

60 AWESOME LOW-COST (OR FREE!) UTILITIES

**SOFTWARE BARGAINS: ORGANIZATIONAL
APPS, CREATIVE TOOLS, AND MORE, p. 56**

Macworld

The Mac Product Experts www.macworld.com | November 2004

INSIDERS' GUIDE

iMac G5

**Get the Skinny on
Apple's Faster, Slimmer
All-in-One Mac**



KILLER MAC ROBOTS

REVIEWS 7 DV CAMCORDERS | **CREATE** HOT PHOTOSHOP TIPS



From the creators of iPod **The new iMac G5**

iPod® puts all your music in your pocket. The new iMac G5 puts ar

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entire computer in an ultra-slim 17- or 20-inch display. From \$1,299:

Macworld

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JASON SNELL

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Photography by
Peter Belanger



The Virtual CD

All readers now have free access to the contents of the CD-ROM that comes with some copies of *Macworld*. To view the contents of the CD, go to the following URL (broadband Internet recommended):

<http://cd.macworld.com/2004/11/mirror-bell>

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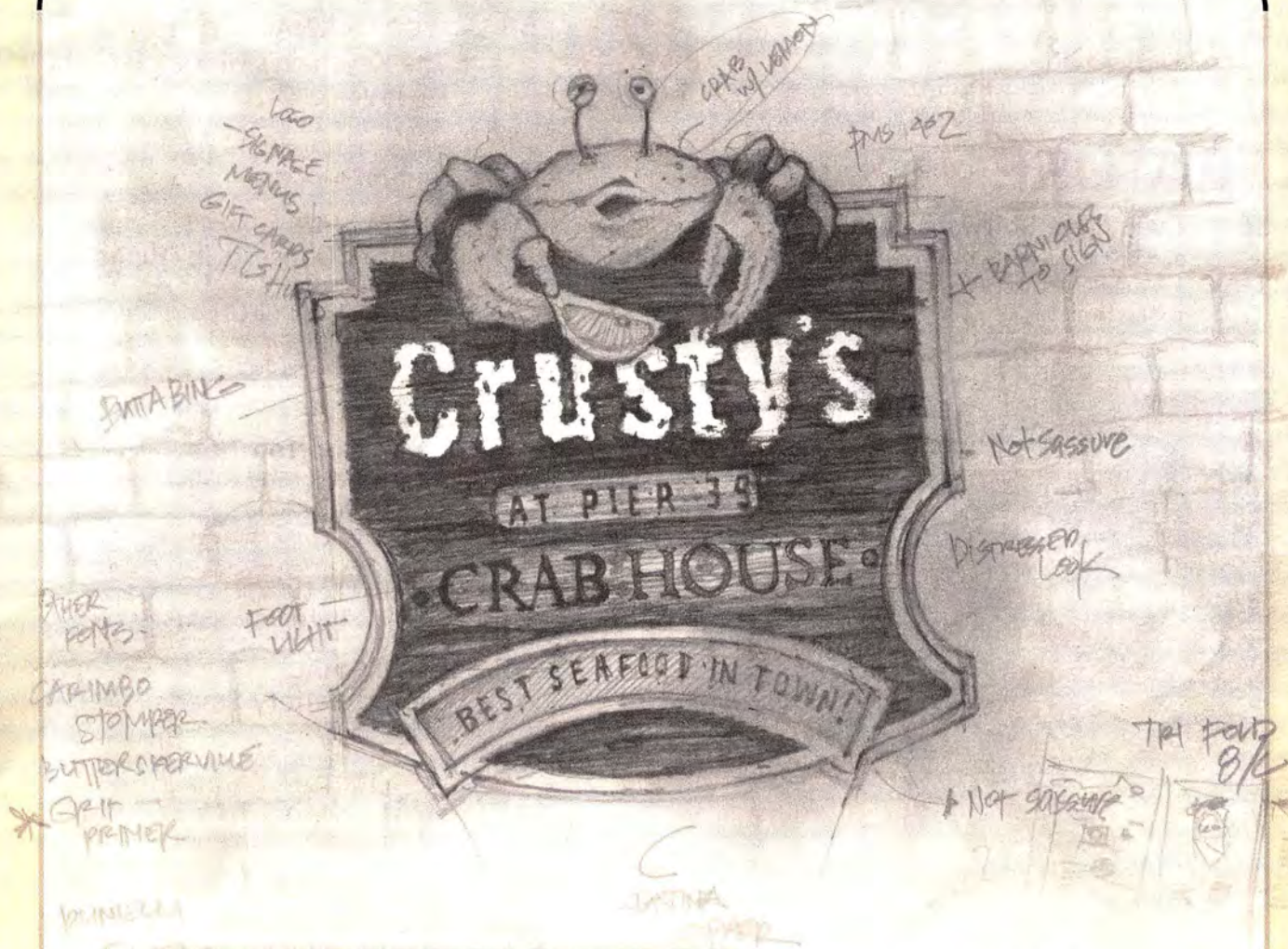
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The Once and Future iMac

Ever since the iMac helped reverse Apple's slipping fortunes back in 1998, it has been viewed as a symbol of the company's health. But I don't think that's the case anymore. For one thing, the iPod has usurped the iMac's position as company star (the tag line of the new iMac ads is "From the creators of iPod"). And many former iMac users are now graduating to PowerBooks and Power Macs.

The G5 Difference

Still, the iMac G5—more powerful than the previous iMac but only slightly larger than the average flat-panel display—is an impressive bit of engineering. Consider the challenge Apple's hardware designers faced in trying to fit a G5 processor into such a small space. The G5 chip runs extremely hot, but it and all the other components had to be crammed inside a tiny, two-inch-deep enclosure. The solution: a half-dozen independently controlled fans keeping three separate cooling zones at safe temperatures. Even the iMac's L-shaped aluminum foot benefits from some typically clever Apple design touches. (For more on the new iMac, inside and out, see our cover story, page 50.)

But the iMac G5 has taken some lumps for being a bit too predictable. After all, attaching a computer to a flat-panel screen isn't exactly original. People were suggesting that design even before the iMac G4 was introduced. But I think those criticisms are unfair: With this new iMac, Apple has managed to get the computer completely out of a user's face. Unlike all-in-one computers from PC makers, the iMac doesn't have a Quasimodo-like hump bulging from its back.

Also, given the growth of wireless technologies and the continuing miniaturization of computer technology, it's only a matter of time before that physical box we've called "the desktop computer" disappears from our lives, stashed away in a closet or embedded in a device like a flat-panel monitor. So I think the new iMac is a glimpse into the future. As someone who likes computers because of what I can do with them, not because I like to keep big metal boxes near my desk, I can't wait for that tomorrow to arrive.

Bargains and Gems

I think the most interesting part of the Mac world right now is the software being generated by hundreds of brilliant, independent programmers who have embraced OS X. Few of these programs will appear in stores or advertisements. But they're often excellent, professional-quality apps.

Since these programs tend to rely on word of mouth for publicity, a lot of them fall through the

cracks. That's why we've been championing them in the pages of *Macworld* for the past couple of years. In this issue, you'll find our third "Software Bargains" roundup (page 56), featuring 60 very cool, low-cost (or free) Mac applications you'll want to check out for yourself. And every month, we present *Mac Gems*, a column in which Senior Writer Dan Frakes shines a spotlight on some excellent Mac products that might otherwise go unnoticed.

Now *Mac Gems* will also appear online, in the form of a new Weblog at Macworld.com. Several times a week, Dan will review great new Mac software at www.macworld.com/weblogs/macgems. Even if you consider yourself a savvy Mac user, I think Dan will surprise you with a lot of excellent apps you've never heard about. □

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Every month, we produce a companion CD-ROM full of extra stuff, including video tutorials from Christopher Breen, supplemental magazine material, and the latest Mac software. The problem: that CD-ROM is included only with selected copies of the magazine. The solution: every reader of *Macworld* can view the contents of that CD-ROM, in Web form. If you don't have the CD-ROM (and, preferably, if you have a broadband Internet connection), you can see the contents of this month's "virtual CD" at <http://cd.macworld.com/2004/11/> mirror-bell. You can always find the Web address of your issue's CD-ROM content by looking at the magazine's table of contents.



What do you think of the iMac G5? Got a favorite piece of Mac software more people should know about? Drop me a line, at jason_snell@macworld.com, or visit the Macworld.com forums.

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FEEDBACK

Do-It-Yourself Feedback

Inspired by our August 2004 issue, we wanted to give you a step-by-step guide for assembling your own *Feedback* section. Step 1: Publish an issue packed with do-it-yourself tips, a challenge to build the ideal Mac-based home office, and an in-depth review of Microsoft Office 2004. Step 2: Put that issue in the hands of readers who are never at a loss when it comes to offering how-to tips of their own. It's not as challenging as installing a SuperDrive in a PowerBook G4, but it's every bit as rewarding. □

How-to Help

VINCENT GREEN

I'm a little bothered by the instructions you gave, in "The Next Do-It-Yourself Mac" (August 2004), for removing the original drive from a PowerBook G4 and installing a SuperDrive. I'm an Apple-certified technician; I make my living performing these kinds of repairs, and there are certain measures that I must follow. The methods you listed do not provide any information concerning the protection of sensitive parts while working on the machine. I fear that some people may inadvertently damage their machines by following those instructions. Whenever you need to remove the bottom case to work on something, you should put a soft cloth between the display and the top case. Regarding the actual removal of the drive, there is a little metal clip that hooks onto the inner frame right between the two orange flex cables. That clip could possibly shear the flex cable when you pull it out; it's a good idea to remove that clip first.

ANDREW SKINNER

Inspired by the "Turn Your Mac into a Picture Frame" how-to, I have begun making my own Mac digital picture frame. My Web site www.likelysoft.com/hacks details my project status and lists resources for people who want to start a similar project.

STEVE MILLS

Regarding the "Accessorize Your iSight" project, that plastic tube is going to overhear the iSight. Even when it's not in use, the iSight is *very* hot. All that heat will make the tape's adhesive all mushy and the lens could possibly fall off and crack. And the heat will also make the rubber band mushy, leaving goo all over the back of the iSight if it's left on for a few weeks.

