ComputorEdge™ Online — 02/20/09

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Cloud Computing: A Foggy Notion

The term "cloud computing" has come into widespread use. What is it, and how does it affect the average computer user?

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Digital Dave

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

A reader needs to get rid of a thin yellow vertical line running across his display; a reader wants opinions on Google's Chrome browser; a reader experiences puzzling Internet connection problems; can a reader share an Internet connection without having to purchase a router?

Dear Digital Dave,

I have a three-year-old HP Pavilion notebook. The machine works fine, but I now have a thin yellow vertical line running across my display. How do I get rid of this line?

Dennis Cernitz
Chula Vista, Calif.

Dear Dennis,

Most likely it is either a problem with your display or your video card. To determine which, plug in an external monitor. If the second display shows the same lines, then it's your video card (probably part of the motherboard). If there are no lines on the external monitor, then it's the notebook display. (It is not likely to be a software driver problem, although that can't be completely ruled out without reinstalling the drivers.)

Once you determine the source of the problem, you can see about repairs, either through a local support person, or you can look for a repair kit on the Web—if you're feeling adventurous.

Digital Dave

Dear Digital Dave,

I have been reading your column for many years. I have gleaned a lot over the years from you and your readers. Thanks for the good work!

Have you had a chance to try the new Chrome browser by Google? I have loaded it and tried it for about a week now, and it seems faster, more user friendly, and can be customized easily to get news or whatever you want! I would be interested in learning other opinions of this browser.

Bill M.
Columbia, Missouri (formerly San Diego)

Dear Bill,

Yes, I have had a chance to look at Chrome. It is less cluttered and faster than the other browsers—a factor of 10 faster when running JavaScript. But you may miss some of your favorite plug-ins and add-ons.

Rather than evolving over the years, as have Internet Explorer, Firefox and others, as a new program, Goggle Chrome is designed from the ground up for simplicity and speed. It has certainly had excellent reviews, but Google did not introduce Chrome merely to add another browser to the mix. If all you want to do is browse the Web, then any browser will do—even Internet Explorer.

In the long term, Google is interested in making the Internet the platform for applications such as Google Apps—and much more. These applications will need to operate via a browser that is more reliable than today's batch.

The designs of the current selection of browsers (including Firefox) are not robust enough to handle the future load.

For example, if one tab crashes in Internet Explorer, it affects the entire load. In Chrome, each tab runs independently, as evidenced by the fact that you can drag a tab off the bar to a new window. If one tab crashes in Chrome, it doesn't affect the other tabs.

You do lose the many extensions and add-ons that appear in other browsers. Even Google Toolbar won't run in Google Chrome. This might seem like madness, but the mere fact that the other browsers use extensions and plug-ins is one of the reasons that they will not make the best platform for more advanced Web applications. Google is not trying to replace the other browsers—it is very fond of Firefox. It is looking at new markets where much more powerful Web applications will need a fast, simple, stable browser.

Today, where most Web browsers are used for displaying and interacting with Web pages, personal preference is the guiding factor. For now, use the program you like the best, or all of them—they are free. In the future it is likely that there will be Internet-based applications that recommend—if not demand—that you use Google Chrome. And, why not? It's also free!

Digital Dave

Dear Digital Dave,

We have two computers connected to our local cable company via a cable modem and a hub. We pay for a second IP address.

For the past month or so, the first one of us who powers up the computer and opens e-mail or IE gets on. The other one who tries later receives the "no or limited connection" error message and can't get to the Internet. By cycling power to the cable modem the second computer works OK—until the next day.

Any ideas?

Don Hicke
San Diego, Calif.

Dear Don,

It's difficult to say what's causing your connectivity problem. The complexity of the situation is amplified by the fact that you have two IPs (network addresses) from your ISP. While using two IPs does eliminate the need for a router, you still need a hub or switch to connect two computers (or routers).

In my experience, these types of issues usually come down to IP problems. When you reset the modem, it appears to be reassigning the IPs to each computer, allowing them both to work again. Assuming that you have fixed IPs from your cable company, I would try assigning each IP as fixed to the respective computers. In that situation, the modem should always find the computers without needing to assign (or reassign) the IP address.

You should call your cable company the next time the problem occurs. They can run a trace on each IP to see if it's connecting properly. They may have run into this problem before. If they can't isolate the problem, you may want to get one of their techs out.

I'm not a fan of getting extra IPs from your provider unless you're setting up a Web server or another device that requires a fixed address. The best way to share an Internet connection is with a router. Network routers are inexpensive, built for the job, have built-in security, and don't cost an additional fee from the ISP.

Digital Dave

Dear Digital Dave,

Is there any way to share an Internet connection without having to purchase a router? I have two desktops

running Windows XP with Service Pack 3 and a DSL 4100 Slipstream modem. Both computers have wireless and Ethernet cards. I can see files on both computers, but when it comes to the Internet it just can't find it!

Keith Allen
San Diego

Dear Keith,

In order to share an Internet connection between more than one computer, you need a piece of equipment to act as a gateway. The gateway can either be a router or another computer configured to share its connection. Your DSL modem will connect and sync with either a single computer or a router.

What a router does is set up an internal network by assigning internal (local) Internet addresses (usually 192.168.x.x) to each computer it finds on the network. The router's internal IP is fixed (i.e. 192.168.1.1).

In order for a computer to route the Internet, it needs two network cards—one to connect to the modem and another to connect to the internal network. In your case, the hard-wired Ethernet card would connect to the DSL modem, and you would use Wi-Fi to share with the other computer. If you wanted a hard-wired network connection for sharing, you would need to install another Ethernet card in the first computer.

There is software built into Windows XP that will allow a computer to share its Internet connection called, interestingly enough, Internet Connection Sharing (ICS). ICS will assign the address 192.168.0.1 to the host computer and 192.168.0.x type IPs to the other computers on the internal network. (Routers usually default to 192.168.1.1.)

To find information on setting up ICS, check this article (*www.microsoft.com/windowsxp/using/networking/expert/crawford_02july01.mspx*). Remember, that once you use another computer as an Internet gateway, all Internet traffic will go through that machine. Depending upon the computer capacity, Internet load and other programs running, the performance of the gateway machine may be affected. You may also experience more security problems with your XP than you would with a properly configured router. Plus, with XP, if you set up a Virtual Private Network or use Remote Control, it could temporarily cut off the connection with the other computer.

Although this is not my favorite (see Don's letter above), another option is ordering more than one IP from your ISP. Then all you need is a hub or switch to split the network after the modem. You just need the ISP to issue an IP for each device you wish to connect. It's usually $5 or so per month per extra IP. Each device should be externally routable without a VPN device.

It is worth the low price of a router to prevent the need to route the Internet through another computer.

Digital Dave

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Cloud Computing Basics

“Is computing and data storage in the sky right for you?” by Michael J. Ross

> Many industry pundits are hailing cloud computing as the next great revolution in information technology and management. But are there thunderstorms brewing?

Even though computers were supposed to make our lives easier, the underlying technology has only become more complex with time. Long gone are the days of entering information solely with a keyboard, storing it on a diskette and plugging that into a primitive computer—in many ways just a fancy calculator. Nowadays we have information input through keyboards, mice, trackballs, touch-sensitive displays and audio headsets. Microprocessor speeds have reached levels that would have been unimaginable decades ago. Data-storage capabilities and requirements have exploded, with the amount of data that would have filled a stack of diskettes now portable on a thumb drive attached to a key chain. Home networks and Internet connectivity have transformed not just computing itself, but our modern culture.

Given this enormous increase in complexity, and the way that it can be overwhelming at times—especially for people who grew up in the era prior to computers—it is important to step back every once in a while and remind ourselves that all of these amazing devices, technologies and computational capabilities still boil down to a few essential elements: data input, storage, computation and transfer. The more we can hide the complexity from everyday users, without compromising reliability or control, the easier it will be for the masses to make the most of what the computer world has to offer.

That is what cloud computing is all about. Prior to widespread access to the Internet, in the 1980s and early 1990s, all data storage and processing were done on the "desktop," i.e., a PC at home, not connected to any external network. Consequently, for people using their personal computers for anything other than playing Solitaire, they basically had to be their own technical-support staffs (unless they paid a computer shop to do the work, or somehow shanghaied a friend or relative into doing it). They had to figure out how to set up a new computer out of the box, connect a printer and get it working, install an operating system if needed, troubleshoot device-driver problems, etc. Once all the hardware was set up, they had to install the computer programs they wanted to use, and configure those applications to work properly.

Internet connectivity initially complicated matters even further, with software vendors and Internet service providers (ISPs) expecting non-technical people—who years earlier had given up even trying to set the time on their VCRs—to now configure their e-mail clients with the proper mail and SMTP settings. But by connecting someone's PC to millions of computers worldwide, via the Internet, it is now possible to simplify matters considerably—at least for the average computer user, not the technical people who make the magic happen.

Hidden in the Clouds

Imagine a diagram showing your computer connected, by a line, to a group of disk drives—usually referred to as a RAID,

for "redundant array of independent disks"—backing up multiple copies of your important files. Do you know how to install, configure and manage a RAID network drive? If not, you probably would prefer a diagram in which your computer is connected to a billowy cloud, whose exact contents you do not know and do not worry about. All you know is that the cloud is providing all of the redundant data storage that you need. The same is true for any processing capabilities that have been moved up into the cloud.

This is the origin of the term "cloud computing," even though someone may at first think that it is referring to pie-in-the-sky technology. Technically speaking, the cloud is any external computational resources that your PC can access and utilize. But most people do not have their PCs connected directly to office networks or others; in almost all cases, the external network is the Internet. Returning to our hard drive example, if you were to sign up for one of the many Web-based data-storage services, and you were to use that as your data backup, instead of a RAID network drive, then you would be leveraging the power of the cloud. You probably would not know or even care where those third-party servers are located, or how they themselves are backed up, or who monitors their health. All you care about is that your data is there when you need it.

An illustrative example of cloud computing is Amazon Web Services (*aws.amazon.com*) (AWS), which comprises a set of products grouped into five categories: infrastructure services, payments and billing, on-demand workforce, Web search and information, Amazon fulfillment and associates. Due to space limitations, we will touch upon only two of those products, both of which are in the infrastructure category: Amazon Elastic Compute Cloud (EC2) is a Web service that offers flexible computational power, so a business can avoid the risk and expense of purchasing many servers that they may no longer need at some point in the future. Instead, the company can simply lease server capacity from Amazon, and then scale their usage up or down, depending upon changing business requirements. Amazon Simple Storage Service (S3) is the data-storage equivalent of EC2.

