



IH Interface: Chasing the Technology: It's Always Time to Upgrade!

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Chasing the Technology: It's Always Time to Upgrade!

William J. Daniels and Stanley Salisbury, Column Editors

Reported by Stan Salisbury

Last week, as I was gathering material for this article, my wife found a quote in the newspaper she thought I would appreciate. It said: "I just bought a new computer and I'm going to brag about it for the next two weeks, until it becomes totally obsolete." We all know the computer and information technology train is on the fast track, and its engine just keeps on accelerating. That's good if you're about to purchase a new system. You can get tremendous computing power for your money. Processor speeds have nearly doubled within the last year. For example, at the time of this writing, a new system with a 233MHz MMX™ enhanced processor, 32MB RAM, 20× CD-ROM, 56K modem, and a 3.2GB hard drive was priced at under \$1000. What's bad is that after you buy that new system, the technology train races on, and you're left standing at the station with your no-longer-new PC.

If you work for a large company, university, or government agency, your main concern is that your system does what your job demands. As for upgrading the software and hardware, that's your computer support staff and MIS department's problem. That's a demanding part of their job. When they're not tied up fixing what's broken, they're learning new systems and trying to complete a never-ending list of computer system hardware and software upgrade tasks.

So where does that leave the rest of us who don't have the luxury of a computer support staff? Even if you have computer support, your access to that support may be severely restricted if, for example, you're a telecommuter working out of your home. If you work for a small company, operate your own consulting business, or just operate your own home-based computer, you're pretty much on your own when it comes to keeping up with the technology. If you just let well enough alone after buying that brand-new computer, in a year or two that state-of-the-art system may no longer be able to run

the latest software. If that "I must have it" application comes your way, you're stuck. You must either upgrade your system or pitch it out and buy a new one.

Costs being what they are these days, if your system is over 3 years old and you have failed to keep it upgraded, buying new may be your best option. However, starting over with a new system is not necessarily a painless process either. Transferring your favorite old applications and data files to a new PC and making it all work smoothly with a newer operating system can be a very frustrating and time-consuming experience. Even if you have a new system, in the long run you need to set aside some time for upgrading.

Preparing to Upgrade

So where do you start? You start by knowing what you have. Study the specification sheets supplied with your system. Determine the type of memory your system uses. Find out who manufactured the primary components. One of the best ways to gather this information is to use the software utilities supplied with your system. If you're using Windows 95, you can double-click on the "system" icon in the Windows 95 control panel to bring up the "system properties" dialog box. Next, click the "device manager" tab to display a view of all the device types. Highlight the computer icon at the top of the list, make sure your printer is on, and then click the print button displayed near the lower right corner of the device manager box (Figure 1). This action will print your system resource report. This report will give you about 10 to 15 pages of detailed technical information about your installed system devices, such as your graphics display adaptor, CD-ROM, modem, hard disk drive, mouse, and joystick. Keep this printout with the other documents that came with your system. It can be a useful reference source when you're ready to upgrade some of your device drivers.

Updating Drivers

So why should you care about device drivers? You should care because these drivers are the software instructions that help your operating system control your hardware. One of the best ways to keep your PC system updated is to make sure you're using the latest drivers. Software vendors write and test their applications using the latest drivers, and if your system is using older drivers, the software you purchase may not work properly with your machine. New drivers may also add functions and improve the usability of your system devices.

So where can you find the latest drivers? Start by browsing your PC manufacturer's Web site on the Internet. Their customer support pages should have various search options that will link you to Web pages describing software updates to your particular model and its originally installed components. Make sure the drivers offered are applicable to your system. If in doubt, call their tech support line for advice. Installing the wrong drivers can have serious consequences. If you have a tape back-up system or use another back-up method, now's the time to use it! Some of the more useful updates include installing the latest drivers for your sound card, video display adapter, and modem. Solutions to problems you encounter with your system may also require installing newer drivers.