The lens holder could be problematic if you always left it on your iSight. The easiest solution is to pop your homemade accessory on only when you need to use it.—Ed.

JOHN D. BARNES

Contrary to the reporting in your "Blur the Lines between Mac and TV" item, Elgato's EyeTV connected to my cable provider does act as a channel selector. There is also functionality for searching a program guide through TitanTV, which makes for easy search, point, and click scheduling. While the resolution of the image isn't superb, it's good enough to allow me to learn the secrets on the Food Channel.

We meant to say that the EyeTV can't change the channels on a digital cable or satellite box; we apologize for any confusion. As for TitanTV, we mentioned that programming guide in our July 2004 review of EyeTV 200.—Ed.

A Six-Grand Old Time

LARRY BARROWS

I thought that "Macworld's \$6,000 Challenge" (August 2004) was very useful and informative. I liked the counterpoint of the two types of systems and the two writers' approaches to spending the same amount of money. I'd also like to know what they could do with about \$15,000 for a video-editing and media-center system, or with the same amount for a home recording studio. Please make this a recurring feature.

TONY WARD

How did your Bargain Hunter manage to spend more on Microsoft Office 2004 than your Hassle-Free User? OK, so \$9 isn't a big deal. But if your Bargain Hunter had just shopped around, he could have picked up Office 2004 for \$330 at Amazon.com or even less elsewhere. He also could have

saved money on the .Mac subscription, which has been \$75 at Amazon.com since as far back as May. Retrospect Desktop 6.0 is at least \$10 cheaper at various online outlets including MacMall. I could have saved a couple hundred dollars just by shopping around online for a few minutes.

The savings from ordering Office, Retrospect, and other products from multiple vendors would likely have been eaten up by tax and shipping charges. Bundling an order of multiple products from one vendor often saves more money in the long run because you pay for shipping only once. Subscribing to .Mac through Amazon.com is a cool suggestion.—Adam C. Engst

DREW BOONE

I was a bit confused by Christopher Breen's hassle-free shopping list. Specifically, I consider the purchase of a Windows PC, with Microsoft Office as the only productivity app, a waste—and a less than hassle-free one at that. I concede that compatibility problems can arise between Windows and Mac versions of Office. But would purchasing a PC really reduce hassles in these limited cases? You must maintain two computers, one of which is a Windows machine. In the end, it would be more economical and hassle-free to purchase a conversion program such as MacLinkPlus Deluxe to address compatibility issues.

It's true that documents that don't translate correctly can be a nuisance—one that you wouldn't want to inflict on a client—but having a Windows PC when you're working in a multiplatform setting is about more than whether a PowerPoint slide works on a different platform. There are also the issues of taking screenshots or exploring software or Web sites that may not work on a Mac. When you need the real thing, emulation just can't cut it.—Christopher Breen

Office Space

STEVEN R. SCHMID

I obtained my copy of Microsoft Office 2004 after reading about the nice improvements in PowerPoint and Word (*Reviews*, August 2004). Unfortunately, there's still a major feature missing from these programs: integration with PDF files. A PDF file pasted into Keynote, for example, is handled perfectly, but in Word or PowerPoint, the image clarity is lost.

KDE OK?

LISA FAHRMEYER

I was excited about "Hasta La Vista, Aqua" (*Geek Factor*, August 2004). With a bit of fiddling, I got my newbie head around it and got KDE set up without a hitch. Well, except maybe one: Everything runs smoothly with the desktop icons off except the KOffice programs, which simply will not load. They show up in the Kicker, but the little hourglass spins for about 30 seconds and then the program fails to launch. Every other program, with the exception of AMOR, works fine.

MARTIN DOYLE

Many thanks to Cyrus Farivar for the article on how to put KDE on my OS X box. It was very helpful, as I've been looking for a step-by-step process. But either more details or some troubleshooting information might also have been helpful. I followed the instructions and was playing around with a successfully installed KDE when I positioned the Dock on the left-hand side of the screen—and X11 crashed. And it continued to crash on startup until I was quick enough to move the Dock to a different position on the edge of the screen. I understand that open-source programs are continually evolving, but now that I've got it installed, I haven't the faintest idea how to go about troubleshooting it, or even what to delete so that I can reinstall it.

Some readers reported that the KDE installation appeared to take more than 50GB of space. Benjamin Reed, one of the main developers of the Fink project, says that this calculation is a bug. If you run into installation difficulties, the best place to find help is the Fink developers and users list (go to find .macworld.com/0048).—Cyrus Farivar

Blocked Off

JEFF GRIFFIN

"Web Mail Supersizes" (*Mac Beat*, August 2004) lists free e-mail providers. But Mailblocks.com doesn't seem to be free after all. On its Web site, Mailblocks.com advertises only for-pay service.

Mailblocks.com stopped accepting registration for new free accounts on July 19, in anticipation of its acquisition by America Online. Free accounts are on hold indefinitely as Mailblocks.com is integrated into AOL's offerings.—Glenn Fleishman

Nothing Lasts Forever

JOHN M. LUCAS

I read "Offer of a Lifetime" (*Mac Beat*, August 2004) and can't help but wonder how long Mariner Software's offer of free upgrades for the rest of a program's lifetime will exist. Or how long a "lifetime" is. I once had lifetime virus updates promised to me for Norton's Symantec Antivirus for Macintosh (SAM), up until

continues



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version 4.5.1. Then, in 1999, national accounting rules that companies had to follow were changed—they had to start taking charges for the estimated future cost of fulfilling those lifetime upgrades. Norton's response was to release SAM 5, which offered only one year of free updates; additional updates were available only by subscription. Norton claimed that SAM 5 was a new product and that the "lifetime" of version 4 was over.

iPhoto Fan


RANDY A. MAYNARD

I'm not sure what features reader Jedediah Leachman expects from a "serious photo manager" (*Feedback*, August 2004), but I am sure that iPhoto 4 lets me easily and effectively organize my 2,457 family photos. Maybe professional graphics people need more. But with Smart Albums, keywords, basic photo-editing features, batch naming and modifying, awesome slide shows, seamless integration with other i-apps, book creation, simple Web-page construction through .Mac, powerful printing options, and easy photo-sharing

on my home network, I think that iPhoto 4 is awesome.

Pocket Full of Troubles?

JORAM SAWADY

I was surprised by Andy Ihnatko's  rating of PocketMac Pro 3.3 (*Reviews*, August 2004). Since installing the program more than a month ago, I've never gotten it to synchronize my Hewlett-Packard iPAQ 5555 and Microsoft Entourage on my G4 PowerBook. When trying to do so, the program simply crashes and closes.

Do-It-Yourself 3-D

CHRIS SYRIA


I noticed that "Illustration in Three Dimensions" (*Create*, August 2004) didn't mention that you can do what Rob Magiera does yourself. You can download the Personal Learning Version of Maya Complete for free from www.alias.com. It works just like the real thing, except for the fact that it watermarks your renderings. But for some people, this is a perfect way to play with the

software. System requirements are not a problem; I'm running it on my 500MHz iMac, and it works fine.

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CORRECTIONS

Our review of the iBook G4 (September 2004) listed the wrong price for the optional AirPort Extreme card. Apple has cut its price to \$79.

"Save Time with Shortcuts" (*Working Mac*, September 2004) included an incorrect key command. To open a selected folder, you press -down arrow (not option-down arrow).



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APPLE AND REALNETWORKS FACE OFF OVER THE IPOD

Music Battle Gets Real

When RealNetworks announced, in July, that the next version of its RealPlayer software would allow users to play music purchased from the company's PC-only online music store—which employs its own digital rights management (DRM) system—on an iPod, Apple was less than thrilled. Apple's protected AAC format, using Apple's FairPlay DRM, is the only rights-managed format authorized to play on the iPod. So Real's news prompted Apple to release a statement saying that the iPod maker was "stunned that RealNetworks has adopted the tactics and ethics of a hacker to break into the iPod," and that it was considering legal action.

But without an immediate legal challenge from Apple, Real went ahead and released RealPlayer 10.5, which incorporates the Harmony technology that allows playback of RealPlayer Music Store files on the iPod. And to sweeten the deal, in August

Real began selling songs for 49 cents each and, for a limited time, many albums for \$4.99 each—half as much as the iTunes Music Store charges. Both of these features undoubtedly helped the company

to hit the million-songs-sold milestone by the end of August (Apple passed the 100-million mark at around the same time). The real question, however, is What will all of this mean to the consumer?

The Good, the Bad, and the iPod

Real is trying to paint its fight as one that will ultimately benefit users. Consumers, not Apple, Real says, should be the ones choosing what music goes on people's iPods. To further its cause, Real launched the Freedom of Music Choice

Web site (www.freedomofmusicchoice.org), which included a petition that users could add comments to. The petition was quickly removed—apparently due to an overwhelming number of posts by Apple supporters—and replaced by a link to a stock petition

that allows people only to "sign" with their e-mail addresses. But with so much money at stake, analysts are quick to point out that Real isn't the white knight it wants consumers to believe it is.

"Both Real and Apple are fighting to cloak themselves in



Adobe Photoshop Elements 3.0

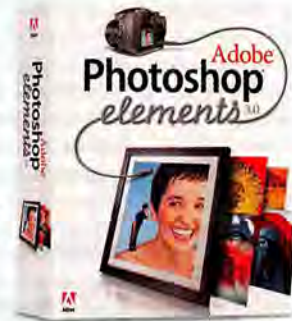
There's little doubt in the graphics world that Adobe Photoshop is the tool for photographers, Web designers, and graphics pros. But at \$649, it's a bit out of the price range of most hobbyists. For the past few years, Adobe Photoshop Elements has been an inexpensive alternative to the company's flagship product. And with version 3.0, Adobe will offer a major upgrade to its consumer-level photo-editing application.

The update adds several new features and enhancements that allow amateurs and pros alike to edit photos with a few mouse clicks. Elements 3.0 offers improvements to the Quick Fix feature—including sliders for precise adjustments, larger before-and-after previews, and one-click red-eye reduction—for correcting some of the most common flaws in photos. And it adds a Smart Fix feature, which can detect and fix an image's lighting, color, and contrast problems for you all at once (and includes the same slider control as the Quick Fix feature).

