



THE COMPUTER CONNECTION

SAUK COMPUTER USER GROUP

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The Whiteside County Senior Center is only open for lunch so we will meet by Zoom for our November. I don't know why the Center hasn't opened when all the other centers around are open for all activities. Our board will have to make a decision if we still want to meet there. Our December Christmas meeting will be at Pizza Ranch from 11-12:45.

Joe Fornero

October
SCUG BOARD
MEETING MINUTES
DATE 10/20/2021

Meeting was called to order by: Neal

Attending the meeting were: Neal Shipley, Joe Fornero, Janice Maves, Terry & Glenda MacLennan, Lorraine Armstrong, Nancy, and Tom Rich.

Treasurer's report was presented by: Joe F.

Discussion Highlights:

1: The November meeting location TBD. Bob Gostischa from APCUG will do a security presentation on Zoom.

2: The December meeting will be held on the 2nd Saturday with food catered by the Candlelight, provided we can meet at Senior Center

3: The January meeting will have a Sterling PD Detective presenting a program on security provided if/when we are able to meet in-person.

4: SCUG has 5 laptop & 2 desktop computers that are being updated and will be available for purchase by club members.

Meeting Adjourned

*Respectfully submitted by
Secretary Nancy Rich*

Club Information

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An International
Association of Technology
& Computer User Groups

How Do I Know When It's Time to Buy a New Wi-Fi Router?

By Kurt Jefferson

Shortly before Halloween last year, I noticed my Internet connection was getting slower and slower. I would visit CKCS.org to check the latest newsletter. Then I would visit The Animal Rescue Site to give free food to shelter pets. [The Animal Rescue Site | Click to Feed Rescue Animals \(greatergood.com\)](#)

Molasses pours faster out of the bottle than my Internet service. So I ran the free Speedtest app on my Macs and iPad. My Internet speed was as fast as usual.

But the connection was problematic. Pages were relatively slow to load. Delivery of email was on the pony express route. I would open my email app, and new mail would eventually appear.

I considered what was going on and realized that my eight-year-old WiFi router might be the problem. Most folks don't realize the beating their routers encounter. They can get very warm and have to deal with interference from neighbors' signals, microwave ovens, and even wireless landline phones. In addition, electrical spikes in the home (when the refrigerator compressor kicks on or the dryer is running) can take a toll on the router, even if it's plugged into a surge protector.

After checking everything I

could think of, I ordered a new TP-Link router from Amazon (using smile.amazon.com, so CKCS gets a portion of what I'm paying Amazon.)

TP-Link is one of the top-rated routers, according to thewirecutter.com, one of my favorite review websites.

If you're wondering about your Wi-Fi router's performance, here are some signs your device is failing, according to robots.net:

Slow Internet – If web pages are loading more slowly than normal, that's a telltale sign that your router is not up to par. robots.net recommends plugging an ethernet cable from your computer into the router (and turning Wi-Fi off on your desktop or laptop.) If the signal perks up and pages load much faster, that's a clear indication your router's performance is failing. If you are streaming a show and the website on your computer or app on your iPad rebuffers constantly (a circular arrow often turns on the screen when there's a signal problem), that's a sign all is not right in router-land.

Your router stops functioning altogether or the indicator lights stop glowing – This is an obvious indication that your router cannot function properly. But, of course, you want to check your internet service provider first to make

The Next Drawing

Not sure when we will resume the drawings,.

sure there's no outage in your neighborhood.

Overheating – This occurs more often than most people realize. robots.net writes, "Most routers, depending on the brand, are made from quality materials that can withstand minor impacts and heat. However, routers aging from three to five years and up can be damaged by heat. So, if you've been using your device longer than the mentioned average lifespan and it suddenly breaks down, perhaps its internal components are no longer working due to heat. When this happens, try to move your router to a place where the airflow is good or place a fan pointing at the device and see if it exhibits any difference. If not, it's about time to replace your router with a newer version."

By Kurt Jefferson, Editor, Central Kentucky Computer Society
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Describing the Quantity of Computer Storage

By Joel Ewing

Computers can store data or information in several ways internally and on various media and storage devices. How we describe the capacity of this storage has evolved considerably over the last 70 years, which explains some of the inconsistencies found in usage.

