

ComputerEdge™ Online — 09/25/09



This issue: Firewalls Block the Bad Guys

Software and hardware firewalls are important protection for your computer. Here's what you should know about blocking out intruders.

Table of Contents:

[Digital Dave](#) by *Digital Dave*

Digital Dave answers your tech questions.

A reader wants to copy some DVD movies to a laptop's hard drive; a reader would prefer her Web site windows to open at full size; a reader needs to get a single-outlet surge protector to save his laptop from frying; a senior computer user is concerned about making the transition to Windows 7.

[Firewall Basics: Protect Your PC](#) by Michael J. Ross

Secure your connection to the online world.

Similar to a building's firewall—designed to keep a raging fire out of parts of the building as long as possible—a computer firewall is intended to keep attackers out of networks and individual computers.

[Hardware Firewalls for Data Protection](#) by Dawn Clement

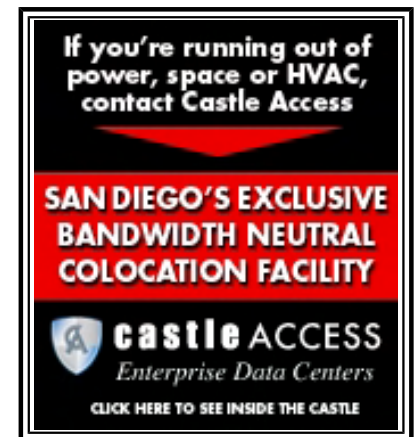
It's a matter of 'when,' not 'if' your computer will be compromised.

Firewalls are an important part of a multilayer security strategy, and buying a simple \$40 router can be well worth the money when you consider the protection it provides for your computer.

[Windows Tips and Tricks](#) by Jack Dunning

The Pop-Up Plague and Windows Firewall

To protect yourself from malware, the basic rule of thumb is never click on a pop-up ad. Also, in most cases, Windows Firewall will be the only firewall software that you will need. (But a router is recommended too.)



(Click Banner)



(Click Banner)

[Wally Wang's Apple Farm](#) by Wally Wang

Firewalls and the Macintosh

The simplest firewalls simply block most inbound connections from the Internet into your computer, which effectively blocks worms. Also, a discussion of using Windows on a virtual machine to make security easier; a look at Drive Genius 2, which can analyze a hard disk and repair problems before they turn into massive data-gobbling catastrophes; and a tip on using QuickTime Player to capture a sound.

[Linux Lessons: Tips and Tricks from Users](#) by ComputerEdge Staff

Linux users share ideas and ask for help.

Some information on using Wine for Windows emulation on Linux; and a call for comparison information on the various distributions of Linux.

[Rob, The ComputerTutor Does VB.Net 2010](#) by Rob Spahitz

Sticky Stacky

Last week, we looked at using common dialog controls. This week we'll start to wrap up our Sticky Note application.

[Worldwide News & Product Reviews](#) by Charles Carr

The latest in tech news and hot product reviews.

Roddenberry's Mac on the Auction Block—An upcoming offering of Hollywood memorabilia includes Gene Roddenberry's early Macintosh; Tips for Avoiding Webinar Pitfalls—America's corporations are cutting travel and entertainment costs and going green by holding large meetings online; ViewSonic VG2227wm 22-Inch Monitor—A review of the multimedia solution for business professionals and gamers.

[ComputerQuick Reviews](#) by ComputerEdge Staff

Computer Product Opinions from ComputerEdge Readers and Staff

A reader feels that social networking sites like Facebook are simply glorified chat and message centers. Also, a call for information about using your computer for music entertainment.

DEPARTMENTS:

[EdgeWord: The Coming Windows 7 Boom](#) by Jack Dunning

Will the new OS be a shot in the arm for the economy?

Most of the Windows world has been waiting for Windows 7 to emerge, and they won't be disappointed.

[Editor's Letters: Tips and Thoughts from Readers](#) by ComputerEdge Staff

Computer and Internet tips, plus comments on the articles and columns.

"Acronyms and Initialisms," "Setting up a Webcam," "Bootling from a Thumb Drive," "Going VoIP"



(Click Banner)



(Click Banner)



(Click Banner)



(Click Banner)

[Return to Table of Contents](#)

Digital Dave

“Digital Dave answers your tech questions.” by *Digital Dave*

A reader wants to copy some DVD movies to a laptop's hard drive; a reader would prefer her Web site windows to open at full size; a reader needs to get a single-outlet surge protector to save his laptop from frying; a senior computer user is concerned about making the transition to Windows 7.

Dear Digital Dave,

I am planning a trip across the country. Please tell me how I can record some movie DVDs to my laptop's hard drive. There is a DVD player/recorder on the computer.

Alex

San Diego

Dear Alex,

Hollywood doesn't want you to copy your DVDs at all. That's why they encode them with copy-protection, which of course makes the process a little more difficult. The movie industry is afraid of losing profits through piracy.

However, as more people start using their computers to play DVDs and home network hard drives for their home entertainment system, the desire to copy movies to one convenient location grows. As an owner of the DVD, it is your rights to make backup copies for your own use. This has been well tested in the courts, especially in relation to music CDs. Therefore, in theory, you should be able to copy whatever you want to your hard drive for personal use—as long as you own the original. But there is a Catch 22.

The Digital Millennium Copyright Act (DMCA) (en.wikipedia.org/wiki/Digital_Millennium_Copyright_Act), while not making it illegal to make copies of digital media, does make it illegal to break any copy-protection encoding. The copying is OK, but bypassing the encoding in order to make a copy is illegal. The teeth in this law are so strong that sites distributing code-breaking copying software can be forced to close down almost on a whim.

Although aimed at piracy, ironically, the law only makes it more difficult for honest owners of the DVDs. Pirates have no qualms about breaking the protection schemes, since they are already engaged in illegal activities. The DVD purchasers, such as yourself, are forced to either carry their discs with them or break the law merely for their own personal use. In the long run, the pressure to make it easier for people wanting to build a DVD library on a hard drive will win out—one way or the other.

Having said all that, yes there is software that will solve your problem. Since the Internet goes virtually everywhere, it is generally distributed through sites located where the attitude toward breaking copy-protection is a little more lax. I don't have any specific recommendations since I don't bother to backup my DVDs, but a search of the Web will give you some options. (The Google search "copy DVD to hard drive" should yield some forums that will get you on track.) Perhaps other readers will have some thoughts on the topic. Regardless, Hollywood is determined to make it as difficult as possible.

Digital Dave

Dear Digital Dave,

I hope that you can answer this question for me. I have searched the Internet for days looking for a way to open my screen in full view. Every time I pull up a Web site, the screen is minimized. I've tried stretching the screen to full view, but the next time I open it it is right back to being small. I appreciate any assistance. Thanks!

Renee

Tampa, FL

Dear Renee,

If you close all copies of your browser except one, then maximize that last window before closing it, it should open maximized the next time. For more details, see my June 5 answer to a similar question from Sandy W.

Digital Dave

Dear Digital Dave,

I am asking an old road warrior such as yourself any advice on what to look for and where to get a single-outlet surge protector? I ask because I do not want to fry my notebook computer.

John Morgan

Escondido, CA

Dear John,

The probability that you will fry your notebook computer is relatively low, but if it happens to you, you will always wonder if a surge protector would have helped. Some devices will offer a reasonable amount of protection, while other so-called surge protectors offer almost none.

One thing that should be addressed up front is that there is no surge protector that will guard against lightning strikes. If you're concerned about a brewing electrical storm, you need to unplug all wires and cables from the computer (and move it away from walls that may have wires, pipes, and/or cables inside them). Lightning has little regard for surge protectors.

The purpose of a surge protector is to guard against electrical power spikes that could be harmful to electronic equipment. They work as a circuit breaker and/or redirect power spikes to ground (the third prong on the power plug). How well they work depends upon how robust they are designed. There is some correlation between the price and quality—although price alone is not a reliable indicator.

There are three primary specifications for surge protectors.

- Clamping voltage
- Energy absorption
- Response time

The problem I've found is that when you're looking at off-the-shelf devices, it is rare to find all of these specs on the packaging.

Clamping voltage is the voltage level at which the protection will start to kick in. The lower the better. Your notebook power supply will be getting from 120 volts AC (US) to 240 volts AC (Europe). The protector should be 400 volts or less.

Energy absorption is how much electrical energy will be redirected to the ground before the device fails. The higher the better. This is probably the most important rating. While 200 to 400 Joules is said to be the minimum acceptable, I've seen low-cost protectors with a ratings of over 2,000 Joules. I would go for that.

Response time is how quickly the protection kicks in. The shorter the better, since your equipment could get fried in the meantime. Look for less than one nanosecond—if you can find it listed at all.

I consider the extra hookups in the surge protectors for modem and network cables a gimmick. The likelihood of getting electrical damage via one of those cable is about likely as a lightning strike—in which case the surge protector won't help anyway.

It's good to have a protection indicator light to tell you if your protection is still functioning. When the protection is burned out, the device will continue to deliver power although offering no safety.

The other thing to consider is that the surge protector will not protect you from the other devices you plug into it. So, if you have a creaky old room fan plugged into the protector with your computer, there will be no protection from any spikes the fan may cause.

Some people say that the laptop power supply will protect against power spikes. To some degree this is true. Since transformers are used to convert the AC (alternating current) to the DC (direct current) that is used by the computer, there is some level of power variation that will be absorbed by the power supply. This may not be enough for large power spikes, plus the supply may be damaged. Even if the part you save is the power supply itself, it's worth the price of a surge protector.

Surge protectors are available almost everywhere. Just make sure that at least the energy absorption is listed on the packaging.

Digital Dave

Dear Digital Dave,

There are thousands of seniors who will not easily slide into the new world of the Windows 7 and Microsoft updates that are going to hit us now. Especially since we're still not into Vista, but just love Windows XP Professional.

Dave, how will we do it? Dragging us into buying and learning new equipment and finding "Idiots for Seniors" books or classes at this stage in our lives. We'll do it, but how?

*Steve Dorseman
San Diego, CA*

Dear Steve,

First off, if your Windows XP computer is still doing the job for you, there is no need to move to a Windows 7 computer. I would recommend that you wait until you feel you need a new computer before you take the plunge. The risk in upgrading a computer from XP to Windows 7, while not as iffy as Vista, is determining whether it's suitable for your older hardware. (I see that there is link to a Microsoft site for checking your hardware compatibility with Windows 7 in the section on Windows 7 Upgrade Advisor in Windows Tips and Tricks dated May 15.) The upgrade process is not something that you need to take on.

When it comes time to get a new computer with Windows 7 preinstalled, I don't think that you will find the transition as difficult as you think. Most of the pieces are in the same place on the screen, and most of your XP shortcuts will still work. Just as in XP, you can place the program shortcuts on your desktop or the taskbar—only in Windows 7, the taskbar quick launch also acts as your first tab for that program. You will find this a plus since, unlike XP and Vista, the tabs for the programs you use all of the time will always be found in the same location on the taskbar—rather than random places based on when you opened the program.

One of the big pluses in Windows 7 is a search function that you'll find in the Microsoft Start Menu. (The Start Menu is in the lower left-hand corner—the same location as in XP.) Rather than mousing through a tree of program directories, you can merely type the name of a program and it will appear on the menu. At the same time, Windows 7 will display a list of common

questions that relate to your search. This will help you to learn about those differences that **are** significant in Windows 7.

If you do decide to take advantage of Windows 7, as a seasoned XP user, I think that you will be surprised at how quickly you become comfortable.

Digital Dave



[Return to Table of Contents](#)

Firewall Basics: Protect Your PC

“Secure your connection to the online world.” by Michael J. Ross

Similar to a building's firewall—designed to keep a raging fire out of parts of the building as long as possible—a computer firewall is intended to keep attackers out of networks and individual computers.

Currently there are several different ways of connecting to the Internet, including digital subscriber line (DSL), cable, dial-up, satellite and mobile phone service. Yet all methods generally fall into one of two major categories: broadband (cable and DSL) and narrowband (i.e., dial-up and any other similarly slower technology). American usage of broadband has increased significantly over the years, although we are still lagging behind other countries in broadband proliferation.

Regardless, more Americans every day are making the transition from dial-up to broadband for their Internet service. They are opting for higher connection speeds, despite the correspondingly higher costs, because broadband confers many benefits—greater download and upload speeds composing the foremost advantage. However, there is a downside to broadband service that is unknown to far too many broadband consumers, and rarely mentioned by broadband service salespeople, if ever.

Back in the days when dial-up was the only option, viruses and other forms of malware were spread from one computer to another through users sharing computer programs via diskettes. Sometimes those programs themselves were infected, and other times the boot sector of the diskette turned out to be the malware carrier. Infestation also took place when people downloaded infected programs from dodgy Web sites. But despite the security threats, everyone knew that if they kept their antivirus applications up to date, and scanned every incoming file—regardless of its source or media—then there was little to no chance of falling victim to malware.

But once people began connecting to the Internet via broadband, the situation changed drastically, and not for the better. Many people simply assumed that their Internet connections were more secure, because they were paying more money for the service—when in fact their computers were now more vulnerable to attack by ill-intentioned hackers trying to break into any computer they can find on the Internet.

Your Global Address

The increased vulnerability is a consequence of the broadband-connected computer having a fixed address on the Internet, which is how online troublemakers can try to directly access your computer. In order to better understand how this is possible, consider the system by which your computer is recognized as a part of the worldwide network known as the Internet.

Computers on the Internet are able to communicate with one another by utilizing the Internet Protocol (IP), a standard that specifies the structure of data exchange (in the form of "packets"), in addition to the addressing used to deliver those packets to their intended destinations. Every machine is given a specific IP address. For instance, the IP address currently used by Yahoo for its main Web site is 209.131.36.159. This particular format is known as "dotted quads," and is one of two equally valid formats. In your Web browser's address field, you could use "209.131.36.159" as a valid address, instead of <http://www.yahoo.com/>.

