



## Shopping for a New Smartphone

By Tom Burt, Vice President, Sun City Summerlin Computer Club

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I've been looking at new smartphones for a few months, and now, with "Black Friday" and "Cyber Monday" sales in full force, it seemed like an interesting topic for a monthly column. As with most technology, the purchase process has become very complex. Smartphones have evolved to where you're buying a mobile computer that can also make calls on the cellular phone network.

At Casa de Burt, both Mrs. and I have been using fairly simple, low-end LG Android phones with 5-inch screens, modest cameras, and minimal storage. Originally, we had these mainly for emergency use when out and about. However, inevitably, they become more integral to one's daily existence in the modern technical world. Also, LG is exiting the smartphone business, and our phones' versions of Android are well out of support, so compatibility with future apps is a growing concern.

### **Carrier Technology (4G / 5G)**

The cellular phone/data network has evolved over the years through successive generations: 2G, 3G, 4G, 4G LTE, and now 5G. A 6G standard is already in the works. If you're interested in a deep dig, here's an extensive article describing the history and current state of signaling technology: [https://en.wikipedia.org/wiki/Cellular\\_network](https://en.wikipedia.org/wiki/Cellular_network).

Older generations of the 3G GSM and CDMA standards are being phased out. As a result, older cell phones that can only access GSM or CDMA

*(Continued on page 5)*

## Inside

Lake County Area

Computer Enthusiasts ...02

Presidential Prattle.....03

Happy Birthday.....03

Classic Hardware.....08

Exploring Your Windows  
PC.....11

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## Helping

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# Lake County Area Computer Enthusiasts

c/o Group Ambassador

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## News Journal

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## Membership

LCACE membership is open to all individuals and families interested in personal computing. Annual dues are \$20.00 per individual/family. Applications for membership may be obtained at the monthly meeting, by request on the club hotline, and are now available on our web site at <http://www.lcace.org>.

## Meetings

LCACE meetings are usually held on Saturdays at the Grayslake Area Public Library, 100 Library Lane, Grayslake, Illinois. The meeting room opens at noon and the formal meeting begins at 12:30 p.m. All meetings are open to the public. Bring a friend!

## Newsletter Submissions

Club members are welcome to submit classified ads, reviews, tips and other articles for publication, to our newsletter editor in Microsoft Word format (.doc). **Publication deadline is the 20th of the month for all ads and articles.** Please do not use tabs or special formatting.

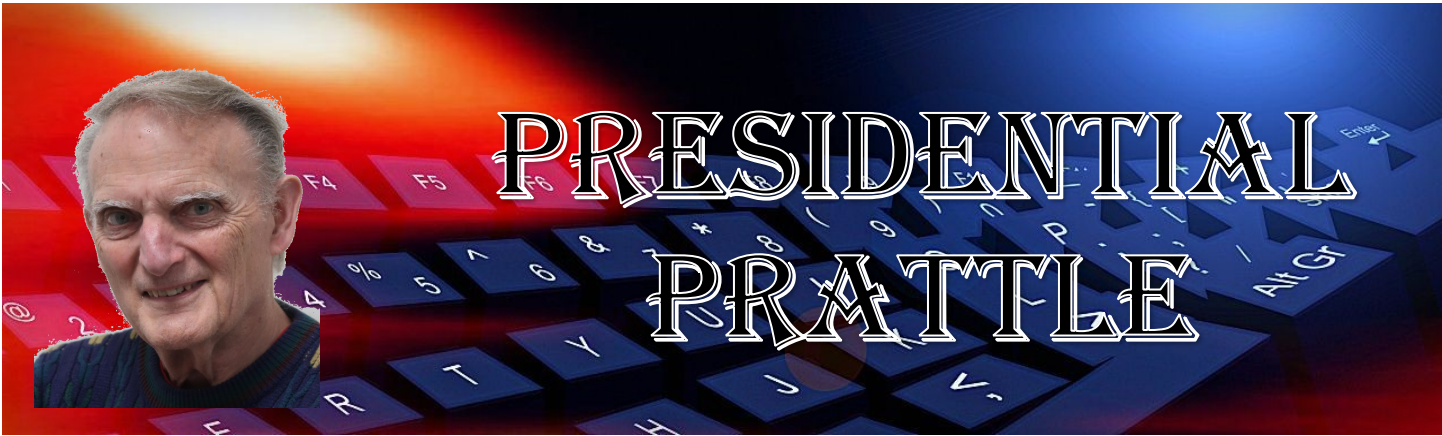
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Our next meeting is August 13. Hope everyone had a great time during our summer break. If not, perhaps it was at least productive???

One of the items I would like to address at our August meeting is membership. We have a group of very loyal members, so we have a great core group. But wouldn't it be nice if we could spread the benefits of our group to even more people? Our club has always been a place where we could learn about new technologies through our public presentations, our News Journal, and our website. And not to be overlooked is our sharing of ideas with our fellow members. There is also a social aspect to our group. I always enjoy our gatherings, and look forward to EVERY meeting, mainly because of the great people we have.

So, I'm looking forward to our August meeting, and seeing you all again.

My best to all,

*Les Larkin*



**July**

- Lester Larkin**
- Liz Barnett**
- Jack Frost**
- Lew Seidenberg**

**August**

- Dean Berglund**
- George Becht**



## Simplify your life with these smartphone apps

Visit [play.google.com](http://play.google.com) or open your iTunes application and search within the App Store to download these.

App name	How it works
Flashlight	Turns your screen into a flashlight
Google Maps	Provides maps and directions using GPS
Dragon Dictation*	Lets you send texts and emails without typing
GasBuddy	Finds cheap fuel in your area
FaceTime*	Allows video chats with friends and family
Triplt	Organizes flights, hotel reservations, and more
Laser Level	Helps hang pictures straight
Lose It	Lets you create and follow a diet plan
RedLaser	Compares prices by scanning bar codes while you shop
The Weather Channel	Keeps up with local weather
iPharmacy Drug Guide & Pill ID	Identifies your pills and finds lowest drug prices
Tip Calculator	Computes your tip and splits the bill among friends



\*iPhone only

## Members Helping Members

*Just think you could have submitted a paragraph or two that would help your fellow Members*



**Ctrl+ click white arrow to go to out Youtube site**

(Continued from page 1)

cell networks may no longer work after mid-April 2022. If buying a new phone, check to see if it's compatible with T-Mobile/Sprint, Verizon, or AT&T. Most new unlocked phones are compatible with all three.