One of the first things one used to be taught in Physics, even in High School, was that a number representing a measurement was useless (and counted as an incorrect answer) if not accompanied by the appropriate unit of measure. The unit of measure (g, kg, lb, nt, W, ft, m, km, etc.) was essential to define not only the true magnitude of the value but to distinguish among types of measure: weight, mass, force, energy, distance, charge, temperature, etc.

While all computers in common use today tend to have storage organized around the concept of a "Byte" or "character" containing 8 "bits" (base-2 binary digits), this was not always the case. Earlier computers had organizations based on decimal digits, on characters represented by less than 8 bits, on "words" containing some number of decimal digits (10), or on "words" containing some number of bits (12, 16, 32, 36, 48, 60).

For computers organized around decimal digits with memory locations addressed in decimal, one talked about memory having so many "K" digits or words of memory, where "K" was "1000" (no computers had enough memory yet for "M" to be an issue). If varying amounts of memory could be purchased, the physical memory sizes had to be manufactured in quantities that were round numbers in base-10. Machines with 20,000, 40,000, or 60,000 digit memory were described as 20K, 40K, or 60K machines.

Computers that were not organized around decimal digits addressed internal memory locations using a binary address, and this required that memory be manufactured in quantities that were round numbers in base-2. So you would have memory size increments of 1024 (2^{10}), 2048 (2×2^{10}), 4096 (4×2^{10}), 8192 (8×2^{10}), 16384 (16×2^{10}), etc.

Those that worked with such computers quickly tired of describing computer memory capacity in the cumbersome exact-decimal-value notation and adapted the shortcut of using $K=1024=2^{10}$ so the above round numbers in binary could be expressed more simply as 1K, 2K, 4K, 8K, 16K. This was particularly convenient since even if your mind subconsciously saw these values "in decimal," you would only be off by 2.4%. Note that although this is a convenient notation, it is a "corrupted" usage of "K," which is a prefix derived from the Greek word for "thousand."

Computer storage other than central internal storage was a different matter. Disk storage and tape storage capacities were based on state-of-the-art recording techniques, choice of physical media dimensions, and recording densities. These factors produced capacities that tended to not be nice round numbers in either binary or decimal. Changing the definition of

"K" in this context provided no notational simplification, so in the context of disk and tape capacity, "K" continued to have its customary meaning of "1000".

As maximum available and affordable computer storage capacities increased, the above conventions were extended to include the prefixes of

M (mega), meaning $10^6 = 1,000,000$ OR $2^{20} = 1,048,576$, depending on context

G (giga), meaning $10^9 = 1,000,000,000$ OR $2^{30} = 1,073,741,824$, depending on context

T (tera), meaning 10^{12} OR 2^{40} , depending on context.

and so on, for prefixes for powers of 10^3 higher than 10^{12} .

Until the mid-1980s, the only people exposed to this prefix usage were the relatively small number of computer professionals who understood the conventions. The vast number of PCs and other computer devices that have become available over the last three decades have resulted in many computer users now being exposed to these conventions without the underlying knowledge of computer architecture to understand the context distinctions.

To eliminate this decimal/binary ambiguity, in December 1998, the International Electrotechnical Commission (IEC) approved an International Standard for names and symbols for prefixes for binary multiples for use in the fields of data processing and data transmission. That standard is recognized by NIST (U.S. National Institute of Standards and Technology – formerly known as the US Bureau of Standards) and can be found at <https://physics.nist.gov/cuu/Units/binary.html>

By this standard, usages of prefixes K, M, G, and T where a power of 2^{10} is intended should be replaced by Ki, Mi, Gi, and Ti, respectively. These abbreviations correspond to **kilobinary**, **megabinary**, **gigabinary**, and **terabinary**, and are pronounced as "kibi," "mebi," "gibi," and "tebi." So, 16 GB of RAM for a PC should more correctly be called 16 GiB of RAM. This would be spoken as "16 gibibytes" and mean 16×2^{30} Bytes.

Getting people to adopt the newer non-ambiguous conventions has been a non-trivial exercise. After two decades, retail consumer hardware manufacturers are still frequently not observing it. You will find some computer software correctly using the new standards (system and file utilities in Linux), and some not (system and file utilities in Windows 10, which tends to report both RAM storage and Disk storage in "GiB," with both mislabeled as "GB"). That consumers are confused is evident when you see someone who erroneously believes that "GB" always means 2^{30} for computers, or is just confused by Windows 10 misuse of "GB" complain that the capacity of his hard drive was exaggerated because he misinterpreted the manufacturers 500 GB to mean 500 GiB. I personally try to use the standard binary prefixes consistently where appropriate, both to avoid unnecessary ambiguity and to educate others about their existence.