When your computer is connected to the Internet via broadband, the IP address assigned to your computer is not permanent and unchanging. All of the broadband Internet service providers (ISPs) are free to assign your computer a new IP address, at any time, for whatever reason (such as troubleshooting your connection). However, most broadband ISPs do not bother changing people's IP addresses frequently, if at all—for many reasons, including wanting to avoid receiving service calls from customers who believe that they have lost their connections to the Internet, and do not know how to reboot their broadband router (so it can detect and begin using the new IP address it has been assigned).

In the past, if and when you used dial-up to connect to the Internet, your computer's modem dialed into the modem bank of your ISP, and your computer was not as directly exposed to the Internet. But now, hackers can use your IP address to try to "probe" all of the possible connection entryways (called "ports") on your computer, to see if any are unprotected and vulnerable to intrusion. If any such open ports are discovered, then the hackers can gain direct access to your computer's files, and begin destroying your files, using your computer for storing illegal or pornographic material, or turning your machine into a "zombie," designed to spread malware to other unsuspecting users, or engage in denial-of-service (DoS) attacks against any target Web sites chosen by the hackers.

How do such hackers obtain your IP address? After all, because there are millions upon millions of possible addresses, how do they get your particular one? Sadly, they employ the same technique that telemarketers use to get your phone number: They program their computers to try most possible combinations, and see if they get a "hit." So it's nothing personal. Yet that is cold comfort when you discover to your horror—if you ever do—that some online dirtbags have turned your trusted computer into a slave server hosting despicable content and malware.

Harden Your Defenses

There is, fortunately, a simple and straightforward method of defending yourself (short of disconnecting permanently from the Internet and moving to an electricity-free commune). The method is known as a "firewall," and comes in two varieties—hardware and software. Similar to a building's firewall—designed to keep a raging fire out of parts of the building as long as possible—a computer firewall is intended to keep attackers out of networks and individual computers. The specific methods utilized by computer firewalls to achieve this can be technically complicated. So we won't go into the details. What is most critical is that firewalls work, and everyone connected to the Internet should use one—regardless of whether they are using broadband or narrowband.

Hardware firewalls are usually found in routers, which are fairly small devices used for routing traffic within a network, including a simple home network that you might set up for allowing everyone in your household to share the same Internet connection. A router acts much like a traffic cop (but without the speeding tickets), sending Internet requests from all of your home computers out through the same Internet connection, and then directing the responses from the Internet back to the appropriate computer in your home network.

There are numerous manufacturers of firewall-strengthened routers, including Belkin (www.belkin.com/networking/) and Linksys (www.linksysbycisco.com/) (now owned by Cisco Systems). A router is either wired or wireless, and is usually not too difficult to set up. Once your router is plugged in properly, you can log into it from any Web browser, and then modify the router's settings, including its access password (highly recommended).

Protective Programs

Software firewalls are security applications that can run on your computer, instead of being embedded in another piece of hardware. Examples of such applications include Comodo Firewall Pro (personalfirewall.comodo.com/), Outpost Pro Firewall (www.agnitum.com/products/outpost/), Sunbelt Personal Firewall (www.sunbeltsoftware.com/Home-Home-Office/Sunbelt-Personal-Firewall/), WIPFW (wipfw.sourceforge.net/index.html), and ZoneAlarm (www.zonealarm.com/).

If you are willing to live without the outbound protection of a dedicated firewall program (not recommended), then you could always use the firewall built into Windows XP or Vista—assuming that you are using one of those operating systems. Your Windows firewall may or may not be enabled by default—depending upon your operating system version and service pack—so you may need to enable it yourself. To do so, log into your computer using an account with administrative privileges, and then enable the firewall under Settings/Control Panel/Security Center. Unlike most of the software firewalls listed above, the Windows firewalls are built into the operating system and are thus free of charge. But in view of Microsoft's track record for securing its operating systems and applications, I cannot recommend using any native Windows firewall.

If you have multiple computers at home that you want to connect to the Internet, then probably your best option is to obtain and install a router with a built-in firewall, because you will be needing a router anyway just for networking. Furthermore, a software firewall would be one more application consuming your computer's resources. If you only have a single computer that you want to connect to the Internet, a software firewall would be sufficient.

Yet regardless of whether you choose to go with a hardware or a software firewall, it is critical that you have one or the other up and running at all times to help secure your connection to the online world.

Michael J. Ross is a Web developer (www.ross.ws), writer, and freelance editor. He creates Web sites that help entrepreneurs turn their ideas into profitable online businesses.

[Return to Table of Contents](#)

Hardware Firewalls for Data Protection

“It's a matter of 'when,' not 'if' your computer will be compromised.” by Dawn Clement

Firewalls are an important part of a multilayer security strategy, and buying a simple \$40 router can be well worth the money when you consider the protection it provides for your computer.

A firewall is a device or program specifically designed to block unauthorized communication from the outside world from reaching your internal network. The first network firewalls appeared in the late 1980s and were routers used to separate a network into smaller LANs. Initially, their purpose was to stop an infected computer from passing viruses on to the rest of the network. Firewalls were not used to prevent the viruses from getting into networks for another 10 years. The first security firewalls were basically IP routers with filtering rules, which screened packets based on addresses and packet options.



Joe is building an icewall around his computer to prevent his firewall from over heating.

Firewalls can be hardware or software, and there are three main types: packet filtering (which we mentioned above), circuit gateways (which operate at the network transport layer), and application gateways (which operate at the application level). Firewalls are an important part of a multilayer security strategy. However, they should not be used as the only security measure for a system or network. For example, firewalls can't protect against viruses spread through e-mail or the Internet because both types of traffic are theoretically "legitimate." You should include antivirus software (make sure you keep it updated) and user education into any security strategy. User education is particularly important because no amount of hardware and software can protect you if you click on an infected link, or open an infected file. If you have an "always on" cable or DSL broadband connection, you need a firewall. You should also consider one if you use a dial-up Internet

connection for hours at a time.

Everyone with an Internet connection needs to have some sort of security in place. Unfortunately, there is a criminal element that uses automated software to scan huge chunks of the Internet looking for any unprotected computer that happens to be online. They don't care who you are, and they're doing it as a prank. Modern cybercriminals are after data they can use to make money. They want your passwords, account numbers, Social Security number, and even your e-mail contacts and information about your browsing habits (which they can then sell). The hundreds of millions of owners of those hundreds of millions of compromised PCs usually have no idea that their computer is infected, and without security measures in place, they unknowingly proceed to infect other computers as well.

Fiserv, a provider of financial services technology solutions, recently announced the results of a consumer survey that found that more than two million U.S. households had adopted online banking and bill payment during the last year. A total of 69.7 million households, representing four out of five households with Internet access, now use online banking services, primarily to access balance and account history and transfer money between accounts. In addition, 64.4 million households pay at least one bill online, either at a bank Web site or directly at a

company Web site. That's a whole lot of really sensitive information, and it is extremely tempting to cybercriminals. In fact, the federal government estimates that 26 percent of total identity theft is credit card fraud (when someone acquires your credit card number and uses it to make a purchase), and 17 percent is bank fraud (check theft, changing the amount on a check, and ATM pass code theft).

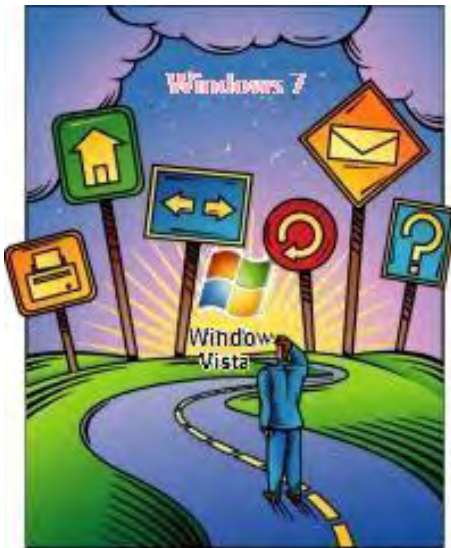
The most recent Trojan (a type of computer virus) wreaking havoc in the U.S. and Great Britain is Clampi, which infects computers when users visit a Web site that hosts the malicious code. Clampi sits idle until the user logs into a financial Web site; then it captures log-in and password information and sends it to a server run by the attackers. With this information, the attackers can drain accounts and run up credit cards. According to SpyBot, there were 287,524 viruses and the number is constantly growing. Included in this number are various types of malware ("malicious software"), such as viruses, Trojans, rootkits and worms. Some of these programs engage in destructive behavior on the systems they infect—they can delete or alter data on the hard drive, or alter Registry files. Some of them steal information by using keystroke loggers. Some of them clog e-mail servers with millions of copies of themselves.

The first computer worm was an accident, and was unleashed on the Internet in 1988. It was called "The Morris Worm" and used sendmail, fingerd, and rsh/rexec to replicate, eventually bringing down 10 percent of the Internet (at that time, only about 60,000 computers strong). By contrast, the "ILOVEYOU" worm was deliberately released in 2000 and more than 50 million users reported infections, including the U.S. Senate (which actually had to shut down its e-mail servers). It is believed that the "ILOVEYOU" worm did more damage than any other malicious program in the history of computing. The threat of a computer infection of one sort or another is not a matter of "if" but "when and how bad." That's why it is so important to take whatever precautionary steps you can.

A router can be used as a hardware firewall. A router acts as a firewall because it protects you from hackers and worms that are scanning the net for IP addresses and port numbers in order to get into your computer. The IP address assigned by your provider is actually the router, which then gives an internal IP address to your computer or computers. Because the router sits between your modem and your computer or your network, it presents a physical barrier to intruders, and makes it harder to hack your computer or a network. Buying a simple \$40 router can be well worth the money when you consider the protection it provides for your computer. Use the security settings that your router provides, and keep your anti-virus software current. In addition, be smart online—don't click on suspicious links to unknown sites within e-mails, instant messages or social networking sites. Be cautious about doing business with unknown e-commerce sites and always use a credit card, not a debit card (credit cards offer protection for fraud; debit cards do not).

Dawn Clement is a freelance writer, domestic engineer, and mother of three with a Masters of Arts in Philosophy and over nine years experience in technical support.

[Return to Table of Contents](#)



Windows Vista Tips and Tricks

(and some Windows 7)

Windows Tips and Tricks “The Pop-Up Plague and Windows Firewall” by Jack Dunning

To protect yourself from malware, the basic rule of thumb is never click on a pop-up ad. Also, in most cases, Windows Firewall will be the only firewall software that you will need. (But a router is recommended too.)

By default most of today's browsers block pop-up windows. This is a blessing. I consider pop-up ads some of the worst type of advertising. Not only are the windows annoying, but they are a preferred method used by malware practitioners, such as the one Wally talks about this week in his Mac column. If I encounter a site that allows pop-ups, I make a point of not returning. That is one reason why you'll never see a pop-up ad on *ComputerEdge*—at least not while I'm in charge.

To protect yourself from malware, the basic rule of thumb is never click on a pop-up ad, even if it's from a respectable company such as Netflix. Don't even click cancel or close to eliminate the window. It could be a trick designed to infect your computer. If for some reason you do encounter a suspicious pop-up, you need to close it without clicking on it. Here's how to do it in Windows.

As a test, I opened PopupTest.com (www.popupstest.com/), which offers some excellent checks for how well your pop-up blocker is working. I allowed a couple of pop-ups through. See Figure 1.

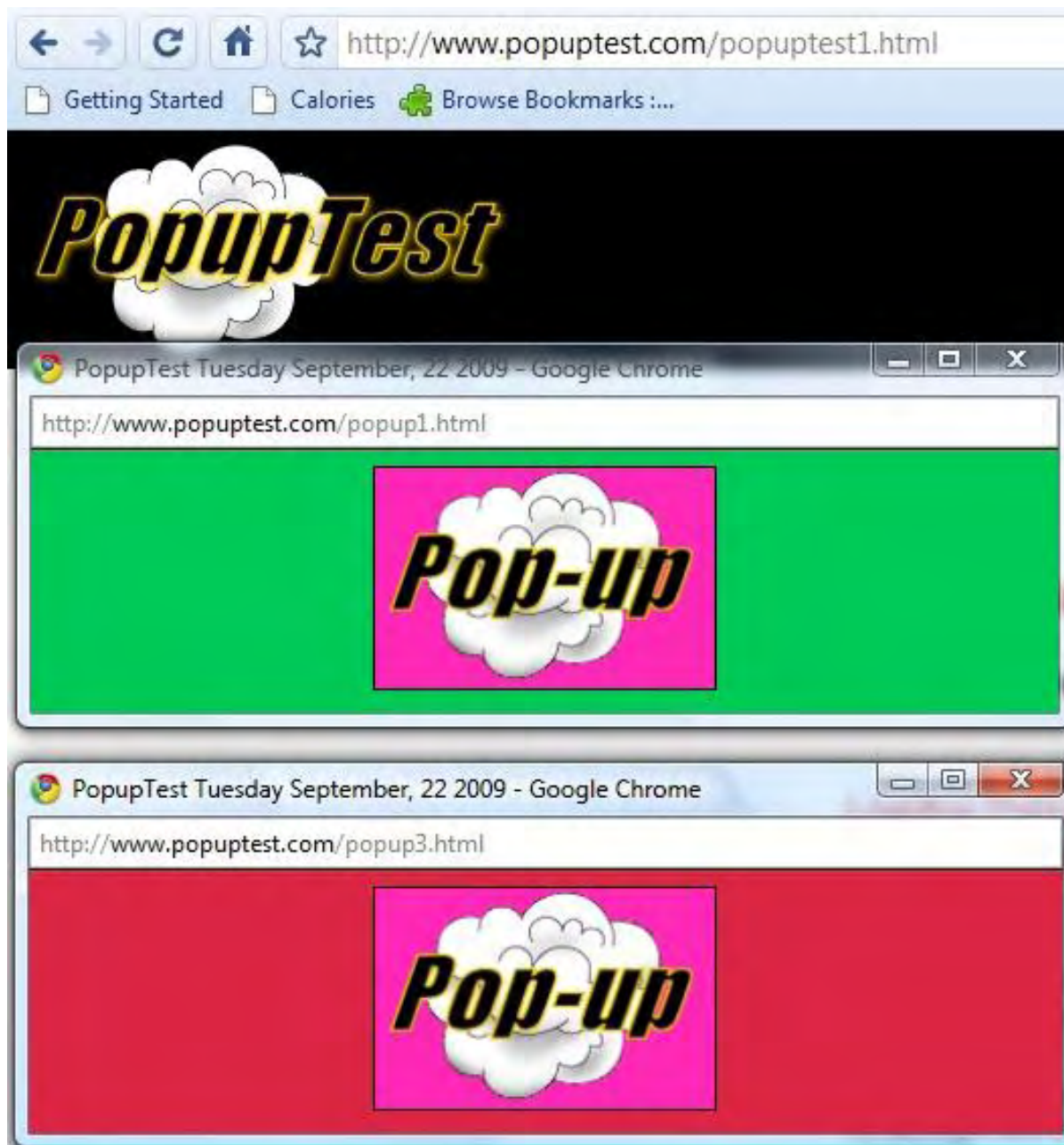


Figure 1. Two pop-up windows.