Thunderstorm or Silver Lining?

Many industry pundits are hailing cloud computing as the next great revolution in information technology and management. They point to the clear advantages provided to organizations, which can thus lease computational and data-storage capacity from Web-based providers, thereby reducing their capital investments in equipment and software that can rapidly depreciate and consume even more time and money required for continual upkeep.

On the other hand, critics of cloud computing point out that relying upon third-party vendors for mission-critical processing and data storage places your organization at great risk should those providers fail, even just temporarily. The horror stories of such failures continue to mount. In August 2008, The Linkup, an online storage service, lost as much as 45 percent of its customers' data, prompting the service to close its doors. You can only speculate as to the impact this has had upon individuals and businesses that were counting on that service.

Defenders of cloud computing might argue that anyone would be foolish to rely completely on any external provider, and you should always have internal backups. But if you have to rely upon your own backups, what is the point of paying someone else to do the same—especially if they are less reliable? Those defenders might counter that The Linkup was a relatively small outfit, and thus not representative of this entire sector. But even the biggest names are not immune to serious problems. On July 20, 2008, the mighty Amazon S3 suffered eight hours of downtime, as well as increased error rates, in the United States and Europe. Even worse, that was not the first time, but more like a rerun of the nightmare that occurred on February 15 of the same year, when the service went down for roughly three hours, bringing with it the usability of all the Web applications of other companies that relied upon S3—including both Twitter and Tumblr, which had graphics files stored on S3.

Privacy and protection of sensitive data are additional significant issues with the cloud strategy. For instance, cloud-based medical records services—such as Google Health (*www.google.com/health/*) and Microsoft HealthVault (*www.healthvault.com/*)—are designed to store massive amounts of personal health information on what is admittedly a public network. The potential benefits to consumers are slim to none, while the risks of security breaches and abuse are unknown and potentially high. With medical records stored on Web servers, it is simply too easy for someone inside the service organization to break into that data. It is also tempting for any firm possessing that data to offer it for sale, in one form or another, to marketers, insurance companies, etc. Even unintentional disclosure is possible, and has already occurred. WellPoint, the largest U.S. health insurer, inadvertently released the records of potentially 130,000 customers.

In the final analysis, cloud computing may have great potential, but there seems to be a lot more work that needs to be done in terms of increasing its reliability and security. Do not entrust your personal or corporate data entirely to the cloud, or it all may just evaporate.

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.

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Clouds All Around Us

"The computing forecast is cloudy." by Jack Dunning

Cloud computing is all about taking applications away from your computer and putting them on the Internet. Is the trend here to stay?

I don't particularly like the term "cloud computing (*en.wikipedia.org/wiki/Cloud_computing*)." It was coined as a metaphor for making the Internet the primary source of computing services. Computer people are fond of metaphors (surfing the Web, mining data, etc.). The phrases help them convey to other people how they understand concepts—and intimidates the uninitiated. Yet, using an image of a cloud is far too murky to ever act as substitute for the mishmash of specific Internet products and services that are embodied in the metaphor. If someone said that their line of work was cloud computing, I would certainly think that they were pretentious without me having a clue what they really do—unless they are a meteorologist.

"Web 2.0 (*en.wikipedia.org/wiki/Web_2.0*)" is another non-term that's been thrown around for the past few years. While it seems to be currently overwhelmed by the use of "cloud computing," it conveys a more technical sound, as if a new version of the Web is being released—it's not! Web 2.0 merely means that people are doing all kinds of different things on the Web—some of which are pretty cool. MySpace and YouTube could be considered part of this version of the Web. The term Web 2.0 is like a backward metaphor. What looks like a technical label for a new version of an application is actually used to describe an ambiguous world of change on the Web. I wonder how much time people have spent looking to download the latest installation of Web 2.0. Fortunately, people appear to be getting bored with Web 2.0 and have (temporarily) moved on to cloud computing. This is none too soon, since there are those out there who are pushing the release of "Web 3.0 (*en.wikipedia.org/wiki/Web_3.0*)" as another ambiguous term with very little useful meaning.

The reason that such foggy words are used is because computing has become a kludge (*en.wikipedia.org/wiki/Kludge*). We spend most of our time trying to figure out how our computer parts and Internet connections go together. Just when we think we have everything working, someone gives us something new to add to our system—either as hardware or over the Internet. Some of the pieces are in our computer, others sit on the desk, while still more are available only via an Internet connection. (Connecting to the Internet itself is not always easy.) It's a messy business, and people are making it messier. It's bad enough that we need to learn how to run our computer and get on the Internet. Now, people want us to understand (and use) something called cloud computing. Fortunately, if we ignore the term and focus on the pieces, then it's much easier to understand—one piece at a time.

You're Already in the Cloud

On a basic level, almost everyone is doing cloud computing. E-mail is the original cloud application. Someone in cyberspace (usually your Internet service provider) has set up an e-mail server for you to send and receive e-mail. You don't need to know how it works. Your e-mail client magically sends and receives messages. Behind the scenes (in the clouds), there are e-mail servers continually sending and receiving messages (and spam) without any user intervention. This system works so well that some people think that the program (i.e., Outlook Express) installed on their computer is connecting directly to their buddy's e-mail program without any intermediate servers. That's the way it's supposed to be.

Browsing the Web is another cloud activity that most computer users enjoy. Users don't need to know how a Web server works, where it is located, or even its numerical address.

Of course, people are not referring to e-mail and Web browsing when they talk about cloud computing. That would be silly, because we have been doing those things for so long. Nor are they talking about MySpace or YouTube, although they are applications delivered by the Internet. Cloud computing is all about taking applications away from your computer and putting them on the Internet.

The essence of the cloud is doing over the Internet what you normally would do on a stand-alone machine. Google is a major player in the development of online computing. Google Apps is a series of programs that competes with the standard business programs (i.e., word processing) installed on your computer—except that they are delivered over the Web. The goal of cloud computing companies is for individuals and businesses to rely upon online resources for the majority of their computing needs. Initially, the services may be free, but eventually, either through upgrades or changes in fee structures, there will be regular charges. (Some services may be supported by advertising.)

One of the major applications growing in the cloud is file serving. It seems the everyone wants you to store and back up your files on their computers—located in the cloud. The convenience is that you have all your files available everywhere you go—as long as you have an Internet connection. This has tremendous advantages, especially if you do extensive traveling. On the downside, if you have no Internet connection, you don't have access. (This is true for all cloud computing.)

Eventually, companies such as Amazon Web Services (as discussed in the article in this issue by Michael J. Ross, "Cloud Computing Basics") would like to become everyone's IT department, providing all computer services. The desktops and laptops would be smart terminals hooked into the cloud. There is a good bit of irony in this business model. It reminds us of the day when hundreds of dumb terminals were hooked up to mainframes delivering everything to the user. The current approach is much more sophisticated and distributed than the now-defunct system based upon a central control-all computer, but it looks like a reversal of the trend of always doing more and more on our local computer.

I don't think that the cloud will take over the world of computing. Rather, it will augment our efforts as we see fit. We are not trusting enough to turn over our personal and/or business computing world to someone in cyberspace.

My advice would be to use Internet services if they make sense for your situation. I've considered using online file storage and back-up services, yet I've found that an inexpensive USB hard drive with a sync program does an excellent job—and I'm still in control. I know that I should check out Google Apps (it's on my list), but my free copy of OpenOffice installed on my computer is way too convenient—with or without an Internet connection.

The Internet is here to stay, as is the personal (and private) computer. We will pick and choose our applications, and where we computer—on our computer or over the Internet. Next year there will be even more applications available in the cloud, although we will probably be working with a different metaphor— maybe "fog computing."

Jack is the publisher of *ComputorEdge* 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*

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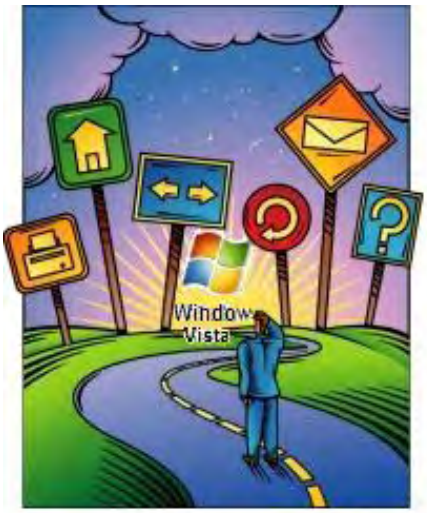

Windows Vista Tips and Tricks

Windows Vista Tips and Tricks

“Disk Defragmentation in Windows Vista” by Jack Dunning

Windows Vista has made the defragmentation of drives an automatic process by default. Here's what's going on.

I received the following question from Fran Kramarski:

"Is there any way you can change the view of Disk Defragmenter in Windows Vista Premium so you can see the hard drive progress? It is much easier to know what is happening if you can see it like the older versions of Windows, [rather] than just waiting and wondering what is going on."

Disk defragmenters are programs that are used to clean up disk drives on computers. On a new hard drive with huge empty spaces, files are written in one large contiguous block. However, over time, as files are deleted and the space is reused, files get broken up into smaller pieces in order to efficiently use the entire drive. The data is written to any available space. When the file is read again, the read head must jump back and forth, picking up all the pieces in order. Eventually, as the drive adds and deletes more and more files, the read-and-write process becomes less and less efficient, causing significant slowdowns for the computer. Defragmenting programs rewrite the data on the drive, putting all the pieces of each file back together in one contiguous space on the drive.

If the drive is large, with many fragmented files, then the defragmenting process can be quite long. The more often the drive is defragmented, the less time it will take. To deal with the problem, Windows Vista has made the defragmentation of drives an automatic process by default. Most Vista users will never need to manually run the program, since it will automatically occur every Wednesday morning at 1 a.m. It occurs in the background and does not display the graphic progress we have come to expect from other disk-defragmenting programs.

To open Vista's Disk Defragmenter, Click the Start button in the lower-left corner, then in the Start Search box, type "Disk Defragmenter," or just "defrag," and then, in the list of results, double-click Disk Defragmenter. There are other ways to find Disk Defragmenter, such as right-clicking on any drive in Windows Explorer, selecting Properties, and then clicking the Tools tab (or through Computer Management), but the Start menu is the easiest. (See Figure 1.)

