



The Cursor



Monthly Newsletter of the
Washington Area Computer User Group

Meeting Location:
Fairfax County
Government Center



Next Meeting:
June 17, 2006



Presidential Bits June 2006 Meeting

by Paul Howard

Geof Goodrum wowed the Group in May with his demonstration of Fedora Core Linux and the depth of open source applications available for Linux users. Sophisticated installation programs now make it easy to install Linux on dual boot or stand-alone systems. I'm sure Geof will be getting a lot more inquiries about setting up Linux systems!

One again, June's meeting will feature our PC Clinic, where we try to help our members with their particular hardware and software problems. We'll kick this meeting off with video highlights of the 2006 Consumer Electronics Show that Geof Goodrum attended in January.

At our clinic, WAC experts can help with virus and spyware removal, hardware and software installations, including operating systems. You must contact us in advance to discuss your computer's symptoms, or advise what hardware or software you'd like help installing or troubleshooting. In most cases, you must bring your complete system: CPU, monitor, keyboard, mouse. Please

refer to the clinic ground rules which provide an email address for contacting us in advance of the meeting so we can arrange the necessary expertise or special tools.

June 1st marked the formal introduction of MicroSoft's Live OneCare security suite with backup functionality. The product is a subscription-based package, offering protection for up to three computers for \$50 a year, with firewall, anti-virus, and anti-spyware components. A three month trial is available. We'd love to have a review for the Cursor, or a report or demo at a meeting!



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Lloyd's Web Sites for June, 2006

by Lloyd Johnson, WACUG
Member

1. Information on the Nations Birding Trails
www.americanbirding.com
2. How to build and/or restore Cabinets, Decks, etc
www.askthebuilder.com/tips
3. Find everything you want to know about Popular Theme Parks, including accident reports
www.themeparksinsider.com
4. If you haven't fished in a while, check out this site to see if your state offers free fishing days or weekends.
www.takemefishing.org
5. Want to see Safety Ratings for your present or next Car?
www.safercar.gov
and www.iihs.org
and www.aaa.com
6. Need a multilingual Encyclopedia? This site can be edited by any one.
www.wikipedia.com
7. A free people search
www.zabasearch.com
8. This site gives information in case you want to visit France
www.francekeys.com
9. The following site is a JAVA application that lets you construct wireframe creations and bring them to life on your computer.
www.sodaplay.com/constructor
10. To cheer you up in case you did not find anything good in the previous sites.
www.jokemaster@email.com



NCTCUG

Visit our "sister" user group. The National Capital Technology and Computer User's Group meets the first and fourth Wednesday of the month. They meet in Carlin Hall in Arlington at 5711 South 4th Street. Visit their web site for more information, a map and directions:

<http://www.nctcug.org/>
Meetings start at 7:00 PM



GNU/Linux SIG

By Geof Goodrum

Security Updates for Firefox, Thunderbird

A new security and stability update for the Firefox web browser was released on June 1st. This update to version 1.5.0.4 contains five critical security fixes that could allow malicious web sites to run and install software on the user's computer without user intervention. More details are available at <http://www.mozilla.org/projects/security/known-vulnerabilities.html#firefox1.5.0.4>.

The Thunderbird e-mail client was updated on May 31st to version 1.5.0.4 with security and stability fixes. One security fix is identified as critical. More details are available at <http://www.mozilla.org/projects/security/known-vulnerabilities.html#thunderbird1.5.0.4>.

Please run your system software update utility to ensure that you have the latest versions installed.

“Proof of Concept” StarOffice/OpenOffice.org Macro Virus

On May 30th, a virus analyst announced the first detection of a macro virus designed to run using the StarBasic macro language used by Sun Microsystem's StarOffice application suite, and, consequently, the Open Source application suite OpenOffice.org (<http://www.viruslist.com/en/weblog?weblogid=>

[187738337](http://www.viruslist.com/en/weblog?weblogid=187738337)). The new macro virus, named Virus.StarOffice.Stardust.a, downloads an adult image and displays it in a new document.

Jacqueline McNally of OpenOffice.org posted an announcement (<http://lwn.net/Articles/186097/>) that OpenOffice.org prompts the user before allowing any macro to run, and users should never accept files from unknown sources.