If you are familiar with the conventions, it is clear when a retail PC advertises a RAM memory of "8 GB" that what they really mean is "8 GiB" because PCs use a computer architecture with binary memory addressing. It is similarly clear that a mechanical SATA Hard Drive advertising 1 TB of storage probably means it is close to, hopefully, a little over 1TB, and not 1 TiB, which would be 10% larger. Close but not exact because there is no reason why a physical device with varying physical track lengths should hit a capacity with a nice round decimal number.

Now in the case of a "240 GB" SSD solid-state drive, I am not certain what value is intended. Since there is discrete solid-state memory under the covers, no doubt the base storage inside the unit is really 256 GiB. But there also has to be a programmed computer processor inside that is emulating a SATA hard drive, so out of that 256 GiB, some memory must be used for the hard drive controller program, and some space taken for buffers and other data storage required for the hard drive emulation, and perhaps some space kept in reserve just in case marginal performance or failures are detected in some blocks of the memory, like having hidden alternate tracks on a mechanical hard drive that can transparently replace a failed physical track. After deducting the overhead for the device emulation, that could leave either 240 GB or 240 GiB usable storage for the emulated hard drive. I suspect they would mean the lower 240 GB in keeping with mechanical hard drive capacity conventions, but I am not 100% sure.

It ought to be possible to get RAM and PC manufacturers to use the more correct GiB in place of GB for RAM capacity. Hard drive and SSD manufacturers should specify their approximate capacity in both GB and GiB as well as the actual exact Bytes. While the current GB values are conventional usage, you still have the problem with neophytes seeing only a GB value and thinking it should be interpreted as GiB.

Another sloppy usage that drives me to distraction is hearing or reading someone describing his computer storage or speed as so many "gigs." So, he has "billions." Billions of WHAT? "G" is only a quantity multiplier, not a unit of measure! Without the correct units, the number is meaningless. This misuse is particularly confusing in the area of data transmission speeds, where units of both "bits per second" and "Bytes per second" are in common use.

*By Joel Ewing, President, Bella Vista Computer Club
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Right-Click Your Mouse - Best Shortcut Ever!

By Jim Cerny

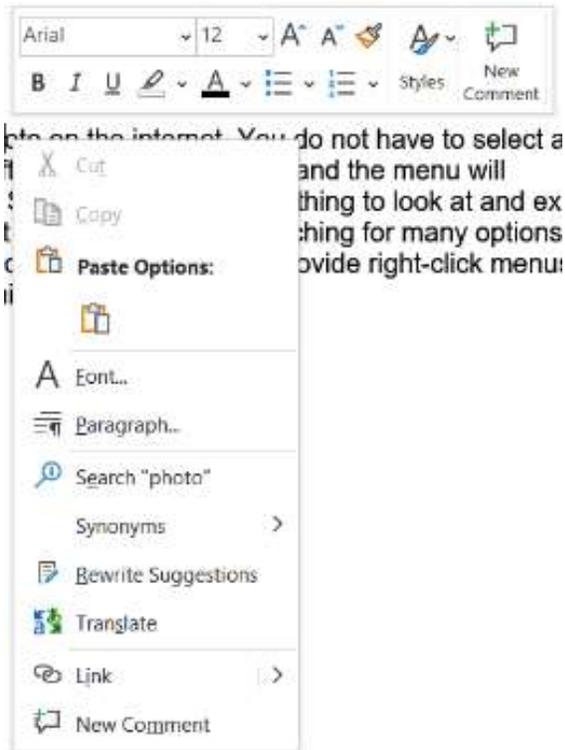
If you are not familiar with the power of RIGHT-clicking your mouse, you are in for a great Windows tip to help you in almost every place on your computer. Of course, everyone should be familiar with LEFT-clicking the mouse to select things and options. Computer instructions say “click on” this or that, and it is understood that they mean LEFT click. But the RIGHT mouse button is also a big help, and instructions should always specify “RIGHT-click” when you are to use that button.

