

## THE COMPUTER CORNER

### **No. 305: What To Do With Old Computers?**

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In the last paragraph of the last article, I hinted that old machines should be given to me. Here is what I do with them.

Laptop or desktop, donated machines are first inspected to see if they are 64-bit units. If they are 32-bit machines, they are no longer useful as computers and are broken down (taken apart) for recycling. That means metal parts go in the metal bin, circuit boards in the circuit board bin, plastics in the garbage bin (computer plastics currently cannot be recycled) and so on. My recycle site does take circuit boards and all metal, though, and some of the metal may well wind up in the frame of your next car, so don't let your old computer wind up rusting in a land fill! The disassembly and recycling I do is a service to any hams that provide me with units that have no more useful life as a computer, but may wind up in the melt of some new device or tool. Hard drives from these computers are wiped of data (explained later) or disassembled for metal recycling. In either case, data can no longer be captured from them.

If a unit is a 64-bit computer, it is then inspected to make sure that all the parts are there. For example, cleaned hard drives will be added if they are missing, fans will be added if needed (noisy or slow) and RAM memory may be added if I have it in stock from other units that were recycled. The interior of the machine will then be cleaned of any dust and grime, as well as the exterior, including removal software stickers.

The very next step is to fire up the newly cleaned computer and wipe the hard drive. That means running a data-destructive program that starts at the very first bit on the drive, sets it to a one, then to a zero. Then it moves on to the second bit, and so on, until the first byte (8 bits) is wiped clean. Then it goes on to the next byte, and the next, and the next, until all the bytes on the drive have been so wiped, up to 500 gigabytes or a terabyte, or whatever the drive capacity is. Then the program returns to bit one at the drive beginning and starts the complete process again. When done, it again moves back to the first bit and starts the whole process for an entire third pass.

This three pass wiping insures that no one can ever read old data from the hard drive, even using the side-of-track scanning methods that some governmental agencies employ when it is deemed worth the huge sums these covert methods cost to run. Thus, every bit of data, including all private data, any viruses or other malware and even the basic formatting of tracks, is gone forever. Any error messages from the wiping software during this process will alert me to a defective drive; the wiping is then halted and the drive is recycled by disassembly as mentioned earlier. If the wiping completes with no error messages, the drive can be used again because now it is in

the same state as it was in when completed in the hard drive factory after manufacture. Of course, it will not boot because it has not yet had a proper format of tracks and other data-organizing areas, but that will come.

As you might guess, the above process takes time. In the very fastest desktop machine, a half-terabyte drive might take overnight to wipe the three passes completely. It can even take 24 to 36 hours or more, depending on machine speed, installed memory and size of the hard drive. When done, it is ready for data.

I then mount the latest 64-bit Linux Mint Cinnamon on the drive. If you read this after the end of June 2023, this will likely be version 21.2, "Victoria". Why this operating system? For several reasons. 1. This operating system can do just about anything that Windows can do. 2. It looks much like Windows 10 to the operator, so the learning curve is minimal. 3. Unlike Windows, it is free of cost.

The process of installing Linux also formats the drive with an excellent system for holding data, which is superior to that used by Windows (less like to garble or loose data). Furthermore, installation includes Libre Office, a Microsoft Office equivalent (and more). Look at the comparison:

Microsoft Office Component	Type	Libre Office Component
Word	<b>Document</b>	Writer
Excel	<b>Spreadsheet</b>	Calc
Access	<b>Database</b>	Base
Powerpoint	<b>Presentation</b>	Impress
---	<b>Drawing</b>	Draw
---	<b>Formula</b>	Math

Libre Office can also read and even write data in Microsoft format. So, if someone sends you a Powerpoint presentation, you can open and read it on your Linux machine. The same is true for documents written in Word, and so on.

Installation of Linux also automatically includes the Firefox browser. The email program Thunderbird works fine, too, should the user wish to install it. There are also a myriad of programs that are either automatically installed with Linux or are available for download and installation by the end user. There are currently around 30,000 programs available to be added to a new Linux installation. Plus, there is software you can install that will allow you to run Microsoft programs on your Linux installation, or even Windows itself. It is truly a universally adaptable operating system. That is shown to be true by the fact that almost every modern smart phone uses Linux as part of its controlling software package.

OK, so Stan now has an older Windows machine that has been wiped clean and has a fresh copy of Linux on board. What does he do with it? Simple. It physically goes to the Ozaukee Radio Club for auction at the next monthly meeting. It is auctioned, for as little as \$10 or as much as \$50 or \$60. Half of those funds go to the ORC STEM

(Science, Technology, Engineering, Math) Program, to benefit young folks education in these areas. The other half goes to OZARES, the Ozaukee County ARES/RACES ham organization that trains members and prepares for emergency communications. Both are worthy organizations, run and staffed by volunteer hams. And those older computers that are still useful have found a second life. Sounds like a win-win situation to me! So go rummage in your closet or basement for any old computer that is just gathering dust, and get it to me for reuse or recycling. Happy Computing!