Since I don't want to click on the window, not even the little "x" in the upper right-hand corner of the window, I need to find a safer alternative. I want to terminate the window without giving the suspicious program a chance to engage. Hold down the key combination CTRL-SHIFT-ESC simultaneously. This will open Windows Task Manager without displaying the logon screen, as would happen if I used CTRL-ALT-DELETE (see Figure 2).

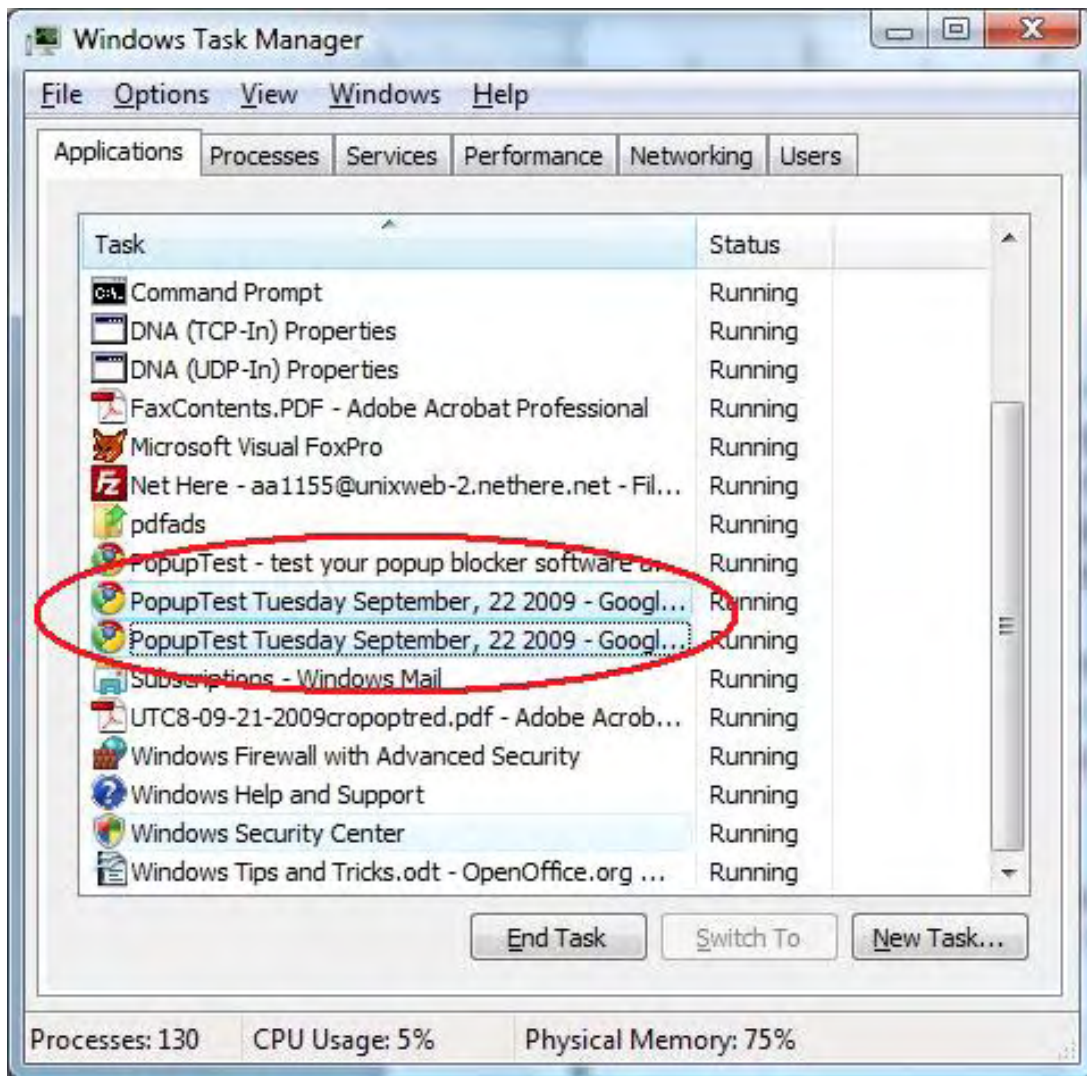


Figure 2. Windows Task Manager.

In the Applications tab, find the target pop-up(s), highlight and click End Task. The rogue window will be immediately terminated without any damage. I use this technique whenever I'm suspicious of a running program. It's better to be safe than sorry. Whenever you're surfing the Web and you get a pop-up warning about your computer being infected, unless you know that it's your virus-protection software (you can also check that in Task Manager), you should use the above steps to terminate the window.

Windows Firewall

By default, Windows Firewall is active. It blocks intrusions that may try to enter your computer from the network or the Internet—unless a specific program changes those firewall settings during installation. (At times, you may need to temporarily disable the firewall for a program installation, but generally, it will be re-engaged after the process is completed.) In most cases, Windows Firewall will be the only firewall software that you will need.

Note: I recommend that everyone install a router on their Internet connection, even if they don't have a network. This will give the added protection of the router firewall. If you do have a router, make sure that it is in the stealth (no response to a ping) mode. This will make it difficult for the bad guys to find and scan your router.

To view your firewall setup in Vista (or Windows 7), type "firewall" into the Start Search field of the Microsoft Start Menu and select "Windows Firewall" (see Figure 3). The program can also be found through the Windows Security Center (called Action Center in Windows 7). In Windows XP, Windows Firewall can be found in the Control Panel with a look and feel very similar to the Windows Vista Settings window (see Figure 4).

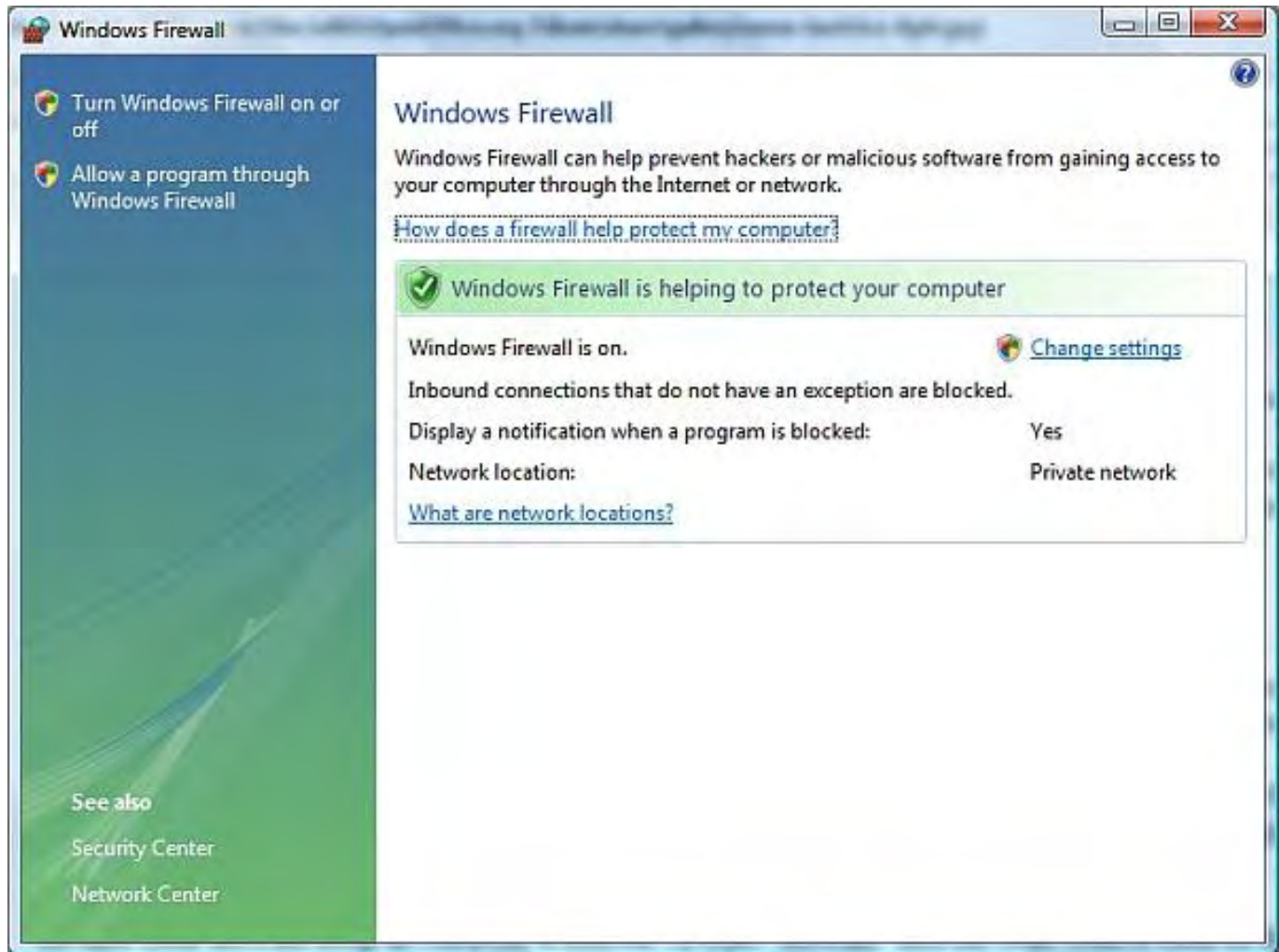


Figure 3. Windows Firewall in Windows Vista.

For the most part you won't need to change the settings on your firewall. The installed programs that need Internet access will open and close ports in the firewall when necessary. The only time you may need to change settings is either (as mentioned above) temporarily when installing or updating specific software or if you have software or hardware that requires you to open a port. (The latter is usually done only with older programs that won't automatically work with the firewall.) To view the programs that are working through the firewall, click "Change settings" on the right side of the window. (In Windows 7, you will click "Allow a program or feature through Windows Firewall" in the left-side menu.) In Vista you will see Figure 4. In Windows 7, you will get a much simpler list of programs that are allowed through the firewall.

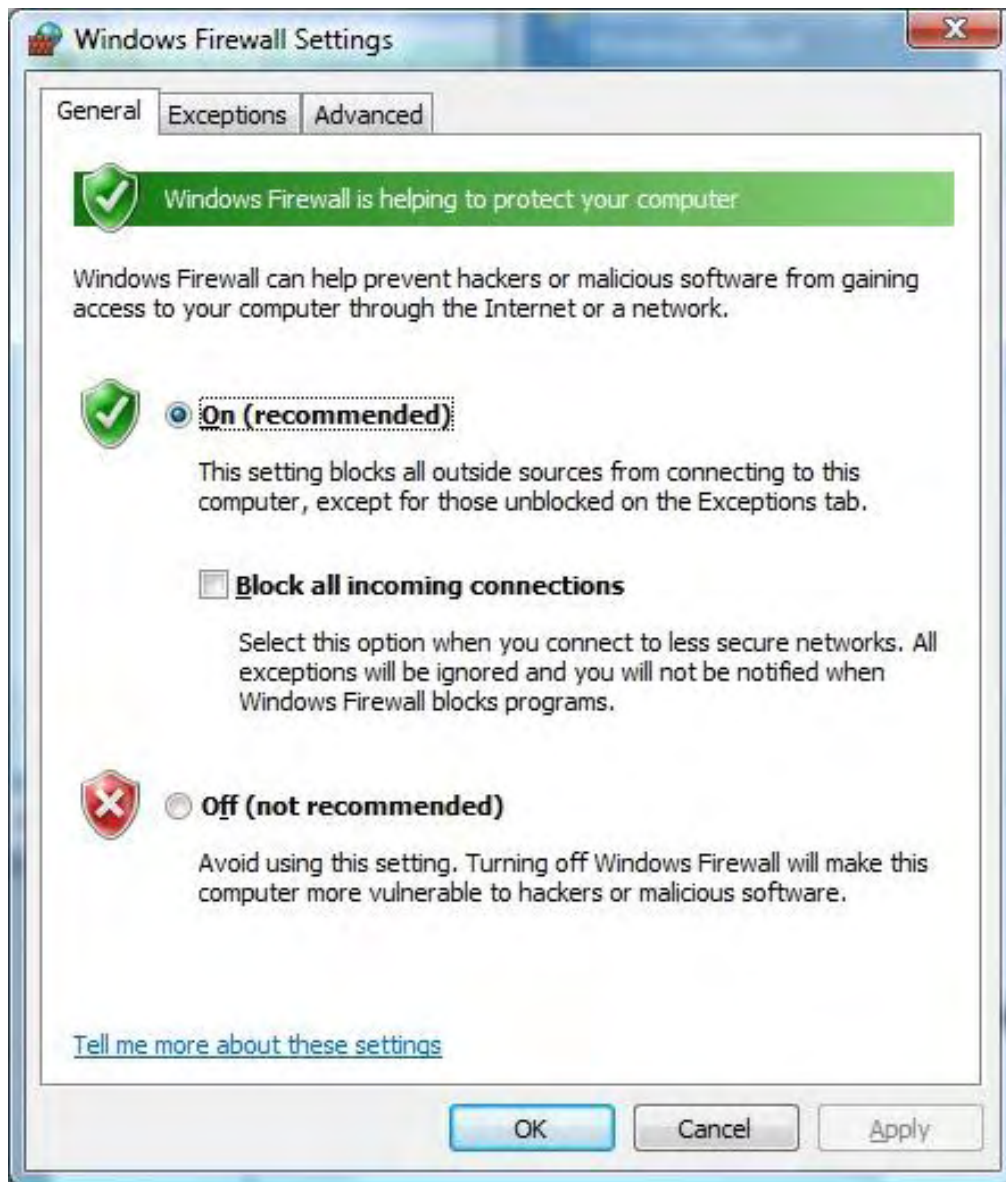


Figure 4. Windows Firewall Settings.