Knoppix 5.01 DVD Released

Klaus Knopper quietly released DVD version 5.0.1 of his GNU/Linux distribution Knoppix through servers worldwide on June 2nd. The bootable DVD contains over 8 gigabytes of compressed content that can be run entirely from the DVD, including numerous updates to applications and utilities, as well as the following features:

- Linux Kernel 2.6.17 (rc)
- Debian (testing/unstable)
- Xorg Version 7.0 (modular graphic interface)
- Detection of onboard IDE-RAID controllers and RAID disk components
- udev+hwsetup for automatic hardware detection
- KDE 3.5.2, GNOME 2.12 from Debian/unstable
- OpenOffice 2.0.2 (german+english)
- transparent write access for NTFS (i.e., Windows XP) partitions (libntfs+fuse)
- new knoppix-installer can be used to update existing hard-drive installations of Knoppix

While Knoppix is handy in its own right, it is also popular for recovering data from crashed Microsoft Windows systems, and repartitioning and copying hard drives.

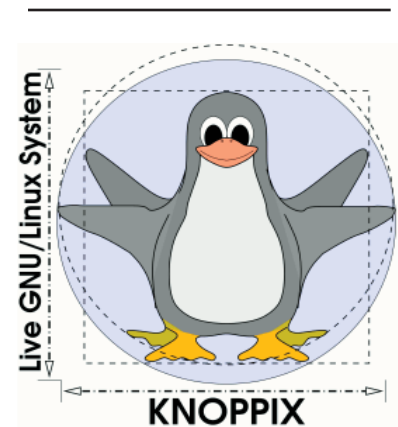
The 4.3 GB DVD ISO disc image is a free download from web, ftp and rsync servers, or DVDs can be obtained at nominal cost from various Linux CD distributors and WACUG (see Linux CD of the Month, below). A reduced-content bootable CD image is expected shortly.

The Knoppix home site with links to download sites is at <http://www.knopper.net/knoppix/index-en.html>.

Linux CD of the Month

There will not be a Linux CD for June. However, WACUG can provide CD-R and DVD±R media for any downloadable GNU/Linux operating system distribution (e.g. Fedora Core, Mandriva, Ubuntu, Debian, Knoppix). Please note that download versions of commercial distributions do not include official technical support or printed documentation.

Discs are available only by pre-order. Contact Geof Goodrum by phone (703-370-7649) or e-mail (ggoodrum@bigfoot.com) at least 48 hours before meeting day to order or for more information. Single CD-R discs are available with a \$3 donation; GNU/Linux distributions on multiple CD-Rs or single DVD±R are available with a \$6 donation.



Printing Better Pictures

by Robert Spotswood, Member of HAL-PC, active in the Linux SIG and a freelance computer professional

When a dot is not a dot

Have you ever tried to print out a picture that looks good on your monitor only to be disappointed with the result? Does it come out way smaller/bigger than you expected or look really grainy?

This is not a random act by your computer. In order to understand why it happens, and more importantly, be able to prevent these problems, you have to understand when a dot is not a dot.

This is not an easy subject to grasp initially, but if you play with it just a little, the light bulb will light and it will become almost second nature very quickly.

Conventions

There are two types of graphic images: bitmap and vector. This article focuses exclusively on bitmaps. If in doubt about which type your picture is, it's probably bitmap. Bitmap pictures are composed of a series of dots called pixels.

While the terms DPI (dots per inch), PPI (pixels per inch), and SPI (samples per inch) technically have different meanings, in practice they are all interchangeable. Only DPI will be used in this article.

Any printer referred to is limited to the inkjet variety unless stated otherwise, although almost everything here applies equally to laser printers. Although this article focuses on examples using the GIMP, all the theory and much of the practice applies to almost all graphic software.

Monitors

Your monitor displays everything as a series of dots, regardless of the picture type. For instance, if your screen size is 800x600, then you are looking at 800 dots by 600 dots. The dots can be almost any color and they do not have a fixed size. A typical 17" monitor can have screen sizes from (at least) 640x480 to 1280x960. Since the physical size of your monitor can't change, the size of the dots must change. The more dots you have making up your screen, the smaller those dots will be.

As far as your monitor is concerned, one pixel (see the definition of pixel above) equals one dot. Because the icons (including text) and wallpaper on your desktop are composed of a fixed number of dots, shrink those dots and the icons and wallpaper get smaller (see Fig. 1 and 2). Be aware that most desktops have a scaling feature for the wallpaper, called stretch in Windows, so you may not see the wallpaper actually change size if this feature is turned on. However, the quality of your wallpaper may go down dramatically if the wallpaper's actual size is small and you increase the screen size too much.

Figure 1 (page 6) A 640x480 wallpaper on a 640x480 screen.

Figure 2 (page 6) A 640x480 wallpaper on a 1024x768 screen.