Downloading and installing these updates is often a simple process, thanks to the install wizards that are incorporated into the compressed download files. Just tell the browser where to save the file. After you log off the Internet and close the browser, close any other applications you may have running and click the Windows 95 start button. Click run, and then browse to open and run the file where you previously saved the download. After that, just follow the prompts and the rest is pretty much automatic. You can make the process even easier by creating a folder where you'll always plan to keep these downloads. If you already have such a folder, you can gain quicker access to it by just right-clicking on its

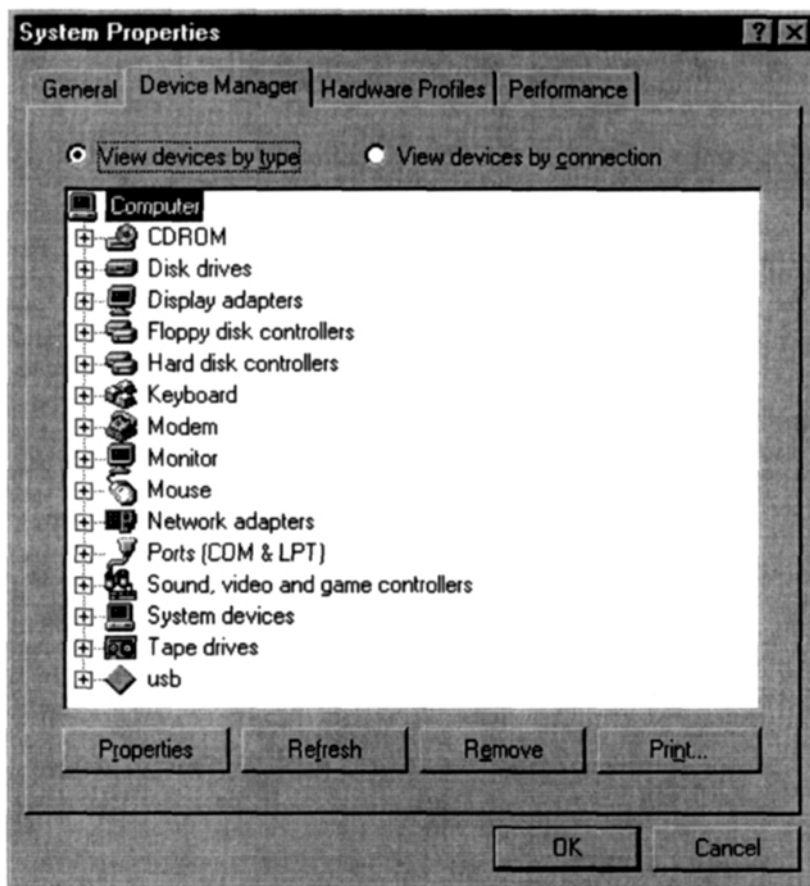


FIGURE 1. Windows 95 "device manager" tab.

folder icon in "my computer" and dragging it onto your desktop as a shortcut icon. When you release the right mouse button, be sure you select "create shortcut here." Otherwise, you'll wind up copying or moving all the files in that folder to your desktop. After creating the shortcut, you can change the folder icon to give it a unique look.

Upgrading Software

If you haven't been looking to the Internet for your software upgrades, you're missing out. Game patches, utilities, web browser upgrades, operating system updates (and the list goes on) are often available for free at various software vendor Web sites. Many demos are also available to "try before you buy." The main limitation in getting software off the Internet is that some of these files are quite large. A 10MB file can take over an hour to download using a 28,800 modem. Internet traffic can also slow the process down. However, many software patches and fixes are relatively small and can easily be downloaded and installed to

your system. Check Web sites often to keep your favorite software up to date.

If you want a few suggestions from the Internet on upgrading your system, check out the Web site offered by Manageable Software Services, Inc. at <http://www.manageable.com/home.html>. Their free service guides you to Web sites where you can update some of your software applications and hardware drivers. Just download and install their browser helper application called "catch-up." From then on, when you click the "catch-up now" icon displayed on their Web page, your hard drive is scanned to identify applications on your system for which their Web site has update information. After reviewing the list generated from the scan, clicking the "find updates" box will bring up a list of links to Internet sites where you can download the newer software applications and drivers.