In the Exceptions tab (and the Windows 7 Allowed Programs window), you will see a list of all the programs that are interacting with the Window Firewall (see Figure 5). The checked programs are allowed through the firewall; the unchecked programs will be blocked. These settings may be changed, plus individual ports may be added as an exception. However, before making any changes, you will want to be sure that you are not creating an unnecessary vulnerability.

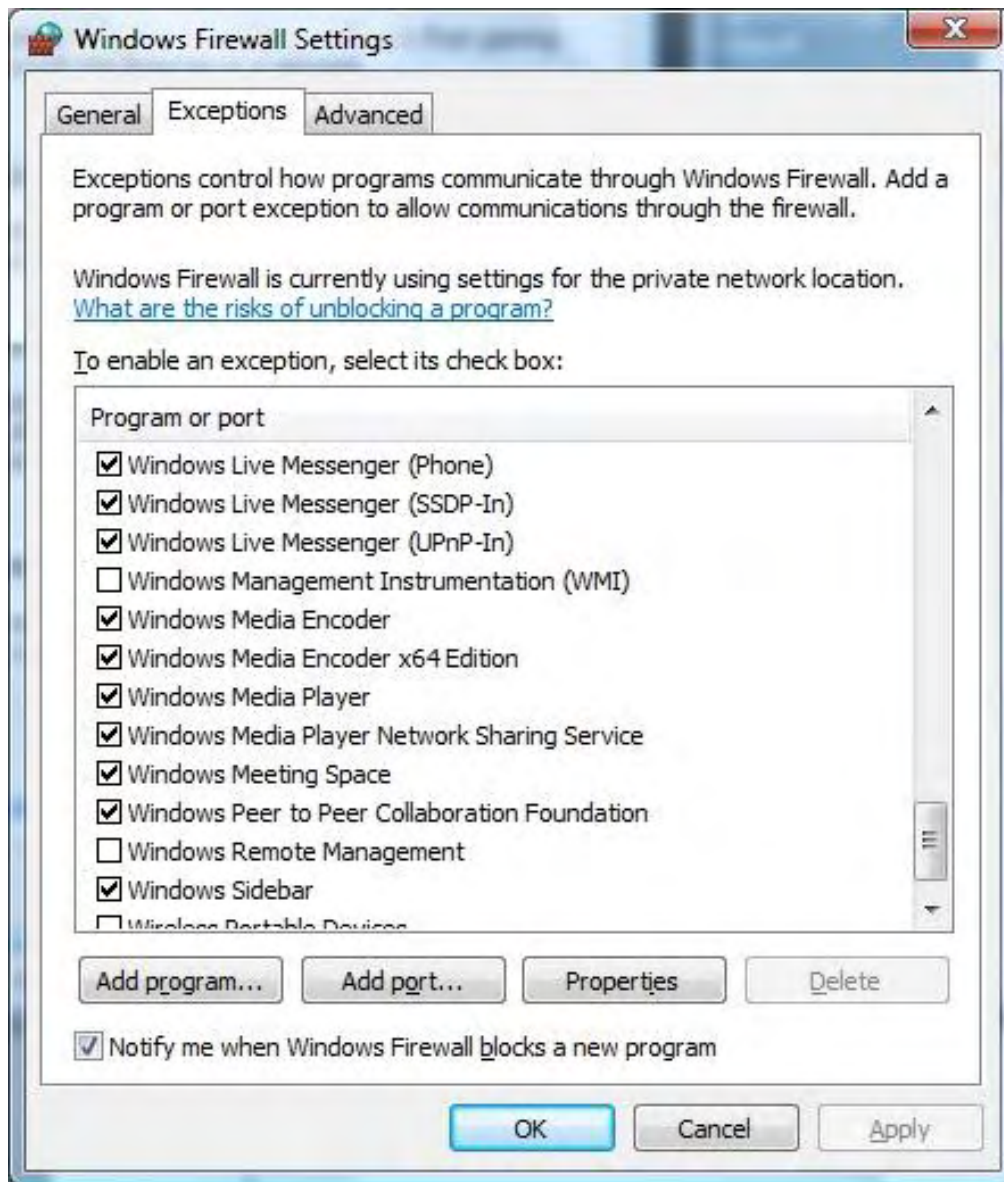


Figure 5. Windows Firewall Settings window in Vista with the Exceptions tab open.

If you need more sophisticated control of the firewall, both Vista and Windows 7 have Windows Firewall with Advanced Security. This program gives detailed control of the firewall, including both inbound and outbound connections.

Windows Firewall gives you substantial protection from random incursions over the network or Internet. If you have a problem, it will most likely be via your Web browser or your e-mail program. You need to practice safe computer hygiene as described in the May 26 EdgeWord, "Computer Hygiene."

Jack is the publisher of *ComputerEdge* Magazine. He's been with the magazine since first issue on May 16, 1983. Back then, it was called *The Byte Buyer*. His Web site is www.computoredge.com. He can be reached at ceeditor@computoredge.com

[Return to Table of Contents](#)

Wally Wang's Apple Farm

Wally Wang's Apple Farm

“Firewalls and the Macintosh” by Wally Wang

The simplest firewalls simply block most inbound connections from the Internet into your computer, which effectively blocks worms. Also, a discussion of using Windows on a virtual machine to make security easier; a look at Drive Genius 2, which can analyze a hard disk and repair problems before they turn into massive data-gobbling catastrophes; and a tip on using QuickTime Player to capture a sound.

Computer viruses are obsolete. If you look at the major threats to computers (mostly PCs running Windows), you'll find that the major threats are worms, not viruses. A virus infects a file and requires someone to share that file to spread the virus. If no one shares an infected file, the virus can't spread. On the other hand, a worm can spread to another computer all by itself, which makes worms far more dangerous.

Since worms can sneak into a computer without any action on your part, the number one defense against worms is a firewall. The simplest firewalls, which come with Windows and Mac OS X, simply block most inbound connections from the Internet into your computer, which effectively blocks worms from sneaking into your computer.

The more sophisticated firewalls (such as ZoneAlarm) not only block inbound connections, but outbound connections as well. The purpose of blocking outbound connections is to prevent Trojan horses and spyware from connecting back to the Internet to retrieve more ads or to send data from your computer to another one, stealing personal information like passwords or credit card numbers.

One problem with firewalls that block outbound connections is that they simply block everything and then constantly bombard you with messages asking you to verify that it's OK to allow a certain program to access the Internet after all. After seeing these messages popping up steadily, most people simply give the firewall permission to allow anything to connect to the Internet, effectively defeating the firewall's ability to block outbound connections.

That's why the built-in firewalls in Windows and Mac OS X block only inbound connections to avoid annoying you with questions you probably don't know how to answer accurately anyway. To access the Mac OS X firewall, just click on the Apple menu and choose System Preferences to open the System Preferences window.

Now click the Security icon under the Personal category. Click the Firewall tab, and you'll see a Start/Stop button that lets you turn the firewall on or off.



Figure 1. Turning on the Mac OS X firewall.

If you click the Advanced button, you'll see another window. Select the Enable Stealth Mode check box. Stealth mode means that if hackers try to locate your computer over the Internet, your Macintosh will essentially be invisible. Without stealth mode, hackers could send data to your computer and see how it responds. Based on this response, they'll be able to identify the operating system used. Knowing this information, they'll know the flaws of that particular operating system and the best way to break in, so stealth mode is something that can give your Mac greater security.

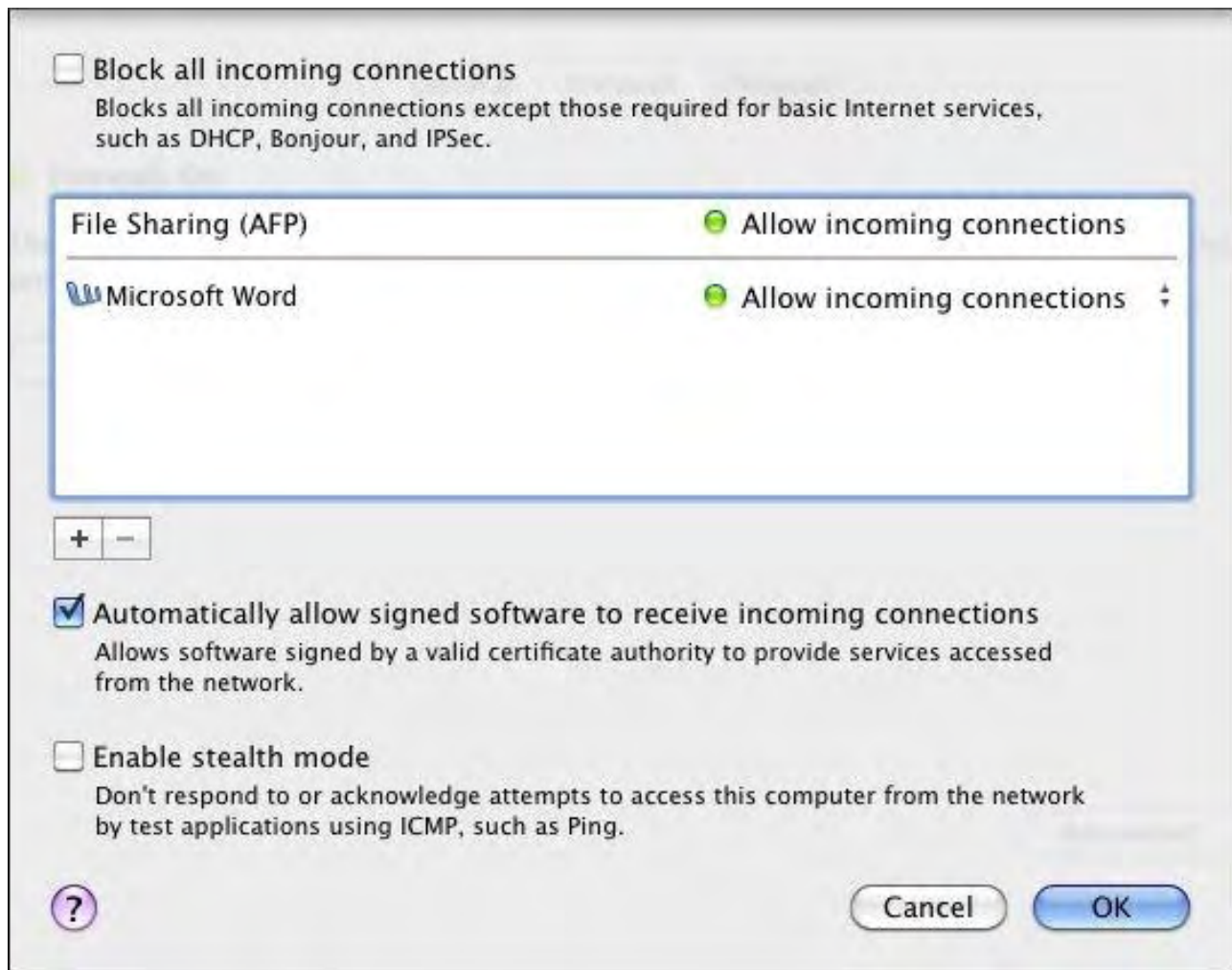


Figure 2. Turning stealth mode on.

Virus Woes (on Windows)

While exploring the Internet through a copy of Windows 98 running on a virtual machine through VMware's Fusion on my Macintosh, I suddenly ran across a Web site that immediately infected my Windows 98 virtual machine with a rogue program called Spy Sheriff.

One moment my Windows 98 virtual machine was fine, and the next second, through no action of my own, the whole thing got infected. Out of amusement, I tried to remove this rogue program and found that as soon as you deleted one copy, another copy would spring back to life. To save time, I just deleted my entire virtual machine, restored a backup copy of my virtual machine, and got up and running on Windows 98 through my virtual machine on my Macintosh again.

No data got lost since everything important was stored on my Macintosh, and Spy Sheriff simply trashed the Windows 98 virtual machine. Out of curiosity, I searched for help on dealing with Spy Sheriff and ran across a forum where some poor guy got his computer trashed by Spy Sheriff and had to go through a series of bewildering steps to diagnose the problem and eventually fix it. To read this lengthy dialogue complete with screens full of technical data, visit thetechguide.com (www.thetechguide.com/forum/lofiversion/index.php/t75226.html).