The same thing applies to any pictures you may have. A picture with 640x480 pixels will display fully (at 100% resolution) on any screen size at least 640x480. A picture 1600x1200, on the other hand, will require scrolling on any screen smaller than 1600x1200.

Printers

Printers, like monitors, create the printed picture/output image by us-

ing a set of dots. But that is where the similarities end. Unlike a monitor, a printer's output isn't a screen with variable size pixels, but a piece of paper with fixed dimensions. Paper is measured in inches, not pixels.

Printers create the image (and text) by using a grid of dots. The number of dots the printer can make in one inch is what's known as DPI or Dots Per Inch. Obviously, the higher the DPI, the better the output the printer is capable of. A higher DPI means more detail and a lower DPI means less detail. If the DPI is set to low, the picture will look very grainy and poor. For a normal piece of paper, the graininess usually starts to show somewhere below 200 DPI. For things like highway billboards, the DPI used can be from 36 to 72 DPI.

Unlike a monitor, the dots are of a fixed color. A black and white printer cannot actually print gray, but only black. The paper is usually white, so white is just the absence of printing. Grays are simulated by printing dots in a grid. These grids are called halftones. Newspapers use halftones that are very coarse and usually visible even without a magnifier. The more black pixels, the darker the gray. Conversely, the fewer the black dots in the grid, the lighter the gray will be. Thus, one image pixel can require several printer dots. Some printers are capable of varying the size of the printer's dots, but for simplicity's sake, this will be ignored.

The size of the grid and the max DPI of the printer affect how well the printer can reproduce shades of gray (and color). Gray includes the colors black and white. For a 1200 DPI printer:

A 1x1 grid shows 2 shades of gray

with an effective DPI of 1200 (1200/1 aka line art).

A 3x3 grid shows 10 shades of gray with an effective DPI of 400 (1200/3).

A 6x6 grid shows 37 shades of gray with an effective DPI of 200 (1200/6).

An 8x8 grid shows 65 shades of gray with an effective DPI of 150 (1200/8).

Thus, the more shades of gray you need, the more image detail you have to give up, or the more detail you want, the fewer shades of gray you will get.

Color printers are similar to black and white printers except they usually have four ink colors (CMYK - Cyan, Magenta, Yellow, and black). Instead of orderly grids, color printers use dithering (with error diffusion).

Figure 3 (page 7) The exact same picture printed at 3 different DPI's.

Dithering is the use of somewhat randomized scattered dots. This tends to look smoother than grids, but the theory is similar. One image pixel can require several printer dots.

In practice, the upper limit for inkjets comes about because the dots of individual color become larger than the grid to hold them. In addition, the ink can bleed, especially on regular paper (photo paper lessens this problem). The practical upper limit is (on good photo paper) between 240 to 300 (maybe 360) DPI. On regular paper, due to ink bleeding, 150 DPI is about as good as it gets. For other than inkjet printers, try not to go much below 200 DPI if you want a good print out.

Converting between the effective DPI (which is the same as the DPI

you or the software pick), the printer's max DPI, and picking the colors to use at a given DPI is handled by the printer driver and not something you can really change. Just be aware that using a high DPI may not give you the detail, or color reproduction, you expect.

DPI and Print Size

In addition to affecting the number of colors, DPI also affects the physical size of the printed picture. The print size on paper is determined by two things: the number of pixels in the picture and the DPI setting used by the software for that picture.

Some software and some file formats do not support changing the DPI setting. Some programs do support changing the DPI and just don't mention the term DPI (or PPI or SPI). Some programs such as desktop publishing software and word processing software will show you a WYSIWYG version of your picture at its relative print size. This is usually based on the DPI of the picture.

The physical print size is just the picture size (in pixels) divided by the DPI. For instance, a 400x800 pixel picture printed at:

100 DPI will be 4 (400/100) inches x 8 (800/100) inches

200 DPI will be 2 (400/200) inches x 4 (800/200) inches

300 DPI will be 1.33 (400/300) inches x 2.66 (800/300) inches

Figure 3 shows the same picture (640x480) printed on letter paper using 3 different DPI values. The only thing changed between the three is the DPI. As you can see, the higher the DPI, the smaller the picture. This is another reason that trying to print at your printer's maximum DPI is not the best choice.

Setting the DPI in the GIMP for versions 1.2 is done by right clicking on the picture and choosing "Image" -> "Scale Image" and setting either the DPI or the print size (see Fig. 4). The DPI is called "X resolution" and "Y resolution". Both the X and Y values should almost always be set to the same number. As you change one, the other will automatically adjust. As mentioned above, DPI and print size are intertwined and one can not change without the other changing.