All newer phones support 4G and 4G LTE; many support 5G. The main difference between 4G and 5G is that 5G offers higher data speeds. If you're not getting reliable 5G service from your carrier, there's little benefit in having a 5G phone.

### **Phone Brand and Hardware Specs**

The major makers of cell phones include Apple, Samsung, LG, Motorola, and Google. Apple and Samsung are the major players in the US, with a combined 78% market share. LG announced its exit from the mobile phone business as of July 31, 2021.

## **Key hardware features to pay attention to are:**

### **Processor cores and speed**

New Apple iPhones use custom Apple-designed 6-core processor chips (A14, A15) that support the ARM (Advanced RISC Machines) instruction set with Apple extensions. New Android phones use ARM architecture processors primarily from Qualcomm (Snapdragon series), Samsung (Exynos series), MediaTek (Dimensity series), HiSilicon (Kirin series), and Google (Tensor series). In addition, the latest Android phones are coming with 8-core 64-bit processors running at up to 2.8 GHz clock speeds, so they compare well to mid-range desktop processors.

As you might expect, a higher-end processor yields better performance for running apps on our phone.

### **RAM memory**

New smartphones come with 1G-byte to 4 G-bytes of internal RAM (memory for running active programs). More RAM is better but will increase the price of the phone. I'd recommend at least 2 G-

bytes of RAM for running newer versions of Android (10 or 11).

### **Onboard solid-state storage**

Newer phones now offer anywhere from 16 G-bytes to 512 G-bytes of onboard solid-state data storage. The data stored includes the operating system, all apps, and end-user data. If you use your phone to store videos, pictures, or music, you'll want a phone with at least 32 G-bytes of storage. Most phones allow you to add a SD flash card for additional storage.

### **Screen size and pixel resolution**

Most new phones have a physical screen size close to 6.5 inches by 3 inches. Resolutions (pixels per inch) vary, with higher resolutions costing more. A typical mid-range screen (Moto G) is 1600 x 720 – about 267 pixels per inch. Some Apple 13 iPhones with Retina displays have 460 pixels per inch resolution.

### **Wi-Fi connectivity**

Virtually all smartphones can connect to a Wi-Fi router and connect to the Internet for web surfing, email, and many “connected” apps. Most phones now support connecting via either the 2.4 GHz or 5 GHz bands using the 802.11AC standard. Some newer phones now also support the Wi-Fi 6 (802.11AX) standard. When shopping, look for 802.11AX or Wi-Fi 6 to “future proof” your phone. However, 802.11AC (Wi-Fi 5) is still OK.

### **Bluetooth connectivity**

Bluetooth is a short-range radio connection alternative to Wi-Fi. It's handy for connecting to your car's in-dash entertainment console for hands-free phone operation or for connecting your phone to a Bluetooth headset (again for hands-free calling). With appropriate apps, you can also use Bluetooth to connect to other users' phones when there's no Wi-Fi router nearby.

### **Motion sensing / Accelerometer**

Many newer phones have a built-in accelerometer. These are often used by gaming and virtual reality apps so that your phone's motion can be tracked,

(Continued on page 6)

*(Continued from page 5)*

allowing it to function as a game controller or a game weapon. Or it might be used to sense activity while you're working out.

### **Headphone Jack**

A headphone jack is important if you want to plug in wired headphones so you can listen to music or videos on your phone without disturbing others. However, there are also inexpensive rechargeable wireless Bluetooth earbuds that allow you to listen, even if the phone lacks a headphone jack.

### **USB connector**

Newer Android phones come with a USB-C (small, symmetric) connector that can be used to charge and pass data between the phone and another device. Older phones used a "micro-USB" d-shaped connector. The charging cable for your phone should have the correct connector on one end and a USB-A (rectangular) connector on the other.

### **Battery Life**

Most new smartphones have batteries rated 4000 to 5000 milliamp hours, translating to 36 to 40 hours of talk time. Generally, a higher capacity battery gives more talk time, but this will also depend on the processor speed, the amount of RAM and storage, the apps you use, and how much data is transferred over the Wi-Fi connection.

### **Phone Software Features**

Apple iPhones run Apple's proprietary iOS (12, 13, or 14) operating system. Phones from other makers primarily run Google's Android operating system; newer phones typically run Android 10 or 11. In addition, some inexpensive Chinese phones may be running Linux-based operating systems that can also run Android apps. For example, Huawei, which is now banned in the U.S., uses HarmonyOS in its Chinese smartphones.

Out of the box, the features of a smartphone are determined by its operating system and the built-in apps. For example, for the Apple iPhone, the Apple app store offers an extensive catalog of addi-

tional free and paid iOS-compatible applications. Similarly, the Google Play store offers an extensive catalog of free and paid Android-compatible applications for Android phones.

Baseline bundled apps for all phones include a phone app (includes contacts), a text messaging app, the settings app, a file manager app, a camera app, and an app to interface to either the Apple app store or the Google Play store. You will also find a photo viewer, a music player, a video player, a web browser, and an email app. Your phone carrier may also add vendor-specific apps.

Many new phones offer facial or fingerprint recognition to secure your phone while not requiring a PIN or password to unlock the screen.

### **Shopping Options**

You can buy a new phone at many retail stores or at online retailers. Many of these are packaged with a prepaid plan from one of the carriers. You can also buy phones directly from the various carriers at the retail or online stores. Often, the carriers have the best pricing, but the phones will be "locked" to that carrier's network. "Unlocked" phones (compatible with many or all carriers) can be bought, but prices tend to be higher. Be careful buying phones on eBay – especially "used" phones.

Many carriers offer phones at large discounts but require an expensive phone plan to get reasonable pricing.

After you buy the phone, you may need to get a SIM (Subscriber Identity Module) card for it from your preferred carrier and then activate the phone on that carrier's network.

### **Buying a New Phone from a Carrier's Phone Store – Experiences**

As noted above, you can often find some really good deals by shopping your current carrier's online or brick-and-mortar store. Of course, phones you buy from your carrier will be "locked" to that carrier's network, but if you like your current plan, that should not be a problem.

