



Install A PC Heat Sensor p.80



Backup Headaches Solved p.38



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Publication

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In Plain English

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- **Transfer Records & Tapes To CD**

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IBM recommends Microsoft® Windows® XP Professional.



IBM ThinkPad R Series

GO with IBM Think Express Program

IBM ThinkExpress models are designed, configured and priced with small to medium-size businesses in mind.

CNET Editors Choice Award, March, 2004
IBM ThinkPad X40

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IBM ThinkPad R51

Ultimate Value

Distinctive IBM Innovations:

- IBM Embedded Security System 2.0¹ – Strongest security as a standard feature

System Features:

- Intel® Centrino™ Mobile Technology
 - Intel Pentium® M Processor 715 (1.50GHz)²
 - Intel PRO/Wireless Network Connection 802.11b/g³
- Microsoft Windows XP Professional⁴
- 14.1" XGA TFT display (1024x768)
- 256MB DDR SDRAM⁵
- 30GB hard drive⁶
- Ultrabay™ Enhanced CD-RW/DVD-ROM combo
- IBM UltraConnect™ Antenna for increased signal strength⁷
- 1-yr system/battery limited warranty⁸

NavCode 28838QU-M419

THINK EXPRESS MODEL PRICED AT:

\$1,299*

ServicePac® Service Upgrade:⁹

3-yr Depot Repair #30L9192 **\$132**

IBM ThinkPad X40

Our thinnest and lightest

Distinctive IBM Innovations:

- IBM Embedded Security System 2.0 – Strongest security as a standard feature
- NEW! IBM Rescue and Recovery™ with Rapid Restore™ – One-button recovery and restore solution

System Features:

- Intel Centrino Mobile Technology
 - Intel Pentium M Processor ULV 1GHz
 - Intel PRO/Wireless Network Connection 802.11b
- Microsoft Windows XP Professional
- 12.1" XGA TFT display (1024x768)
- 256MB DDR SDRAM
- 20GB hard drive
- Integrated Gigabit Ethernet and modem
- Legendary IBM full-size keyboard¹⁰
- Only .94" thin¹¹
- 2.7-lb travel weight¹²
- 1-yr system/battery limited warranty⁸

NavCode 23861CU-M419

THINK EXPRESS MODEL PRICED AT:

\$1,499

business, professional or trade purposes, rather than personal, family or household purposes. Service period begins with the equipment date of purchase. Service levels are response-time objectives and are not guarantees. If the machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center. Calls must be received by 5pm local time in order to qualify for Next Business Day service. **(10) Full-size keyboard:** As defined by ISO/IEC 15412. **(11) Thinness:** may vary at certain points on the system. **(12) Travel weight:** includes battery and optional travel bezel instead of standard optical drive in Ultrabay bay, if applicable; weight may vary due to vendor components, manufacturing process and options. **Trademarks:** The following are trademarks or registered trademarks of IBM Corporation: IBM, the IBM logo, Rapid Restore, Rescue and Recovery, ThinkPad, Ultrabay, UltraConnect and UltraNav. Microsoft and Windows are registered trademarks of Microsoft Corporation. Intel, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Intel SpeedStep and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Other company, product and service names may be trademarks or service marks of other companies. ©2004 IBM Corporation. All rights reserved.

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Take a look at some of our latest models. And get state-of-the-art security.



Why IBM ThinkPad Notebooks?

To make IBM ThinkPad® notebooks even more valuable, each one featured here can give you the efficiency, productivity and edge you need and comes with all the following ThinkVantage™ Technologies:

IBM Active Protection System: Butterfingers unite! These ThinkPad notebooks now include airbag-like technology to help protect your hard drive from some damage caused by drops and jolts.

NEW! Rescue and Recovery with Rapid Restore: Lost your data because of a software crash or virus? Recover previously saved data in minutes with our one-button solution.

Access Connections: Switch between wired and wireless connections.

Embedded Security Subsystem 2.0:¹ Hackers and thieves, beware. Our combined hardware and software solution is designed to protect user data and keep it private.

Access IBM: Get the help you need, when you need it. One button on your ThinkPad notebook brings you a world of resources and assistance.

IBM ThinkPad R51

- System Features:**
- Intel® Centrino™ Mobile Technology
 - Intel Pentium® M Processor 715 (1.50GHz)²
 - Intel PRO/Wireless Network Connection 802.11b/g³
 - Microsoft Windows XP Professional⁴
 - 15" SXGA+ TFT display (1400x1050)
 - 256MB DDR SDRAM⁵
 - 40GB hard drive⁶
 - Integrated Ethernet and modem
 - IBM Ultrabay™ Enhanced CD-RW/DVD-ROM combo
 - IBM UltraConnect™ Antenna for increased signal strength⁷
 - 1-yr system/battery limited warranty⁸

NavCode 1836H8U-M419

THINK EXPRESS MODEL
PRICED AT: **\$1,499***

With Microsoft Office Small Business Edition 2003:⁹ \$1,739



IBM ThinkPad T42

- System Features:**
- Intel Centrino Mobile Technology
 - Intel Pentium M Processor 1.50GHz
 - Intel PRO/Wireless Network Connection 802.11b/g
 - Microsoft Windows XP Professional
 - 14.1" XGA TFT display (1024x768)
 - 32MB ATI Mobility RADEON 7500 graphics
 - 256MB DDR SDRAM
 - 30GB hard drive
 - Integrated Gigabit Ethernet and modem
 - IBM Ultrabay Slim DVD-ROM
 - IBM UltraConnect Antenna for increased signal strength
 - Only 1" thin,¹⁰ 4.5-lb travel weight¹¹
 - 1-yr system/battery limited warranty⁸

NavCode 2378DTU-M419

THINK EXPRESS MODEL
PRICED AT: **\$1,549**

With Microsoft Office Small Business Edition 2003: \$1,789

ServicePac® Service Upgrade:¹²
2-yr Onsite Repair/9x5/Next Business Day Response #30L9189 **\$197**

IBM ThinkPad T42

- System Features:**
- Intel Centrino Mobile Technology
 - Intel Pentium M Processor 735 (1.70GHz)
 - Intel PRO/Wireless Network Connection 802.11b/g
 - Microsoft Windows XP Professional
 - 14.1" XGA TFT display (1024x768)
 - 32MB ATI Mobility RADEON 7500 graphics
 - 256MB DDR SDRAM
 - 40GB hard drive
 - Integrated Gigabit Ethernet and modem
 - IBM Ultrabay Slim CD-RW/DVD-ROM combo
 - IBM UltraConnect Antenna for increased signal strength
 - 1-yr system/battery limited warranty⁸

NavCode 2378FTU-M419

THINK EXPRESS MODEL
PRICED AT: **\$1,749**

With Microsoft Office Small Business Edition 2003: \$1,989

ServicePac Service Upgrade:
4-yr Depot Repair #69P9195 **\$249**



IBM ThinkPad T42

- System Features:**
- Intel Centrino Mobile Technology
 - Intel Pentium M Processor 1.50GHz
 - Intel PRO/Wireless Network Connection 802.11b/g
 - Microsoft Windows XP Professional
 - 15" XGA TFT display (1024x768)
 - 32MB ATI Mobility RADEON 7500 graphics
 - 256MB DDR SDRAM
 - 40GB hard drive
 - Integrated Gigabit Ethernet and modem
 - Ultrabay Slim CD-RW/DVD-ROM Combo
 - Only 1" thin, 5-lb travel weight
 - 1-yr system/battery limited warranty⁸

NavCode 2378DWU-M419

THINK EXPRESS MODEL
PRICED AT: **\$1,649**

With Microsoft Office Small Business Edition 2003: \$1,889

ServicePac Service Upgrade:
3-yr Depot Repair
#30L9192 **\$132**

IBM ThinkPad T42

- System Features:**
- Intel Centrino Mobile Technology
 - Intel Pentium M Processor 735 (1.70GHz)
 - Intel PRO/Wireless Network Connection 802.11b/g
 - Microsoft Windows XP Professional
 - 15" SXGA+ TFT display (1400x1050)
 - 64MB ATI Mobility RADEON 9600 graphics
 - 512MB DDR SDRAM
 - 60GB hard drive (7200 RPM)
 - Integrated Gigabit Ethernet and modem
 - IBM Ultrabay Slim CD-RW/DVD-ROM combo
 - IBM UltraConnect Antenna for increased signal strength
 - 3-yr system/1-yr battery limited warranty⁸

NavCode 2379DXU-M419

THINK EXPRESS MODEL
PRICED AT: **\$2,399**

ServicePac Service Upgrade:
3-yr Onsite Repair/9x5/Next Business Day Response #30L9195 **\$243**



IBM ThinkPad X40

IBM ThinkVantage Technologies:

- Longest standard battery life of any leading-brand notebook¹³

System Features:

- Intel Centrino Mobile Technology
- Intel Pentium M Processor LV 1.20GHz
- Intel PRO/Wireless Connection 802.11b
- Microsoft Windows XP Professional
- 12.1" XGA TFT display (1024x768)
- Intel Extreme Graphics 2
- 256MB DDR SDRAM
- 40GB hard drive
- Integrated Gigabit Ethernet and modem
- Legendary IBM fullsize keyboard¹⁴
- 7.5hr Li-Ion battery¹⁵
- 1-yr system/battery limited warranty⁸

NavCode 23866GU-M419

THINK EXPRESS MODEL
PRICED AT: **\$1,749**

ServicePac Service Upgrade:
3-yr Onsite Repair/9x5/Next Business Day Response #30L9195 **\$243**

IBM ThinkPad X40 Solution Pack

IBM ThinkVantage Technologies:

- Longest standard battery life of any leading-brand notebook

System Features:

- Intel Centrino Mobile Technology
 - Intel Pentium M Processor LV 1.20GHz
 - Intel PRO/Wireless Network Connection 802.11b
 - Microsoft Windows XP Professional
 - 12.1" XGA TFT display (1024x768)
 - 256MB DDR SDRAM
 - 40GB hard drive
 - Integrated Gigabit Ethernet and modem
 - 7.5-hr Li-Ion battery
 - 3-yr system/1-yr battery limited warranty⁸
- Accessories Included:**
- ThinkPad X40 UltraBase Dock
 - IBM Ultrabay Slim CD-RW/DVD-ROM combo

NavCode 23826UU-M419

THINK EXPRESS MODEL
PRICED AT: **\$2,199**

ServicePac Service Upgrade:
5-yr Onsite Repair/9x5/Next Business Day Response #69P9200 **\$449**

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IBM recommends Microsoft® Windows® XP Professional.



(Monitor not included)



(Monitor not included)



(Monitor not included)

Why IBM ThinkCentre PCs?

Only IBM offers these features to protect your users, connect them, and keep them working. Each ThinkCentre™ desktop featured here can give them the efficiency, productivity and edge they need with the following ThinkVantage Technologies:

NEW! Rescue and Recovery with Rapid Restore:

Lost your data because of a software crash or virus? Recover previously saved data in minutes with our one-button solution.

Access IBM:

Get the help you need, when you need it. One button on your ThinkCentre desktop brings you a world of resources and assistance.

ImageUltra™ Builder:

Need to roll out new systems? Image and copy your operating system across your network in a flash. (Order separately)

IBM ThinkCentre A50

System Features:

- Intel® Pentium® 4 Processor with HT Technology 3.0GHZ
- Microsoft Windows XP Professional
- 256MB DDR PC3200¹⁰
- 40GB hard drive • CD-ROM
- Integrated 10/100 Ethernet
- Norton AntiVirus™ with 90 days of virus definition updates
- Lotus® SmartSuite® Millennium license
- 1-yr parts limited warranty with 1-yr limited onsite service¹⁷

NavCode 814821U-M419

THINK EXPRESS MODEL
PRICED AT:

\$699

IBM ThinkCentre A50

System Features:

- Intel Pentium 4 Processor with HT Technology 3.0GHZ
- Microsoft Windows XP Professional
- 256MB DDR PC3200
- 40GB hard drive • CR-RW
- Integrated 10/100 Ethernet
- Norton AntiVirus with 90 days of virus definition updates
- Lotus SmartSuite Millennium license
- 1-yr parts limited warranty with 1-yr limited onsite service¹⁷

NavCode 814822U-M419

THINK EXPRESS MODEL
PRICED AT:

\$749

IBM ThinkCentre A50

System Features:

- Intel Pentium 4 Processor with HT Technology 3.0GHZ
- Microsoft Windows XP Professional
- Small form factor—62% smaller than a standard desktop¹⁶
- 256MB DDR PC2700
- 40GB hard drive • CD-ROM
- Integrated 10/100 Ethernet
- Norton AntiVirus with 90 days of virus definition updates
- Lotus SmartSuite Millennium license
- 3-yr parts limited warranty with 1-yr limited onsite service¹⁷

NavCode 841943U-M419

THINK EXPRESS MODEL
PRICED AT:

\$799

ServicePac Service Upgrade:
4-yr Onsite Repair/9x5/Next Business Day Response #69P9158 **\$198**

NEW! IBM ThinkCentre A50

Ultra small form factor

System Features:

- Intel Pentium 4 Processor with HT Technology 3.0GHZ
- Microsoft Windows XP Professional
- Ultra small form factor—74% smaller than a standard desktop¹⁶
- 256MB DDR PC3200
- 40GB hard drive • DVD/CD-RW combo
- Norton AntiVirus with 90 days of virus definition updates
- Lotus SmartSuite Millennium license
- Integrated 10/100 Ethernet
- 1-yr parts limited warranty with 1-yr limited onsite service¹⁷

NavCode 809022U-M419

THINK EXPRESS MODEL
PRICED AT:

\$849

With Microsoft Office Small Business Edition 2003: \$1,089

ServicePac Service Upgrade:

4-yr Onsite/9x5/4-hr Response #69P9162 **\$250**

NEW! IBM ThinkCentre A51p

System Features:

- Intel Pentium 4 Processor 530 with HT Technology
- Processor speed 3.0GHZ
- 800MHz FSB
- Microsoft Windows XP Professional
- 512MB DDR2 PC3200
- 80GB hard drive • DVD/CD-RW combo
- Gigabit Ethernet-integrated
- 64MB ATI RADEON x300 Pro
- 1-yr parts limited warranty with 1-yr limited onsite service¹⁷

NavCode 842722U-M419

THINK EXPRESS MODEL
PRICED AT:

\$1,049

With Microsoft Office Small Business Edition 2003: \$1,289

ServicePac Service Upgrade:
3-yr Onsite/9x5/4-hr Response #41L2734 **\$129**



MOBILE TECHNOLOGY

IBM ThinkExpress Program:

We've designed and priced many of our products specifically for small and medium businesses. And best of all, they're available direct from IBM or through select IBM Business Partners.

IBM ThinkPad Accessories

Belkin Components Universal Notebook Travel Surge Protector #22P7127 **\$20**

Targus Deluxe Mobile Essentials Kit #22P7437 **\$60**

ThinkPad Carrying Case™ – Leather Attache #73P3600 **\$129**

ThinkPad 72W AC/DC Combo Adapter #22P9010 **\$99**

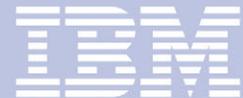
ThinkPad Port Replicator II #74P6733 **\$179**

IBM ThinkCentre Accessories

IBM 128MB USB 2.0 High-Speed Memory Key #22P9229 **\$99**

Lexmark X5270 All-in-One Printer #22P8808 **\$140**

IBM ThinkVision™ L150 15" Flat Panel Monitor with system purchase #W9SPAB1 **\$379**



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Internet or telephone (toll charges may apply). (10) **Thinness:** may vary at certain points on the system. (11) **Travel weight:** includes battery and optional travel bezel instead of standard optical drive in Ultrabay bay, if applicable; weight may vary due to vendor components, manufacturing process and options. (12) **ServicePac services:** are available for machines normally used for business, professional or trade purposes, rather than personal, family or household purposes. Service period begins with the equipment date of purchase. Service levels are response-time objectives and are not guarantees. If the machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center. Calls must be received by 5pm local time in order to qualify for Next Business Day Service. (13) **Battery life:** Based on manufacturer's published figures or CNET.com results for the top 5 vendors in 2003 notebook sales based on IDC data, as of 1/29/2004. (14) **Full-size keyboard:** As defined by ISO/IEC 15412. (15) **Battery:** These model numbers achieved the Ziff Davis Media, Inc.'s Business Winstone® 2002 BatteryMark™ Version 1.0 Battery Run-down Time of at least the time shown. This test was performed without independent verification by the VeriTest testing division of Lionbridge Technologies, Inc. ("VeriTest") or Ziff Davis Media, Inc.; neither Ziff Davis Media, Inc., nor VeriTest makes any representations or warranties as to these test results. Winstone is a registered trademark and BatteryMark is a trademark of Ziff Davis Publishing Holdings, Inc., in the U.S. and other countries. A description of the environment under which the test was performed is available at ibm.com/pc/vw/thinkpad/batterylife. Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning and other customer preferences. (16) **Size claims:** are based on a comparison of chassis volume to the volume of IBM's standard desktop chassis. (17) **Systems with limited onsite service:** are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by IBM. IBM will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by IBM for onsite replacement. For a list of onsite replaceable parts, contact IBM. Support unrelated to a warranty issue may be subject to additional charges. (18) **Certain IBM logo products:** are not manufactured, warranted or supported by IBM; IBM logos and trademarks used under license. Contact IBM for details. Trademarks: The following are trademarks or registered trademarks of IBM Corporation: IBM, the IBM logo, ImageUltra, Lotus, NavCode, Rapid Restore, Rescue and Recovery, SmartSuite, ThinkCentre, ThinkPad, ThinkVantage, ThinkVision, UltraConnect, UltraBase, Ultrabay and UltraNav. Microsoft and Windows are registered trademarks of Microsoft Corporation. Intel, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Intel SpeedStep and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Other company, product and service names may be trademarks or service marks of other companies. © 2004 IBM Corporation. All rights reserved. Visit www.ibm.com/pc/safecomputing periodically for the latest information on safe and effective computing.

COVER STORY

Tackle Problems With CDs & DVDs

58 Discover Your Inner Producer

There's a little bit of creativity in all of us. If you don't believe us, take a look at the articles in this month's feature package and you'll soon feel the creative juices start to flow. Sure, there are certainly some struggles involved in using optical drives and media, but that's where we come in: Our articles will help you overcome obstacles and guide you toward success.

60 Optical Operation

Despite all the advantages that optical drives, media, players, and burning applications have to offer, there are numerous roadblocks that can set you back if you don't know how to confront them head-on. We help you do just that by offering solutions to the most common CD and DVD problems.

64 Data To Burn

Most of us would be lost without the data we keep on our computers, and that's why performing backups is so important. Rewritable optical drives can help you with this task. When compared to other backup options, home computer users will find that disc-based backup systems are less expensive, use media that (usually) boasts a longer life span, and offer the type of portability users need for off-site storage.

68 Make Your PC A Player

If trying to watch DVD movies on your computer has brought you more horror than entertainment, check out our suggestions on how to make your DVD film-viewing experience suspense-free (well, unless you decide to watch one of those on-the-edge-of-your-seat thrillers).

70 Mixin' The Hits

Who has time to listen to an entire CD just to hear one or two (OK, maybe three) songs you like? Not us, and that's why we've become experts at burning only the tracks we like onto CDs in any order we want. Plus, by doing things our way, we can fit many more songs onto a single CD.

73 The Audio Conversion

Those of us who have had to endure the pain (and cost) of buying records and cassettes (and we won't even talk about 8-track tapes) only to find out that CDs are a much better option (why didn't they tell us sooner?) will be glad to know that it is possible to convert analog recordings to digital files. Thank goodness.

76 You're The Director

There are some video moments that you'd like to savor forever; there are others you'd love to throw into the nearest fireplace (if only your family would let you). Well, using the proper hardware and software, you can capture the video you want, edit it as you please, and transfer your version of events onto DVDs.

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Preserving (& Editing) The Past

Sandy Berger searches all manner of computer products and presents a pairing that will help you make the most of the available technology.

15 Tech Diaries

Our *Smart Computing* columnists spent some quality time with computer and computer-related hardware to get beyond the benchmark scores, statistics, and marketing hype. Find out what they liked and disliked about their choices inside.

19 Triple Your Fun

A glance at the 3D drawing apps on the market might make you run for cover—most are complex and expensive. But we take a closer look and reveal a segment aptly suited for the novice.

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Each month, we take a look at several useful gadgets and programs you can get for \$20 or less.



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PC Ops

28 Getting & Providing Remote Assistance



Your computer is acting up, and you have a tech-savvy friend who could troubleshoot it in no time. But she's in Denver, and you're in Chicago. WinXP's Remote Assistance can act as an intermediary to get you back on track.

30 Solve Vexing Video Problems In Windows 98



When your monitor goes haywire, it can be extremely frustrating to find the root of the problem, especially if you can't see what it is you're trying to fix. Read on to learn how to tackle an array of video problems.

General Computing

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Keeping Tabs On Employees

The man in the corner office probably knows more about you and your work habits than you realize. Check out the myriad of sleuthing technologies that may be watching you from 8 to 5.

36 Too Good To Be True

Don't be fooled by the "cheap software" spam that shows up in your mailbox.

38 Backup Headaches Solved

It's easy to procrastinate when it comes to backing up your hard drive, but with the tips we provide, you have no excuse not to get to it. Well, less of an excuse.

Plugged In

40 Mr. Modem's Desktop: Be A Soopie Pupil!

In which Mr. Modem, author of several books—none of which have won the Pulitzer Prize—and co-host of the weekly "PC Chat" radio show, talks about how you can use Google as a calculator, password giveaways, and more.

42 Site Guide: MedlinePlus Makes House Calls

If you have questions about health or medical issues, MedlinePlus is the place to look for answers online. Its comprehensive database is a virtual library of resources, including news articles, drug information, encyclopedic entries and illustrations, and more.

46 Find Your Place Online

If you think launching a personal Web site is a complicated affair, prepare to be pleasantly surprised. There's a place for everyone online, especially with the help of one of the simple site-creation tools that are available with the click of a mouse.

50 Digital Booksellers

On a good day (OK, on a *very* good day), you might be able to find the best book prices at your local bookstore, but at many Web-based bookstores, you can have that type of day everyday—sometimes pocketing up to 70% in savings. Find out which online booksellers offer the best deals.

PC Project

80 It's Getting Hot In Here

After you've upgraded your system so it runs cooler and more efficiently, it's nice to know that all your work was worthwhile. Installing a heat sensor and readout panel is a surefire way to find out.

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Author, computer expert, and resident paranoid Alan Luber helps you avoid PC disasters.

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Can't seem to get a response from a vendor or manufacturer? If you need help, we're here for you.

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Got a question or a problem? We're here for you, 24/7. Subscribers can look up articles, find answers, and use the Q&A Board to get help at any time, day or night.

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96 Monitoring Monitors

LCDs are becoming increasingly common on desktops everywhere. We explain how these flat-panel wonders work and how they compare with their predecessor, the CRT, as well as what the future may hold for the flat-panel format.



Editor's Note

Those of us who are old enough to recall vinyl records can also remember the excitement generated by the technology that replaced them: I'm talking about 8-track tapes. Boy, those were really something. Wheezy, stretchy tape endlessly looped in a chunky plastic container roughly the size and weight of a child's lunchbox, and with about the same audio fidelity.

Cassette tapes and players soon replaced 8-tracks, a vast improvement all around, I'm sure you'd agree. Cassettes took up less space, sounded better, and . . . well, looked cooler.

Now we have CDs and DVDs with incredible storage capacity, a spacesaving form factor, and audio and video fidelity that must be seen and heard to be believed. Best of all, the new technology is available to us right on our own computers. We can create audio or video that's every bit as good as what's produced by the media moguls who own Sony, Capitol Records, MGM, and the rest. All we need is a PC, a recordable optical drive, a hunk of software, and a little patience.

OK, make that a *lot* of patience.

Unfortunately, although the core technology has arrived, it hasn't yet matured. As a result, while geeks and techies seem to churn out CDs and DVDs with media-savvy abandon, the rest of us . . . well, we occasionally have some trouble. We produce a lot of jumpy video, silent audio CDs, and cool-looking (but essentially useless) coasters.

Until the technology matures, you're going to need some help. That's where this issue of *Smart Computing* comes in. We've devoted more than 20 pages to helping you make the most of CDs and DVDs. If you need to know how to do something, chances are we've got it covered. If you have questions, odds are that we have the answers. So, dig in. Pretty soon you'll be cranking out great CDs and DVDs, and you'll be the envy of your more technically challenged friends and neighbors.



ROD SCHER, PUBLICATION EDITOR

Now Available On Newsstands . . .



Computer Power User • Hack Your Hardware

Sometimes you can eke a lot more out of your PC hardware and electronics than a manufacturer intended. This month we show you how to save money while getting maximum value for popular products, such as PVRs, cell phones, PC components, and more. All that in addition to the usual goodness you find in each and every issue of *CPU* magazine.



PC Today • Windows Q&A

It's troubleshooting time! In the October *PC Today* we help you solve interface, file management, system performance, email, networking, multimedia, and software problems



CE Tips • CE For Your PC

Computers and consumer electronics go hand in hand, and this issue offers practical advice for setting up, using, and troubleshooting your CE-related PC peripherals and add-ons. Inside its pages, you'll find articles focusing on your PC's audio, video, storage, and digital imaging components and related gadgets, plus *CE Tips'* monthly complement of news, views, and reviews.



Reference Series • PC Modder

It's baaa-ack. The latest edition of *PC Modder* is packed with dozens of new CPU and graphics card benchmark case studies. Get all the information you need on the hottest cards and chips for your PC. Oh, and our friend the Mad Modder is back, too. This time he decides to experiment with dry ice.

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Limitation-Blasting IPv6 Finally Released

After years of anticipation from the Internet community, Vinton Cerf, chairman of the board at ICANN (Internet Corp. for Assigned Names and Numbers), announced that IPv6 (Internet Protocol Version 6) is now

available for download by any organization that wants to implement it.

ICANN oversees global Web site allocations, a process that's seen dwindling availability for IP addresses in recent years. Cerf says that roughly

two-thirds of the currently available 4.3 billion IP addresses are already in use, but the IPv6 architecture could increase that number by 25,000 trillion trillion times. As increasingly more devices require Internet connections, including not just computers but other devices, the new technology provides serious breathing room for the future.

IPv6 is the successor to IPv4, which has roots all the way back to the 1980s. IPv4 uses 32-bit addresses, which allows for billions of possible combinations, but many are reserved for local networks, multicast, and other administrative needs. IPv6, on the other hand, uses 128-bit addresses (written as eight groups of four hexadecimal digits each), which allows for far more combinations.

Debate has cropped up in recent years questioning whether IPv6—and the massive technological overhaul it will likely require—is actually necessary. After all, technologies such as NAT (Network Address Translation) and others allow for the increased allocation of addresses using the existing architecture, despite their limitations when deployed on large-scale networks. Nonetheless, experts predict that even with these workarounds, we could see complete exhaustion of all available addresses around 2020. Although 2020 seems like a long way off, we'll probably still see IPv4 at that time because Cerf says IPv6 will run parallel to IPv4 for about 20 years to work out kinks in the new architecture. Thus, people and companies using IPv6-enabled devices will still need IPv4-related architecture in order for IPv4 devices to reach them.

Pirates Active Across All Seas

According to a global software piracy study that the BSA (Business Software Alliance) released, a whopping 36% of software installed worldwide in 2003 was pirated. The study, conducted by IDC (International Data Corp.), discovered that of the \$80 billion of software installed worldwide last year, only \$51 billion was legally purchased.

Global Affliction

Here's a look at the global piracy rates in 2003, according to the BSA's recent study. As you'll notice, having one of the highest piracy percentage rates doesn't always indicate a particular region will have one of the highest dollar losses because the size of the market plays a big role in determining these figures. For example, even though North America has the lowest piracy percentage rate of these regions, it has one of the highest dollar losses.

Asia/Pacific Piracy Rate: **53%**
Asia/Pacific Dollar Losses: More Than \$7.5 Billion

Eastern Europe Piracy Rate: **71%**
Eastern Europe Dollar Losses: More Than \$2.1 Billion

Western Europe Piracy Rate: **36%**
Western Europe Dollar Losses: More Than \$9.5 Billion

Latin America Piracy Rate: **63%**
Latin America Dollar Losses: More Than \$1.2 Billion

Middle Eastern/African Piracy Rate: **56%**
Middle Eastern/African Dollar Losses: More Than \$1 Billion

North America Piracy Rate: **23%**
North America Dollar Losses: More Than \$7.2 Billion



Log Off Now, Not Later

Controlling computer time for your kids or even yourself can be a difficult task, especially when Windows XP lets you control only a user's logon hours.

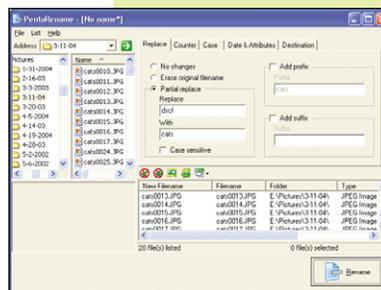


But with a new tool from KShield Software, logoff control is as simple as a few mouse clicks.

With LogOff Now! (\$29.95; <http://www.logoffnow.com>), the administrator can set an overall computer use time limit for each user, complete with time limits for individual programs. For example, you can allow a user two hours of total computer use per day but only 30 minutes for instant messaging. However, if that

user surfs the Web for almost two hours, the computer will still log off the user at the two-hour mark, even if the user switches to instant messaging before the time limit expires.

The administrator can change the limits at any time—even when a user is currently in session—by simply entering a password and making the modification. If the administrator adds more time to a current session, the time defaults to its original total the next time the user logs on. For you Big Brother types, LogOff Now! also can generate reports of all applications used and Web sites visited by each user, along with times each use occurred and the length of each use.



File Management Fiend

In the past, all-in-one utilities have tried to pull comprehensive file management into one neat, easy-to-handle package, and most left us returning to our tried-and-true individual tools. Does PentaWare's PentaSuite 7 fare any better? For the most part, yes. From the central PentaWare Manager, you can launch any of a wide selection of file management utilities that run similarly well. For example, PentaZip handles compression duties with an interface that's reminiscent of other well-known zip utilities and features a wizard for compressing or extracting files.

PentaDVD lets you burn CDs and DVDs with ease, though the process isn't quite as easy or feature-packed as burning with big-name apps. We particularly like PentaRename, which lets you batch rename files (especially useful for digital photos)

and remove read-only attributes from copied CD and DVD files.

Also handy is PentaSend, which lets you take advantage of its logical interface to easily encrypt and decrypt files and send them using any of various transfer methods. PentaWhiteBoard is similarly neat, capturing frames from video files and saving them as graphics files. If that's not enough, you'll also find tools for FTP (File Transfer Protocol) transfers, photo thumbnail browsing, HTML (Hypertext Markup Language) photo album creation, and more. One of the most powerful tools included with PentaSuite is PentaPDF, which lets you create PDF (Portable Document Format) files directly from Microsoft Word, PentaView, PentaConverter, and the right-click context menu in Windows Explorer. Although the utility works capably, its Word toolbar forced changes to our Normal.dot template upon closing Word—a bug PentaWare couldn't explain.

If you grow tired of switching among a profusion of utilities to handle your file management duties, PentaSuite offers a tidy alternative. Also attractive is the price; at \$100, you'll have a tough time assembling an equally powerful collection for the same cost.

PentaSuite

\$99.95 • PentaWare

(888) 998-1492

<http://www.pentazip.com>

Plug In To Broadband

Imagine accessing a broadband Internet connection by simply plugging into an outlet anywhere in your house. This brave new world might eventually become a reality if the IEEE (Institute of Electrical and Electronics Engineers) has anything to do with it—and they do.

A new specification called IEEE P1675, or Standard for Broadband over Power Line Hardware, seeks to provide details for installing broadband hardware on underground and overhead electrical distribution lines. The target to complete this standard is mid-2006.

"By turning the local power grid into a broadband conduit,

we create another option for universal access to the Internet," says Terrence Burns, chair of the IEEE BPL Standards Working Group. "This technology offers a neat solution to the 'last-mile' quandary of how to bring information from long-distance fiber-optic cables to individual computers without investing in costly infrastructure."

Incredibly, running broadband over a power distribution system isn't as complicated as one might think. Using a combination of computers, routers, and repeaters, the signal can transmit across low-voltage wires and be accessible to a modem through any outlet.

VoIP Inches Closer (Maybe)

We've been hearing for years that full-scale VoIP (Voice over IP) is right around the corner, yet each time we reach the corner, there's nothing there. But don't give up hope; if the money pouring into the VoIP arena is any indication, there's *got* to be something there soon.

According to a recent report published by Infonetics Research, the VoIP equipment market will grow from \$1.2 billion in 2003 to \$4.8 billion in 2007. According to Kevin Mitchell, Infonetics Research analyst and the study's lead author, providers are finally moving toward the "packet communication paradigm."

"It's no longer just specialists or VoIP pioneers, but all types of carriers in all regions of the world that are adopting VoIP technology and using it to build a new set of service offerings," Mitchell says.

That's sure to be music to the ears of Internet users in the United States, as a separate study by Ipsos-Insight shows that one in five Internet users wants VoIP service to make cheap calls and take advantage of other VoIP features, such as caller ID, voicemail, battery backup, and call waiting. According to this study, current DSL (Digital Subscriber Line) and dial-up customers, as well as people who receive phone bills with more than \$40 in charges,



are most likely to buy VoIP service. Of the study's respondents, 50% felt that telephone companies would be the best providers for VoIP, while 35% picked ISPs (Internet service providers), and only 15% picked cable companies as reliable providers.

Despite the increased spending in the equipment markets and the ever-burgeoning demand, VoIP remains sketchy for early adopters. Current VoIP users report problems getting their numbers listed in phone books, using the 911 emergency system, and using home security systems, which sometimes balk when used with broadband connections. But even with these initial problems, consumers continue to show significant interest in VoIP connections to save money, an aspect that's also enticing callers to drop their traditional phone service for mobile phone-only service for both home and remote use.

Sleek, Strong Bug

Thanks to nifty advances in the storage realm, hard drives no longer live within the confines of dark, sweltering PC cases. Now we have self-enclosed drives of all shapes, sizes, and capacities that allow increased desktop storage or simple take-it-with-you portability.

Falling squarely between those two external realms is SmartDisk's new FireFly, a durable, 3.3-ounce, 20GB drive with USB 2.0 (Universal Serial Bus 2.0) connectivity. The FireFly looks like a tiny version of recent external desktop drives, complete with a sleek silver exterior and a hip blue status light. Something else that sticks out about the FireFly is its price. At \$189, this little drive costs more than external drives boasting six times its capacity.

But if you look more closely at the FireFly, you'll see a few reasons for its hefty price tag. Unlike larger external drives from Maxtor, Western Digital, and others, this little drive obtains its power through the USB cord, allowing for a quick, hassle-free connection wherever you are. Also impressive is the drive's tough magnesium alloy housing, which can push away heat with its thermal dissipation properties.

In addition to its looks, the drive features speedy performance through the USB 2.0 connection. We transferred 100MB of files in a mere 12 seconds, 1GB in one minute and 39 seconds, and 5GB in seven minutes and 45 seconds. The bundled USB 2.0 cable was a bit on the short side, but because the drive powers up immediately when connected and has no buttons, the cable is a trivial concern. With its fast transfers, big capacity, and reliable portability, the FireFly makes a great storage companion for those on the go.



FireFly

\$189.99 • SmartDisk
(239) 425-4000
<http://www.smartdisk.com>

Duly Quoted

"I wanted to provide a wholesome environment for courtship."

—Herb Vest, CEO of online dating service TRUE, which prosecutes people who misrepresent their marital status and requires all new members to submit to criminal background checks. (Source: MSNBC)

New Products

Compiled by Kylee Dickey

Quick takes on the latest hardware and software to hit the market at press time. Manufacturers' and publishers' release dates are subject to change, so some of the products may not be available when you read this.



Plextor PX-712UF

Hardware

20GB 4G iPod

Apple • \$299
 Portable digital music player now features 12-hour battery life and a new click scroll wheel
 (800) 692-7753; (408) 996-1010
<http://www.apple.com>

30-inch Cinema Display

Apple • \$3,299
 A large widescreen HD LCD with both FireWire and Hi-Speed USB 2.0 connectivity
 (800) 692-7753; (408) 996-1010
<http://www.apple.com>

Rapid Burn

More home users are burning their own DVDs than ever before. Plextor can help you join the DVD revolution with its new external DVD±R/RW drive, the PX-712UF. This drive focuses on speed, not only through its support for both Hi-Speed USB 2.0 and FireWire connectivity but also through its write speeds. When burning a DVD+R, the PX-712UF can write at speeds of up to 12X; when burning a DVD-R, this drive can write at up to 8X. In addition, the PX-712UF supports speeds of 4X for DVD±RW, 48X for CD-R (CD-recordable), and 24X for CD-RW (CD-rewriteable). Plextor's DVD drive comes with Roxio Easy CD & DVD Creator 6 DVD Edition for Windows, Roxio PhotoSuite 5 SE for Windows, and Toast Lite 5 and 6 for Mac (\$299; 800/886-3935; 510/440-2000; <http://www.plextor.com>). ■

512MB 400MHz Registered ECC DDR2 DIMM (#KVR400D2R3/512)

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BenQ • \$129
 Internal DL-DVD drive supports write speeds of 2.4X (DVD+R DL) and 8X (DVD+R)
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FrogPad • \$169.99
 Left-handed users can now operate the one-handed FrogPad keyboard
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<http://www.frogpad.com>

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ThinkCentre A51p

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<http://www.ibm.com>

VAIO S

Sony • \$1,499.99 (base configuration)
 Widescreen notebook with XBRITE high-contrast display technology
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<http://www.sonystyle.com>

W360

WinBook • \$1,999
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 (800) 254-7806; (614) 334-1496
<http://www.winbook.com>

Zen Touch 20GB

Creative • \$269.99
 20GB hard drive-based portable digital music player with 24-hour battery life
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<http://us.creative.com>

Software

Business Plan Pro 2005

Palo Alto Software • \$99.95
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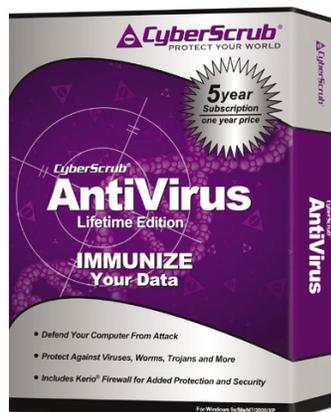
Forget Your Annual Health Check

Most antivirus programs require that you pay a fee each year in order to continue downloading new virus definitions. CyberScrub has released an antivirus application that lets you download new virus definitions for free for five years, which CyberScrub estimates to be the approximate life of a PC. CyberScrub AntiVirus Lifetime Edition protects your PC from malicious code, such as viruses, Trojan horses, and worms, and it also includes Kerio Personal Firewall to provide added protection from attacks. In addition, CyberScrub AntiVirus scans files and activity for anything resembling malware, blocking some attacks before corresponding antivirus updates are issued (\$59.95 for package; \$49.95 to download; 770/951-2080; <http://www.cyberscrub.com>).

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Fox Magic Software • \$29
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 Protect your PC from suspicious network traffic, viruses, spyware, and other threats
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<http://www.tinysoftware.com>

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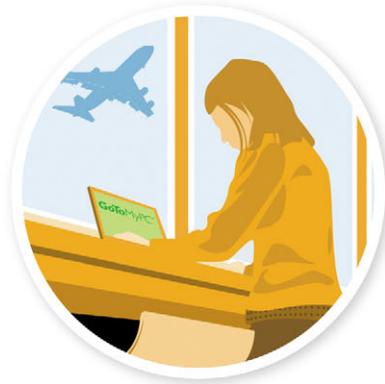
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<http://www.toolfactory.com>

“Best Remote-Access Software”

— PC World Magazine 2004



“Easiest Remote Access to Set Up and Use”

— CNET, Editors' Choice 2004



“Ultimate Choice Award for Remote Access”

— Laptop Magazine 2004



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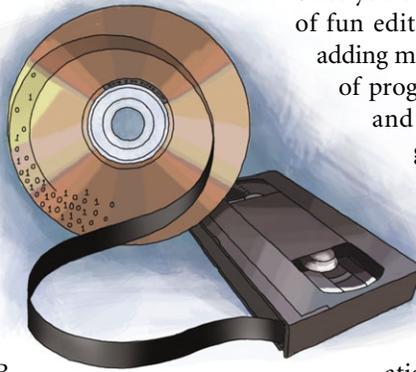
This month, TechMates will delve into the video arena with two great products for creating and working with videos, as well as converting VHS tapes to DVD.

Many of us have shelves of old videotapes filled with all types of video memories. Unfortunately, these tapes start to disintegrate after as little as 10 years. One answer to this problem is to copy the content of those aging videotapes to DVDs. The HP DVD Movie Writer dc3000 provides an easy way to preserve all of your precious videos. The Movie Writer is an external writeable DVD drive that also has built-in analog capture and MPEG-2 (Moving Picture Experts Group-2)-encoding capabilities. It will digitize those analog tapes and write them to DVDs quickly and easily.

Directions are clear, and installation is uncomplicated. Connect the unit to your computer with the included USB (Universal Serial Bus) cable. Cables are also included for hooking your VCR directly to the Movie Writer. After you install the software, the analog-to-DVD conversion can be started with the press of a button on the DVD unit. This brings up the HP Transfer Wizard that walks you through the process. Everything is automated and easy to follow. The Wizard does everything from copying the videotape to creating a cover for the DVD case. The processing is somewhat time-consuming. Transferring one tape can take an hour or more. However, because no user intervention is required, you can simply start the procedure and walk away. Once the digital conversion is complete, you can edit the video to your liking. The included ArcSoft ShowBiz DVD software will help you perform basic video-editing tasks.

The Movie Writer also functions as a writeable CD/DVD drive. It can use CD-Rs (CD-recordables) and CD-RWs (CD-rewriteables), as well as DVD+Rs/+RWs (DVD+recordables/+rewriteables). This makes it useful for backing up data, archiving photographs, and creating music CDs, as well as for delving into video creation. Veritas' RecordNow is included for creating music and data discs. The included Simple Backup program will help you back up data, and CyberLink PowerDVD will allow you to play DVDs.

There are a variety of different ways to copy VHS tapes to DVDs, but the HP DVD Movie Writer dc3000 is one of the easiest and is especially suitable for a neophyte computer user.



DVD Movie Writer dc3000
\$399 • HP
(888) 999-4747
<http://www.hp.com>

Easy Media Creator 7
\$99.95 • Roxio
<http://www.roxio.com>

Sandy's Tip: The minimum processor needed for this product is an Intel Pentium III processor running at 800MHz with Windows 2000/XP, but I recommend that you have at least a Pentium 4. Install the latest Windows service packs. This product will work with USB 1.1, but I recommend that your computer have USB 2.0 ports for better performance.

Fine-Tune Your Work

Once you start working with videos, you can have a lot of fun editing video clips, creating transitions, and adding music. Roxio's Easy Media Creator 7 is a suite of programs that will allow you to enjoy creating and editing CDs and DVDs. Once you have gotten your feet wet with the basic software that came with your DVD drive, this suite will let you take the next step.

The included programs include VideoWave 7 for video editing and processing, PhotoSuite for photo editing, and DVD Builder for DVD creation. There is also a Creator Classic for creating CDs and a Drag To Disc, which makes it easy to copy information onto discs. This group of programs was formerly called Easy CD/DVD Creator, but this new package includes better integration of the components. It also has sound editing, automated video production, and DivX encoding.

The programs all have a new interface, which is standardized across all the applications, making the entire suite easier to learn and the various tasks easier to accomplish. For the first time, the package includes a launch pad, which lets you start the various program modules by choosing either a task or a program name. The launch pad also lets you keep track of the projects that you have created.

Video editing is fast becoming a popular hobby for computer owners. I invite you to jump right in. I just finished using the Roxio suite to edit a video of my two grandchildren. I am one proud grandmother. Proud of them for being so cute and proud of myself for accomplishing this fun task.

Sandy's Tip: Defrag your hard drive before you start working with videos. A fragmented hard drive can cause video software to crash. ■

BY SANDY BERGER

Sandy Berger is a nationally respected technology author and computing expert. Sandy's aim is to convey to others in easy-to-understand language what they need to know to take advantage of today's technology. Visit her at <http://www.compukiss.com> or email her at SandyB@smartcomputing.com.