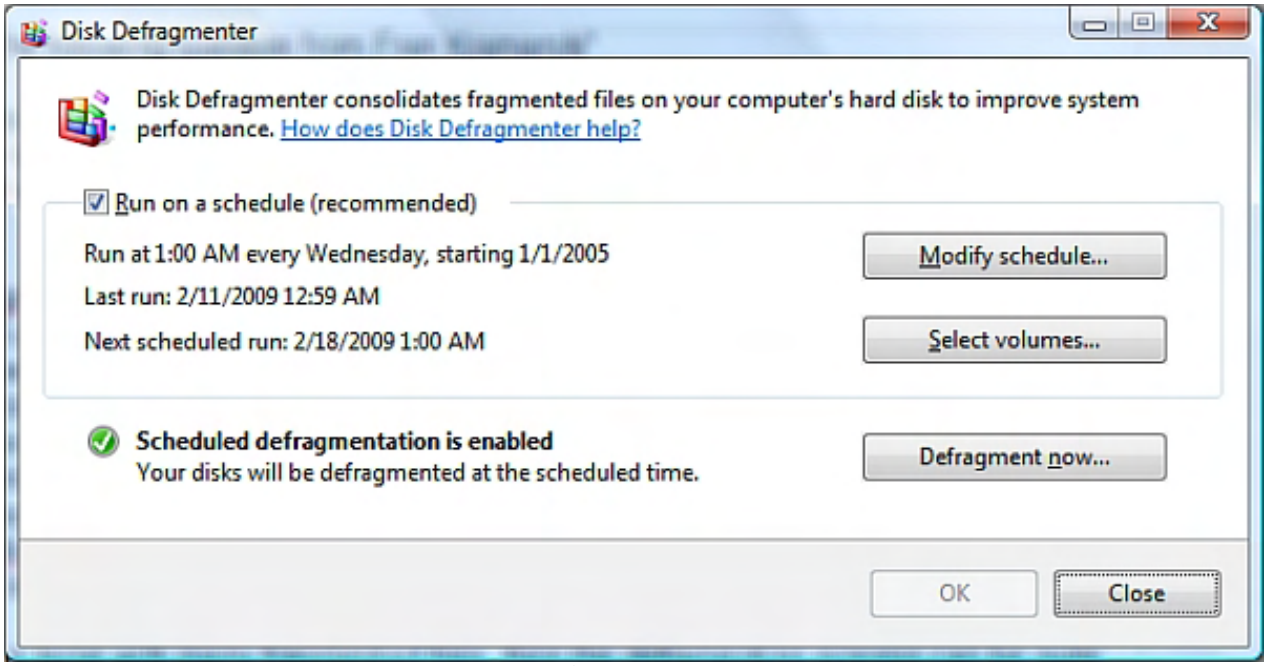

Figure 1. Disk Defragmenter in Windows Vista.

As you will note, the Disk Defragmenter program window is primarily a scheduling program. By selecting "Modify schedule," you can select a routine for the program to run (see Figure 2).

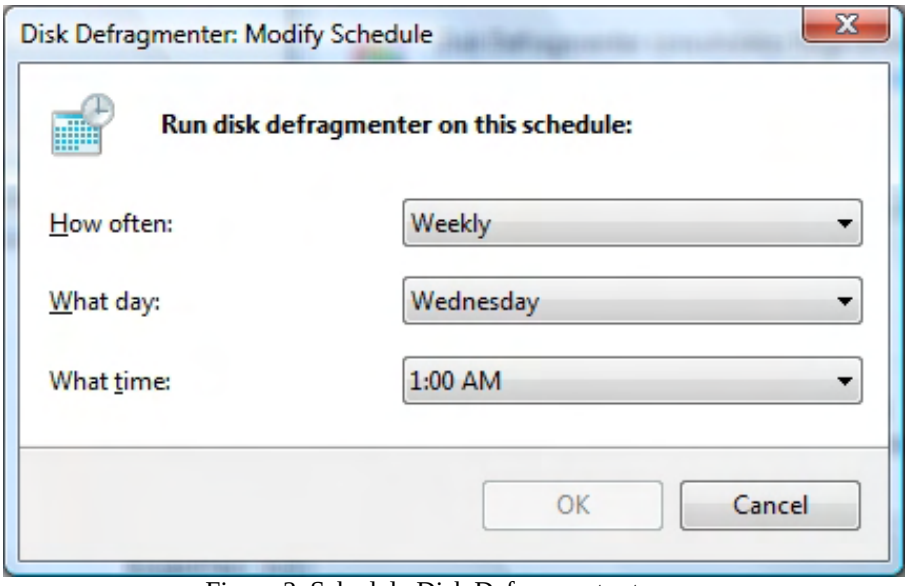

Figure 2. Schedule Disk Defragmenter to run.

By clicking "Select volumes," Disk Defragmenter gives options to work with any drives that you select, including flash drives (see Figure 3).

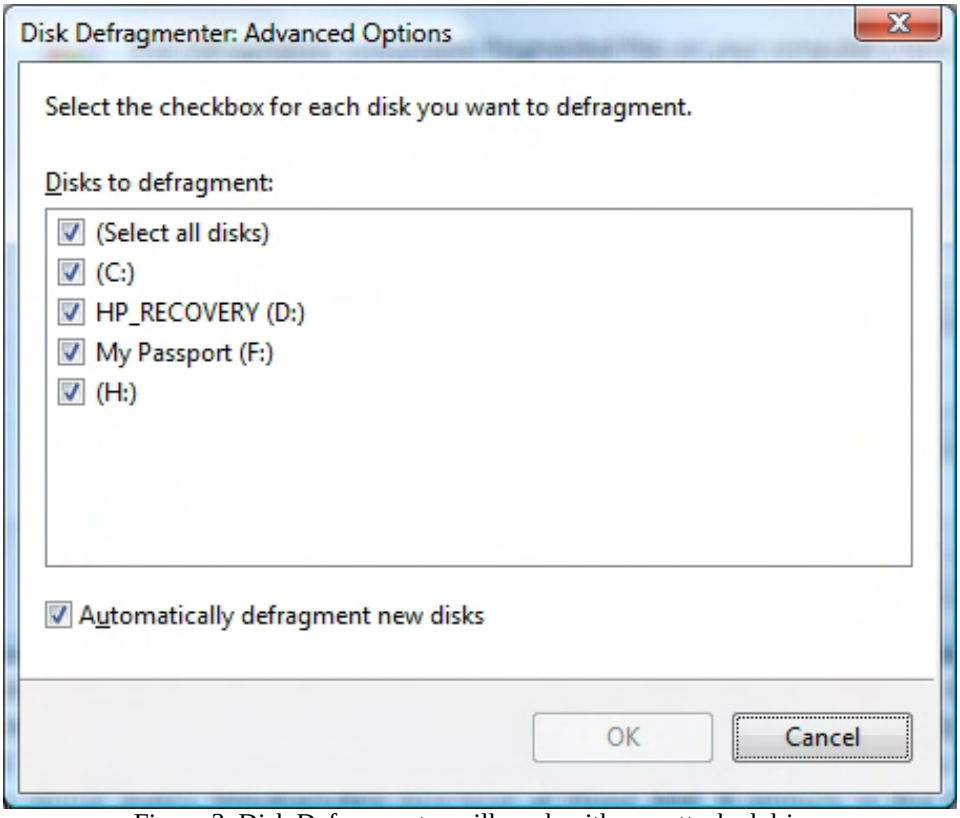

Figure 3. Disk Defragmenter will work with any attached drive.

If you click "Defragment now" after selecting the target drive, you will get the message, "This may take a few minutes to a few hours." If you have the program running automatically, then it probably won't take very long because there won't be much for it to do. However, if you don't have the program running automatically, and it has been a while, then you could be in for a wait.

It's important to note that Disk Defragmenter has been optimized. It does not completely defragment the drive. It will not move a file fragment if it is greater than 64MB. This is probably why it wasn't written to give feedback on progress or results of the process. People might freak out if they saw that the drive is not completely defragmented. However, it is optimized for speed (of both the process and computer operation) and to save wear and tear on the drive that can be caused by defragmenting.

There are times when certain people (not normally the average user) may want a complete defragmentation. If you want to do a complete defragmentation (and get a little results information at the same time), then from the Command Prompt, run:

```
defrag c: -v -w
```

If you just want to see the results with the less than 64MB defragmentation (see Figure 4):

```
defrag c: -v -r
```