Since lots of Mac users already use iPhoto to organize and store their photos, Elements is designed to complement iPhoto—Adobe says that the two apps can easily be used together. “People wanted an integrated solution, and iPhoto already had a lot of the functionality,” says Tapan Bhat, director of product management, digital imaging, at Adobe.

Elements 3.0 also adds many other improvements, such as editable and searchable metadata, Spot Healing and Healing brushes, cropping presets for common photo sizes, PDF slide shows, Web photo galleries, and Camera Raw file support.

Some more good news: By selling separate Mac and Windows versions for the first time, Adobe has been able to drop the price of Photoshop Elements for the Mac to \$90 (down from \$100). Expect the new version to be available sometime in October. —JIM DALRYMPLE



the language of protecting consumers. But in reality, both of them are actively working hard to restrict consumer choices,” says Fred von Lohmann, an attorney with the Electronic Frontier Foundation industry group.

Von Lohmann says that the bickering is about DRM and that each of these companies is eager to keep consumers locked into the digital-rights scheme it prefers. With Apple commanding an early lead with the iTunes Music Store, Real is desperately trying to catch up.

“It has nothing to do with consumer freedom,” von Lohmann says. “If these companies cared about that, they would be recommending that consumers burn all the music they buy to CD and then re-rip those tracks into unrestricted formats like MP3, which works on all the portable digital-music players on the market.”

“Apple’s got a good thing going and they don’t want to change it,” says Forrester Research analyst Josh Bernoff.

Bernoff adds that selling music at half the price is a way to get attention, but it’s not a long-term strategy. The main effect of RealNetworks’ efforts is that people are realizing that the music they bought on iTunes will have to stay in an Apple system and can’t be moved onto any other device, he says. “That’s a little bit of a concern for people who spend hundreds of dollars only to get locked into Apple technology.”

Still, IDC analyst Roger Kay says that consumers clearly benefit, pricewise, when a platform is open and companies compete to sell compatible material. But he also says that Apple may have a motive other than money to keep its platform closed: “When Apple has total control of the experience, [it] can deliver a more uniform experience, which you don’t usually get with an open platform.”

I Fought the Law

So what does the future hold? Attorney von Lohmann and analyst Bernoff say that Apple will likely disable Real’s workarounds in the next iPod update. Then, if Real continues to make its content compatible, Apple may consider a lawsuit. But don’t expect a slam-dunk win for Apple in court.

Although Apple has refused to license its FairPlay technology, Real is not actu-

ally breaking the encryption of iTunes files—which would be illegal under the Digital Millennium Copyright Act. Rather, it’s creating its own encrypted file. But how does Real create a file that the iPod will play? The answer is unclear.

“What we did was not reverse-engineering,” said Sean Ryan, RealNetworks’ vice president of Music Services, at the Jupiter Plug.IN Conference this year. “We looked at publicly available data moving between the user and the iPod.”

Bernoff says that Real’s technique is relatively well protected by law, adding, “It’s the same technique that Compaq used to make the first IBM-compatible computer.”

But if Apple does pursue a legal challenge, it might have other options, according to Scott Culpepper, a partner at Atlanta-based law firm Thomas, Kayden, Horstemeyer & Risley who specializes in copyright, patent, and DMCA law. “I could see an argument that Apple could make that [it has] copyrights in the DRM itself,” says Culpepper. “And what RealNetworks’ software is basically doing is making a copy of Apple’s DRM software code.”

The other potential avenue Culpepper sees for Apple is a contract claim that RealNetworks violated Apple’s software license. “When you download iTunes from Apple’s site, you’re required to execute a click license; as part of that license, you agree that you won’t reverse-engineer the software,” says Culpepper. “Again, we don’t know what Real did, but it seems like they would have to reverse-engineer something, so Apple may have some contract cause of action.”

For their part, Bernoff says that record companies—eager to have as many outlets as possible for their clients—are behind Real’s efforts. “They would like to have more competition,” he adds. Consumers, however, are mixed on the whole issue. Die-hard iPod fans believe that only Apple can consistently deliver quality products and content, and that other companies shouldn’t be allowed to encroach on its technology. Others see Real as riding on Apple’s coattails without offering any real benefit to consumers. Still others believe that Apple shouldn’t have a monopoly on content for the iPod.—ADELIA CELLINI (Jim Dalrymple contributed to this report.)



FILEMAKER TURNS 20

Data for the Ages

It's an Apple-owned product that revolutionized computing. It helped ordinary people perform complicated tasks usually reserved for the most sophisticated users. And it's celebrating its 20th anniversary this year. The Mac? Not this time—FileMaker is also celebrating the big “two-oh” this year.

But when a group of former Wang Laboratories employees—Alan Albert, Dan Chadwick, Spec Bowers, and Jega Arulpragasam—started developing database software two decades ago, creating a program that would still be around 20 years later was the furthest thing from their minds.

“The database we created had to be usable by regular people, not database experts,” says Albert.

Albert and his colleagues—having founded Nashoba Systems—wanted to take an approach that was different from that of the hard-to-use database programs common at the time. Their

database would allow for changeable field names, sizes, types, and display attributes; show multiple graphical layouts for displaying a single set of data; and avoid artificial limits.

Although FileMaker wasn't originally developed for the Mac, its creators immediately saw the potential in Apple's new computer. “We thought it was the perfect platform,” Chadwick says.

FileMaker's capabilities have expanded dramatically since its debut. But its current makers have stuck to the principle that the database should be simple enough for anyone to use.

“Our vision today is very similar to the vision of 20 years ago,” says FileMaker's president, Dominic Goupil. FileMaker cocreator Albert agrees: “Looking at the latest version of FileMaker,” Albert says, “you see our original design goals in full force.” —PHILIP MICHAELS



ORIGINAL MAC TEAM MEMBER TALKS ABOUT PAST AND PRESENT

Photo Meister

Bill Atkinson (www.billatkinson.com) was one of Apple's original software superstars—responsible for MacPaint, HyperCard, and much of QuickDraw and the Mac's user interface. His name was even engraved inside every first-generation Mac. But these days, he's more interested in rocks than in code. An avid photographer, Atkinson was visiting Arizona several years ago when the patterns and colors in local rock shops caught his eye. He started bringing cut and polished Ocean Jasper, dendritic opalite, Marra Mamba tigereye, and other exotic stones back to his Los Gatos, California, studio. There, he shot them in extreme close-up using Better Light's 48-megapixel, \$13,995 Super6K-2 digital scanning back.

The results can be seen in Atkinson's new book, *Within the Stone* (Brown Trout Publishers, 2004). His goal: To help people see these stones not as raw material for jewelry, but as works of art themselves.

After landing a job at Apple in 1978, Atkinson used photography as a way to balance out the pressures of his computer work. “It didn't require the intense concentration that programming did,” he says.

Atkinson has long since donated his collection of early Macs, along with his original source binders for QuickDraw and MacPaint, to the Computer History Museum in Silicon Valley—but he still loves the machine he helped invent.

“Back then, I thought the 128K Mac was pretty cool,” recalls Atkinson. “But my main system now has 64,000 times the RAM and 20,000 times the processing power.” Even so, he's maxing out his dual-processor Power Mac G5 by running 300MB images through Adobe Photoshop and outputting them to a \$4,995 Epson Stylus Pro 9600 wide-format printer. “For twelve years at Apple, I made tools to empower creative people. Now, I'm the one who's being creative.” —DAN MILLER

STORAGE
BEAT

Boa FireWire 16x DVD+-RW, from EZQuest (www.ezq.com): External optical drive writes to CDs and DVDs, including dual-layer DVDs, and comes in two versions—one with Toast Lite and Dantz Retrospect, and one with Toast Titanium 6 and Dantz Retrospect (Toast Lite version, \$199; Toast Titanium version, \$259).

DRU-710UL, from Sony (www.sonyburners.com): External DVD burner is a 16x DVD+R recordable drive featuring USB 2.0 and FireWire interfaces, as well as dual-layer support (\$280).

Edge 9-in-1 Card Reader, from Edge Tech (www.edgememory.com): Multifunction memory-card reader supports xD Picture Card, SD Memory Card, MultiMedia Card, Memory Stick, Memory Stick Pro, Memory Stick Duo, SmartMedia, CompactFlash I and II, and IBM Microdrive media (\$25).

Store 'n' Go 2.1GB USB HD Drive, from Verbatim (www.verbatim.com): Portable hard drive (about the size of a business card) weighs 1.8 ounces and features a 4,200-rpm hard drive (\$249). —COMPILED BY PHILIP MICHAELS

MULTIMEDIA
BEAT

DrumCore, from Submersible Music (www.drumcore.com): Software collection helps composers and musicians who want to create drum tracks in many different styles (\$249).

inMotion iM3, from Altec Lansing Technologies (www.altec Lansing.com): New version of portable sound system for iPods and iPod minis features perforated aluminum grills over four 1-inch speakers and comes with a wireless remote control (\$180).

PipeStudio, from Aurora Video Systems (www.auroravideosys.com): Video-capture and -editing system for OS X combines software, a PCI-based capture card, and a Break Out Box for capturing audio and video (\$1,999). —COMPILED BY PHILIP MICHAELS

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MACS
AT
WORK

INDIE FILM RELIES ON POWERBOOK

Beam Me Up

Director Helmut Kobler had a hand in nearly every aspect of his science-fiction film *Radius*, which was released on the Internet a few years ago. But the release, earlier this year, of *Radius* on DVD—as well as the making of the movie itself—would have been impossible without the help of his Macs.

"I needed something portable for working on *Radius* footage as we shot it," says Kobler of the 500MHz PowerBook G3 he used while filming the 34-minute movie. "It was the right fit." He later switched to a 1.2GHz PowerBook G4 for the DVD release.

In addition to the original film, the two-DVD set contains two audio-commentary tracks by the filmmakers and the actors, as well as more than three hours of behind-the-scenes and making-of clips—what Kobler calls "guerrilla film school on a disc." To capture as much raw video of the production as possible, he

made sure that someone was on the set at all times. He ended up with nearly 20 hours of on-set footage, eight hours from preproduction, and six hours grabbed during postproduction.