Skimp Less, Hear More

Clear Up Your Conversations With A Headset

Joshua Gulick

Send your comments to
joshua@smartcomputing.com



DSP 500



DSP 400



Audio 90

.Audio 90, DSP 400, DSP 500

\$34.95, \$89, \$109

Plantronics

(800) 544-4660

(831) 426-5858

<http://www.plantronics.com>

Most of us focus on power when we replace our aging systems with new computers. We want components that will open more applications at once and open them more quickly. We want a hard drive that will store more files (especially music files now that so many of us have discovered the satisfaction of plucking a single song from its album for a fraction of the price). And we want the fancy new optical drives that let us burn our home movies and digital animation creations to DVD.

However, we often pay more attention to price than power or quality when we select the components that stand outside our computer's chassis. My friends look for rebates instead of specifications when they shop for Web cams, USB (Universal Serial Bus) keys, and printers. This approach often succeeds but occasionally meets with spectacular disaster, as I discovered when I once bought a \$5 pair of speakers.

Clearing Things Up

If you listen to digital music or use your IM (instant message) program's Voice Chat feature, you simply can't skimp when buying a microphone and headset (or speakers, believe me). I chat with friends and fellow gamers via my PC's new speakers (which replaced my \$5 mistake) and an old standalone microphone. My speakers produce excellent audio, and thanks to my friends' quality microphone/headset combos, their voices are crisp and clear. My microphone, on the other hand, mangles my voice so that anyone on the other side of our chat has a hard time understanding me.

I looked at three Plantronics headsets to see what I was missing and selected the .Audio 90 (\$34.95), the DSP 400 (\$89), and the DSP 500 (\$109). Although the .Audio 90 isn't terribly expensive, it has

plenty of features, including two of the most comfortable earpillows, er, earphones I've used. (The DSP 500 has similar earpieces.) The headset also has a flexible boom that holds the mic in front of your mouth. You can bend the boom to adjust the mic's location, and if you don't want to use the mic, you can simply flip the boom up next to your head. The headset includes two audio jacks that connect to your computer's sound card. I liked the earphones, which provided strong bass, but I loved the mic, which didn't warp my voice on its way to my friends.

After experiencing the .Audio 90, I wasn't sure I needed to bother with the DSP 400 and DSP 500, which boast much heftier price tags. As it turned out, both headsets earned their keep. Instead of plugging into sound card ports, the headsets plug into your computer's USB port. Each headset also includes a DSP (Digital Signal Processor) device that attaches to the cord. Although the DSP 400's smallish earphones aren't quite as powerful as the DSP 500's cups, the DSP 400 is collapsible, which means you can fold it and then easily tuck it into a carry-on while traveling.

The Price Is Right

I liked both devices' crystal-clear microphones and the DSP 500's solid bass, but not enough to shell out so much extra cash for the audio alone. What really got my attention was the DSP. The DSP acts as a sound card and supposedly enhances voice quality (I like all three headsets' voice capabilities). If your computer has a weak sound card (or no sound card at all), you can use the DSP headsets to create the perfect audio environment.

As it turns out, you don't need to spend all that much to avoid the buy-a-cheap-product, get-a-cheap-product dilemma. Most chatters and gamers will love the .Audio 90's great sound and the volume control that lets gamers adjust the volume without jumping out of the game. Those who want the top-of-the-line sound or lack a sound card will probably favor the DSP series. ■

This Is Wireless Made Easy?

Chad Denton

Send Chad your opinions at chad@smartcomputing.com



Forget The Fancy Phones— Just Give Us Customer Service

I hate my cell phone. Don't get me wrong; I wouldn't live without it if I didn't have to, but I still hate it, and I'm not alone. In a study conducted by MIT this year, the majority of Americans identified their cell phone as the modern day convenience they hate most but couldn't live without.

It's not so much the phone itself I hate. The fact that I have to don a tinfoil hat, hold an antenna in my free hand, and balance on one leg in order to get a decent signal is a little annoying, but hate is a strong word. What I hate about my cell phone is dealing with my provider.

Take My Money, Please

Between automated phone systems and the Internet, there's no reason it should ever take more than five minutes to pay a bill, unless, of course, you're trying to pay your Sprint PCS bill online or over the phone.

I recently logged in to my Sprint PCS account to pay a bill only to find I couldn't so much as get a balance from the Web site. Anytime I'd click the Invoice And Payment Options link from my account home page, the Web site would ask for my password and dump me back at my account home page. When I tried again a few days later, I got the same result.

I understand that Web sites go down, so I resigned myself to pay over the phone. I dialed into the phone payment system, patiently listened to a message slightly shorter than Porky Pig reading "War And P-P-Peace" and worked my way through the menu options only to learn that I had to call a different number and sit through more automated menus and messages just to check my balance. The approximate balance I received turned out to be roughly \$10 more

than my actual balance. I ended up spending about 30 minutes trying to pay a simple bill.

The AT&T Wireless Debacle

We all have our wireless horror stories, and by comparison, mine isn't even close to the customer service stories of those who tried to sign on to AT&T Wireless late last year. In order to help convert more users to its newer GSM (Global System For Mobile Communications) networks, AT&T Wireless decided it needed an upgrade of its customer service systems. The upgrade in late October 2003 was badly planned and badly implemented and crashed the customer service systems almost immediately. Reps could not access customer records or activate new accounts. The problems persisted for weeks before being elevated by a looming FCC deadline.

Nov. 24, 2003, was the FCC deadline for carriers to support LWNP (Local Wireless Number Portability) in the 100 largest cellular markets. LWNP allows a customer to keep her cellular number when switching to another provider. Like other carriers, AT&T Wireless hired an outside company to handle its number portability requests, but while all other major carriers hired TSI, AT&T Wireless hired NueStar. TSI and NueStar had different ideas about how to implement the portability standards, making it almost impossible for AT&T Wireless to seamlessly port numbers to and from other carriers.

The customer service problems persisted through December 2003. Potential customers who waited without service for weeks finally took their business to other carriers. Even today AT&T Wireless is struggling to keep customers as it has one of the highest **churn rates** (amount of customer turnover) among major carriers. Second quarter filings indicate a 3.4% churn rate compared to 1.6% for Sprint PCS.

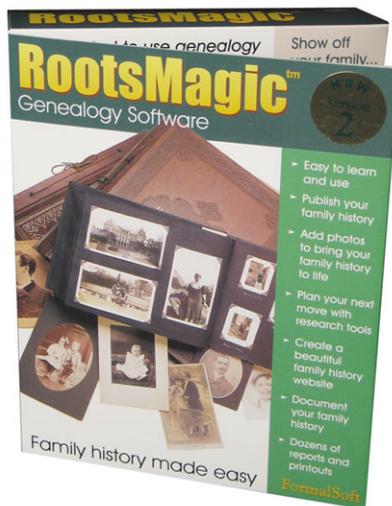
There are other factors to consider when switching providers aside from keeping your number. Still, LWNP will make it easier for many users to switch providers. Carriers who want to hold on to their customers will invest wisely in customer service. Flashy gadgets and fast data networks attract new users, but solid customer service will keep customers long after their contracts expire. ■

The Magic Historical Marker

Kylee Dickey

Send your comments to
kylee@smartcomputing.com

RootsMagic 2.0 Remains Simple But Offers Powerful Genealogy Tools



RootsMagic 2.0

\$29.95

RootsMagic

(877) 766-8762

(801) 489-3102

<http://www.rootsmagic.com>

The first genealogy program I used was Leister Productions' Reunion for Mac, a program with an attractive and easy-to-use interface. When I tried to find a Windows-compatible genealogy program, I discovered that many were hard to use, lacking in features, or overpriced. There are a handful of admirable programs, such as Legacy Family Tree, Personal Ancestral File, and Master Genealogist (a favorite of genealogists but not at all user-friendly). However, when RootsMagic premiered last year, I found a program well-suited to both the experienced genealogist and the novice. This summer, RootsMagic 2.0 was released.

Like Pulling Ancestors Out Of A Hat

RootsMagic doesn't reduce genealogy to pulling ancestors out of a hat, but it does have easy-to-use tools for inputting data and organizing research. First, I imported my GEDCOM (Genealogical Data Communications) file, the industry-standard genealogy file format. Most programs use proprietary formats, but almost any can handle GEDCOM files. An import wizard walked me through the process, and in no time, the RootsMagic database hosted a virtual family reunion of 2,880 of my relatives.

Most genealogy programs lose some GEDCOM data due to unrecognized GEDCOM tags (sets of genealogical data), but RootsMagic failed to import only a few Reunion-generated tags. Some programs discard unrecognized GEDCOM

data, but RootsMagic stored it in a LST file that a word processor can display.

Organizing Your Research

Genealogy research often creates a mess of leads and unrecorded sources. RootsMagic provides more organizational help than any program I've seen. Attach ToDo items to individuals and family units. RootsMagic prompts for what research you must do and where it should be done. Add research deadlines and your research results.

RootsMagic's Source Wizard writes proper source citations. I entered a new fact and was prompted to select a Source Type. I chose Obituary, and RootsMagic asked me to enter the person's name, newspaper title, newspaper location, publication date, and page and column numbers. I could also add the reliability of the source, a transcript, and my own comments. The only other program I've seen with such extensive source citation is the excellent but difficult-to-master Master Genealogist.

RootsMagic can create a plethora of reports and charts, including the printable Wall Chart, which can be as wide as 57 feet. RootsMagic's Narrative Report converts raw genealogical data into complete sentences. The software can also assemble a family history book. You can even add free-form text pages to the publication. The Web Site Wizard can help you publish a genealogy Web site, complete with family trees, photos, and an optional link for visitors to download your GEDCOM file.

The Root Of The Matter

RootsMagic is easy to navigate and has unique features. Open more than one file at a time and drag individuals' records among files. Open two copies of the same file side by side. I frequently used this feature to simultaneously view my data in the detail-oriented Family view and the lineage-oriented Pedigree view.

I've only touched on RootsMagic's features, which include problem-checking, photo editing, and a Correspondence Log. I've used several genealogy programs, but RootsMagic has the best balance of advanced organizational features and simplicity. ■

Prismiq MediaPlayer

An Imperfect Convergence Device

Nathan Chandler

*Send insights and insults
to Nathan at
nathan@smartcomputing.com*

Your computer is home to digital images, an entire partition of MP3s, and video clips, but you need a way to access those files in an efficient manner. Prismiq's MediaPlayer is a convergence device, designed to join many different multimedia technologies and put their power at your fingertips.

By and large, MediaPlayer delivers the goods, letting you play music and video through your home stereo and television. It also lets you browse the Internet, chat online, view photos, and grab personalized news, all on your television, from the comfort of your couch.



MediaPlayer

\$199
Prismiq
(866) 774-7647
<http://www.prismiq.com>

More Than A Player

MediaPlayer looks the part of a high-tech set-top box, with its shiny black case and tasteful (but hard-to-read) LED (light-emitting diode) layout that will fit in with any entertainment sys-

tem. Its guts comprise a 32-bit micro-processor, 16MB of ROM, 64MB of RAM, and a Linux OS (operating system).

To set up MediaPlayer, connect it to your television using the included S-Video cable or by using a regular RCA A/V cable, which you can also use to connect to your stereo receiver. Patch the player into your home network using an Ethernet cable or wireless Internet card and flip your television to the appropriate channel for video display. After it starts up, MediaPlayer displays a menu that you manipulate using the included remote control or an optional \$50 wireless keyboard. You can play MP3, WMA (Windows Media Audio), and WAV audio files, or stream any video in MPEG (Moving Picture Experts Group) 1/2/4, Motion-JPEG (Joint Photographic Experts Group), or AVI (Audio-Video Interleaved) format.

Before MediaPlayer will cooperate with the media files on your networked PC, you

have to install the MediaPlayer Manager software. This app basically catalogs all music, video, and image files for efficient access. But this scanning process consumes many system resources and can take hours.

Not Effortless

I inserted the wireless card, flipped on the MediaPlayer, and waited for the device to connect to my network. The wireless card's LED illuminated, but the MediaPlayer displayed an on-screen message that said it could not find a PC.

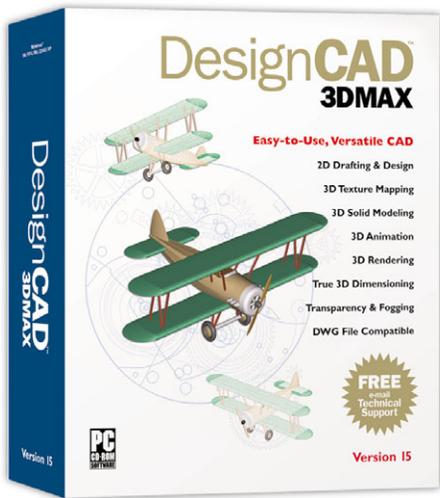
Convinced that a glitch in my network was complicating my efforts to use the wireless card, I reset the router's settings. After many attempts, I emailed Prismiq tech support. I never received a response.

I eventually called the tech support number, and in less than five minutes, I had a diagnosis. Although I was using a wireless card that the MediaPlayer supported, it was a slightly different revision of this card and incompatible. With my wireless efforts stymied, I grabbed an Ethernet cable, connected it to the MediaPlayer, and turned on the power. This time, the player first displayed a message that told me my software was outdated and that it would take five minutes to update the necessary apps. Then the player told me it needed to upgrade its firmware, which took a few minutes more.

MediaPlayer finished cleanup tasks and found my PC. I used the remote to load audio and images on my entertainment system with no problems. However, the system wasn't compatible with the video clips from my digital camera, and there were sometimes blips during MP3 playback. Web browsing was quick, but the low resolution of televisions means most Web pages don't fit on the screen.

More To Come

It's not a flawless product, and it offered more frustration than most gadget-y devices I try, but Prismiq's MediaPlayer does work. If you have the patience to overcome setup problems and don't mind its shortcomings, this player can expand the possibilities of your digital audio and image collections. ■



October 2004
Smart Choice

DesignCAD 3D MAX Version 15

Triple Your Fun

Three 3D Drawing Apps For Less Than Three Figures

Measure twice, cut once. This sums up the philosophy of any good carpenter, whether you're an all-around handyman or building your first birdcage. But that advice doesn't tell the whole story—what happens before you measure is also vital. Unless you start with a good plan, you can end up with a doghouse that's too big, a deck that is crooked, or a canoe that sinks.

For years, professional designers have gotten help from software applications. 3D CAD (computer-aided design) programs allow the designer to easily create 3D models before beginning construction. The home user, however, typically doesn't have the money or the patience to spend big bucks learning a program that is too complex for any but the most experienced user. Fortunately, you don't have to lose a great deal of cash or your sanity. Here's a look at three affordable 3D CAD applications.

How We Tested

We started with a budget of less than \$100 for each program, which eliminated some of the more well-known programs, such as LightWave 3D (\$1,599) and Strata 3D CX (\$695). We researched dozens of CAD programs and discovered there are many programs focused on 2D design, but the market share of 3D programs is lower.

We ultimately selected three programs and installed each application on a Windows XP machine with a 1.28GHz Intel Pentium 4 processor, 128MB of RAM, and approximately 65GB of free hard drive space. This PC met the minimum system requirements of each program we tested. We considered many criteria in evaluating each program, with the focus being on ease of installation, ease of use, learning curve, support, and additional features.

CadStd Pro

If you've never used a PC to create plans, even a simple 2D line drawing, CadStd Pro is a great place to start. From the detailed tutorials to the intuitive interface, CadStd Pro makes it easy to learn to use a CAD program.

This is evident from the beginning. After downloading (the program is available only via download) and installing it, the program launches to display the Startup Wizard. The wizard helps you create a new blank drawing, shows you how to use the drawing scale

CadStd Pro

\$25

Apperson & Daughters

<http://www.cadstd.com>

Scorecard

Performance	3
Ease Of Use	4
Installation	5
Documentation	3
Price	5
Overall Score	4/5

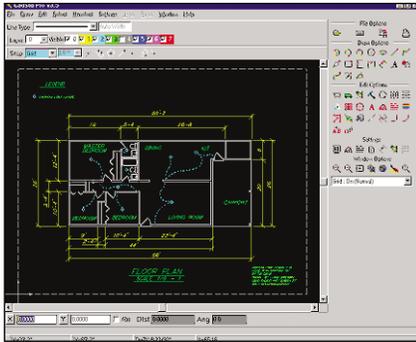
expert, and more. Of course, those familiar with this or other CAD apps can close the wizard and move right to working with preexisting files.

If you choose to start with a blank drawing, the next step is to use the program's My First CadStd Drawing tutorial. This explains basic concepts, including how angles and coordinates are oriented, how to select locations, and how to carry out repetitive commands.

The 16-step lesson guides you through selecting settings, drawing basic shapes, and saving your work. Other tutorials include creating a drawing template; using templates in a drawing; and using offset, gap, trim, and in-



tercept functions.



The interface is clear, with menu commands at the top, options and other icons on the right, and a large workspace in the middle. The options are comprehensive. You have 17 drawing options at your disposal, such as three-point arcs, poly lines, and diagonal lines. Under Settings, configure the display settings, text type, line type, paper settings, and more.

The main disadvantage of this program, at least compared to some of the others here, is that though the 3D component is helpful, it is limited. CadStd is basically a 2D CAD program, although one of the tutorials shows you how to create an isometric projection (a 3D projection that shows the height, width, and depth of an object) from orthographic views (the basic view of an object showing only one side, such as the front, side, top, or so on). This tool can help you create a 3D object by projecting various lines in a drawing, but it is not the primary function.

Another main difference between this and other programs we researched is that it is clearly a labor of love of its creator, John Apperson. He provides almost all support for the program, and our experience is that he responds quickly to questions. The Web site also includes an FAQ for all users, not just those of the paid version.

CadStd comes in two versions, CadStd Pro, which includes technical support, and a free version, CadStd Lite, which does not. System requirements include Windows 9x/Me/NT 4.0/2000/XP and an Internet connection for downloading the software.

CYCAS

Freeware enthusiasts, take note. You know it isn't always true that you get what you pay for, as there is plenty of valuable freeware just waiting for you to come along and use it. And that's the case with CYCAS. This 2D and 3D architecture software is designed to let you create 3D architectural elements, such as walls, windows, doors, and other openings, and for the most part, it delivers on its promises.

The Spartan interface is basic gray, composed primarily of the drawing area. To the right of the drawing area is the main menu. Choosing a menu item calls up a set of options known as the Function List; the functions vary by option. Beneath the drawing area, you'll see a coordinate display, a help bar, and a view menu, which includes the helpful Zoom function so you can focus on one detail of a drawing. Other important commands, such as Undo and Snap-To, are available with a mouse click.

It's necessary for all but the most experienced user to begin with the CYCAS users manual, so that's where we'll start. And if the interface didn't clue you in to this program's focus on simplicity, the manual's preface will; it notes "simplicity can as easily be our greatest treasure, as our variety can be the most dire poverty." Don't let this fool you into thinking CYCAS cannot allow you to create complex drawings. One look at the 3D tutorial will show you otherwise.

This tutorial walks you through designing a garage, complete with window and door openings. After performing the tasks in the standard tutorial, including drawing triangles, drawing squares, and creating the basic outline for a garage, you're ready to build your first room with the help of the 3D tutorial. You'll learn how to create the plan view, create a "scene"

CYCAS

Free

Verlag Frese (Germany)

+49 5722/90028; info@cycas.de

<http://www.cycas.de/index.html#top>

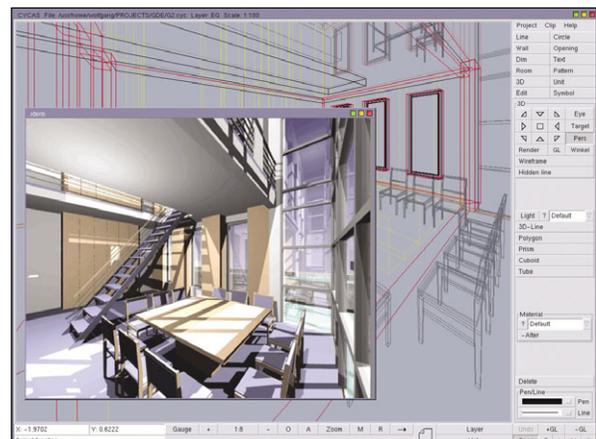
Scorecard

Performance	4
Ease Of Use	4
Installation	5
Documentation	3
Price	5
Overall Score	4.2/5

for rendering (a drawing that shows the main lines of the garage in three dimensions), and render the image (apply color, shading, and shadows to a computerized image to make it more realistic in appearance). Rendering uses a program called POV-Ray (Persistence of Vision Raytracer), also a freeware program, available at <http://www.povray.org>.

The users manual also covers 3D topics in-depth, including the basics of the coordinate system, the snap-to function (it recognizes corner points of 3D elements), how to input points in 3D, creating basic elements such as tubes or prisms, and editing in three dimensions. You can assign colors and materials when rendering 3D figures.

Because the origin of the program is German, you may find some idiosyncrasies in the language of the manual and the interface, which can be a slight



drawback in understanding the program. And unless you speak German, you can't pick up the telephone and call tech support. But you can email the company for help, and the Web site FAQ answers basic questions.

CYCAS requires WinNT 4.0/2000/XP, and POV-Ray 3.1 or higher is recommended for image rendering. Recommended hardware includes 400MHz or higher processor, 128MB RAM or more, 50MB free hard drive space, and a video resolution of 1,024 x 768 or more.

DesignCAD 3D MAX Version 15

Animation. Texture mapping. Solid modeling. Rendering and dimensioning. DesignCAD 3D MAX Version 15 is by far the most comprehensive of any of the 3D apps we found for home users, and it's a true 3D CAD system. Create a 3D drawing of a house, for instance, and you can see it in a number of views, including wireframe, with hidden lines removed, or with full-color shading. Plus, you can create animation files that walk the viewer around the drawing in smooth increments.

The program interface is similar to popular and familiar 2D drawing programs such as Paint Shop Pro or Microsoft Paint. It includes menus and command icons at the top, toolboxes on the left, a workspace surrounded by rulers in the main workspace, and a status bar at the bottom. Because this program is equally proficient in 2D and 3D drawings, one key icon to note is the arrow at the top of the left toolbar, which you can use to toggle between 2D and 3D views. And, even if a drawing contains 3D objects, you can still edit in two dimensions to more easily add 2D information.

It's impossible to list all the 2D objects and 3D drawing tools here, but here's just a hint. Handy 2D drawing tools include pointmarks (for marking a point in a drawing with a small box, cross, or circle), gravity (moves the pointer to the nearest point in the drawing and sets a point there), plane snap (moves the pointer to the nearest

location on the nearest surface), and midpoint (moves the pointer to the midpoint of the nearest line or line segment). Objects in 3D include boxes, spheres, cones, cylinders, tubes, pyramids, rounded boxes, walls, ellipsoids, grid surfaces, and editing operations for combining 3D solids.

One item that is lacking is a tutorial, but other support features compensate for it. The hard copy reference manual, at 262 pages, is helpful when you need information on a particular aspect, and it is mirrored by the program's help file. IMSI also offers a supplemental product, called the DesignCAD 3D MAX Version 15 Fundamentals Training CD. DesignCAD 3D MAX Version 15 includes tips of the day, and when you launch the software, the New File Wizard gives you the option of creating a new drawing, opening an existing

drawing, associating a paperspace template with a drawing, or creating a new drawing with specific settings. A licensed copy allows free tech support.

A community of DesignCAD users is ready to help online. The user discussion forums (<http://forums.upper.space.com>) cover everything from tutorials to troubleshooting answers.

Minimum system requirements include Microsoft Win98/Me/2000/NT 4.0/XP, a Pentium processor, 256MB of RAM, and a 1,024 x 768 VGA display. You should have 27MB to 30MB of hard drive space and a CD-ROM.

The Ultimate Tool

We weighed our 3D programs on the basis of the three P's, price, personality, and performance, and were impressed by each. It's tough to beat CYCAS for price or CadStd for personality. In the final analysis, DesignCAD 3D MAX 15 is superior in terms of all-around performance, and for that reason, we're giving it our Smart Choice award. ■

BY HEIDI V. ANDERSON

BUYING TIPS

- Don't confuse cost with ease of use. Just because one program costs 10 times more than the other doesn't mean it's 10 times easier to use. In fact, the more expensive programs typically are designed for professionals, and they can be more difficult to learn than their less expensive counterparts.
- Take advantage of the free trial. We found a wide variety of interfaces when testing out 3D apps, and what a user prefers can be nothing more than a matter of personal preference. It's important to test out the application interface and make sure you're comfortable with it before you make a decision.
- Consider the cost of technical support in the overall cost. In general, 3D CAD programs fall into the relatively-difficult-to-learn category, and you're more likely to be contacting technical support than you might regarding, say, cooking apps.



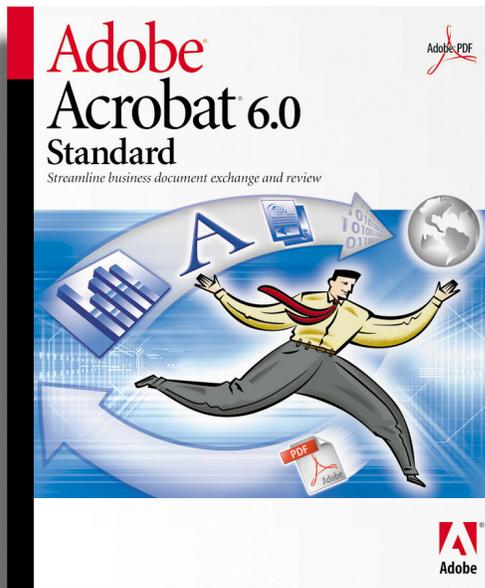
DesignCAD 3D MAX Version 15

\$89.95
 IMSI Software
 (800) 833-8082
<http://www.imsisoft.com>

Scorecard

Performance	5
Ease Of Use	4
Installation	5
Documentation	5
Price	4.5
Overall Score	4.7/5

Let The Show Begin



If you surf the Web, chances are you are familiar with the now-ubiquitous PDF (Portable Document Format) and its usefulness. With a PDF, you'll never worry about your document looking any different to the viewer than it does to the person who created it. Adobe Acrobat Standard, a program that generates PDFs, is a must-have utility for document sharing.

What you may not realize is that Acrobat is more than a business tool for preserving formatting. It has features that the average consumer or small business will find helpful. While its price may seem steep, it's a bargain when you consider the time and money it can save.

With Acrobat 6.0, you can create PDFs from a variety

of file formats, including Microsoft Office and Corel WordPerfect documents, Web pages (on your PC or the Internet), and graphics. You can also create editable PDFs from documents or other items you scan, and Acrobat will perform OCR (optical character recognition) for you. You even select multiple documents at once and create a single PDF from them.

With Acrobat 6.0 Standard, you can take snapshots of portions of a PDF, creating a mini-PDF that you can paste into other programs. Spell check your PDFs or search them for words and phrases (the current PDF document or all PDFs on your PC). Furthermore, you can bookmark your PDFs, making it easy for others to find important

passages. If you exchange your PDFs with another user who owns the full version of Acrobat (not Acrobat Reader), you can add and edit comments as you pass the documents back and forth. Most importantly, perhaps, for those who transmit documents over the Internet, you can embed security protections in your PDFs, making it extremely unlikely that unauthorized viewers will be able to open or copy them.

How can you use these myriad features? The most obvious is for commercial printing. One of the PDF options is Press Quality. Any file you save at this setting is ready for professional printing. If you have ever taken a document to a commercial printer and heard the words, "I'm sorry, we can't use this. We'll have to re-create it at a cost of XXX" (usually hundreds of dollars), you know how valuable that can be.

Other uses include pulling all of your various tax records together into a single PDF and submitting it online to the IRS or collecting all your personal information in a PDF for safekeeping or to send to an insurance company. Because PDFs saved at desktop-printer quality are often smaller than the original files (especially in the case of large photographs), Acrobat offers a convenient way to create permanent and portable archives of family photos, memorabilia, and other personal treasures.

If you do not want to splurge on the full version of Acrobat, you can create unlimited PDFs or perform

Acrobat 6.0 Standard

\$299

Adobe Systems

(800) 833-6687

<http://www.adobe.com>

Scorecard

Performance	5
Ease Of Use	5
Installation	5
Documentation	5
Price	4
Overall Score	4.8/5

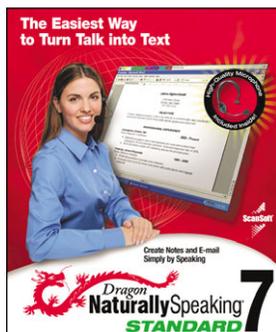
unlimited OCRs online at the Adobe Web site for \$9.99 monthly or \$99.99 per year. But with that option, you lose many of Acrobat's most appealing features, including the ability to spell check or take snapshots.

If you find that Standard does not fulfill your requirements, you can upgrade to Acrobat Professional for an additional \$149. Professional gives users more control over the document-preparation process, and it lets them see how PDFs will convert for use on printing presses. It is of value primarily to users who are unhappy with the print quality of documents they convert to PDF using Acrobat Standard.

In a world where files are increasingly transmitted online or stored on our computers rather than in file cabinets, programs such as Acrobat are a welcome addition to our arsenal. With Acrobat 6.0 Standard, Adobe has reworked the interface to make it even more user-friendly than before. Consequently, this release offers the perfect opportunity for users of all skill levels to avail themselves of its services. ■

BY JENNIFER FARWELL

Speak Your Mind



Do you ever come home from a long day on the PC and see a boxful of important emails you need to return but wince at the thought of typing another word? If so, Dragon NaturallySpeaking, one of the world's leading voice recognition programs, is for you.

You can sit in front of your PC and dictate emails and all manner of documents.

The program is really, really cool in the same way that a brand-new, shiny, red bike was cool on Christmas morning when you were a kid. Like the bike, it requires effort to master and will frustrate you until you succeed. However, once you are up and running, it will let you fly like the wind.

At setup, NaturallySpeaking asks you to spend some time reading from your choice of several documents. (Choose the one by comedian Dave Barry, and your laughter may interrupt the training session.) Even after reading a lengthy

document and waiting for NaturallySpeaking to record and process each word, our testers found the program still had trouble processing their sentences.

Consequently, plan on several days (or weeks if you have a thick accent) of training before NaturallySpeaking gets it perfect. In the meantime, manually correct its mistakes. Additionally, the program is a little complicated to learn, with dozens of shortcuts for various tasks. Fortunately, an excellent tutorial helps novices get up to speed.

For \$99, you get the program and a nice headset (you'll also need a sound card with a microphone input). For those who hate to type, NaturallySpeaking

is a gift from the computer gods. For those who type all the time and whose wrists show symptoms of a repetitive motion disorder, it can be a lifesaver. **||**

BY JENNIFER FARWELL

Dragon NaturallySpeaking 7

\$99
ScanSoft
(800) 654-1187
<http://www.scansoft.com>

Scorecard

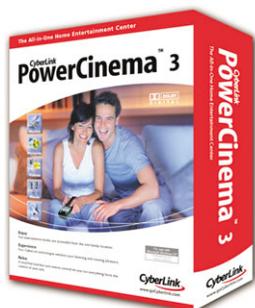
Performance	4.5
Ease Of Use	4
Installation	5
Documentation	5
Price	4
Overall Score	4.5/5

Media Center On The Cheap

If you are pining to create a media center PC but don't want to shell out for a new PC loaded with Windows XP Media Center Edition, give CyberLink's PowerCinema 3 a spin. It's not as powerful as a WinXP Media Center Edition PC, but it may do the trick.

The interface is similar to that of a WinXP Media Center PC, a blue background with buttons you can read from a distance. Like the WinXP Media Center, it lets you watch DVDs (assuming your PC has a DVD player) and videos, listen to digital music, view or make slideshows from your digital images, or surf the Web (with an Internet-connected PC).

You can also hook your PC to your television (assuming your TV supports



the required connections) and use PowerCinema to control it. If you purchase the optional universal remote (\$29.95), you can surf, watch videos or DVDs, play an entire party's worth of music, or run a slideshow

of your last vacation from the comfort of your sofa. PowerCinema also offers an optional plug-in that lets you create DVDs and, during the fourth quarter of 2004, will release a plug-in that adds television recording to the product's capabilities (if your PC has a compatible TV capture card).

PowerCinema is not a full-fledged media organizer. For example, you can sort your images by name or date or create a slideshow (complete with sound) with them, but you cannot move them to different folders, print them, or send them to another computer sans leaving PowerCinema. Likewise, you can't create playlists from your music or videos, and you can't import files to your PC from outside

sources. If you just want to play DVDs, videos, and audio files on your PC, there are better programs for managing each type of file. If you want to unite all your multimedia files under a single program and play them on the large screen, PowerCinema is a winner. **||**

BY JENNIFER FARWELL

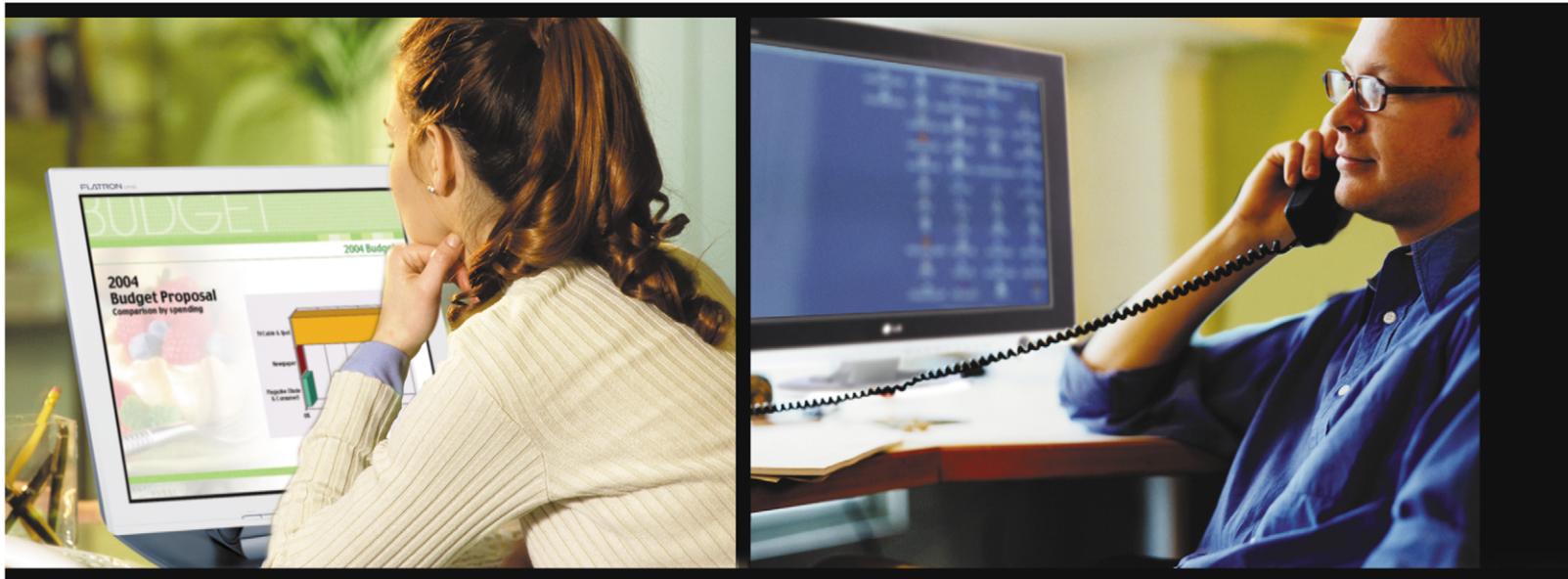
PowerCinema 3

\$79.95
CyberLink
<http://www.gocyberlink.com>

Scorecard

Performance	4
Ease Of Use	5
Installation	5
Documentation	4
Price	4
Overall Score	4.4/5

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IMPULSE ITEMS

Compiled by Joshua Gulick

Cool Stuff For Less Than \$20

See it, like it, buy it. Impulse Items are products that quicken your pulse and capture your attention but won't make you dig too deep into your wallet. Check these pages each month for the latest interesting and inexpensive computing items we've run across.



USB AIR PURIFIER

Some users have dozens of peripherals that connect to their PCs via USB (Universal Serial Bus) ports. Those of us who don't have three digital cameras, two printers, a Web cam, and several other devices simply didn't know what to do with our PC's empty USB ports—until now. Cyberguys (<http://www.cyberguys.com>) offers a real air purifier (it uses ultraviolet light and a titanium dioxide filter) that includes a traditional 80mm computer chassis case fan. The aptly named USB Air Purifier draws power from your computer via the PC's USB port and has a price tag of \$19.95.



USB MINI DESKTOP AQUARIUM

If you can't use your computer to power an aquarium, then why buy a computer at all? That's our take, and ThinkGeek (<http://www.thinkgeek.com>) seems to agree. The USB Mini Desktop Aquarium uses power from your PC's USB port to run a motor that swirls the fish tank's water, which, in turn, shakes the two brightly colored plastic fish to life (well, as close to life as plastic fish can expect to get). Thanks to the tank's switch, you can turn off the motor or the tank's blue light individually. You can buy the mini aquarium for \$19.99.

FLEX LIGHT

If you've ever tried to type while riding in a darkened plane, you know that your notebook display's weak glow illuminates only your keyboard. If you need to look at other objects, such as papers or a book, you'll need to bring a separate light. To that end, IOGEAR (<http://www.iogear.com>) sells the Flex Light, which conveniently draws power from your notebook via its USB 1.1 or USB 2.0 port. The device has eight LEDs (light-emitting diodes), which means you won't have any trouble illuminating your magazines. Of course, not all situations require a mini floodlight. If you want to change the Flex Light's glow, simply adjust the light's three-setting switch (to off, four lights, or all eight lights). Despite the multiple LEDs, the Flex Light isn't hot. Unlike so many devices that separate Mac and PC users, the Flex Light supports any USB port-bearing computer. You can buy the Flex Light for \$19.95. To find it online, click the Online Store button at the top of IOGEAR's home page, type **flex light** in the Search field, and press ENTER.





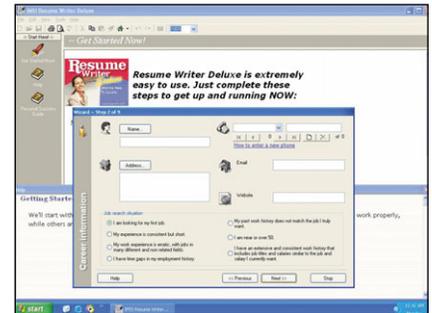
AQUA WORDS

If you like spelling games, you'll love this Tetris-meets-a-spelling-bee computer game. In Aqua Words (<http://www.realore.com>), gamers match adjacent letters to create words (which removes the letters from the game) as other characters fall from the top of the screen. You'll earn extra points when you create large words or use special letters, but don't spend too much time trying to spell antidisestablishmentarianism; the game ends when the ever-growing pile of letters reaches the top of the screen. A small, blue creature named Aquatic cheers you on as you hunt for words. Aquatic also changes the music and background scenery to keep you on your toes (well, fingertips). Although you'll likely buy Aqua Words for a child, expect to sneak in a few rounds of this addictive game yourself. The trial version offers only an hour of play, but you can buy the full version for \$19.95.



COOLSCREAMS

Don't forget your computer when you decorate your house for Halloween. Delfyn Software (<http://www.dreamscenes.net>) sells Coolscreams, a "scream" saver that will chill you to the bone. Thanks to the program's configuration settings, you can choose from a variety of creepy creatures, including ghosts, mummies, witches, and bats. You also can add extra creatures, adjust their speeds, and change the ghost transparency feature. Unlike most screen savers, which have a single, permanent background, Coolscreams boasts several spooky scenarios, including a spider-laden web that stretches across your Desktop. If that doesn't make you jump, the screen saver's bloodcurdling sounds just might. Coolscreams supports Windows 9x/Me/NT/2000/XP. Try Coolscreams free or register it for \$8.95.



RESUME WRITER DELUXE

Not sure how to cram all of your skills, job experiences, and references into a single resume? Don't worry; IMSI's Resume Writer Deluxe (<http://www.imsisoft.com>) walks you through the resume creation process from start to finish. Wizards help you organize your job experience information and other resume data, while a database of 11,000 U.S. employers lets you quickly find employer contact information. The software also makes suggestions to help you target specific employer types. The package includes more than 10,000 resume and cover letter design templates and a mail merge system that lets you prepare resumes for multiple employers. Resume Writer Deluxe is available for \$19.99.

PHOTO KEY RING KIT

Although we love to create digital photo slideshows and we regularly email digital pictures to friends, we still occasionally like to create tangible photos the old-fashioned way. If you have a digital camera, a PC, and a photo printer, grab a Pixifun Photo Key Ring Kit (<http://www.pixifun.com>) and snap a few pictures of your favorite people. The kit includes an instruction manual, Pixifun software, key ring photo paper, and six clear photo key rings. Simply import the pictures into the Pixifun software, print the photo, and then slip a thousand words into your pocket. You can buy the Photo Key Ring Kit or any of the other Pixifun photo kits for \$12.99 to \$14.99.





Windows XP

Getting & Providing Remote Assistance

You're an average computer user—you know how to use your computer to get your work done, but you're no expert troubleshooter. You're sitting at your home PC when something goes wrong, and you don't know how to fix it. You could call tech support, but that could cost you too much time and money.

Or, you're an expert user, your friends know it, and they're always calling you for help. You offer what assistance you can over the phone, but because you can't see your friend's screen, you're not certain of your instructions or the way they're carried out. You often end up visiting your friend to troubleshoot and solve the problem yourself.

With Windows XP's Remote Assistance, a user can invite an expert user to view his screen, relay instructions in real-time, and take over and operate the problematic PC so the expert can fix the problem as the other user watches. Remote Assistance saves the user who needs help the time, cost, and language barrier-based frustrations of technical support and spares the Good Samaritan a trip.

There are two ways to use Remote Assistance: via email and the Web and via Windows Messenger.

(whom we'll call an expert) to a Remote Assistance session (or incident). To create and send an invitation, click Start and Help And Support. Click Invite A Friend To Your Computer With Remote Assistance and click Invite Someone To Help You. You'll be prompted to connect to the Internet if you're not already. (If a box appears telling you that your current system settings prevent an invitation; right-click My Computer; choose Properties; click the Remote tab; and under Remote Assistance, make sure Allow Remote Assistance Invitations To Be Sent From This Computer is checked. Click OK twice and repeat the instructions above.)

Under Or Use E-mail, enter the email address of the person you want to invite and click Invite This Person. In the next screen, enter a description of the problem in the Message box (unless you've already talked with the person, in which case you won't need to type anything). Click Continue.

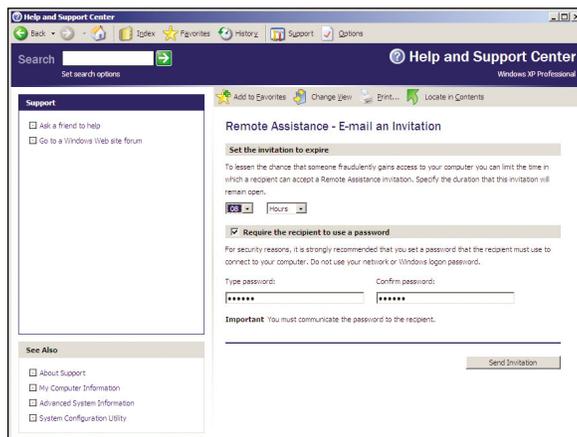
The next screen you'll see lets you enact a degree of security by putting a time limit on your invitation and setting a password for the session. (Much of what you choose will depend on your relationship with the person you're asking for help.) Under Set The Invitation To Expire, use the list boxes to set the number of minutes, hours, or days your invitation will be open. The default for the maximum invitation duration is 30 days, even though the drop-down menus seem to suggest longer periods are possible. In the bottom section, type and confirm your password. You'll want to relay this password to your assistant over the phone. Don't use your system password or a password you use to protect sensitive information.

Click Send Invitation. If you see a warning that a program is trying to access email addresses stored in your email program, click Allow Access For (the default should be one minute) and click Yes. If you see a warning that a program is trying to automatically send email on your behalf (which in this case you want it to do), just click Yes. You'll soon return to the Remote Assistance screen, which displays notification that your message has been sent.

How To Respond

A remote support invitation comes in the form of an email with an attachment. The subject of the email reads You Have Received A Remote Assistance Invitation From, followed by the name

If you're concerned about security, you can restrict the time after which your Remote Assistance invitation will expire and require a password to start the session. You'll still need to be at your computer to authorize any Remote Assistance session.



We'll cover the email/Web method, which requires more steps but will be more practical for most users. (For more on Remote Assistance via Windows Messenger, see "What About Windows Messenger?" at the end of this article.)