*(Continued on page 7)*

Mrs. Burt has a low-cost prepaid phone plan with Boost Mobile (a subsidiary of T-Mobile / Sprint). As a result, we could buy her a very nice Motorola Moto G Pure phone for \$59.99 (pre-Black Friday special). In the Boost Mobile website screenshot, the price had dropped to \$49.99 on Black Friday). The Moto G Pure has 3GB of RAM and 32GB of onboard storage and



is powered by a MediaTek 8-core CPU and runs Android 11. So for Mrs. Burt, it's a perfect fit for her needs. Once the new phone arrived, it was easy to activate her new Moto G on the Boost Mobile website, keeping her current phone number.

My experience with the AT&T website was less successful. All their phones for regular plans are offered on a 36-month time contract. You pay a certain amount per month (\$5 to \$20, depending on the phone) and, after 36 months, you own the phone. However, you have to buy a plan that costs at least \$75 a month to get those good prices! After 36 months, you can trade the old phone in and get a new one, starting another 36-month time contract. Effectively, the customer is renting the phone.

The AT&T prepaid plans offer a small selection of phones for flat purchase prices. However, all these phones are locked to the AT&T network.

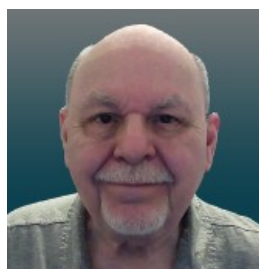
I looked at Verizon, and their plans, phone prices, and terms are about the same as AT&T's.

I finally decided to switch from AT&T to Boost Mobile and get a Moto G Power phone (\$67 on Cyber Monday) for myself.

## Final Thoughts

Your choice of smartphone depends a lot on your connectivity needs and how you use the phone as a mobile computer. Phones eventually wear out, but most succumb to mishaps like getting dropped, dunked, or lost. With care, a phone should last five years or more – long enough to where it will become obsolete before it wears out.

Lastly, in buying a smartphone, don't forget its phone functionality. You won't be happy if your phone drops calls or has poor reception. Read the online reviews before buying and look for comments about phone reception.





# Classic Hardware

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

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Everything that is old wants to be a classic - an outstanding example, something of lasting worth, or having timeless quality. New things must stand the test of time to be considered classics, though classic is somewhat subjective. We can all relate to classic cars, classic literature, and classic clothing. Something must be around for a while to be considered a classic. Can there be such a thing as classic technology?

We typically think of the newest, most modern, and most advanced when we think of technology. Windows 11, 5G, and USB3.2 may be very capable, but they have not been around long enough to prove their worth. While advanced and perhaps even revolutionary for their day, MS-DOS, Compact Discs (CDs), dial-up modems, and serial port interfaces now seem too behind the times to be classic. When we think of classic cars like the Ford Model T, original Volkswagen Beetle, or Pantera, we seem to be able to more easily overlook their lack of modern automotive safety features, lower reliability and comfort, and greater environmental impact as compared to 2021 models. We don't feel the same about our computer and communications technology. Rotary-dial phones, Windows XP, and CRT monitors don't seem as much like classics but rather as ancient and undesirable. Some early computer games are considered classics, but we look down on the inferior capabilities of yesterday's technology for the most part.

Not all new technology is an improvement from my point of view. For example, the latest version of Microsoft Word has very sophisticated capabilities. Still, when I just want to write a basic article like this one, I prefer the simplicity of an older version like Word 6, which to me is a classic. I'm too private a person to want all my photos and documents in the cloud, so I

sometimes have to pass files to others through exchanged USB Flash drives or even CD or DVD data discs, rather than worry about encrypting files before posting or emailing. However, it is getting more likely that the person I want to send to does not have access to an optical disc drive.

In some cases, though generally more capable, new technology is inferior to older tech in some specific and significant way (at least to me). One example of this is scanning. I have an HP OfficeJet Pro 7740 all-



Photo 1: HP OfficeJet Pro 7740 all-in-one printer

in-one printer (Photo 1) that can print and scan up to 11" x 17" documents. It has a network interface so any computer on my home network can use it. In addition, it has a paper feeder for the scanner that can automatically scan two-sided documents, which I like. I've had it for about five years, and though it has communications problems related to scanning at times, it has overall worked well. It does not scan as well as my older scanner, however.



Photo 2: HP ScanJet 5370C

I still have my prior scanner, an HP ScanJet 5370C (which is probably 20 years old).

It has only a USB interface and is still connected to the Windows XP computer I have always used with it. The OfficeJet scans documents much faster than the older ScanJet, but the quality of the older scanner is much better in at least one particular way.

Both scanners can scan a flat document with about the same quality. The ScanJet beats out the new OfficeJet by scanning items that are less than com-

*(Continued on page 9)*



(Continued from page 8)

pletely flat. To some degree, you can see this in wrinkled documents, but it is very obvious when scanning an object. Why scan an object? Well, I like to keep my product documentation electronically. When I buy something, I scan the box, any paperwork inside, and sometimes the product and accessories to a single pdf file. In this way, I have a record of the item and don't have to keep boxes and physical manuals around. It also helps later see what came with the product; I will usually lay cables, adapters, and the product's side with the serial number label on the scanner bed and scan it as part of my stored documentation for reference. I have been doing this for years, and I've found it is often very useful.

Unfortunately, I've found the new OfficeJet scanner is very poor at this. If you think of the scanner like a camera, the OfficeJet's depth of field capabilities is very narrow compared to the older ScanJet. The OfficeJet can only focus on something right at the glass plate of the scan bed, while the range of focus for the ScanJet seems to go from the scan bed plane to maybe an inch or more above it. If you lay cables on the ScanJet, you get a scan that looks like a photograph. Everything not directly touching the glass is out of focus and dark with the OfficeJet.

This issue can be seen in the scans of the packaging for a scientific calculator



Photo 3: ScanJet5370C Scanning a calculator

I found in the clearance aisle at Walmart. The store packaging has the calculator sealed in clear plastic to a cardstock backing. To scan the front side of the

package, the Walmart clearance label is flat against the scanner glass, but the cardstock is almost an inch away (due to the thickness of the calculator). (Photo 3)

When scanned with the old ScanJet, everything is in focus and well lit; the Walmart label, the calculator keys, and the cardstock backing are all very legible.