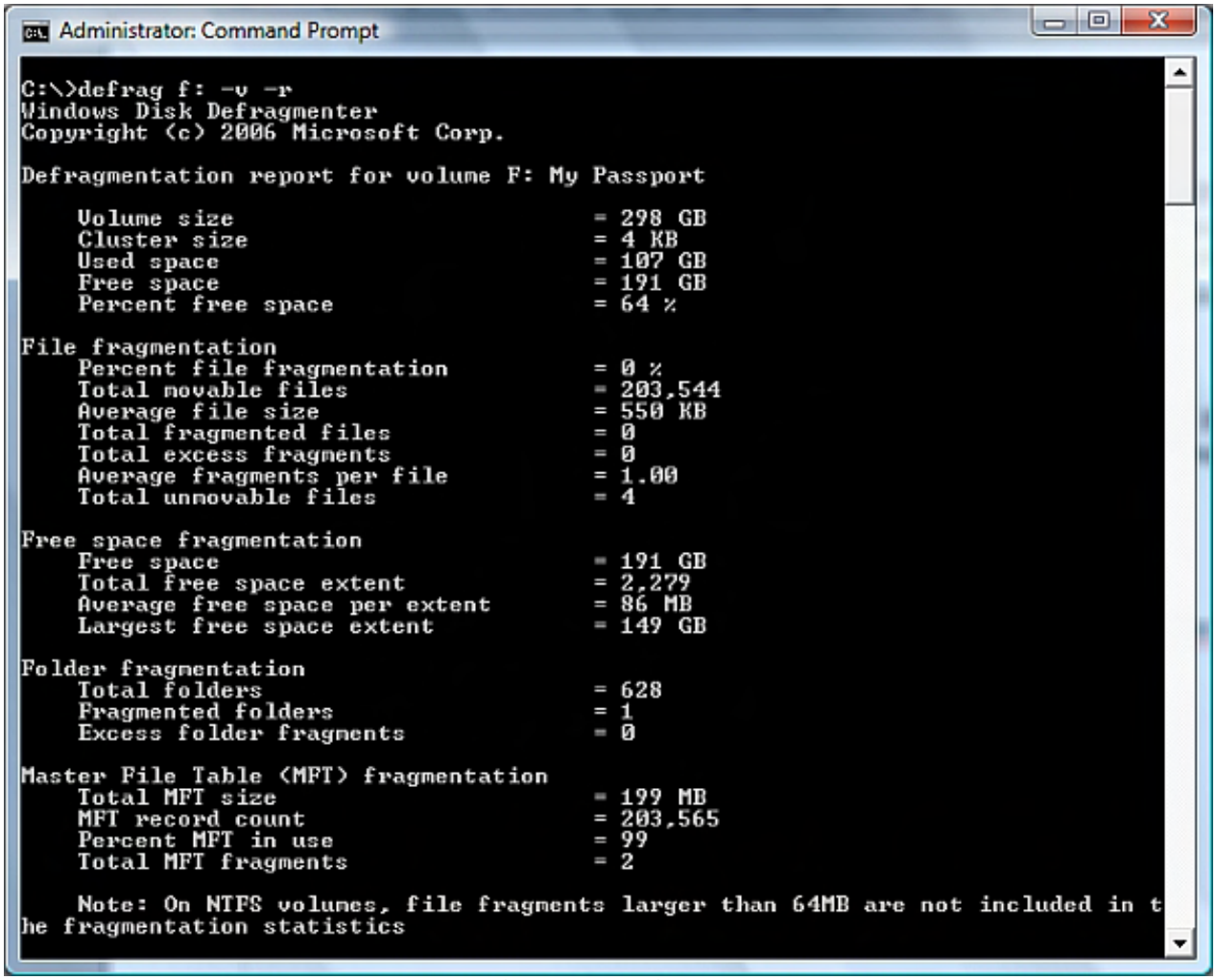

Figure 4. Running Defragmentation from the Command Prompt.

In most cases, you'll never need to concern yourself with the defragmentation process, but you may sleep a little better knowing you don't need to worry about it.

Jack is the publisher of *ComputorEdge* 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*

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Wally Wang's Apple Farm

"Cloud Computing with MobileMe" by Wally Wang

MobileMe offers an e-mail account, storage space for holding files or posting photographs, a Web site, and the ability to synchronize data between multiple devices and programs. Also, a look at the Mind Manager mind-map tool, and a tip on remembering Mac shortcut keys.

In the early days of computers, most people had only one computer. Nowadays, people often have a desktop, a laptop and a mobile phone. If you store a new address on your mobile phone, an appointment on your laptop, and a note to yourself on your desktop computer, now you have to worry about synchronizing this information so it appears accurately everywhere.

Doing this manually will be time-consuming and inaccurate, so that's the problem "cloud computing" is supposed to solve. The basic idea is that every time you add, delete or modify information in one location, that device updates that information in the "cloud," which sends the updated information back to all your other devices, thereby keeping everything up to date and synchronized.

Both Google and Yahoo offer online calendar and contact storage, but if you have an iPhone or iPod touch, you may be more attracted to Apple's MobileMe. For $99 a year, MobileMe offers an e-mail account, storage space for holding files or posting photographs, a Web site, and the ability to synchronize data between multiple devices and programs (Outlook on a PC and iCal, Mail and Address Book on a Macintosh).

If you just need an e-mail account, online storage space, or a place to set up a Web site, you can find far less expensive alternatives (and even free ones). The main advantage of MobileMe is its ability to synchronize data from an iPhone or iPod touch connected to the Internet.

Type a name and phone number into your iPhone, and when you get back home, you'll find that information magically appearing on your desktop or laptop computer. As long as you can access the Internet, you can synchronize your data.

Just be aware that MobileMe's synchronization features don't happen immediately. Usually there's a slight delay, such as 15 minutes or more. While this delay probably won't be crucial, it's not as instantaneous as Apple might lead you to believe.

The latest feature of MobileMe makes it attractive for sharing large files. If you have a file that's too large to send through e-mail, upload it to a public folder on your MobileMe account, give someone a password to access that file, and they can download it to their computer, bypassing any e-mail file-size restrictions. Although you can send large files for free through services like YouSendIt (*www.yousendit.com*) or TransferBigFiles (*www.transferbigfiles.com*), MobileMe can be more convenient to use.

If you regularly run around town using a desktop, laptop and iPhone or iPod touch, you'll find MobileMe invaluable for keeping your data together. If keeping track of appointments and contact information isn't as crucial, or you have only one device where you store all your data, then you may find it hard to justify MobileMe's expense.

* * *

One thinking tool that schools are starting to introduce to students are mind maps. The basic idea is that, instead of using plain text to organize information in a traditional outline, you use text and pictures, then connect everything together with

lines, arrows, shapes, colors and drawings.

First, you start out with the main idea in the middle of the page. Then you draw connecting branches to any ideas related to your main topic. Of course, you can draw additional ideas linked to these other ideas until your mind map represents a spidery web of interconnected thoughts. The idea is that if you make information more visual, it will be easier for you to remember since our brains tend to think visually.

Hand-drawn mind maps are easy to create, but they can be difficult to modify. That's why many people prefer using a special mind-mapping program such as MindJet's Mind Manager (*www.mindjet.com*).

To help you get started, the program includes a handful of common mind maps that you can modify, such as project planning, creating to-do lists, or designing org charts. Whether you start with a mind-map template or create one from scratch, the basic idea remains the same.

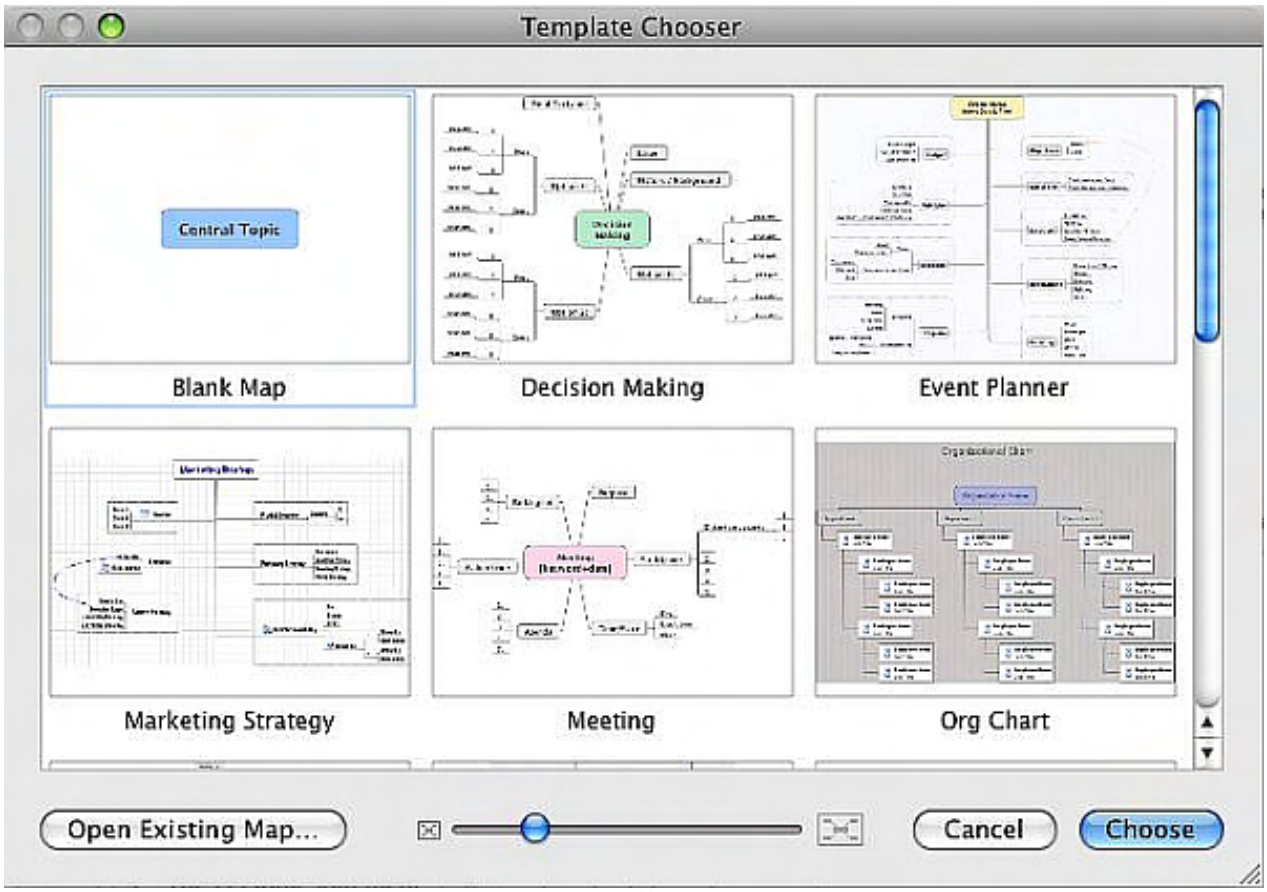

Figure 1. Mind Manager offers mind-map templates.

Each idea in your mind map appears as a rectangle connected to other rectangles with lines. By dragging ideas around the screen, you can rearrange them in different positions and see a more holistic view of your ideas than a linear outline can ever show you.