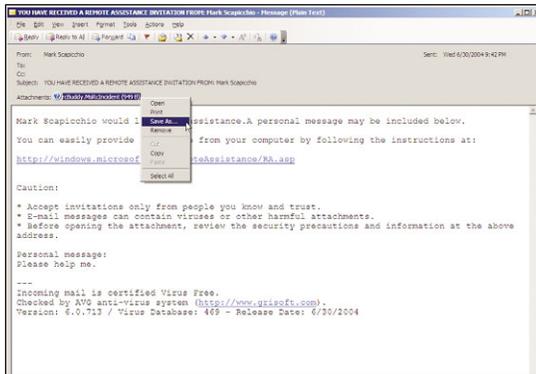
Cry For Help

A Remote Assistance session can't begin unless the user who wants help invites another user



of the sender. The attachment is the Remote Assistance Incident file, which you need to run to start the Remote Assistant session.

Open the email, right-click the attachment, choose Save As, and save the attachment to your Desktop. Scan the incident file with your antivirus app (it's an executable file that could carry a virus).



The Remote Assistance request arrives in your email; save the attached incident file, which you run to start the session.

Contact the sender to ensure she is at her PC and to get any password the sender has set to restrict Remote Assistance. Double-click the incident file shortcut on your Desktop. In the box that appears, enter the password you and the sender have set and click Yes. On your screen, the Remote Assistance workspace will open; once the sender grants permission to begin a Remote Assistance chat session, you'll see the sender's screen in the workspace.

Getting To Work

The most basic way to conduct a Remote Assistance session is for the expert to type and send instructions via the message entry area and watch the other user perform those instructions. However, while instant messaging is great for nonurgent chat, it can be a restrictive and frustrating way to converse during the problem-solving process. If both of your phone lines are free, you'll probably prefer to do your talking on the phone as you work on the problem.

If both PCs are equipped with speakers and a microphone or, even better, with headsets, you can talk with each other over the same Internet connection you're using for Remote Assistance. One user clicks the Start Talking button. The first time you click the button, you'll have to go through the Audio Tuning Wizard, which helps you tweak settings for optimal sound quality.

Once you're finished and once the other user agrees to start talking, start talking as you'd talk over a phone.

Taking (& Surrendering) Control

The most expedient way to conduct a Remote Assistance session is for the expert to take remote control of the other user's PC and perform corrective action while the other user watches. The expert clicks the Take Control button in the top-left corner of the Remote Assistance workspace. (The user who requested Remote Assistance won't have a Take Control button.) A box appears on the other user's screen, which he can use to authorize remote control; the other user clicks Yes. The expert can operate the other user's computer as if she were sitting in front of it. (The other user can still operate his PC, although that can cause confusion.)

Remote control is a great way for the expert to demonstrate or conduct a Windows Update session, install an antivirus app, or take any of the somewhat intimidating steps often necessary to solve problems. It's also ideal when the expert has less time to teach and just needs to solve the problem and get back to work.

Another handy Remote Assistance feature is the Send A File button, which you can use to transfer files over the Remote Assistance connection. Click the Send A File button, use the Browse button to locate the file, and click Send File; the user at the other end will accept it and save it.

Either party can end the session by clicking the Disconnect button.

What About Windows Messenger?

Many sources list Windows Messenger, the IM (instant messaging) program included with WinXP, as the preferred conduit for Remote Assistance: Windows Messenger has a simple menu command for initiating a Remote Assistance session.

But Remote Assistance via Windows Messenger requires that both users have a Windows Messenger screen name, which requires that both users have a Microsoft .NET Passport account. If you or the other user use another IM app, you won't likely want to go through this trouble. The same is true if you don't use IM at all. You almost certainly won't want to add an IM program just for occasional assistance sessions. Better to use email, which you can be certain both of you are already using. ■

BY MARK SCAPICCHIO



Windows 98

Solve Vexing Video Problems In Windows 98

Without a monitor, computing as we know it isn't feasible. So when something goes awry with your video display, there's a good chance you won't be able to continue with your work or play until you rectify the situation. But video problems aren't insurmountable. In fact, you might be surprised at how quickly and easily you'll be able to get yourself back on track.

Problem: I increased my screen resolution, and now my Desktop text is too small. How do I make my Desktop easier to read without going back to a lower resolution?

Solution: Increase the Windows 98 font size setting. The default setting for font size is Small, or 96dpi (dots per inch). This is often sufficient, but if resolution is set to 1,024 x 768 or higher (particularly on a small monitor), the text will usually become too small to read comfortably.

Increasing the dpi setting to Large will increase the size of your Windows Desktop text and make it much easier to see. When you configure Win98 to use Large fonts, text displays 125% larger than normal, or at 120dpi.

To increase font size setting in Win98, right-click an empty spot on the Desktop and select Properties from the pop-up menu. In the Display Properties dialog box, click the Settings tab. Click the Advanced button and click the Font Size drop-down menu, select Large and click OK. Click Close. You'll probably need to reboot your PC afterward.

If your resolution is set high (say, 1,600 x 1,200 or higher), enabling Large fonts may not improve readability much. If so, return to the Font Size setting and select Other, which will let you increase font size even further.

Some apps will refuse to run or may not display menus and other graphics correctly when Large

fonts are enabled. Therefore, you may have to temporarily return to the Small fonts setting when running certain software.

The process of enabling Large fonts in Windows 2000/XP is similar to Win98, although some of steps are slightly different. Also, switching between Small and Large fonts on the newer OSe (operating systems) generally doesn't require a reboot.

Problem: How can I customize or resize individual aspects of my Windows Desktop?

Solution: To change the size and appearance of most graphic Windows elements, right-click a free space on the Desktop and select Properties. Click the Appearance tab.

If you click the Scheme drop-down menu on the Appearance tab, you'll be able to select from more than two dozen Desktop motifs. Many utilize different colors to make the Desktop look more attractive. Others improve readability by increasing size and improving contrast or enhance usability by making things such as icons and scroll bars larger and easier to click.

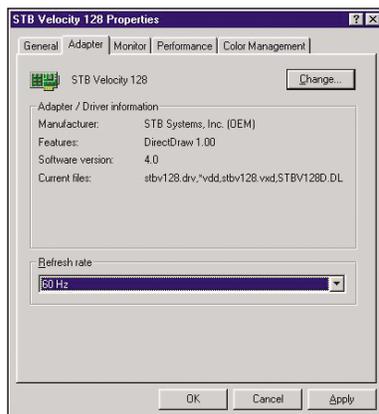
If you only want to change specific aspects of the Windows Desktop, use the Appearance tab to modify myriad settings including icon size and spacing, windows, and buttons. Select individual items from the Item drop-down menu. After you've chosen an item, you'll be able to modify settings including color, size, and font type and formatting.

Whether you're changing the entire Desktop scheme or individual items, the Appearance tab will show you what your modifications will look like before they take effect. Once you're satisfied, click OK.

Problem: My monitor image seems to be flickering. How do I make it stop?

Solution: Monitor flicker is typically caused by a refresh rate that is too low. Refresh rate is measured in hertz and refers to the number of times per second an image is displayed on the screen. A 60Hz refresh rate means the monitor image is updated 60 times in a second. A screen refreshing at 60Hz will usually display flicker, and the effect can become pronounced under fluorescent lighting.

Generally, a refresh rate of 75Hz or higher is sufficient to make screen flicker imperceptible, and unless you have a very old graphics card and monitor, your PC probably supports that rate or even higher.



The Adapter tab lets you increase your graphics refresh rate, which can reduce screen flicker.



To change the refresh rate in Win98, right-click an empty spot on the Desktop and click Properties. Click the Settings tab and the Advanced button. Select the Adapter tab.

The refresh rate options will vary depending on your graphics card and monitor. Select a refresh rate of 75Hz or greater and click Apply. A warning box will appear telling you to make sure your monitor supports the selected resolution. If you are sure, click Yes and OK. Windows will switch to the new refresh rate.

If your screen image improves, click Yes to confirm your new settings. Otherwise, click No (or wait a few seconds), and Windows will restore your original refresh rate.

Problem: I can't change any of my video settings, including resolution or refresh rate.

Solution: If you can't adjust resolution or refresh rate much (or at all), you might be using a generic monitor driver that's keeping Windows from offering you resolutions and refresh rates your hardware supports.

To check, right-click the Desktop and click Properties. Select the Settings tab and then click Advanced. Click the Monitor tab; if the monitor listed isn't the one you have, click Change. When the Update Device Driver Wizard appears, click Next. Select Display A List Of All The Drivers In A Specific Location So You Can Select The Driver You Want and click Next. Click Show All Hardware and select your monitor's manufacturer in the Manufacturers box. When you've selected your monitor model in the right pane, click Next. Click Next and Finish. You should now be able to choose the refresh rates your monitor supports.

If you can't find your monitor manufacturer or model in the list Windows provides, go to the top of the manufacturer list and select (Standard Monitor Types). In the right pane, select the specific one that matches your monitor's capabilities.

Problem: The colors on my monitor are completely out of whack, and I didn't change anything in Windows.

Solution: There are a few potential causes for a problem like this. If you're using a CRT (cathode-ray tube) monitor (as opposed to a flat-screen LCD [liquid-crystal display]), the first step is to degauss your monitor, using a button or wheel usually on the front panel of the monitor. This

purges the magnetic field that can build up inside your monitor and distort colors.

Check the settings on your monitor—in particular, the color and tint settings. If either of these settings is significantly different or perhaps inadvertently restored to factory default settings after you've customized them, the colors on your Desktop will likely be off. Many monitors also have a color temperature setting that can also affect how different hues look on your screen.

If your monitor settings aren't the culprit, turn your attention to your monitor cable, specifically the connector that attaches to the port of your PC's display adapter. Each of the colors that make up your display (red, green, and blue) is carried on a specific pin of the connector. If one or more pins is not making proper contact, your screen colors will be out of whack.

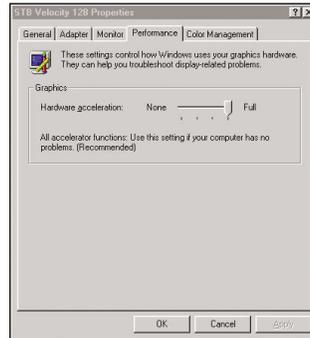
Disconnect and reconnect your monitor cable to your PC and make sure it's firmly attached to your computer. Use the fastening screws that are provided on most connectors. In some cases, there may be a similar connection on the other end of the cable where it connects to the monitor.

Sometimes, a pin can get bent down inside of the connector, preventing color information from reaching your monitor. If you do find a bent pin inside your monitor cable, unplug the monitor and with a small screwdriver and gently pry the pin back into position. It isn't necessary (and is actually quite impossible) to get the pin rod-straight again, but as long as it's straight enough to properly align with its hole, the problem should be solved.

Problem: My mouse pointer is behaving erratically, and I'm having intermittent system problems and crashes that seem to be related to my graphics card driver.

Solution: Problems with a graphics card driver can cause all kinds of strange situations. A good way to troubleshoot this problem is to disable the advanced acceleration features of your card to see if the problem is alleviated.

Right-click the My Computer icon on your Desktop and select Properties. Click the Performance tab and then click Graphics. Slide the bar all the way to the left from Full to None and then click OK twice. Reboot your PC when you're prompted to do so.



The Performance tab lets you reduce your graphics card's acceleration functions to help troubleshoot system problems.



Windows 98

This procedure will disable all of your hardware's graphics acceleration functions. If it clears up the problem, repeat the process and select the intermediate settings between None and Full to turn on more acceleration features. When the problem occurs again, reduce the setting one step.

Also check your graphics card vendor's or system manufacturer's Web site to determine whether there is a driver available for the card that's newer than the one you're using. Downloading the most recent drivers may eliminate the problem.

Problem: I need more Desktop space, but I don't want to buy a huge monitor. Does Win98 support multiple monitors so I can use two smaller ones?

Solution: Yes, you can set up multiple monitors in Win98. By adding another graphics card and monitor to your PC (which don't need to be identical to your existing hardware), you can spread your Windows Desktop across two screens. Each display will be independent of the other and can have its own settings for resolutions, color depth, and more.

Hardware support for multiple monitors in Win98 is more limited than in Win2000/XP, so if you're planning to use an older card, check article 182708 at the Microsoft Knowledge Base (<http://support.microsoft.com>) to verify that it's compatible. If you're using newer hardware, check with the vendor to verify compatibility with the multiple-monitor feature.

Once you've verified your hardware, add a second monitor and graphics card. Turn your PC off and follow the manufacturer's instructions for installing the graphics card in a free PCI (Peripheral Component Interconnect) slot. Connect the second monitor and start Windows. Follow the prompts to install the drivers. You may have to reboot. Right-click an empty spot on the Desktop, click Properties, and double-click the Settings tab. In the Display box, click the new adapter, select the Extend My Windows Desktop Onto This Monitor checkbox, and click OK.

You should now be able to utilize the additional Desktop space of the second monitor. If you open an app on your primary monitor and move it over to the secondary, in most cases, it

will open there the next time you launch it. Some apps may behave unpredictably in a two-monitor environment. For example, some program windows may only display on the primary monitor.

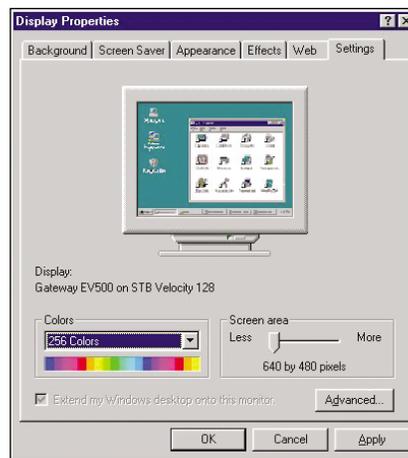
Problem: After I changed my video resolution, my monitor went garbled and/or dark, and I can't see my screen. When I reboot, the problem persists. How do I restore my settings?

Solution: When modifying settings such as resolution or refresh rate, Win98 will typically restore your original settings after 15 seconds if you don't click a button to confirm that they work correctly. Sometimes, though, an errant mouse click or other problem can leave Windows in an unreadable state.

To restore your graphics settings, boot Win98 to Safe Mode and adjust your settings there. To start Win98 in Safe Mode, press and hold the CTRL key while the PC boots. When the Windows 98 Setup Menu appears, choose Safe Mode. After Safe Mode loads, return to the Display Properties dialog box and restore your graphics settings. Reboot.

Problem: My monitor colors usually look normal, but they shift or briefly flash when I launch apps.

Solution: This is probably due to a color depth setting of only 256 colors.



You can increase your color depth setting to eliminate palette shifting when launching applications.

At this setting, palette shifting occurs, causing colors to warp as multiple apps try to share a limited number of colors. Increasing color depth to High Color (16 bit) or True Color (24 bit) will eliminate the problem.

Right-click a free space on the Desktop and select Properties. Click the Settings tab and select 16- or 24-bit color from the Colors drop-down menu.

Click OK; you may be asked if you want to apply the new color settings or reboot. It's a good idea to reboot even though you don't have to because some programs malfunction if color depth is changed.

A Screen With A View

There's a lot that can get in the way of optimal video output, but with a little planning and know-how, your view will be free of obstructions. ■

BY JOSEPH MORAN



Lighten Up.

It wasn't so long ago that if you wanted to bring your data with you, your hardware had to come too. Well, that's all in the past now thanks to the new SanDisk Cruzer™ Mini. At under half an ounce, the Cruzer Mini goes anywhere, and with up to 256MB of flash memory, it takes a lot with it. Hi-speed USB 2.0 compliant, SanDisk's Cruzer Mini lets you transfer data faster than ever before. And at less than 8mm thick, all it needs is a single USB slot. Just drag, drop, and go. It's all about convenience – no extra hardware, no worries.

So whether you're installing utilities or updating print drivers for the umpteenth time, you can take your files with you wherever you go – and you won't even need your dolly.



For more information on SanDisk Cruzer Mini, visit www.sandisk.com/smart



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Keeping Tabs On Employees

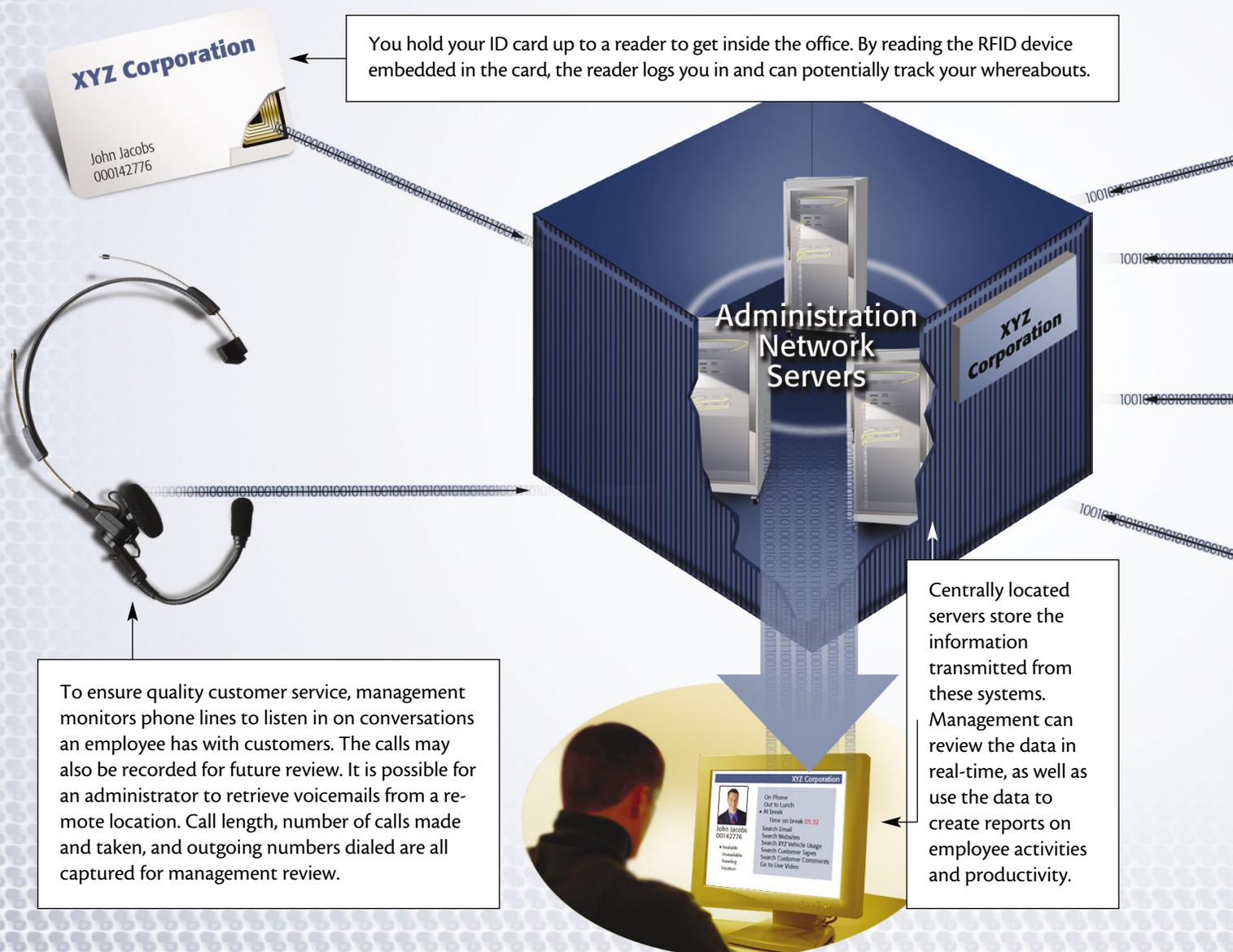
Is Big Brother Watching You?

In “1984,” George Orwell described a world where the state maintained surveillance over all citizens and meted out severe consequences for unsanctioned behavior. Of course, we have privacy laws that keep our government from randomly snooping. The government can’t legally read your email, listen to your phone conversations, or check your Internet habits without proving that there is reason to believe you are doing something illegal. However, the same set of rules does not necessarily apply to your workplace.

Don’t assume you have the same legal protections at work. In most cases you’d be wrong. If you think personal

emails you send and receive via your Yahoo! account at work are private and no one has a right to look at them, you might be surprised to find out that may not be true.

It is legally well-established that your employer has the right to monitor your activities at work, including your telephone calls, email, and Internet usage. In some states, the employer is required to notify you that it may monitor you. In the case of personal telephone calls, there are federal laws against an employer listening to the content of the call (although the employer certainly has the right to tell you that you can’t make personal calls on company time and to terminate you if you



You hold your ID card up to a reader to get inside the office. By reading the RFID device embedded in the card, the reader logs you in and can potentially track your whereabouts.

Administration
Network
Servers

Centrally located servers store the information transmitted from these systems. Management can review the data in real-time, as well as use the data to create reports on employee activities and productivity.

To ensure quality customer service, management monitors phone lines to listen in on conversations an employee has with customers. The calls may also be recorded for future review. It is possible for an administrator to retrieve voicemails from a remote location. Call length, number of calls made and taken, and outgoing numbers dialed are all captured for management review.

continue after being told to stop). There are also clear areas where the employer does not have the right to monitor the employee, such as employee restrooms or locker rooms. For the most part, however, any activity employees take part in on the employer's premises or using the employer's equipment is subject to monitoring by the employer at any time.

The technology to monitor your activity is readily available from a variety of sources and can be installed on your computer and monitored without your knowledge. The daily applications are pervasive. You open the office door with a wave of your identity badge that

carries an embedded RFID (radio frequency identification) chip that logs your time in and out on a centralized computer. RFID even has the potential to track your location within the office at any time. All your phone calls can be monitored, as well as your voicemail, and there are a multitude of applications that will make sure your computer is busily capturing and storing every keystroke you make, every Web page you visit, and any IMs (instant messages) that you send and receive.

Your employer can install software on your PC that will make a duplicate image of every screen that you view. A system administrator can create a

report that shows management these images without you realizing that it is being done. Cameras can be camouflaged to look like ordinary objects in the office while wirelessly sending the results of their monitoring to a central collection point for real-time or later review. Outside the office, even the company car can be watched using the latest GPS (global positioning system).

What can an employee do about monitoring? There is very little privacy protection in the workplace. In general, if you don't want everyone around you to know the details of your personal business, it's best not to conduct it at work.



← Emails are saved on the company server, giving administrators access to all of your correspondence.



← Internet traffic is monitored and logs of Web sites you visit are stored, as well as screen shots of what you've viewed. Your personal (non-company) email accounts, such as Yahoo! or Hotmail, would also be included.



← Driving around in the company car? Did you stop off to see some friends and take a longer lunch than you should have? With GPS monitoring, the employer can track your movements, detailing where and when you stopped.



← Video recorders can be concealed just about anywhere in the office to track employee movements.

Too Good To Be True

Cheap Software Is No Bargain



SPAMMERS OFFER A WIDE RANGE OF products, many of which aren't really suitable for discussion in a family-oriented magazine. One common offer is software at very low prices, or as one solicitation puts it, "Your needed softtwares at Rock Bottom prrice!"

What happens if you buy something through a spam solicitation such as this? We decided to find out.

Buying In To Spam

We gathered "cheap software" solicitations from a variety of sources. Typically these come with some kind of garbled message in the subject line to avoid spam filters and a link in the text of the message that will take you to a Web site where you can look over the offerings. The email text is almost always written by someone who obviously did not grow up speaking and writing in English. We were enticed by such interesting offers as "CDs with all new soft worldwide very cheap" and "very cheaap priceees for the top-rated softwares!" How could we resist?

Sometimes the links were already broken by the time we clicked them (maybe incredibly cheap software sells out quickly, or maybe they get shut down quickly by the authorities), but about six of these emails actually took us to a Web site. (We've opted not to generate any publicity for the company, so we're not printing the URL [Uniform Resource Locator].)

Piracy A Big Problem

The company seemed to be selling pirated software, but we decided to suspend our disbelief and take a chance that they might deliver real working products. Software piracy is estimated to cost the software industry about \$12 billion annually, and we wanted to find out what a pi-

rate (if this turned out to be pirated software) might deliver for the money.

The software offered for sale on the company's Web site includes a variety of popular applications from the major software manufacturers. The site looks professional, with testimonials from customers, an explanation of shipping policies, and an FAQ (frequently asked questions) page. Confronting an obvious question head-on, the marketing material asks, "Why so cheap?" and responds by noting that the software is OEM (original equipment manufacturer), that no tech support is provided, and that you get no documentation with the CD. In other words, the company attempts to turn a series of faults into virtues. The site goes on to promise that the software is "original and fully functional."

The SIIA (Software and Information Industry Association), an industry association involved in fighting software piracy, lists warning signs of counterfeit or pirated software on their Web site (<http://www.siiia.net>), including:

- The software lacks documentation.
- The software is labeled as OEM or backup software.
- The Serial #/CD Key is printed (using an inkjet or laser printer) on the CD, sleeve, or jewel case.
- The price of the software is far below retail price.

From: [REDACTED]
 Sent: Saturday, May 15, 2004 6:44 PM
 To: [REDACTED]
 Subject: 95% Off On Popular Softwares notchi obsearve

Your needed softtwares at Rock Bottom prrice!

- What you bought previously was go to shop & buy a WINDOWS XP Pro that comes with a BOX & serial number & the manual cost 299.00

- What you will get from us is The full WINDOWS XP Pro software & serial number. It works exactly the same, but you don't get the manual and box and the price is only 32.00. This is a saving of 254.00

[List of software deleted...]

Download your softwares from our Superfast (100mbite connection) site & you will be given your own exclusive registration key to register the softwares you bought from us, and now you have your own registered copy of softwares (will never expired again)

It's OEM version of softwares which is an Original/Genuine softwares, strictly no piracy softwares

[Over 850 popular titles for you to choose from](#)

[Act quick now before all sold](#)

[Start using your needed softtwaeres now](#)
 == CLICK - HERE ==

(Plz give 2-3 mins to complete the page loading bcoz the page has 850 titles on it)

We've deleted the name of the company and the list of cheap "softtwaeres" they offer, but it should be obvious that an unprofessional spam email that promises prices that are too good to be true is, in fact, too good to be true.

The SIIA Web site also cautions that companies selling OEM software should be avoided: "Not only are they probably dealing in counterfeit software, but they may even rip off the credit card that you use."

After giving due consideration to the SIIA warnings, we ordered the software anyway. The site notes that delivery can take up to four weeks and asks you not to inquire about the status of your order until at least that much time has passed. The site also indicates that the software is being shipped from Eastern Europe, which is apparently the reason that delivery takes so long. However, the cash transfer technology seemed to work quite quickly: The money was charged to our debit card account within three days of the order. Information from the bank indicated that the charge originated in France.

The Publishers Have Their Say

While waiting for the software to arrive, we contacted spokespersons for both Microsoft and Adobe Software, since products from both companies are prominent on these sites. We wanted to get the companies' viewpoints on the products that are offered over these sites and find out how what steps they take to prevent software piracy.

Both companies responded that the software was counterfeit.

"These tactics used by companies selling cheap software are generally indicators of pirated or counterfeit product," said Microsoft Senior Attorney Mary Jo Schrade. "We often see that companies selling pirated software make up stories about why the software is cheaper than that coming from legitimate sources. Consumers who purchase counterfeit or illegal products . . . are duped into buying something with no value whatsoever," Schrade noted.

Drew McManus, Adobe's director of anti-piracy stated, "This is not a legitimate Adobe reseller." McManus also noted, "Reselling OEM bundle copies from bundle agreements is a

violation of Adobe's end user licensing agreements, and therefore violates copyright laws."

According to Schrade, the buyer should beware. "If the product is genuine, it may be missing components, it may be used OEM product and not transferable, or it may be a 'not for resale' product such as a volume licensing product."

Asked if there were any possibility that a reseller could be legitimate and still be selling software at prices far below market, Schrade responded, "If consumers are finding Microsoft software for a price that seems too good to be true, it is likely that the software is not legal."

Performing a Google search on the words "low price software" displayed a sponsored link to the Web site from which we purchased the questionable software. We asked Microsoft and Adobe what steps they take when they find a probable software pirate buying space on a search engine's paid search program. Both responded that they work cooperatively with search engine companies to remove suspicious offerings from search engines and auction sites, and that such sites are generally cooperative. A Google spokesperson declined to comment for this article, but since we brought this site to the attention of these three companies, the site no longer appears as a sponsored link on Google.

The Envelope, Please

After approximately three weeks we received an envelope from Russia containing a CD for the product we ordered. There was no user documentation and the CD had the software product key printed on it with a laser printer. It was an Adobe product and Adobe's McManus confirmed that the product key was pirated. It appeared to be a copy of OEM software.

When we tried to load the software on a test machine, the serial number printed on the label turned out to be invalid; we'd paid \$60 for a coaster.



Eventually the software arrived in a plain envelope postmarked in Moscow.



When we tried to load the software on our test machine, the serial number turned out to be invalid. Result? Nothing to show for our \$60 except some cool Russian postage stamps.

We can't call Adobe and complain, so the site gets our money and we get nothing.

Final Score: Spammers 1, Gullible Magazine Writers, 0

So, what can you expect if you purchase "incredibly cheap software"? If you're lucky, you'll get software that works, but you'll have no support and you'll be exposing your credit card to the potential of fraudulent use. You will also be a party to an illegal act. If you're unlucky, you expose your card to potential fraudsters, get nothing in return, and have no way to get your money back. In addition, you could end up with a virus. Oh, and you could be prosecuted for software piracy.

In the end, using common sense can help keep your supposed bargain from turning into a truly bad deal. ■

By BERT NIXON

Backup Headaches Solved

Answers To 10 Common Questions



BACKING UP YOUR SYSTEM is a task we all know we should tend to more often than we do. But let's be honest—there's always tomorrow. The consequences of not backing up your vital data, however, can be disastrous. Taking steps to protect your data is not as complicated as it may seem, and the results can turn what could have been calamitous into a minor headache.

Question: How often should I back up my computer or data files?

Answer: The answer depends upon how rapidly you create new files or make changes to existing files. If you do a lot of work every day, daily backups are a good idea. Remember, your computer can go down at any time, and you could lose anything you haven't backed up. Eight hours of work is a lot to do all over.

Question: Do I need to be concerned about virus protection issues for my backups?

Answer: Yes. It is possible to back up a file that contains a virus. You definitely need to have the latest antivirus software and virus definitions. You can use this software to scan and evaluate the files you have stored on backup media. Then, clean or delete files that contain viruses.

Question: Do I need to back up my program files and my data files?

Answer: This is a matter of personal preference. **Program files** (files

that contain the executable parts of the program and are necessary for it to run) are large, and you should have CD-ROMs of your original program files. If your computer dies, you can always reinstall the software, but the individual data files (such as documents, pictures, music, and PowerPoint files) are often irreplaceable. To make things easier, many users save all of their data files in subfolders in the My Documents folder and then back up all of these files. If you have enough backup space, there's nothing wrong with **mirroring** (making a backup copy of everything on your system) your hard drive.

Question: I don't have backup software. Does Windows XP Home include any?

Answer: Yes, but you have to install it. The WinXP Backup utility is not included in the default installation of WinXP Home Edition, nor is it listed in Add/Remove Programs. However, the utility is on the CD that comes with WinXP. Place this CD in your optical drive and browse to `E:\VALUEADD\MSFT\NTBACK UP`, where *E* is the letter of your CD drive. Double-click `NTBackup.msi` to install the program.

The disc will add the Backup utility to the System Tools group, which you access by going to Start, All Programs, Accessories, System Tools, and Backup. When you launch the utility, a

wizard helps you through the process of backing up or restoring files.

Question: Will WinXP Backup/Restore restore things such as my system settings and bookmarks?

Answer: Absolutely. Using WinXP Backup/Restore, it is possible to back up everything on your hard drive, including your bookmarks, Desktop configuration, and system settings, as well as make a system recovery diskette. You will also have a chance to select advanced backup options that enable you to determine the type of backup you want to perform. Options are Normal (backs up selected files and marks each file as backed up), Copy (backs up selected files but doesn't mark them as such), Incremental (backs up files only if they were created or modified since the previous backup), Differential (same as Incremental but doesn't mark files as backed up), and Daily (only backs up files that were created or modified that day).

Question: How do I use my backup media to restore my system when it does crash?

Answer: Backup software will have specific instructions on the procedures for a full backup. Check the software's users manual to learn what you have to do. If you aren't using backup software, you can reinstall your software on a new computer (or your existing computer if it is repaired and requires reinstallation)

and then copy all of your data files from the backup media.

Question: My backups are taking too long, and I'm using a ton of CDs. How can I speed this along?

Answer: The best way to both save space and increase speed of backups on CDs is to compress your files and/or folders. You can purchase compression software, or if you have WinXP, that OS (operating system) has a way to compress folders, subfolders, and files. For example, you can compress all of the files and subfolders in your My Documents folder.

Go to Start and right-click My Documents (or any other folder you'd like to compress). Select Properties from the pop-up menu. Click Advanced on the General tab. Select the Compress Contents To Save Disk Space checkbox and then click OK.

WinXP will compress all of the files in this folder, as well as any files you add to the folder. The files are automatically uncompressed and will launch normally when you open them.

Question: How can I use an extra hard drive as a backup system?

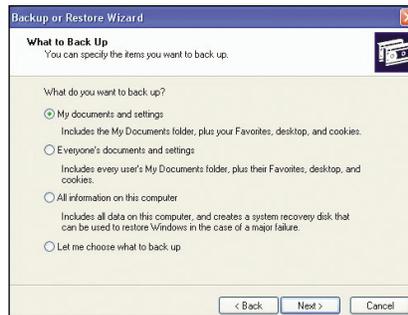
Answer: Second hard drives are an inexpensive way to back up files and programs. You can purchase an internal or external hard drive, but external hard drives carry some advantages. They are small, have tremendous amounts of space, are relatively inexpensive, and transfer data rapidly with USB (Universal Serial Bus) 2.0 ports and/or FireWire. Iomega offers a series of portable and removable hard drives called REV (about \$400, depending on the model; <http://www.iomega.com>). They provide 35GB of storage, which, when compressed, increases to 90GB.

Another manufacturer, AcornData, offers the RocketPod (about \$200; <http://www.acorndata.com>). RocketPod also lets you choose USB 2.0 or FireWire for data transfer. The RocketPod comes with a tremendous 160GB of hard drive space. If you add an AcornData DockPod (pricing not available at press time), you can stack multiple RocketPods. They seamlessly

relay power and data signals, making it easy to add additional storage/backup space as you need it.

Question: How can I use a portable backup system to keep data with me?

Answer: Portable backup solutions are another great way to back up your data and transfer it among PCs. There are two types of portable memory, USB drives and hard drives. USB flash drives have less storage capacity than portable hard drives and are more expensive, but they are smaller and more



The Windows backup wizard helps you tailor your backup.

durable because they don't incorporate any moving parts.

SanDisk offers the Cruzer Titanium USB 2.0 Hi-Speed flash drive (\$199.99; <http://www.sandisk.com>), which provides 512MB of backup space. This pocket-sized device features a titanium-coated metal casing, capable of surviving a force of up to 2,000 pounds. It comes bundled with Cruzer PocketCache software, which enables you to perform regular backup of PC files and directories. CruzerLock software provides a security application to protect your data files, enabling you to encrypt or decrypt individual files to prevent unauthorized viewing.

If you want a lot more backup space, consider the Digitalway MPIO HS 100 (\$199; <http://www.mpio.com>), which provides 1.5GB of storage. The size of a deck of playing cards, MPIO is a moderately priced mobile backup product. It combines the capacity of a hard drive sans taking up much physical space. It is capable of fast data

transmission (38Mbps [megabits per second]) via USB 2.0.

Question: Is there a way to use an online service to back up my files?

Answer: There are several reasons to consider online backups. Online storage is off-site. If you lose everything in your physical location (due to a fire, for example), the off-site backup will still be intact. Online backups can include encryption during transmission and on the servers. Online storage means you can access, upload, or download your files from any location.

If you decide to use an online service for backup, seriously consider high-speed Internet access. DSL (Digital Subscriber Line) and cable modems offer speeds up to 1.5Mbps, which will help you upload and download the enormous amount of data required to back up a hard drive. With a 1.5Mbps connection, an 8MB file would take about 43 seconds to upload or download. The same 8MB file would require about 20 minutes to upload using a 56KB dial-up modem.

Iomega has an online backup service called iStorage (<http://www.iomega.com/istorage>). Archive data to your online storage account or download files to your laptop, desktop PC, or PDA (personal digital assistant). The service uses SSL (Secure Sockets Layer) 128-bit encryption. The iStorage desktop software backs up your critical data. Prices range from \$2.49 a month for 50MB to \$17.95 a month for 1,000MB. For other online backup options, consider FilesAnywhere (<http://www.filesanywhere.com>), CapSure (<http://www.capsure.com>), and Xdrive (<http://www.xdrive.com>).

In The End

Backing up your system is vital, and now that you have some options for making the process easier, go ahead and make those backups. It's always better to be safe than sorry. ■

BY BILL EAGER

Be A Soople Pupil!

Though Google (<http://www.google.com>) remains the de facto standard for search engines, Google's advanced search features can be confusing, disorienting, and occasionally invoke feelings of queasiness. Soople (<http://www.soople.com>) gathers Google's advanced features together for easy, no-brainer access.

I particularly like the Soople page devoted to Google's little-known calculator functions. Sure, simple calculations and conversions are fun, but for macho, adrenaline-junkie guys like me, nothing beats a few advanced trigonometric and logarithmic calculations. I'm so impressed with Soople, I made it my browser's start page. (Sorry, Mary Kate and Ashley.)

Holy Pushovers!

A survey carried out for the Infosecurity Europe trade show earlier this year found that more than 70% of respondents would reveal their computer password in exchange for a bar of chocolate, and 34% volunteered their password when asked, without even needing to be bribed! The "trick question" that resulted in people revealing their password was, "Does your password have anything to do with a pet or child's name?" Instead of responding with a yes or no, more than a third of the respondents blurted out their password. Very impressive.

An Effective "Oops" Strategy

Have you ever had the experience of moving, copying, cutting, renaming, or deleting a file or other data, then, a second later, realized that you had made a horrendous mistake? If you're like me, you scream, collapse in a heap, and sob uncontrollably until the paramedics arrive or you lose consciousness, whichever comes first. The next time an "oops" situation presents itself, before the screaming begins, press the key-stroke combination CTRL-Z, which will reverse (undo) your last action. As simple as this tip is, it can be a lifesaver. Your family, neighbors, and paramedics will thank you.

Political Google Bombing

Long-time readers know that Mr. Modem is passionately apolitical. With that in mind, it was probably inevitable that presidential candidate John Kerry, known for his waffling on many issues, was bound to get Google-bombed, and indeed, he was. The proof? Try running a Google search on the word "waffles." Kerry's campaign was quick to point out that a Google search of the term "miserable failure" brings up President Bush's official biography. Ouch! Can't we all just get along?

The Time-Day-Date Continuum

To display the time, day, and date on your Windows XP computer, expand the height of the Taskbar (at the bottom of your screen), making it a double or triple decker. To do that, place your mouse pointer on the top horizontal edge of the Taskbar. When the pointer turns into a double-headed arrow (which scared the heck out of me the first time it happened), hold down your left mouse button and slowly drag the top edge up toward the top of your screen. On most monitors, a two-tiered Taskbar will display the time and day of the week; the three-tiered version will display time, day, and date. Contrary to popular belief, continued expansion will not display the phase of the moon, tide, or wind-chill factor.

Emailing On Schedule

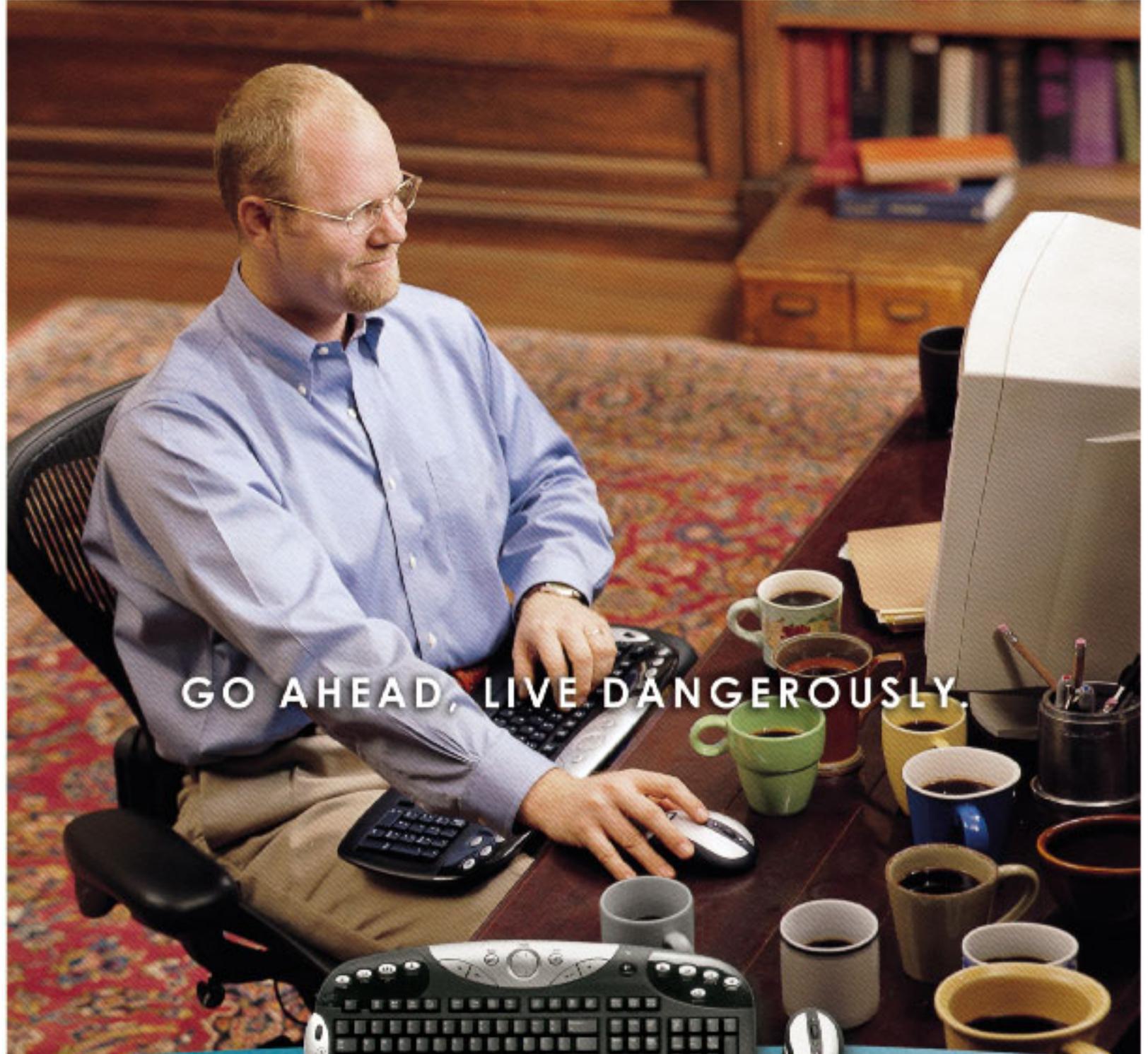
If you're like me, there are times when you need to send an email on a certain date and at a certain time, but for one reason or another—perhaps dodging the process server or waiting for bail to be set—that's just not always possible. If so, step into the Time Cave (<http://www.timecave.com>). Write your message, store it at the Time Cave, and your email will be sent out on the date and at the time designated. Use it to send reminders to yourself, as well as for birthdays, anniversaries, weddings, and bar mitzvahs. The service is free for two messages per day; \$12 per year for unlimited messages and to remove advertising that appears at the bottom of messages.

Infestation Alert!

Anybody on the Internet for more than five minutes knows that it's teeming with spyware, adware, malware, trackware, Tupperware—well, you get the idea. Before installing any software, check out the Infested Software List at <http://tinyurl.com/3a4ko>. The list is tedious and unattractive—which is, coincidentally, the caption that appears under my high school yearbook picture—but if it can save you an up-close and personal encounter with spyware, it's worth taking a peek. ■

BY MR. MODEM

Mr. Modem (Richard Sherman) is an author, syndicated columnist, radio host, and publisher. "Mr. Modem's Weekly Newsletter" provides personal responses to subscribers' computer and Internet questions, plus weekly computing tips, Web site recommendations, virus alerts, hoax warnings, and more. For additional information, visit <http://www.MrModem.com> or email MrModem@smartcomputing.com.