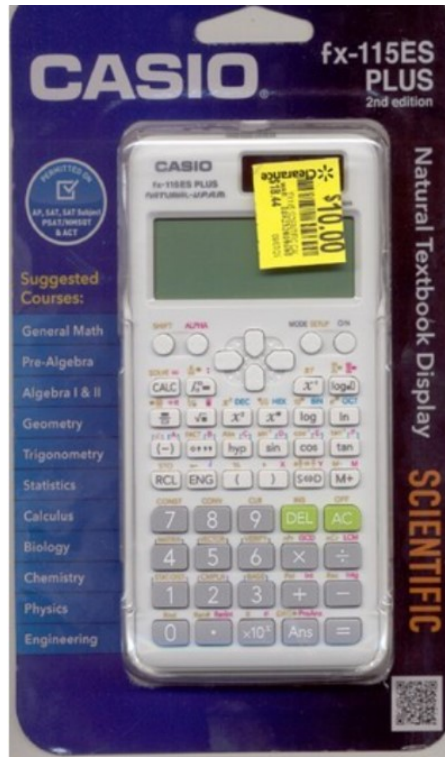


Photo 4: Calculator with ScanJet5370C

When the same scan is made on the newer OfficeJet, only the Walmart label is in focus. In addition, the calculator keys and legends are a little fuzzy, and the cardstock backing is so dark and out of focus that it is almost completely unreadable.

I don't know what it is about the design of these two scanners (both from HP) that gives such a greater depth of field capability to the ScanJet, but I would prefer my new one were as capable in this respect. If all I wanted to do was scan flat paper, the OfficeJet would be the best choice and all I would need. Since I want to occasionally scan non-planar items, I guess I will need to consider keeping the ScanJet around. I could always take a photo of non-planar packages and cables to include with my product documentation files, but it is so much nicer to have everything for a product in one single pdf file. I guess I'd consider my ScanJet 5370C to be classic hardware.



## Membership Chairperson Report

### Members

Attendees In Person/Hybrid: 34

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### THANKS FOR RENEWING

Kenneth Nothercote  
Mike McEnergy  
Bobby Jacobs  
Linda Busch

### THANKS FOR VISITING

## Computer Services

**Desktops,  
Laptops,  
All-in-Ones  
and more**



During our October Zoom meeting the following two computer services were mentioned.

### White Box Computers

They say they are the place for all your computer repairs & upgrades at nearly half the prices of the competition.

<https://whiteboxcomputers.org>

847-833-9324

### ZYTEK Services

Has been around for over 30 years and offers the best in fast, friendly, high-quality, fair price computer service solutions

847-336-2259

July/August 2022

## MEMBERSHIP RENEWAL *Annual Dues*

**2022-2023**



*DeBorah Sirilla*

*Sue Muchowski*

*Gary Quamstrom*



# Exploring Your Windows PC

By Dick Maybach, Brookdale Computer User Group  
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Becoming familiar with your PC is like becoming familiar with a foreign city. You can read a book about it or visit it, but it's far better to do both; a visit gives you first-hand views of the landscape that you aren't likely to forget, and a book helps you understand what they mean. For becoming familiar with Windows, I like the book *Windows 10 In Depth* by Brian Knittel and Paul McFedries; although at \$40 and almost 1000 pages, it's neither a cheap nor a quick read. Windows 10 comes with many tools you can use to tour its terrain. Spending time visiting while your PC is working well not only removes a lot of the mystery of what it does but can help significantly if you run into problems.

The Task Manager is a good place to begin. Type "task" in the search box at the bottom left and select Task Manager on the right of the window that appears. (In the rest of this article, I'll replace the words describing such operations with the shortcut "task"> Task Manager.) Figure 1 shows the Task Manager's Processes tab, which shows what is running. Note the down-arrow at the top of the CPU column, which shows that the tasks are sorted by CPU usage. You can select any column to sort by its quantity. By the way, the 100% on the Disk column means neither that the disk is full nor that it's transferring data at maximum capacity, but only that it's always active. A right-click on a task name will display a menu of actions, and one that I've found helpful is End task, which shuts it down.

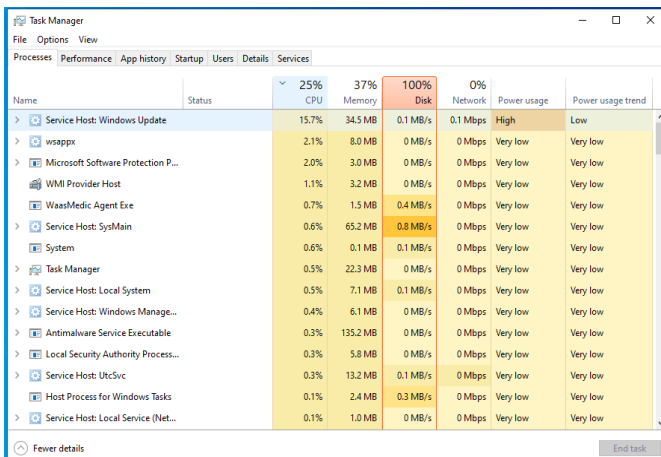


Figure 1. Task Manager, Processes Tab.

Figure 2 shows the Performance tab, where the CPU item on the left has been selected to show an overview of CPU activity. You can also see similar memory, disk, and network displays.

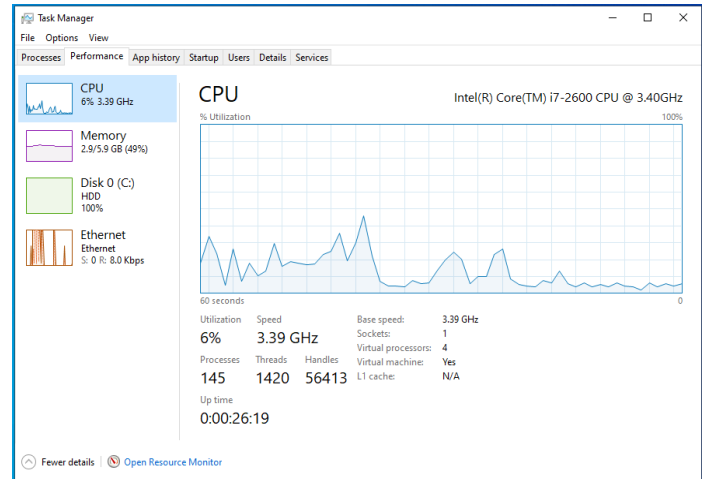


Figure 2. Task Manager, Performance Tab.