Some of the most dramatic footage shows the intense difficulty of shooting in California's Death Valley—which stands in for the desolate planet depicted in the film—where temperatures routinely reached 120 degrees. DVD extras also include footage on story development, casting, on-set friction, and raising the \$60,000 needed to make the film—there's even a chapter that explains why



Kobler chose a PowerBook over a PC notebook.

Kobler says that reaction has been positive, with more than 800 copies sold directly from his Web site (\$20; www.radiusmovie.com), and he hopes to build enough buzz that *Radius* gets picked up for wider distribution.—BRAD COOK

CREATIVE
BEAT

Cinema 4D Release 9, from Maxon Computer (www.maxon.net): 3-D-animation tool adds more than 100 features, including a Heads-Up Display that shows modifiable information in the editor (contact Maxon for pricing).

form-Z 4.5, from autodesk (www.autodesk.com): 2-D- and 3-D-modeling tool drops OS 9 support while adding plug-ins, scripts, and direct extensions (contact autodesk for pricing).

Modeler 3.5, from Microspot (www.microspot.co.uk): 3-D-modeling app features ten modeling tools, a 3-D-text tool, basic rendering during creation, and 18 palettes (\$129).

Motionbuilder 6, from Kaydara (www.kaydara.com): 3-D-animation software adds a simplified user interface with a new customizable picking mode and toolbar, as well as enhanced keyframe-animation capabilities (\$995).—COMPILED BY PHILIP MICHAELS

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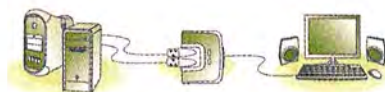
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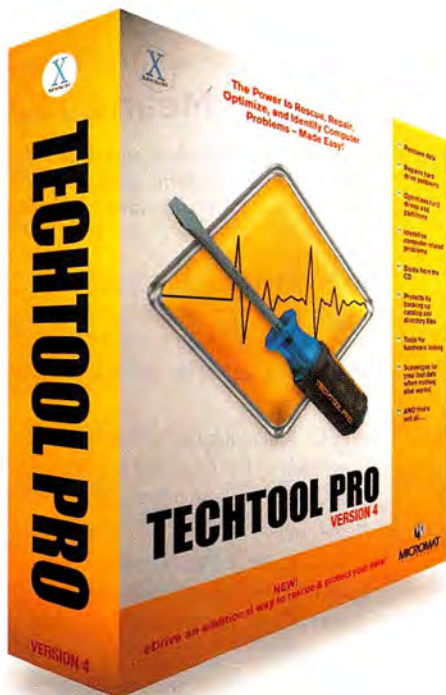
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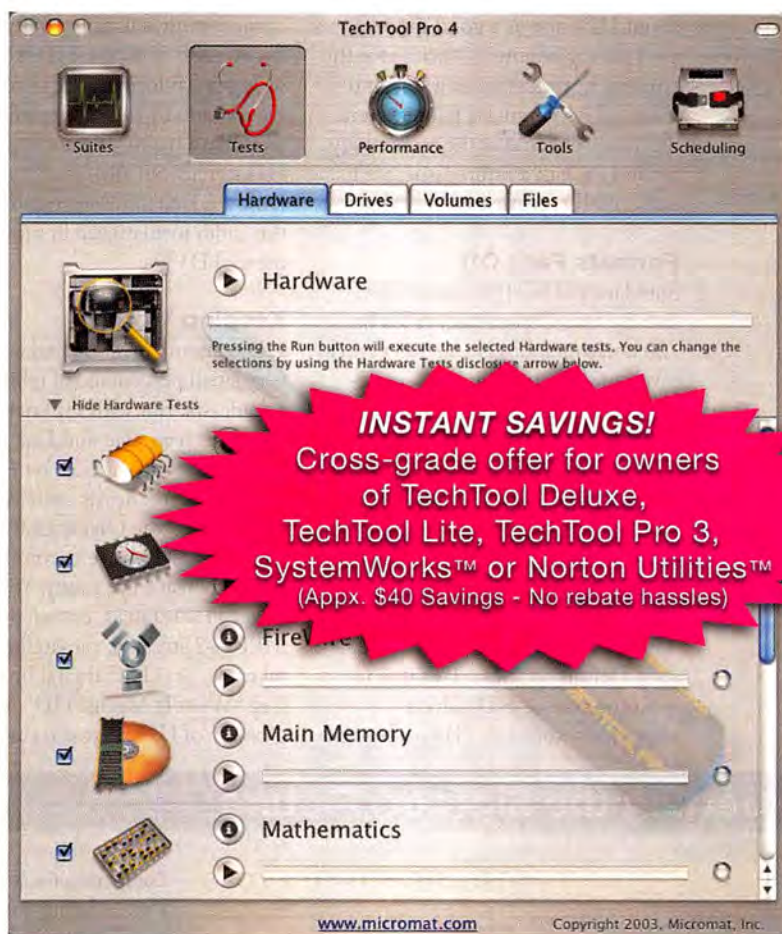
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HIGH DEFINITION VIDEO TAKES OFF

Meeting HD

Imagine being able to pick out individual fans in the crowd during a wide-screen baseball-game broadcast, or to see the intricate cross-hatching of Martin Sheen's tie as he addresses the nation during an episode of *The West Wing*. High Definition (HD) video promises such things—a wider field of view and much more image detail. Whether you're interested in watching, creating, or just learning more about HD, now is a good time to start paying attention—prices for the equipment necessary to watch and make HD content are falling. Here, we'll look at some of the technology behind HD; in a future issue, we'll explore HD creation on the Mac.

Formats Face Off

Standard NTSC (National Television System Committee) video has 720 horizontal pixels and 486 vertical pixels (480 vertical pixels for compressed formats such as DV and MPEG-2) and has a frame rate of 30 (or, technically, 29.97) frames per second. NTSC video is also interlaced—each video frame is made up of two distinct video fields. The first field contains the odd lines of an image; the second, the even lines. The aspect ratio of NTSC, or Standard Definition (SD), TVs is 4:3.

At the core of HD video is increased resolution. HD pushes the

pixel count way up, most commonly to 1,280 by 720 pixels or 1,920 by 1,080 pixels. These HD types are usually referred to by vertical pixel count and whether frames are progressive or interlaced—for example, 720P format or 1080i format. There are roughly 350,000 pixels available in SD video; HD displays more than 2 million—this is why the sharpness of HD video is startling. HD can have a variety of frame rates, but HD broadcasting is usually 1080i at 30 fps or 720P at 60 fps. HD is also a wide-screen format, with a native aspect ratio of 16:9. Watching HD feels like a movie-theater experience. HD signals can also broadcast using Dolby 5.1-channel surround sound, the audio format used in most commercial DVDs.

Keeping Watch

HD content currently makes up a very small percentage of television broadcasts. But with HD network shows such as *Alias* and *Law & Order*; cable series such as *Six Feet Under*; and sports broadcasts such as ESPN baseball and the Olympics from Athens, HDTVs are becoming more than expensive eye candy. You can receive HD signals, encoded as MPEG-2 streams, via satellite, digital cable, or ATSC digital broadcasts (see "What It Means: HD" for a glossary of HD-related terms).

What It Means: HD

The world of modern video is filled with confusing terms and unwieldy acronyms. Our glossary will help you sort it all out.

ASPECT RATIO: The proportions (width:height) of the viewing area on a monitor or a television screen. HD has a wide-screen, 16:9 ratio. SD has a narrower ratio—4:3.

ATSC: A digital-broadcasting standard developed by the Advanced Television System Committee (also refers to DTV and HDTV standards).

DIGITAL TV (DTV): A television signal transmitted as digital information. HD video is digital, but not all digital broadcasts are HD.

DOLBY DIGITAL: Six-channel digital-audio standard, also called AC-3 or Digital 5.1.

ENHANCED DEFINITION TV (EDTV): A progressive SD television that accepts the progressive output of some DVD players. Usually, these TVs also have a de-interlacer built-in. They are not HDTVs.

HDMI: High Definition Multimedia Interface—a digital connector.

HDTV-READY: A TV that can display HD video if a separate HD decoder box is attached.

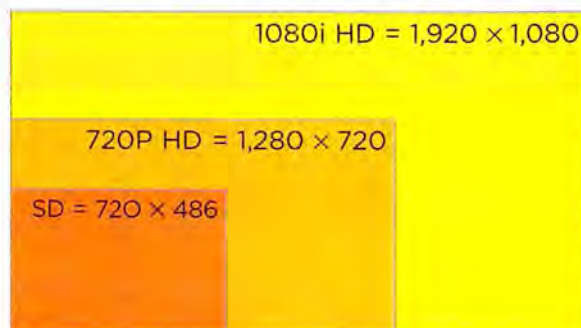
MPEG-2: Moving Picture Experts Group 2. A video-compression format used to condense HD and SD video, for smaller data rates in DVDs and broadcasting.

TERRESTRIAL BROADCAST: Traditional over-the-air broadcast.

Elgato's EyeTV 500 (\$349; www.elgato.com) lets you watch, record, and save ATSC HD broadcasts, and the EyeTV software lets you edit out commercials and unwanted material. You can also download John Dalglish's free MMInputFamily driver (www.defyne.org/dvb), which allows Macs to work with DVICO's \$199 Fusion HDTV3 Gold PCI card (www.dvico.com) to display HD broadcasts. (At this time, there's no way to view HD satellite or digital-cable signals on your Mac.)

There are no HD DVDs yet, but the DVD Forum, which brought you today's DVD, has adopted an HD DVD standard, which can use H.264/AVC (Advanced Video Coding), Windows Media Video 9's VC-9 technology, and MPEG 2.—ANTON LINECKER

Getting the Big(ger) Picture



Comparing Formats
High Definition (HD) video easily dwarfs traditional Standard Definition (SD) video. This chart compares relative visible frame sizes and aspect ratios (measured in pixels) between SD and common HD broadcast formats.