Figure 4 (page 7) The GIMP 1.2 DPI and print size control.

For the GIMP 2.2 (everyone using version 2.0 should upgrade to 2.2) the DPI (or resolution) control is found in "Image" -> "Print Size" (see Fig. 5 and 6). While it is also found under "Image" -> "Scale Image", do not use it there. It is too easy to change your picture size by scaling accidentally.

Figure 5 (page 7) Getting to the GIMP 2.2 DPI and print size control.

Figure 6 (page 7) The Gimp 2.2 DPI and print size control.

Conclusion

By understanding DPI and how to control it, you can dramatically improve the quality of your printed pictures. Say "goodbye" to accidentally printing posters and postage stamps. Say "hello" to better print-outs.



Figures are on pages 6 & 7

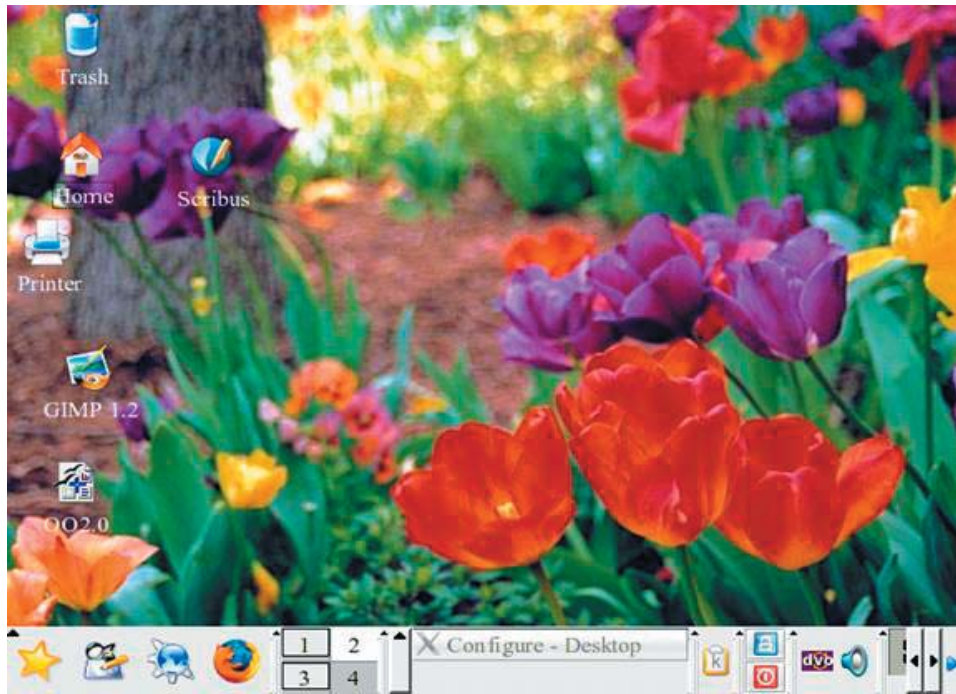
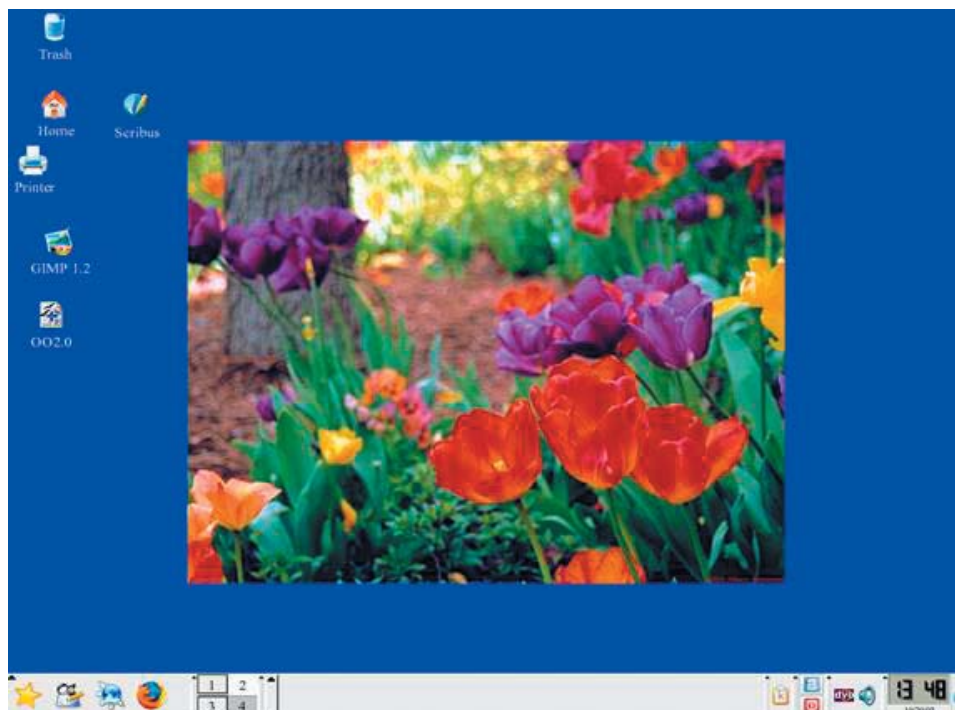