GO AHEAD, LIVE DANGEROUSLY.

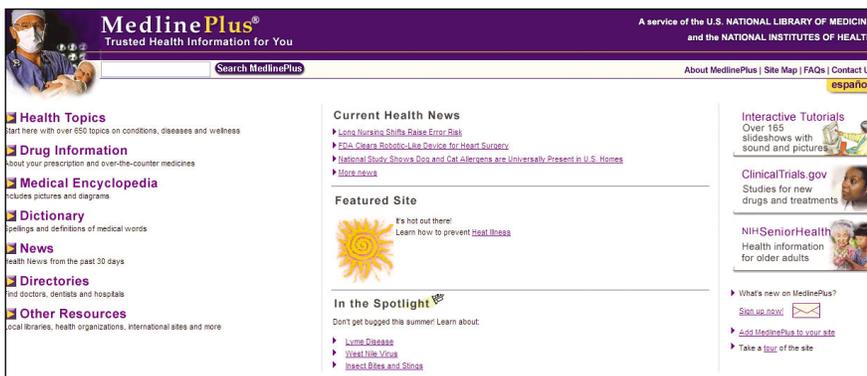
Logitech® Cordless MX Duo™. Announcing the end of tangled mice, stuck cursors and spilled coffee. With no cords to tie you up, slow you down, or hold you back, this sleek, one-touch keyboard and advanced optical mouse give you the control and flexibility to work your way – whatever the obstacles. What will you do with all that freedom?

www.logitech.com



MedlinePlus Makes House Calls

Find Out What's Ailing You With Its Huge Database Of Medical Resources



THE WORLD'S MOST MASSIVE reference guide isn't located in your public library or in the nation's most respected universities; it's available in your home, in your office, or with you on the road, and all you need to do to access it is to fire up your PC and log onto the Internet. Typically, to find out anything about anything, you use your Web browser to access your favorite search engine site, type a search term in the field, and the engine provides you with hundreds of Web resources.

If your questions have to do with health or medical issues, however, there's a better option: MedlinePlus (<http://medlineplus.gov>). MedlinePlus is a comprehensive goldmine of health information from the world's largest medical library. Here, you'll find news articles, drug information, encyclopedic text and drawings, and other resources on more than 650 diseases and

conditions. Instead of relying on a search engine to find medical information for you, check out MedlinePlus.

Health & Drug Information

Gathering medical information can be full of uncertainties—Is the doctor's diagnosis accurate? Is my relative's condition serious? How did I contract this disease?—and you don't need to add to these uncertainties by spending hours searching fruitlessly for answers. MedlinePlus makes gathering this type of information as effortless as possible. Not only is the site comprehensive, it's laid out in a way that's extremely easy to navigate.

The home page carries a navigation bar on the left that links you to the site's main areas: Health Topics, Drug Information, Medical Encyclopedia, Dictionary, News, Directories, and

Other Resources. These are the key areas of the site, and this navigation bar appears at the top of MedlinePlus' various pages. The middle of the home page displays a rotating list of current news, features, and up-to-date items of interest. For instance, at the time we researched this article (during the summer), the home page included articles about a featured site on water safety and a spotlight on Lyme disease, which is more prevalent in warmer months. The right side of the home page carries additional features, including a link for a tour of the site and a link to fill out an enrollment form for the daily and weekly email newsletters.

The key section of the site is Health Topics, so we'll begin our sightseeing there. After you click Health Topics from the home page, you'll notice that this area of MedlinePlus offers several navigation choices, including an alphabetical listing. Think of a topic you'd like to research, click its initial letter, and scroll down the resulting page to locate its link. We chose to research West Nile Virus, located between Weight Training and Wheelchairs.

MedlinePlus organizes the West Nile Virus page in the same way as the majority of the other health topic pages, with site navigation tools at the top, a contents list on the left, content links in the middle of the page, and additional resources on the right. The page starts with news, followed by information from the National Institutes of Health, overviews from other Web sources, pictures and diagrams, and more. For example, we clicked a link under the Pictures/Diagrams heading and were able to see a map of the locations that reported positive test results from around the United States.

Further exploration of the West Nile Virus page taught us that: Colorado recorded the most deaths from West Nile in 2003; the virus is spread by infected mosquitoes and not by human-to-human contact; and spraying clothing with a repellent containing DEET provides extra protection (although many pediatricians warn that

children shouldn't be exposed to products that contain more than 10% DEET and infants younger than two months shouldn't be exposed to DEET at all).

Back on the main Health Topics page, you also can search via broad categories. MedlinePlus arranges its topics into: disorders and conditions, such as blood/lymphatic system and genetics/birth defects; procedures, such as alternative therapies and symptoms/manifestations; demographic groups, including women's health; and health and wellness, which covers everything from nutrition to lifestyle. Plus, for quick access, you'll find a list of frequently requested topics on the right.

Health Topics pages also include prescription drug info for various conditions, but if you want to know more about a specific drug, go directly to the Drug Information main page. Here, you'll find details on thousands of prescription and over-the-counter medications from the ASHP (American Society of Health-System Pharmacists) and the USP (United States Pharmacopeia). The Drug Information main page also features an alphabetical index

Rocky mountain spotted fever, lesions on arm



This is the appearance of the rash of Rocky Mountain Spotted Fever on the hands and forearms. The rash starts on the hands and feet and later spreads to the trunk. It is caused by a bacteria transmitted to humans by a tick bite. (Image courtesy of the Centers for Disease Control and Prevention)

To see specific examples of symptoms, you can view the illustrations at MedlinePlus' encyclopedia.

for quick research. For example, you can read about penicillin (which has more than three dozen brand names in the United States), Allegra (the brand name of a drug used for hay fever and allergy symptoms), and others. And for each drug, you can learn about potential side effects, necessary storage conditions, dietary restrictions, precautions while taking it, and what to do in case of emergency or overdose.

Traditional References

MedlinePlus may be more comprehensive than standard research tools, such as a dictionary or encyclopedia, but that doesn't mean those tools are

out of date. On the contrary, they each have their place within MedlinePlus, and that's why MedlinePlus includes Encyclopedia and Dictionary links.

The A.D.A.M. Health Illustrated Encyclopedia includes more than 4,000 articles on diseases, tests, injuries, and symptoms, as well as an online library of photos and other types of graphics. Browse by first letter to learn about common conditions, such as acne, and some you may never have heard of, such as subacute sclerosing panencephalitis (try saying that 10 times really fast). Most pages will guide you to illustrations (warning: some of these are not for the squeamish), as well as alternative names, definitions, causes, symptoms, tests, complications, recommendations, prognosis, and prevention. Some of the entries are grouped by number, such as the 24-hour urine test, which determines the amount of protein in the urine (and an abnormal result may indicate a glomerular or renal tubular disease).

The dictionary is another traditional reference tool, and MedlinePlus' version works almost like the hardbound Merriam-Webster dictionary, albeit with a bit of online flavor. Type the word you'd like to look up in the dictionary's field (using an asterisk [*] if you aren't certain of the word's spelling) and click Search. For instance, we wanted details on Ménière's disease, so we typed **men*** in the field, clicked Search, scrolled down the list until we located the "ménière's disease" entry, highlighted the term, and clicked Go. Soon we were viewing a typical dictionary entry, complete with the term's pronunciation, definition, and history.

Tips For Using MedlinePlus

It's easy to become deeply absorbed in researching topics at MedlinePlus, but don't forget to visit the following three resources, all of which are accessible from the right side of the MedlinePlus home page.

- **Interactive Tutorials**

The Patient Education Institute has created more than 165 interactive tutorials, complete with slideshows, audio clips, and animated graphics. Get the scoop on diagnostic and surgical procedures, prevention and wellness care, and conditions from abdominal aortic aneurysms to warts.

- **ClinicalTrials.gov**

Have you ever wondered how federal and private research institutions find human volunteers for clinical research? Have you ever wanted to participate in such research? If so, this resource will describe clinical trials and show you how to become involved.

- **NIH SeniorHealth**

The National Institutes of Health has created a Web site specifically for older adults. It carries topics of special interest to seniors, such as arthritis and hearing loss, and provides resources for those whose loved ones may be experiencing certain conditions. Part of the site is devoted to preventative care, too, including an Exercise For Older Adults page.

We also learned that Ménière, a French physician, first published a description of the inner ear disorder in 1861.

News articles also are valuable traditional medical resources, and if you click News from the navigation menu, you'll find that MedlinePlus has plenty to choose from. Each day, the site adds at least a dozen articles (often more) to its 30-day archive, and they're all available for you to browse according to the date MedlinePlus added them to the site. Maybe you've wondered about the effect coffee has on heart attack deaths. MedlinePlus' wire services picked up a story from *The American Heart Journal* that indicated self-reported coffee consumption doesn't appear to affect the risk of dying after a heart attack. Or perhaps you're concerned that your daughter's fascination with a movie idol that often smokes on-screen might encourage her to pick up the habit. Well, according to a Reuters article, you're right to be worried; Reuters reported that watching a favorite movie star smoke appears to encourage teen girls to adopt the habit themselves.

You also can read health news by topic. You'll find stories on African-American health, including evidence that race influences elderly flu shots or that breast cancer factors are similar for whites and blacks. Regarding the topic of air pollution, you'll learn that high levels of common air pollutants may cause a slight increase in the risk of SIDS (sudden infant death syndrome). There's even an Alternative Medicine topic listing that includes an article describing how hypnosis can help in-vitro success rates.

Additional Resources

Clearly, MedlinePlus is packed with medical facts, but even the site's administrators realize that MedlinePlus can't include everything. That's why the site provides you with information on other important health-related resources.

The Directories section offers you access to more than a hundred online directories, including general doctors

and dentists, specialists, other health-care providers, general hospitals and clinics, specialized hospitals and clinics, as well as other healthcare facilities and services. To access this information, select a specific directory within a category and then search the directory. For instance, we were interested in finding a dermatologist in northern Vermont, so we clicked the Find A Dermatologist directory, which directed us to the search page on the American Academy of Dermatology site, where we found nine members in the Burlington area.

When you click Other Resources from the navigation menu, you'll find links to listings of libraries, organizations, foreign governments, additional databases, and MEDLINE/PubMed (the National Library of Medicine's database of references to more than 14 million articles published in 4,800 biomedical journals). For example, to learn about libraries with health-related information in Nebraska, just click the Libraries link and click NE on the state map, and you'll find addresses, phone numbers, and some Web sites, including a link to the Creighton University Health Sciences Library in Omaha.

In addition, be sure to view the small links at the top and bottom of the MedlinePlus home page. Clicking these links will tell you about MedlinePlus' history, answer commonly asked questions, describe the selection guidelines, and more.

You Be The Judge

As you've seen on your trip through MedlinePlus, the site is part of the world's most massive reference guide, and it may just be the most comprehensive source of medical information on the Web. But it still isn't 100% conclusive, and that's where you come in: If you find anything lacking on the site, MedlinePlus encourages you to fill out the Contact Us form. A staffer will reply promptly, and we know from first-hand experience that this process works. Not only

does MedlinePlus strive to respond to each consumer's need for information, but it also wants to respond to each consumer's input. ■

BY HEIDI V. ANDERSON

FACT SHEET

MedlinePlus

Thank goodness for search logs and the diligent folks who examine them, or MedlinePlus may not exist today. About seven years ago, the professionals at the NLM (National Library of Medicine), a service of the National Institutes of Health, were studying how visitors used its Web site. They realized that a third of the search queries were from consumers with health concerns and questions, but the site was geared primarily toward professional researchers, librarians, and health care providers.

So, in late 1998, MedlinePlus was born. Trained librarians at the NLM and other libraries across the United States now filter thousands of resources to provide straightforward resources for consumers. As the Web has grown (along with its audience), so has the MedlinePlus site. For example, the librarians noticed an increase in the number of requests for details about specific drug names, and MedlinePlus now licenses and publishes additional drug information. Also, the site tends to present featured articles as news events bring certain subjects to the forefront, such as when former President Reagan died and Alzheimer's disease became a more talked-about topic.

And the best news of all for consumers is that the information at MedlinePlus is free to view because the site receives its funding from our tax dollars. Sure, we all complain about taxes, but in this case, you get what you pay for: a high-quality, informative site. ■

Super wireless performance— it runs in our family.

➤ Faster access to multi-player gaming

➤ Video streaming without jitters

➤ Effortless wireless connection —
gets anyone up and surfing quickly

➤ Superior wireless range



Super G™ Technology – 10X Faster



WG7624
108 Mbps
Firewall Router



WG511T
108 Mbps
PC Card



WAG511
108 Mbps
Dual Band
PC Card



WAG311
108 Mbps
Dual Band
PCI Adapter



WG602
54 Mbps
Access Point



WG511
54 Mbps
PC Card



WG311
54 Mbps
PCI Adapter



WGR614
54 Mbps
Router



WGE101
54 Mbps
Ethernet Bridge



WG121
54 Mbps
USB Adapter

Introduce your family to our NETGEAR® 802.11g family that offers exceptional range, compatibility, security and super speed.

Now you can choose 802.11g technology with confidence, thanks to NETGEAR. Recipient of two CNET awards for exceptional performance and ease of use, our 802.11g family runs circles around other companies' wireless networking products. It's fully compliant with the recently ratified 802.11g standard and compatible with all 802.11b and 802.11g products.

Our NETGEAR 802.11g family. The perfect addition to *your* family. For details, stop by for a visit at www.netgear.com/go/g.

Everybody's connecting.™

NETGEAR®

Find Your Place Online

Piece Together a Simple Web Site

BUILDING A WEB SITE is like assembling a jigsaw puzzle. You select one off-the-shelf relatively cheaply. Choose a design that suits your taste. You can buy a simple one or a complicated one with lots of pieces.

You already have the puzzle pieces: your genealogical findings, baby and vacation pictures, wedding and party announcements, and church and club calendars. The Web site is simply a format for presenting information and stories.

So don't let technology intimidate you. If you're willing to spend a few dollars and hours, you can put together an attractive Web site over a weekend. Arguably the most daunting element of creating a Web site is sorting through the wide array options involved in getting started. We'll explain basic Web site features and review easy-to-use services that can help you complete your Web site puzzle.

Creating a Web site is a bit like placing an ad in the Yellow Pages. With a little effort, someone can find you. If you are highly concerned about Internet privacy, building and launching a Web site may not be for you.

The Basic Pieces

Web site options may seem infinite, but there are a few standard requirements. Of course, you need a PC with Internet access. And you must have a

physical place on the Internet to store your Web site. This means space on a Web server, a souped-up PC with high-bandwidth Internet connections and



tons of hard drive space, often provided by an ISP (Internet service provider). Typically users edit Web pages on the PC and copy these files to the Web server via FTP (File Transfer Protocol; a method of copying files to and from the Internet).

ISP services. Many ISPs offer Web site space to their customers. EarthLink (<http://www.earthlink.com>) and America Online (<http://www.aol.com>) offer free Web-building services. Check out your ISP's home page to see what your options are. Depending on capacity, an ISP may offer anywhere from 5MB to 20MB of free Web server space. 5MB is plenty for a basic site. Once you're hooked, there's a good chance you can upgrade to 100MB or more for about \$10 more a month.

If your ISP's offerings are spare or nonexistent, we suggest procuring the services of a Web site hosting service, which is basically an ISP with fancy Web-building features.

Focus On Features

Before heading to the PC, make a list of your Web site's must-have features. If you're a traveler and want to publish your exploits, you'll want an option for creating photo albums or slideshows. Digital shutterbugs will want plenty of server space for storing Web pictures. For family- or club-centered efforts, you might think about password-protecting your site. If you want to trade info with like-minded Web surfers, look for a guest book, visitor-comment area, or chat room.

Other features to consider include auto-updating news feeds, a hit counter, a poll creator, and support for email accounts and easily uploading images. If you're contemplating a more serious endeavor, you might want to include a shopping cart, site search capabilities, and a customized domain name.

The Domain Name

A Web site's domain name is simply its Web address, for example, <http://www.google.com>, often referred to as the URL (uniform resource locator). Beginners should stick with the domain the Web-building service provides by default. Typically this is a melding of your site name and the service provider's URL, such as <http://mitchjones.abc.net>.

The custom domain. Once you've pieced together your first Web site, however, you may tap an unexpected audience. Photographers and consultants, for example, may get hooked by the Web's marketing potential. If your Web efforts stand a chance to generate income, having a custom domain (such as mitchjones.com) provides a professional cachet. Verify that your prospective Web host allows for upgrades to custom domains.

Popular Hosting Services

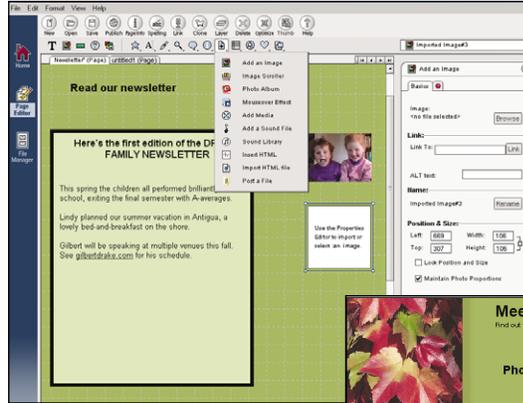
We'll give you our take on three established Web hosting services, including one that can help you create your own blog, but we only scratch the surface. See the "Turn Over Other Options" sidebar for names and features of other options. In general, most of the options are similar. For free or a nominal fee, you can get a basic site. If you get hooked, upgrade to a fancier site with more features.

Homestead

Homestead has been around since 1998, proving its stability as a hosting provider. Take advantage of the 30-day free trial, which doesn't require a credit card. Click the free trial button to fire up the Web site wizard. Select an initial Web site style from dozens of page-design templates. You start with four basic pages: the home page, about us, contact us, and a feedback page. We also added a photo album and a newsletter page. Next, name your site and add a clever description.

After a preview of your site, save your work or start again. Enter your email address and a password. Your email address becomes your membership login name. (Homestead promises not to send you spam.) You'll get a temporary site address.

To edit the pages you created, download Homestead's SiteBuilder software,



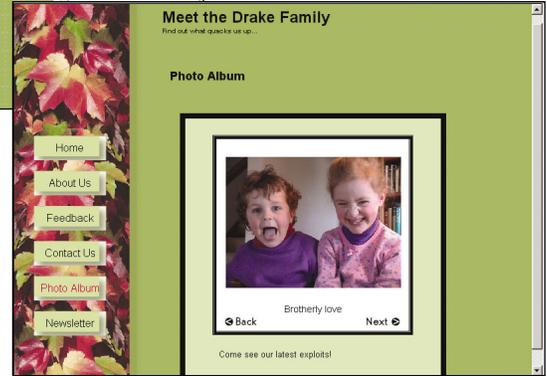
Left: Homestead's SiteBuilder software offers a sophisticated graphical interface. The grid background makes it easy to precisely place objects.

Below: Homestead has an excellent photo album feature.

a 6MB download. (We also had to update the Java Virtual Machine component on our PC.) Once you have everything installed, double-click Homestead's shortcut on your Desktop and begin your edits on the Starter Page template.

The SiteBuilder menu is extensive. Expect to spend some time learning all its features. To create a new page, go to File and New Page. To edit text, highlight template text and enter your own. Resize text boxes with your mouse. Add as many cool features as you dare: background music, mouse-over effects, or an instant poll. We appreciated the grid background, which helped us to place objects with precision.

With Homestead, you can build your site offline. Once you're finished



Homestead

<http://www.homestead.com>

Basic service: \$9.99 per month

One-time setup fee: \$20

URL: <http://yoursite.homestead.com>

25MB hard drive space

editing a page, click Publish. This uploads the page to your Homestead Web site. (Dial-up users may find page updates to be slow.)

Users also have access to a file management utility and a large cache of stock photographs to draw from.

About images. If you plan to use a lot of photos on your site, expect to put in some extra work. You must first upload images to the Homestead server and then select them for placement. It may be smart to first resize your images for Web page use, as Homestead's image manipulation tools are very basic. On the other hand, the photo album feature is nice. If you work from a dial-up connection, it may be necessary to upload photo album pages just a few at a time. If all you're interested in is a photo album, you may want to try Homestead's PhotoSite, a separate service and software download.

What's A Blog, Anyway?

Unlike most Web sites, blogs work like journals. Blog users (called **bloggers**) write articles, or posts, that chronicle their lives and opinions. Bloggers discuss professional trends, grouse about geopolitical events, and post photos of their vacation exploits. They also tend to link extensively to other blogs. On blog Web sites, the most recent post appears at the top of the home page. After a specified time, posts are automatically archived.

Blog sites can be limited in scope, like one that serves as a wedding blog. Or a site may serve as an outlet for a hobby, such as sailing. Or it might serve as a diary of rants and raves. Blogs also can be complex, topic-specific sites run by a team of professionals that use hyperlinks to generate advertising revenue.

Other popular blog services include Radio Userland (<http://radio.userland.com>), Salon.com (<http://www.salon.com/blogs>) and Typepad (<http://www.typepad.com>). ■

Turn Over Other Options

There are many other approaches to Web publishing. Here are a few.

Web photo albums. Image-editing and cataloging software such as Adobe Photoshop and PhotoShop Album (\$649; \$49.95; <http://www.adobe.com>) have built-in features for creating Web-based picture galleries. If you already have a Web provider (and you have imaging software on your PC), you can use photo gallery tools to create a Web photo album. Then upload the gallery to your Web site.

Standalone Web-building software. Standalone programs such as WebBuild Express (\$29.95; <http://www.webbuild.net>) are a good choice for people who already have Web access through an ISP (Internet service provider) but need an easier way to create Web pages. Download and install WebBuild for a 30-day free trial. If you like it, it's \$30.

Google it. If you want to research it further, check Google's hosting directory: directory.google.com/Top/Computers/Internet/Web_Design_and_Development/Hosting/. Click Free, Reviews, and Hosts. Or click a letter of the alphabet to find still more services by name. ■

Auto updates. If Homestead has updated the SiteBuilder software since your update, Homestead will download and install the update to your PC.

Homestead offers basic, intermediate, and advanced hosting services. Advanced features include e-commerce, multiple sites, and personalized domains.

GeoCities

This service, owned by Yahoo!, is another venerable one. Users can start with a free site, supported by banner

ads, and upgrade to ad-free sites if they like the service. The free service provides 15MB of hard drive space. For \$4.95 per month, you can ditch the ads and get 25MB of hard drive space.

If you don't have a Yahoo! ID, you'll need to get one by clicking the link on the sign up page. Then go to <http://geocities.yahoo.com> to sign up for a Web site. Part of the process is deciding what type of ads you want to appear on your site. Choose from themes such as Alternative Lifestyles or Travel. When your URL pops up, you can start building your site.

Wizards. You can begin with QuickStart Wizard templates or with the online software, PageBuilder. We started with the wizards, but edited the pages later with PageBuilder. Upload an image from the Desktop in the blink of an eye. Add text, favorite Web links, and contact information. You'll have a page in about five minutes.

To edit or create more pages with the wizard, return to the QuickStart templates and choose your template. Select your page from a drop-down menu or create a new page. Things get complicated if you want to do anything more sophisticated with wizards, however. You cannot format wizard

text, for instance. To create a photo page, click the Photo Page Wizard to create a new page from a new template. But to connect the photo page with your original page, you must add it as a Web link.

It's surprisingly simple to edit pages with GeoCities' PageBuilder. This program has a Web-based interface, which means you won't have to install it on your PC. Dial-up users will have to wait a bit for it to load into PC memory. In addition to standard text and page editing, you can add cool features, such as a hit counter and a time stamp for your pages, and background music, as well as Yahoo! news feeds. Users have access to scads of page templates, including photo albums, announcements, and invitations, as well as loads of Corbis stock photos and clip art.

PageBuilder is easy to learn, but you cannot undo actions. If you accidentally move a textbox, you must manually drag it back into place. Worse yet, if you accidentally delete text, it's unrecoverable. Nevertheless, because you are editing Web pages online, they're available for view as soon as you save them. In other words, you don't need to worry about uploading files with FTP.



Left: GeoCities' Web-based software lets you add lots of cool features, including Yahoo! interactive buttons and Corbis stock photographs.

GeoCities
<http://geocities.yahoo.com>
Basic service: free with banner ads
URL: <http://www.geocities.com/yoursite>
15MB hard drive space

Below: The pages are handsome, and the ads on GeoCities' free sites are unobtrusive.



Users with Web experience will appreciate the Web-based file management (including FTP) and HTML (Hypertext Markup Language)-editing capabilities available with GeoCities.

About the ads. They are surprisingly unobtrusive. About 1.5 x 2.5 inches in the upper-right corner, after about a minute, the ad reverts to an even smaller 0.5- x 1.5-inch box.

Blogger

Essentially a tool for creating an online journal, a **blog** (Web log) is the latest Internet-geek trend to go mainstream. A blog is great for people who enjoy writing. Some people create vacation and wedding blogs; others create political and industry-watcher blogs. See the sidebar, "What's A Blog, Anyway?" for more information.

One popular blog-hosting service is Blogger. Once an Internet startup, it's now a subsidiary of Google. Unlike other Web hosting services, Blogger is free.

Blogger provides a simple way to create a Web site. Click the big orange arrow that says Create Your Blog Now. Fill out the account form and create your blog name and URL. Blogger lets advanced users host blogs on another

Web server. Choose a template and start posting.

Posting on Blogger. A post is like a journal entry. The Web-based interface provides simple text formatting, hyper-linking, and spell checking. Once you've written your blurb, scroll down and click Publish. Click View Blog to

The Settings tab is extensive, ranging from changing the site's title to formatting date stamps to allowing multiple users to post to the blog. The Template tab lets you select a new site design, or, for experienced Web coders, modify the template. The View Blog tab pulls up your site in a new browser Window.

Credit Card Carte Blanche?

Internet-based businesses, including Web-hosting companies, routinely require a credit card number before initiating services. The carte blanche strategy works well for vendors. With no USPS hassles, the accounting department can extract payment on demand. But the system doesn't work as well when billing errors crop up, especially when quitting or altering the service in some way.

If you object to giving an untried vendor carte blanche with your Visa, carefully examine the company's billing policy. Will it accept payment by check? Is there an option for paying in advance with a credit card, with the idea that you must formally renew the service quarterly or annually?

Here's a clue: If the company's FAQ devotes lots of space to explaining billing discrepancies, be prepared for problems. At the very least, look for a toll-free phone number to call with billing questions. ■

see what you have wrought. Posts are dated, time-stamped, and archived.

Other options. To navigate, use the tabs at the top of the Blogger interface. Each tab has a set of options. Posting lets you create, edit, and publish posts.

Ads. All new sites include banner ads at the top of their pages. Blogger doesn't currently offer an ad-free version.

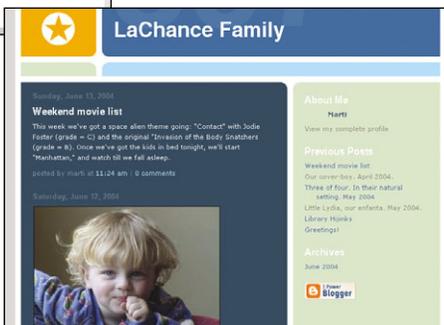
Photos on Blogger. If you already have photos on the Web and know a little HTML, include photos in your postings. If you want to upload a photo as a post, you must download separate. The Hello BloggerBot lets you send photo posts to your blog through a separate interface. Blogger doesn't have an option for creating photo albums.



Left: Creating posts on a Blogger Web site couldn't be simpler. Click Publish to update your site. Return to the Dashboard to edit or delete a post.

Below: Blogger has aesthetic site templates. Download and employ the Hello BloggerBot software to create photo posts on your site.

Blogger
<http://www.blogger.com>
Basic service: free
URL: <http://yoursite.blogspot.com>



Find The Perfect Fit

For site-building flexibility, we would choose GeoCities. For a sophisticated, yet nonprogrammer's interface, we opt for Homestead. For elegance and simplicity of site presentation, Blogger would be an ideal option.

Depending on your technical expertise and aesthetic tastes, you can sort and arrange the pieces of your life in lots of attractive ways, with minimal expense and effort. ■

BY MARTI LACHANCE

Digital Booksellers

Shop Online For The Best Book Prices

WE HAVE A CONFESSION TO MAKE: Whenever we see a great book at our local bookstore, we write down the author and title, go home, and order it online at a savings of up to 70%. To help you find similar savings and determine which of the Web-based bookstores routinely offer the best bargains, we decided to do some investigating.

We ordered books from 11 online booksellers. To cover a range of vendors, we included the largest ones, Amazon.com (<http://www.amazon.com>), Barnes&Noble.com (<http://www.barnesandnoble.com>), Walmart.com (<http://www.walmart.com>), and

Buy.com (<http://www.buy.com>); two smaller independent chains, Chapter 11 Books (a 15-store chain in the Atlanta area; <http://www.chapter11books.com>) and Powells.com (a seven-store chain in Oregon; <http://www.powells.com>); as well as two relative newcomers to online bookselling, Overstock.com (<http://www.overstock.com>) and Alibris (<http://www.alibris.com>). In addition, we decided to include three specialty booksellers, Softpro (computer books; <http://www.softpro.com>), Bookpool (technical books; <http://www.bookpool.com>), and TextbookX.com (textbooks, of course; <http://www.textbookX.com>).

We had positive, problem-free experiences with all 11 vendors. Each bookseller provided an electronic order acknowledgement and a second email with shipment tracking information. All of the books arrived quickly and in perfect condition, even though we always used the cheapest shipping method available. Based on our experiences, we wouldn't hesitate to do business with any of the 11 vendors again.

With that said, there are differences among the vendors that might cause you to choose one over another.

Two Markets

There are two distinct online bookselling markets (and some vendors deal in both of these markets). In the retail market, booksellers sell new (and sometimes used) books directly to the buyer. In the peer-to-peer market, vendors provide an online marketplace that brings buyers and sellers of new

and used books together in a manner similar to eBay. Both markets are price-driven and extremely competitive, and both markets include vendors with razor-thin profit margins. The paragraphs that follow contain our assessment of the vendors offering the best bargains in each market.

The Retail Side

Two years ago, Buy.com was the undisputed low-price retail bookseller online, beating Amazon.com's prices by 10% and offering free shipping. Today, that honor goes to Salt Lake City-based Overstock.com.

Overstock.com opened in 1999 and went public in 2002. Although some of its merchandise consists of overproduced products, it also sells new books, CDs, and DVDs. We asked Dr. Patrick Byrne, the company's president, if the name Overstock.com was confusing to customers. He says, "Our name doesn't matter; the reality is we offer the lowest prices on the Internet."

How does Overstock.com offer such low prices? "We target Amazon, and we price our books 10% to 15% below its prices," Byrne says. "Amazon has to price years of debt and bad business practices into its book prices. Somebody at Amazon didn't understand logistics. Amazon built nine very expensive, overly complex distribution centers. Since then, it has shut down three of them. There is no reason in this business to have more than four distribution centers, and we are doing very well with just one distribution center."

Overstock.com also has lower inventory carrying costs than Amazon.com. "We carry about 360,000 SKUs (stock-keeping units), and Amazon carries almost twice that number," Byrne says. "Amazon, in order to fill out the tail ends of the bell curve, has much higher inventory carrying costs than us. We can meet the needs of 99% of the customers with half the number of SKUs."

Although it has had some profitable quarters, Overstock.com currently runs



at a -2% net margin. “We don’t resort to any pro forma accounting tricks to make the numbers look better,” Byrne says. “We are optimistic that we will still be the low-cost bookseller on the Web for years to come because of our cost structure.”

Overstock.com ships via media mail and has the lowest shipping costs of any bookseller in our survey: \$1.40 for one media item, \$2.80 for two items, and \$2.95 for three or more items. (Several booksellers offer free shipping on orders greater than a certain dollar amount, usually \$25 or \$50.)

Of the vendors we looked at on the retail side, TextbookX.com has the best prices on new technical books (38% off of list prices), and Bookpool is a close second (with a 36% discount). Only one vendor, Powells.com, is selling most new books at full retail price.

The Peer-To-Peer Side

Of the 11 vendors we surveyed, Alibris, Amazon.com, Barnes&Noble.com, and TextbookX.com provide peer-to-peer marketplaces on their Web sites. Alibris actually specializes in the peer-to-peer market and offers some good bargains.

It’s difficult to determine who the actual sellers are on the peer-to-peer side, but they are probably a combination of small retail bookstores, individuals, and wholesalers. Some peer-to-peer vendors, such as Amazon Marketplace (how Amazon.com refers to its peer-to-peer service), let buyers rate sellers based on their shopping experiences with them, which helps give new buyers confidence that their transactions with those buyers will be smooth.

Our analysis found that Amazon Marketplace has the lowest peer-to-peer prices on new and used books. For example, Dean Koontz’s new book, “The Taking,” has a list price of \$27 and a wholesale price of \$14, and even though you can buy a new copy of this book at Amazon.com for as little as \$16.20 or at Overstock.com for only \$15.69 (at the time of this writing), we

The screenshot shows the BestBookDeal website interface. At the top, there are navigation links like Home, Contact Us, Book Button, Create Links, and Bookmark This Site. A search bar is present with 'US Books' selected. Below the search bar, the book 'PC Fear Factor: The Ultimate PC Disaster Prevention Guide' by Alan Luber is displayed. The book details include the publisher (Que), publication date (October 2002), format (Paperback, 304 pages), ISBN (0789728257), and list price (24.99 USD). To the right, there are Amazon and Barnes & Noble review links. Below the book details is a 'Price Comparison' table with 41 offers. The table columns are: Buy, Store, Flag, Item Price, Tax, Shipping, Total, new/used, Shipping Method, and Availability. The lowest total price shown is \$10.14 from Buy.com (US).

BestBookDeal lets you enter information about a specific book you’re interested in, and then it helps you find the best price (including the cost to ship the book to your ZIP code).

found that you can purchase a brand-new copy (yes, brand-new) of “The Taking” from the Amazon Marketplace for a mere \$8.

Who are these people selling books at Amazon Marketplace, and how do they sell new copies of just-released books below wholesale costs? We attempted to contact the 12 most ubiquitous Amazon Marketplace booksellers to ask them, but none of them responded. We can tell you that some of the books being sold this way are marked BCE (book club editions), which are usually smaller and printed on less expensive materials than retail editions. It’s possible that some of these dealers are book clubs dumping copies they were unable to sell.

In the textbook business, many of the peer-to-peer offerings are international versions of textbooks, says Brian Jacobs, president of TextbookX.com. “The international versions are cheaper than the domestic versions because the international markets won’t bear the higher prices that the U.S. market will bear. Sometimes the international versions are printed with a cheaper binding and cheaper paper, but otherwise they are identical to the domestic versions.”

Additional Consumer Benefits

If you plan to buy a book as a gift and aren’t sure if the gift’s recipient

might try to return the book, we should point out that Walmart.com has the most generous return/refund policy. As long as the book return is made within 90 days of the purchase, you (or the gift’s recipient) can either ship the book back or return it to one of Wal-Mart’s retail stores. In comparison, Overstock.com had the most onerous policy, charging a \$4.95 handling fee per returned item.

The smaller and specialty vendors provide the best customer service, enabling customers to contact them via email or phone. Of the 11 vendors we selected, Amazon.com’s customer service frustrated us the most, hiding its email contact form so well on its Web site that it took us 10 minutes to find it.

However, as we said previously, all 11 vendors provided us with a positive buying experience, so we can recommend any of them to you. Of course, it also doesn’t hurt to shop around. There are a number of price comparison spiders (programs that automatically search Web pages) available, and our favorite for checking book prices is BestBookDeal (<http://www.bestbookdeal.com>). BestBookDeal performs real-time searches of 63 online bookstores; calculates the total price, including the cost to ship a particular book to your ZIP code from each store; and then sorts the results by cost. ■

BY ALAN LUBER

Enhance Your Time Online

Fontenstein's Monster Font Collection

Problem: I'm working on a Halloween arts-and-crafts project, but I don't have any appropriate typefaces. Where can I get some free Halloween fonts?

Solution: This Halloween—if you dare—visit the crypt keeper of spooky fonts, Fontenstein (<http://www.halloweenfonts.com>). Here, you'll find a ton of free fonts with such creepy names as Blood of Dracula, Grave Digger, and Scythe. There are even some fonts modeled after popular horror movies, such as Buffed and Alien Encounters. And to make your project complete, there are a number of dingbats offered as interesting alternatives to clip art.

The Hot Spot For Hotspots

Problem: I just purchased a wireless card for my notebook, and I'm dying to try it out somewhere other than my home. Where are the wireless hotspots in my area?

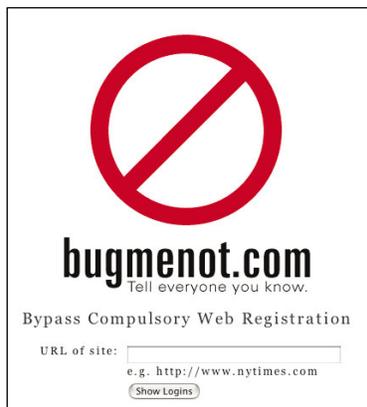
Solution: Accessing the Internet via a wireless connection is an option that's quickly growing in popularity, and finding hotspots is as easy as going to JiWire (<http://www.jiwire.com>) and using its search engine. The search engine requests information such as your city, state, ZIP code, and/or airport code. To get more

specific, click Advanced Search so you can enter such criteria as a proximity range, access fee preference, and connection type. Keep in mind that many of these hotspots will have service fees attached to them, but there are numerous free hotspots, as well. Now that's hot.

Feed (& Read) The Blogs

Problem: I've been reading numerous blogs (Web logs) lately, but there are so many of them online that I'm wasting a lot of time going back to sites that haven't been updated in several days. Is there something that can notify me when specific blogs are updated?

Solution: One of the Web's hottest new frontiers is RSS (RDF Site Summary; RDF



BugMeNot.com will help you exterminate pesky compulsory Web registration.

is short for Resource Description Framework). News sites, such as CNN (<http://www.cnn.com>), and many popular blogs use this XML (Extensible Markup Language) format to



Is that a castle full of free Halloween fonts? Yes, be afraid . . . very afraid.

“syndicate” their regular updates, so you can easily and quickly read the relevant updated content since your last visit. Some people refer to this type of RSS arrangement as an RSS feed. A good way to begin exploring this new frontier is to use the search engine available at Feedster (<http://feedster.com>). Of course, you could use Google (<http://www.google.com>), but Feedster claims to be more current, accurate, and focused on RSS content.

A Halloween Wish List?

Problem: I love using Amazon.com's Wish List feature, but I want to put some things on my wish list that aren't available at Amazon.com. What can I do?

Solution: WishList (<http://www.wishlist.com>) is an aggregate of wish lists you can create from a variety of online retailers. This site gives you more robust tools for managing wish lists, including creating different lists for different occasions. Although Halloween is not one of the preselected standard occasions, you can

enter any date and/or any occasion into the Custom Occasion field.

A Skeleton Key For Registered Sites

Problem: I want to check out an article at a particular Web site, but the site requires registration. I'm tired of providing personal information to all of these sites, and I'm worried about spam. Do I have to register?

Solution: We'll leave questions about ethics and responsibility up to you, but if you want to read an article on a popular gated site (such as the *Los Angeles Times*, *The New York Times*, or *The Washington Post*), an alternative to entering your own info is at BugMeNot.com (<http://bugmenot.com>). This site hosts a selection of logins and passwords to popular free registration-required sites. BugMeNot.com claims that a large percentage of users enter false information anyway, so using it as an option can save you some time and hassle.

My adrenaline fix
isn't what it used to be.
Double the dose.

AMD
me.



Introducing the AMD Athlon™ 64 FX processor. Take your system to extremes.

Double the data path from 32- to 64-bit and you more than double the thrill factor. Uninterrupted, ear-splitting, streaming audio and rich, razor sharp video make your pad a launching pad. What's more, you get all the power you need to edit, mix, and model your own digital creations with memory to spare. Prepare to blow minds. Get a dose of the AMD Athlon 64 FX edge at www.amd.com/amdathlon64fx

No One Can Hear You When You Scream Online

Cavern Of Clipart

<http://www.halloween-clipart.com>

You put plastic spiders in your mailbox, scarecrows on your front porch, and ghosts in your windows, so it's only fitting that you decorate your personal Web page with a host of digital creepy-crawlies. Unless you design your own Web images, slither over to the Cavern Of Clipart. Halloween Online (<http://www.halloween-online.com>) regularly adds new ghosts, goblins, and other ghoulish treats to the Cavern's large collection of free Halloween clip art. You'll find images of haunted houses, grave-stones, jack-o'-lanterns, and more than a dozen old Halloween cards. We like the Halloween Signs sections, which feature a variety of Happy Halloween banners.

Costume Idea Zone

<http://www.costumeideazone.com>

If you don't want to dress your child in this year's fad Halloween costume (which is Shrek, by the way), then take a look at the aptly named Costume Idea Zone's stash of (usually inexpensive) costume possibilities. Some of the ideas are complicated or potentially dangerous, such as Struck By Lightning, but others require almost no materials, such as Mr. Or Miss Smarty Pants (our favorite, of course), which requires only a bag of Smarties and some tape. If you're in a rush, scan the Need A Quick And Easy Idea section, but if you have some time on your hands, explore other areas of this excellent costume site, including the Unique Costume Ideas and Ideas For Groups sections. Not all ideas include costume-building instructions, but you can learn the basics in the Pointers & Tips section.



HalloweenKids.com

<http://www.halloweenkids.com>

If you have a trick-or-treater or two in your family, stop by HalloweenKids.com to order a UNICEF carton. UNICEF, the United Nations Children's Fund (formerly known as the United Nations International Children's Emergency Fund), supports several humane causes around the globe. According to HalloweenKids.com, trick-or-treaters have been carrying the UNICEF donation cartons from door to door since 1950, and the site offers information about ordering and returning UNICEF cartons. Of course, that's not the only treat at HalloweenKids.com; children can find out how to create Medusa, Hula Dancer, and Pirate pumpkins in the Pumpkin Decorating section and learn about autumn holidays in other parts of the world in the Celebrations Around The World section.

HalloweenMagazine.com

<http://www.halloweenmagazine.com>

Looking for a haunted house or trail to explore this Halloween? Check out this Web site's Halloween Haunts section, which links to

dozens of "haunted" Web sites across the country. Once you browse HalloweenMagazine.com's selection of links, click HauntWorld.com (<http://www.hauntworld.com>) on the main page to skim another large listing of haunted locations. If you're looking for online scares, you'll love the Stories and Articles sections. The site also features a Halloween Safety Game/Quiz that teaches children basic Halloween safety tips.

Halloween Safety Guide

<http://www.halloween-safety.com>

Take a look at the Halloween Safety Guide before you let your pack of witches, skeletons, and bumblebees loose on the streets. Halloween Online created this safety guide, which offers tips to concerned parents. The Tips For Kids and Tips For Parents sections have basic safety hints, too. For example, the site recommends that you feed your children before they trick-or-treat so they won't eat the candy until they come home. The site also suggests that you thoroughly inspect the candy before letting your children eat it.

Halloween Street

<http://www.halloweenstreet.com>

If your marriage has been a picnic, then show it at this year's Halloween party by dressing up in Halloween Street's Ketchup and Mustard costumes. The online costume retailer has an enormous selection of costumes that range from scary outfits to cute kids' costumes. The main page lists the 15 best-selling costumes, including (as we go to print) several movie heroes, such as Shrek, Catwoman, and Neo (of "The Matrix" fame). We were surprised to see that Harry Potter, in eighth place, isn't quite as popular as Dinothunder, the red Power Ranger. If you're not sure what size of costume you need, click the Costume Size Guide link to see detailed sizing information.

That's News To You

Finding the appropriate Usenet discussion group to match your interests can be a monumental task. So each month, we scour tens of thousands of newsgroups and highlight ones that delve into popular topics. If your ISP (Internet service provider) doesn't carry these groups, ask it to add the groups to its list. This month we trick-or-treat for tricks and tips.

alt.halloween.bo0

If you put tombstones in your front yard or turn your house into a haunted mansion every Halloween, you'll love trading stories with this group. Many of the members here create complex, spooky environments for intrepid trick-or-treaters (to whom they refer, in true Internet fashion, as TOTers) and then post messages detailing the night's success.

.....

rec.food.recipes

Need to make a few pumpkin pies for your Halloween bash? Members of this group regularly trade recipes and cooking tips. Although the group doesn't focus on any particular food, many members offer and request seasonal and holiday recipes, such as Halloween treats. You'll find plenty of recipes for other tasty dishes, such as fondue and orange and spinach salad.