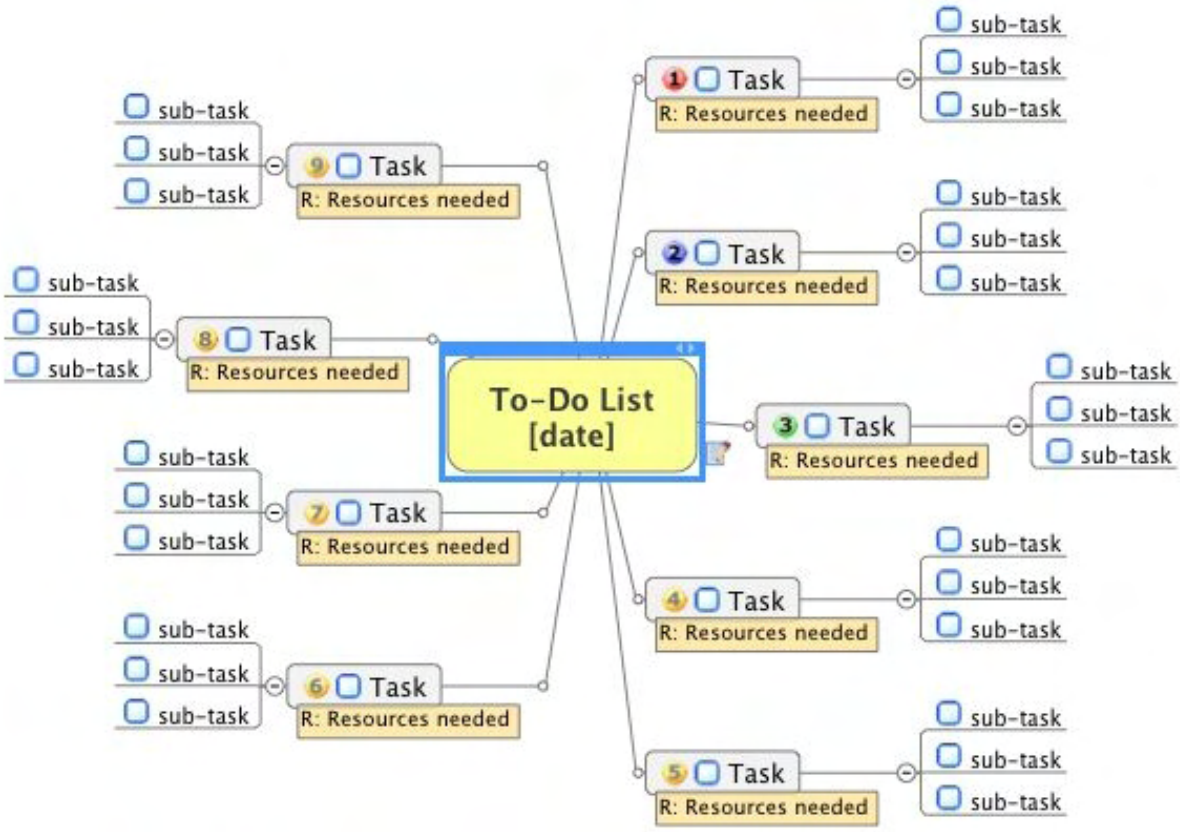

Figure 2. Mind maps let you visually organize ideas.

In addition to organizing ideas, you can attach a hyperlink or file to an idea, as well. For example, if you need to organize your weekly tasks, you might attach an Excel spreadsheet to one idea, a hyperlink to a specific Web page to another idea, and a Keynote presentation to a third idea. Instead of trying to organize your files in separate folders in the usual Finder window, you can create mind maps on your desktop for specific tasks. Now you'll be able to find all related files just by browsing your mind map rather than searching through multiple folders.

For $129, you have to be sold on the idea that mind maps can help organize your thoughts. However, if you need to create mind maps regularly, you'll find Mind Manager an excellent tool for capturing and organizing your thoughts.

* * *

Nearly every program includes shortcuts for accomplishing common tasks, such as pressing Command+S to save a file or Command+P to print a file. Unlike the PC world where modifier keys are clearly labeled Alt, Ctrl, or Shift, Macintosh keyboards tend to display strange symbols that represent the Command, Option and Control keys.

Since it's likely you'll never remember what each Macintosh key hieroglyphic represents, do this to refresh your memory. Click the Apple menu, choose System Preferences, and click the Keyboard & Mouse icon. This will display the Keyboard and Mouse dialog.

Click the Modifier Keys button, and you'll see a list of symbols matched up with the modifier keys they represent. (You can actually reassign different keys to represent the typical modifier keys, but it's usually not a good idea to do this since you'll just confuse yourself if you have to use a different Macintosh.)

Figure 3. Identifying which symbols represent which modifier keys.

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 *Microsoft Office 2007 for Dummies*, *Breaking Into Acting for Dummies*, *Beginning Programming All-in-One Reference for Dummies*, and *Mac All-in-One Reference for Dummies* from *www.dummies.com*, as well as, *Steal This Computer Book 4.0*, *Visual Basic Express 2005: Now Playing*, and *My New Mac* from *www.nostarch.com*. He is also the co-author of *Strategic Entrepreneurism* from *www.selectbooks.com*.

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 (*www.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*).

Wally can be reached at *wally@computoredge.com*.

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Web InSites

"Volunteer Your Computer, Help the World" by Dawn Clement

You can be a part of something that could potentially benefit all of mankind by volunteering your idle computer time to assist in a project of your choice.

Have you ever wanted to be a part of something larger than yourself? Most of us will never win a Nobel Prize, never create an artistic masterpiece, never write the Great American Novel. But that doesn't mean we can't make a difference. Those people we remember almost never made their contributions alone. For example, Andy Warhol is a household name, and he is best remembered for his paintings of Campbell's soup cans. But, did you know that it wasn't his idea to paint soup cans? In 1961, he turned to a friend for ideas, and she told him to paint what he loved—Campbell's soup. Would Warhol have become the famous pop artist he was without her input? Probably. The fact remains, however, that the idea for his most well-known work was not his own. Warhol's nameless friend effectively changed the course of modern pop art. Little people do the grunt work. They receive less recognition, but no one works in a vacuum. Why do ordinary people help those in the limelight? Because it is right thing to do. Because even an average person can make a contribution to the greater good.

Supercomputers are used for highly calculation-intensive tasks, and are invaluable research tools. It costs millions of dollars to build a supercomputer, and millions of dollars more to keep it running. The investment costs are so high that most researchers can only dream of using a supercomputer to collect data. However, there is an alternative—volunteer computing. Volunteer computing is a type of distributed computing in which ordinary computer owners volunteer their unused processing time to a project or projects of their choice. It's true that this does result in a slight increase in electricity charges for participants, but a lot of people feel that is a small price to pay for contributing to the greater good.

The Berkeley Open Infrastructure for Network Computing (BOINC (*boinc.berkeley.edu/*)) is one of the largest volunteer computing networks. BOINC has approximately 565,000 active computers worldwide processing an average 1.287 petaflops (a petaflop is one quadrillion floating point operations per second). That's faster than the current (as of November 2008) fastest supercomputer (the IBM Roadrunner), which has a processing rate of 1.026 petaflops. By comparison, ENIAC (one of the first "supercomputers") was capable of only 100K operations per second in 1946. It's absolutely amazing what people can accomplish when they join together!

It can be very satisfying to know that you're contributing to history. History is being written every day, and you never can be certain what the future will say about the present. So, in 1999, I signed up to participate in SETI@Home (*setiathome.ssl.berkeley.edu/*), one of the early volunteer computing projects. The purpose of the project is to use idle computer time to compute calculations related to radio waves that SETI retrieves from the depths of the universe. Since I believe this is a worthwhile endeavor, I have no problem with the nominal energy increase from participating in SETI@home. I get a kick out of seeing how many calculations my little computer has performed, and out of knowing that I'm making a contribution (however small). The SETI (Search for Extraterrestrial Intelligence) organization's mission statement is "to explore, understand and explain the origin, nature and prevalence of life in the universe." In plain English, that means they're looking for aliens. Founded in 1984, SETI has yet to find signs of alien intelligence, but they're still looking. And so am I! I'm one of those crazy individuals who genuinely believes that in a universe of possibly infinite size, with an unknown number of solar systems each containing an unknown number of planets, it is the ultimate hubris to think that our tiny little planet is the only one out there with intelligent life.

In the past 10 years, there have arisen many other volunteer computing projects, which you may be interested in. Most of these are worthwhile research projects that simply don't have the resources to utilize supercomputer time, and rely on volunteer computing to perform the countless computations necessary. Perhaps you've heard of a little something called the

Human Genome Project (*en.wikipedia.org/wiki/Human_Genome_Project*) (the HGP)? The HGP is now complete, and produced a tremendous amount of data, which now has to be analyzed. The Human Proteome Folding Project (HPF) is taking some of the data from the HGP and attempting to determine the function of proteins. This project is being calculated entirely on the World Community Grid (*www.worldcommunitygrid.org*). The World Community Grid is sponsored by IBM. IBM donated the initial hardware, software and technical services to build the infrastructure, and continues to provide hosting, maintenance and support, free of charge. The World Community Grid runs on BOINC (Berkeley Open Infrastructure for Network Computing) software, released in 2002, and developed by a team at UC Berkeley for use with the SETI project

You can be a part of something that could potentially benefit all of mankind by volunteering your idle computer time to assist in a project of your choice. You can join the SETI project (as I did) to search for aliens, or the Human Proteome Folding Project (*www.worldcommunitygrid.org/projects_showcase/archives/viewHpfResearch.do*) (which could possibly find a cure for cancer). If neither of those is to your liking, there's always the Artificial Intelligence System Project, which is attempting to simulate a human brain in real time. Your computer can be used to calculate the electronic properties of materials for The Clean Energy Project, or to help create a three-dimensional model of the Milky Way galaxy for Milkyway@Home (*milkyway.cs.rpi.edu/milkyway/*).

Wherever your interests lie, you can undoubtedly find something you find worthwhile. You can find volunteer computing projects at *boinc.berkeley.edu* and at *www.worldcommunitygrid.org*.

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.

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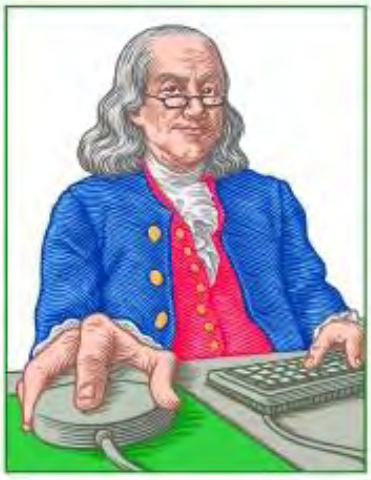

LITTLE LINUX LESSONS

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

Little Linux Lessons: Tips and Tricks from Users

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

A tip on using the apropos command, a built-in tool that can help the novice (or anyone who has trouble remembering commands) to explore and learn. Also, a question from a novice about what Linux distro to choose.

The Most Important Command for Learning Linux

Linux and other Unix-like operating systems can be pretty obscure when you are just staring at a command prompt. It is difficult to know where to start. It helps to read a Linux book or two, plus there are numerous references on the Web. However, there is a built-in tool that can help the novice (or anyone who has trouble remembering commands) to explore and learn. The command is apropos.