Image 1, A 640x480 wallpaper on a 640x480 screen



A 640x480 wallpaper on a 1024x768 screen

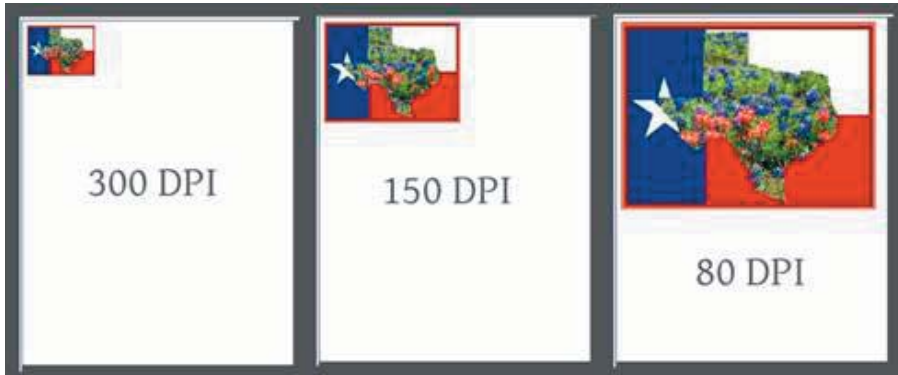


Figure 3 Same image at three different DPI's



Getting to the GIMP 2.2 DPI and print size control.

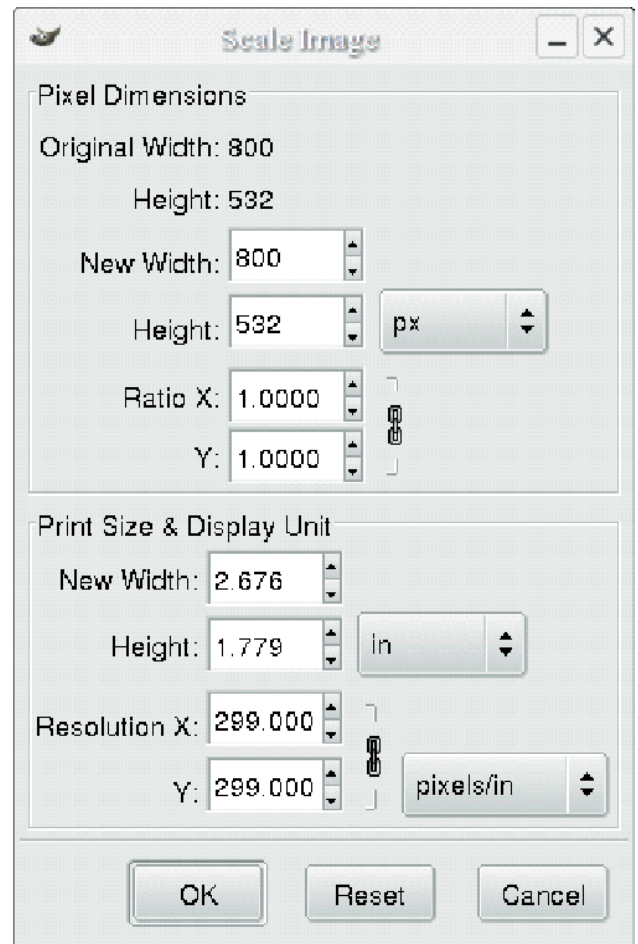
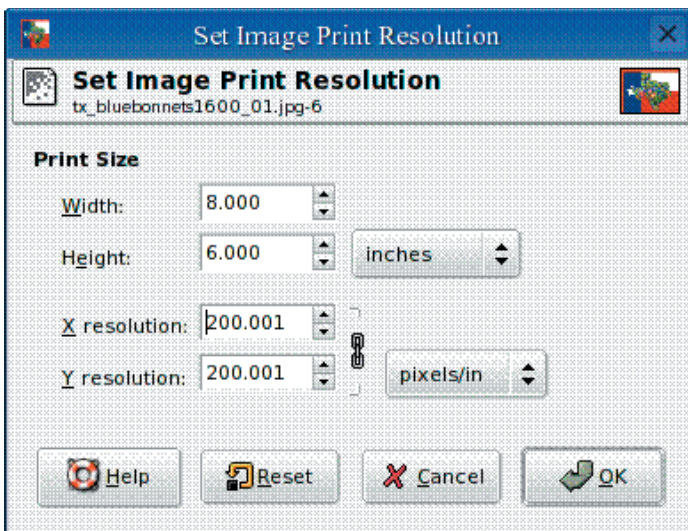


