

Bits & Bytes

Arkansas' Premier Computer Club



April 2023

The Bella Vista Computer Club - John Ruehle Center

Highlands Crossing Center, 1801 Forest Hills Blvd Suite 208 (lower level), Bella Vista, AR 72715

Website: <http://BVComputerClub.org>

Email: editor@bvcomputerclub.org

MEETINGS

Board Meeting: April 10, 6pm, in John Ruehle Training Center, Highlands Crossing Center.

General Meeting: April 10, 7pm, "Apple Today", with Gene Goodrich from The Bella Vista Apple Users Computer Club. While most of our members use PC-compatible computers, many also use Apple computers in some form as well: iPhones, iPads, and even a few Macs.

We will meet in-person in Room 1001 on the lower level of The Highlands Crossing Center, 1801 Forest Hills Blvd, Bella Vista, or you may attend the meeting on-line via Zoom. Zoom access information is published on our website.

Visitors or Guests are welcome.

Consider attending by Zoom if you are unable to attend in-person.

HELP CLINICS

April 1, 9am - noon at John Ruehle center

April 19, 9am - noon at John Ruehle center

Members may request Remote Help on our website at <https://bvcomputerclub.org> at menu path Member Benefits ► Remote Help .

Genealogy SIG: April 21, 1pm-3pm, Training Center

MEMBERSHIP

Single membership is \$30; \$15 for each additional family member in the same household.

Join on our website at <https://bvcomputerclub.org> at menu path Get Involved ► Join/Renew, by mailing an application (from the web site) with check, or complete an application and pay in person at any meeting.

CLASSES

(At BVCC Training Center)

Wednesday, April 5, 9am-11am, "Data: Where Is It and What To Do With It", with Pete Opland.

Wednesday, April 12, 9am-11am, "Building a Password Manager Using Excel", with Pete Opland.

Tuesday, April 18, 2pm-4pm, "Basic Computer Security, Part 1", with Justin Sell.

Advance sign up required for each listed class: For reservations: email to edu@bvcomputerclub.org, or sign up at the General Meeting. Classes are free to Computer Club members.

Check the monthly calendar and announcements for any last minute schedule changes at <https://bvcomputerclub.org> .

NEW OR RETURNING BVCC MEMBERS

We are pleased to welcome the following new members or members returning to BVCC after an absence. Some of these were from several months prior to February that were somehow missed when manually extracting names from the rosters :

Jill Doll

Mel Hillier

Muriel Spychala

Gloria Taylor

Barbara Gust

Sally Benson

MIGRATE TO WINDOWS 11 BY OCTOBER 2025

By Joel Ewing, President Bella Vista Computer Club
president (at) bvcomputerclub.org
Bits & Bytes, April 2023



The End of Windows 10 Is Coming

The Windows 11 official launch date was in October 2021. Now over a year later after the dust has settled it is time to be sure everyone understands the implications of the Windows 11 release, and especially of the announced end-of-service date for Windows 10 of October 2025.

End-of-service on Windows 10 means that after October 2025 fixes and feature upgrades to Windows 10 will no longer be available. What does that mean? It means that if new security exposures are found in MS Windows after that date they will likely not be fixed in Windows 10, only in Windows 11. It means that if enhanced Internet protocols and enhanced encryption standards are introduced to improve security and privacy after that date, those new features will probably not be available in Windows 10. Does this mean Windows 10 will cease to work after October 2025? No. Existing applications should continue to work as before; but using a Windows 10 system with connectivity to the Internet after that date will involve additional risk that increases with every additional month past October 2025. At what point does that risk become unacceptable? It depends on the importance of your data and how much you need your computer, but I wouldn't recommend anyone going more than a few months past end-of-service if Windows 10 is regularly used to access the Internet. It's not only your own data that is at risk: if your system becomes compromised and you have high-speed Internet access, malware can use your system and your Internet connection as a resource to attack others on the Internet.

Does this mean I need to purchase a system with Windows 11 or upgrade my current system from Windows 10 to Windows 11 today? No.

Upgrading An Existing Computer

If your current Windows 10 system hardware supports a free upgrade to Windows 11, "Check for Updates" should be showing that a Windows 11 upgrade option is available, and you should be giving some thought to when that upgrade might be done. If you plan on keeping that computer past October 2025, I would recommend upgrading it to Windows 11 no later than Fall 2024, just to be sure you have no compatibility issues between Windows 11 and old printers, other old hardware devices, 3rd-party applications, etc. that might take additional time to resolve. The safe way to do an upgrade is to first take an image backup of your hard drive to provide an alternative recovery path if you need to revert back to Windows 10, and then do the upgrade. Our Help Clinic personnel can

help with an upgrade if you feel uncertain about attempting this on your own. The upgrade to Windows 11 process from Microsoft provides some ability to back out and revert back to Windows 10, but that option is only available for a few days after the upgrade. After that limited period, the only easy way to return to Windows 10 is by restoring from an image backup of the Windows 10 system.