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SERVICE PUTS CDS ON YOUR IPOD

Fill 'er Up

Bill Palmer kept hearing the same thing from visitors to his iPod Garage Web site (www.ipodgarage.com). They loved the fact that they could store thousands of songs on Apple's hard-drive-based music player. But they despised the time-consuming and mind-numbing process of ripping their entire CD collections—in some cases, hundreds of discs—into iTunes, for transfer to the iPod.

After searching in vain for a service he could recommend, Palmer came up with the idea to start one of his own. Earlier this year, LoadPod (www.loadpod.com) was born.

"I looked around, and all of the services I could find required you to pack up your CDs in a box and send them across the country," Palmer says. "That didn't make sense to me."

Similar services such as Get Digital (www.getdigital.com) and RipDigital (www.ripdigital.com) will rip your CDs into a digital format. But they require that you ship out your CD collection; in return, you receive data DVDs containing all your music, which you put on your Mac yourself.

In contrast, LoadPod representatives in 41 states and parts of Canada arrange to pick up your CDs and your iPod from your home or office. LoadPod adds the music directly to your iPod as 128-Kbps AAC files. The whole process—which costs \$1.50 per audio CD with a 50-CD minimum, plus a \$20 travel charge that's waived if you send more than 100 CDs—takes no more than five days.

Music can't be easily added back to an iTunes library. But Palmer says, "We don't understand why some businesses only send back a DVD of music and then force the customer to sit down and load the music from a DVD into their iPod. I thought that's what they were paying to avoid in the first place."—JONATHAN SEFF



PHOTOGRAPH BY PETER BELANGER

MAC PRODUCTS MAKE BIG SPLASH AT SIGGRAPH SHOW

Pro Product Power

Siggraph's mission is to promote information about computer graphics and interactive techniques—two concepts dear to Mac users' hearts. The group's annual conference and exhibition in July saw several noteworthy Mac product announcements.—PETER COHEN AND BRAD COOK

modo

Luxology's new, \$895 3-D-modeling application for OS X and Windows incorporates real-time subdivision-surface and polygonal modeling capabilities; various falloff types, to help with precision modeling; and more (www.luxology.com).

Apple Production Suite

This \$1,299 software package bundles video editor Final Cut Pro HD, motion-graphics app Motion, and DVD-authoring tool DVD Studio Pro 3. Final Cut Pro users can upgrade to the suite for \$699—purchased separately, the three products cost nearly \$1,800 (www.apple.com).



SketchUp 4 Film & Stage

@Last Software showed off a new, \$475 extension for its SketchUp 4 3-D design program. The extension turns SketchUp 4—originally designed for architecture, engineering, and construction—into a previzualization tool for art directors, filmmakers, cinematographers, and others working in film and television (www.sketchup.com).

MicroScribe Connections for Maya

Immersion's \$495 plug-in (developed in conjunction with Digital Element) enables Maya users to create 3-D models using one of the company's USB-connected MicroScribe G2 3-D digitizers (www.immersion.com).

Au Naturel

Buena Software released this \$99 plug-in for Adobe After Effects, Apple's Final Cut Pro, and Discreet's Combustion; it lets you work on digital footage in linear RGB as you apply realistic lens blur, adjust f-stop exposures, scale, rotate, or otherwise transform and composite (www.buena.com).

NETWORKING
BEAT

ADmit Mac 2.0, from Thursby Software (www.thursby.com): Upgraded software for integrating Mac clients into a Windows Active Directory Network or a Windows NT Domain adds compatibility with Apple's Workgroup Manager, and the ability to add computers running OS X Server to Active Directory domains (\$119; upgrades start at \$50).

AirPlus Wireless Pocket Router/AP, from D-Link (www.dlink.com): Device allows travelers to access and share wireless Internet connections while on the road (\$100).

NetVault, from BakBone Software (www.bakbone.com): Data-protection offering for OS X Server 10.3 offers data backup, and restore and disaster recovery functions. It also allows administrators to create and manage jobs from remote clients (contact BakBone for pricing).

VPN Tracker 3.0, from Equinix (www.equinix.com): Software for simplifying remote connections to secured networks adds Extended Authentication, a redesigned user interface, and improved stability in the VPN tunnel for users with dynamic IP addresses (Professional Edition, \$160; upgrade, \$31; Personal Edition, \$72; upgrade, \$24).—COMPILED BY PHILIP MICHAELS

PRODUCTIVITY
BEAT

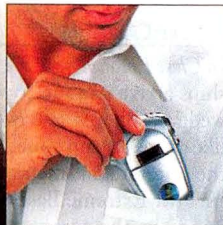
Britannica 2005 Ultimate Reference Suite, from Encyclopedia Britannica (www.britannica.com): Software reference suite includes the 32-volume Encyclopedia Britannica, Britannica Student Encyclopedia, and Britannica Elementary Encyclopedia (\$70).

BEdit 8.0, from Bare Bones Software (www.barebones.com): HTML and text editor adds new features, including Documents Drawer, Navigation Bar, and Text Factories (\$179; upgrade from BEdit 7.0 and 7.1, \$49; upgrade from BEdit 6.5 and earlier, \$59).—COMPILED BY PHILIP MICHAELS

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REVIEWS

OUTSTANDING: ★★★★★
VERY GOOD: ★★★★
GOOD: ★★★
FLAWED: ★★
UNACCEPTABLE: ★

Reviews you can trust: Macworld rates only final shipping products, not prototypes. What we review is what you can actually buy.

AirPort Express

Compact Base Station Touches
Down in the Living Room

BY JEFF CARLSON

In *Close Encounters of the Third Kind*, the alien ships arrive in a variety of shapes—there are wedges, spheres, and even a vessel that looks like an ice-cream cone. Apple apparently got the interstellar memo: the saucer-shaped AirPort Extreme Base Station has now been joined by the compact, rectangular AirPort Express. The Express packs almost as much thrust as its more expensive predecessor and adds an audio-out port and AirTunes software, so you can stream your music to any room within range.

Galactic Traveler

The AirPort Express's shape isn't significant just because it's in keeping with Apple's recent rounded-rectangle aesthetic (see the iPod and the iMac G5). Rather, it's significant because the box is compact enough to fit easily into a laptop bag.

Measuring 3.6 by 2.9 by 1.1 inches and weighing 6.7 ounces, the AirPort Express is only slightly larger than the power adapter that ships with the PowerBook and the iBook. Its flip-out plug attaches to a standard power outlet, so you don't need to carry yet another cable or power brick. (That said, you can get a \$39 kit that includes an extension cord and two audio cables.)

Though smaller, the AirPort Express is similar to the AirPort Extreme, with a few limitations. The Express can handle 10 simultaneous wireless connections, versus the Extreme's 50. Unlike the Extreme, the Express doesn't include a built-in modem. Most noticeably, the Express sports only one 10/100BaseT Ethernet port; if the Express is your only wireless access point (connected to a DSL modem, for example), it can't be used to extend access to wired machines on your network.

The Express can also, however, act as a node in a Wireless Distribution System, stretching your existing AirPort network into areas just beyond your main base station's coverage. The Express also features a USB port that will let you share a compatible printer. Thanks to Rendezvous networking, all I had to do was plug my older Lexmark E312 USB laser printer into the

device to print. In fact, to my surprise, that printer isn't officially supported by Apple, and doesn't print when connected to my AirPort Extreme Base Station.

One advantage of the Express over the Extreme: it can store five profiles in its built-in memory, so you could configure one profile for home use, one for office use, and one for use in hotels, without having to reenter the different settings each time.

Scan the Skies

Setting up the device for the first time requires installing the AirPort 4.0 software from the accompanying CD (not to be confused with version 3.4.2, which is what's currently available as a free download to any AirPort user). In the AirPort Express Assistant, you can choose to use the Express as your main wireless gateway or as part of an existing network; the Assistant guides you through the options smoothly.

However you do it, configuring the Express is straightforward and simple. Occasionally in my testing, the Express wouldn't show up as an option. Sometimes connecting via the AirPort icon in the menu bar and then running AirPort Admin Utility did the trick. Other times I had to reset the unit.

AirTunes, the Express Soundtrack

In addition to its portability, what really sets the AirPort Express apart is AirTunes, which lets you stream music from iTunes (on a Mac or a Windows PC) to the Express and from there to your home entertainment hardware, via the unit's mini audio jack. When an AirPort Express is available, each copy of iTunes on the network sprouts a pop-up menu that lets you choose where to send the music.

Because iTunes and the Express use Apple Lossless compression to encode music (rather than native MP3 or AAC), you can stream audio to only one unit at a time; I'd like to see a future version of AirTunes broadcast to multiple AirPort Expresses (for playback in the living room and the kitchen, for example).

Another limitation is the lack of remote control: if your tunes are on the Mac in your bedroom, you need to go there to change playlists or skip songs. Devices such as Slim Devices' Squeezebox (★★★★, April 2004; wired, \$249; wireless, \$299; www.slimdevices.com) and Roku's SoundBridge (7-inch display, \$250; 12-inch display, \$500; www.rokulabs.com) give you a local interface, but they don't support AAC files you buy at the iTunes Music Store.



More importantly, I ran into sporadic playback gaps during my testing. I soon realized that the problem was due to the fact that my home network included both an AirPort Extreme Base Station and the AirPort Express, resulting in a mix of 802.11a and 802.11g signals. Apple has released a software patch for AirPort cards (AirPort Driver Update 2004-08-31, available at www.apple.com) that seems to partially solve the problem. But I still experienced dropouts after installing the patch.

Macworld's Buying Advice

If you're in the market for an Apple-branded wireless base station, the \$129 AirPort Express gives you almost everything the \$299 AirPort Extreme offers. Apple has created a product that not only provides a highly functioning 802.11g base station in a portable shell, but also pushes into a new product category. For many people, the AirTunes streaming capability will be a bigger draw than the portability or the price. □

RATING: ★★★★★

PROS: 802.11g base station in a small enclosure; easy setup; AirTunes music streaming.

CONS: Audio dropouts in some network configurations; configuring the device sometimes requires a reset to make it appear in AirPort Admin Utility.