When apropos is used with any keyword, it will locate all those commands that have the keyword in its description. For example, if you are working with an e-mail server and need to remember a particular command, file or program, you might try:

```
apropos mail
```

and get the following results:

```
aliases(5)               - aliases file for sendmail
biff(1)                  - be notified if mail arrives and who it is from
ctm_smail(1), ctm_dequeue(1), ctm_rmail(1) - send and receive ctm(1) deltas via mail
editmap
(8)              - query and edit single records in database maps for sendmail
forward(5)               - mail forwarding instructions
from(1)                  - print names of those who have sent mail
mail(1), Mail(1), mailx(1) - send and receive mail
mail.local(8)            - store mail in a mailbox
mailaddr(7)              - mail addressing description
mailer.conf(5)           - configuration file for mailwrapper(8)
mailq(1)                 - print the mail queue
mailstats(8)             - display mail statistics
mailwrapper
(8)           - invoke appropriate MTA software based on configuration file
makemap(8)               - create database maps for sendmail
msgs(1)                  - system messages and junk mail program
newaliases(1)            - rebuild the data base for the mail aliases file
praliases(8)             - display system mail aliases
rc.sendmail(8)           - sendmail(8) startup script
rmail(8)                 - handle remote mail received via uucp
sendmail(8)              - an electronic mail transport agent
smrsh(8)                 - restricted shell for sendmail
```

```
vacation(1)              - E-mail auto-responder
mbox(5)                  - Format for mail message storage
mutt(1)                  - The Mutt Mail User Agent
mutt_dotlock(1)          - Lock mail spool files
muttrc(5)                - Configuration file for the Mutt Mail User Agent
run-mailcap(1), see(1), edit(1), compose(1), print
(1) - execute programs via entries in the mailcap file
checkmail(1)             - plays a sound file when the user receives mail
xbiff(1)                 - mailbox flag for X
xmh(1)                   - send and read mail with an X interface to MH
Net::SMTP(3)             - Simple Mail Transfer Protocol Client
```

Then to investigate a result further, use the man (manual) command:

```
man vacation
```

It's always a good idea to use man before entering any command. This will help you with the proper format and prevent you from unknowingly causing perverse reactions.

Where to Start with Linux?

I am kind of new to Linux, but I would like to install it on an old Sony notebook, which at the time is running Windows Me. Specs: It has 64MB RAM (I will upgrade to 128), 20GB HD, 300MHz processor speed, USB, CD-ROM, PCMCIA, floppy. Is there a Linux for beginners?

I was thinking about Ubuntu. Can you please recommend a system for a first-time user? The system should be capable of working with all basic software programs.

Kid@40

This is definitely one of the most-asked questions. We received a number of opinions at the end of December 2008. If anyone has anything to add, please drop us a line.

* * *

Looking for More Linux 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 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 *ComputorEdge* 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 word "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
ComputorEdge

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Rob, The Computor Tutor

Rob, The ComputorTutor Does Access 2007

"Access 2007 Tables" by Rob Spahitz

Last week we started exploring the world of Access 2007. This week we continue by looking at table creation and how that compares to previous versions.

Last week we started exploring the world of Access 2007. This week we continue by looking at table creation and how that compares to previous versions.

If you open an existing database, like those found on my server (*www.dogopoly.com/ce*), you'll find that a list of tables appears in a panel on the left, as seen in Figure 1. However, using the Ribbon Bar, there seems to be no practical way to do anything with them if a form is being shown. All interaction applies to the current form. Also remember that with my limited screen space for the columns, the Ribbon Bar appearance may be collapsed and show only pictures.

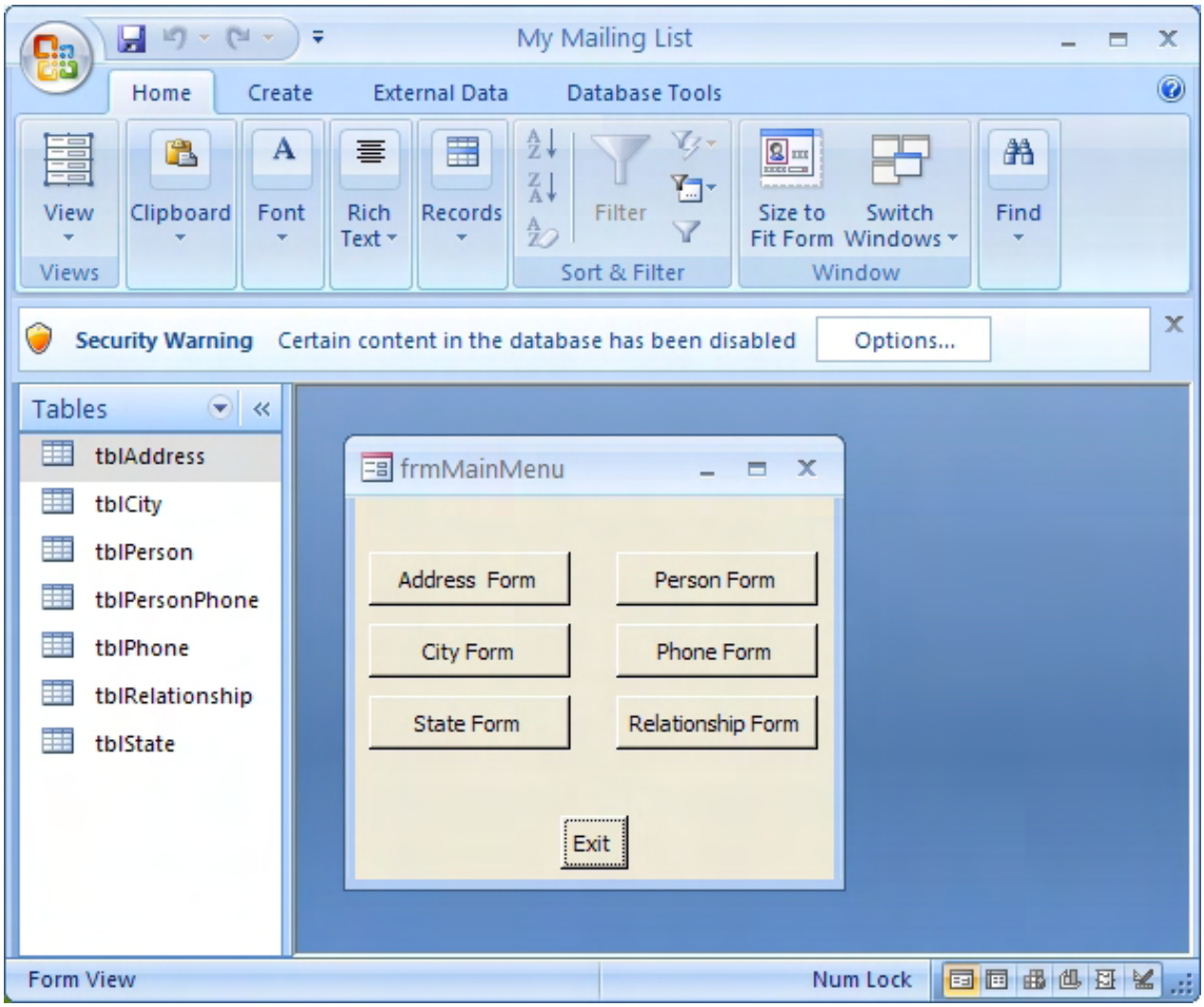

Figure 1. Existing database showing tables.

Before I continue, let me state that although I have experience dating back to Access 2.0, I am still somewhat new to Access 2007. So there may be new features that I haven't found yet. If you know of a better way to do anything I mention in my columns, please drop me an e-mail (look at the bottom of my columns), and I'll see if I can include your tip in a future

column.

As a reminder, if you open an existing database, you will probably get a security warning bar just beneath the Ribbon Bar that appears at the top. Click on Options and "Enable this content" if you trust the VBA code that it offers (which is fine if you created it or trust the person who sent you the database).

If you want to examine or modify the design of a table, simply right-click on the table, such as tblAddress, and you'll get a menu like Figure 2.

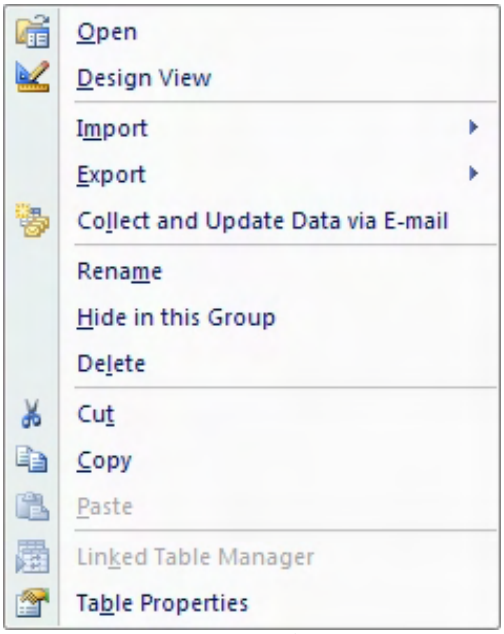

Figure 2. Table modification menu.

From there, select Design View. If a form is open, you may get an additional warning about not being able to modify it, as seen in Figure 3. If so, you may want to cancel, close the form, and then enter Table Design view.

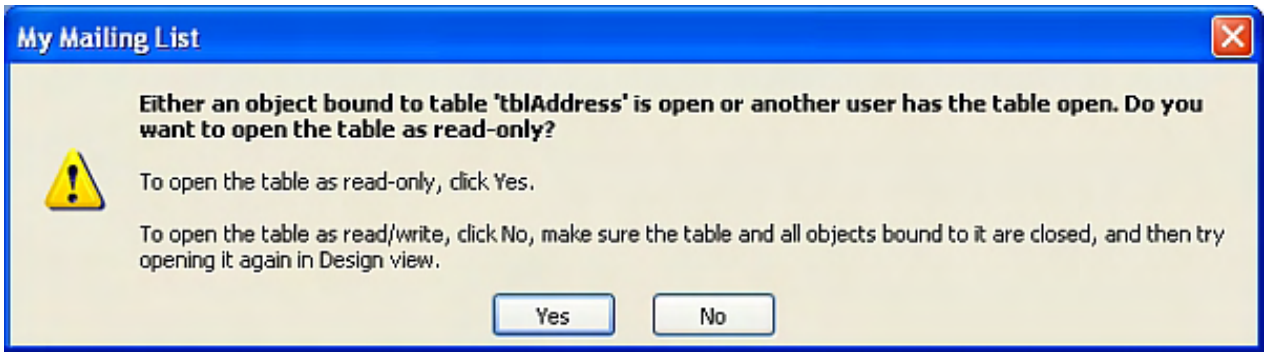

Figure 3. Table Design warning.

