

No. 154. An Approach to Rebuilding a Computer

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Is your old XP computer slow and sluggish? Does it give you problems and frustrations? Or, do you have an old beater besides your main machine that you would like to refurbish and put into service? Maybe it might be good networked with your main machine, as a place to send backup files. Or even to use when your wife or kids have taken over the main machine. How do you approach the process of refurbishing it? What do you need in hand when you start?

I have been rebuilding and distributing computers for ARES/RACES units throughout the state for over 15 years, with the grand total now approaching 1,000 machines. Having done it over and over, I have a pretty good idea of how to approach the project. Here are some guidelines.

First, take stock of the hardware. Is the CD-ROM drive working properly? Would you like to replace it with or add a DVD Read/Write drive (these can read and burn both CDs and DVDs)? These are not expensive (around \$50 maximum) and might be a good addition. How about memory? Adequate memory is a key to good performance. Memory is cheap at present, and even a refurbished beater should have a minimum of 1 Gb. Two gigabytes of memory is better. If you have any inclination to upgrade to Windows 7 now or in the future, make the target 4 Gb (but no more). Look at the number of memory slots available on the motherboard. If there are only two, it may dictate what size (number of megabytes) you need to get. Look in your owner's manual, if you have one, to see what kind (style) to buy. If you have no manual or idea what kind to get, pull one existing stick out and copy the numbers; then you can search the memory manufacturer's web site (such as crucial.com) with some confidence. What about a hard drive? For XP, you can easily work with a 40 Gb hard drive. On the other hand, if you work with a lot of photographs, a really big one is better – 500 Gb or more. If the old hard drive is good, you might want to keep it as the main one and add a second one to beef up the total space. Remember, if you use space wisely and don't keep a lot of photos on the machine, a huge drive is not necessary. Even 80 Gb is fine for an average machine. Finally, acquire (if you don't already have one) an installation disk for XP that includes Service Pack 3. Do not depend on any "restore" disk that came with the computer, unless it explicitly states that it is a full operating system, including SP3.

Now, prepare the machine. Open the covers and clean out the dirt. Pay particular attention to the dust bunnies under the cooling fan on top of the Central Processing Unit (CPU). That main chip on the motherboard is the brain of your computer, and dust prevents proper airflow and cooling. If you are up to it, remove that fan and blow out the fins on the heatsink with canned air. Or, a small paintbrush is useful to loosen the dirt and a shop vac helps pull it out. Also, clean out the power supply grills (both interior and exterior). Get all the dust and dirt out of the machine.

Now replace whatever hardware you have acquired for the job. If changing the CD-ROM drive or hard drive, make sure the jumpers are set correctly. Look at the jumpers on the old units. If set to CS (cable select), make sure the new ones are also set that way. Remove the old memory, blow out the slots, and then install the new sticks. Now, fire up the machine and make sure it starts properly. If you hear beeps and see nothing on the screen, you have a memory problem. Solve it before proceeding.

Now comes the really important part. Your goal is to completely wipe (not just erase) everything on the drive. More explicitly, you need to restore the drive to the condition it was in when it came out of the factory (except for subsequent wear). Every byte on the drive needs to be set to zero. To do this, go to majorgeeks.com and search for Darik's Boot and Nuke. That (free) program will prepare a bootable floppy disk, CD-ROM or even a thumb drive copy. Boot with it and let it go to work. When finished, the

drive will be blank. I mean REALLY blank. There won't even be partitions on it, which you need to restore.

The easiest way to partition the drive is with Partition Magic (this costs dollars), or with a similar program such as Parted Magic (free ... again, at majorgeeks.com). I suggest you partition it as follows for a 40 Gb drive: C: 25 Gb; D: 10 Gb; E: 5 Gb. For an 80 Gb drive, just double what is shown for a 40 Gb unit. The C: drive is for Windows. The D: drive is for the programs you install. The E: drive is for your creations – letters and other documents, photos, database data files and the like. Segregating your creations on an E: drive will make future backup efforts much easier. It also adds a modicum of safety.

During the partitioning process, you will be asked what sort of partition you want to use. If you take my advice, select FAT32. If you ever have problems with the drive, there will be a much wider range of software that can help you out of a tight spot. There are a bunch of other reasons, too, which I won't go into now. Just select FAT32 in place of NTFS. And, do not forget to make C: the Primary drive and set it to Active. Otherwise, you won't be able to boot from it. Partition Magic also gives you the option to format the drive during the partitioning process. Do it. Tell it to format both the C: drive and the D: drive. Since D: and E: are both in an extended partition, formatting D: will also format E:

Now, having said all that, if you put your Windows XP Installation disk in a machine with a wiped drive, it will partition and format the drive for you. But, it does it as one big C: drive, and that is not desirable. Do the Partition Magic/Parted Magic thing. If you mess up, you can always wipe it and start again. If you are successful, you will come out with a more flexible, user-friendly system.

Assuming you have correctly partitioned and formatted with Partition Magic or Parted Magic, you are ready to add the Operating System (OS). Put in your Windows XP installation disk, restart the machine and follow the instructions. It is fun, and you will be the proud owner of a freshly rebuilt computer with a fresh copy of the OS. Get it up and running, and go to Windows Update. You will need to download and install well over 100 updates! Just keep going to Windows Update over and over until it tells you that there are no more updates you need to download. Give yourself a full afternoon for that task. Add the free Microsoft Security Essentials (antivirus and antispyware). You need no other antivirus or antispyware programs – the free Microsoft program is more than sufficient. Other (free) must-haves are CCleaner, Glary Utilities, Auslogics Disk Defrag and Defraggler. Add them all and learn how to use them. Then, defragment the machine (overnight) and you are ready to go!

If you have any questions before starting, or any troubles during the process, contact me. I will be happy to help. My phone number and email address is at the top of this article.

Happy Computing!