It is also possible to install Windows 11 from external media (DVD or USB stick) on top of a Windows 10 system. An install from media is more tolerant of hardware that is not fully compliant with Windows 11 requirements, and may allow installing and successfully running Windows 11 on hardware that does not support a simple upgrade path. Such an install should be preceded by an image backup for possible recovery of the Windows 10 system, and it should be understood that while this can produce a functional Windows 11 system on hardware that is not fully compliant, there is also a greater risk that some advertised features of Windows 11 might not be fully functional, or that some future updates to Windows 11 might cause problems if they assume or require a hardware feature that is absent. This is one possible low-budget approach if buying a new computer is not an option and the October 2025 deadline is imminent, but it does carry the risk that you might have to make an unplanned investment in a new computer if some required Windows 11 functionality ceased to work in the future.

Replacing Your Existing Computer

Upgrading your existing compute platform from Windows 10 to Windows 11 may not be an option. Based on the computers our Help Clinic personnel see, it's possible that as few as 5% - 10% of the computers owned by our members have hardware that can fully support Windows 11. Of course, that estimate may be biased if there is a positive correlation between the age of a computer and the likelihood of it needing Help Clinic attention.

Windows 11 requires the processor to have some security features that are not on some of the older processor generations as well as some additional security support on the motherboard. For the Intel families of processors, this means the processor should be "8th-generation" or higher. Intel processor model designations can be very confusing, but the more common retail computers have an i3, i5, i7 or i9 processor family designation followed by a specific model number. The first digit, or first two digits if it starts with "1", of the model number is the generation number. The "i" designation is not a significant indicator here, as there are i3, i5, and i7 processor models out there that are older than generation 8. A search for "windows 11 supported processors" should find other supported processors on the microsoft.com website.

The other major new hardware requirement is motherboard support for Trusted Platform Module (TPM 2.0). While there are other Windows 11 requirements listed, those other requirements should be easily met by any system hardware with a supported processor and TPM 2.0 support.

The increased hardware requirements for Windows 11 does appear to be motivated by a desire to make systems that are more resistant to damage by malware and damage from poorly-written vendor device drivers. Anything that makes life more difficult for the creators of malware is goodness.

The simplest way to be assured a new computer has the requisite hardware features for Windows 11 is to purchase a computer that comes with Windows 11 installed. If it comes with Windows 10, be sure it explicitly says it supports an easy free upgrade to Windows 11. As 2025 approaches, I wouldn't be surprised to see an increasing number of "great deals" offered for discontinued or refurbished computers that don't fully support Windows 11, so be sure you don't unintentionally purchase a "new" machine that will just have to be replaced in Fall 2025.

October 2025 is only two and a half years out. Most of us would expect any computer purchased today to be usable longer than that.

Another Low-Budget Alternative

If a hardware upgrade is totally out of the question and your current computer is not compatible with Windows 11, perhaps the 2025 deadline is the motivation to consider one of the many free Linux system distributions (Fedora, Ubuntu, Debian, and many others).

If all you do is surf the web, handle email and do some office suite activity and file management, all of that and more is supported with GUI desktops and free applications under Linux with user interfaces that are not that different from Windows.

While MS Office doesn't run in that environment, the free LibreOffice Suite is available and supports word processing, spreadsheets and presentations; and you can even exchange files with other people that use MS Office.

If you are tied to some specific applications that only install and run under Windows, that can pose problems. You might be able to find a different, functionally-similar application that runs under Linux that would be acceptable. Some Windows applications will actually install and run under a sort-of-Windows environment in Linux called WINE, but there are also many Windows applications that don't install in that environment.

Another potential issue is support for specialized external devices like scanners and multi-function printers. Some manufacturers only produce full-function device drivers and applications for Windows. If it takes specialized applications to fully utilize the device, and if those applications don't run under Linux, you may not be able to fully use the device.

There are safe ways to run unsupported versions of Windows in a "virtual machine" under Linux using conventions that isolate and protect the system from the Internet, just to continue supporting the running of a Windows-only local application; but this is a more complicated and sometimes confusing arrangement to manage, and probably not a good approach for the average user.