PRICE: \$129

COMPANY: Apple Computer, www.apple.com

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Phone Answering and Automation Systems

Phlink 1.4 and PhoneValet Message Center 2.0 Can Answer Your Calls

BY OWEN W. LINZMAYER

Without a doubt, e-mail is an efficient and indispensable tool for doing business. But much communication is still conducted the old-fashioned way: by telephone. Two new products—Ovolab's Phlink 1.4.2 and Parliant's PhoneValet Message Center 2.0a—attempt to combine the phone's ubiquity with the power of OS X technologies such as voice recognition and speech synthesis, essentially turning your Mac into a digital answering machine. These devices can not only take messages but also take orders, allowing you (and others) to call in and remotely control your Mac. A cursory glance at their feature lists leaves the impression that these products are similar, but hands-on testing reveals some significant differences.

Installation is easy. Both packages include an iPod-size hardware device paired with proprietary software. All you need is an available USB 1.1 or 2.0 port

or later (we conducted our tests using OS X 10.3.4).

Phlink ships with a cursory seven-page, text-only PDF manual that provides an overview of the product's capabilities but lacks details on how to perform different functions. By contrast, PhoneValet's 33-page printed user guide includes numerous screenshots that clearly explain how to implement various features.

Take a Message

At its most basic, each product transforms your Mac into a digital answering machine with personalized greetings (sound files, voice recordings, or an OS X MacinTalk voice reading text you select) and individual mailboxes. PhoneValet offers a general greeting, and each of its ten mailboxes can be programmed to play a separate greeting after the caller presses the touch-

If you subscribe to Caller ID services, either program will pop up a translucent window displaying incoming-caller information. The ability of these devices to accurately identify incoming calls, however, is dependent on information provided by your phone company. PhoneValet's integrated phone book makes it easy to add a missing name, so future calls from that number will be properly identified. Phlink requires that you create a matching entry in Apple's Address Book and use a lookup script.

With both programs, incoming calls can be announced by a MacinTalk voice, available in the Speech preference pane. Incom-



Busy Design Phlink's cluttered log shows multiple lines for a single call.

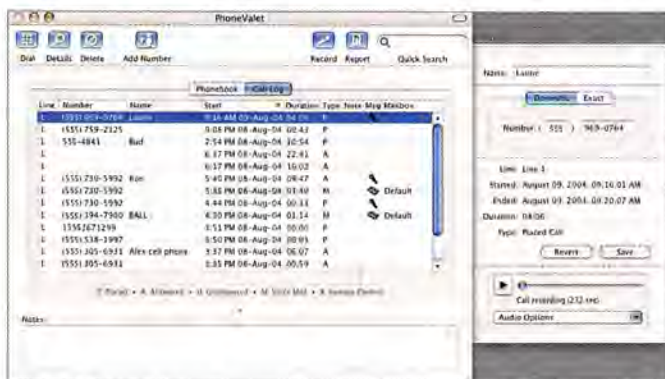
ing calls will wake a sleeping Mac, but the Caller ID information can't be captured as your Mac awakens. Both programs also have the useful ability to send incoming messages as e-mail attachments (they use 3GPP encoding, which can compress a 60-second recording to less than 100K)—an excellent way to stay in touch when you're on the road.

Controlling Actions

The real power of these devices is demonstrated by incoming callers' ability to control functions on the Mac via telephone. PhoneValet allows you to assign AppleScripts to run when a caller presses designated numeric codes on a touch-tone phone. PhoneValet also provides sample scripts for reading current iCal events, reporting local weather conditions, and playing sound files, and additional scripts are available online. Similarly, Phlink can respond to callers' touch-tones by playing sound files, reading text files, and launching AppleScripts. You can designate voice messages to be played for specific callers and create scripts that restart troublesome servers.

There are two significant differences between Phlink and PhoneValet when it comes to customizing how callers can control the Mac remotely via telephone. Phlink provides caller-specific options, which are more versatile and secure than allowing all callers to

continues



Polished Presentation PhoneValet Message Center sports a clean design with an integrated phone book and links to messages and recordings.

and an analog phone line with touch-tone service (multiple phone lines require additional devices). Caller ID is optional, but it's necessary if you want to take advantage of many of the devices' advanced features, such as announcing who's calling and caller-specific phone-tree menus.

PhoneValet requires OS X 10.1.5 or later, and Phlink requires OS X 10.2

calls, and it manages callers' messages. Phlink doesn't track outgoing calls. Messages recorded from incoming calls are indicated in the program's cluttered log, but you must go to the Finder and manually open a file within a designated folder to play those messages. And Phlink doesn't indicate which messages are old and which messages are new.

access the same set of controls. For example, general callers are greeted by a phone tree, but when the system recognizes an incoming call from your cell phone, it can access a separate set of server-administration options. The one-size-fits-all approach of PhoneVale, on the other hand, leaves the door open to a security breach unless you include caller-validation checks within scripts.

The second substantive difference is in how you program the devices. PhoneVale has a polished interface for creating codes and assigning or testing scripts. With Phlink, you're on your own in the Finder. Phlink works by opening files that reside in a designated folder, and it relies on file names to determine what to open. For example, to play a personalized message for a specific caller, you create a sound file named "greeting" with the specified phone number for this greeting appended to the sound-file name (say, "greeting4155551234"). If you want to initiate a series of actions after a caller presses 2 on a touch-tone phone, the files must be in a subfolder with the number 2 as its name, and so on. This is an interface only a programmer could love, but it provides great flexibility for remotely controlling your Mac and providing information over the phone.

Enticing Extras

Both Phlink and PhoneVale can deal with incoming faxes by routing them to a fax

machine, a program such as SmileOnMyMac's Page Sender, or Panther's built-in fax feature. And both let you manually record conversations. PhoneVale gets the nod here because the log entry for the call contains a convenient link to the recorded conversation, and you can play it back from within the application. Phlink makes you open the sound file in the Finder. Unfortunately, neither device lets you replace a traditional telephone handset with the Mac's built-in microphone and speakers for hands-free conversations.

Only PhoneVale tracks all incoming and outgoing calls in its log, and it can customize reports for client billing. PhoneVale also has features that facilitate outgoing calls: you can initiate calls by double-clicking on entries in the log or the phone book or by speaking the name of the party you want to call.

If only PhoneVale integrated directly into existing contact databases in Address Book or Microsoft Entourage, it would eliminate the need to maintain multiple phone lists. Fortunately, it easily imports information from other sources into the PhoneVale phone book, unlike Phlink, which works only with Address Book.

Macworld's Buying Advice

PhoneVale Message Center 2.0a and Phlink 1.4.2's differences are best summarized by their version numbers. While their hardware capabilities are almost identical, the more

mature PhoneVale offers a refined interface that will appeal to people who seek an easy-to-use voice-mail system enhanced with dialing features. Phlink is in an awkward phase, but it shows promise and offers plenty of power and flexibility for programming types who enjoy tinkering with scripts. □

PHLINK 1.4.2

RATING: ★★★

PROS: International Caller ID support; caller-specific greetings and options; scriptable; manages incoming faxes; records conversations.

CONS: Poorly documented; no outgoing-call features; cluttered log lacks ties to voice mail; phone trees must be created in the Finder; integrates only with Address Book.

PRICE: \$150

COMPANY: Ovulab, www.ovulab.com

PHONEVALE MESSAGE CENTER 2.0A

RATING: ★★★★★

PROS: User-friendly interface; tracks incoming and outgoing calls; integrated phone book aids in identifying and placing calls; scriptable; clean log links incoming faxes, recorded conversations, and voice mail; good printed documentation.

CONS: North American Caller ID support only; requires maintaining a separate phone book.

PRICE: \$200

COMPANY: Parliant, www.parliant.com

Webstractor 1.0

Research Tool Lets You Capture and Edit Web Pages

BY JACKIE DOVE

If you use the Web for any kind of research, you'll want to check out Softchaos's Webstractor 1.0.1, an outstanding utility that lets you collect whole Web pages—including images, tables, and formatting—for viewing and editing, online or off.

Webstractor has two modes: Browse and Edit. In Browse mode, it acts as a stand-alone browser, letting you view Web pages and perform searches with its built-in Google button. You can also drag URLs from other browsers into Webstractor. And the program adds a contextual menu item to Apple's Safari and The Omni Group's OmniWeb, so you can invoke Webstractor from within those browsers; I hope it will do the same for others, such as Mozilla and Internet Explorer, someday.

Once you've found the information you're looking for, Webstractor's Edit mode lets

you move, replace, and add content. You can change fonts and retain or remove graphics as you see fit. A handy links inspector lets you view and access all of a document's links. You can even drag and drop your own text, RTF, Word, JPEG, or GIF files into the editable pages. No matter how

much you edit, the original page stays the same in Browse mode—a great backup. While pages don't automatically update in Browse mode, you can click on the Reload button to see a new version of the page.

You can save any page to the program's collapsible thumbnail drawer (see "Page Capture"), which you can then search.

Webstractor can be slow when making Web pages editable: it took 15 to 20 seconds to complete that process on a single-processor G4 Mac. The longer and more complex a page is, the longer you have to stare at the progress bar. Also, be sure to install the Webstractor Extras package along with the main program; if you don't, the contextual-menu feature will not work.

Macworld's Buying Advice

Webstractor 1.0.1 is a handy and flexible research tool for anyone who needs to archive and edit information found online. □

RATING: ★★★★★

PROS: Archives whole Web pages; built-in browser; neat thumbnail organization; can import Word and other text and image documents.