The App history tab shows what your PC has been doing, including what resources each process has used, Figure 3.

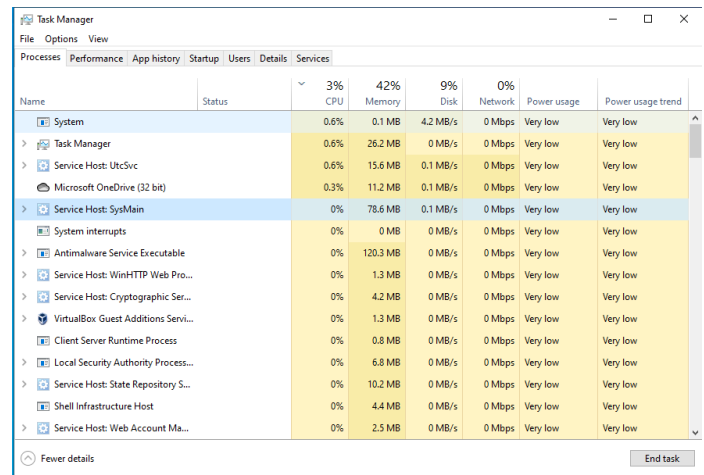


Figure 3. Task Manager, App History Tab.

The Resource Monitor ("resource" > Resource Monitor) is similar to Task Manager but shows more details. Figure 4 shows its Overview tab. As you can tell from the scrolling bars on the right, only a portion of each text panel is dis-

(Continued on page 12)

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played here. (The network wasn't being used, so I haven't displayed that window. You can show or hide any window by selecting its title bar.) As with the Task Manager, you can right-click on an activity to bring up a menu of actions.

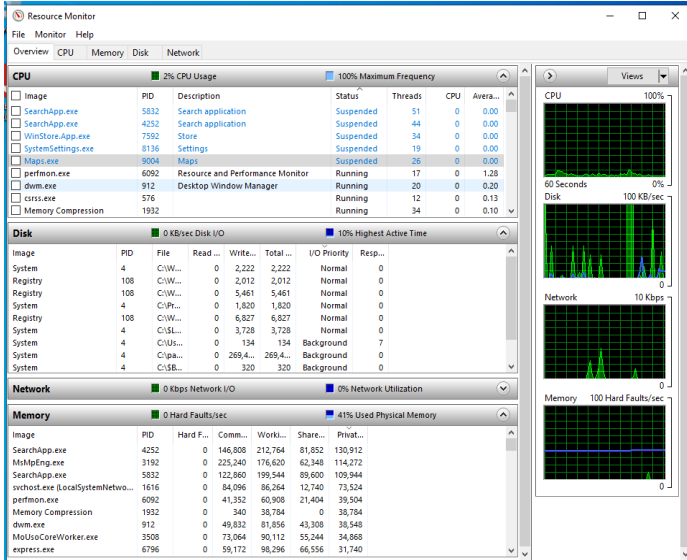


Figure 4. Resource Monitor, Overview Tab.

The CPU tab shows that activity. This instance of Windows is running on a virtual machine with four processors, and Figure 5 shows the activity on each, although there wasn't room in the window for CPU 4.

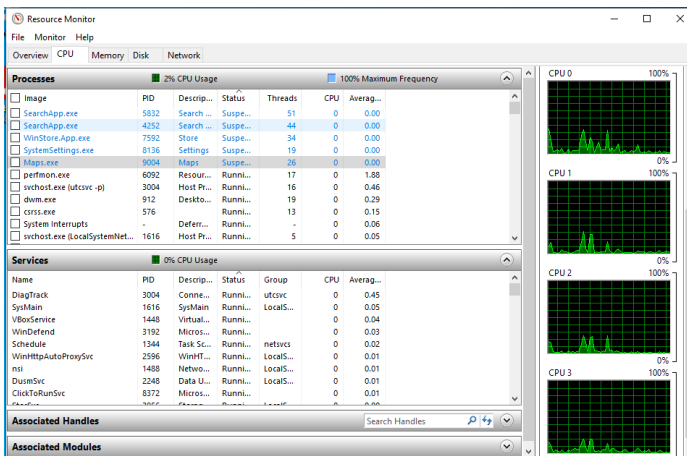


Figure 5. Resource Monitor, CPU Tab.

Similarly, the Memory tab displays details of your RAM use, as shown in Figure 6. (Faults don't indicate problems; they mean data wasn't in a cache and had to be retrieved from RAM.) Finally, note the memory use summary at the bottom of the window.

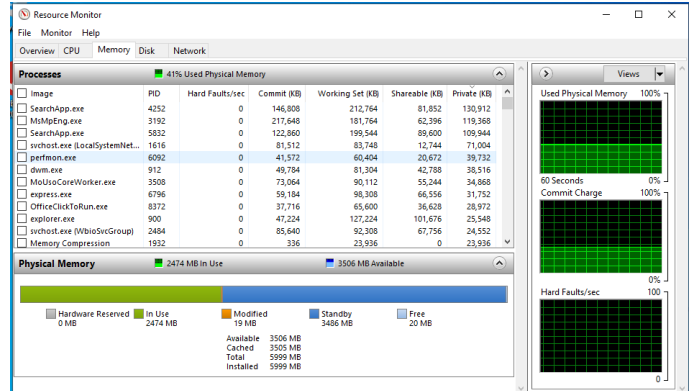


Figure 6. Resource Monitor, Memory Tab.