WI-FI HOTSPOT AND USB TETHER

By John Krout, Presenter and Newsletter Contributor
Potomac Area Technology and Computer Society
www.patacs.org

Introduction

If you use a smartphone Wi-Fi hotspot to provide an internet connection to a single computer, the tether option may provide advantages.

Many environments do not provide either reliable Wi-Fi or high-speed Wi-Fi. In those environments, some find that the only way to provide internet access for a computer is to enable a smartphone to provide a Wi-Fi hotspot.

From the viewpoint of the computer user, that hotspot is just like any Wi-Fi service. The hotspot shows up in the computer's list of available Wi-Fi services. Connection to the hotspot usually requires a password; you can find that password on the smartphone's screen.

Any Wi-Fi hotspot does face issues affecting its performance.

First, the Wi-Fi hotspot drains the smartphone battery at an increased rate, more rapidly than when the smartphone hotspot is disabled.

Second, the smartphone's Wi-Fi hotspot offers no competition for a Wi-Fi router. A router typically has two or more antennae and supplies much greater Wi-Fi signal power than a smartphone Wi-Fi hotspot.

Since a smartphone's Wi-Fi signal is weaker than a router's signal, the distance between the smartphone hotspot and the computer is critical. Put the phone as close as possible to the computer. Move the smartphone a bit farther away, and the speed of the Wi-Fi connection available to the computer declines.

Third, due to the weak Wi-Fi signal from a smartphone, the Wi-Fi signal strength and, therefore, the internet speeds may vary because of intermittent nearby interference beyond anyone's control.

In short, tether options overcome those three issues.

If your smartphone already enables you to create a Wi-Fi Hotspot, then your smartphone likely provides one or more options to use a tether.

Bluetooth tether

Both recent iPhones and recent Android phones also include Bluetooth tethering capability. However, since Bluetooth involves no cable, the capability is better described as a Bluetooth hotspot.

Again, like Wi-Fi hotspots, your carrier contract may or may not allow your use of Bluetooth tethering. Also, like Wi-Fi hotspots, Bluetooth has disadvantages. For example, Bluetooth usage accelerates smartphone battery drainage. Also, Bluetooth range for useful internet data rates is quite limited and degrades over distance.

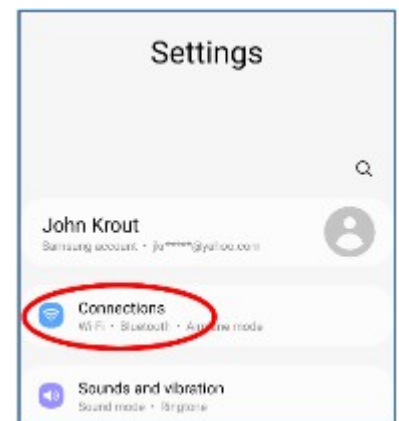


Illustration 1

USB Tether advantages

USB tether simply means that the smartphone provides internet service to the computer through a USB cable. The Windows 10 and 11 operating systems automatically recognize that the USB tether provides an internet connection.

The USB cable connection provides power from the computer to the smartphone, reducing battery drainage. In addition, USB cable communication requires less power than Wi-Fi or Bluetooth, reducing battery drainage.

How to enable an Android phone's USB Tether

First, attach the smartphone to a USB cable, then connect that USB cable to a USB-A socket on a computer. Most recent smartphones support USB3, so plug that cable into a USB3 socket on the computer.

After that, you use Settings on your smartphone to enable the USB Tether behavior.

Here I will show you how to enable USB Tethering behavior on my Samsung Galaxy S10 smartphone running Android 12. The main Settings app screen, shown in illustration 1, is the place to start. Then, on that screen, tap **Connections**, which is circled in the illustration.

In illustration 2, you can see the **Connections** screen. On that screen, tap **Mobile Hotspot and Tethering** (circled in the illustration).

In Illustration 3, you can see the Mobile Hotspot and Tethering screen. As shown, the USB Tethering switch is disabled. However, if a USB cable connects your smartphone and the computer, that USB Tethering switch will be enabled, like the Mobile Hotspot switch in the illustration.

After connecting the USB cable to the smartphone and the computer, tap the enabled USB Tethering switch to turn it on.

When you do so, the computer should recognize the available internet connection via the connected USB cable within a few seconds.