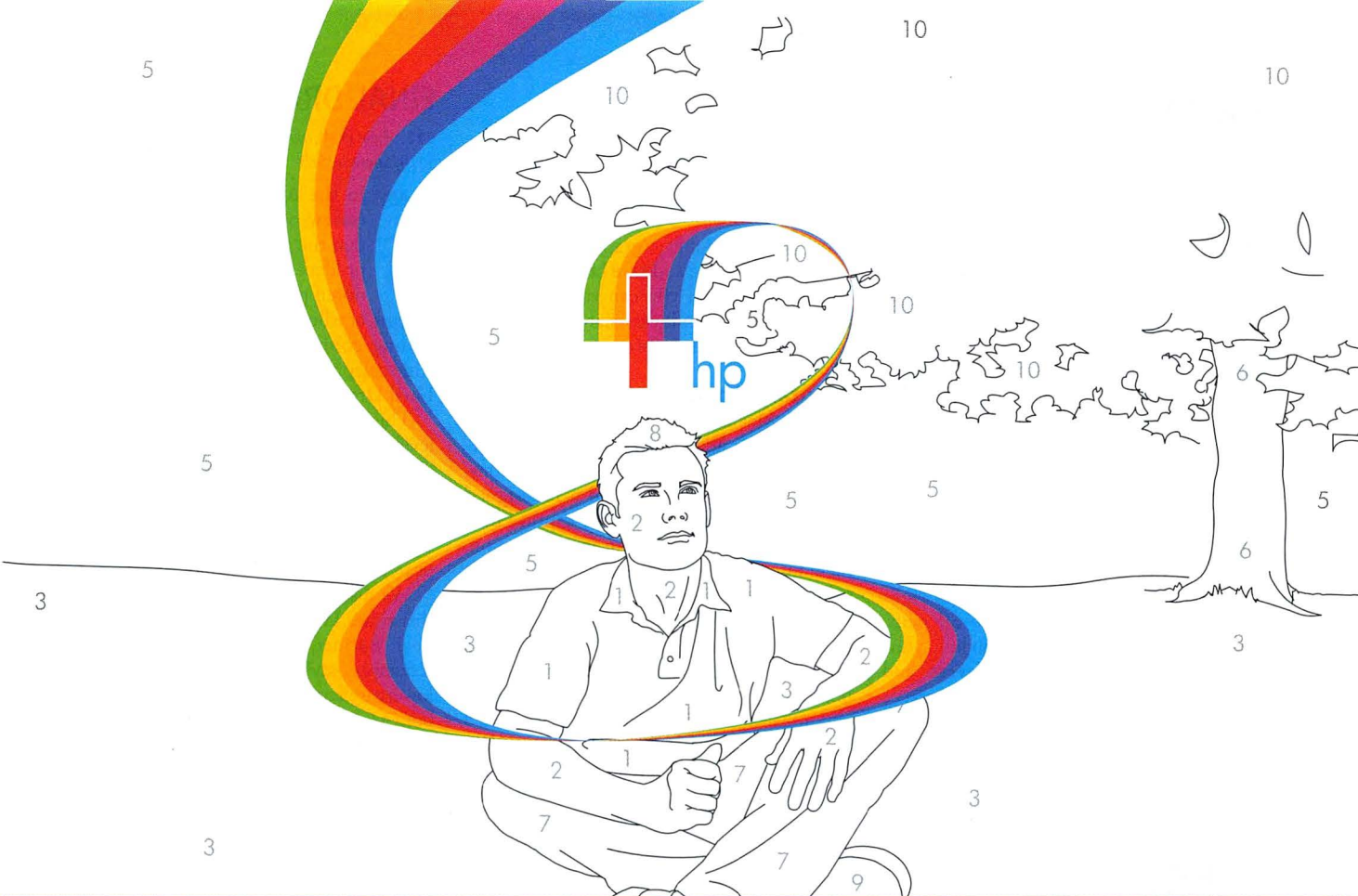
CONS: A bit sluggish in making a page editable; contextual-menu feature works in only two Mac browsers.

PRICE: \$89

COMPANY: Softchaos, www.softchaos.com



Page Capture Webstractor lets you edit and save entire Web pages and then navigate through them, via its collapsible thumbnail drawer.



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pled devices—
16:9, or wide-screen

True Colors

To assess vid
experts jud
ness) an

a Macworld panel of
(accuracy and bright-
sharpness and detail).

Zoom and Focus

The Canon ZR-90 has the most powerful
optical zoom of the lot, at 22× (with a sepa-
rate wide-angle attachment included), fol-

The Camcorder Lineup We reviewed (from left
to right) the Canon Optura 40, Canon ZR-90,
JVC GR-DX97, Panasonic PV-GS200, Samsung SC-
D6040, and Sony DCR-PC109.



MINIDV CAMCORDERS COMPARED

COMPANY	MODEL	MOUSE RATING	PRICE	CONTACT	OPTICAL/ DIGITAL ZOOM	LCD SIZE ^A	STILL-IMAGE RESOLU- TION ^B	WEIGHT	DIMEN- SION ^C	PROS	CONS
Canon	Optura 40★	★★★★	\$999	www.canon.com	14×/200×	2.5	1,632 × 1,224	1.3 pounds	3.0 × 3.2 × 5.3	Best video quality; good still quality; color night mode; true 16:9 mode; focus ring on lens; manual audio control; headphone and mike jacks; hot-shoe; menus are easy to navigate.	None significant.
Canon	ZR-90	★★★★	\$599	www.canon.com	22×/440×	2.5	1,024 × 768	1.1 pounds	2.1 × 3.7 × 5.5	22× optical zoom; wide- angle attachment; menus easy to navigate.	Poor still quality; grain video with slight gree
JVC	GR-DX97	★★★★	\$699	www.jvc.com	12×/700×	3.0	1,024 × 768	1.0 pounds	3.7 × 3.7 × 1.0	Three-inch LCD.	Automatic exposure night mode uses L worst still quality;
Panasonic	PV-GS200	★★★★	\$999	www.panasonic.com	10×/700×	2.5	1,760 × 1,320	1.0 pounds	3.0 × 2.8 × 5.0	Focus ring on lens; head- phone and mike jacks; hot- shoe; narration mike.	Color has slight b
Samsung	SC-D6040	★★★★	\$799	www.samsungusa.com	10×/900×	2.5	2,272 × 1,704	1.1 pounds	2.5 × 3.6 × 5.4	4.1-megapixel stills.	No headphone video quality; 16:9 mode; n ward to nav
Sony	DCR-PC109	★★★★	\$899	www.sonystyle.com	10×/120×	2.5	1,152 × 864	13.0 ounces	2.0 × 3.9 × 3.9	Best image stabilization; spot focus; headphone and mike jacks; hot-shoe; easy- to-use touch-screen menu.	USB and Fi docking s zoom-bu
Fisher	FVD-C1	★★★★	\$899	www.fisherav.com	6×/10×	1.5	2,048 × 1,536	5.4 ounces	2.7 × 4.3 × 1.3	Sharp and colorful stills; lightweight; easy-to-use menus; 512MB memory card.	Poor vi audio stabil with

★ = Editors' Choice. ^AIn inches. ^BIn pixels. ^CIn inches (width × height × depth).

and the Sony did a good job of smoothing the effects of a shaky grip. The Sony was the steadiest of the group.

Most camcorders perform well in bright light, but you need one with a night mode to shoot candlelit dinners or sleeping babies. While many camcorders use infrared technology to capture video in low-light or no-light conditions (resulting in the telltale "military night vision" green tint), some newer cameras use slower shutter speeds and built-in LEDs to provide enough light to capture color.

We tested these camcorders in total darkness. The Samsung and the Sony, which use infrared technology, captured video with the predictable green tint. We saw colorful, albeit ghostly, images with the other models. The Canons, which rely on built-in LEDs, produced the best results. The JVC uses light from the LCD screen to illuminate the subject at close range, but you have to flip the screen over to illuminate your subject, so you have to squint through the viewfinder to see.

If you have a wide-screen TV or just want the filmic letterboxed effect, you'll need a camcorder that can shoot in 16:9 mode. All these camcorders, with the exception of the Samsung, offer a wide-screen option. The Sony and the Canon ZR-90 achieve the effect by manipulating the image electronically, with some loss of quality. The JVC and the Panasonic insert black bars on the top and bottom of your image, cropping the image. The Canon Optura 40 is the only one with true wide-screen capability, using the entire width of the CCD for high quality.

Two Cameras in One

All of these models let you capture still images to storage media. And one camera that could capture great DV and still photographs would be a winner. Do any of these make the grade?

The Samsung calls itself the DuoCam, takes pictures at a whopping 4.1 megapixels, and has two lenses—one for video and one for stills. Sadly, while the still pictures are impressive, the video quality doesn't measure up. The Canon Optura 40 comes closest to being the best of both worlds, taking 2.2-megapixel photographs whose quality equals that of comparable digital cameras, as well as producing the best-quality video. The other cameras in this roundup might be fine for an occasional snapshot destined for a Web page or an e-mail message, but you'll want a separate digital camera for any important shooting.

The Talkies

Unless you're shooting a silent movie, a camcorder's audio quality is just as important as its video quality. All camcorders have a degree of audio noise; for the best audio, you should use an external microphone and then monitor the sound with headphones.

Only the Canon Optura 40, the Panasonic, and the Sony let you plug in a headphone and a microphone simultaneously (the Canon Optura 40 also lets you manually adjust audio

Macworld LAB	VIDEO TESTS			DIGITAL STILLS	
	COLOR	CLARITY	STABILIZATION	COLOR	CLARITY
Canon Optura 40	Very Good	Very Good	Very Good	Very Good	Very Good
Canon ZR-90	Very Good	Good	Good	Flawed	Flawed
JVC GR-DX97	Good	Very Good	Good	Unacceptable	Unacceptable
Panasonic PV-GS200	Good	Very Good	Very Good	Good	Good
Samsung SC-D6040	Flawed	Flawed	Flawed	Excellent	Excellent
Sony DCR-PC109	Very Good	Good	Excellent	Very Good	Good
BEST RESULTS IN BOLD.					

Each camcorder was tested at its default automatic settings. The digital zoom was disabled when any image-stability features were turned on. Still pictures were taken at each camera's best-quality setting. A panel of experts evaluated a variety of indoor and outdoor video and stills for their image quality in terms of color, clarity, and stabilization. Each camera was given a rating of Excellent, Very Good, Good, Flawed, or Unacceptable.—MACWORLD LAB TESTING BY ROBERT ELLIS AND JAMES GALBRAITH

levels), narrowing the field for serious audio-philosophes. Each of these models also has a hot-shoe, which allows you to power attached microphones (and lights) with the camcorder.

The Panasonic also includes an external narration microphone. You can toggle recording, add a voice-over, zoom, or take a still picture. The three-foot cable is just long enough to eliminate noise.