The Security and Maintenance tool ("maintenance" > Security and Maintenance) will display and help you resolve many problems. Figure 7 shows the usual case. Before taking this screenshot, I selected the Security and the Maintenance items to display those details. As you can infer from the scroll bar, only a portion of the window is visible,

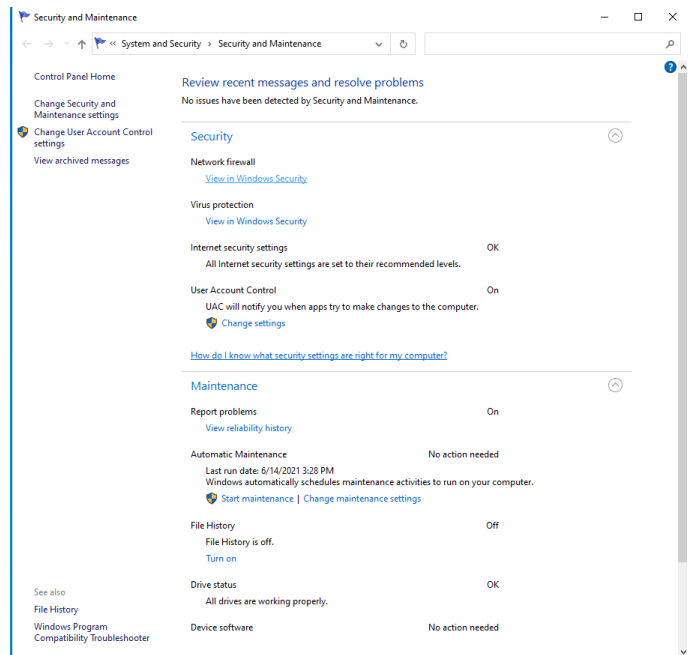


Figure 7. Security and Maintenance Tool.

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Storage Settings ("storage"> Storage Settings) shows your hard disk usage, Figure 8. (Turning Storage Sense On automatically deletes temporary files.) The small hard disk here is because this PC is a virtual machine. You will have to select "Show more categories" to see more than the Apps & features and Temporary files items. Select a blue icon on the left to display the details of that category.

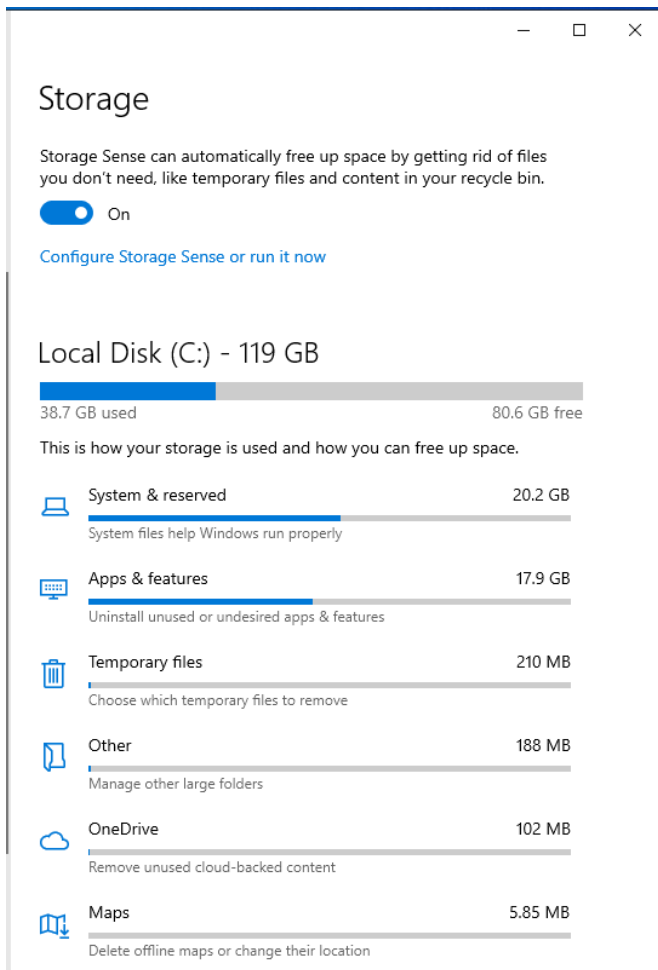


Figure 8. Storage Settings.

You can see another view of your hard disk use by looking at its properties ("file"> File Explorer > Right-click on Local Disk (C:) > Properties), Figure 9. From here, you can also compress your disk (which will slow it down), clean it up by removing unneeded files, check for errors, defrag the file system, and change the security settings.

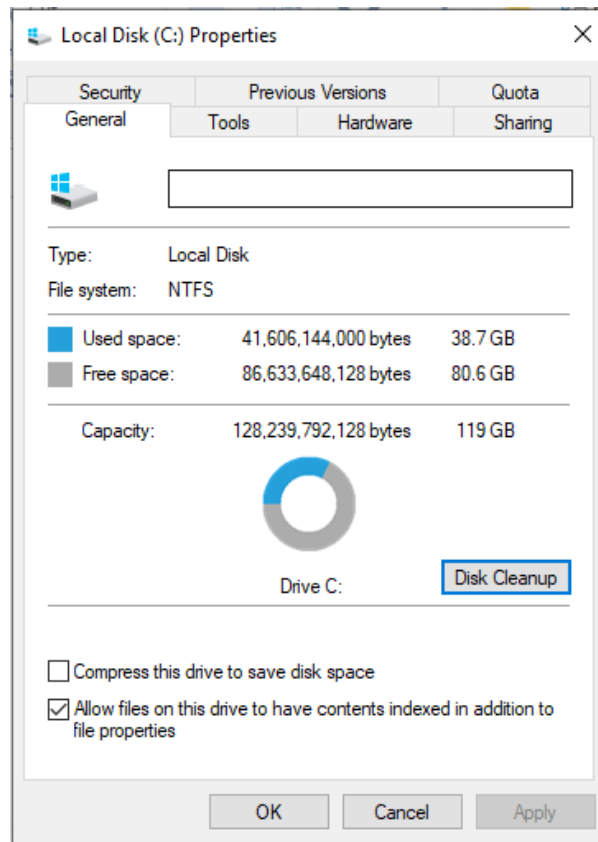
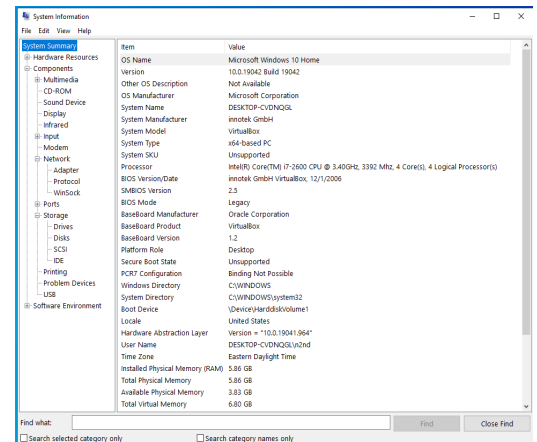


Figure 9. Local Disk Properties.