Share The Wares

Some of the best apples in the online orchard are the free (or free to try) programs available for download. Each month we feature highlights from our pickings. This month we haunt your computer with digital ghosts.

The Haunted House

RI Soft Systems (<http://risoftsystems.com>) has plenty of spooky software that will turn your ho-hum Desktop into the Desktop of digital terror. Well, maybe not, but it will add a creepy touch to your computing environment. To download a trial version of RI Soft Systems' Haunted House Extended Version screen saver, select Haunted House from the Screensavers drop-down menu and click R.I.S.S. #1 under Haunted House Screensaver Free Version. (Although the Web site lists this screen saver as "free," the license states that it's an evaluation copy that you shouldn't use for more than 30 days.) Once you download and double-click the setup file, you'll need to decline several advertisements by deselecting the Yes checkboxes (for example: Yes, Install This Utility) and then clicking Next. We generally frown on setups that include unsolicited programs or ads, but the Haunted House's setup wizard doesn't try to trick users and doesn't install any software without the user's permission, and you won't need to install any of the extras to use the Haunted House screen saver.

Unlike the average screen saver, which shows several animated images, the Haunted House includes both pictures and text to tell the story of a mysterious and grisly massacre. The trial version includes only a few of the house's many rooms, so to find out more about the screen saver's "story," you may want to buy the full version for \$16.95. If you want additional scary



Want to tour a haunted house? Just sit back and watch your screen saver.

screen savers, buy the Double Play Bundle, which includes the Haunted House and the Trick Or Treat screen savers, for \$24.95. RI Soft Systems also sells its Triple Play Bundle for \$29.95, which adds the Ghoul's Delight.

If you like the Haunted House screen saver, you'll probably enjoy RI Soft Systems' free Haunted House Desktop Theme, which converts your Desktop's icons to images that are part of the Haunted House. (It also turns the cursor into a skeletal hand.) As with the screen saver, you'll probably want to decline the setup wizard's extra software before you install the Desktop theme. Unfortunately, only Windows XP supports themes automatically. If you don't have WinXP, you might need to

download a theme manager (type **Theme Manager** into the search field of your favorite Internet search engine). But if you do have WinXP, all you need to do is install a theme, right-click your Desktop, click Properties, choose the Themes tab, select Haunted House from the Theme drop-down menu, and then click OK to decorate your Desktop with ghoulish icons.





EVERYTHING YOU'VE ALWAYS WANTED EVEN THOUGH YOU'VE NEVER



Let's start with the first thing you should know. DV Photo Plus refers to the four key technologies

that give you both premium-quality video and photos from a single camcorder. And assuming that's not everything you wanted to know, here's the rest.

GENUINE CANON OPTICS

All Canon Mini DV camcorders feature high-precision lenses designed specifically for camcorder use. But did you know that each of our camcorders has a unique lens that matches its CCD for optimum quality? Or that our camcorder lenses are made with the same expertise used to create lenses

for professional photographic cameras and broadcast TV cameras? That's surely worth knowing.

Especially since your fabulous home videos will undoubtedly be broadcast to your friends and family during holidays and get-togethers.



MEGAPIXEL CCD IMAGE SENSOR

No matter what you're shooting, you'll get crisp images with life-like detail because of this Megapixel CCD. First it captures the image. Then it registers it. And then

the image processor converts the pixels into both great video and great photos. Now, on to the brains of the operation.

DIGIC DV IMAGE PROCESSOR

DIGIC DV is your camcorder's digital brain; you'll find one in every Canon Mini DV camcorder. This exclusive image processor captures accurate color for both video and digital photos. And like the human brain, DIGIC DV will help





TO KNOW ABOUT DV PHOTO PLUS. HEARD OF DV PHOTO PLUS.



you take better pictures by heightening the emotion in everything you shoot. (Colors become more vibrant, light more dramatic, and the color spectrum wider.) And, since video and digital photos have different color requirements, DIGIC DV uses two different color techniques to maximize video quality on a TV and optimize photo quality on a computer screen. You didn't know that now, did you?

PRINT AND SHARE
Print and Share makes it easy to print photos directly to a printer or to transfer images onto your computer. Simply connect the camcorder to any Canon printer or PictBridge compatible printer, select an image and voilà: you can print it for your family and friends. It's almost like having your own private photo lab.



SO THERE YOU HAVE IT
Everything you've always wanted to know about DV Photo Plus. Not just video and photos, the best of both.

Canon KNOW HOW®



digital REVOLUTIONIZED video ■ we REVOLUTIONIZED digital™

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Dis

Y o u r

The compact disc burst upon the scene in the early 1980s, and by 1984, the new technology had ushered in a brave new world of audio: an entire “record album” on a shiny disc only 5.25 inches in diameter, with all of its tracks programmable and randomly accessible and digital sound that’s startling in its clarity. PC and peripheral makers were quick to jump on the bandwagon, promptly releasing computers with CD drives and, only a few years later, introducing recordable CD drives. DVDs followed in the ’90s, with computer manufacturers and suppliers hedging their bets by

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cover

Inner Producer

Get Straight Answers To Your CD & DVD Questions

releasing machines that included DVD drives in a number of competing formats and many (now, most) that would play multiple formats, just in case no one format emerged as the clear winner. (And sure enough, that turned out to be a wise move because the DVD format war still rages on.)

It's now a digital world, and much of that digital data resides on optical discs. We use CDs and DVDs for software, music, data transfer, backups, and more. Floppy diskette drives are becoming a rarity, with many PC makers opting out of them altogether. After all, what's a 1.44MB floppy compared to a 650MB CD or a 4.7GB (or more) DVD?

The thing is, it was all supposed to be so simple. Treat them well, and optical discs should last for many years. After all, there's no bending, less worry about scratches, less handling (no need to flip them over to play the other side), and less susceptibility to heat. And to top it off, we get to experience that gorgeous audio and video fidelity. Just place a disc in the drive tray, push a button, and relax as you

listen to your favorite tunes, watch that classic movie, or create your own blockbuster. What could go wrong?

Plenty, as it turns out. Although the mechanics of recording data and stamping CDs and DVDs are mature and well-understood, the actual user interface that lets home and small-office users create optical media is still in its infancy. Computer manufacturers and software publishers have been scrambling to create that compelling "killer app" that will help the uninitiated create various types of discs while attempting to shield them from the complexity of the process. Even though things have improved quite a bit, they're not there yet.

As a result, confusion reigns. People aren't always sure how to create the disc they really want, so they end up bewildered and frustrated, and questions abound: Is it a CD or an MP3 disc? Why can't I back up data to my CD-R (CD-recordable) drive? Why won't the CD I just made play in my car stereo? If I can record on both of them, what's the difference between CD-R and CD-RW (CD-rewriteable)

media? Can I make video CDs, or is that just for DVDs? Which one of these competing DVD formats should I use? Why does my computer crash when I'm trying to make a CD?

And the list of questions goes on and on. It's enough to make one give up on the whole business of creating and using optical media with a computer.

But don't do that just yet. There are really only a few major tasks that most home and small-office users really want to undertake, and only a bit of straightforward background is needed to successfully create and/or use CDs and DVDs. In the rest of this section, we run through those tasks and show you how to create optical media backups and audio CDs, transfer your records and tapes to CDs, and create DVD-based videos. In addition, we give you several pages of optical-related Q&A, designed to provide even more answers to those . . . uh, burning questions. So read on; we'll see if we can clear up some confusion and minimize that frustration. ■

BY ROD SCHER

Optical Operation

Diagnose & Treat Your CD & DVD Problems

Imagining life without CDs and DVDs is tough, but imagining CDs and DVDs without all their related problems is even more difficult. For all the conveniences that optical drives, discs, players, and burning applications deliver, we must endure countless problems with the various media and the hardware and software that reads and burns it. Yet, considering how important these discs are to our computing and entertainment tasks, we're willing to expect the bad with the good.

Granted, expecting the bad doesn't mean living with it, and luckily, it's not too tough to troubleshoot and fix problems dealing with CDs and DVDs. Whether the problem stems from faulty media, flaky software, or malfunctioning hardware, you can usually find a solution that fixes the problem, and it won't take very long to get there. Let's examine some common problems and determine how you can remedy them and hopefully avoid them in the future.

Problems Encountered When Creating Discs

Problem: Buffer underruns prevent successful CD burns.

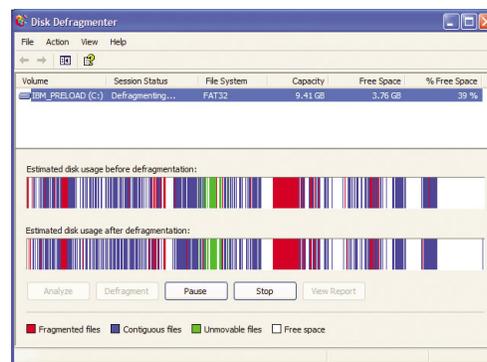
Solution: Buffer underruns aren't as common today as they were in the

past when optical drives didn't include technologies such as Smart-Burn and BURN-Proof, but they can still happen (especially if you're still using one of those older drives). When they do occur, you can kiss both your burn session and your CD-R (CD-recordable) good-bye because the interruption typically renders the disc unusable. The error arises when the burner tries to access data from a write buffer, which should be supplying a constant stream of data to the burner. If no data is in the buffer when the burner goes for it, a buffer underrun occurs, stopping the session in its tracks.

To help avoid these errors, make sure you regularly defragment your hard drive and keep Windows' Temp folder (usually located at C:\WINDOWS\TEMP) as clean as possible. Windows XP users can use Disk Defragmenter by opening Windows Explorer, right-clicking the hard drive icon, clicking Properties, choosing the Tools tab, and clicking Defragment Now. Windows 98/Me users will need to open the Start menu and click Programs, Accessories, System Tools, and Disk Defragmenter.

Before you begin a burn session, close all open programs, including

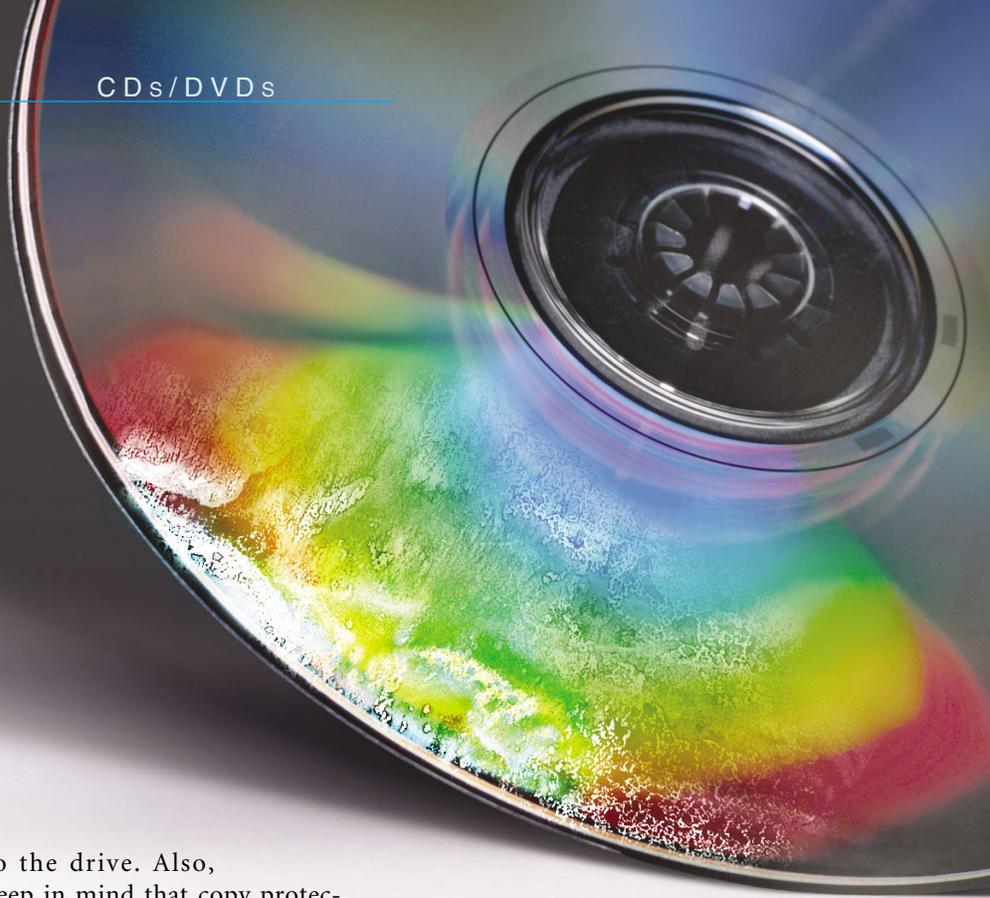
any that might be running in the background (some of these are apparent in the System Tray). When you begin the write session, don't touch your computer at all, including the mouse, because some drives are so finicky that any slight computer activity outside of the



Regular hard drive maintenance, including using Disk Defragmenter and ScanDisk (or similar utilities), can help you avoid buffer underruns that turn discs into coasters.

session itself can interfere with the process (which also means you should disable your screen saver before the burning session). If these steps don't work, try burning your discs at a slower speed.

Problem: The burning software cannot complete its tasks due to insufficient resources in Windows.



Solution: When an error message appears indicating insufficient resources, it's hard to know for sure what exactly is causing the problem, but you can usually take a few steps to avoid the problem in the future. As mentioned previously, regularly defragmenting your hard drive and keeping Windows' Temp folder clean will help. You also should run regular disk scans using Windows' ScanDisk utility. In WinXP, open Windows Explorer, right-click the icon representing your hard drive, click Properties, choose the Tools tab, and click Check Now in the Error-Checking section. In Win98/Me, open the Start menu and click Programs, Accessories, System Tools, and ScanDisk.

In addition, make sure you have enough free space on your hard drive—aim for about twice the amount of data you want to burn. Before you start the burning process, close all the open programs except for the burning application, including any unnecessary background programs.

Problem: Copying from CD to CD is slow.

Solution: As with other problems in this category, slow CD-to-CD copying can be a symptom of poor hard drive health, so keep your hard drive defragmented and error-free, and keep Windows' Temp folder empty. It's also a good idea to disable your antivirus software before starting a burning session, as it can interfere when scanning files copied

to the drive. Also, keep in mind that copy protection can affect the burning process, so if you notice similar slowdowns across different burning programs, some type of copy protection is likely the culprit (and you probably won't be able to avoid it).

Another potential culprit is the drive configuration inside your computer case. If your hard drive and CD burner share the same IDE (Integrated Drive Electronics) cable, you could encounter serious slowdowns when copying from CD to CD. If possible, try to keep your hard drive(s) on one channel and your CD burner on another.

If you're encountering slowdowns when copying directly from the source CD on another CD drive, there may not be anything you can do because fast burners can sometimes record data more quickly than the CD reader can extract the data from the source CD. In this case, the buffer underrun protection will slow the process to account for the speed discrepancy.

Problems Encountered When Reading CDs Or DVDs

Problem: I cannot read or execute files from a burned CD or DVD.

Solution: If your burning software indicates a successful write session but you can't access files on the CD or DVD, you might have a hardware problem. But before you diagnose the hardware, first make sure that the file isn't corrupted to begin with by accessing it from the source. If you can't access it there, then you know that your hardware isn't the problem. If you can access it, try performing another burn session but use a slower write speed. You also can try using a different brand of media because some burners work better with certain brands. (If you're not sure what media brands are best for your burner, check your burner's manual or the manufacturer's site.) If you still have problems, your burner might need a firmware update. Check with the manufacturer to see if an update is available for your hardware.

Problem: My car or home stereo won't play burned CDs.

Solution: Today's home and car audio components are far more compatible with burned CDs than they used to be, but you'll still find the occasional CD that simply won't play. In many cases,

a CD player might willingly play one brand of CD-R media but not another, so if you have problems with a burned CD, try using another brand. In general, stay away from off-brand CDs. Also, CD-RW (CD-rewriteable) media is usually less likely to play in a stereo component than CD-R media, so stick with CD-Rs to save both headaches and money.

When you burn the audio CD, configure the session to close or finalize the disc when the burn session is complete. You also might consider burning your audio discs at a slower speed. If you still have problems, try burning a separate audio CD using different tracks to rule out potential problems with the source audio. Then, if the other audio CD plays fine, you'll know that there's probably a



If your car or home stereo refuses to play your burned audio CDs, try selecting a slower recording speed via your burning software.

Don't Let *CD Rot* Spoil Your Media

Believe it or not, your CDs and DVDs might be deteriorating right before your eyes. In a process known as **CD rot**, discs can suffer from oxidation and fading, causing data loss over time.

The problem occurs in prestamped manufactured discs when air penetrates the disc and oxidizes the aluminum layer, which carries the data. On recordable and rewriteable discs, data can disappear when the dye holding the information fades over time.

On manufactured discs, such as audio CDs and software discs, CD rot appears as darkened areas or dots resembling pinpricks on the data

side. On recordable and rewriteable discs, these visible symptoms usually aren't visible at all because it's difficult to detect fading dye.

Even though the problems tend to vary among media brands, experts agree that the manufacturing process is often to blame, particularly if the manufacturer improperly applied the disc's lacquer layer.

Although you may not avoid CD rot altogether in your entire disc collection, there are steps you can take to prevent it.

For one thing, try to store your discs in soft, multiple-CD cases that you can zip up

when you're not using them. In addition to the enclosed environment, this storage also does away with the constant bending of discs that occurs when you remove them from standard CD jewel cases, an action that can weaken the layers on the discs and contribute to CD rot.

Also, store discs in a cool, dry area that maintains a constant temperature. Handle your discs carefully to avoid scratches, and keep them free of dirt and smudges by wiping them from the inner hole outward to the edge (never use a circular cleaning motion) with a soft, cotton, lint-free cloth. ■

problem with the MP3s or other music files that you're trying to convert.

Finally, keep in mind that you may have accidentally created a data CD rather than a music disc; if you simply copied MP3, WMA (Windows Media Audio), or other such files over to a CD, your home or car player may not play those files. A true music CD contains files in CDDA (Compact Disc Digital Audio) format. See "Mixing The Hits," on page 70 for more information about this process.

Problem: I'm unable to hear audio through my optical drive.

Solution: If your PC's CD or DVD drive can't play an audio CD that your car or home stereo can, you'll need to follow a few troubleshooting steps. First, check the obvious and make sure your PC's speakers are turned on and the volume is turned up (try playing another sound file to test the speakers). Next, check the Sound control panel in Windows to make sure your sound card's volume isn't turned all the way down or muted. If you still can't hear anything, open the Device Manager. (In WinXP, right-click My Computer, click Properties, choose the Hardware tab, and click Device Manager; in Win98/Me, right-click My Computer, click Properties, and choose the Device Manager tab.) Right-click the icon for your optical drive, click Properties, and then choose the Properties tab. Make sure CD Player Volume is set to High.

Depending on your hardware configuration, you might have a cable that runs between your optical drive and your sound card inside your PC. If you open your case and see one, make sure it's firmly connected on both ends (be sure to ground yourself first to prevent static electricity discharge).

Problem: My DVD drive is unable to read DVDs.

Solution: If your DVD drive doesn't want to read DVDs, first make sure

you installed the software that came with your drive. If your drive didn't come with software, you'll need to install DVD-reading software, such as WinDVD Gold from InterVideo (\$49.95; <http://www.intervideo.com>), to watch DVD movies. For more information, see "Make Your PC A Player" on page 68.

Some drives work better with certain programs, so if necessary, try a different program to see if that solves the problem. You also should check your AutoPlay options in Windows to see how the OS (operating system) is handling content on the drive.

It's a good idea to check the hardware inside your computer case, too. Make sure the IDE cable connecting the drive to your motherboard is firmly inserted on both ends. If you have two optical drives attached to the same cable, set the DVD drive to master and the other drive to slave by using the jumpers on the back of the drive (see your DVD drive's manual for instructions).

Hardware Problems

Problem: My optical drive doesn't recognize a particular disc.

Solution: Regardless of the drive, this problem happens to just about every user at one time or another. In many cases, it's a problem with the media and not the drive, and there are a few easy ways to see if the media is indeed the problem. If you have AutoPlay set to automatically play content and nothing happens when you insert a disc, open Windows Explorer and see if you can access the disc by clicking the optical drive.

If you don't see any content on the disc, remove the disc and insert another one, making sure it's a factory-stamped audio or data disc. If your optical drive can read that disc, inspect the offending disc for scratches or smudges. If there are big scratches on the disc, you might be able to repair the disc using a scratch repair

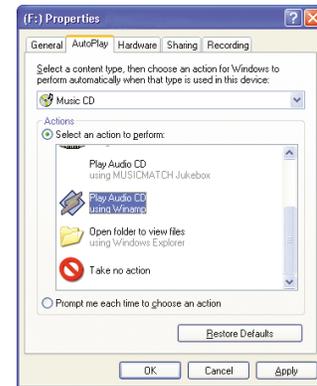
kit. You can remove simple dirt and smudges by gently cleaning the disc with a soft, cotton, lint-free cloth, using outward motions from the inner hole. Cleaning your drive's optical lens also might help; you can do this by opening the drive tray and sending a blast of compressed air toward the lens.

Problem: The optical drive icon is missing from Windows.

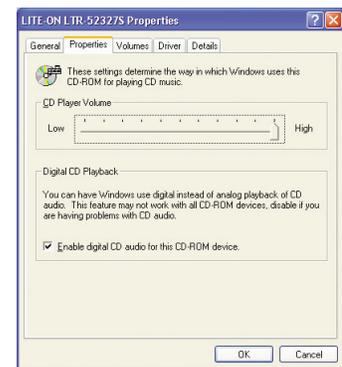
Solution: When you open Windows Explorer and can't find an icon or listing for your optical drive, or when you press the button to open the optical drive tray and nothing happens, you probably have a hardware problem. Turn off your PC, open the case, and check that the IDE cable is connected firmly to both the drive and the motherboard (after grounding yourself, of course). If it doesn't seem to fit snugly, make sure that none of the pins are bent on the connectors for the drive and motherboard. If you have more than one device connected to the same IDE cable, confirm that one device is set to master and the other is set to slave. Also, make sure that the power connector is firmly in place at the back of the optical drive.

Problem: My optical drive reads discs sporadically.

Solution: Inconsistent reading by an optical drive often indicates a firmware problem. For example, if your drive reads a disc fine one day, can't read it the next, and reads it fine the following day, you should check to see if the drive's manufacturer has a firmware update to correct the problem. If a firmware update doesn't help or if no update is available, try cleaning the lens using the process we described previously (under the "My optical drive doesn't recognize a particular disc" problem). Also, check the IDE cable inside the case to make sure it's firmly attached at both ends.



If your DVD drive seems unable to read DVDs, check Windows' AutoPlay options because you might just need to tweak the action settings.



It's frustrating when audio CDs won't play through your optical drive, but it might just be a simple case of your player's volume being set too low.

Keep It Clean, Keep It Fresh

You can avoid many optical hardware and media problems through both care and maintenance. Keep your hard drive running smoothly by using ScanDisk and scheduling regular defrag sessions. Instead of letting discs pile up, immediately place them back in their cases when you're done using them, and if you do notice dirt or smudges, clean the CDs or DVDs as soon as possible. If you have trouble burning discs, do everything you can to remove stress from your system, such as shutting down unnecessary programs to free up more system memory. ■

BY CHRISTIAN PERRY

Data To Burn

Rewriteable Optical Drives Make Backups Easier

Maintaining a high-performance computer system requires you to accept certain responsibilities, such as regularly checking for viruses, scanning for drive errors, and backing up important files. You can perform this last task with minimal effort and expense as long as your PC includes a rewriteable optical drive.

Three Good Reasons

It seems as if rewriteable optical drives are everywhere these days. Many of the consumer-oriented PCs currently on the market come equipped with CD-RW (CD-rewriteable) drives, and you have the option of upgrading to a plethora of rewriteable DVD drives, including DVD+RW, DVD-RW, DVD±RW, and DVD-RAM drives. You can credit much of the popularity of the drives to consumer interest in digital photography and MP3 file swapping. The optical disc format makes it easy to share digital images and audio files with others. It also provides a stable platform on which to establish a regular backup routine. Unfortunately, users often fail to take advantage of the drive for this latter purpose. That's a mistake.

The most valuable part of your system is not the hardware and software but the data. You can replace a hard drive with \$100 and an hour of effort. Replacing the mission-critical data files scattered across that drive, however, is not so easy. Just think of the many business documents, contact lists, school reports, and financial records that you've

generated and accumulated since booting your computer for the first time. No amount of money or time can help you restore all of that information, but a reliable backup can.

And a disc-based backup system (specifically, a rewriteable drive and media-based backup system) is probably the best backup option for casual computer users. For one thing, it's cheap. If your computer doesn't have a CD-RW drive already, you can purchase an internal upgrade unit for as little as \$40. That's less than the cost of a traditional backup device, such as a tape drive or second hard drive, and significantly less than the cost of a personal network backup server. Even rewriteable DVD drives, which have price tags in the \$150 to \$250 range, seem like a good deal when compared to the cost of operating other removable storage devices (not to mention the cost of losing all of your data).

The rewriteable media is cheap, too. A typical CD-RW has a capacity of 650MB to 700MB and sells for 75 cents to \$1.50 each, which amounts to a per-megabyte cost of less than one-fifth of 1 cent. Prices vary widely for rewriteable DVDs, depending on capacity (which ranges from 2.6GB to 4.7GB per side) and format (DVD-RAM cartridges cost significantly more than DVD-RW discs). You can find single-sided DVD+RWs or DVD-RWs for \$2 to \$5 each, which amounts to a per-megabyte cost of less than one-tenth of 1 cent.

Another benefit of using a disc-based backup system is longevity. Users can reasonably expect that a disc will remain readable for several decades, although the actual life span of any given disc depends on the materials used to create the disc, the quality of the recording, and the environmental conditions under which it is stored. Some disc manufacturers even guarantee their products for 50 years or more as long as you keep the discs away from direct sunlight, high humidity, and extreme temperatures. No tape or magnetic storage media comes close to offering that kind of dependability.



Although CD-RW (CD-rewriteable) drives remain quite popular, rewriteable DVD drives, such as the Plextor PX-712A internal DVD±RW drive (\$199; <http://www.plextor.com>), offer significantly greater storage capacity.

Finally, using a disc-based backup system offers the advantage of portability, meaning you can remove the backup discs from the PC and store them at an off-site location. Doing so protects the discs from any act of man or nature that could damage the original data source. And don't worry about the discs consuming a lot of space; you can fit dozens of jewel cases in an ordinary shoebox. Wherever you store them, make sure it's a climate-controlled environment; our suggestion is an office closet (preferably in a fire-proof safe) or a safety deposit box. Don't store your backup discs in a storage shed, automobile trunk, or anywhere else that's susceptible to significant temperature swings.

Of course, a disc-based backup system is not for everyone. The process of swapping out discs and coordinating recording sessions make rewriteable discs an inefficient option for network users who generate a significant amount of data. For this reason, most businesses will find their backup needs better met by a centralized server outfitted with one or more high-capacity hard drives or tape drives. Busy home and small-office computer users may find it more convenient to use a second hard drive or network drive for daily **incremental backups** (backing up only the files that have changed since the most recent backup) and saving the rewriteable disc drive for weekly or monthly **full backups** (backing up all of the data on a drive, regardless of whether the files have changed since the most recent backup).

Get Equipped

Before you can perform a disc-based backup, either full or incremental, you must have the proper equipment. The most important component, of course, is the drive itself. Assuming that you already have a rewriteable drive, such as a CD-RW drive or a DVD±RW drive, the next thing you need is the appropriate



Optical storage media is cheap. You can get a pack of high-quality discs, such as the Memorex CD-RW Ultra Speed 5 Pack (\$7.99; <http://www.memorex.com>), for approximately \$1.50 per 700MB disc.

media. You can use either recordable (such as CD-R or DVD-R) or rewriteable (such as CD-RW, DVD-RW, DVD+RW, or DVD-RAM) media, the major difference being that you cannot rerecord data on recordable discs but you can rerecord data on rewriteable discs. Make sure you select media that your drive can accommodate. Check the users manual that came with your drive to verify which formats it supports. Generally speaking, a rewriteable DVD drive can accommodate its own media, as well as CD-R and CD-RW media. A rewriteable CD drive, on the other hand, can write data only to CD-R and CD-RW media.

Another important ingredient is software. The latest Windows versions include backup utilities, but these utilities have slim feature sets that often prove incompatible with disc-based backup systems. Fortunately, your optical drive probably came bundled with a third-party backup utility that will meet your

needs. The most popular disc-based backup utilities currently on the market are Roxio's Easy Media Creator (\$99.95; <http://www.roxio.com>) and Ahead Software's Nero Ultra Edition (\$69.99 download; \$99.99 retail package; <http://www.nero.com>). Other titles include NewTech Infosystems' Backup NOW! Deluxe Suite (\$69.99; <http://www.ntius.com>), Genie-Soft's Genie Backup Manager Professional (\$69.95; <http://www.genie-soft.com>), and Dantz Development's Retrospect Professional (\$129; <http://www.dantz.com>).

Some users, in an effort to avoid the expense of purchasing a third-party backup utility, may be tempted to use a drag-and-drop backup routine based on Windows XP's CD Recording feature (earlier Windows versions don't include this feature). We strongly discourage you from taking this route unless you're dealing with less than a handful of files. A drag-and-drop backup routine is slow, inefficient, and



likely to be discarded after awhile. It's better to spend the money on a backup utility; it's cheap insurance against permanent data loss.

Back Up

Establishing a disc-based backup routine isn't difficult, requiring no more attention than any other backup routine. Nevertheless, we advise you to read the software manual from cover to cover before initiating your first recording session. The details will vary among programs, but the process should include five simple steps.

1. Free system resources. A PC requires all of its processing and memory resources whenever it burns data to disc. For this reason, close all open programs and files before launching a backup. Failure to heed this advice—by attempting to multitask during the recording process, for instance—only serves to increase the likelihood of data errors, which may cause file corruption and permanent data loss.

2. Open and insert. The next step is to open the backup utility and insert a disc in the rewriteable optical drive. Select the utility's backup option.

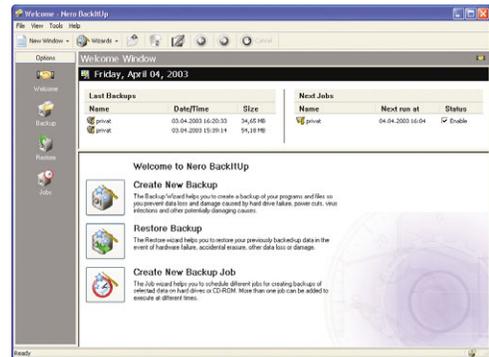
3. File selection. When choosing the files and folders you want to back up, make sure you include all original data files, including text documents, spreadsheets, address books, financial records, Web documents, email folders, databases, presentations, desktop publishing files, digital images and videos, and audio files. You also may choose to include key system and program files, such as your Registry files or the browser preferences file. You can safely exclude any program file for which you have the installation discs. Review your selections before continuing.

4. Get advanced. Before the computer copies any files from the hard drive to the disc, configure the backup

utility's advanced settings, including the **write speed** (the rate at which data transfers from the drive to the disc; higher speeds are faster but require more system resources), **compression** (the process of reducing data size so it consumes less space), **encryption** (the process of encoding data so that it's unreadable except to those who possess the key for decoding it), and **data verification** (the process of comparing copied data to original data in hopes of identifying and fixing errors that occurred during transmission) settings. You also must specify the location of the optical drive and provide a name for the backup. We suggest identifying your backup jobs by date.

In addition, you should indicate whether you want to allow multiple recording sessions on a single disc. Select Yes if you plan to record data to the disc at a later date, as you would when recording incremental backups. Select No if you want to prevent others from recording data to the disc in the future, as you would if you were recording a full backup for archival purposes.

5. Burn, baby, burn. After having selected the files and configured the software, it's time to copy your data to the disc. The utility should provide a progress indicator so that you can monitor the status of the backup. The progress indicator will notify you if you need to insert a second disc (which may happen if the amount of data you need to back up exceeds the total capacity of the disc) and when the backup is complete.



The typical backup utility presents three options each time you open it: create a new backup job, open an existing job, or restore an existing backup.



File selection is an important part of the backup routine. Anything you choose to exclude (or forget to include) will remain vulnerable to data loss.

Finishing Touches

When the backup utility finishes, remove the disc from the drive and store it in its case. Leaving a disc in your computer for long periods of time renders it vulnerable to heat-related warping. As we mentioned earlier, you should store the disc in a cool, dry location away from direct sunlight.

Your backup utility may give you the option of creating a label for the disc. If you do so, use only the recommended labels and follow the printing instructions carefully. A disc's surface is fragile, and ballpoint pens, pencils, and creased labels can damage it. ■

BY JEFF DODD

Give your car the luxury of satellite navigation.



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The StreetPilot® II from Garmin has features found in expensive in-dash navigation systems, plus one very important quality the others don't have. StreetPilot II is portable, so you can have the best in GPS navigation in any car you drive. Look up addresses, attractions and other services, and StreetPilot II will create a route and provide turn-by-turn directions with voice prompts to get you there.

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Make Your PC A Player

What You Need To Play
DVD Movies On A
Computer

So you want to watch a DVD movie on your PC. It sounds so easy; your PC has a DVD drive, so you should be able to just pop in a disc, and you'll be off to the movies, right? Perhaps, but it isn't always that straightforward. To watch DVDs on your computer, you will need three things: a DVD drive, software to play the DVD, and the appropriate codec (compressor/decompressor). A codec is software that does the work of decompressing and decoding the information on a DVD.

Popular DVD player software includes Windows Media Player (free; <http://www.microsoft.com/windows/windowsmedia>), CyberLink's PowerDVD 5 (\$49.95; <http://www.gocyberlink.com>), InterVideo's WinDVD 6 (\$69.95; <http://www.intervideo.com>), and Ulead System's Ulead DVD Player (\$29.95; <http://www.ulead.com/dp>). The latter three of these players include

codecs, so all you have to do is install one and you're ready to go. With WMP (Windows Media Player), things aren't so simple, and we'll explain why.

Windows Media Player Specifics

In recent Windows versions, WMP is accessible from the Start menu by clicking All Programs, Accessories, and Entertainment. Choose About Windows Media Player from the Help menu to find out what version you have and, if necessary, download a newer version from the Windows Media site. At the time of this writing, version 9 is the most current, and version 10 is in beta testing.

By itself, WMP can't play DVDs because it doesn't include a DVD codec. But with a third-party codec installed, WMP will handle the job just fine.

Actually, you may already have a DVD codec installed on your PC. It's likely that the software that accompanied your DVD drive included one. In addition, many disc-burning and video applications include a DVD codec.

To find out if there's a DVD codec installed on a Windows XP system, choose Run from the Start menu, type `cmd` in the field, and press ENTER. A window will display to indicate whether a codec is installed.

Please note that one DVD codec is good, but two *isn't* better. With more than one codec installed, your PC may not be able to play DVD movies at all. If you want to switch to a different codec, make sure you remove the first one using the Add/Remove Programs utility in the Control Panel before installing a new codec.

If you don't have a codec yet, you can download one for about \$15. Your choices include InterVideo's DVD XPack (\$14.95; http://www.intervideo.com/products/custom/ms/windowsxp/media_pack.jsp), CyberLink's PowerDVD SE (\$14.95; http://www.gocyberlink.com/english/products/powerdvd/winxp_plugin.asp), and Sonic Solutions' CinePlayer DVD Decoder Pack (\$14.99; <http://www.cineplayer.com/decoder/default.htm>).

With the correct codec installed, playing a DVD is easy: Just launch WMP and insert the disc in your DVD drive. If the DVD's content doesn't



Windows Media Player will play DVD movies after you install a third-party codec (compressor/decompressor).



CyberLink PowerDVD includes a codec and several advanced playback features.

start automatically, choose the DVD from the playlist and click the Play button. WMP's features for watching DVDs are plain but sufficient; the player lets you watch your movie in a window or use the full screen, switch among languages and subtitles, and access other basic tools.

Don't Cut Corners

Software publishers must pay a licensing fee to implement a DVD codec; therefore, they must charge you for the expense somehow, even if they pass this cost on to you as part of the price you pay for a DVD drive or third-party software. Don't waste your time looking for a free codec online; you aren't likely to find one that's legal, trustworthy, and/or easy to use.

A few free DVD codecs are available, but they're more trouble than they're worth. For example, Cliprex DS (<http://www.cliprex.com>), a free DVD player and codec, is laden with **adware** (software that monitors your activity in order to display targeted pop-up ads) and possibly **spyware** (software that records your computing activity for the purpose of sharing this information with an outside source). Other software, such as Jon Johansen's DeCSS program, can do the job but isn't licensed by the DVD Copy Control Association (<http://www.dvcca.org>)

and could get you into legal trouble. If your system needs a DVD codec, save your pennies and purchase one of the reliable codecs we mentioned earlier.

We also should tell you that there is an exception regarding the software codec requirement: Although most DVD drives utilize software codecs, some systems use a hardware decoder. For those systems, an add-on card performs the decoding so a software codec isn't necessary. As long as the proper hardware drivers are installed and listed in Windows' Device Manager, the hardware decoder will take the place of the software codec. Hardware decoders are rare, though; today's PCs are more than fast enough to do the work by using software codecs, so special hardware isn't needed.

Third-Party DVD Players

To make your PC movie experience shine, you'll want to use a third-party DVD player instead of WMP. The third-party programs we recommend include advanced features for home theater movie buffs. In addition, you won't have to worry about finding a codec because each of the third-party players we suggest includes its own.

PowerDVD 5, for instance, has superb audio features (with support for surround-sound PC setups), can show subtitles in two languages at once, and can bookmark your favorite scenes. WinDVD 6 supports DTS Digital Surround Sound and is optimized for watching movies on notebooks (by extending battery life). And Ulead DVD Player can simulate surround sound on a two-channel speaker system and deinterlace screen images for the clearest video playback.

Free downloadable trial versions are available for all three of these programs, so test drive each of them before making a purchase.

DVD Regions

Now that you're able to watch movies on your computer, you may

want to view movies from other parts of the world. Well, there's a DVD specification called Region Coding that prevents this (and divides the world into eight regions). For example, DVD player software won't play a Region 2 (Japan, Egypt, Europe, South Africa, and Middle East)-coded DVD on a computer that's set to Region 1 (United States, U.S. territories, and Canada). If you try to watch a DVD from a different region, you'll see an error message or a black screen.

Your DVD drive will probably let you switch regions a set number of times (usually five), but after that, it will remain locked into a particular region. Therefore, changing the region in this manner is not a good solution for people who want to regularly watch movies from different countries.

PowerDVD, WinDVD, and other DVD players won't override the hardware's region setting, but there are add-on applications available that will do this. DVD Region+CSS Free (\$39.95; <http://www.dvdidle.com/dvd-region-free.htm>) and DVD Region Killer (free, but hard to find; use your favorite search engine or visit <http://www.digital-digest.com/dvd/downloads/dvdrk.html>) can override a system's standard region protection, thereby letting you watch movies from around the world.

(NOTE: Before using one of the aforementioned applications, check the license agreement of your DVD drive's firmware to make sure you're not violating it by overriding its region setting.)

Now For Our Feature Presentation . . .

After your PC has everything it needs, you can make some popcorn, place a disc in the DVD tray, turn down the lights, and watch a movie in your home office. Or, as many frequent fliers have found out, it's so convenient to just toss a few DVDs into your notebook's bag and enjoy a film or two during your next airline flight. ■

BY KEVIN SAVETZ

Mixin' The Hits

Create A Music CD That Follows The Beat Of Your Drum

Once in a great while, the world is graced with the release of an album that qualifies as a complete masterpiece. Each of these rare productions, such as the Beatles' "Sgt. Pepper's Lonely Hearts Club Band" and "Led Zeppelin IV," represents a unified musical whole. You cannot hear a track from such an album without thinking of the other tracks that came before and after it.

But these are the exceptions. The vast majority of albums consist of one or two catchy singles surrounded by half a dozen or more forgettable tunes. Rather than suffer through 30 minutes of drivel to hear three minutes of bliss, why not use your recordable or rewriteable optical drive to craft a homemade CD of your favorite hits?

Let's Make Some Music

The process of filling a CD with digital files begins long before you insert a blank disc into your recordable/rewriteable optical drive. After all, you can't burn (record) a disc unless you

have files to put on it. Start the process by **ripping** (copying a track from an audio CD to a PC's hard drive) the desired songs to your local hard drive.

We recommend using the latest version of WMP (Windows Media Player) when ripping tracks to your PC. Not only is WMP9 free, but it also represents one of the most intuitive ripping utilities currently on the market. Simply click Copy From CD on WMP's interface, select the particular tracks you want to record, and click the Copy Music button. Repeat the process for every album in your collection; just make sure to use the same recording settings when ripping all of your tracks. Configure the settings by opening WMP's Tools menu, selecting Options, and choosing the Copy Music tab. We suggest that you select the Windows Media Audio (Variable Bit Rate) format option and position the Audio Quality slide to the Uses About 59MB To 94MB

Per CD (135Kbps To 215Kbps) or higher setting. (Kbps stands for kilobits per second.)

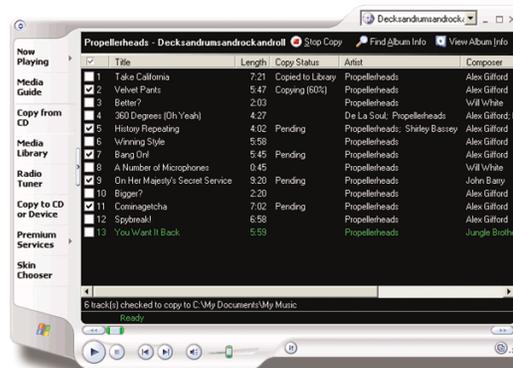
Once the selected files are on a local hard drive, usually in the WMA (Windows Media Audio) or MP3 format, it's time to transfer them to disc. You have two options for doing so, each of which produces a different outcome. We'll cover these options in the "Data CDs" and "Audio CDs" sections.

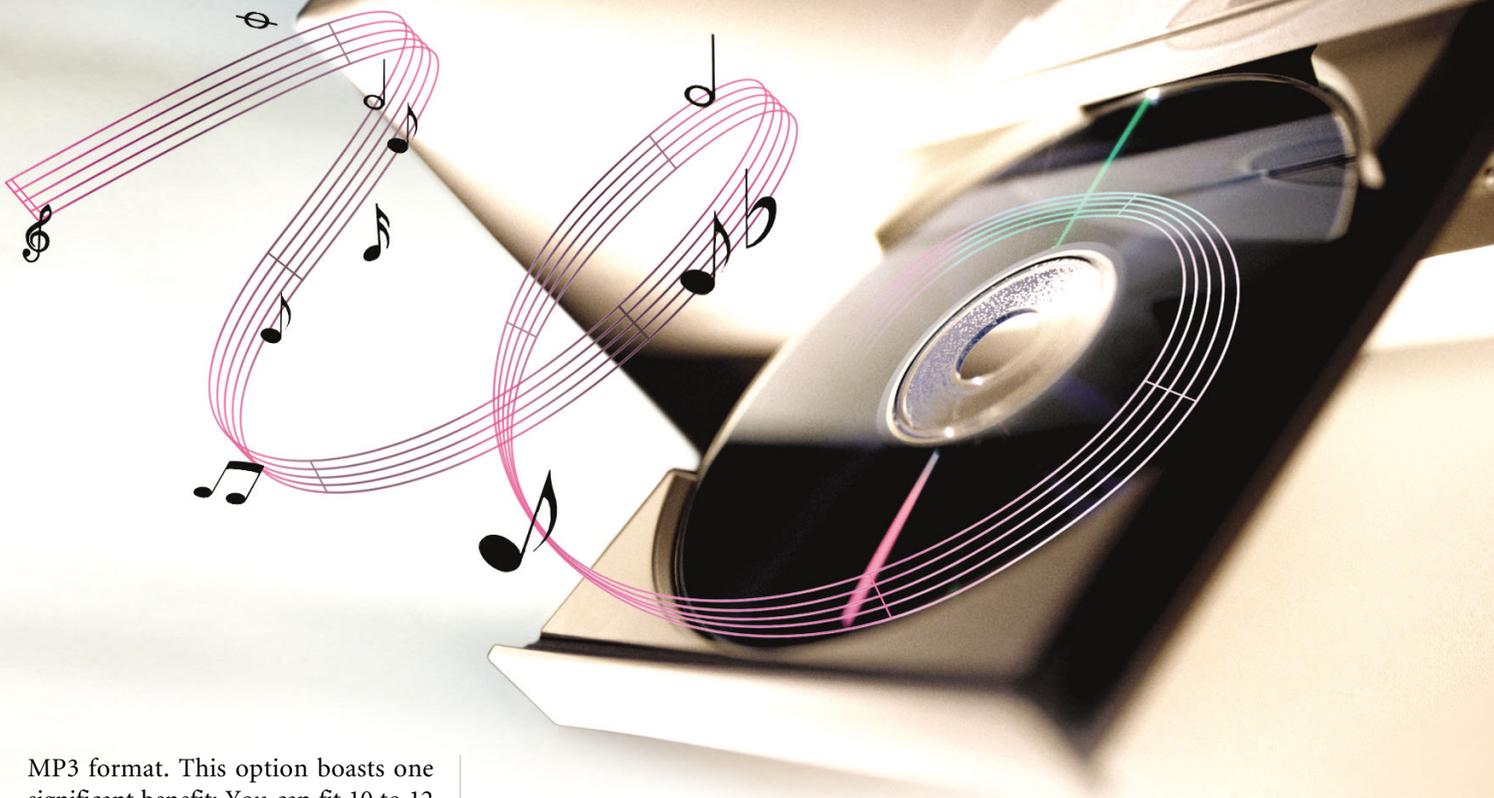
On a side note, we must say that we strongly discourage anyone from using a recordable/rewriteable drive for illegal purposes. Global sales of audio CDs have declined by more than 20% since reaching a peak in 2000. During that same period, computer users have vigorously embraced recordable/rewriteable optical technology. This isn't a coincidence. A recent POLLARA survey revealed that a full 35% of those who own recordable/rewriteable drives have admitted to downloading audio files from the Internet and recording them to disc. We recommend that you record only the tracks you obtained from your personal music collection.