What's amazing isn't the multiple steps this poor guy is forced to go through to rescue his system, but the fact that he actually goes through so many complicated steps and spends so much time fixing what should be a simple problem. While reading this, I kept wondering, "Why do people put up with this anymore?"

What's amazing is what people will accept when they feel they don't have any choice. Even after spending

countless hours fixing their computer, most people will think nothing of doing it all over again because they accept that this is the way computers really work.

That got me to thinking, "What will it take for people to give up on Windows and switch to something else?" For some people, no amount of trouble or evidence to the contrary will ever convince them to abandon Windows. This mindset reminds me of people who deny that astronauts ever landed on the moon or that Obama really was born in the United States. For these people, no amount of evidence will ever change their mind, so they'll continue to believe what they want in direct opposition to the facts.

For other people, you have to decide for yourself what amount of evidence will you need before giving up on Windows. My dad used to take his Windows PC into the repair shop regularly and was constantly reading computer books and magazines to help him keep it running. For years, he resisted switching from Windows because he already knew how to deal with the problems of Windows, and he felt that switching to the Macintosh would simply give him the same problems, but with an operating system that he wasn't familiar using.

Two years later his iMac is running nicely, and even he's amazed that he's never had to take it to the repair shop every month or two just to fix the Registry, defragment the hard disk, or remove spyware. He's also never had to worry about keeping an antivirus program up to date or dealing with the firewall asking him if it's OK to let yet another cryptically named program access the Internet. Since he never understood how to recognize a valid program from a malicious one, he'd just let the firewall let everything through, allowing his computer to get infected all over again.

Now he looks back and wonders how he ever put up with maintaining Windows on a regular basis. What finally changed his mind was when the computer repair shop across the street finally went out of business along with the CompUSA store a block away, leaving him with no one to fix his computer regularly.

Given the sudden lack of technical support, he finally decided to give the Macintosh a try, and he's been happy with his decision ever since.

For everyone else, ask yourself at what point will you finally try a Macintosh? By using VMware's Fusion or Parallels, you can clone your current PC as a virtual machine and run your current Windows PC as a virtual machine on a low-cost Mac mini (\$699) that plugs into your current monitor, mouse and keyboard.

Both Fusion and Parallels let you capture snapshots of your Windows virtual machine, so if a virus hoses it, just revert back to a previous copy of your virtual machine where everything was working just fine. Total time investment to fix Windows equals five minutes at the most.

Running Windows in a virtual machine (in either Mac OS X or even Linux) is the safest way to run Windows, because fixing any problems is as easy as reverting back to an earlier version of that virtual machine. Of course you can do that with Windows by creating a Restore Point (or whatever it's called nowadays), but it's so much simpler just to copy a new virtual machine as a single file instead.

With a Macintosh, you can still run Windows and have the option of using Mac OS X. Or you could just run Windows, save money on a lower-cost PC, and wind up wasting hours at a time maintaining and fixing your computer on a regular basis. The choice is yours.

The Future of Storage

The future of computer storage lies with solid-state drives because they require little power and are far more reliable than mechanical hard disks. Two common examples of a solid-state drive are USB flash drives and Secure Digital cards used to store pictures on many digital cameras.

Unfortunately, solid-state drives still cost more than hard disks, so most computers still rely on hard disks. While

hard disks may be cheaper, they also bring the inevitable risk of failure. Use a hard disk long enough and it will fail; it's just a matter of when.

To protect against hard disk failures, you need two strategies. First, you need to back up your data. Just attach an external hard disk to your Mac through a USB cable, and you can use Time Machine to back up your data every hour.

Second, you need to monitor the health of your hard disk and correct problems as they arise before they get too far out of hand. For that, you need a utility program like Drive Genius 2 (www.prosofteng.com/products/drive_genius.php) from ProSoft Engineering.

Drive Genius 2 can analyze a hard disk and repair problems before they turn into massive data-gobbling catastrophes. More advanced users can even use Drive Genius 2 to partition their hard disk or defragment the hard disk.

Hard disk defragmentation is less of a problem with the Macintosh than with Windows because of the way the operating systems store data. With Windows, store two files on a hard disk and your computer crams both files as close as possible. Now if you modify one of those files, you'll create gaps between the two files and instantly fragment your hard disk.

Mac OS X (and other Unix-based operating systems) stores files as far apart as possible. That way if you modify files, there will always be enough space between each file to avoid fragmentation. Of course, the more files you cram on a hard disk, the less room there will be spaced between files, so eventually you'll need to defragment a Macintosh hard disk as well, but you'll never have to do it as often as a Windows hard disk.

With my own Mac mini, I noticed the computer acting flaky at times. At first I thought it was due to Snow Leopard, but after I ran Drive Genius 2, the program found a handful of errors on my hard disk that it repaired. Now my Mac mini is running just fine without the occasional hang-up I had experienced before.

If you're having trouble with your Mac, it might be a hardware problem more than an operating system flaw, so load Drive Genius 2 on your computer and see what problems it might find.

* * *

If you've updated to Snow Leopard, peek inside your Applications folder and you'll find a new QuickTime Player program. Not only can this program play various audio files, but it can also record audio and screen activity. While not as flexible as dedicated audio and video recording programs like Wiretap Studio (www.ambrosiasw.com/utilities/wiretap) or Camtasia (www.techsmith.com/camtasiamac), QuickTime Player can be handy when you just want to capture a sound (such as an iChat conversation) or screen activity (such as creating simple tutorials).

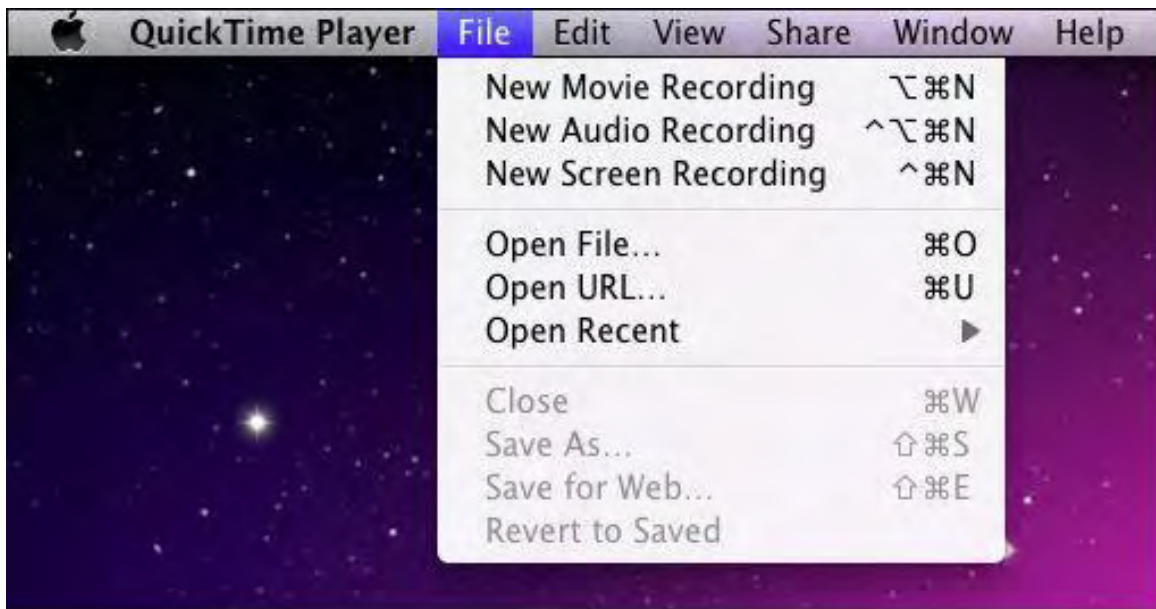


Figure 3. QuickTime Player in Snow Leopard lets you record screen activity.

If you download the Screen Recording.mov (www.computoredge.com/images/2739/ScreenRecording.mov) file, you can see a simple screen recording that I made that shows how to tear tabs off Safari to open it in another window and how to merge multiple windows back into tabs again.

In the early days, before Wally became an Internationally renowned comedian, computer book writer, and generally cool guy, Wally Wang used to hang around The Byte Buyer dangling participles with Jack Dunning and go to the gym to pump iron with Dan Gookin.

Wally is responsible for the following books:

- Microsoft Office 2007 for Dummies (www.amazon.com/gp/product/0470009233?ie=UTF8&tag=the15minmovme-20&linkCode=as2&camp=1789&creative=9325&creativeASIN=0470009233)
- Beginning Programming for Dummies (www.amazon.com/gp/product/0470088702?ie=UTF8&tag=the15minmovme-20&linkCode=as2&camp=1789&creative=9325&creativeASIN=0470088702)
- Breaking Into Acting for Dummies with Larry Garrison (www.amazon.com/gp/product/0764554468?ie=UTF8&tag=the15minmovme-20&linkCode=as2&camp=1789&creative=9325&creativeASIN=0764554468)
- Beginning Programming All-in-One Reference for Dummies (www.amazon.com/gp/product/0470108541?ie=UTF8&tag=the15minmovme-20&linkCode=as2&camp=1789&creative=9325&creativeASIN=0470108541)
- Steal This Computer Book 4.0 (www.amazon.com/gp/product/1593271050?ie=UTF8&tag=the15minmovme-20&linkCode=as2&camp=1789&creative=9325&creativeASIN=1593271050)
- Visual Basic Express 2005: Now Playing (www.amazon.com/gp/product/1593270593?ie=UTF8&tag=the15minmovme-20&linkCode=as2&camp=1789&creative=9325&creativeASIN=1593270593)
- My New Mac (www.amazon.com/gp/product/1593271646?ie=UTF8&tag=the15minmovme-20&linkCode=as2&camp=1789&creative=9325&creativeASIN=1593271646)
- My New iPhone (www.amazon.com/gp/product/1593271956?ie=UTF8&tag=the15minmovme-20&linkCode=as2&camp=1789&creative=9325&creativeASIN=1593271956)
- Strategic Entrepreneurism with Jon Fisher and Gerald Fisher (www.amazon.com/gp/product/1590791894?ie=UTF8&tag=the15minmovme-20&linkCode=as2&camp=1789&creative=9325&creativeASIN=1590791894)

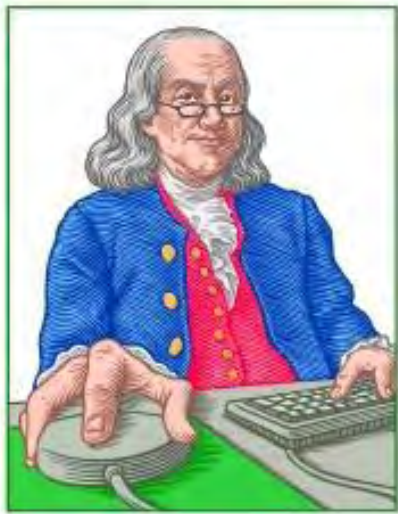
Every Saturday morning from 9:00 am - 10:00 am in San Diego, you can hear Wally with fellow co-hosts Dane Henderson and Candace Lee, on the radio show CyberSports Today (cybersportstoday.com/), which covers the video gaming industry on ESPN Radio 800 AM. Wally covers the military history side of the video game

industry.

When not performing stand-up comedy or writing computer books, he likes to paper trade stocks with the video game Stock Reflex (www.plimus.com/jsp/download_trial.jsp?contractId=1722712&referrer=wwang), using the techniques he learned from a professional Wall Street day trader.

Wally can be reached at wally@computoredge.com and at his personal web site (www.wallacewang.com/).

[Return to Table of Contents](#)



LINUX LESSONS

**"AN INVESTMENT
IN LINUX KNOWLEDGE
PAYS THE BEST
INTEREST."**

Linux Lessons: Tips and Tricks from Users

"Linux users share ideas and ask for help." by ComputerEdge Staff

Some information on using Wine for Windows emulation on Linux; and a call for comparison information on the various distributions of Linux.

Ubuntu with Wine?

Hi! I've installed Ubuntu (9.04, with all current upgrades) on an old laptop computer. I love it! After clicking OK on the install CD, I came back 20 or so minutes later and everything worked except the wireless Internet card. I plugged in a Cat-5 cable from the router and I was online. (Still no wireless; I couldn't find a driver for it.)

Anyway, there are a few programs (for Windows) I would like to install on this machine. They talk about running with "Wine" (help.ubuntu.com/community/Wine) [link added by editor]. I can find references to Wine online along with cryptic command lines. Can you comment??

Andy M.

It's no surprise that all you'll find is what you call cryptic command-line tools for Wine. It's not a very user-friendly program, but it is the best at performing Windows emulation. It is a program you will need to run from the command line. If you want to run Linux, then you will need to get used to working with the CLI (command-line interface).

Wireless may still be hit and miss in Linux. It certainly was when I last dealt with it (about three years ago). The main question is how old is your wireless card? Is it integrated or a PCMCIA/USB expansion? It's possible that drivers may be available for it, or if it's an antique bit of hardware that drivers were once bundled with the distro but are no longer for space-saving reasons.

David Eddleman
Vista, CA

Nothing Yet on Debian

Last week, we asked for reviews, tips and tricks related to the Debian distribution of Linux. What are Debian's strengths and weaknesses? Which Web sites offer the best Debian information? What are the secrets that everyone should know, but might not know how or where to find?

It seems that there was little time for people to respond to the Debian request, so this week we are expanding the question to include all the various Linux flavors. It seems that Ubuntu is the most popular distribution (at least among our readers), but are there real differences between Ubuntu and the other distributions, such as Debian, Red Hat, SUSE, Gentoo and others? What makes one distribution better than another?

Send your comments to Linux Distributions Comments, Tips, and Tricks (ceeditor@computoredge.com). They will appear in a future column dedicated to the topic. Each week we will highlight a different distribution until the supply is exhausted.