So, what does “right-clicking” your mouse do on Windows? Well, and this is the core of this article; right clicking your mouse on anything makes a menu of options appear for that item. This works for almost anything you can see on your Windows monitor. So let’s look at a few examples for you to try to show you what a helpful shortcut this can be for you.

Place your mouse arrow (cursor) anywhere on your desktop screen (on an empty area, not an icon). Now right-click your mouse, and you will see a menu appear of choices or commands for what you can do with your desktop. For example, you will see options such as “View,” which allows you to change how you view what is on your desktop. Or “Sort by,” which gives you options for sorting what is on your desktop. If you don’t know what a command or option does, ask Google.

For another example, place your mouse arrow on a BLANK area on your Taskbar at the bottom of your Windows desktop screen. Now right-click, and you will see options of what you can do with your Taskbar – such as locking or unlocking the Taskbar, arranging open windows on your screen, and more. You can even LEFT click on “Taskbar settings” to go directly to the Taskbar settings options. So have fun and TRY something! (Remember to always use a LEFT mouse click to select a menu option).

For a third example, let say you are editing text in a document. First, drag your mouse over some text to highlight it (this is “selecting” the text you want to work with). Now right-click on the highlighted text, and viola, you see options of what you can do with that text. You can select “cut,” “copy,” or “paste,” for example, or change the font or make it a new paragraph.



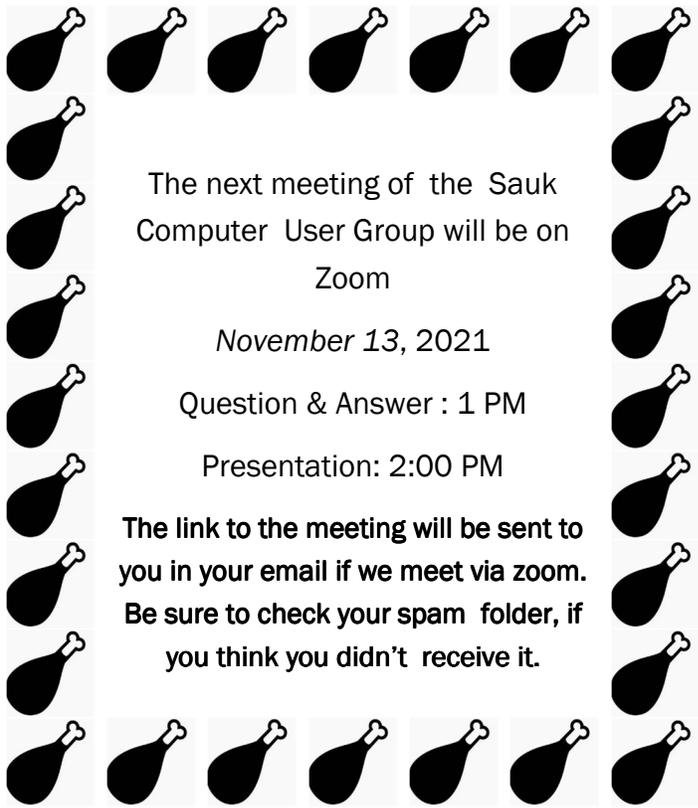
If you have not realized the power of right-clicking your mouse, then you should be saying a big “WOW, this is so cool!” Now you can have some fun trying right-clicks anywhere and everywhere. Try right-clicking on an icon, a cell in a spreadsheet, a file or folder name in File Explorer, or a photo on the internet. You do not have to select an option on the menu that appears; left click somewhere else, and the menu will disappear, and nothing will happen. So, you won’t change a thing to look at and explore. Right-clicking is a great shortcut that will save you time searching for many options or choices. Most apps (applications, programs, etc.) will also provide right-click menus too. Why not give it a try? You have nothing to lose but a click

*By Jim Cerny, Help Desk Host
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There will be a Question & Answer Session starting at 1 PM on Zoom. Bring any questions you have about your computer or problems you may be having.

It will be conducted by:

Neal Shipley



The next meeting of the Sauk Computer User Group will be on Zoom

November 13, 2021

Question & Answer : 1 PM

Presentation: 2:00 PM

The link to the meeting will be sent to you in your email if we meet via zoom. Be sure to check your spam folder, if you think you didn't receive it.

Neal Shipley will be hosting an online Zoom meeting with a Question & Answer time and Bob Gostischa from APCUG will do a security presentation on Zoom.