Figure 4, The GIMP 1.2 DPI and print size control



The Gimp 2.2 DPI and print size control.

Tech News

By Sue Crane, Editor, Big Bear
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Cosmeo is bringing Discovery's Online encyclopedia into homes via its Web site. The site resembles the screen of a handheld game device and features video clips and interactive games. Content providers, including Scholastic Corp. and the Public Broadcasting Service, are customized to meet the curriculum standards of different states. The service is available for \$9.95/month.

Microsoft announced that it has delayed the mainstream launch of Vista until next year. Steve Sinofsky, the head of the Office unit, has been tapped to lead Windows development. Following its push back of Windows Vista, Microsoft confirms the Office 2007 release will move to next year as well. It's been reported on a number of blog sites that Microsoft will release Windows Vista with 8 different versions, but no pricing information is available yet . . .

Microsoft is also building in a tool, Windows Performance Rating, that will rate a PC based on how well it is running and on how much it can take advantage of Vista's capabilities to help average consumers easily understand their Windows Vista PC's overall performance. As for systems slowing down over time, that's another issue that Microsoft is trying to tackle. Meanwhile, Vista is being designed to shut the door on spyware. It will introduce important changes at the heart of the operating system, as well as to Internet Explorer, and include Windows Defender, an anti-spyware tool.

An error in McAfee's virus definition file released mid-March caused consumer and enterprise antivirus products to flag Microsoft Excel,

AdobeUpdateManager and other applications on users PCs as a virus called W95/CTX". Files were deleted or quarantined, depending on the user's settings.

When Microsoft first talked about Windows Live in November, most of the "Live" products were MSN services that had been rebranded. Since then Microsoft has added more than a dozen new products under the Windows Live umbrella. MSN executive David Cole explains, "Microsoft's goal is to continuously update and launch products". Over the next 3-6 months, Microsoft expects to ship more Windows Live technology into the marketplace than during their entire 10-year OS history. Microsoft's new ad-serving engine, AdCenter, is at the heart of Windows Live. AdCenter draws on user demographic information to help drive more targeted marketing. Microsoft has even talked about using advertising as a way to pay for traditional desktop software. Meanwhile, the list of Windows Live services continues expanding to include all the basic portal services.

Take a look at the Ice Weasels, Space Cookies and Cheesy Poofs, high school teams competing for top merit in the 15th annual robotics contest sponsored by FIRST (For the Inspiration and Recognition of Science and Technology). With about \$10,000 worth of donated hardware and software, high school students are given 6 weeks to assemble a functioning robot that can move around a court and shoot Nerf basketballs for points. Part of the challenge is for teens to find and work with mentors who are experts in technology and science. Once registered, the teams are given 3 boxes of hardware and software and a programming language called EasyC that allows them to write a program for the robot's onboard computer. Also included is Autodesk's

3D Max Studio animation software so they can create a 30-second animation. The game itself is roughly 2 minutes long, with robots that are 2 feet wide by 4 feet high. For the first 10 seconds, the robots must make as many baskets as possible; the robot with the most points from the first 10 seconds then gets to play offense. Winning bots will go on to compete at Atlanta's Georgia Dome at the international finals.

Neurofeedback, a form of conditioning that rewards people for producing specific brain waves, taps youths' fascination with animation and electronics to sweeten frightening medical treatments. While this form of treatment has been around for decades, incorporating video games marks a new frontier that taps young people's fascination with animation and electronics to sweeten often frightening, lengthy and tedious medical treatments. Video games are being used, for instance, to help sick children manage pain and anxiety during hospital stays. A young leukemia patient inspired "Ben's Game," which let him fight the cancer cells invading his body. A private island called Brigadoon in Linden Lab's "Second Life" virtual world is open only to people with Asperger's syndrome and autism. West Virginia's public schools are battling obesity by making "Dance Dance Revolution"--a step-to-the-beat video game--part of their curriculum, while Nintendo has made a splash with its new "Brain Age" mind-exercising game. Cyber-Learning's Smart BrainGames system targets symptoms arising from brain injuries, attention-deficit hyperactivity disorder (ADHD) and learning disabilities. Priced at \$584, the system is built on NASA technology that used video games and neurofeedback to train pilots. Traditional treatments, such as prescribing the stimulant Rit-

See *Tech News* on page 9

alin, behavioral therapy and education, are often covered by health insurance, while neurofeedback usually is not. Despite such hurdles, some medical practitioners are advocating the new approach.