* * *

Give Us Your Linux Tips and/or Questions

If you have an opinion on these or other Linux topics, then please let us know. Also, if you have another Linux tip that works for you, or a favorite Linux software application, and would like to pass it along (or have a question), please drop us a line at Linux Lessons (ceeditor@computoredge.com).

This is a column for Linux and Unix-like operating system users. The goal is to give Linux users an opportunity to share tips, tricks and ideas with both fellow users and the *ComputerEdge* Linux newbies. Each week in this column, we will highlight the thoughts you submit to us. This is your column. As long as a submission is dealing with the Linux/Unix-like world, we want to share it.

The tips and tricks may be short or long, and can include graphics. If there is a little technique or program that you use on a regular basis, then we want to hear about it. You may also pose questions for other Linux users to answer. E-mail your ideas or questions to Linux Lessons (ceeditor@computoredge.com). Be sure to put the words "Linux Lessons" in the subject line so it won't get lost in junk mail. We depend upon you to make this column a success.

Jack Dunning
ComputerEdge

ComputerEdge always wants to hear from you, our readers. If you have specific comments about one of our articles, please click the "Tell us what you think about this article!" link at the top or bottom of the article/column. Your comments will be attached to the column and may appear at a later time in the "Editor's Letters" section.

If you want to submit a short "ComputerQuick Review", or yell at us, please e-mail us at ceeditor@computoredge.com.

[Return to Table of Contents](#)



Rob, The Computer Tutor

Rob, The Computer Tutor Does VB. Net 2010

“Sticky Stacky” by Rob Spahitz

Last week, we looked at using common dialog controls. This week we'll start to wrap up our Sticky Note application.

Last week, we looked at using common dialog controls. This week we'll start to wrap up our application.

Note: These columns are written using VB.Net 2010. However, most of the features will work just fine with VB. Net 2008 or even earlier versions. To see how to install VB.Net2010, check my July 31, 2009 column, and to retrieve project files, check my server at www.dogopoly.com/ce.

CHALLENGE (due 10/2/2009):

What do you like or dislike about the applications available in modern-day computers? Are you concerned about viruses and other invaders? Do you feel confident that your firewall is protecting your computer?

Responses:

I previously asked for your ideas about some apps you like. Arch of San Diego offered a few things:

- I use AIM (and its variants) at work for rapid, silent communications, especially in meetings.
- I use Skype, especially while traveling, to talk with my co-workers, business partners and my family.
- I use e-mail on several sources to "talk" with people. It's nearly real time.
- Lately, I use SMS for much of what I used to use AIM for, though.

We had also asked about picture applications, and David of King George, VA offered this:

I would recommend Thumbs Plus. It's pretty robust in what it can do and the type of files (picture types) you can work with. This ties back in to the Web page question you asked in the first place. Once you get the pictures how you want them, what do you do with them? With Thumbs Plus, you can crop, red-eye reduce, enlarge, rotate, invert colors, wash to black-and-white, etc. You get the picture.

Thanks for the contributions and send more. The other ones will be included in future columns.

More Sticky

Over the last few weeks, we created an application that I called Sticky. This was intended to act like an electronic Sticky Note. Right now it's pretty much just a simple version of Notepad. Let's add a few more features to make it more useful. We previously threw out a few ideas: "The idea is very simple. Create an application that lets a user enter a note, drag it around the screen, and change the background color. It should also be resizable. Later we can add other features like making it borderless, allow different fonts, and maybe add pictures. But again, let's start simple so that we can complete the job as version 1."

I think we achieved version 1. You can enter notes, drag the window around the screen (like any other window), and change the background color. We made it resizable by default. We also added fonts.

If we go borderless, we'll need something to allow it to be resizable. I'll save that exercise for another time. Select the form and change the `FormBorderStyle` property to `None`. Since this app can be closed from the File menu, at least there's a way to shut down. This adds a new flair to the app, as seen in Figure 1.

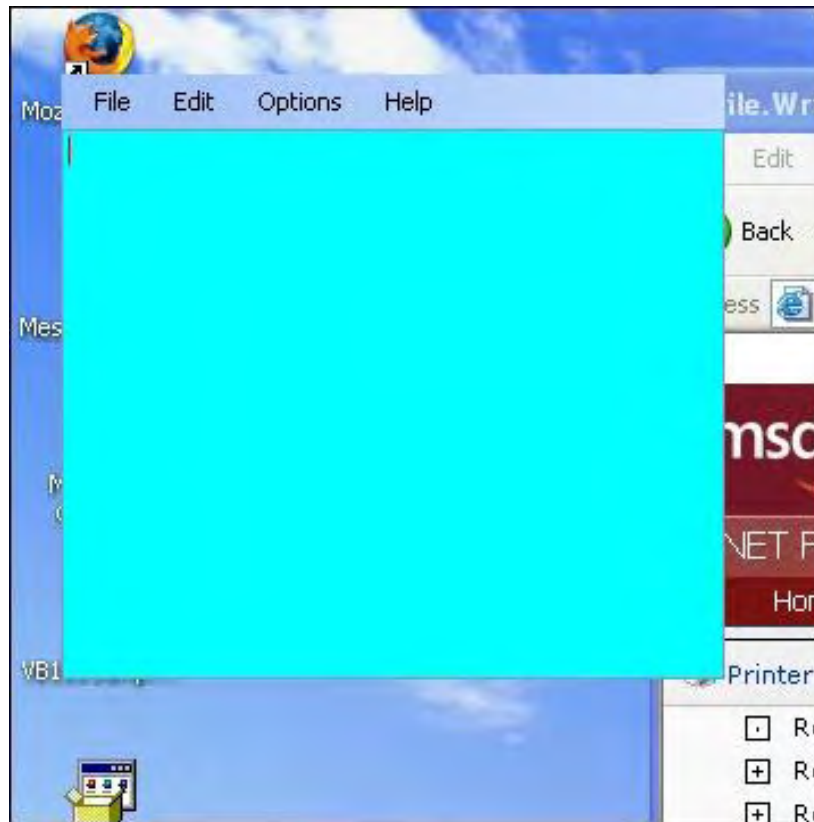


Figure 1. Borderless Sticky Notes app.

This is great. Now move it to the side so you can see behind it. Oops! No border means that Windows doesn't allow you to drag it or resize it. In addition, we have no title to tell people about our terrific app. Well, there are a few options. We could change the `FormBorderStyle` to `SizableToolWindow` and get the title back and be able to move and resize. That's probably the easiest thing. But since we have some space, let's explore an alternative.

Sticky Move

Let's allow the form to be dragged by grabbing part of the menu. Since the menu has an event to let us track mouse movements, we can do the work ourselves. Select the `mnuMain` item and click on the events (lightning bolt) in the Properties window. Looking through the choices, you see one called `Move`. That would seem like a logical choice, but this event occurs when the form is moved, not to make it move. We need to detect something else so we can make it move. So we need to think about what process is used to move a normal form.

If Word is open and you want to move it out of the way, how would you do it? You could close it. You could minimize it. If it's maximized you can "restore" it. But the traditional way to move a window is to use the mouse to "grab" the title bar and drag it. You see a few events for `Drag`. However, again, these are used for something else. `DragDrop` is what to do if something is dragged onto the menu then dropped. (Cool! We could use that to load the contents of a file into the text area, but I'll leave that for the reader to do in version 2.0.) You also see `BeginDrag` and `EndDrag`. However, those are events, not methods. That lets you do something if the drag begins or ends.

So the remaining solution is to detect the mouse movement. Since there's no `MouseDown`, we'll need to use `MouseDown`, `MouseMove` and `MouseUp`. Here's the catch. We'll need to track where we are when we start dragging (`MouseDown`), and then move the items when we stop dragging (`MouseUp`). You'll probably also want

to show the Sticky while it's being dragged (MouseMove). By adding the right code, we can make it happen. And once we get that code, the same code can be used for resizing the note.

Double-click on the MouseDown event. You receive two parameters: "sender" and "e." We previously learned that "sender" is merely information about the object that launched the event. In this case that would be the menu bar. At this point, that doesn't help us. So let's use "e." In the blank code, enter the "e" variable followed by a dot to open the intellisense window, as seen in Figure 2.

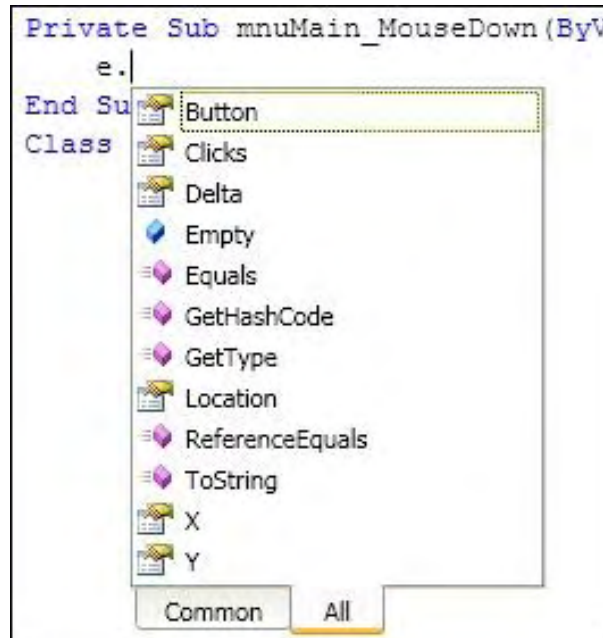


Figure 2. MouseMove Event Parameter Information.

Notice how we can gather information about which Button was clicked, how many Clicks occurred (typically one for single-click or two for double-click), and Delta to show information about the mouse wheel. However, what we want are X and Y, which represent the screen coordinates similar to your old graph paper (where X is the horizontal position and Y is the vertical position). Given this, we know where we started and can use it to determine where to move the form when dropped.

To save this information, we'll need a variable (or two). However, variables are discarded when the procedure ends if they are "local" variables (defined in the same procedure where they are used). To overcome this we need to make variables class-level. For local (procedure-level) variables, you define them with Dim statements. For class-level (also known as module-level) variables, you can use Dim, but usually you define with a scope of Private, Public or Friend. Note: Some people call these "global" variables; that would apply if you set the scope to Public so that it's available to everyone, including outside components that want to use it.

Class-level variables are usually defined at the top of the class, above all Subs but below the Class line or at the bottom of the class before the "End Class." However, in VB.Net, they can also be defined between Subs. Sometimes that makes sense (like when you're creating Properties—we'll get to that another time), but usually they're all kept together at the top or bottom. I prefer the top.

At the top of the class, create a variable to hold the starting position of the MouseDown. Now here's the interesting thing. You can create two variables, one for the X value and one for the Y value. These are "elementary" values that each hold a single simple value, like 0 or 4099. That would work. However, we're working in a nice Object-Oriented (OO) environment. When you think about this properly, you realize that what you really want is to track a single point, which happens to consist of two parts. What we want is a more complex variable that can do the job for us. Thinking this way helps you to work more effectively in an OO environment.

So we want a variable with a data type that can hold a single point. We could create our own data type to hold all of the parts. However, there happens to be a data type called Point. Guess what it's used for? Go to the top of the class and add a variable, scope Private, with the name ptMouseStart and data type Point like this:

```
Private ptMouseStart As Point
```

Now you can go back down to the MouseDown event procedure and use this. Remove the "e" that you previously added to define our new "point" variable. The problem is that we have two individual parts rather than one. So we can simply use the Point class to help us, by making a new point with the two parts:

```
ptMouseStart = New Point(e.X, e.Y)
```

As you enter this, after the open parenthesis, you get a tooltip to tell you what is valid as a parameter inside the parentheses. Click on the tooltip and it will cycle through variations. In this case, the third of three tells us that our variable (an X and Y value) is allowed, as seen in Figure 3. Note that you do not have to select option three in the tooltip for it to be valid.

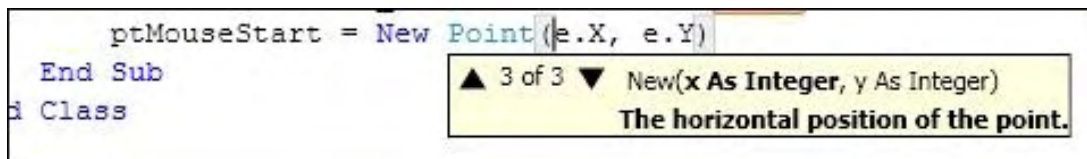


Figure 3. Parameters for the Point Class Constructor.

Note that you can't always use the New keyword to build what you want, but it works in many cases, such as here.

Continuing on, let's do something similar in the MouseUp event procedure. At the top of the code window, make sure the left dropdown shows mnuMain, then go to the right dropdown and select the MouseUp event to open a procedure for that. Notice how we have the same "sender" and "e" variables available to us, because that's how Microsoft designed the events for this control. Now e can be used to determine the ending location of the mouse.

So you might think that you just need to move the window to the ending location. That won't work. First of all, the X/Y values are relative to the left/top of the control, which happens to be the same as the form in this case, but not the same as the screen. So if the X/Y of ptMouseStart is 0/0, that means you clicked on the left/top corner of the menu. And if the X/Y of the ending value is 20/20, that means you dragged 20 pixels across and 20 pixels down. If you move the window to position 20/20, it will be near the top left corner of the window (which is probably the opposite way you moved the form).

We need to look at all of the pieces to get this right. Technically, what we need is to find out how much we moved. We can find this by subtracting the starting point from the ending point, then adding that to the top/left corner of the menu within the form. We don't really need to worry about the control, only the form. So how do we determine the top-left corner of the form? We can use the Location property, which happens to use the Point data type. So in the MouseUp procedure, put this:

```
Me.Location = New Point(e.X - ptMouseStart.X + Me.Left, _  
    e.Y - ptMouseStart.Y + Me.Top)
```

Note that VB does not typically support multiple-line commands. You can get around that by ending a line with a

space followed by an underscore then continuing on the next line. I added it here for readability.