When you get to design mode, Access 2007 adds a new menu tab to the Ribbon Bar called Design that has a tab called Table Tools attached to the menu bar, as seen in Figure 4. This concept is just how things work now. It may take some getting used to.

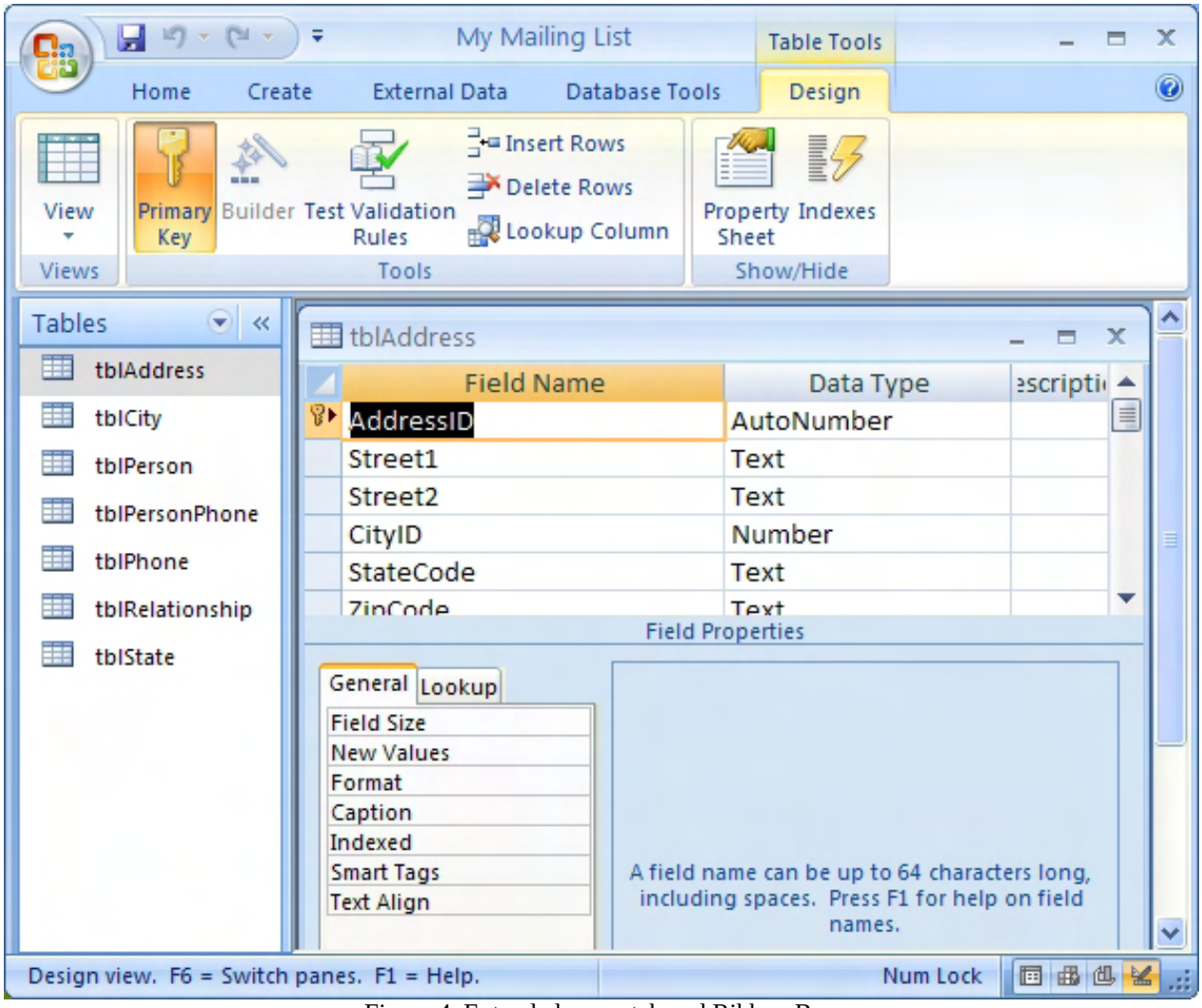

Figure 4. Extended menu tab and Ribbon Bar.

Looking at the Table Design window, you'll notice that it looks essentially the same as Access 2003. Finally, something familiar! Furthermore, right-clicking on things like field names will also give some familiar menus for doing things, such as setting the primary key or inserting a row. Also, the drop-down list for data types will also look familiar, showing all the same choices including the Lookup.

At this point, I'd like to show you an important feature of the Ribbon Bar. Since my screen is very tight for these columns, I need all the space I can get. I really need to gain some space by getting rid of that Ribbon Bar! To do this, simply right-click somewhere on the menu tab area (like Home) and select "Minimize the Ribbon" as seen in Figure 5.

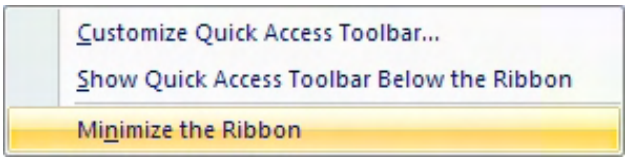

Figure 5. Minimize Ribbon Bar.

Now you still have the menu items, but the rest of the pictures are hidden. To easily restore them, just click on the menu name like you would in the old menu system. Click on the Design menu tab so we can explore further.

The first menu block, Views, gives you the familiar view options, like Datasheet View and Design View.

The next menu block, Tools, also has some familiar features. If Primary Key has an orange background, that means the currently selected field is a primary key field. You can also manage your fields here.

The last menu block, Show/Hide, lets you see the properties or indexes for the table.

With all of this, we can manage our tables pretty much the same way as we did in Access 2003.

Forms and Reports

OK, the existing database I was using had a few forms. Where are they? Well, Access 2007 has a new way to manage these. Rather than the Database Objects menu, you have all of the items in the Tables window. To locate the other items, simply click on the title of the window. You'll see the menu shown in Figure 6.

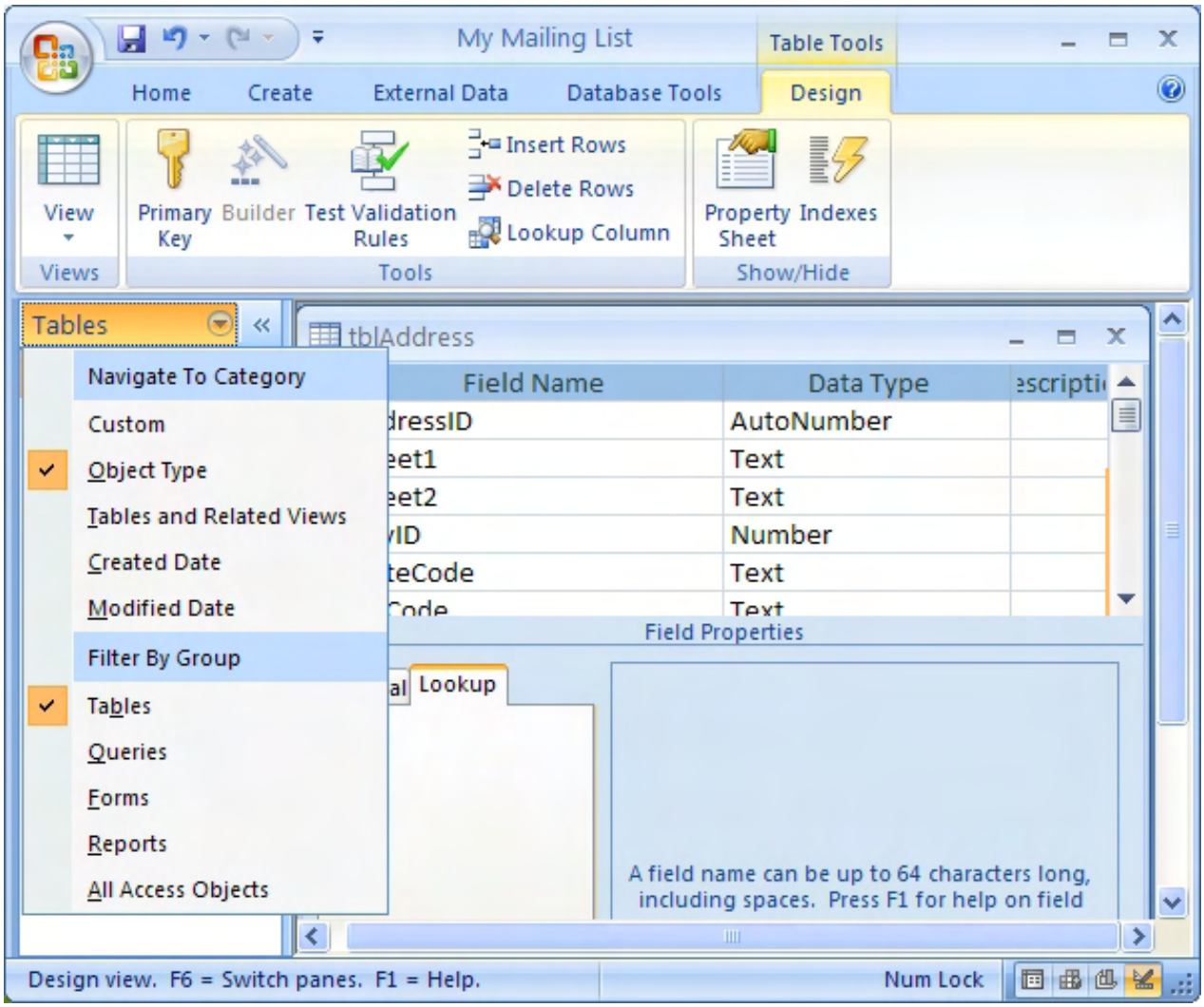

Figure 6. Database Objects menu.

If you want it to appear closer to what you had in Access 2003, you probably want to select All Access Objects under the Filter By Group section. This will give you all of the Access objects organized by type, and each can be collapsed as seen in Figure 7.