Upgrading Hardware

The most effective ways to upgrade your PC include adding more memory, installing a larger hard drive, and installing a faster modem. If you have less than

32MB of RAM in your system, you need to add memory. Before you do, seek advice from your PC equipment manufacturer. Installing memory is a snap. Just snap the memory module into the slot. The main concern is making sure the memory added is of the correct speed and type for your particular system. Also, the amount you add must be compatible with the amount you already have. Refer to the documentation supplied with your PC. Once you know what you need, the only challenge left may be moving hardware components out of the way to gain access to the memory sockets. If you are removing memory modules, be careful not to break the retainer clips, which are sometimes made of plastic.

If your current hard drive is smaller than 2.5GB, you're facing severe operating restriction when running Windows 95. Newer applications use up lots of drive space, and the dynamic swap file that helps Windows 95 operate smoothly with minimal delays uses free drive space. If you expect reasonable performance, you should never let free drive space drop below about 300MB. Installing a new hard drive is not a big deal if you plan to keep using your current drive. Add that new (second) hard drive before your current drive goes down. Instructions supplied with the newly purchased hard drive will lead you step by step through the installation process. For some systems you may need to purchase a new hard drive ribbon cable or mounting hardware. Older systems may also need a BIOS update to support drives larger than 500MB. If you're not comfortable taking on this job yourself, get help from a friend or co-worker.

At some point you will want to make the new drive your primary drive. This will involve copying the entire contents of your old drive to the new drive. Making your new drive the primary drive may simply involve swapping positions with the old drive on the hard drive ribbon cable. The main point in all this is that eventually you're going to need more hard drive space and your current hard drive may eventually fail. So start planning now for how you want to recover your system when that day comes. Think about the time you've already invested in getting your system configured the way you want it, and ask yourself if you want to go through that process again.

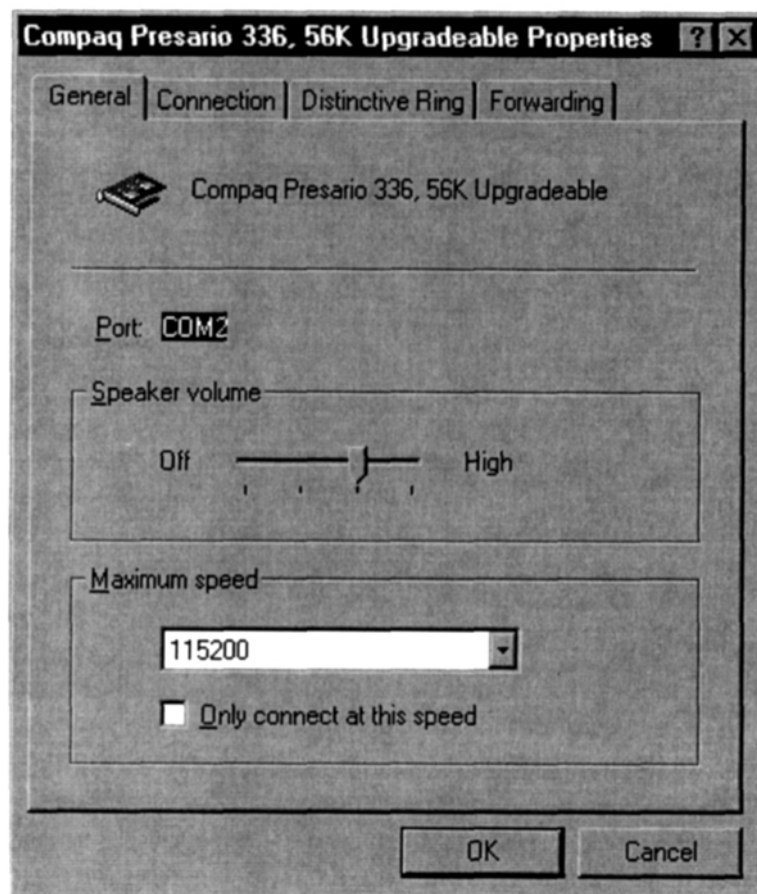


FIGURE 2. Windows 95 modem configuration.

Adding that second hard drive or a tape back-up system can be time well spent.

Upgrading a Modem to 56K—My Experience

From the previous discussion, one might assume that upgrading is a smooth and easy process. As you will see, this is not always the case. So with that lead-in, let me share with you my experience in performing a software upgrade of my 33,600 fax/modem.