Kyle MacDonald is on the verge of successfully completing a project that sounds absurd: Trading—with the help of a blog—a single red paper clip for a house. Since embarking on his house hunt last year, MacDonald has traded with people from across Canada and the United States and is now sitting on a year's free rent for an apartment in Phoenix. MacDonald is confident he's going to succeed, and hopes it can happen by the July 12 anniversary of the project's launch. And his goal is getting tantalizingly close. The project has allowed him to initiate a Net cult following that's hoping he'll succeed, too. Popular blogs such as boingboing have been tracking his progress.

There is no restriction against any non-profit group using this article as long as it is kept in context with proper credit given the author. The Editorial Committee of the Association of Personal Computer User Groups (APCUG), an international organization of which this group is a member, brings this article to you.



The Woes of Digital Photography

By Chuck Roberts, WACUG
Member

I have made many presentations to our members reviewing image editing programs and you will remember me telling you to “always shoot photos at the highest resolution your camera offers. I still highly recommend that philosophy, and use it personally every time I leave home with one of my cameras. It

never fails to happen — either me or my wife wants to enlarge one of the photos we have taken and being able to utilize all the pixels the camera collects has always made the resulting enlargement look much better. I believe the statement I most recently made is “...you can't make chicken salad from chicken feathers,” meaning you can't make something from nothing or you simply cannot create pixels in a captured image that were not recorded when the photo was taken.

How this relates to my woes is simply this. My wife and I recently took a four-day vacation. We each took our digital cameras with us and took lots of pictures. Helen has a Samsung 5 MP camera and I have an Olympus 4.0 MP as well as a Samsung 7.0 MP camera very similar to Helen's. We had a wonderful quick trip but we took over 200 photos. Now that's a lot of mega pixels!

If you further remember some of my presentations, you will recall that I reminded you to save each photo on your computer in a “non-lossy” file format. That's because each time you “save” a .jpg photo, the JPG file format automatically compresses the file which results in some data being discarded in the process. Eventually, you will be able to notice the quality loss in images but it's a gradual process that occurs over numerous save the file cycles.

As a result, I collected multiple copies of each image — originally the JPG from the camera, then a lossless version like an Adobe PSD file and in some cases another copy in a tiff format to be enlarged.

The images from the cameras come into my computer at 72 dpi from the Olympus and at 96 dpi from either Samsung. Both of these resolutions are far too small for quality printing

so the files must be resized larger. Since my primary photo printer prints only 4x6 inch photos, that's the initial size I choose for my primary images and I save them in Adobe's PSD file format which supports layers for editing purposes. The filenames include the '4x6' as part of the filename.

Several of the photos I enlarged to 8x10 inches and printed at home so those images are saved with '8x10' in their filename. Of course a couple of prints were enlarged to 16x20 and were saved in the tiff file format so the 16x20 caption is included in the filename.

As luck would have it, and here is the *woe* part, I literally ran out of disk space on my computer as I was completing the image editing part of my workflow. I had already burned my electronic negatives to CD, but I had also invested close to 40 hours editing and enhancing these 200 photos only to run out of disk space. You know what makes this really bad for me? I had already moved about 30 years of images (including scans of old photos) to my server leaving this 15 GB partition virtually empty before I downloaded the images to the PC from my camera!

So I once again decided to upgrade the disks in my desktop computer. I purchased a new 250GB drive to be used for everything except my operating system and the plan was to backup the 60GB drive I was using for applications, data and images then reformat that drive and use it for the operating system.

The data drive backups went smoothly but I was unsuccessful in copying my C drive onto the multi-partition data drive (60GB). I went

See *Digital Woes* page 10

to MicroCenter and purchased a copy of *Acronis True Image 9.0* and was successful in copying my 20 GB C: drive onto my old data drive (60GB). I didn't have to reinstall anything. I am totally pleased with the results.

I then installed the new 250GB data drive, created the necessary partitions to match the previous drive (the new partitions were about twice the storage size of the original partitions) and then I "restored" the backups from my server. All of this took about two days while I was working on the June edition of *The Cursor* but once everything was completed, I still didn't have to reinstall a single application or the operating system.