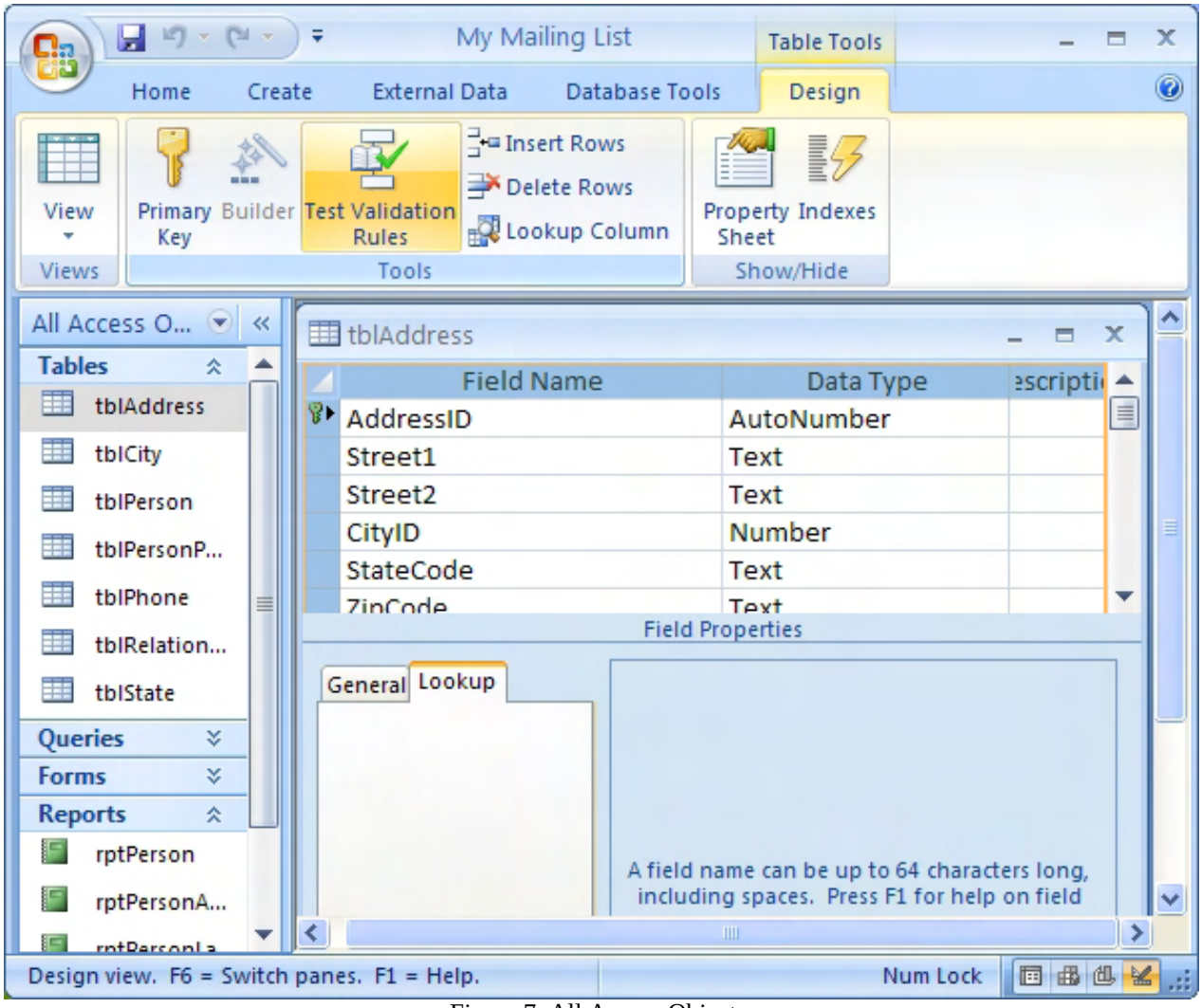

Figure 7. All Access Objects.

Next week, we'll explore some of the other changes that you'll find related to Access 2007 forms and reports. After that, we'll get back to VBA for a while before going into the full-fledged version of Visual Basic for making Windows applications.

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 *ComputorEdge* since 1990 and can be contacted at *RSpahitz@Dogopoly.com*.

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EdgeWord: A Note from the Publisher

"Distributed Systems and Problem-Solving" by Jack Dunning

Musings on the collaborative nature of distributed processing and the search for extraterrestrial life.

I was particularly impressed with Dawn Clement's column this week for two reasons. First is the statement made about distributed processing via the problem-solving systems she discusses. Second is her involvement with the search for extraterrestrial intelligence.

The concept of the distributed system is that, rather than working and controlling all activities from a central location (i.e., a massively powerful computer), the tasks and control are spread among many small computers. The power of all the smaller microprocessors is combined into a larger, more flexible whole. While this has long been theorized as an effective model for building larger, more powerful computer systems, it took the Internet to make the practicality virtually limitless.

The beauty of the distributed system is that it doesn't depend upon any particular operating system or computer type. Even that old, slow computer that now sits in your garage can contribute—as long as it still runs. Maybe newer computers can calculate at speeds 100 or 1,000 times faster than the clunker, but in a distributed system, any contribution, no matter how small (or slow) is still a contribution.

Possibly the future of cloud computing is with the integration of thousands of independent computers, rather than markets controlled by Google or Microsoft. It would certainly be more democratic.

One example of distributed processing is the BitTorrent system. While BitTorrent (see the BitTorrent issue, January 23) is a downloading system, it is based upon breaking files into little pieces and spreading the transmission work between peers. The combination of individual computers acting as piece-work servers has the potential of maximizing the effective download speed of any file—limited only by the download bandwidth of the receiving user.

The keyword in distributed systems is collaboration. They are both democratic and uncontrollable. Look for more clever uses of collaborative distributed systems in the future.

As far as intelligent extraterrestrial life in the universe, there is a high probability that it does exists. A hundred years ago, when I was in college, I studied physics. In those days, there wasn't nearly as much that we knew that we didn't know as there is today. Therefore we could spend time on pursuits such as reading science fiction and calculating the accuracy of the underlying scientific suppositions. It was actually great fun and we received a small amount of college credit for our efforts.

One of our tasks was to calculate the probability of intelligent life in the universe. We arrogantly knew that there wasn't much to be found on Earth, so the only alternative was to look elsewhere. First, we started with the probability of carbon/oxygen-based planets existing at other locations in the galaxy and the probable universe. It was highly probable. Then, we calculated the potential for those planets to develop any life. Considering the number of such planets, it was still highly probable. Then, we looked at the odds of the life being intelligent. We decided that, considering the size of the universe, the odds of extraterrestrial intelligent life was just about, although not quite, 100 percent. They are out there.

As exciting as that is, the odds of us ever encountering any of them, based upon the enormity of the universe, is close enough to zero to make the search for them an excellent activity for old computers that would otherwise be a doorstop. (Of course, in those days we didn't have any old computers.) That doesn't mean that we shouldn't look for extraterrestrials. After all, the odds are not zero.

Jack is the publisher of *ComputorEdge* 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*

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Editor's Letters

"Readers write in with letters to the editor." by ComputorEdge Staff

"Powering Off vs. Shutting Down," "Transferring Docs Stored Online," "The Other Part of Detecting Malware," "Abandon Vista and Focus on Win7"

Powering Off vs. Shutting Down

[This letter is in regard to Digital Dave's February 6 column, where Dave discussed the merits of powering off vs. shutting down your computer system.]

My son lost three chapters of his thesis off his flash drive when the computer he was editing it on crashed and wiped out the flash drive directory. Abrupt power-off has the same issue. However, most computers you buy these days have the power-off switch actually invoke a graceful shutdown, so the risk is really power loss or crash, not power-off.

-Stewart A. Levin, Centennial, CO

The Shut Down right now [option] is because some Windows files can be lost or corrupted if you usually just turn off the PC without shutting off Windows (had to fix several friends' PCs because of this). But remember also, the procedure for shutting down a PC was [created a] long time ago because the monitors would later die or have an image engraved if the procedure wasn't done right. Current monitors can handle it, but the procedure still lives on.

-Marcos, Tijuana, B.C.

Transferring Docs Stored Online

[This letter is in regard to Michael J. Ross' January 9 article, "Firefox Web Browser Extensions."]

I have just installed Firefox and logged on, [but] nowhere can I find the steps necessary to simply transfer docs now stored in Yahoo Briefcase to retrievable storage at Firefox. *Why the big mystery?* A little guidance here would be appreciated. AT&T/Yahoo will delete *all contents* from the "briefcase" on March 30.

My sole purpose, for now, would be to secure selected e-mail and documents with Firefox, replacing the once-upon-a-time reliable Yahoo online storage.

-Francis J. McGuire, San Diego, CA

[I haven't used Yahoo Briefcase, but here appears to be an answer: help.yahoo.com/l/us/yahoo/briefcase/basics/bc-30.html *—Jack Dunning]*

Abandon Vista and Focus on Win7

[This letter is in regard to Jack Dunning's February 6 Windows Vista Tips and Tricks column, "More on File Associations."]

I did a download of Windows 7 and am happy with it so far. They are lacking in drivers for some Wi-Fi adapters, but it seems *much* better than Vista, *any version*. Perhaps you should abandon Vista and focus on Windows 7?

Kind regards,

-Craig Bonny, San Diego, Calif.

[Perhaps I would, if Windows 7 were being sold with new computers. Until then . . . —Jack Dunning]

The Other Part of Detecting Malware

[This letter is in regard to Dawn Clement's February 6 column, "The Continuing Malware Saga."]

I'm in the middle of fixing a malware attack. The part that is *not* mentioned is that the *virus scanner can be infected too*! Yes, that means you can get lulled into a false sense of security and assume that you are protected when you really are a "zombie" (the techie name for a controlled computer) that is part of a botnet.

I had to switch a system from a popular virus scanner (complete brain surgery) to a different one; it is cleaning up *years* of infection. The owner noticed problems only when the system slowed to 386 speeds. The whole *business* system (all computers seem affected) may have been compromised.

A business sometimes *can't* "Press the big red button" (do a clean install). This is when the professionals make the big money!

Another warning: Some [viruses] modify the boot sector on the hard drive or even the BIOS chip in the motherboard! The only solution in these cases is to have a pro do the job *or* replace the motherboard and hard drive.

-Art Blackwell, Evergreen, CO

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