When I purchased my computer in April 1997, the manufacture specifications sheet indicated that my modem was "software upgradeable" to 56K. Having done my homework after purchasing my computer, I learned that my modem, when upgraded, would be compatible with the K56flex protocol. I was also aware that my Internet Service Provider (ISP) would be supporting this protocol. To clarify for those who may not have followed the news about the 56K standard, throughout most of 1997 two competing 56K protocols were being mar-

keted: X2 from 3Com (formerly US Robotics) and K56flex from Lucent Technologies and Rockwell International. I'll revisit that subject later. Anyway, the software to upgrade my modem was supposed to be available by late 1997. Well, as expected, the schedule slipped and my computer manufacturer was unable to tell me when the upgrade software would be offered. I was told I would be notified, and that when available, it would cost around \$35. Much to my surprise, when browsing for any new information about my system in the manufacturer's Web site, I found the software I had been waiting for. I guess that's how high tech companies define notification these days. I was also surprised to learn that it was free, so why should I complain about not being notified? I immediately downloaded and installed the software. Just as advertised, my 33,600 modem was now a K56flex-compatible fax/modem. That's the good news.

As for the bad news, as many of you

know, a 56K modem is not really going to give you downloads from your ISP at 56,000 bits per second (BPS). Under ideal conditions, the true limit is 53K. Line interference on normal copper telephone lines prevents speeds above that rate, at least for now. The more likely connection speed will be somewhere between 42,000 and 46,000 BPS. You may not even be able to use 56K if your home or office telephone is over 3½ miles from the telephone company switching station. Furthermore, the communication path must have only one analog line from the home to the telephone central office. The rest of the path must be digital. These modems cannot ignore more than one analog/digital conversion, and the central office must connect digitally with whomever you are calling, which for most of us is our ISP. That also means that you will not be able to communicate directly with another compatible 56K modem at speeds above 33,600 BPS because that would involve more than one digital-to-analog conversion in the communications path.

Believing I had anticipated and understood the 56K modem limitations, I was still anxious to boost my connection speed. Prior to upgrading, I was consistently connecting at 28,000 BPS even though my ideal speed should have been 33,600 BPS. When connecting at 28,000 BPS, my Web browsing speed was not all that bad. Web pages, even graphic intensive pages, were downloading in a reasonable amount of time. I wasn't sure if the 56K upgrade would help much, but the instructions for upgrading indicated that if I wanted to put the modem back to its original speed, all I had to do was uninstall the new drivers and reboot my system. I decided to go for it.

Well, it worked. After upgrading, I was connecting to my ISP at 36,000 BPS. Not nearly as fast as I expected, but faster than anything I had achieved previously. The really bad news was that now when connecting at this slightly faster speed, Web pages were loading very slowly, if at all. Frequently I would get only text and no graphics. My link to the ISP would often time-out trying to load a page. Many Web sites would not connect. Whenever I connected to the ISP at speeds above 28,800, I had problems. To make a long story short, I decided I needed to remove the 56K upgrade on my modem. After considerable effort, I

gave up. The older drivers would no longer work with the upgraded modem, and numerous calls to my ISP and computer tech support line failed to find a solution. I concluded that the upgrade was done through some type of "flash ROM" process, and the modem was now forever set to support 56K. I sent e-mail to the ISP, the computer manufacturer tech support line, and the modem card manufacturer asking if the upgrade process could be reversed, but no additional information was offered. It seemed my phone line was just too noisy to support 56K, and now I had no way to put things back the way they were. I was stuck.