Data CDs

The first option is to create a data CD by copying the audio files directly to the disc in their existing WMA or

Copying tracks from your favorite CDs is as easy as opening Windows Media Player and clicking Copy From CD.





MP3 format. This option boasts one significant benefit: You can fit 10 to 12 hours of music on a single disc. Who, while sitting on an airplane or working in a cubicle, wouldn't appreciate having the complete works of musicians such as Simon & Garfunkel or The Doors condensed to a wafer-thin, 4.75-inch platter?

The easiest way to produce such a disc is with the help of Windows XP's CD Recording feature. This feature lets you drag the desired tracks to the CD-R (CD-recordable) or CD-RW (CD-rewriteable) positioned in the optical drive. Insert a blank disc into the drive and, when prompted, opt to create a writeable CD folder. Next, use Windows Explorer to drag your favorite audio files from their location on the hard drive to the writeable CD folder. Double-check your selections and then click the Write These Files To CD option on the left side of the folder window. Follow the on-screen instructions that the resulting CD Writing Wizard presents to burn the selected files to disc. You can add content at a later date by returning to the wizard and running another recording session.

Keep in mind that such CDs are playable only on PCs and MP3-enabled audio CD players; they aren't supported by the vast majority of audio CD players. If you want to listen to

your audio files on most CD players, you need to use the second option.

Audio CDs

The second option is to create an actual audio CD. You can do so by converting the **compressed** (condensed so as to occupy less space) audio files to audio tracks. The primary difference between tracks and files is size. A WMA or MP3 audio file requires approximately 1MB of space for each minute of audio data. An audio track (sometimes referred to as a CDDA [Compact Disc Digital Audio] file), on the other hand, requires approximately 10MB of space for each minute of audio data. As a result, a typical CD recorded in an uncompressed CDDA format can accommodate a mere 75 minutes of recorded music. The payoff is that you can play such a CD on virtually any audio CD player you encounter.

Before launching into the burning process, you first need to determine whether you have the proper equipment. Most importantly, you need CD-R media. A substantial number of audio CD players cannot recognize data written on CD-RW media. For

this reason, we advise that you stick with the universally accepted CD-R media when burning audio CDs for playback in your home, car, and portable CD players. You also need an optical drive that's capable of writing data to CD-R media. Most can, but some CD-RW and rewriteable DVD drives cannot. Refer to the drive's users manual for information.

The third piece of equipment you need is a recording utility. We recommend using WMP's most recent version to burn the audio files to disc. Sophisticated audiophiles may benefit from an investment in a third-party program, such as Musicmatch Jukebox Plus (\$19.99; <http://www.musicmatch.com>) or J. River's Media Jukebox (\$19.98; <http://www.musicex.com>), that supports advanced features such as faster burning, cross-fading, and volume leveling. But average users will get along just fine with the free and readily accessible WMP.

Once you have all of the necessary equipment, organize your files as you want them to appear on the disc. Your best bet is to create a playlist. Click Media Library on the left side of WMP, open the File menu, and select

New Playlist. When the New Playlist window displays, type a name for the playlist in the Playlist Name field. Add tracks to the playlist by perusing the files listed in the left pane and double-clicking the ones you want; the selected files will appear as a list in the right pane. To change the position of a song on this list, highlight it and click the up or down arrow located near the bottom of the window. To delete an item from the list, highlight it and click the red X near the bottom of the window. When the Total Time counter approaches 75 minutes, click OK to preserve the list and close the New Playlist dialog box. The new playlist will appear in the Media Library.

Burning the files to disc is now a simple matter of clicking Copy To CD Or Device and selecting the playlist from the Items To Copy drop-down menu. Make sure each of the items in the playlist has a check mark next to it (if there are any files you wish to exclude from the CD, deselect them). When you're ready to burn your disc, close all other open files and programs and insert a blank CD-R in the optical drive. Verify that the Audio CD (in WinXP) or Roxio CD Burning (in Windows 98 and Windows Me) option is selected in the Items On Device drop-down menu and then click the Copy button in the upper-right corner. A status indicator will keep you apprised of the recording progress. You can expect to wait 10 to 20 minutes while burning an entire disc on most systems.



Before burning your audio CD, compare the playlist's total time to the number of free minutes available on the CD-R (CD-recordable). If your playlist is too long, as this one is, you can remove a track from the recording process by deselecting it in the Items To Copy pane.

For optimum recording quality, don't try to play the audio tracks while you record them. Also, keep in mind that you can't add tracks to a CD-R once the recording session is complete. (WMP automatically closes the session after the last track has been converted to CDDA format and copied to the disc.) That's why it's important to fill your playlist before burning the disc.

You can remove the disc from the drive when the recording process is complete. Create a label for the disc, if desired, and store the disc in its jewel case or another safe location until you

are ready to play it. The disc should work on all but the most outdated audio CD players.

Responsible Recording

You can repeat the recording processes described above as often as you like. Making personal copies of files you already own is well within your rights as a consumer, provided you don't attempt to sell or distribute your manufactured discs. ■

BY JEFF DODD

Should You Create An *Audio DVD*?

The burning question (pardon the pun) for many audio enthusiasts is whether they can record audio tracks to a DVD. The answer is yes but with several reservations.

You can use any disc-recording application, such as Ahead Software's Nero Ultra Edition (\$69.99 download; \$99.99 packaged; <http://www.nero.com>) or Roxio's Easy Media Creator (\$99.95; <http://www.roxio.com>), to copy audio files in WMA (Windows Media Audio) or MP3 format to a recordable or rewriteable DVD. In this case, the DVD serves as a portable data storage device.

Don't expect to play such discs on a CD player, a DVD player, or even an MP3-enabled DVD player. Playback is most likely limited to computers equipped with a DVD drive that supports the particular media involved.

As for recording audio tracks to a DVD, that requires the assistance of a pricey third-party program, such as Minnetonka Audio Software's discWelder STEEL (\$495; <http://www.discwelder.com>) and discWelder CHROME II (\$2,495), Sonic Solutions' DVD-Audio Creator (\$5,999; <http://www.sonic.com>), or Steinberg Media Technologies' Wave-Lab (\$699.99; <http://www.steinberg.net>). The

resulting disc, known as DVD-Audio or DVD-A, delivers a high-definition surround-sound experience. Unfortunately, you cannot play these discs on an audio CD player. Your PC and video DVD player may not support the format, either. It's likely that the only way you'll be able to play a DVD-A is by investing in a DVD player that specifically supports the format.

At this point in time, we discourage most computer users from investing heavily in DVD-A technology. The market for these discs will prove much more alluring when the format goes mainstream. ■

The Audio Conversion

Convert Analog Recordings To Digital & Make Everything Old New Again

Are your record and tape collections sitting under layers of dust, abandoned in the face of CDs, MP3s, and other digital music? Why not unearth those classics by converting them to a digital format so you can enjoy the hits of your past on CDs or portable digital music devices?

Analog vs. Digital

Records and cassettes store music in an analog format, which uses waveforms to capture and output recordings. Digital audio is stored like any other digital information: using binary computer code consisting of ones and zeroes that act as on and off switches. By stringing these switches together, you can command a computer to perform a variety of tasks. In the case of digital audio, the ones and zeroes reproduce analog waveforms by telling a DAC (digital-to-analog converter) what to do.

Manipulating the fidelity of digital audio is easy because users can simply crank up the **bit rate** (the number of ones and zeroes devoted to recreating each second of the original waveform). Bit rates are most often measured in Kbps (kilobits per second), and higher bit rates achieve better sound quality at the expense of more required storage space. To match CD-quality audio on a PC requires a bit

rate of 1,411Kbps and files that are stored in the WAV format.

Alternative Formats

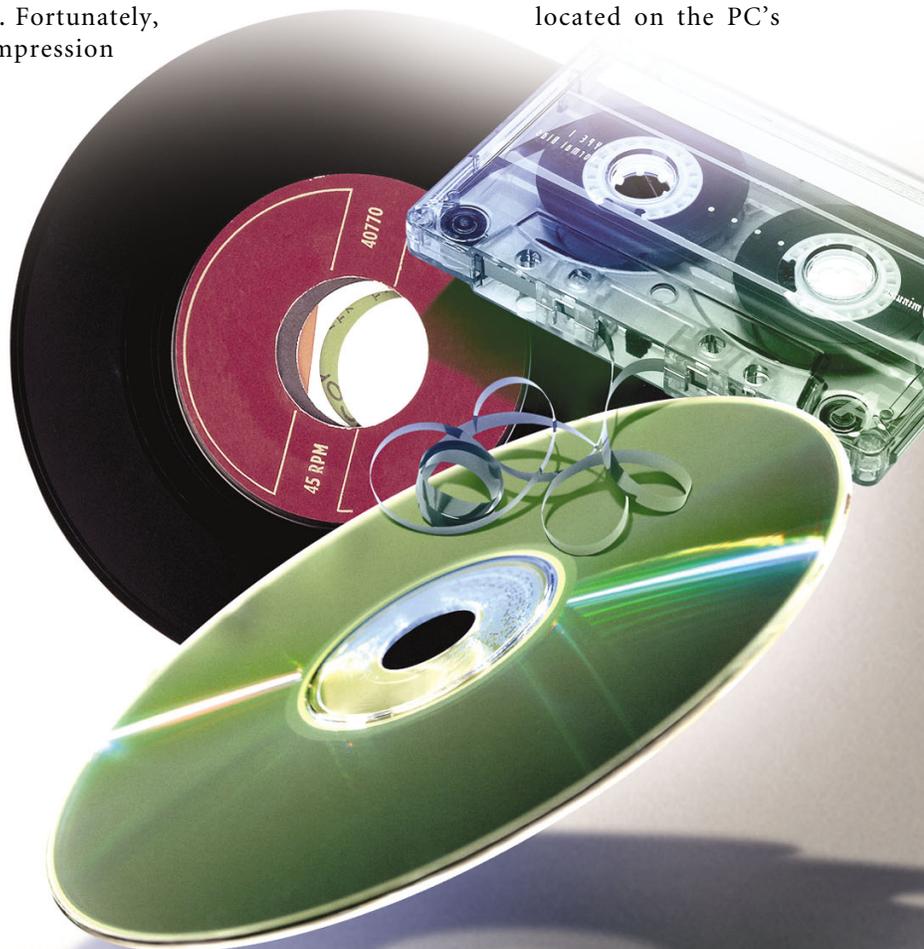
Storing files in the WAV format requires a great deal of empty hard drive space—about 10MB per minute. Fortunately, file compression

techniques can be applied to convert audio to a format such as MP3 or WMA (Windows Media Audio) so that very little audio fidelity is sacrificed but audio files require only about 1MB of storage per minute, making it possible to store 10 or more hours of music on a single CD.

Sound quality is always lost when WAVs are converted to MP3 or WMA files. It's best to record in WAV format if you have the storage space, edit the WAV file, and only then convert the file to a compressed format, preferably after archiving the original WAV file. In the steps that follow, we'll explain the entire process in detail.

Step 1: Obtain The Hardware

When recording, always use a computer's line-in jack instead of a microphone to retain the maximum sound quality. This jack is generally located on the PC's



sound card, but some PCs have integrated sound hardware so the line-in jack is on the back of the computer case next to the jack used to connect speakers to the PC. If your PC doesn't have a line-in jack, consider purchasing an internal or external sound card. Creative Labs (<http://us.creative.com>) and Turtle Beach (<http://www.turtlebeach.com>) both manufacture a variety of sound cards that fit any budget and have excellent recording abilities.

Check the hard drive to make sure it has enough room to hold the initial WAV recordings. Double-click My Computer (which is on the Start menu in Windows XP), right-click the icon representing the hard drive, and click Properties. Look in the Free Space entry to see how much space remains on the drive, keeping in mind that you'll need about 10MB per minute of recorded data and that there are 1,000MB in a gigabyte. If you need more room, an extra internal or external hard drive can solve this problem and provide some extra space for working with digital images and/or video, which also have massive storage requirements.

Finally, you need a cable that connects your analog playback device to the computer's line-in jack. In most cases, the best option is to purchase a cable that has stereo RCA jacks on one end and a 1/8-inch (3.5mm) minijack plug on the other end (that connects to the line-in jack). If the analog playback device has a minijack output port, get a cable that has minijack plugs on both ends. Make sure they are stereo minijack plugs on both ends, as mono plugs look deceptively similar.

Step 2: Connect The Hardware

Turn on your PC's speakers, attach the RCA plugs or stereo minijack plug to your analog output device, and then attach the stereo minijack plug on the other end to the sound card's line-in port. Double-click the yellow speaker icon (or the speaker icon associated with your sound card) in the System Tray and adjust the line-in volume to

between 80% and 100% of its maximum setting. Start playing the analog music you want to record, and you should hear music coming from the speakers. If not, check to make sure the line-in volume isn't muted and all the cable connections are inserted in the correct jacks.

Step 3: Record

Windows comes with a rudimentary sound-recording program, but we opted for Roxio's Easy Media Creator 7 (\$99.95; <http://www.roxio.com>) because it has all the tools a user needs to record and edit audio, burn tracks to a CD, and work with video and recordable DVDs. Easy Media Creator 7 is only available for WinXP and Windows 2000. If you have an older OS (operating system) and/or want to save some money, consider the free Audacity program (<http://audacity.sourceforge.net>). If you decide to use Audacity, read the instructions to configure it for stereo recordings because it defaults to mono mode.

To launch Easy Media Creator 7's recording software, click Start, All Programs, Roxio, and Sound Editor. Click Tools, expand Playback Device, and select the device that the cables are connected to. Follow the same directions for the Recording Device and Recording Source entries of the Tools menu. Cue up the loudest passage on the record or tape you want to record, click the Record button in the Sound Editor, and play the passage. Carefully watch the bars on the left to see whether they turn red at any point, and if they do, move the Record Level slider to the left until the loudest passage lights up the yellow level of the bar but rarely strays into the red level.

When the record level is set properly, click the Stop button, open the File menu, click Close, and don't save the recording. Instead, rewind the tape or reset the record needle, click the Record button, play the tape or record, and wait for the recording process to complete. When it does,



click the Stop button in Sound Editor, and if it appears to stop responding, give the program a few minutes to digest all of the data it was just fed.

Step 4: Edit

Now you have a huge chunk of recorded data that you probably want to slice up into separate tracks for easy labeling and playback. Click Tools, click Auto Locate Tracks, and then wait as the software scans for silent passages and automatically inserts track breaks when it finds them.

If you don't have Easy Media Creator 7, use Audacity or another WAV editor to manually search for silence (represented by flat sections of the waveform) and create separate tracks manually. To add manual tracks in Easy Media Creator 7, click the waveform portion where you want to add the track break, click Tools, and click Insert Track Break.

The next part of this step is normalization, which increases or decreases the maximum volume level of each track so that they all have the same maximum volume relative to one another (which keeps you from having to reach for the volume knob every time a new track plays). Click Edit, Select All, Tools, Apply Effect To Selection, and Normalize. Normalizing a long track takes several minutes.

If the audio came from a record that had many pops and/or clicks, consider



Sound cards, such as this Sound Blaster Audigy 2 ZS (\$99.99) from Creative, are essential for making high-quality recordings of your analog music.

applying a noise removal filter to remove the extraneous sounds. This can be detrimental to the overall quality of the recording, so you should only use it when necessary (but most algorithms in use today do much more good than harm). Click Edit, Select All, Tools, Apply Effects To Selection, and DeClick. Use the DeClick slider to apply increasingly aggressive levels of click removal, or use the DeCrackle slider to do the same thing to crackling noises commonly heard in the background of records. Click Play to preview the settings or click OK to apply them.

Step 5: Convert

Now that you've divided and edited the tracks, click File and Save All Tracks. Navigate to the folder where you want to save the tracks, and use the Save As Type drop-down menu to choose a format based on your needs. If you want to archive the recordings and keep them in pristine condition, select WAV and click Save. Navigate to the folder where the files are now stored, right-click the file name, click Rename, and name each of them after the appropriate track on the original album.

To save the files in a compressed format, select MP3, WMA, or OGG (Ogg Vorbis), depending on what your playback hardware supports. Leave the Encoder setting at its default value, but consider moving the Compression Settings slider to a value of 128Kbps or

larger. Remember that larger bit rates have higher sound quality but consume more hard drive space. If you see a Variable Bit Rate option, you should select it only if your playback software supports VBR (variable bit rate) recordings. These have better sound quality than CBR (constant bit rate) recordings that use similar bit rate settings but take up slightly less hard drive space. Click Save when you finish.

Compressed music files can use ID3 tags, which store detailed track information. Easy Media Creator 7 isn't ideal for editing tags, so we recommend the free Mp3tag (<http://www.mp3tag.de/en>). Run the software, use the Folder drop-down menu to navigate to the files you want to add ID3 tags to, click the name of the file in the pane on the right, and enter the information in the fields on the left. Click File and Save to save your changes.

Step 6: Burn

You can now use your PC to listen to the digital music files or transfer them to a portable digital music device (such as Apple's iPod), but many people like to **burn** (copy) the files to CDs using a CD-R (CD-recordable) or CD-RW (CD-rewritable) drive or a recordable DVD drive (which also records to CDs). An ever-increasing number of in-dash car CD players and standalone DVD players can handle burned CDs that contain WAV files, but very few can play music stored on CDs as MP3s or other compressed formats.

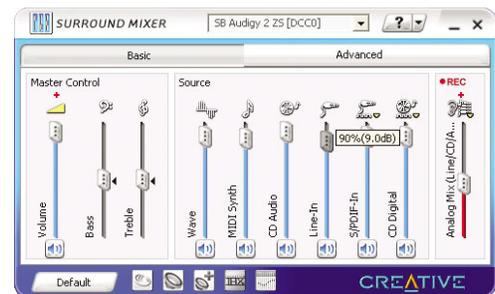
From the Start menu, click All Programs, Roxio, and Creator Classic. In the Common Projects pane, click Audio CD if you want to create an uncompressed WAV CD for playback in a home or car CD player or click MP3 Disc if you want to create a CD full of compressed music. Navigate to the folder containing the audio files in the Select Source pane, drag individual files to the Audio CD Project or MP3 Disc

Project pane, and then drop the files there to create a list of tracks. The blue bar at the bottom of the window (as well as the text below) lets you know how much of the disc the selected tracks require and how much space is left. When the disc is full or all your tracks are in the Disc Project list, insert a blank CD in your recordable optical drive and click Burn.

The default options should work well, but you can click Details if you want to adjust them. Check to see that the Write Speed entry matches the maximum write speed of your recordable optical drive and enable Buffer Underrun Prevention (if your drive supports it) to reduce burn errors. Click Burn when you finish and wait for the recording process to complete.

Two-Way Street

Most people don't think of going from digital to analog, but now that you've invested in the hardware and software necessary to convert audio to a digital format, it's fairly easy to



Don't set the line-in volume too high or your recording will become much too loud and lose most of its dynamic range.

output digital music to an analog format. This is helpful if you want to make tapes of your digital music for playback in an older car. Just connect a tape player to the sound card's line-out jack and play the audio on your PC while the tape player is recording. Hey, when it comes to digital audio, the possibilities are endless. ■

BY TRACY BAKER

You're The Director

Capture Video, Edit It
& Burn Your Masterpiece To DVD



At one time, talking about burning your home movies usually meant one thing: As a teenager, you didn't want anyone to know that your summer vacation consisted of seeing Dad in plaid shorts with black socks and sandals while your siblings "swam" in the ducky-decorated wading pool in Aunt Patty's backyard. Unfortunately, no matter how hard you tried to avoid it, Mom always managed to capture you in the movie, sulking in the background or—even worse—jumping in the wading pool during a weaker moment. Burning the movie (as in throwing it into the fireplace) was the only option (at least in your mind).

Today, burning movies—at least burning them to DVDs—is perfectly acceptable. With the correct hardware and software on your PC, you can take older movies on VHS tapes or newer DV (digital video) movies and **burn** (or copy) them to DVD. Best of all, you can use DV-editing software to remove or change any portions of movies that you find embarrassing. Granted, you can't make a wading pool look like an exciting water park (at least not very easily), but you can crop out Dad's black socks.

Creating DVDs from your home movies does require some high-end computing equipment, but most newer PCs have the necessary hardware already included. Software available for burning DVDs varies from low-end to high-end packages, and you can make the editing process as simple or complex as you want. We'll keep things simple by using Ulead VideoStudio 8 from Ulead Systems (\$99.95; <http://www.ulead.com>) to present the steps necessary to burn DVDs via your home computer. (For our suggestions about how to shop for DV-editing software, see our "Choosing A Software Package" sidebar.)

Get The Hardware

To burn DVDs, you'll need plenty of hardware, starting with a recordable/rewriteable DVD drive.

DVD burner. Many newer computers come with recordable/rewriteable DVD drives already installed. If you aren't that lucky, you can purchase an internal or external DVD burner.



Select a template for your movie file to give your DVD a more professional look.



Use the video preview area in the Create Disc dialog box to see how your video looks.

If you're considering an internal DVD burner, you'll either need to use an empty optical drive bay or replace a recordable/rewriteable CD drive. (DVD burners also can burn CDs.) Installing an internal DVD drive can be a tricky process, especially if you aren't familiar with PC hardware installation techniques.

External DVD drives are easier to install, but you'll need a free FireWire or USB (Universal Serial Bus) port to make most DVD burners work. Older computers probably won't have such ports, so you may need to install an expansion card. This isn't an overly difficult process, but it is something that some people may not want to tackle alone. Bottom line: You may need to budget some extra money for the professional installation of a recordable/rewriteable DVD drive.

When selecting a DVD burner, you'll also want to make sure it can burn discs in a format (DVD-R, DVD+R, etc.) that will play back on the DVD player of your choice. Check your DVD player to match its preferred format to your DVD burner. Most newer DVD burners can handle a wide variety of formats, so this isn't as big of a potential problem as it was a couple of years ago.

Video card. Make sure your PC has a video card that can handle the type of video input you want. If your PC



Ulead VideoStudio's Movie Wizard provides access to several sample video clips and images that you can insert into your movie file by using its Library.

and your DV camcorder both have FireWire or high-speed USB connections, your video card should be able to handle the video input. But if your DV camcorder only has RCA video and audio output or S-Video output, you might need to purchase a video card that can handle these types of connections. Some video cards can even capture video directly from a VHS tape in a VCR with the correct A/V (audio/video) input/output ports on the card.

Don't forget that your video card may not be able to directly capture audio input. You'll need to make sure your audio card has the proper connectors and audio capture capabilities, too.

Video conversion. If you're planning to convert VHS tapes to DVDs, you

can simplify the overall process by purchasing an external video capture device. These hardware devices accept input from a variety of sources (including VCRs and older camcorders), make any necessary conversions to digital video, and copy the data to your computer. Most external video capture devices can accept a variety of input connectors, but most use FireWire or high-speed USB to transfer the DV data to the computer.

These devices are especially handy because they handle the video and audio conversion together and greatly simplify the process of creating digital video. Also, because they're external devices, you don't have to worry about trying to install another piece of hardware, either. On the downside, these video capture devices can be pricey, so you probably won't want to purchase one unless you plan to burn quite a few DVDs.

Computer specs. Finally, you'll want to make sure you have plenty of computing power because DV editing and burning DVDs will push your computing hardware to the limit. Working with digital video requires a ton of hard drive space, system memory, and a powerful processor. Don't try editing digital video on an older computer with a small hard drive; you'll just end up extremely frustrated.

Beyond using a PC with a large hard drive, we suggest that you make sure your computer exceeds the system requirements on the DV-editing software package you choose. The best way to do this is to follow a software developer's recommendations rather than its system requirements. For example, although VideoStudio 8's system requirements are much lower, the software developers *recommend* at least a 2GHz Pentium 4 processor, 512MB of RAM, and 4GB of free hard drive space for the best performance.

Make Movie Magic

With all of your hardware installed and connected, you can begin using



Before you burn your DVD, use the software to create a layout and style for your video.

your software to capture video. The fastest way to load raw digital video into VideoStudio 8 and create a movie file is to use its VideoStudio Movie Wizard. You can access the wizard through VideoStudio's opening screen. The Movie Wizard's most prominent features are the video preview screen and the timeline area (the latter of which lets you arrange video clips in the order you want).

Capture video. If you have raw video to capture from an outside source, such as an external video capture device, click the Capture tab. Open the Source menu from the upper-left corner of the window and choose the input device you want to use. From the Format menu, select the format in which to save the file. Then click the folder icon to tell VideoStudio 8 where to save the captured file.

Add video and/or images. With your DV files saved on the hard drive, click the Edit tab and the Insert Video icon. Next, select the storage location and click Open.

You can add still images to your movie file, too. Click the Edit tab, followed by the Insert Image icon. Select the

storage location for the image and click Open.

If you want to use some of the video and image files that Ulead included as part of VideoStudio 8, click the Library button to see some of the available samples. Just drag and drop the sample you want to use on the timeline.

Editing options. Click the Auto Edit Options button to tell the Movie Wizard how to handle your video clips and place a check mark next to the command you want to use.

For example, you can direct the Movie Wizard to automatically remove portions of the video clips that are of poor quality by selecting the Auto Trim Each Clip checkbox. Or select the Split By Scene checkbox to have the Movie Wizard automatically create scenes within your video clips.

To remove a video clip from the timeline, highlight it and click the X button along the bottom of the wizard's dialog box.

Add features. After making your editing selections, click the Next button. The Movie Wizard then lets you add external features that will make your DVD look more professional. For instance, you can use a

template to create a title screen and include scene listings. Choose a template from the Style Template menu and then click the double-arrow button near the lower-left area of the dialog box to gain access to text- and menu-editing tools.

Output. Finally, click Next to select how you'd like to output the movie file. You can create a video file that's stored on your PC's hard drive (by clicking the Create Video File icon), burn a DVD or Video CD (by clicking the Create Disc icon), or make additional changes to the video file (by clicking the Edit In Ulead VideoStudio Editor icon).

DVD Burn Is A Go

When you're ready (and your video is ready), click the Create Disc icon to prepare to burn the DVD. Select the type of disc you want to burn from the menu along the top of the dialog box.

There also are a few additional considerations presented in the Create Disc dialog boxes. For instance, you can click the Add/Edit Chapters icon to insert chapters in your movie file. Click the Auto button to have VideoStudio 8

Choosing A *Software Package*

Although we use Ulead VideoStudio 8 as our software example in this article, you're free to choose from a wide variety of DV (digital video)-editing applications. If you're new to DV editing and DVD burning, you'll probably want to select a low-price, user-friendly software package. As you become more familiar and competent with DV editing, you then may want to upgrade to a more expensive package that has high-end features. Don't automatically ignore sub-\$100 packages because of their low price tags;

the latest versions of many inexpensive DV-editing applications have added dozens of features that were only available through high-end packages just a couple of years ago.

Before making your choice, we also suggest that you examine several packages in your price range, looking for a few key features.

Input support. Make sure the software works well with the type of input you need to use. For example, some software may not support your external video capture device.

File formats. The software you choose should support several file formats, both for input and output. Although you'll probably need only one or two formats initially, you may find that you need to use several other formats later as you share your DV data with others.

Camcorder support. If you want to connect your DV camcorder directly to your PC, make sure the software you choose supports the brand and model of your DV camcorder. ■

create the chapters at logical breaks in your movie file. (If you later want to delete a chapter, highlight it and click Remove.) Click OK when you finish creating chapters and click Next.

You now can edit any text that appears in the movie file by clicking the text string in the video preview window and typing the new text in the pop-up window. Click the Font button if you

handy if you plan to burn the file to DVD again at a later date. You also may want to give the DVD a unique name in the Volume Name text box. In the middle of the dialog box, select the drive that will burn the DVD and a burning speed. To start burning the DVD, click the Output button. (To abort the DVD-burning process, click the Close button.)

timeline. Use the buttons along the left side to tweak the transition effects.

Overlay. Use the Overlay tab to create picture-in-picture presentations, which can include filters and special effects if you wish.

Share. After you finish editing your movie file, you're ready to create the final product. Click the Share tab and select exactly how you'd like to store the movie file. Click Create Disc to start the DVD-burning process we described earlier.



The VideoStudio Editor, a feature set found in VideoStudio 8, has advanced controls that provide some polish. For example, click the Audio tab to add a voiceover recording to your video file.



To insert an image or video file while using the VideoStudio Editor interface, simply drag and drop an item onto the timeline that stretches across the bottom of the window.

Perfection Takes Time

One thing to keep in mind with DV editing: It's time-consuming. Even if you're simply converting VHS tape to DVD, it'll probably take two to four times the length of each video clip to make the conversion and burn the DVD. If you're doing any editing or special effects, the process can take even longer.

want to change the text style. When you finish, click OK to save your changes to the text.

In addition, VideoStudio 8 provides dozens of templates along the right side of a Create Disc dialog box to give your DVD a more polished look. Open the Menu Template menu to change the style of a template. To change the template's layout, click the Customize button. After finalizing your template, click OK. To add a background image or music file, click the corresponding icon along the bottom of the dialog box. Click Next.

VideoStudio 8 will then present a video preview window, complete with controls that are similar to a DVD player. Here, you can give your movie file one final test run. If you don't like the results, click Back to make the necessary changes. Otherwise, click Next.

Along the top of the next dialog box, select your preferences for saving the file to your hard drive, which can be

VideoStudio Editor

If you have some extra time and you want to add some pizzazz to your DVD, use the VideoStudio Editor, a feature set found in VideoStudio 8 that presents some advanced techniques you can use to spice up your video. You'll find some features here that are similar to what's available in the Movie Wizard, but VideoStudio Editor's features are more extensive. You can open the VideoStudio Editor through the software's introductory window or through the Movie Wizard.

We'd probably need about half of this magazine to tell you about all of the available editing options, but we don't have that luxury, so we'll just cover some of VideoStudio Editor's main features.

Effect. You can place transition effects between your video clips within a movie file by dragging the effects from the right side of the window onto the

Plus, an older, slower computer will take much longer to convert and burn video files. Also, make sure all other programs are closed before beginning the burning process. Your DVD burn will go much smoother if the PC has access to as many of its resources as possible.

Finally, don't be in a big hurry to burn the DVD. Recordable DVD media costs a few dollars per disc—an expensive amount compared to recordable CDs—meaning you'll want to take your time during the editing process to ensure the video file is exactly what you want before you begin burning. If you play your DV-editing cards right, your teenager may not have anything to complain about when he views *your* home movies . . . no matter where you took your summer vacation. ■

BY KYLE SCHURMAN



PC Project:

It's Getting Hot In Here

Install A Heat Sensor & Readout Panel

Last month, we talked about installing aftermarket products that can help your CPU stay cool. But how do you know they're working? And how can you crank up the fan when you're demanding a lot from the processor and revert to a quieter mode when idling along? Heat sensors with front-panel readouts help you keep an eye on the temperature inside the case, and many models offer fan controls and warning alarms, as well. Such accessories used to be expensive and complicated, but they have become very affordable and simple to install. We'll show you how to put a heat sensor to work in your machine.

The motherboard derives the "temperature" from a formula based on clock speed and laboratory tests. In the open air of the lab, certain clock speeds create certain temperatures.

But why are aftermarket heat sensors and readouts necessary in the first place? After all, current motherboard models include utilities to monitor and report CPU temperature. Many even offer automatic shutdown options to prevent damage in the case of overheating. So why duplicate functionality? The answer is easy: Motherboard temperature gauges are notoriously inaccurate. Such systems don't actually have heat sensors at all. The motherboard derives the "temperature" from a

formula based on clock speed and laboratory tests. In the open air of the lab, certain clock speeds create certain temperatures. Based on that information, manufacturers create algorithms guessing at the temperature in the confined spaces of your case. Chances are you don't want to bet your new Athlon that those assumptions hold true under real-world conditions. Aftermarket products provide readings from real heat sensors physically connected to the CPU and other key components and add the ability to control fan speed in the process.



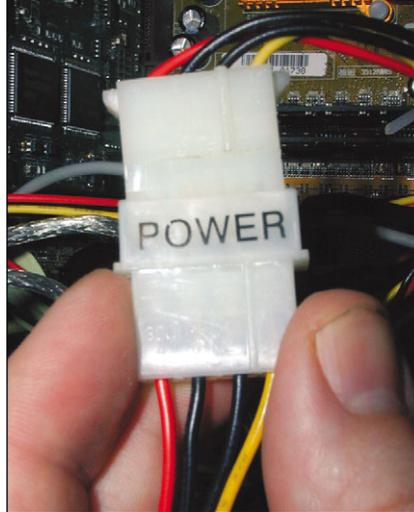
Heat sensors with front-panel readouts, such as Vantec's NXP-101, are inexpensive and easy to install.

Setup & Preparation

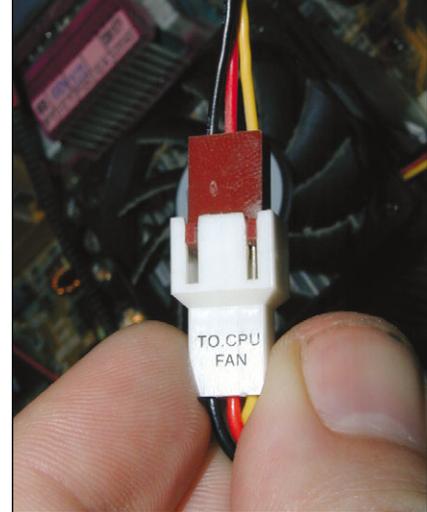
So you're sold: A heat sensor with readout is for you. To find one, check local computer hobby stores or online retailers (such as Newegg.com [<http://www.newegg.com>]). Search sites such as Price Watch (<http://www.pricewatch.com>) to find the best deal amongst hundreds of stores. Expect to pay between \$25 and \$40 for a full-featured model. Manufacturers include Vantec (<http://www.vantecusa.com>),



Connect the panel's connectors to the motherboard for interfacing with other system components.



Attach the panel to the power supply connector previously dedicated to the CPU fan.



Connect the CPU fan assembly to the panel to supply power and control the cooling system.

and Cooler Master (<http://www.cooler-master.com>).

Step-By-Step

We used a Vantec NXP-101 Nexus for our project. Most models will be quite similar in setup and usage, but let the instructions guide you. Defer to the manufacturer's documentation when our suggestions differ.

Shut down your PC and disconnect the power supply. Open the case using the cover screws or knobs so you have access to the CPU/heatsink and the case's front. Ground yourself on the metal chassis or use an antistatic strap before touching any components.

Following the documentation's diagrams, connect the various wires to the display panel's rear. You'll connect at least one temperature sensor, a power connector, a fan connector, and perhaps USB (Universal Serial Bus) or FireWire connectors (if your model adds extra front ports for those standards). Remove an open drive bay cover (usually by pushing the plastic piece out from within the case) and feed the panel's wires into the case from the front. Don't snap the panel into place yet. It's easier to work on the wiring while the panel is still outside the case.

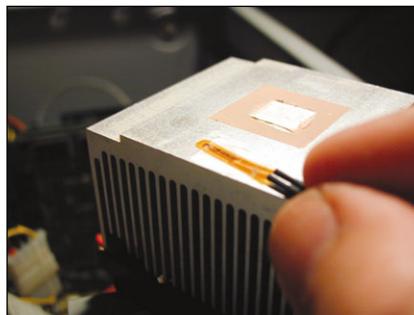
Disconnect the fan from the power supply or motherboard. Follow wires coming from the cooling fan and detach them. You'll hook the fan up to the front panel shortly to provide power and a connection to the motherboard.

Remove the heatsink/cooling fan unit from the CPU. Carefully pry loose the latch holding the heatsink unit to

the processor's socket. You may need to clear the latch from the socket's hook with a flat-head screwdriver or other tool, taking care not to damage the socket or the motherboard. The heat-sink and CPU may be attached with thermal paste or other adhesives. Very carefully pry them apart, if necessary.

Tape the heat sensor to the CPU. Stay clear of the actual processor die (the tiny square in the CPU's center). The heatsink must make contact with the die to draw enough heat to prevent system failure. If you put a sensor between the die and heatsink, you'll get a very brief, very high temperature reading right before the processor melts. Tape the sensor to the edge of the heat-sink or cooling fan's bottom where it will sit on the edge of the CPU. Connect other sensors according to instructions.

Connect the panel's motherboard cable to the appropriate fan connectors on the motherboard. Normally, this will be in the same position as the fan's motherboard connection. Check the motherboard's documentation and diagrams if you aren't sure about the fan jumper's location. Some front panels



Attach the sensor to the bottom of your heatsink, staying away from the processor die.

also add extra USB or FireWire jacks. In that case, connect the cables to your motherboard or expansion card's internal jacks. Use cable ties to create airflow and keep wiring clear of obstacles.

Bring power to the front panel. Attach an open power supply connector to the panel's designated port. This connection will supply power to the LED (light-emitting diode) readout, any extra ports, and the cooling fan.

Connect the fan to the panel. This connection will pass both power and the motherboard connection from the panel to the fan, with the added benefits of fan speed control and monitoring.

When the wiring is complete, snap the readout panel into the open bay. Push the panel in until it catches and sits flush with the PC's front. Tie up any loose cables, double-check all connections, and reattach the case cover.

Plug the power supply into the wall and boot up. You should get LED readouts, starting from about 30 degrees Celsius (a running temperature below 50C is best). Test all of your sensors, fan speed controls, USB or FireWire ports, and other features. Configure warning levels or software options following the manufacturer's instructions.

Closing Up Shop

Installing a heat sensor with readout panel is a efficient way to monitor your PC. You'll know when things are heating up, get warning if cooling components fail, and gain the ability to control the fan speed (and CPU temperature). ■

BY GREGORY ANDERSON

Microsoft Excel 2002

5 Tips For Formatting Cells

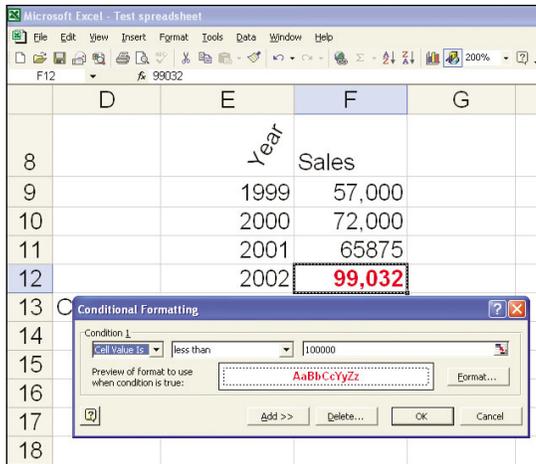
Spreadsheet

Beginner

2002 for
Win9x/NT
4.0/2000/XP

After about a week of using Excel, you figured out that you could apply something like a gazillion formats to information. By choosing Format and Cells, you determine whether days of the week appear with dates, how many decimal places numbers include, what borders cells have, and more. (For faster access to the Format Cells dialog box, right-click a cell and choose Format Cells. Or, faster yet, press CTRL-1.)

Those basics are essential, but if you're a budding power user, you need to have the following skills, a good sampling of the techniques that can make formatting much faster and more useful.



Make those underperforming cells easy to spot by setting up conditional formatting to change a number's color when it deviates from an acceptable level.

active until you click it again. If you select a block of cells with varying formats, Format Painter replicates the formatting exactly in the target block.

Create Your Own Style

If you develop a preferred cell format that includes many factors, create a style that lets you apply all of those elements with one step. Choose Format and Style. At the top of the dialog box, enter a name for your style. Click Add and Modify to start defining your style. Use the items on each tab to set the font, border, alignment, and other factors that will apply to cells defined with your style. To apply your style, highlight the cell, choose Format and Style, choose your style's name from the drop-down list, and click OK. To return cells to

the default style, choose Format and Style and choose Normal from the drop-down list.

Let Formats Tell The Story

Conditional formatting makes it easier to pick out important points from large bodies of data. Let's say you need to know when a sales region's results fall below a certain level. Format the regional total cells to highlight the number in red if it falls below a certain value. Even if the number falls below the threshold and climbs above it again, the formatting remains, ready to be applied when the number steps out of line.

Choose Format and Conditional Formatting. Use the data boxes to set up the criteria that trigger the conditional formatting. Click Format to indicate what should happen when the criteria are met, such as the font turning red. Click OK.

Excel provides a couple of slick ways to help if you lose track of which cells in a big worksheet have conditional formatting. To find cells with conditional formatting like that of a cell you've selected, choose Edit and Go To and click Special. Click the Data Validation radio button and click All or Same, depending on whether you want to find cells with any conditional formatting or just those that match your selected cell.

Finding Formatting

Let's say you made a formatting change and decided you didn't like it, but you don't remember all the cells that need updating. Let Excel find them for you. Choose Edit and Find. Click Options and the arrow beside the Format button and choose Format. Set the items you want to look for. Click OK and Find All in the Find And Replace dialog box. At the bottom of the box, a list will show the cells that match the formatting parameters you entered.

Back To The Beginning

If you're in too deep with a variety of formatting changes and don't want to restore things manually, do it in one step. The solution is *not* highlighting the cell and pressing DELETE. To wipe cells completely clean of formatting changes, select them, choose Edit and Clear, and click Formats. ■

BY TREVOR MEERS

Paint Shop Pro 8

Working With Text

Image Processing

Beginner

8 for
Win98SE/NT
4.0/2000/Me/XP

You probably think of Paint Shop Pro as a graphics program—because it is. Paint Shop Pro is a sophisticated digital-imaging tool. But text can be an important visual ingredient, whether the graphic is a corporate logo, a photograph with a text caption, or some other image with a text element.

Let's start with a blank page, which will let us try various text options without interference from other graphical elements. Select New from the File menu. In the New Image dialog box, click OK and

make sure all of the basic tools and palettes that relate to the Text Tool are open. Click the Text Tool from the Tools toolbar on the left (if the Tools toolbar is not open, go to

View, Toolbars, and Tools); go to the View menu and select Palettes and Materials (if the Materials palette is not yet open); and go to the View menu and select Palettes and Tool Options (if the Tool Options palette is not yet open).

Each text character will be composed of two components, the text outline and the text fill (the area within each character). We'll start by creating black text. To choose a black outline, select the Foreground And Stroke Color box in the Materials palette. In the Color dialog box, click the 6 x 8 grid's upper-right corner, where all

three values for R (Red), G (Green), and B (Blue) are set at 0 and click OK. Click the Background And Fill Color box in the Materials palette and follow the same procedure to choose a black fill.

Click the blank canvas to open the Text Entry dialog box. Begin typing in the dialog box, and the text displays on the part of the image you clicked.

Completely black text is nothing to sneeze at, but it's nothing to write home about, either. Paint Shop Pro includes hundreds of outline and fill combinations, including Transparency, Asphalt Texture, and Checkerboard. Leaving the foreground color black, we'll change the fill color to Animal Tiger. Open the Background And Fill Color dialog box and click the Pattern tab. In the large box on the left, select Animal Tiger. Click OK.

