	17	18 Microsoft Office SIG (including Access) 9am-Noon
19	20	21	22	23	24	25
26	27	28	29	30	31	1
2	3	4	5	6	7	8 Linux on Saturday SIG 9am-Noon
9	10	11 7pm General Mtg TBA 6pm Tech Topics	12	13	14	15 Microsoft Office SIG (including Access) 9am-Noon
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

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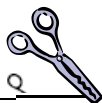
Would you like to receive this delivered directly to your email or business each month?

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.)



Here's the info for my TC/PC Membership:		12/21	
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**December 14, 2021
7:00 pm
General Meeting**

**Chromebooks for Geeks
APCUG Webinar**

Via Zoom



341 County Rd C2 W
Roseville, MN 55113

FIRST CLASS MAIL