I even tried slowing the modem down by reducing the "maximum speed" setting in the modem configuration properties. However, I later learned that this maximum speed setting sets the rate at which Windows 95 communicates with the modem. That speed is a function of the speed of the PC's processor and communications port. For Pentium-class computers, this setting should be set to the fastest rate of 115,200 (Figure 2). It so happens that the speed of the connection to your ISP is fully controlled by Windows 95 and the modem. The user has limited intervention capability to control the connection speed. With the use of modem AT commands and a modification to the modem's S-register, I was able to force the modem to connect at 28,800 BPS. This was done by typing a command into the "extra settings" window of the "advanced properties" dialog (Figure 3). For my modem, S38 = 0 disables the 56K feature. However, these changes were only effective for the current Windows 95 session. If Windows 95 was reset, the "extra settings" modem commands were no longer present. In other words, the entries I had typed in just went away. During boot-up, Windows 95 resets the modem back to factory settings and sets up the modem according to your Windows 95 modem configuration. I suppose those "extra settings" changes could have been made a permanent part of the modem configuration by editing the Windows 95 system registry, but my limited understanding of that process prevented me from pursuing that option.

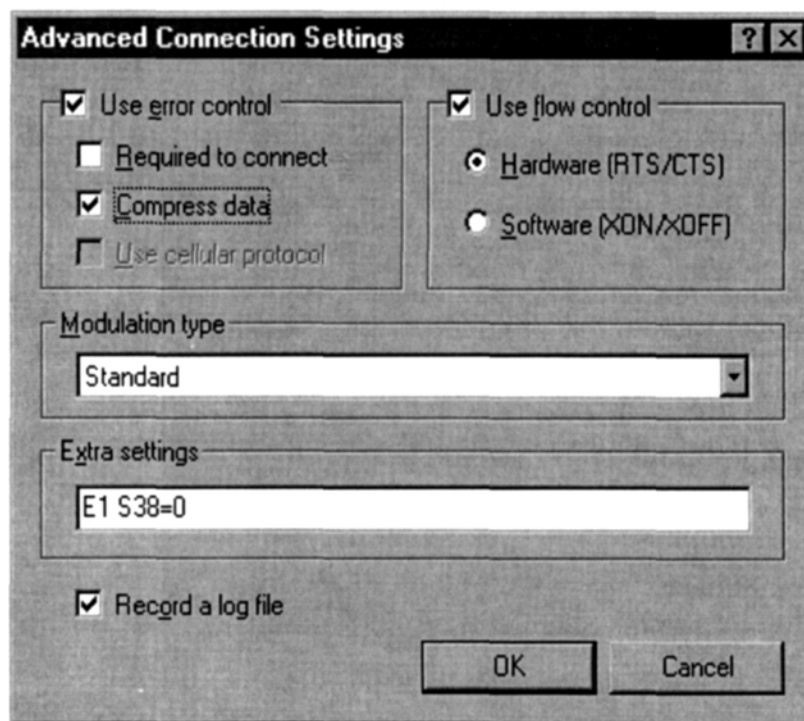


FIGURE 3. Windows 95 modem configuration, advanced.

I assumed my 56K connection problems were caused by a noisy phone line, but there isn't much the telephone company will do for you on that issue. Unless you're willing to pay for a dedicated data line, the phone company probably won't respond to a service call if your phone line supports speeds of at least 9600 BPS. I was connecting at 28,800, so now what was I to do? I decided to go back to the ISP for help. In searching their Web site (when I forced the slower connection to 28,800 using the S register modem AT command), I found my ISP had an alternate phone number for my local area. Although its use was never suggested by their tech support staff, when dialing the other number, my connections were now at 42,000 BPS, and Web pages were loading faster than ever.

As you can tell, upgrading my modem turned out to be a very frustrating experience, but I learned a few things along the way. Chances are you won't have these problems with your new modem, but if you do, maybe my experience will be of some comfort to you. One more

thing about the K56 modem. By the time you read this column, modem manufacturers will be announcing their support of the International Telecommunications Union's new recommended technical specification for K56 modems, designated as V90. The V90 modem standard harmonizes the two competing proposals submitted last year as the X2 and K56flex. Manufacturers of modems that have used the X2 or K56flex technologies will be offering software upgrades to the new standard. So there you go. If you bought a 56K modem last year, you too will have the opportunity to perform a software upgrade. Good luck.

Conclusion

So remember, when you find the time, take some time to keep your system upgraded. If you do, you should get many good years of satisfactory service from that one-time state-of-the-art computer you can still brag about for years to come. If you would like to write me of your various computer upgrade challenges, I'd be glad to hear from you. Just drop me an e-mail at sas4@bellsouth.net.