System Information ("msinfo32"> System Information) can tell you many system details, but understanding the information requires considerable expertise, Figure 10. However, exploring here is much safer than wandering through the Registry. In addition, you can find information on your hardware and software much faster than by opening the



system case.

Figure 10. System Information.

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(Continued from page 13)

If you have a problem, you can ask Windows to help you solve it ("trouble"> Troubleshoot Settings), Figure 11. Don't expect miracles, but it's worth trying before you begin more time-consuming or expensive measures. The Additional troubleshooters item lets you direct the program toward the area of difficulty.

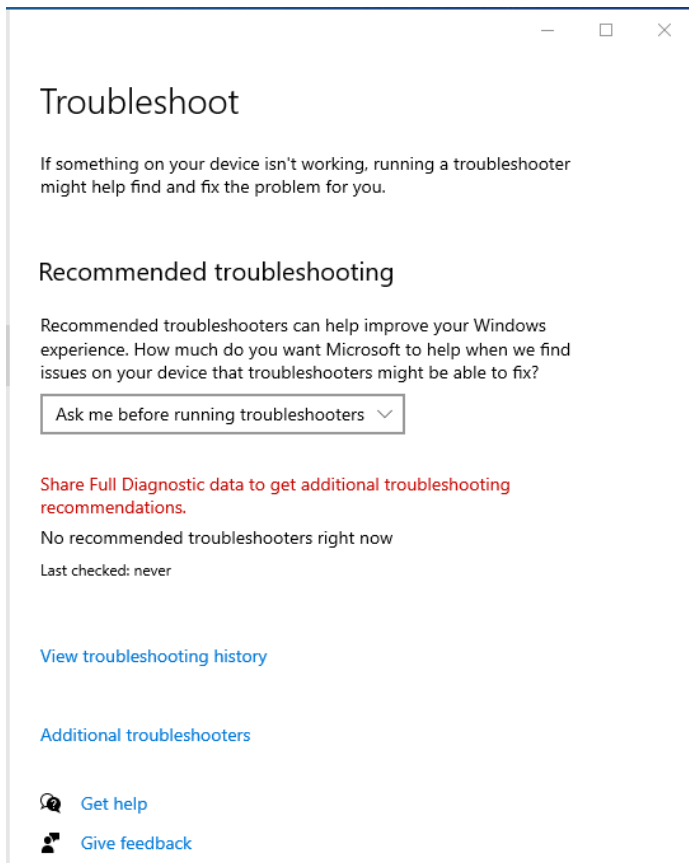


Figure 11. Troubleshoot Settings.

You can see, and uninstall if you like, the programs you've installed with the Apps & Features utility ("programs"> Apps & Features > go to the bottom of the page > Programs and Features), Figure 12.

Displays the software you (and Microsoft) have added after Windows was installed. But, again, we're looking at a virtual machine, and the number of apps is far smaller than usual.

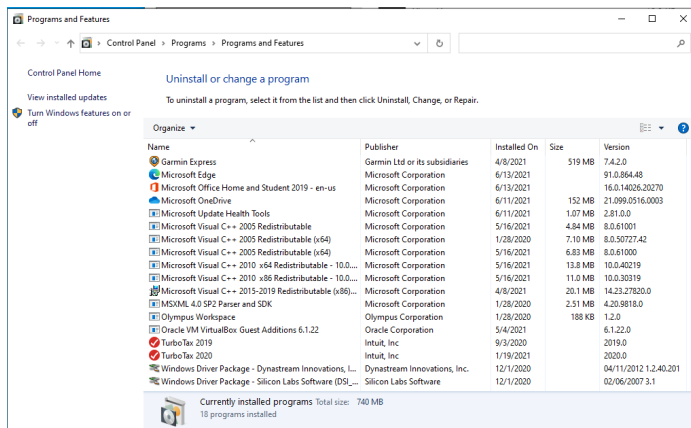


Figure 12. Apps & Features.

Network Status ("network"> Network Status) shows your network's status, usage, and devices, Figure 13.

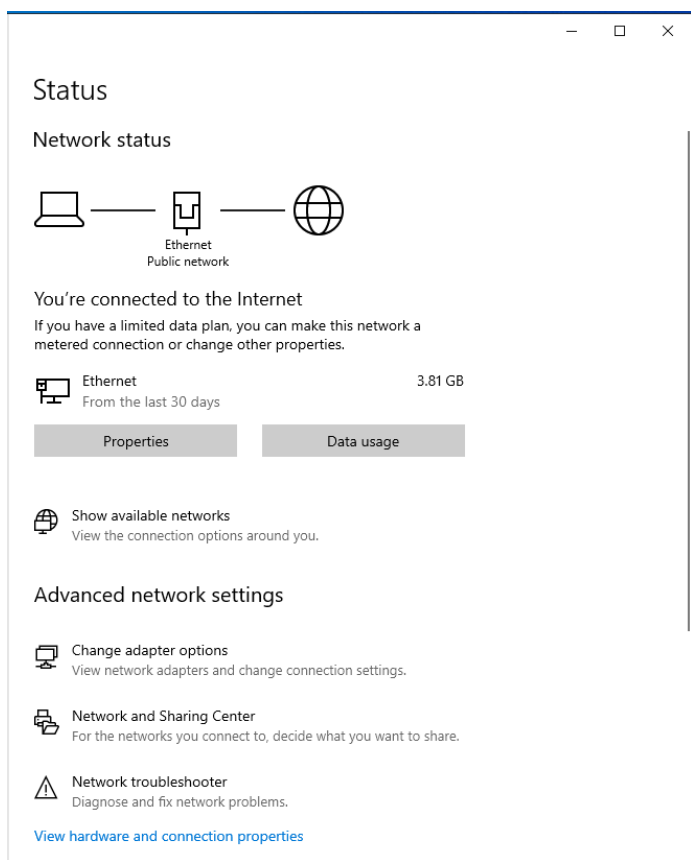


Figure 13. Network Status.