How to enable an iPhone's USB Tether

On my iPhone X, the equivalent Settings screen sequence to turn on a hotspot are **Settings** → **Cellular** → **Personal Hotspot**. Unfortunately, my iPhone is not currently on a carrier contract. Therefore, Cellular is ghosted (disabled) in Settings, so I cannot enable and test an iPhone personal hotspot.

The iPhone user's manual ebook on my iPhone does not document a USB tether capability. However, USB tether documentation on this iPhone support web page seems to indicate that a USB tether connecting an iPhone running iOS 15 to a computer can be accomplished without turning on any Settings switch:

support.apple.com/en-us/HT204023

Ethernet tether

You might think: my smartphone cannot connect to an Ethernet cable! On the contrary, perhaps it can, but you must spend some money to make it happen.

As you can see in illustration 3, my Samsung Galaxy S10 phone supports an Ethernet tether. To use that Ethernet tether, a smartphone must support On-The-Go (OTG) capability. The existence of that Settings Ethernet Tether switch may indicate that OTG is, in fact, supported. I happen to know by testing my S10 phone that the phone

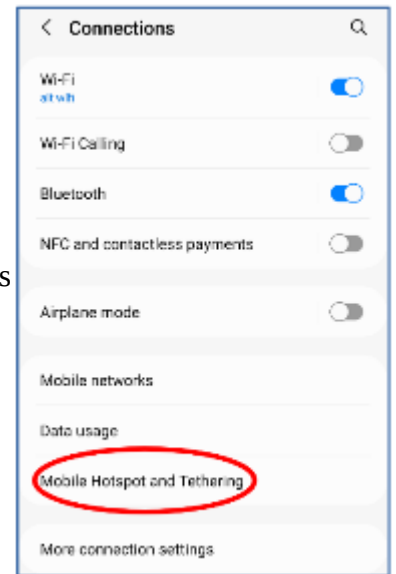


Illustration 2



Illustration 3

does support OTG. To use OTG with Ethernet, you must obtain a 3-way OTG adapter and a USB-to-Ethernet adapter. With the OTG connected to the phone to power, the USB side of the USB to Ethernet adapter, and an Ethernet cable connected to the Ethernet adapter and to a computer, the Ethernet Tether switch will be enabled.

Most of us already have the USB cable for a USB tether, so the USB Tether method is essentially more straightforward and cost-free than Ethernet Tether. Therefore, I suspect that the USB Tether method will be preferable for all readers of this article.

Final Notes

A smartphone hotspot or tether will **never be any faster than the available speed provided by the nearest cell tower**. The very nature of cell towers means that factors beyond the control of any one person will cause the download and upload speed to vary. I have measured the 4G download speed from the cell tower about two blocks away from my suburban home a few times. The speed has been as high as 12 megabits per second and as low as 1.8 megabits per second.

Carrier companies claim that 5G will improve the speeds, but there are still caveats: 5G runs at a rate greater than 4G only if you are close to a 5G-compatible cell tower. Also, for maximum speed, the cell tower must not be overloaded. Unfortunately, that condition is beyond the control of anyone other than the carrier company. Nevertheless, carrier companies are marketing 5G hotspots to businesses to use as an alternative to wired Internet connections. If that marketing succeeds, then 5G-compatible cell tower overloading may become the new 5G normal in cell towers serving residential and commercial customers.

ABOUT THE AUTHOR: John Krout has been writing about the creative uses of personal computers since the early 1980s and now writes about the creative uses of smartphones, tablets, and digital cameras. He is a retired software engineer who spent his career collecting requirements, developing designs, coding in C and C++, and writing documentation for systems large and small used by Federal government agencies. He lives in Arlington, VA, and is a member of the APCUG Speaker's Bureau.

EDITOR Note: Using an iPhone13 with decent 5G service as a hotspot to an older Raspberry Pi computer configured to serve as a WiFi-to-Ethernet bridge, I was able to achieve down/up Internet speeds of 40Mbps/10Mbps. Worked quite well as an emergency backup Ethernet Internet connection for my WiFi router to avoid Internet withdrawal symptoms when my Internet Service Provider experiences long disruption of service. **Caveats:** While running a household LAN in that mode (1)Be judicious about video streaming or any other GB downloads or you may easily exceed your cell service monthly data limits (which could either greatly increase your next cellphone bill, or result in reduced speed of your cellular data connection); (2)Your iPhone will almost certainly have to remain in the same room as the device using its hotspot -- you effectively lose the mobility of your iPhone while using it for full-house Internet. This article suggests it would be useful to research whether the Raspberry Pi Operating System also supports a USB Internet tether connection to a smartphone.