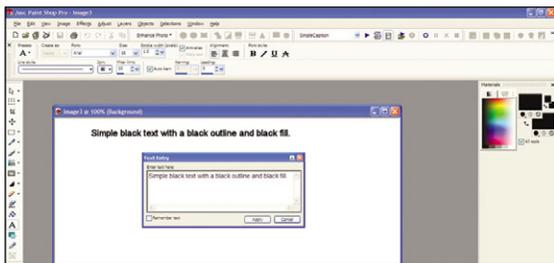
The type now consists of a tiger pattern surrounded by a black outline. Because of the size of the type, you may not be able to see it clearly. Make it more visible by enlarging the font size. In the Tool Options palette, select, say, 48 from the Size drop-down menu. This palette also lets you change other type characteristics. By default, the font is Arial, but you can select from others via the drop-down menu. You can also choose icons under the Font Style area to change to bold, italicized, underlined, or strikethrough text. If you prefer text without an outline, set the Stroke Width to 0.

Because we were creating our text on a new, blank image, we did not need to choose the text type, but now's a good time to review the differences between vector and raster text. **Vector images** use geometric characteristics to define objects. They scale well and are often used in logos. **Raster images** are composed of pixels in a grid and are often used for images such as photographs because they show off subtle changes in tones and colors.

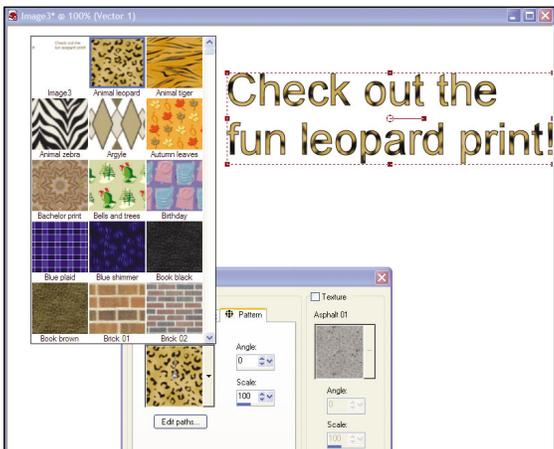
In general, you'll use vector images when you want to edit the object separately from other objects in an image, which is typically the case with text. You'll usually want to make sure you select the Vector setting in the Tool Options palette's Create As drop-down menu. (In fact, this is the only option available when you open a new image; the menu is grayed out.) On rare occasions, you may want to create raster text on a new raster layer, in which case you'll select the Floating option from the Create As drop-down menu.

You now have the basics of working with text. But there's plenty more you can do, such as applying effects, moving text, and converting text to curves. Next month, we'll cover a few of the more sophisticated text features in Paint Shop Pro. ■

BY HEIDI V. ANDERSON



Paint Shop Pro text has two main components: the outline and the fill.



Get wild and crazy by filling text with an animal pattern.

WordPerfect 10

Bookmarks & QuickMarks

Office Suites

Intermediate

2002 for Win9x/
2000/Me/XP

Regular computer users have become accustomed to jumping from place to place online with relative ease. You can add the same hyperlink-like functionality to your WordPerfect documents.

WordPerfect offers two fast transports for use within the document: bookmarks and QuickMarks. Bookmarks mark spots in documents that readers can jump to; you can put several in one document. QuickMarks do much the same thing but are meant more for document authors to designate where they leave off from one work session to another.

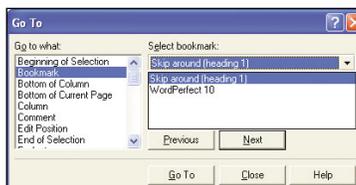


Create and manipulate bookmarks quickly and easily.

Save Your Place

WordPerfect bookmarks are particularly useful for long documents, where you might want to be able to navigate quickly and easily from point to point. With WordPerfect, you can create multiple bookmarks and give them individual names so they are easy to distinguish from each other.

Click where you want you insert a bookmark. From the Tools menu, choose Bookmark. The Bookmark dialog box pops up. Click Create. Up pops another dialog box, this one titled Create Bookmark. The Bookmark Name field displays the text immediately following the insertion point you specified. This is just the default. Feel free to enter a different name and then click OK. If you choose to leave it blank, WordPerfect inserts a QuickMark instead (more on QuickMarks later).



WordPerfect makes it easy to access your bookmarks.

Another use for bookmarks is to mark selected text. If you're working on a document with time-sensitive material, you may want to bookmark key selections that you'll need to regularly update. When you jump to that bookmark, the text is already selected and ready to edit.

To insert a bookmark using selected text, select the text in question. Open the Bookmark dialog box through the Tools menu. Click Create again to open the Create Bookmark dialog box. You'll notice that this time, the Selected Bookmark checkbox is already enabled. If for some reason it is not, close the dialog boxes and select the text again. This checkbox is what ensures the text is selected when you jump to that bookmark.

Jump The Queue

To revisit a bookmark, open the Bookmark dialog box, choose one from the list, and click Go To. If you created the bookmark with selected text, you can choose Go To & Select to have it already selected when you get there or choose Go To just to jump to that section.

WordPerfect also incorporates Bookmarks and QuickMarks into the Go To feature. To open the Go To box, press CTRL-G. Click Bookmark from the Go To What list, and a list of available marks appears as a list under Select Bookmark. Pick one from the list and click Go To.

Retag Territory

It may be necessary to rename, move, or delete a bookmark somewhere along the way. To move a bookmark, click where you want the new insertion point. Open the Bookmark dialog box, select the desired bookmark, and click Move. Renaming is just as simple. Through the Bookmark dialog box, select the bookmark and click Rename. Type the new name in the Rename Bookmark dialog box and click OK.

When you're ready to delete a bookmark, open the dialog box, select the bookmark chosen to get the boot, and click Delete. WordPerfect will ask whether you are sure. Click Yes to confirm.

QuickMark The Spot

A QuickMark is more like a real-life bookmark: with only one per document, it saves your place in a long file when you leave so you can pick right up again later. Click the desired insertion point and go back to the Tools menu. Choose Bookmark again, but this time, click Set QuickMark when the Bookmark dialog box opens.

WordPerfect can also automatically create a QuickMark where the cursor is every time you save. Open the Bookmark dialog box. Place a check mark in the Set QuickMark On File checkbox. If you want WordPerfect to immediately jump to that spot when you open the document, check Go To QuickMark On File Open also. Otherwise, you can press CTRL-Q to find the QuickMark.

With Bookmarks and QuickMarks, you can give that scroll bar a rest. Stop hunting for your place and mark it instead. ■

BY ANNE STEYER PHELPS

Browsers

Keep Tabs On Your Privacy

Browsers
Intermediate
Internet
Explorer 6

Online privacy might seem like an oxymoron in today's ever-connected world. As with any Web browser, Internet Explorer cannot guarantee a fail-safe wall between you and prying eyes. One built-in tool can, however, help handle one of the biggest Internet privacy bugaboos: cookies.

Cookies are text files Web servers save on your PC. The whole concept sounds a little spooky, but

many cookies are beneficial. Some sites remember your user ID or password to make logging in easier. Others provide customized news or weather updates. Shopping sites might keep track of items you want to buy. These timesaving features rely on cookies. The site reads small bits of identifying information it left on your hard drive the previous time you visited, links it up with additional data, and sends customized pages to your Desktop. Cookies let Web sites know who you are.

The cookie system is fine when you have established a relationship with a Web site and want it to know when

you show up. Some sites, however, use cookies for more sneaky purposes. For instance, ads embedded in Web sites might plant third-party cookies of their own. They might be able to read cookies other sites left and keep track of your path and the personal information you've left behind as you hop from place to place. To some, that's marketing information. To others, it's a little creepy.

Take Charge

IE's cookie-handling tools manage cookies in a way that lets the good ones through and keeps the bad ones out. It's not perfect, but it gives you some control over something that often goes unnoticed.

Click Tools and click Internet Options. Click the Privacy tab. The main feature is a slider bar that simultaneously alters the small group of options, controlling what different types of cookies are allowed to do. Click the slider bar and drag it up or down to change your privacy setting.

At the bottom, you'll find the setting to Accept All Cookies. There's no real reason to use this setting, which gives all cookies unrestricted access to your machine. The default Medium setting in the middle is where most users would find a decent compromise between allowing generally useful cookies while restricting those up to no good.

Using the slider to fine-tune cookie handling does not always work terribly well. IE relies on the assumption that sites attempting to save cookies have what Microsoft calls a compact privacy policy. In theory, these privacy policies, which supposedly outline what sites do with personal information collected in cookies, could be useful. In practice, however, a lot of sites never bothered with compact privacy policies. IE can block cookies altogether from such sites, but that might detract from many sites you enjoy.

To see what a privacy policy looks like, navigate to a well-traveled site such as Yahoo! (<http://www.yahoo.com>). Click the View menu and click Privacy Report. A window appears that lists all sites with content on the current page. This includes the main Yahoo! site, as well as sites with ads or other elements on the page. Click one of the site names and click Summary to see that site's privacy policy.

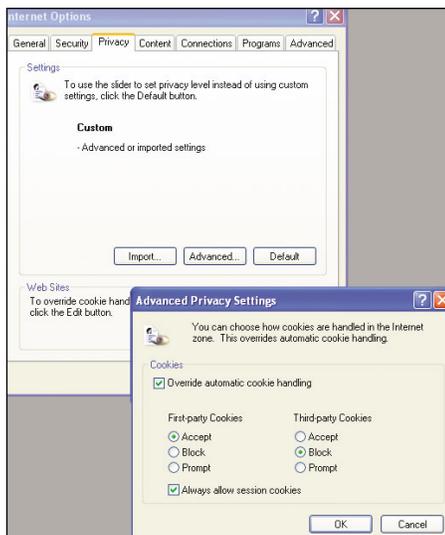
Down To Details

With privacy policies the exception rather than the rule, IE includes manual settings that skip the slider bar details. On the Privacy tab, click the Advanced button. Click the checkbox to override automatic cookie handling. The two sections below contain choices for dealing with **first-party cookies** (those from sites you actually visit) and **third-party cookies**. Most users should choose Accept for first-party cookies and Block for third-party cookies.

Click the checkbox to allow session cookies. These are temporary cookies used only while you visit pages within a particular site. Session cookies generally keep track of online shopping carts and other information necessary to the operation of useful sites and expire upon your departure.

The more restrictive your cookie settings, the more likely it is that some sites won't display customized content. Then again, at least some unknown spam or spyware developer isn't keeping track of your trail through the Web. ■

BY ALAN PHELPS



Internet Explorer's Privacy tab gives you the tools to deal with the often helpful, sometimes annoying Web site cookie.

Microsoft PowerPoint 2002

Making Web-Friendly Presentations

Presentation

Advanced

2002 for
Win9x/NT
4.0/2000/Me/XP

When you need to share your presentations with more people than could fit into a hotel ballroom, a good strategy is to translate those slides into a Web-friendly format. Turning standard PowerPoint files into HTML (Hypertext Markup Language) documents is really nothing more than a glorified Save As procedure. PowerPoint packages all of the pieces and generates the coding needed to turn your presentation into something Web browsers can understand and Web users can navigate with clickable links to slide titles, buttons for flipping through slides, and the option to view slides in a full-screen mode.

(Before you start, be sure you have access to a

Web server [a computer that stores Web pages and serves them up to Web users as requested].)

When you finish, your slides are available basically as you designed them to anyone using the Internet or your company intranet, even if the user doesn't have PowerPoint on his machine. While no one will mistake PowerPoint for a real Web-

publishing program, it's very serviceable for getting your presentations online.

First Steps

Start the Webification process by clicking File and Save As Web Page. Choose a destination for your presentation and enter a name for it as you would in any other Save As operation. The Page Title line toward the bottom of the Save As dialog box displays the words that will appear in a browser window's title bar when someone opens your presentation online or in her Favorites list if your page earns a spot there. To change the text, click Change Title and enter the new text.

Next up is the Save As Type drop-down menu. Here you can choose to save the file as a Web Page or a Web Archive. Web pages include many elements, including the page's HTML coding, photos, animations, and sounds. The two Save As options address different ways of packaging all of

these parts. The Web Archive option puts all of the elements in one file, while the Web Page option creates a new folder that holds all of the elements as separate (but linked) files.

Click Publish to produce another dialog box full of options. In the Publish What? section, choose whether to publish the entire presentation or just certain slides. If applicable, decide whether to include speaker notes and various custom shows.

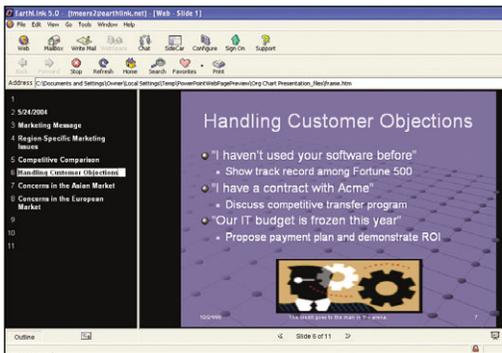
Fine-Tuning

Click Web Options to dig down into more decision-making. On the General tab, set navigational details Web users will rely on to get around your presentation. The Browsers tab lets you adjust pages to look their best in various browser versions. Presentations are automatically optimized for Internet Explorer 4.0 or later, and you'll need to tweak some settings if you expect a lot of viewers using older versions of IE or any version of Netscape Navigator. Even if you do everything correctly, some PowerPoint features, such as certain types of animations, aren't supported in Web browsers.

On the Files tab, decide how to organize files, name them, and update links. The Pictures tab lets you adjust your graphics depending on the monitor resolution you think most of your viewers have. On the Fonts tab, set the fonts you expect Web browsers to use for fixed- and proportional-width font situations.

When you finish setting options, click Publish. Your PC will display the ol' hourglass as it processes for a moment, and the work is done. It won't seem like much has happened, but if you navigate to the folder you indicated during the Save As process, you'll find a new file or set of files that make your presentation Web-ready. You may be surprised at how many files the process generates. When we saved a basic 12-slide presentation for Web use, it produced 62 files of slide masters, slide images, bullets, photos, and graphics.

To check how your presentation will look online, choose File and Web Page Preview. The presentation will open in your PC's default browser. You also can click the Open Published Web Page In Browser checkbox in the Publish As Web Page dialog box. Or use your browser's File and Open feature to navigate the file and open it. ■



Choose File and Save As Web Page to convert standard PowerPoint files into documents viewable on most Web browsers.

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Quick Tips

Secrets For Succeeding In Common Tasks

Question: How can I delete files when the Recycle Bin is hidden?

Answer: It's easy to delete files by dragging them into the Recycle Bin. At least it's easy if you can see the Recycle Bin. But if the Recycle Bin is hidden beneath one or more open windows, there's actually an easy way to deal with this situation.

Drag the files you want to delete over a blank section of the Taskbar and wait for a moment. Windows automatically minimizes all of the open windows for you, which makes it easy to finish dragging the files to the suddenly visible Recycle Bin.

that appear in your inbox and then click Report As Spam. This tells the Comcast filters that the messages you selected are spam. As people continue to do this, the filters get better at blocking junk email messages, gradually reducing the number that find their way into your inbox.

Question: My computer needs to stay on all the time. How can I keep people from looking at my Outlook email when I'm away from my computer?

Answer: You can keep people from looking at your Outlook email even when your computer

Exchange server, as you have no Personal Folders PST file to password protect.

Question: How can I extend the range of my wireless network?

Answer: Wireless networks are versatile, inexpensive ways to network the computers in your home or office. But sometimes your wireless access point doesn't have enough signal strength to connect to one particular location. Instead of moving the computer in question closer to the access point, in many cases, you can extend the range of your wireless network by adding a better antenna to the access point, the problem PC, or both.

A quick visit to the Web site of the company that makes your wireless access point and the wireless network interface card in the computer will help you decide if you can add a stronger antenna. Several companies also make wireless "repeaters" that can extend the range of your Wi-Fi network; these might be worth checking out.

Question: Is there a way to get the cool features of MSN Messenger with Windows Messenger?

Answer: Windows Messenger comes standard with Windows XP and lets you exchange instant messages with other Windows Messenger and MSN Messenger users. But MSN Messenger has lots of fun and interesting features that Windows Messenger doesn't. If you're running a current version of Windows Messenger, you can give it the capabilities of MSN Messenger by downloading and installing the MSN add-in from <http://www.microsoft.com/windows/messenger/addin.asp>.



When you see this message, you know you've helped reduce the flood of junk email appearing in your (and everyone else's) inbox.

is on and accessible by password protecting your Outlook PST (Personal Folder) files. To do this, open Outlook and click File and Data File Management. In the dialog box that appears, select Personal Folders (your primary Outlook PST file) and then click the

Settings button. Now click Change Password and enter a password in the Change Password dialog box. Leave the Old Password box empty. Make sure that the Save This Password In Your Password List checkbox is cleared and then click your way back to the main Outlook window.

The next time you start Outlook, a Personal Folders Password dialog box appears. If you don't enter the proper password, Outlook will not start.

Note that you won't be able to do this if you are using Outlook with Microsoft Exchange at the office and all of your Outlook data is stored on the

Question: What can I do to reduce the amount of junk email I download from my Comcast email account?

Answer: Like other responsible ISPs (Internet service providers), Comcast works hard to block spam (junk email) from reaching your inbox. While you don't have any direct control over Comcast's spam filters, if you check your Comcast mail via the Web, you can contribute to the fine-tuning of those filters. Point your browser to Comcast's site (<http://www.comcast.net>), click the E-mail link, and log in to your email account. Set the checkboxes for the spam messages

Soup up Windows Messenger with this add-in.

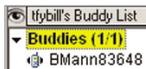
Extend Windows Messenger with great new features! Add-ins are only available for Windows Messenger version 4.6 or later on the Microsoft® Windows XP operating system.

[Click here](#) for more information about Windows Messenger.

6 of 6 Possible Add-in Features

MSN	Possible Features	6 of 6
<p>Description: Now you can get all the functionality of MSN Messenger! With the MSN Add-in you can see how many new Hotmail e-mail messages you have and receive an Alert when a new message arrives. You can also send text messages to your friends on their cell phones and pagers, join MSN celebrity chats, set up a public profile, and more...</p> <p>Click here to download this add-in!</p>	E-mail integration	✓
	Chat integration	✓
	Mobile text messaging	✓
	Profile Creation	✓
	Profiles Viewing	✓
	Daily links	✓

Note: If you are interested in developing add-ins for Windows Messenger, [click here for information and guidelines.](#)



A special icon indicates when your buddy is connected to an IM (instant messaging) program using a mobile device.

This add-in includes features such as email and chat integration, user-profile creation and viewing, and more.

Question: I scanned a new \$20 bill for a school project, but I can't edit the image in Paint Shop Pro 8. Why?

Answer: Paint Shop Pro 8 is one of the programs employing anti-counterfeiting software from the Central Bank Counterfeit Deterrence Group. The software recognize distinguishing marks in scanned images of the new \$20 bills and prevent you from opening images of them. The goal is to prevent you from using your PC and a color printer to create counterfeit money. Look for such software to appear in more graphics programs and even scanners over the next few years.

Question: Is there any way to get Microsoft Office System (aka Office 2003) help that's specific to my kind of work?

Answer: If you are in finance, human resources, operations, or sales, the answer to this question is yes. At Microsoft Office Online (<http://office.microsoft.com>), you can now find Tools For Your Job, sections of helpful articles, and information specific to each

product in Microsoft Office System and to certain types of jobs.

To get to the Tools For Your Job section for a specific product, go to Microsoft Office Online. On the home page, click the link for the product you're interested in. When you get there, find and click the link that takes you to assistance for the product. On the Assistance page, look for the Tools For Your Job heading and click the link to the job category you want help with. You'll go to another page with helpful information tailored to this product and the job type you selected.

Question: What differences can I expect when my IM (instant messaging) buddy is using a mobile device instead of a PC?

Answer: While IM using a mobile device is a great capability, the current devices often have real limitations. For one thing, it is almost always harder (and slower) to type messages on a mobile device than it is on a PC. For another, the device may not always have a wireless connection, in which case your messages may be delayed until a connection is re-established. Also, someone using a mobile device could be anywhere when your message arrives, including driving a car or in some other situation where they cannot immediately respond to you. So, your buddy's responses may be short, slow, or delayed when he is using a mobile device. Most IM programs indicate that a buddy is using a mobile device by displaying a special icon.

Question: I'm having trouble syncing my Palm OS PDA (personal digital assistant) to Outlook. Where can I go to get help now that Palm is gone?

Answer: Palm split into two companies, PalmSource and palmOne. palmOne is the place to go to get help synchronizing your Palm device to Outlook. Specifically, you can use the following Web page (<http://www.palmone.com/us/support/outlooksupport.html>) as the starting point for tracking down the information you need.

Question: When I use Windows Media Player to copy music from my CDs onto my PC, why can't I use those files on my other computers?

Answer: By default, Windows Media Player copy protects songs you rip (copy) from your audio CDs to prevent people from distributing copies of the music. You can easily turn off the copy protection. In Windows Media Player, click Tools and Options. On the Copy Music tabbed page, clear the Protect Content checkbox.

Question: I downloaded new pictures to my PC from my digital camera, and the old ones are gone. What happened?

Answer: Without much more information, it's impossible to say for sure. But one thing to look out for is the way your camera names the image files when you transfer them to your computer. Some cameras use the same file names for each set of pictures you transfer. If this is the case with your camera and you downloaded new image files to the same folder as the old ones, the new ones could overwrite the old ones. If your camera works this way, be sure to download files to a different folder each time or rename the old files before you download any new ones. ■

BY BILL MANN

Get Computer Help **Around The Clock**

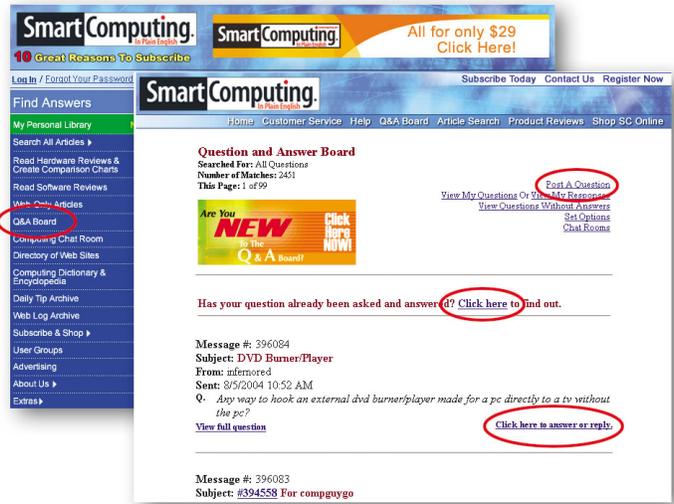
SmartComputing.com has the tools you need to solve your computing questions 24 hours a day, seven days a week. Whether you're brand new to computers and looking for guidance, or a tech-savvy guru eager to help others find their way, the **Q&A Board** is a functional tool for all.

The **Q&A Board** is an easy-to-use, user-to-user feature designed to help computer users of all skill levels find answers to computing problems and exchange information concerning personal computers and related technologies. You'll find great answers, quick responses, and helpful tips from users just like you.

To access the **Q&A Board**, go to <http://www.smartcomputing.com> and click the Q&A Board link in the blue toolbar on the left. Check out these helpful features:



- 1 **Search For Answers:** Use the Q&A Board's Search function to see if your question has already been asked.
- 2 **Post A Question:** Click Post A Question in the upper right to post your own question to the Board. Remember to be as detailed as possible.
- 3 **Reply To A Question:** Click the Click Here To Answer Or Reply link to share your computing know-how.



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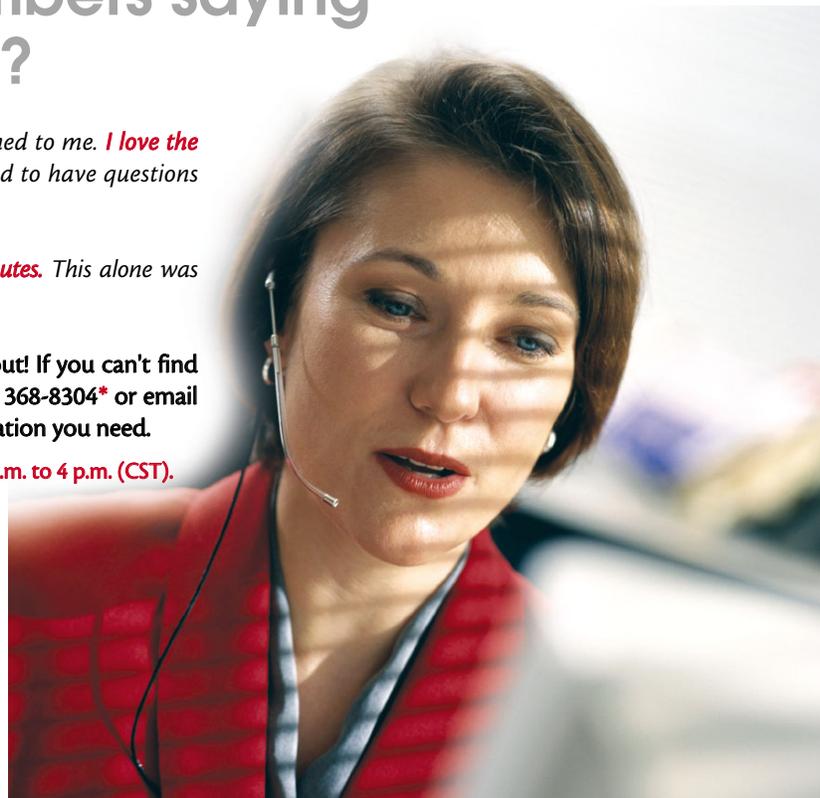
*"I did a search of the Q&A and **found my answer within five minutes.** This alone was worth the subscription."*

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* Representatives available Mon. - Fri. 8 a.m. to 8 p.m. (CST) and Sat. 8 a.m. to 4 p.m. (CST).

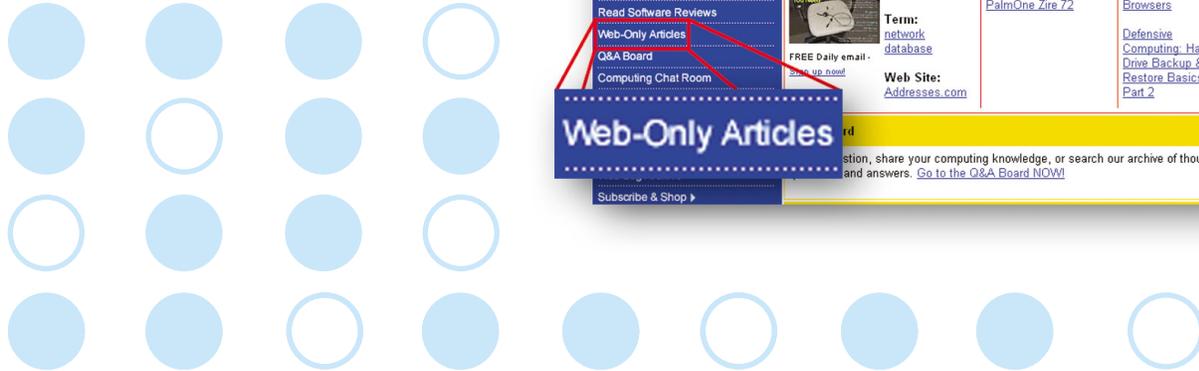


Only paid subscribers to *PC Today*, *Smart Computing*, *CE Tips*, or *Computer Power User* magazines receive full access to the Q&A Board.



October **Web-Only** Articles

Here's a list of this month's additional articles available to you online as a subscriber to *Smart Computing*. To view these articles, click the link in the Web-Only Articles area in the left column of the home page. (Only subscribers can read the complete article.)



Hardware

For all the latest product reviews, visit the Hardware Reviews & Comparison Charts area at SmartComputing.com (<http://www.smartcomputing.com>).

Software

Multimedia: Musicmatch Jukebox 9.0

Security: Symantec Norton Internet Security 2004

PC Operating Instructions

Linux: Benchmark Linux

Your latest memory upgrade or software tweak seems to have improved the performance of your Linux system, but by how much? Benchmark software lets you measure your system's performance, and this month, we'll show you how to use lmbench to measure your Linux system's performance.

Windows: The Skinny On Windows XP Skins

WinXP has a pretty hip look about it, especially compared to older Windows OSes, and it does allow for some theme-switching, but it's pretty limited. Read on to learn how to skin an app and about the third-party skins available online.

PDFs: Stay True To The Original

PDFs are becoming more common, and using these files is an effective way to convey your documents in exactly the format you want. We explain what this format is all about and the various utilities you can use to take advantage of it.

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Hardware Reviews: Handheld PDA's

Computer Power User Top 5

Price	Products reviewed in the past 6 months	7-12 months	All Past Reviews
\$100-\$200	1	0	14
\$200 to \$399	5	10	106
\$400 & Over	1	1	1

Click column heading to re-sort the page. To create a comparison chart, click the boxes next to the products desired and then click the Create Chart button at the bottom of this page.

Chart (Max of 5)	Product Name	Manufacturer	Price	Date Reviewed
<input type="checkbox"/>	"Hitachi 51088"	Hitachi (gold by Search)	\$649	August 2003
<input checked="" type="checkbox"/>	"HP iPAQ Pocket PC h1148"	HP	\$399	August 2003
<input type="checkbox"/>	"HP iPAQ Pocket PC h2218"	HP	\$399	September 2003
<input type="checkbox"/>	"HP iPAQ Pocket PC h3158"	HP	\$449	September 2003
<input type="checkbox"/>	"HP iPAQ Pocket PC h3159"	HP	\$499	September 2003
<input type="checkbox"/>	"HP iPAQ Pocket PC h3159"	HP	\$549	September 2003
<input type="checkbox"/>	"HP iPAQ Pocket PC h3558"	HP	\$649	August 2003
<input type="checkbox"/>	"Palm Tungsten T1"	Palm	\$399	September 2003
<input type="checkbox"/>	"ViewSonic F..."			

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Hardware Reviews

HP iPAQ Pocket PC h1940

Until now HP's line of inexpensive, travel-friendly PDAs couldn't get off the ground, wirelessly speaking. The company's new h1940, however, has Bluetooth capability, letting users ease into the wireless world with the short-range, relatively uncomplicated networking standard. You probably can't connect to the Internet via your local café, as most hotspots offer IEEE 802.11g networks, but you can connect to nearby Bluetooth-enabled PDAs, networks, and other devices. If your home network includes an Internet connection and Bluetooth adapter, you can browse the Web from the couch.

The h1940 is 4.46 inches high x 2.75 inches wide x 0.6 inches deep and weighs 4.3 ounces. It has a 2.8-inch, 260 x 320-pixel transreflective TFT display, the usual PDA buttons, and two navigation buttons. The sides and top of the device house a Record button, the IR port, an SD slot, and a 2.5mm headphone jack. Manufacturers generally put the IR port at the top of devices, but the h1940 doesn't have any room, so the IR port sits just above the Record button on the left side of the PDA. I like the Clear Power button, which flashes green, amber, and blue to indicate system and Bluetooth statuses.

Microsoft Windows Mobile 2003, the latest version of Microsoft's Pocket PC OS, runs on the PDA's 368MHz Samsung S3C2410 processor. The PDA includes 64MB of RAM (512MB free) and 32MB of ROM. I'm not a fan of HP's iPAQ File Store. You'll want to get repeat data in File Store because it doesn't discard the data during a hard reset. I like the h1940's rechargeable battery because I can swap it with an additional battery (B4939; \$119/\$127) on the go.

HP rounds out the package with a 3.5mm audio jack adapter (which accepts standard earphone connectors), a power adapter, and a USB cable. The h1940 doesn't include a cradle (B4939; \$119/\$127), but travelers who like the device's size will probably prefer the easy-to-pack cables anyway.

by Joshua Gulick

HP iPAQ Pocket PC h1940
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(800) 867-1021
www.hp.com

User Reviews

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CPU Ranking (out of possible 5) 4 - Absolutely Worthless 2.5 - Absolutely Average 1 - Absolutely Perfect

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You can also create a comparison chart of the products displayed by checking the box to the left of the product. Create a chart for up to five products. After checking the boxes of the products you wish to review, click the Create Chart button.

Click column heading to re-sort the page. To create a comparison chart, click the boxes next to the products desired and then click the Create Chart button at the bottom of this page.

Chart (Max of 5)	Product Name	Manufacturer	Price	Date Reviewed
<input type="checkbox"/>	"Palm Tungsten E"	Palm	\$199	September 2003
<input type="checkbox"/>	"Palm Zire 21"	Palm	\$99	September 2003

[Create Chart](#)

The comparison chart will then allow you to compare the products next to each other in one view. To jump to the full review of a product from the comparison chart, click the product name.

Hardware Reviews: Handheld/Palmtop/PDAs: \$200 to \$399
Comparison Chart

Product name	HP iPAQ Pocket PC M100	Hitachi G1000	Toshiba Pocket PC 505	Palm Tungsten E
Cases	64,000	65,636	65,636	n/a
Dimensions	4.47 x 2.78 x 0.5	5.8 x 3.3 x 0.9	4.9 x 3.1 x 0.4	4.3 x 3.0 x 0.66
Manufacturer	HP	Hitachi (sold by Sprint)	Toshiba	Palm
Price	\$449	\$649	\$399	\$399
Operating System	Microsoft Windows Mo	Microsoft Pocket PC	Microsoft Windows Mo	Palm OS 5.2.1
Processor	400MHz Intel XScale	400MHz Intel XScale	300MHz Intel XScale	400MHz Intel XScale
RAM	64MB RAM (64MB free)	32MB RAM, 32MB ROM	64MB RAM, 16MB ROM	64MB (62MB free)
Display Type	Transflective TFT	TFT	Reflective TFT	Transflective TFT
Display Resolution	240 x 320	240 x 320	240 x 320	240 x 480
Weight (w/O2)	4.62 Oz.	8.4	6.2	5.6 Oz.
Power Source	Li-Ion	Li-Ion	Li-Ion	Li-Ion
Battery Life	N/A	2 hours talk time, 1	Depends on usage	1 week normal usage.
Display Size	3.6 inches	3.6 inches	3.6	3.75
Menu Color	Color	Color	Color	Color
Modem (Yes/No)	n/a	n/a	No	Bluetooth
Keyboard (Yes/No)	No	Built-in QWERTY	No	No
Desktop Software	Microsoft Outlook 20	Microsoft Outlook 20	Microsoft Outlook 20	Palm Desktop 4.1
Expansion Slots	SD	SD, 19-pin cradle ca	SD	SD
Synchronization Software	Microsoft ActiveSync	Microsoft ActiveSync	Microsoft ActiveSync	HotSync
Communications	Infrared, 23-pin cra	Infrared, USB mini-B	Infrared 20-pin crad	Infrared, 16-pin cra
Ports				
Final Word	Small, powerful PDA. A good buy.	A solid PDA/mobile phone combo with a decent low-end camera.	Updated version of the e335. Good buy.	Strong PDA with great screen and Bluetooth, but not 802.11b
Toll-free Phone	(800) 752-0900	(888) 253-1315	(800) 867-4422	(800) 801-7256
Toll Phone	(610) 887-1801	(913) 624-3000	(949) 543-3000	(949) 562-7256
URL	www.hp.com	www.sprint.com	www.toshiba.com	www.palmos.com
CPU Ranking	★★★★★	★★★★★	★★★★★	★★★★★

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Hardware Reviews
September 2003 • Vol 6 Issue 9

Palm Zire 21



The Palm Zire lacked some standard features and had a mere 2MB of RAM, but it was a simple, classy device, which made it a great gift for fledgling techies and casual users. Palm's new Zire 21 updates its sibling with speed, space, and a new OS just in time for the holidays, but don't ship it to last year's Palmest, it's still a starter PDA.

The Zire 21 has two PIM buttons, two Scroll buttons, and a Power button. Like the Zire, it has three ports: a mini-USB port, a power supply port, and an IR port. The device doesn't have the traditional SD expansion slot, which means you'll have to store all of your data in the SMeS (7.2MB free) of RAM. You'll need to connect the AC adapter directly to the PDA whenever you charge the battery because the battery isn't removable and the Zire 21 does not include a charging cradle. That said, new users may like the Zire 21's thin feature list. You can store plenty of basic applications in SMeS of RAM, and if you don't HotSync every day, you probably won't mind occasionally plugging in the adapter and USB cable.

I like the new 128MHz Texas Instruments OMAP 311 ARM processor but not the grayscale display. You can view the display in regular lighting, but you'll have trouble viewing it in direct sunlight. The

Choose or create a folder in which to place the review. Add a brief note, as well, for a reminder about the article. Click the Save button to finish.

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We can't possibly fit every helpful tip, tweak, or troubleshooting tidbit in print. That's why you'll find a wealth of resources at our Web site, <http://www.smartcomputing.com>. Here are some tips for using our Web site to find more information about the articles in this month's print issue.

CD & DVD Problems & Solutions

This month's feature focuses on how to get the most out of CD and DVD technologies and solving problems related to those technologies. Dealing with this technology can often bring more headaches than solutions. At <http://www.smartcomputing.com>, we help alleviate these headaches by offering you helpful solutions to your nagging problems.

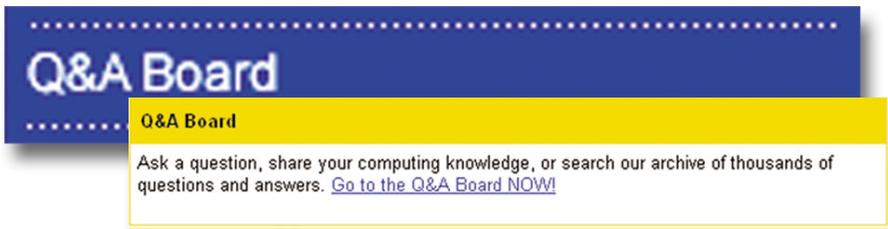
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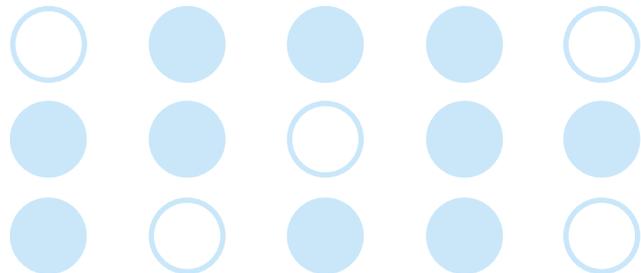
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Best Place to Buy Components

Compiled by David Whittle
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Monitoring Monitors

Monitor technology has progressed rapidly in the past few years, which has created opportunities for the production of better displays but has also generated confusion about which technologies deliver the best mix of features for the money. Historically, the bulky CRT (cathode-ray tube) technologies have been far and away the most popular due to the combination of great picture and relatively low cost. Lately, however, flat-panel technologies such as LCDs (liquid-crystal displays), plasma, and LCOS (Liquid Crystal on Silicon) have become increasingly popular as they provide compelling benefits at increasingly affordable prices. Choosing the right computer display at the right time these days requires a basic understanding of the underlying technologies involved, each with their respective advantages and disadvantages.



Cathode-Ray Tube (CRT)

The oldie-but-goodie CRT is a large vacuum tube with an internal electron beam that constantly scans across the surface of its display area, activating chemical (phosphorous) pixels that emit light. The color and intensity of each pixel is controlled by the stream of electrons in the beam, which is determined by the signals sent to the monitor from the computer's video display adapter. Flat-panel CRTs eliminate some of the distortion that results from rounded screens, but otherwise share all of the pros and cons of a standard CRT.

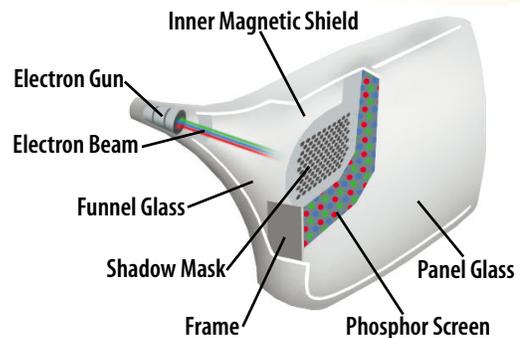
Advantages

- Mature technology that is relatively inexpensive
- Potential for most accurate depiction of colors
- Multiple resolutions
- Displays motion well
- Deep, rich blacks

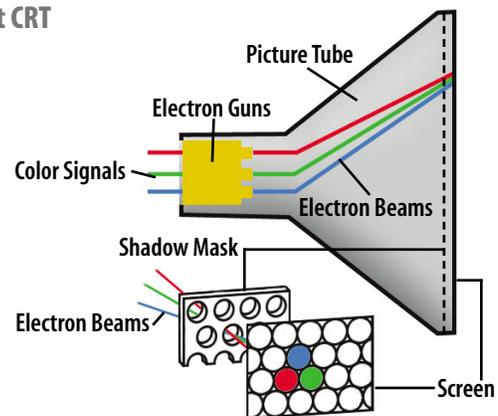
Disadvantages

- Bulky and heavy, less attractive, and requires more space
- High power consumption: uses seven to eight times more power than LCD
- Generates excess heat
- More susceptible to screen burn-in
- Prone to slight screen distortion, fuzziness, and flicker

Standard CRT



Flat CRT



Liquid-Crystal Display (LCD)

Most LCDs today use highly sophisticated technology involving individual cells (pixels) containing liquid crystals sandwiched between perpendicularly polarized screens, with a light source in the background. The liquid crystals associated with each pixel can be controlled by a current of electrons to twist and align, in varying degrees, with the polarized screens in order to let the right mix of light pass through the primary color filters.

Advantages

- Thin, light, and takes up less space
- Low power consumption
- Cool
- Consistent color reproduction, no fading over time
- No screen burn-in effect
- Very sharp at native resolution
- No screen distortion
- No flicker

Plasma

With plasma displays, each pixel contains its own red, green, and blue phosphors that are excited by a special gas in varying degrees of intensity to create a richly colored high-resolution image. Charged electrodes react with tiny pockets of inert gas to cause the gas to emit light when in its plasma state. These electrodes and pockets of xenon gas are sandwiched between front and rear glass panels. Because there is no scanning beam of electrons, plasma panels are flat and the phosphors can be constantly lit, creating an image that is sharper, brighter, and more distinct at all points on the panel.

Advantages

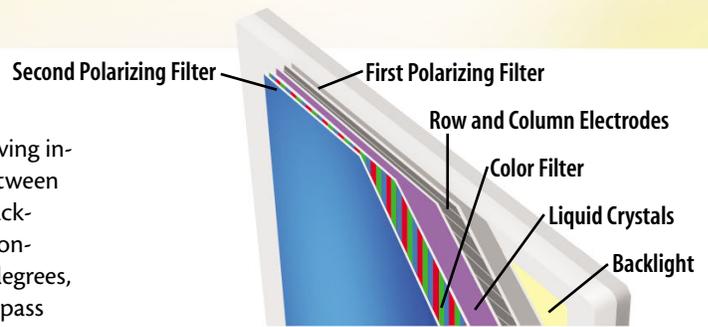
- All advantages of CRT, but with a much larger flat panel screen and better picture (when new)

Liquid Crystal On Silicon (LCOS)

Similar in some ways to LCD technology, LCOS has three primary differences. First, LCOS uses more traditional silicone-based manufacturing processes that should enable larger, less expensive displays. Second, electrical current and signals are located behind the pixels rather than between the pixels, thus enabling higher resolutions. Third, LCOS has a highly reflective backplane that decreases (but does not eliminate) backlighting requirements.