A firewall ("firewall"> Windows Defender Firewall) is your first defense against hackers, Figure 14. This screen shows the type of network connection and whether the firewall is active. This is less important at home, where you operate behind the hardware firewall in your Ethernet modem. However, if your PC is a laptop that you use at

(Continued on page 15)

blic hot spots, be sure to check that your firewall is set up correctly.

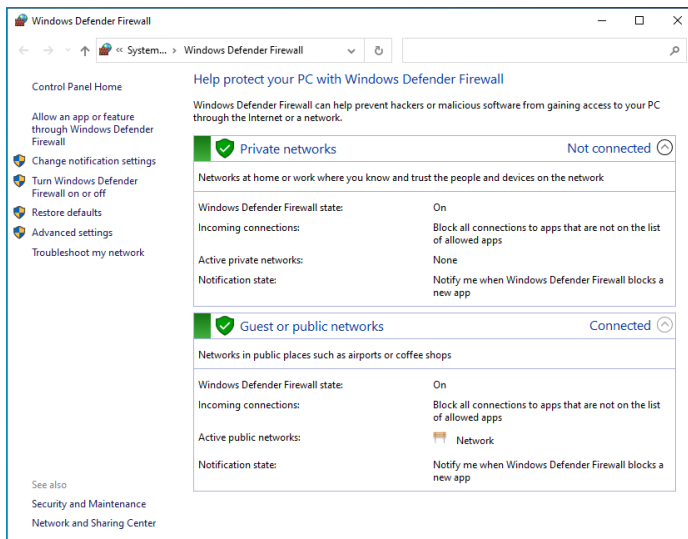


Figure 14. Windows Defender Firewall.

Settings ("settings"> Settings) is a central location for configuring your PC. We've already seen many of the topics displayed in Figure 15 by going directly to them. You've no doubt already done this, but it's worth revisiting to be sure you have missed something. In particular, Phone lets you link your PC with an Android device. Other worthwhile items are Network (which shows the devices and history of use), Ease of Access (which lets you customize to accommodate impaired perception), and Privacy (which sets how much info you disclose to MS and websites). Finally, Update & Security controls the updating process.

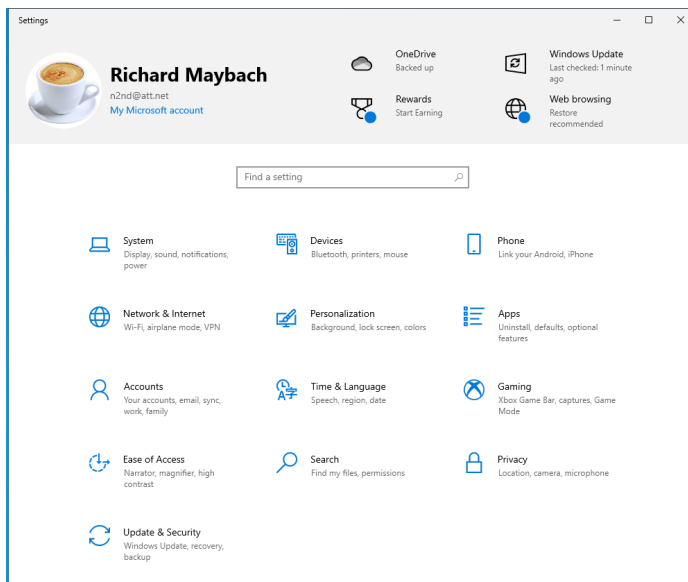


Figure 15. Settings Window.

The Device Manager ("device"> Device Manager) shows the device items from the Registry. You can view the devices by type (the view in Figure 16), by connection, or by container, as well as the resources by type or connection. You can also update drivers. Of course, you'll need some experience to do anything worthwhile or even safely here.

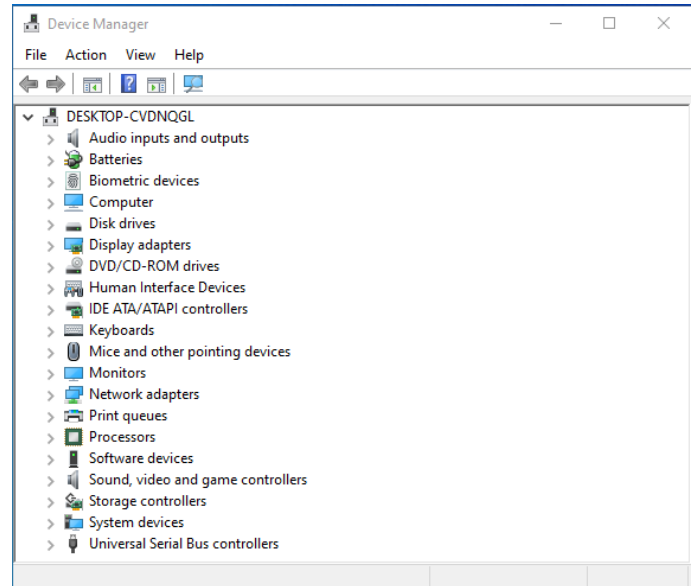


Figure 16. Device Manager Window.

You should visit the Registry ("registry"> Registry Editor > Yes, to allow changes) only if you know what you're doing! See Figure 17. Since XP days, I haven't done this, and Windows 10 allows far safer ways to change its configuration. If you must work here, be sure you have everything backed up first.

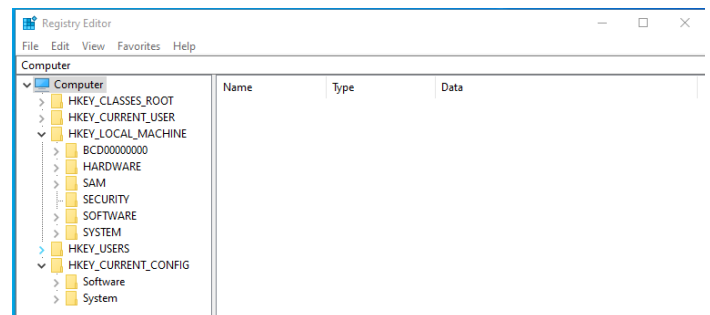


Figure 17. Registry Editor.

As you explore your PC, you'll find much that needs explanation. Consider these puzzles to be opportunities to guide your reading in a good book or your Internet searches.



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