With the above, you'll notice that as long as you start and end on the blue part of the main menu, it works perfectly. However, you'll also notice that you don't see it move until you drop it. And, of course, dropping when you're off the control, it never moves. The problem is that the MouseUp event only occurs if the mouse is over the control when the button comes up. To get around that, we'd need to play some tricks to detect that event. Instead, we'll solve the problem by moving the form while the mouse is dragging the menu.

As with the MouseUp event procedure, open the MouseMove event procedure. And as before, it has the same parameters. As with the MouseUp procedure, add this to the MouseMove event procedure:

```
If e.Button = Windows.Forms.MouseButtons.Left Then
    Me.Location = New Point(e.X - ptMouseStart.X + Me.Left, _
        e.Y - ptMouseStart.Y + Me.Top)
End If
```

That's it. The only problem is that if you move the form too quickly, it will lose track of the mouse being on the menu bar. Again, we could write some complex code to handle this but let's leave it as "close enough."

Sticky Pix

Finally, let's wrap things up by allowing pictures to be added. One way to handle this is to change the Textbox into a RichTextBox, which supports embedded objects. However, the picture will not be visible.

We have some new design considerations. Where should the picture go? How should it interact with the text? Should we make it just like a fancy word processor that lets you put a picture behind or next to text? We could take this very far and build a custom version of MS Word, but the idea was to keep it simple. Let's simply allow the user to drop a picture from a file onto the Textbox and we'll add the picture as a new object (that won't be saved).

So go to the frmStick design, select the Textbox, and change the AllowDrop property to True. Then go to its DragEnter event procedure and add this:

```
e.Effect = DragDropEffects.Copy
```

This will allow you to perform the file drop. Check the help files for more details on this.

Finally, add this to the DragDrop event procedure for the txtNote Textbox:

```
If e.Data.GetDataPresent(DataFormats.FileDrop) Then
    Dim pic As PictureBox = New PictureBox
    Dim files As String() = _
        CType(e.Data.GetData(DataFormats.FileDrop), String())
    pic.Image = Image.FromFile(files(0))
    Me.txtNote.Controls.Add(pic)
End If
```

This will make sure you're trying to drop a file, will create a picture box to add to the Textbox, grab the set of files that are being dropped, put only the first into the picture box, then add the picture to the Textbox.

Obviously there are several issues with the above bits of code. We have not managed much of it for errors (using Try/Catch would help), and there may be some minor bugs (aka undesigned features) in it. We could also include a new feature to add another note or otherwise manage the collection of notes on the screen. We should also save the settings (like selected background color) along with the note. These are all part of a good design: Understanding how users will use your application and what expectations they will have.

I leave additional features to the readers to work through, and I welcome feedback on this and thoughts for future projects.

Next week we'll explore a few more VB.Net concepts to help polish this project, then we'll start a new project. Send your comments and ideas, and I'll see if I can incorporate some of them into upcoming columns. See ya next week.

Rob has been in the computer industry for over 25 years and is currently a part-time teacher, offering classes in Excel, Access, Visual Basic, and a variety of other technical tools. He has loved *ComputerEdge* since 1990 and can be contacted at *RSpahitz@Dogopoly.com*.

Looking for a great boardgame? Grab a copy from DOGOPOLY.com (*dogopoly.com*) and have a dog-gone great time.



[Return to Table of Contents](#)

Worldwide News & Product Reviews

“The latest in tech news and hot product reviews.” by Charles Carr



Roddenberry's Mac on the Auction Block—An upcoming offering of Hollywood memorabilia includes Gene Roddenberry's early Macintosh; Tips for Avoiding Webinar Pitfalls—America's corporations are cutting travel and entertainment costs and going green by holding large meetings online; ViewSonic VG2227wm 22-Inch Monitor—A review of the multimedia solution for business professionals and gamers.

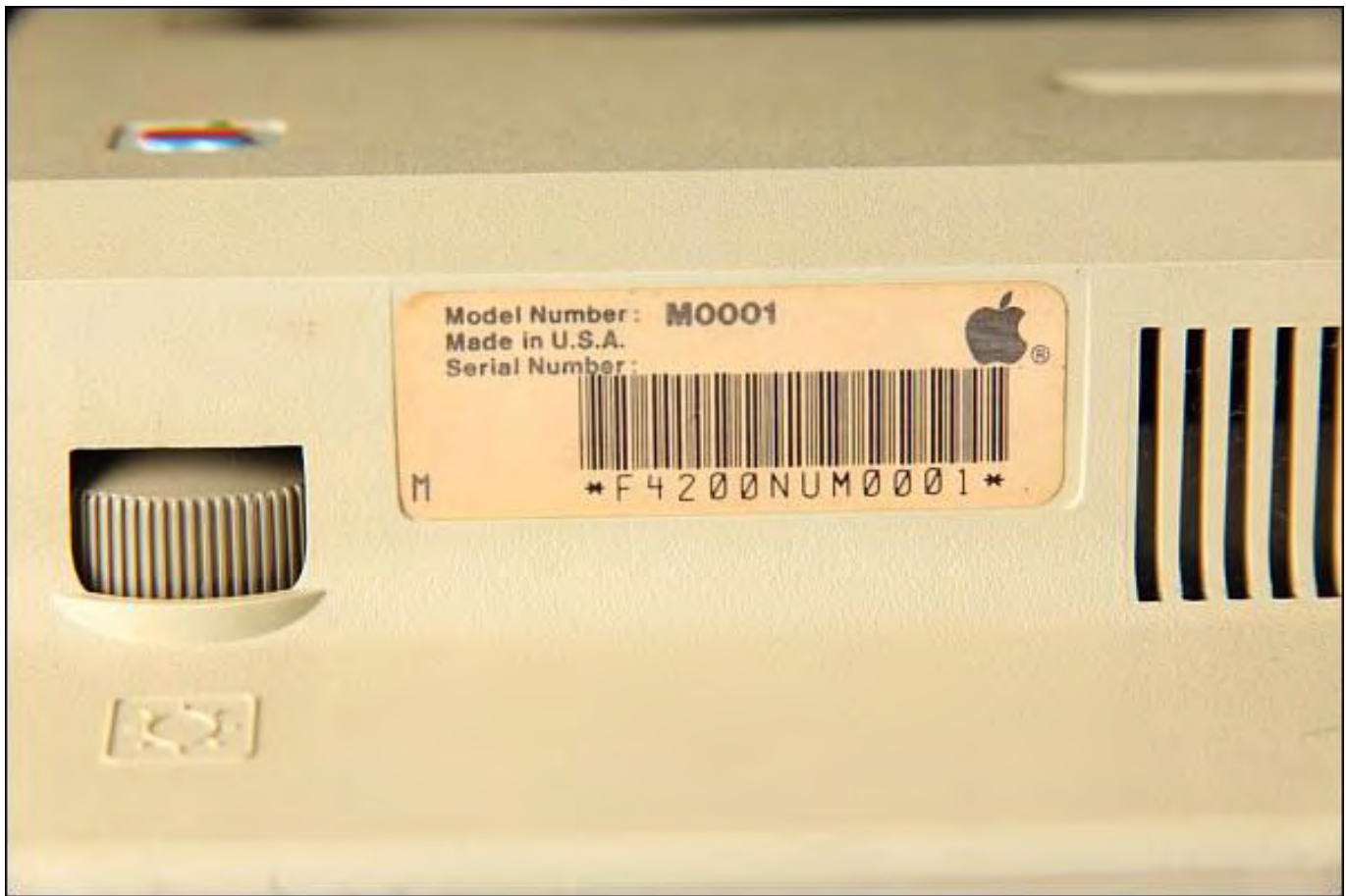
Roddenberry's Mac on the Auction Block

Marc Kruskol writes in about an upcoming offering of Hollywood memorabilia being offered by the auction house Profiles in History.

"Profiles in History will be offering an early production Macintosh 128 computer, given to Gene Roddenberry by Apple Computer Inc. This computer was subsequently upgraded to a Macintosh Plus by Apple for Mr. Roddenberry and signifies the wonderful association between the visionary computer designer/manufacturer and legendary *Star Trek* creator, and is a stellar example of the powerful synergy between technology and entertainment."



According to Kruskol, any conflict seen between the photos of the computer and the serial number can be resolved as follows: The computer given by Apple to Mr. Roddenberry is an early production Macintosh 128 (#776), which was then upgraded by Apple to a Macintosh Plus—thus the model number/serial number/panel that "belongs to" a Macintosh Plus. Kruskol also notes that the "0001" (seen in the second photo) originally led the auctioneers to mistakenly believe it was the first one off the line.



"This amazing artifact," Kruskol continues, "which is accompanied by a signed letter of provenance from Gene Roddenberry's son, Rod, will be a special addition to Profiles in History's October 8-9, 2009 auction of Hollywood memorabilia. It has an estimated sale price of \$800-\$1,200. Worldwide bidding begins at 12:00 PM (noon) both days and can be placed either in person, via mail, phone, fax or live on the Internet (www.icollector.com/Hollywood-Auction-37_a5736)."

Prior Profiles in History Hollywood auction highlights include a full-scale model T-800 Endoskeleton from *Terminator 2: Judgment Day* (\$488,750); a T.I.E. Fighter filming miniature from *Star Wars* (\$402,500); the Command Chair from the U.S.S. Enterprise (\$304,750); Harrison Ford's hero blaster from *Blade Runner* (\$258,750); the original "Robot" from *Lost in Space* (\$264,500); and Luke Skywalker's lightsaber (\$240,000).

Tips for Avoiding Webinar Pitfalls

Mike Song, CEO of the business productivity Web site www.infoexcellence.com, is a meetings-productivity trainer and consultant and coauthor of *The Hamster Revolution for Meetings* (Berrett-Koehler Publishers, 2009).

Song writes, "In the latest business trend, major firms are swapping out costly live conferences for Web-based meetings. From publishing giant Macmillan to financial services company Capital One, America's corporations are cutting travel and entertainment costs and going green by holding large meetings online. A new forecast by Gartner Research predicts that by 2011, Web conferencing will be available to 75 percent of corporations as a standard facility.

"The hitch? Most professionals desperately need to upgrade their virtual meeting skills. Research shows that 65 percent of professionals complain their virtual meetings fail to engage participants and are plagued with distracting technical glitches."

So you're sold? Keep an eye out for Mike Song's five common Webinar pitfalls and tips to avoid them:

1. Participants e-mail during your Webinar.

Tip: Jazz up your visuals to distract them. Use Web conferencing tools like WebEx and Go to Meeting to turn graphics on instantly. Pepper your presentation with a parade of charts, slides, and competitors' Web sites to keep them engaged—and invite them to e-mail comments at the end.

2. People tune out of Web conference and chat on Facebook instead.

Tip: Transform your meeting into a social networking event by asking participants to use your Web conferencing tool's chat function to comment in real time. You'll get great ideas, instant feedback, and lively, entertaining banter.

3. Web meeting fatigue is setting in.

Tip: Take a five-minute surf break! Invite everyone to visit a relevant, humorous, motivating, or topical business-appropriate Web site that you've bookmarked ahead of time. Examples include NASA's astronomy picture of the day site, motivational quote sites, or a site that features a fun quiz or survey.

4. Virtual distance makes relationships go cold.

Tip: Remote meetings make it harder to build warm, productive relationships with colleagues. Adorn your presentation with photos of presenters and participants so people connect faces with names. Use the chat function to ask quick, fun questions of the team at the meeting's start to break the ice and get acquainted. For example: "Type the name of your favorite movie into the chat box."

5. Technical glitches slow the flow.

Tip: If it's an important Web conference, shut down and restart your computer before it starts. Arrive 20 minutes early and encourage participants to get there 10 minutes early. Do a sound, mute, and visual check with a colleague. Create a virtual meeting cheat sheet that lists all Web and teleconference features such as "mute all" and the customer service line. A free "tech glitch cheat sheet" (infoexcellence.com/icfreelessons.htm) can be downloaded.

ViewSonic VG2227wm 22-Inch Monitor

The ViewSonic VG2227wm LCD (www.viewsonic.com/products/desktop-monitors/lcd/graphic-series/vg2227wm.htm), (about \$230) is an excellent widescreen, multimedia solution for business professionals and gamers alike. The 22-inch (18.8 inches horizontal x 10.6 inches vertical) features 1,920x1,080 HD resolution and a dynamic contrast ratio of 10,000:1 for blacker blacks. It also has a 170-degree horizontal, 160-degree vertical viewing angle and a snappy response time of five milliseconds.



Monitor performance has pretty much leveled off among the high-quality players like ViewSonic, Sony and Samsung, so it's sometimes helpful to look at the extras when making a decision. I really liked the VG2227wm's fully adjustable ergonomic base, which provides height, tilt and 360-degree swivel adjustments. The slim bezel design saves space, and the base is detachable so the monitor can be hung on a wall. And I'm not crazy about super-shiny monitors, so I especially appreciated the VG2227wm's anti-glare panel surface. It also has an eco-mode that cuts down on power usage and extends the life of the backlight.

Other features include built-in 2x2-watt speakers (nothing special, but they get the job done for most everyone but gamers). You connect your computer via the analog 15-pin mini D-sub (VGA) or digital DVI-D input.

All in all, an excellent little monitor.



Review contributed by Randy Cellisman

In addition to being an editor and columnist for *ComputerEdge* and *ComputerScene* Magazines, where he has written hundreds of feature articles and cover stories over the past decade, Charles Carr has also penned well over 1,000 non-tech newspaper and magazine articles and columns for various publications, including two widely-read columns each week for San Diego's *North County Times* newspaper.

Carr has covered such diverse topics as pesticide use in area schools, invasive background checks for county volunteers, asthma awareness, the debate over standards-based grading, potential vulnerabilities in electronic voting machines, and Southern California's devastating 2003 and 2007 wildfires. He has also written many humorous pieces.