Looking back at all the images I moved around, edited and restored, I have learned another thing about digital photography. I now consider each image a "digital asset" and from my professional days working for Xerox in and around the publishing industry, I understand why professional photographers are understanding the need to manage their image collections. As my disk space fills with more and more images, I too will soon need a Digital Asset Management application to help me manage, document, and locate a particular image when I need it. But that's another story / article for later...



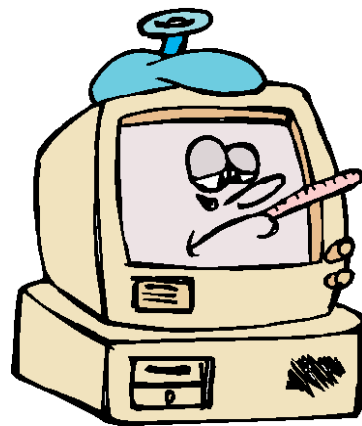
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The Cursor provides news, commentary and product information to members of the Washington Area Computer User Group.

**Send membership inquiries and address changes to: membership@wacug.org
Send article submission and reprint requests to the Editor: cursor@wacug.org**

2006 WAC Membership/Renewal Application

2006 Dues are for the Calendar Year and include Disk Library Discounts, and WAC's monthly newsletter, *The Cursor*, by 1st Class mail to your home.

Individual/Corporate/Family Dues: \$25.00

Remit payment in person at the WAC Membership table on meeting day, or by mail to:

**Washington Area Computer User Group
30 Fendall Ave.
Alexandria, VA 22304-6300**

Make checks payable to WAC. Please do not send cash by mail. *Thank you for joining WAC!*

Complete if you name and address do not appear on the reverse side. Include E-mail Address

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 Phone: () - _____

E-mail: _____
Membership Survey: Help us to help you by completing this survey.
 List the computer systems you own / use (in order of preference)

Operating System(s): _____

Modem(s): _____

Printer(s): _____

Other Hardware: _____

Favorite Software: _____

Connection: (circle one) Dial-up or Broadband

Circle Your Interests: Photo Printing Investing Games
 Digital Photography Internet Access Education Music
 Graphics/Animation Genealogy Video Finance
 Programming Language(s) _____
 Hardware Upgrades/Repair List others below

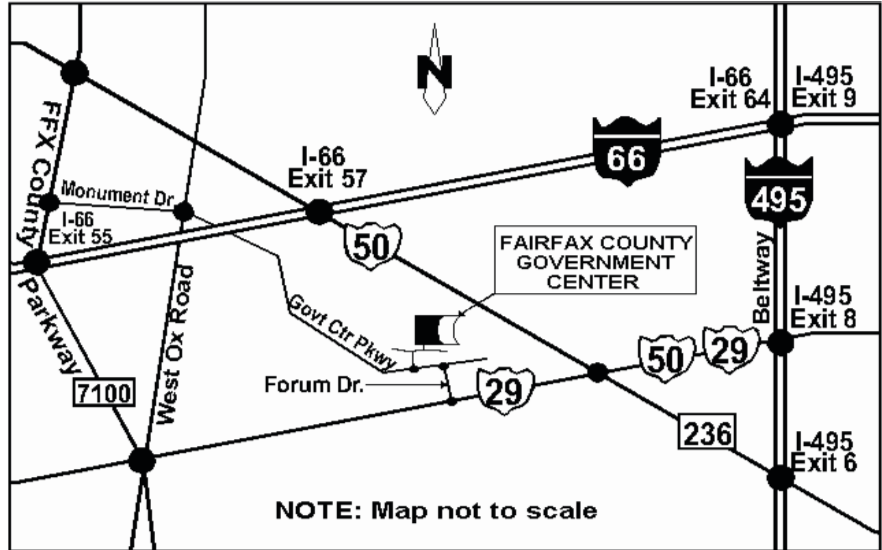
Next WAC Meetings: • June 17 • July 15 • Aug 19 • Sept 16 • Oct 21

Call (703) 370-7649 for the latest meeting information or Visit our Web Site at:
<http://www.wacug.org>

June Meeting will be held at
the Fairfax County
Government Center

Through Front Entrance to
the Left Hallway, Past the
Elevators to:
Conference Room 4/5

Service Desks Open at 12:30
Meeting Starts at 1:00 PM
FREE ADMISSION
BRING A FRIEND!



Washington Area Computer User Group
30 Fendall Avenue
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