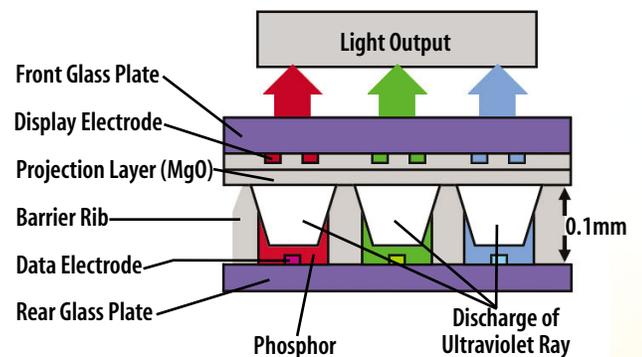
Advantages

- All the advantages of LCD with a superior picture, higher resolutions, better handling of motion, and fewer defects
- Potential for relatively inexpensive large, high-resolution displays and televisions



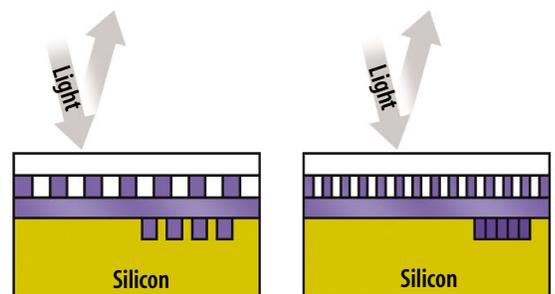
Disadvantages

- Limited viewing resolutions
- Lower contrast and brightness—colors are a bit less vibrant
- Viewing angle likely to be narrower
- Doesn't handle motion as well
- Not as likely to display deep blacks well
- Somewhat more likely to develop dead or always-on pixels
- More expensive than CRTs for equivalent performance



Disadvantages

- Most expensive technology
- Shorter life span—loses image quality over time
- Subject to screen burn-in
- Not available in typical display sizes (21-inch or less)



Disadvantages

- Not yet widely available
- Still pricey

Don't Be A Password Pinhead

A lright, admit it. Confess. You're guilty of using the same password for all of your Internet-related activities because it's just too darn hard to remember more than one.

You're a disaster waiting to happen.

I'm not just talking about what can happen if somebody hacks your password, but about your blind (and unfounded) trust in the employees of every company and organization that requires you to submit a username and password to avail yourself of their services.

Listen to me when I'm talking to you, young man. (Boy, didn't you hate it when your mom used to say that?)

Consider this: You've probably participated in dozens of online forums over the years on subjects ranging from WinXP to baseball. And each time you registered, you used the same time-tested-and-proven invincible password.

Now I ask you this: Do you really know and trust the administrators of these forums? Here's the perfect scam: Set up an online forum on any popular subject. Pick a subject most likely to appeal to password pinheads—say, Britney Spears or Hilary Duff (not that there's anything wrong with them). There are a number of services on the Web that will let you do this at no cost. As you collect usernames and passwords, try them out on popular ecommerce Web sites such as Amazon. You'll be amazed at how many purchases you could make. (Yes, the shipping address will be different, but you can always set up a new shipping address.)

I'm not trying to promote fraud. I'm just trying to show you how easy it would be for one unscrupulous person to destroy your life if you're using one password for all of your Internet activities.

Now, I'm not suggesting that you use a different password for each of your 200 different Internet activities, but I *am* suggesting that you follow this advice:

Use one password for all nonfinancial related Internet activity, such as online forums. In this case, the worst an unscrupulous administrator could do is post false messages in other forums under your name.

Use another password for ecommerce suppliers such as Amazon and buy.com. (By the way, don't store your credit card information online with any e-tailer. If your password is hacked, at least the thief will have to use his own credit card!)

Use a different password for each of your most critical online accounts, such as your eBay, PayPal, bank, and

brokerage accounts. If you do business with more than one bank or broker, choose a separate password for each one. Trust no one.

Finally, change all of your passwords (except for the forums, which are relatively unimportant) at least twice a year.

What about the passwords themselves? First, don't use a password that is all numbers. There are numerous free password-cracking tools available on the Web that can crack any numeric password using brute force. (In fact, one such tool is named Brutus.) For the same reason, don't use passwords that are real words.

The best passwords are gibberish "words" composed of a combination of letters, numbers, and special characters. The longer the password, the harder it is for brute force programs to crack it. After all, a 12-digit password drawn from numbers, special characters, and lower and uppercase letters has almost 900 trillion possibilities; no brute force application could crack it in any reasonable amount of time.

I know what you're thinking: It's difficult to remember passwords that are gibberish. However, there is such a thing as *meaningful gibberish*. Suppose you're a Sinatra buff. You would probably know that Sinatra recorded "Nancy With the Laughing Face" in 1942 and that the song was written by Jimmy Van Heusen. Your password could be n1W9t4L2fJvH. The year 1942 separates the letters "nWtLf," an acronym for the song title. JvH stands for the songwriter. Now this particular example may not work for you, but the point is that you can draw upon your own area of trivia expertise to come up with something that *does* work.

Don't let a Web site or even your own computer save your passwords. The saved passwords may be encrypted, but somebody may be able to crack them.

Finally, write all of your usernames and passwords down someplace and store them in a safe deposit box, lest you forget any of them. ■



BY ALAN LUBER

Alan Luber is an author and computer expert. His new book, "PC Fear Factor: The Ultimate PC Disaster Prevention Guide" (Que Publishing), provides an in-depth look at disaster prevention and recovery. To learn more about the book, visit his Web site at <http://www.pcfearfactor.com> or write to AlanL@smartcomputing.com.

Examining Errors

BY JEFF DODD

Problem: A reader receives an error message each time he starts his PC, but he can close this message and continue computing without any trouble. He also reports that he runs Spybot Search & Destroy and Norton AntiVirus on a daily basis.

Error Message: "RUNDLL: An exception occurred while trying to run 'C:\Windows\System32\Msg121.cpy.dll,' Umonitor."



Solution: The Msg121.cpy.dll file cited in this error message is probably related to notorious spyware known as Look2Me. The author designed Look2Me so that it would reinstall itself automatically whenever anyone attempts to remove it, and that's why it sneaked past the reader's vigilant anti-spyware routine.

The reader's best option is to sneak up on the offending files through an old-fashioned DOS prompt. He can access a DOS command prompt by inserting an MS-DOS Startup Disk (*Smart Computing* subscribers can find out how to create one in "Help Is Just A Diskette Away" at <http://www.smartcomputing.com/lsapr03/startupdisk>) in the floppy diskette drive and rebooting his PC. He should type `c:` at the command prompt, press ENTER, type `cd windows\system` (if he uses Windows 98 or Windows Me) or `cd windows\system32` (if he uses Windows XP), and press ENTER. Then, the reader can remove the Look2Me files by typing the following commands (pressing ENTER after each one):

```
del msg1*.dll
del msg{*.dll
del upd1*.exe
```

Next, the reader should reboot his PC and access the Registry Editor. (We must warn you to be extremely careful while modifying the Registry [a Windows database of user preferences and system settings]; one mistake can leave your system inoperable.) When the Registry Editor opens, he should go to `HKEY_LOCAL_MACHINE\SOFTWARE\CLASSES\CLSID\{DDFFA75A-E81D-4454-89FC-B9FD0631E726}` and delete the `{DDFFA75A-E81D-4454-89FC-B9FD0631E726}` key (if available). Then, he should go to `HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\WINDOWS\CURRENTVERSION\SHELLEXTENSIONS\APPROVED\{DDFFA75A-E81D-4454-89FC-B9FD0631E726}` and delete the `{DDFFA75A-E81D-4454-89FC-B9FD0631E726}` key (again, if available). Finally, he should open Internet Explorer's Tools menu and click Internet Options, Programs, Reset Web Settings, and OK.

This fix should work on most existing Look2Me variations. If it doesn't, the reader can download an uninstall utility at <http://www.look2me.com/cgi-bin/UnInstaller>. He should only use this utility as a last resort because it comes from the source of Look2Me. ■

Problem: A reader reports that he receives a runtime error message whenever he tries to open Web pages in IE. He wants to know where the runtime program is located so he can eliminate the problem.

Error Message: "Error: A runtime error has occurred. Do you wish to Debug? Line: 1. Error: Invalid Character."



Solution: First of all, there is no runtime program. A runtime error is simply an error that occurs during the execution of a software routine. It may be the result of a coding error, a software conflict, or a hardware malfunction. Resolving the error often requires the installation of a **patch** (a small body of code that replaces a buggy portion of a program) or a change to the system settings.

In this case, the runtime error seems to indicate that Internet Explorer is having trouble processing the information it receives from various Web sites. We suspect that IE is trying to **debug** (detect and remove programming mistakes) the **scripts** (small programs that perform particular functions) that are embedded in the site's underlying code. The reader should be able to resolve this issue by disabling IE's debugging function.

He can do so by opening IE, accessing the Internet Options dialog box, choosing the Advanced tab, and selecting the Disable

Script Debugging option. He also should deselect the Display A Notification About Every Script Error option so that it doesn't have a check mark next to it and click OK. That should be the end of the error message.

We've received a number of messages from readers reporting similar debugging errors. Readers who receive debugging errors—even if they differ slightly from this one—should disable the script debugging setting as their first attempt at a resolution. If that doesn't work, they should try two more solutions. First, they should empty the temporary Internet file cache by opening the Internet Options dialog box, choosing the General tab, and clicking the Delete Files button. Second, they should install an anti-spyware utility, such as Ad-aware or Spybot Search & Destroy, which can eliminate the **malware** (software designed for a malicious purpose) that occasionally generates this kind of error message. ■

Problem: Whenever a reader tries to use Outlook 2003 to send email, he receives an error message indicating that there's an apparent problem with his faxing software, WinFax Pro 10.03. The reader has a WinXP PC.

Error Message: "The add-in C:\Windows\System32\Fxsext32.dll could not be installed or loaded. This problem may be resolved by using Detect and Repair on the Help menu."



Solution: The first course of action is to follow the remedy prescribed by the error message itself. The reader should open the Help menu in Outlook 2003 and select the Detect And Repair option. (Clicking the tiny arrows located at the bottom of the Help menu will expose all of the menu's commands.) On-screen instructions will guide the reader through the process of identifying and fixing common problems with the email client. When the repair is complete, the reader should reboot his PC and try to send email.

If the problem persists, the next step is to remove the Microsoft Fax component of WinXP in order to eliminate potential conflicts between it and WinFax Pro. The reader can remove the built-in utility by opening the Control Panel, clicking the Add Or Remove Programs icon, and clicking the Add/Remove Windows Components option. The Windows Components Wizard will appear on-screen. The reader should scan the options presented in the Components list for one that's labeled Fax

Services. When he finds it, he should deselect it and click Next. He can follow the remaining on-screen instructions to finish the process. The reader should reboot the PC when he finishes. Again, he should try to send email to determine whether the issue is resolved.

If neither of these suggestions works, a final remedy is to replace the Fxsext32.dll file with a new copy from the Windows installation CD-ROM. The reader can accomplish this task with help from the System File Checker utility. From the Start menu, the reader should select Run, type `sfc /scannow` in the field, and click OK. He may be prompted to insert his installation CD-ROM in the optical drive if he hasn't placed it there already. The System File Checker will scan the contents of the WINDOWS\SYSTEM32 folder and update any corrupted, outdated, or missing DLL (dynamic-link library) files. When the process is complete, the reader should reboot his computer. ■

Problem: Every time a reader starts WinXP, he receives an error message. He can close the error message, and the message appears to have no ill effect on the rest of his system. The reader suspects that the error is a result of his child trying to download some software from the Internet.

Error Message: "Error loading C:\Windows\Downloaded Program Files\Bridge.dll. The specified module could not be found."

Solution: Bridge.dll is a common component of Internet spyware (software that surreptitiously tracks a user's computing activity and then reports the activity to a third party). We know this for certain. What we don't know is how the reader acquired the file. Nor do we know the exact method he should use to remove the file from his system. Other users who have experienced this same error message report that it affects various systems in different ways.

The best place to start resolving this problem is with the Registry. (Be careful as you edit the Registry because each of your changes will take effect immediately and could damage your system.) The reader can access the Registry from the Start menu by selecting Run, typing `regedit` in the field, and clicking OK. In the Registry Editor, he should locate the HKEY_LOCAL_MACHINE\SOFTWARE\MICROSOFT\

WINDOWS\CURRENTVERSION\RUN key and review its corresponding values in the right pane. If he finds one that refers to Bridge.dll, he should right-click it and select Delete from the pop-up menu. Then he can close the Registry Editor.

Next, the reader should return to the Start menu, select Run, type `msconfig` in the field, and click OK. When the System Configuration Utility appears on-screen, the reader should click the Startup tab and deselect the entry (or entries) that refers to Bridge.dll so it doesn't have a check mark next to it. He should click OK to close the utility and then reboot his system to see if the changes worked. Most of the time, they will.

To prevent such problems in the future, the reader should install anti-spyware, such as Ad-aware (free; <http://www.lava.soft.de>) or Spybot Search & Destroy (free; <http://www.spybot.info>). ■

Have questions about an error message you've seen? Send us your message (errormessages@smartcomputing.com) and we'll try to decipher it. Tell us what version of Windows you're using, give the full text of the error message, and provide as many details in your explanation as possible. Volume prohibits individual replies.

Fast Fixes

Problem: Windows XP has a vulnerability that could let a cracker break into a system and take control.

Solution: Install this 882KB update from Microsoft. To obtain the update, type the URL (uniform resource locator) we listed below in the Address field of your browser window. After Microsoft's Download Center page loads, type **KB841873** in the Keywords text box and click Go. Click the link named Security Update For Windows XP (KB841873), and on the right side of the page, click Download to begin the file transfer. When the file transfer is complete, double-click the file (WindowsXP-KB841873-x86-enu.exe) and follow the on-screen prompts to complete the installation. ♦

<http://www.microsoft.com/downloads>

Problem: Your Canon PowerShot S1 IS digital camera overexposes shots taken during daytime synchronized shooting.

Solution: Install the updated firmware Canon provides. To download the new firmware, type the URL we listed below in the Address field of your browser window. Read the directions for downloading the file and click Download Page. Type your camera's serial number at the bottom of the page and click Agree. After you download the firmware, use Canon's instructions to update your camera. Be sure to follow every step exactly as Canon describes it because making a firmware installation mistake could render your camera inoperable. ♦

<http://www.canon.co.jp/Imaging/pss1is/firmware-e.html>

Problem: Microsoft pinpointed a defect in Windows 2000 that could potentially let a cracker break into and take control of a system.

Solution: Install this 346KB update from Microsoft to thwart crackers' efforts. To download this file, type the URL we listed below in the Address field of your browser window. After Microsoft's Download Center page loads, type **KB841872** in the Keywords text box and click Go. Click the link named Security Update For Windows 2000 (KB841872) and then click Download. When the file transfer is complete, double-click the file (Windows2000-KB841872-x86-enu.exe) and follow the on-screen prompts to install the update. ♦

<http://www.microsoft.com/downloads>

Problem: Microsoft discovered a flaw in Outlook Express 6 for Windows Server 2003 that could let a cracker attack the program and cause it to fail.

Solution: Microsoft created a 1.3MB patch you can download to fix this problem. To do so, type the URL we listed below in the Address field of your browser window. After Microsoft's Download Center page loads, type **KB823353** in the Keywords text box and click Go. Click the link named Cumulative Security Update For Outlook Express For Windows Server 2003 (KB823353), which is the fourth link in the list (at the time this issue went to press). On the right side of the next Web page, click Download to begin the file transfer. When the file transfer is complete, double-click the file (WindowsServer2003-KB823353-x86-enu.exe) and follow the on-screen

prompts to complete the installation. You might need to restart your computer after you install this update. ♦

<http://www.microsoft.com/downloads>

Fix Of The Month

Problem: You encounter CD- or DVD-recording problems while using one of Ulead's disc-burning programs.

Solution: Download and install the disc-burning update that Ulead created for many of its programs. But before you do, use our instructions to view Ulead's list and determine whether your application requires the update. To locate Ulead's 1.68MB update, type the URL we listed below in the Address field of your browser window. After the Ulead home page loads, point to Free Downloads and click Updates & Patches. Next to CD/DVD Burning Engine, click the Updates & Patches icon. Scroll down the page, and you'll see a list of nine programs that can use the update. If your program is on the list, keep scrolling until you see a chart with the upgrade information. Under the Major Updates heading, find the update listed as ULCDRDrv.dll + 10 More Files and click the Download link. After the file transfer is complete, use WinZip (<http://www.winzip.com>) to extract the files to the DVD folder at C:\PROGRAM FILES\COMMON FILES\ULEAD SYSTEMS\DVD. This action will overwrite the files in the DVD folder, so it's prudent to make a backup copy of the folder prior to the file extraction process. Once you've unzipped the files, the update process is complete. If you experience problems with the update, copy the backup files over the updated ones. ♦

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Online

Q I recently asked a family friend to work on my computer. It's running fine now, but ever since I've gotten it back, people seem to be trying to hack in. My Norton Internet Security 2003 program keeps catching these people, so I'm assuming my computer and data is safe. Is that true? Also, Norton Internet Security says I can report these attacks or do nothing. What should I do? I don't know where to report these hacking attempts, but I'd be glad to do so if it will help. Because of these attacks, I stay off my computer most of the time now, which is a shame because it was something I really enjoyed.

A An unfortunate side effect of being able to connect to the Internet is that it exposes your computer to a variety of hazards. Among these is the danger of being "hacked" by someone seeking to either control your computer or pilfer data stored on your computer. Although there's no such thing as a completely secure computer, there are steps you can take that will make your computer reasonably secure and let you resume using your computer without worrying excessively.

Step one. Your first step is understanding and combating your foe. Most hacking attempts come from programs that scan a multitude of computers simultaneously. These programs are analogous to someone going through an apartment building and checking each door to see if it's locked.

A good firewall is your first line of defense against this type of probing, and Norton Internet Security performs adequately as a Windows-based firewall. You can think of a firewall as a security guard

at a corporate building, deciding who has permission to enter and/or leave your computer. However, keeping your firewall current is as important as initially installing it. Software developers update their firewalls over time to deal with new threats and vulnerabilities, so be sure to configure Norton Internet Security to automatically update itself. If you want to manually update Norton Internet Security, don't forget to regularly visit Symantec's Norton Internet Security Web page (http://www.symantec.com/sabu/nis/nis_pe).

In addition to using firewall software, you also can use a hardware-based firewall. These are often built into broadband routers and modems from manufacturers such as Linksys and D-Link. The benefit of using a hardware-based firewall is that it can protect more than one computer at a time. If you don't have multiple computers or don't want the added expense of a hardware firewall, be sure to install and use a firewall application on each of your PCs.

Step two. Step two is making sure that your computer's OS (operating system) and applications are up-to-date. The simplest way to do this is to enable Windows Update to run automatically. To configure Windows Update on Windows XP systems (both Home and Professional editions), right-click My Computer (sometimes on your Start menu), select Properties, and choose the Automatic Updates tab. Select the Keep My Computer Up To Date checkbox (if applicable) and then choose one of three settings below, such as the one that lets Windows Update automatically download updates. (Updates also may require you to restart your computer.)

If you're using Windows 2000 with Service Pack 4, you need to follow a slightly different procedure. Click Start,

Settings, Control Panel, and Automatic Updates. Next, from the dialog box that displays, follow the same steps we outlined for WinXP.

To activate the Automatic Updates feature in Windows Me, open the Control Panel (via the Start menu) and double-click the Automatic Updates icon. In the dialog box, select the radio button next to Automatically Download Updates And Notify Me When They Are Ready To Be Installed and click OK.

Unfortunately, Windows 98 doesn't have an Automatic Updates feature, so you'll need to regularly visit Microsoft's Windows Update site to manually update your PC (at least on a weekly basis). To do so, launch Internet Explorer, open its Tools menu, and click Windows Update.

Although Windows Update will take care of small patches and hotfixes, Microsoft usually introduces larger updates by releasing service packs. If you're using Win2000, you should install Service Pack 4. If you're using WinXP (Home or Pro), you should install Service Pack 1. (Microsoft plans to release Service Pack 2 for WinXP this fall.) You can obtain these service packs by visiting the Windows Update site.

Step three. Step three is keeping your computer secure by using an antivirus program and keeping its virus definitions current. Viruses have become a favorite way for hackers to co-opt a PC. The program you're using, Symantec's Norton Internet Security 2003, includes Norton AntiVirus, which is a reliable antivirus application.

Although these steps aren't all-encompassing, they do form the foundation of a secure PC. Based on what you reported, you've already established a strong footing. Norton Internet Security has been protecting your computer against external attacks, but you'll need to follow our guidelines to avoid leaving several avenues open that crackers can use to attack your computer.

Also, depending on its configuration, Norton Internet Security may be reporting what are referred to as **false positives**. A false positive can occur when some innocuous event triggers the firewall. This could happen when an application you routinely use tries to access the Internet or when a malfunctioning Web site sends data to your computer that the firewall deems as dangerous. When your friend worked on your computer, he may have inadvertently configured Norton Internet Security to its strictest level, which can result in benign activity being reported as hostile.

To address your question about reporting hacking attempts, our recommendation is that it's probably a good idea. Whether Symantec will be able to help apprehend the perpetrators is anyone's guess, but letting Symantec at least know about them is better than just ignoring the problem altogether.



Windows

Q Why does WinXP Pro slow down and show high CPU usage? I have a 1-year-old Dell Dimension 8250 with a

2.4GHz Pentium 4 CPU and 512MB of RAM. The slowdown is intermittent and doesn't correspond to anything specific that's running on my system. Yet, when my system is slow to respond, I check the CPU usage, and it's listed at 100%. After I restart my PC, the usage goes back down to about 2%. I've even tried to challenge my PC to run slowly after I restart it by opening numerous programs, but I don't notice any effect then. It's a mystery that needs to be solved.

A You're not the only one suffering, either. We've seen reports about WinXP slowing down and displaying a high CPU usage all over the Internet. Let's check for the possibility of spyware first. Spyware might load onto your system when you download something else or gain entry as an email attachment. The purpose of spyware is to report your activities to someone else via the Internet. If you have several of these spyware programs (or even just one), they might be utilizing your CPU in the background to gather information, generate reports, and transmit this data via the Internet.

There are several products available online to help you combat spyware. One of the most popular is Spybot Search & Destroy by Patrick Kolla (free; <http://www.safer-networking.org>). Another popular spyware swatter is Lavasoft's Ad-Aware (free; <http://www.lavasoftusa.com>).

From here, we enter the murky world of system services that run in the background, regardless of whether you're using your system. Versions of Microsoft Office through Office 2000 employed an indexing service called Find Fast (sometimes called Fast Find). Later versions of Office relied on the Microsoft Indexing Service found in Win2000 and WinXP for the same services (to keep an active index of hard drive content to speed up searches). Both services are notorious CPU hounds that can reduce system performance during idle and not-so-idle moments.

If you have Find Fast, you may notice a mysterious program in your Startup folder called OSA9.exe. If you haven't done so already, create a Do Not Start folder and then move this program to it. Right-click the Start menu button and select Open from the context menu. A Windows Explorer window will open with the folders of your Start menu displayed. Double-click the Programs folder icon, right-click an empty space within the Programs folder window, and select New and Folder from the context menu. The folder's default name, New Folder, will appear highlighted; rename the folder by typing **Do Not Start** (or any other name you want to use) and pressing ENTER. Next, locate the

Startup folder (within the Programs folder), double-click it to open it, select the Find Fast icon (and icons for any other applications you want to prevent from starting when Windows starts), and drag and drop the icons to the new Do Not Start folder.

To find the Indexing Service, open the Start menu and click All Programs, Administrative Tools, and Services. When the Services window opens, find Indexing Service on the list, disable it by right-clicking the service name, selecting Properties from the context menu, selecting Disabled from the Startup Type dropdown menu, and clicking OK. This action also should stop a companion application, Cidaemon.exe.

In addition, if you've subscribed to any P2P (peer-to-peer) networking services to share music or anything else online, you might want to reconsider using such services because they also account for a lot of CPU usage at unpredictable times.



Hardware

Q All I want to be able to do is to connect my notebook wirelessly instead of dragging an Ethernet cable around the house. I'd like to be able to connect the WAP (wireless access point) to the Ethernet port to which the notebook is usually connected, configure security settings, and access my DSL (Digital Subscriber Line) modem and networked drives and printers. I realize I'll also have to buy a wireless PC Card for my notebook, too. Is there a WAP (without making routing, bridging, extra Ethernet ports necessary) that will connect to my existing wired Ethernet?

A Yes, and adding a WAP to a traditional wired Ethernet network is an excellent way to extend the life of your older network. Although multipurpose devices that combine routing, firewalling, and switching with wireless functionality are becoming the norm, dedicated access points are available from both D-Link (<http://www.dlink.com>) and Linksys (<http://www.linksys.com>).

Depending on the transfer speed you require, you should expect to pay from \$65 to \$99 for your WAP. A wireless notebook adapter will cost between \$49 and \$99. We recommend using the newer 802.11g wireless devices for faster transfer rates. They still command a premium over the older (and slower) 802.11b devices, but you'll appreciate the faster speeds of 802.11g wireless devices. 802.11g has a maximum transfer rate of 54Mbps (megabits per second), whereas 802.11b caps out at 11Mbps. Most 802.11g devices are backward-compatible with 802.11b equipment, but using a mixture of devices from these two standards will result in making the entire wireless network run at the slower speed.

Another feature to look for when shopping for Wi-Fi devices is support for WPA (Wi-Fi Protected Access). This technology is a vast improvement over the traditional WEP (Wired Equivalent Privacy) that initially shipped with most Wi-Fi devices. As long as your notebook is running Win2000 or WinXP, you'll be able to use WPA to protect your wireless network against eavesdroppers.



Utilities

Q I have a home Wi-Fi network that uses a Linksys router and several adapters. I recently upgraded my hardware from 802.11b to 802.11g to get enhanced WPA security rather than relying on WEP, which is known to be deficient. My DSL modem connects to a WRT54G Linksys router, which connects to a desktop computer running Win2000. Several Win2000 notebooks access this network using wireless 802.11g (WPC54G) notebook adapters. The problem is that when I configured the router for WPA, I discovered that I couldn't connect to the router using my WPC54G notebook adapters because they didn't offer me the option of using WPA to communicate; the only option was WEP. Digging into the matter further, I discovered that the only way to access my 802.11g router using my 802.11g adapters and WPA (with Win2000 systems) was by buying Odyssey software from Funk Software, a third party. Microsoft states that it resolved this problem in WinXP, but I cannot afford to upgrade all of my PCs to WinXP just to switch from WEP to WPA.

A You're correct; using WPA in place of WEP improves your wireless network's security immensely. Although WEP provides a reasonable barrier to casual intrusions, it's easily swept aside by more determined intruders. WPA currently provides the wireless home user with the most stringent protection available, and we commend your foresight.

Unfortunately, Microsoft hasn't released a WPA client for Win2000 and has given no indication that it will. This shortcoming has left many users in the lurch as they've tried to use WPA. As you discovered, your two options are to upgrade your systems to WinXP or purchase several copies of a third-party client, and the client you mentioned, Odyssey, costs \$230 for five clients, \$425 for 10 clients, and up. However, another option became available in early 2004 with the release of WPA Assistant from WSC (Wireless Security Corp.; <http://www.wirelesssecuritycorp.com>). WSC distributes WPA Assistant (a 5MB download) as freeware. Of course, WSC hopes you'll upgrade to its WSC Guard program for \$4.95 per month, but, in our opinion, WPA Assistant is more appropriate for personal and home office use.

The Mystery Of The Missing Quick Launch Toolbar

We received numerous requests—from users of Windows 98, Windows Me, Windows XP, and Windows 2000 alike—for information on how to restore a lost, damaged, or accidentally deleted Quick Launch toolbar.

Normally, to create a new toolbar on your Taskbar, you'd right-click anywhere on an empty section of the Taskbar, choose Toolbars from the context menu, and then either select a toolbar option or click New Toolbar and follow the subsequent dialog box's instructions. But there's a catch: If the folder that once held your Quick Launch toolbar has disappeared, you're more likely to get an error message that says, "Cannot create toolbar for XX." So, the first thing you'll need to do is re-create your Quick Launch folder.

The process for re-creating a Quick Launch folder differs slightly among the OSes (operating systems), so we listed some instructions for Win98/Me users separately from those for WinXP/2000 users. And, as you'll notice, we included instructions that apply to all these users.

Win98/Me: Most Win98/Me users can create a Quick Launch folder at: C:\WINDOWS\APPLICATION DATA\MICROSOFT\INTERNET EXPLORER. To do this, open Windows Explorer, navigate to the IE folder, right-click an empty area of the folder, and select New and Folder. After creating the folder, name it Quick Launch.

If you're using Windows Profiles, where each user can customize his own environment, you'll need to create the Quick Launch folder at: C:\WINDOWS\PROFILES\PROFILE NAME\APPLICATION DATA\MICROSOFT\INTERNET EXPLORER (where *PROFILE NAME* represents a username).

The next set of instructions for Win98/Me users is in the "All versions" section after the following paragraphs.

WinXP/2000: Most WinXP/2000 users will need to create the Quick Launch folder at: C:\DOCUMENTS AND SETTINGS\PROFILE NAME\APPLICATION DATA\MICROSOFT\INTERNET

EXPLORER (where *PROFILE NAME* represents a username). But if multiple users share a system and/or if there also is an Administrator, then the Quick Launch toolbar may be missing for all users. If so, create a Quick Launch folder in each user's Documents And Settings folder and create additional Quick Launch folders in the Administrator and Default User folders, located at C:\DOCUMENTS AND SETTINGS\ADMINISTRATOR\APPLICATION DATA\MICROSOFT\INTERNET EXPLORER and C:\DOCUMENTS AND SETTINGS\DEFAULT USER\APPLICATION DATA\MICROSOFT\INTERNET EXPLORER.

All versions: Add the Quick Launch toolbar to the Taskbar by right-clicking an empty portion of the Taskbar, choosing Toolbars, and selecting Quick Launch. Because the Quick Launch area is empty, your next step is to add items to it. This process is slightly different depending on your Windows version.

Win98/Me: Add a program to the Quick Launch area by finding that program on your Start menu, right-clicking its icon/name, and holding down the mouse button until you finish dragging the icon/name to the Quick Launch area. Once there, release the mouse button and click Copy Here. This simple drag-and-drop process works for all Microsoft apps and many other apps. Note that if you use Windows Profiles, the selections you make will appear only in the Quick Launch toolbar for you; other users will have to repeat these same steps under their usernames.

WinXP/2000: If you are logged in as the Administrator, you can add items to the Administrator Quick Launch toolbar and have these choices reflected in the toolbars of all users with Administrative privileges; otherwise, other users will have to repeat these steps under their usernames to add items to their Quick Launch toolbars.

All versions: To restore the Show Desktop command to the Quick Launch toolbar, you'll need to use Notepad (or another text editor that

doesn't embed hidden style commands in the text) and create a file containing these lines:

```
[Shell]
Command=2
IconFile=explorer.exe,3

[Taskbar]
Command=ToggleDesktop
```

The punctuation, capitalization, and spacing we present here are important. Name the new file Show Desktop.scf. As you save the file, Notepad (or another text editor) may try to add a .TXT extension to it; be sure to remove this extension before you click Save because the instructions won't work if the file's name is Show Desktop.scf.txt. Where you save the Show Desktop.scf file also is important. According to Microsoft, you should save the original file in the WINDOWS\SYSTEM folder (Win98/Me), or the WINDOWS\SYSTEM32 folder (WinXP), or the WINNT\SYSTEM32 folder (Win2000). Then, Microsoft suggests creating shortcut copies of the file and placing them in all of the appropriate Quick Launch folder locations we discussed previously. We noticed that if you have only one Quick Launch folder (such as when you're the only user of a PC), you can save the original Show Desktop.scf file directly into your Quick Launch folder and save yourself a step. Otherwise, right-click the Show Desktop.scf file you saved into one of the System (or System32) folders, drag it to a Quick Launch folder, and when you release the right mouse button, click Create Shortcut Here. Repeat these steps for each Quick Launch folder that you want to include the Show Desktop command.

After you've copied the shortcuts, you may want to rename them to Show Desktop so you don't see the default "Shortcut to Show Desktop.scf" name. To do so, right-click the shortcut and choose Rename from the context menu to edit the name. ■

Frequently Asked Questions

Answers to users' most common questions about
Hard Drive Performance

FAQ What is fragmentation? Does it affect the performance of my hard drive?

Your OS (operating system) divides hard drive space into groups of sectors called clusters. Clusters are small—only up to 64KB in size (depending on the size of your drive partition). When you save a file, your OS assigns its contents to an available cluster. If there is data left over, your OS places it into another available cluster, then another (if necessary), and so on, until the OS has saved the entire file. If you delete the file, the OS marks those clusters as “free” and makes them available to store other files. But the clusters your OS uses to store a file aren’t necessarily contiguous; they can actually be anywhere on the hard drive (wherever an available cluster is handy).

As you save, modify, and delete files, the clusters where they reside can become scattered across the hard drive. This is what’s known as **file fragmentation**. The problem with fragmentation is that it takes time for the hard drive to locate each cluster, which reduces hard drive performance and can lead to premature drive failure in extreme cases.

Now that you understand what fragmentation is, you can see that grouping related clusters contiguously will speed up the hard drive’s access time and reduce wear and tear. Windows includes a Disk Defragmenter utility that can reorganize your hard drive. You’ll find it in the Start menu’s System Tools submenu (within the Accessories submenu). For even faster results, you can try a third-party defragmenter such as Diskeeper Home Edition 8.0 (\$29.95; <http://www.execsoft.com/diskeeper>).

FAQ Why do I keep seeing a note about “lost allocation units” every time I run ScanDisk?

“Allocation units” is another way to refer to clusters. Every cluster that stores a file has a number, and the first cluster

used to store a particular file should point to the number of the second cluster involved in storing that file (wherever it may be on the hard drive), and so on. This lets the hard drive know which clusters to seek when loading a file. However, sometimes a data glitch, media error, computer virus, or power failure corrupts the link between two clusters, breaking the chain of clusters used to store a file. Any allocation units (clusters) after the break are then “lost.”

Lost allocation units are common, and ScanDisk can typically recover them (although the file they were a part of is now damaged). If you encounter lost allocation units frequently or consistently, it may signal a serious problem with the hard drive. Run an antivirus utility to eliminate any potential viruses, check your hard drive cabling and connections, and run ScanDisk to check the drive media. If the problem persists (or returns), back up as much data as you can and replace the troublesome hard drive.

FAQ Can I improve my hard drive’s performance by increasing Windows’ DMA (Direct Memory Access) mode?

The **data transfer mode** refers to the interface speed of the hard drive; the rate at which data passes from the drive to the drive controller across a cable. Older hard drives used PIO (Programmed I/O) modes that involved a lot of CPU interaction, which limited the data transfer speeds. DMA modes are much faster, allowing data to pass with a minimum of CPU intervention. Today, top-of-the-line hard drives employ UDMA (Ultra DMA) Mode 6 for bursts of data up to 133MBps (megabytes per second). SATA (Serial ATA [Advanced Technology Attachment]) drives are even faster with a theoretical maximum throughput of 150MBps.

You typically don’t need to manually set the data transfer mode; it’s automatically selected when the computer detects the hard drive upon startup. Even so, you can easily check the current settings in the Device Manager. In Windows XP, right-click My Computer (which may be on your Start menu or Desktop), select Properties, choose the Hardware tab, and click Device Manager. Expand the IDE ATA/ATAPI Controllers entry by clicking the plus sign (+), right-click the Primary IDE Channel entry, and select Properties. Next, choose the Advanced Settings tab and check the Transfer Mode field for your first hard drive (in the Device 0 section). DMA If Available should appear in the field. In the Current Transfer Mode field below, you’ll notice that you cannot select a specific DMA mode—it’s already chosen for you (such as Ultra DMA Mode 5 for a UDMA/100 hard drive).

If you see PIO Only listed in the Transfer Mode field, your drive is seriously underperforming. Select DMA If Available from the Transfer Mode drop-down menu, click OK to save the change, reboot your system, and check the entry again to make sure your change took effect. If not, your hard drive, cable, drive controller, and/or motherboard drivers aren’t supporting DMA transfers.



Updating Old Software & Getting What You Pay For

I have an old DOS program called Names & Dates. It's dated 1991 and published by WR Software out of Walnut Creek, Calif. I've installed the program on all my systems, but I can only print from the program using an older Canon BJ-200 printer connected to a parallel port. My other systems use newer USB (Universal Serial Bus) printers. Is there any way I can print to my USB printers or obtain a newer version of the program? Any chance WR Software is still around?

Irwin Hersh
Valley Stream, N.Y.

We couldn't find any reference to WR Software via Google or online Yellow Pages services, but we did find an old copy of Names & Dates online. The documentation included with the program contained the developer's address (a P.O. box) and phone number. We didn't find a Web address for the developer, but this software does predate the World Wide Web. Names & Dates' developer also created the program before the advent of USB, so that's why Names & Dates doesn't work with your USB printers. There is a procedure, however, that may provide a workaround; you can read more about it at http://www.decompile.com/dataflex/tips/usb_printer.htm. These instructions concern a similar program called DataFlex, but you should be able to apply them to Names & Dates.

Alternatively, you may want to consider using a newer application. Names & Dates is very similar to modern PIM (personal information manager) software. Perhaps the most well-known PIM is Microsoft Outlook (\$109; <http://www.microsoft.com>), but there are several less expensive PIM applications available. AZZ Cardfile (<http://www.azzcardfile.com>), for instance, bills itself as a simple, easy to use PIM, and it costs only \$12 for a single user license. Using your favorite search engine, you can find many other PIM software alternatives, as well.

On March 3, I clicked a banner offering a free \$50 gift card through GiftCards.com. I selected a

Costco gift card and paid \$6.95 for shipping and handling. It has been 12 weeks, and I still haven't received my gift card.

Wanda Barrett
Bedford, Pa.

We contacted GiftCards.com's parent company, Direct Response Technologies, through the company's Web site (<http://www.directresponse.com>). We never heard back from Direct Response, but we did hear back from Wanda letting us know she received her card on June 24.

I want to let you know that sometimes companies do come through for their customers. I purchased a Gateway system from Office Depot in Tucson, Ariz. Later, when setting up the system, I discovered it was completely dead. I got nowhere with Gateway's technical support department; after speaking to numerous representatives, Gateway claimed a faulty power supply was to blame. A representative told me Gateway would order a power supply replacement for me, but I'd have to install the power supply myself even though I have no experience installing computer hardware. Later, however, Gateway canceled the replacement power supply order and asked me to return the unit to Office Depot.

Dealing with Office Depot was a more pleasant experience. The representative I spoke with arranged for me to ship the unit back (because the nearest Office Depot was 160 miles away) for a full refund. I just want to say how much I appreciate Office Depot's commitment to stand by its customers.

Modine Uribe
Yuma, Ariz.

We rarely hear from satisfied customers, so Modine's letter serves as a refreshing reminder of those common occasions when businesses do take care of their customers. We're glad everything worked out for Modine, and we thank her for the letter.

ACTION EDITOR

Are you having trouble finding a product or getting adequate service from a manufacturer? If so, we want to help solve your problem. Send us a description of the product you're seeking or the problem you're having with customer service. In billing disputes, include relevant information (such as account numbers or screen names for online services) and photocopies of checks. Include your phone number in case we need to contact you.

Letters may be edited for length and clarity; volume prohibits individual replies.

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Let's Just Collapse That Bridge When We Come To It

Allie, a reader in Washington state, recently emailed to complain about the appalling amount of time users are required to spend gathering and installing software upgrades, security updates, and application patches. We seem, she said, to spend more time updating and protecting our computers than using them.

She's right, of course, and her email reminded me of a conversation I had with John, a programmer with whom I once worked.

Our company had just decided that, henceforth, programmers were to be known as software engineers. Apparently, the powers that be had determined that software engineer sounded more sophisticated than programmer. (I was stuck with my original title, Director of Software Development, even though I lobbied hard for First Lord of Software Development or at least Software Development Demigod.)

John thought his new title was silly and, worse yet, inappropriate. He made his argument via an analogy: Imagine driving up to a large suspension bridge that stretches out over a vast bay or deep canyon. On the bridge stands a sign that says, "Welcome to the Grace Hopper Memorial Bridge. This bridge is not guaranteed to hold any specific amount of weight. Or any weight at all. It might fall down. It might not. It kinda depends. We don't think it will collapse, but you never know, right? Please enjoy your drive."

No one would drive on such a bridge. Yet, that's exactly the kind of "guarantee" one gets with software: "It'll probably work, but we can't promise anything. If it doesn't work, well, sorry."

John's point was that until the science of software development matures to the point where its complex interactions can be predicted with the same 99% certainty that we can ascribe to a physical structure, those who develop software should not be—and do not deserve to be—called engineers. (By the way, when driving over a bridge, does anybody else worry about that remaining 1%? Or is that just me?)

Software is incredibly complex, much more complicated than most people realize. Millions of lines of code interact with each other thousands of times per second, all of it running on systems whose configurations can be—and usually are—wildly different from one another. As much as the science of software development has evolved and as sophisticated as testing and development tools have become, it is not yet possible to flat-out guarantee that any

given piece of software will do the job for which it was designed.

We wish it were possible, of course. In fact, we'd really like our computing experience to mirror our driving experience. Modern automobiles are straightforward devices, at least from the operator's perspective: You get in, you turn the key, the car starts up, and off you go. (Well, usually. If you drive a '69 Bronco, as I do, things get iffy.) You don't need to be a mechanic to drive a car; few people know what's going on under the hood because few people need to know. After all, your car doesn't suddenly stop for no discernible reason. (Again, 35-year-old Broncos excepted.) It doesn't (yet) need to be protected against virus-writing miscreants. Above all, you don't have to keep getting updates so that your car will run, just because someone repaved a road or built a new highway.

Unfortunately, computing is not yet a true turnkey experience. It's better than it was, especially considering how much more we demand from our machines these days. But it's not as good as it will be, not yet as simple as it needs to be.

But cars were not always "turnkey" experiences, either. There was a time when one did have to be a mechanic to drive, when any trip of more than a couple miles was sure to involve a leaky radiator or a broken axle, when engine timing had to be advanced by hand and while on-the-go, and when anyone who owned a car had to be able to fashion parts in his own workshop or at the local machine shop. In other words, people who chose to take advantage of immature automotive technology knew that it would occasionally be necessary to get their hands dirty. Back then, cars were not for the faint of heart.

Automobiles have evolved, but a computer is still a complex collection of immature technologies. Although they've come quite a ways since they were introduced, computers still regularly frustrate us, and we're often forced to get more involved in their maintenance and repair than we'd care to. It's not nearly as bad as it was back in the 1970s, when one had to be a programmer in order to use a computer, but it's not yet the turnkey experience it will someday be.

At least cars no longer demand this sort of painstaking, frustrating attention. Well, most cars. ■



BY ROD SCHER

Rod Scher is a former software developer and a recovering English teacher. He's also the publication editor of Smart Computing and will no doubt continue in that position until such time as his boss reads this column. Contact Rod at rod-scher@smartcomputing.com.

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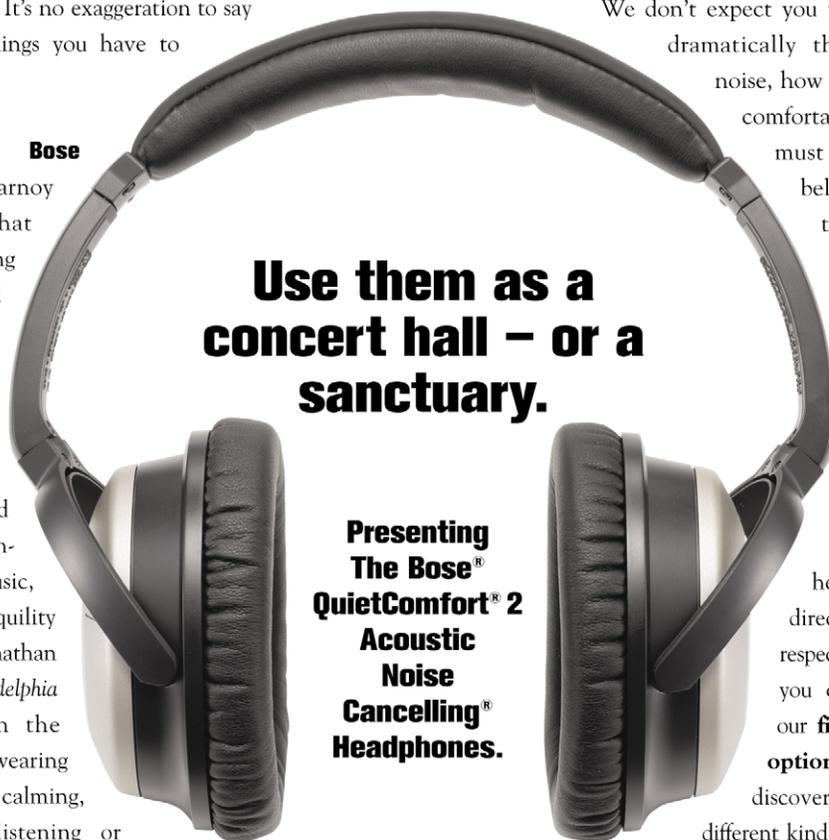
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