Carr has also edited dozens of stories and articles written by others which have appeared in major publications and web sites across the country.

He has been a contributor and technical advisor to *L.A.* and *San Diego Parent* magazines and receives dozens of requests a year to appear on Southern California television and radio stations to talk about important events in the tech world.

Carr has judged many writing competitions including San Diego Press Club and Time-Warner Communications contests and was sole judge for the national NAPPA Tech Toys awards for five years (which his kids really appreciated). He was recently a judge for the national "Poetry Out Loud" competition.

He has won many writing accolades, including Press Club awards for Best Column Writing, Consumer Writing and Best Arts and Entertainment, and has repeatedly taken top honors in San Diego Songwriter's Guild competitions for his original musical compositions.

Carr will soon publish his first book, *What a World*, a collection of his best writings.

Learn more at www.charlescarr.com.



[Return to Table of Contents](#)

ComputerQuick Reviews

News and Reviews from Readers and Staff

ComputerQuick Reviews

“Computer Product Opinions from ComputerEdge Readers and Staff” by ComputerEdge Staff

A reader feels that social networking sites like Facebook are simply glorified chat and message centers. Also, a call for information about using your computer for music entertainment.

Facebook? I Don't Need It Either

I wanted to chime in on the September 21 ComputerEdge ComputerQuick Review concerning "Who Needs Facebook?"

I agree 100 percent with the review.

For me, social networking is simply a glorified chat and message center. My kids are on Facebook and, if left unchecked, they could spend hours wasting their time chatting about nothing.

For my kids, it is not social networking. According to yourdictionary.com, social networking is "individuals connecting with other individuals to form groups, groups connecting with other groups to form larger groups, and then individuals from one group connecting with individuals from another group to form an entirely different group." I cannot speak for others, but my kids are not participating in any such activity. They are simply wasting time online. I have read through their chat sessions and it is nothing but nonsensical gibberish that has no point or value other than maintaining contact with their friends—friends they see every day at school and after school activities.

Moreover, we have had to ensure that they are not providing their personal information or otherwise exposing themselves to the Internet. Although Facebook states in their privacy page to parents that they "have implemented many safety and privacy controls on Facebook as part of our goal to enable people to share their information with only the people they want to see it," they also provide several words of advice for the safe use of their software, including being "cautious about posting and sharing personal information..." Facebook is not, nor does it claim to be, safe from Internet predators.

Personally, I do not have a Facebook account and I do not intend to create one. Much like the Colorado Springs Senior Computer Club survey results, I (1) refuse to post my personal information online, (2) I do, in fact, understand how "social networking" Web sites actually work, and (3) I have much better things to do with my time.

Pete
Roy, Utah

Next Week: Music on Your Computer!

Next week, ComputerEdge will be talking about using your computer for music entertainment. Tell us about your favorite music programs or the problems you've encountered. Which do you use and what are your concerns? Your comments will appear right here in ComputerQuick reviews. Send your thoughts to ComputerQuick Music Reviews (ceeditor@computoredge.com).

We Want Your Opinions About Hardware, Software and Web Sites

Over the years, *ComputerEdge* has had great input from our readers. In particular, people have submitted short reviews of equipment, software and Web sites that they really like. In some cases readers have offered tips (such as avoiding flakes on Craigslist). ComputerQuick Reviews is our column dedicated to highlighting those things that you most like and want to recommend to others. The problem is that if this column doesn't appear, it becomes forgotten and less likely to receive input from you.

We have decided to include this feature in every issue as a reminder that this is your magazine—even if we don't have any new reader reviews. If you would like to see the type of reviews that we have run in the past, then check out ComputerQuick Reviews (webserver.computoredge.com/sitemap.mvc?feature=Columns&columnedcode=persrev&column=ComputerQuick%20Reviews) in the *ComputerEdge* Site Map. You will find that they are quite varied. We would like to see more. Consider this column a gentle prod saying that we would like to hear from you.

You can send us an e-mail at ComputerQuick Reviews Submissions (ceeditor@computoredge.com).

The purpose of this column is to give our readers an opportunity to express their opinions about products and services that they have found particularly useful. If you have had experience with hardware, software or a Web site that made you say, "This is really great! I want to tell everyone about it," then this is a good place to do it. While we do want to post warnings, we are not interested in slamming the obscure bad products, because there are too many of them. We would like to hear about those things that you would recommend to your best friend. The only caution is to please use proper capitalization (do not use all caps) and complete sentences. If it takes us too long to edit the piece, it may be a long time before it's published on this site.

Please send your personal reviews to ComputerQuick Reviews Submissions (ceeditor@computoredge.com).

ComputerEdge always wants to hear from you, our readers. If you have specific comments about one of our articles, please click the "Tell us what you think about this article!" link at the top or bottom of the article/column. Your comments will be attached to the column and may appear at a later time in the "Editor's Letters" section.

If you want to submit a short "ComputerQuick Review", or yell at us, please e-mail us at ceeditor@computoredge.com.

[Return to Table of Contents](#)

EdgeWord: The Coming Windows 7 Boom

“Will the new OS be a shot in the arm for the economy?” by

Jack Dunning



Most of the Windows world has been waiting for Windows 7 to emerge, and they won't be disappointed.

Windows 7 is going to bring about a boom in computer sales. It might just be the shot in the arm the weak economy needs. I know that there will be complaints about my comments and sour grapes coming from the let's-bash-Microsoft crowd. Historically, I'm not a huge Microsoft fan myself, yet, I do believe in giving credit where credit is due. Most of the Windows world has been waiting for Windows 7 to emerge, and they won't be disappointed.

The other day I was talking to a friend who owns a small software company in the construction industry. His clients use his software on a subscription basis, which means he has regular contact with them while providing support. His business has a consistent base of Windows users who have used his software for decades. The size of the client businesses vary, but most are small shops. In many ways, it could be said that his base is a set of average computer users found in the non-computer-related industries.

For these businesses, the computer has become an integral part of their day-to-day operations. They depend upon the application to produce their non-computer-related results, but they are not in love with their computers. This is how it is for the vast majority of businesses. They are not computers experts, but they depend upon the output of their computer applications. These small businesses don't buy computers for the fun of it. They buy them because they will get a better result. A look at this group, although anecdotal, may give us a glimpse into how the business computer market will be affected by Windows 7.

My friend works with his clients on a regular basis. Since they are average computer users, some need a great deal of support. He hooks up remotely with their computers and helps them solve problems with his software. Over time he has come to know what kind of Windows computers they use.

The operating system on about 70 percent of these computers is Windows XP. It is well known why many people refused to upgrade to Windows Vista, but even I was surprise at the size of this XP base. Coupled with the fear of Vista and the why-fix-it-if-it-ain't-broke attitude, these XP computers are still plugging away. Many of them may have been bought as a Vista downgrade. Eventually, people are looking for the latest hardware and a more capable operating system—yes, Windows 7 runs rings around XP. If the rest of the small business world is even a little bit like this slice of computer users, then there is going to be a huge demand for Windows 7—either via new computers or as upgrades.

Another 20 percent of these users run Windows Vista as their operating system. While many of them may be happy with their situation, they still represent potential Windows 7 buyers. The last 5 percent of the users consists of Windows 98 and Windows 2000. They will be buried with their computers.

All of this represents huge potential for Windows 7. The only question is how soon after October 22 will they buy? The slow economic times will certainly slow down the movement, but the price of today's computers (much cheaper than the original price of the XP sitting on their desk) is so low that it may be difficult to resist. This could be the day that the Windows market has been waiting for. The Vista barrier will be removed and the buyers will rush forward.

The story will be told in the next couple of months. Until October 22, the computer market will continue to experience a pre-release slump. (The better the new release product, the greater the slump.) Yet, there is more than

light at the end of the tunnel. I could be dead wrong about the impact of Windows 7 on the computer market—but there are thousands of respected reviews of Windows 7 that tell me otherwise.

Jack is the publisher of *ComputerEdge* Magazine. He's been with the magazine since first issue on May 16, 1983. Back then, it was called *The Byte Buyer*. His Web site is www.computoredge.com. He can be reached at ceeditor@computoredge.com

[Return to Table of Contents](#)



Editor's Letters: Tips and Thoughts from Readers

“Computer and Internet tips, plus comments on the articles and columns.” by ComputerEdge Staff

"Acronyms and Initialisms," "Setting up a Webcam," "Bootting from a Thumb Drive," "Going VoIP"

Acronyms and Initialisms

[Regarding Dawn Clement's September 4 article, "A Computerese Glossary":]

Often the word acronym is used incorrectly for initialisms. Here is a good description from the Grammar Girl podcast on the difference. A fun article, so it may as well be a correct one.

"Today's topic is the difference between abbreviations, acronyms, and initialisms. It's kind of an extension of the last episode, because I want to clarify the difference between abbreviations and acronyms.

Any shortened form of a word is an abbreviation, for example, etc. for etcetera and Oct. for October; but acronyms are special kinds of abbreviations, such as ROFL (rolling on the floor laughing) and OPEC (Organization of Petroleum Exporting Countries), that can be pronounced as words. This makes them a subset of abbreviations. All acronyms are abbreviations, but not all abbreviations are acronyms.

"Initialisms are another type of abbreviation. They are often confused with acronyms because they are made up of letters, so they look similar, but they can't be pronounced as words. FBI and CIA are examples of initialisms because they're made up of the first letters of Federal Bureau of Investigation and Central Intelligence Agency, respectively, but they can't be pronounced as words. NASA, on the other hand, is an acronym because even though it is also made up of the first letters of the department name (National Aeronautics and Space Administration), it is pronounced as a word, NASA, and not by spelling out the letters N, A, S, A.

"So remember: Initialisms are made from the first letter (or letters) of a string of words, but can't be pronounced as words themselves. Examples include FBI, CIA, FYI (for your information), and PR (public relations).

"Acronyms are made from the first letter (or letters) of a string of words, but are pronounced as if they were words themselves. Examples include NASA, NIMBY (not in my backyard), and hazmat (hazardous materials). Abbreviations are any shortened form of a word."

-Lucy Griffin, San Diego, CA

Setting up a Webcam

[Regarding Jack Dunning's September 11 article, "Easy (Free) Internet Webcam Setup for Windows":]

I've been waiting for this! Can't wait to try it out, but since I've been waiting this long to be handed this, it'll probably be another year before I do—hope not.

-Patencio, Lemon Grove

Bootting from a Thumb Drive

[Regarding the September 11 Digital Dave column about booting Linux off a USB drive:]

I would have to wager that the laptop simply can't do it. The reason of why is that booting off a USB storage device is a technology that's come around mostly in the last few years. Back in 2000, the only boot options were floppy, CD-ROM, hard disk and sometimes over LAN. I'm sure there were a few others, but booting from USB storage wasn't around with any kind of significance, if at all.

-David Eddleman, Vista, CA

Regarding booting Linux off of a USB drive, if the laptop was manufactured around 2000, it may or may not be able to boot from USB at all. At least mine doesn't. Most laptops can boot from network, but setting it up to boot from network is rather cumbersome, because you need another computer that acts as a server. Also if the laptop can't boot from USB, it's likely that it doesn't have an option to boot from network either.

If I were in a similar case, I'd just take out the hard disk from the laptop, stick it into a different computer (might need a connector of some sort), install Linux, and put it back to the laptop. Somewhat primitive, but should work.

-Sol, San Diego, CA

There is an Ubuntu version that is made for netbooks. Search "Ubuntu netbook remix" and you'll find it. It says that it's made for netbooks with an Atom processor, but I have used it on dual-core Athlon and Intel desktops without any problems. Your biggest hurdle will be whether your laptop will boot from a USB drive, as mentioned above.

-Bill Gilbert, Melaque, Jalisco, Mexico

Going VoIP

[Regarding the September 11 Digital Dave column:]

The last time I moved I canceled my landline and went exclusively to cell phone service. Now I am thinking about getting Dish, and there is an extra discount if you connect your receiver to a landline. Will Magic Jack work?

-Marcus, Alabama

Marcus,

I tried VoIP with DirecTV (Satellite). It would connect and you could talk, but like D/D said, it's bandwidth-dependent. I gave it up until I moved to my new location where I could get a better Internet connection.

-Dave Vail, King George, Va

It is true that you will pay less with a telephone line connection and your Dish Network receiver. While I don't know the possibility of VoIP phone lines, Dish Network gives the same discount by connecting a broadband connection to the receiver, assuming the receiver has an Ethernet jack.

-David, Ramona, CA

I've been using Magic Jack *with cable* for two years now and have seen a 100 percent increase in quality and dependability in the past six months. Another plus is no marketing calls, unless you agree to them and request info. I get call-waiting, conference calling, mailbox and caller ID, plus I paid \$59 for five years of service. I've recently heard an ad for a VoIP service that doesn't need your computer to be running, just a high-speed Internet connection. I don't remember the name of it though.

-Buck, El Cajon, CA

Perhaps Buck of El Cajon was referring to GlobaLinx? It works off the router, not the computer, so the computer need not be on.

-Jan, Murrieta, CA

ComputerEdge always wants to hear from you, our readers. If you have specific comments about one of our articles, please click the "Tell us what you think about this article!" link at the top or bottom of the article/column. Your comments will be attached to the column and may appear at a later time in the "Editor's Letters" section.

If you want to submit a short "ComputerQuick Review", or yell at us, please e-mail us at ceeditor@computoredge.com.

Send mail to ceeditor@computoredge.com with questions about editorial content.
Send mail to cewebmaster@computoredge.com with questions or comments about this Web site.
Copyright © 1997-2009 The Byte Buyer, Inc.

ComputerEdge Magazine, P.O. Box 83086, San Diego, CA 92138. (858) 573-0315