Hollywood in Your Hand

All of these camcorders will fit comfortably in the palm of your hand. The Sony is the lightest, at 13 ounces, but even the Canon Optura 40, at 1.3 pounds, felt nimble. The Sony achieves its compact form by putting the USB and FireWire ports in a docking station, but having another piece of equipment to keep track of hardly seems worth the savings in weight. And we found that the Sony was a bit awkward to hold: its zoom button is toward its front; holding it properly for zooming with your trigger finger takes some getting used to.

Squinting through a tiny viewfinder may be fine for taking snapshots, or for shooting when the sun is too bright, but doing so regularly is tiresome. All these models have LCD screens, which make monitoring your shots

and navigating option menus more bearable. With the exception of the JVC, which has a 3-inch monitor, all have 2.5-inch LCD screens. All are bright and easy to read, and we managed to use them even when shooting test video on a very sunny afternoon (we found the Sony the most difficult to view).

Canon's menus were the easiest to read and navigate. We liked Sony's touch screen with scrolling menus that magnify the current selection. It displays fewer options at one time, but it also creates shortcuts to your most frequently used settings, which can be a time-saver. The Samsung was the most awkward to navigate.

Macworld's Buying Advice

The Canon Optura 40 is the standout among these contenders, with excellent video quality, respectable stills, and professional features (such as true 16:9 mode). The Sony and the Panasonic are also good choices, but for the difference in price, we'd splurge on the Optura. If you're on a shoestring budget, the Canon ZR-90 offers good video quality for its price. In spite of its 4.1-megapixel stills, we can't recommend the Samsung because of inadequate video quality. □

Fisher FVD-C1: Going Tapeless

The Fisher FVD-C1 is one of a new generation of MPEG-4 video camcorders that eschew tape and record directly to storage media. Like a shapely silver iPod, the lightweight, compact Fisher comes with a docking station, fits contentedly in the palm of your hand, and begs you to play. Flip open the bright, 1.5-inch LCD screen, and a cheerful female voice chimes faintly, "Camera mode." Though not much bigger than a postage stamp, the menus are easy to navigate with a beadlike joystick that you control with your thumb.

In spite of its small size, the Fisher takes big pictures: still images at 3.2 megapixels, and video at 640 by 480 pixels and 30 frames per second. At the highest-quality settings, you can fit as many as 491 pictures, or about 21 minutes of video, on the supplied 512MB memory card. The still pictures are sharp and vibrant, but video quality is disappointing, with soft edges, banding (blocks of muddy pixels), and pixel artifacts. Lightweight camcorders like this one are difficult to hold steady, and it has no image stabilization. While the audio is sufficiently loud, we heard a whine and occasional clicking as the autofocus tried to keep up, and you can't use an external microphone.

We'd recommend any of the DV camcorders in our test group over the Fisher for video quality, even if it means hauling around a few extra ounces. And if you're looking for excellent photographs, you can buy a good 3.2-megapixel camera and a 512MB memory card for about half its price.



NoteBook 1.2

Powerful Information Manager
in a Virtual Spiral Notebook

BY ROBERT ELLIS

There are many applications designed to help you cope with a flood of information, from simple notepads to sophisticated personal information managers. Most are either too lightweight to keep up or so complex that they make the task even more overwhelming.

Circus Ponies' NoteBook 1.2, like its competitor AquaMinds' NoteTaker, uses a spiral-notebook metaphor for capturing your notes and outlines, so it's intuitive and easy to use. NoteBook's features—unlimited annotation, automatic (and extensive) indexing, and a Super-Find function—make it an outstanding information manager.

Flexible Outliner

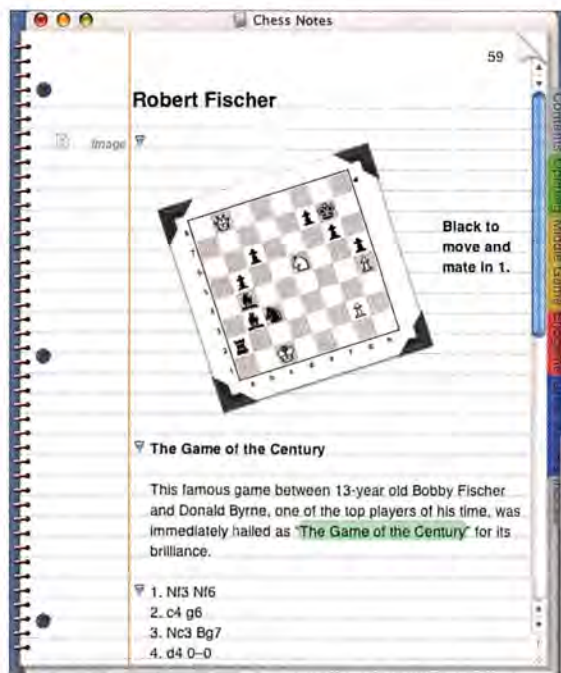
A NoteBook document (called a Notebook) can contain any number of pages divided by tabs into sections. You create as many sections and subsections as you like. As you enter notes, NoteBook arranges them into a hierarchical outline of individual cells containing attributes such as a due date, an action-item check box, a priority level, or highlighting. NoteBook automatically records some attributes, such as the creation date. While NoteTaker limits annotations to one category for each entry, NoteBook lets you annotate entries with as many keywords and Stickers (icons) as you like.

A Clipping Services feature makes it easy to harvest information from other applications. Add a Clipping Service to one or more pages in a Notebook, and the pages appear in the Services and contextual menus throughout OS X. A Clip And Annotate item is also added to the contextual menu. Selecting it opens a dialog sheet where you can give the clipping a title, edit its content, or convert it to plain text.

NoteBook isn't just for text notes. You can add clippings, images, Web links, movies, audio, documents, and folders to a cell. NoteBook can record voice annotations and import files directly from a digital camera. Using OS X's Inkwell feature, you can write or sketch just as you would in a paper notebook.

Super-Find

It's easy to find your way around NoteBook. Control-clicking on any tab brings up a shortcut menu to all the pages in that section. NoteBook automatically creates an index of all cell attributes and adds it to the back of your Notebook. There's even a Discarded Attachments Index, a kind of Trash for your Notebook (your file can grow to an unwieldy size if you don't empty this periodically). The index makes finding things a snap, but it can



Take Note NoteBook has powerful search capabilities through Super-Find (top right). Tabbed menus make navigation easy.

also append a ream of extra pages, so select only the pages you really want when you print.

In case the index isn't enough, NoteBook also has a Super-Find feature, which lets you search for combinations of attributes. For example, you can find all of a keyword's entries that are highlighted in purple, or only the high-priority action items with empty check boxes. Super-Find is impressive, but it overlooks items on the Contents and Divider pages (Circus Ponies says it will address this in the next major release).

Keeping Up Appearances

What fun is a notebook if you can't personalize it? NoteBook is completely customizable. Hide the spiral, hole punches, or page curl. Add a metallic appearance. Change the cover image, page background, or highlighter colors. Resize divider tabs, assign colors or images to them, or adjust their transparency. Assign styles to different levels in the outline. Multimedia items can have a Media Frame, which allows you to add borders, drop shadows, and photo corners, as well as scale and rotate images.

Sharing Notes

You can share Notebooks, or parts of Notebooks, with other NoteBook users. Just save individual pages or sections as a Page Bundle, a special kind of NoteBook file. You can open a Page Bundle as a new Notebook or drop it into an existing one.

There's no viewer application for sharing Notebooks with people who don't have NoteBook. However, you can export your Notebooks to HTML with a few clicks. An exported Web page looks and functions much like a Notebook, and you can turn off the spi-

ral, hole punches, page curl, and tabs if you want a less notebooklike appearance. NoteBook won't export index pages to HTML; that's fine for a small site, but not for a larger one, where an index (or even better, something like Super-Find) would aid navigation.

NoteBook can also export pages to text, RTE, and OPML (Outline Processor Markup Language, a standard outline format). Unfortunately, it can export only one page at a time.

You can also share your Notebooks by printing them. NoteBook adds an entry to the Print dialog box, where you can adjust settings and turn off the spiral, for example (oddly, you can't opt to print the cover).

You can also password-protect your Notebook to secure it from prying eyes, but this stops snoops only from opening it in NoteBook. A Notebook document is actually a bundle (a folder containing multiple program resources), and password protection won't prevent people from peeking inside. You can encrypt individual pages, but this secures only the text, not embedded files.

Macworld's Buying Advice

NoteBook 1.2 has a friendly, flexible interface. Its unlimited annotations, extensive indexing, and Super-Find feature are efficient ways to manage a glut of information. ☐

RATING: ☒ ☒ ☒ ☒ ☐

PROS: Extensive annotation and indexing features; powerful searching; refined, customizable interface.

CONS: No viewer for sharing Notebooks; limited export options; weak security.

PRICE: \$50; academic version, \$30

COMPANY: Circus Ponies Software,
www.circusponies.com

After Effects 6.5 Professional

Adobe Packs a Punch in Upgrade

BY BEN LONG

It has been a year since Adobe last revised After Effects, the market-leading compositing application. And although the latest release is not a full-version upgrade, Adobe has packed a lot of value into the package. After Effects remains at the head of the compositing and motion-graphics pack, despite the program's need for a fundamental interface overhaul.

Animation in a Can

To facilitate the replication of complex effects, Adobe has added an Animation Preset palette to After Effects. Unlike the previous version's Favorites palette, Animation Preset lets you save any keyframable operation—from geometric transformations, to mask animations, to expressions. You apply an animation preset by dragging it from the Animation Preset palette to any layer in a composition. The preset creates any necessary keyframes in that layer.

Animation presets are a long-overdue addition for easing workflow and creating uniform animations and looks. Adobe has sweetened the feature by including 250 animated text presets. While canned content often looks tacky, these professionally designed effects are of very high quality.

Though it's simple to use, the animation presets' drag-and-drop interface feels a bit like a hack. You can't, for example, remove a preset without manually altering or eliminating each keyframe associated with it. Unfortunately, because After Effects lacks any broader project-level view of a composition, there's no other sensible way of implementing this feature.

Under the Hood

Some effective under-the-hood tweaks noticeably improve After Effects' performance. In addition to better OpenGL support (which can greatly speed up previews of projects with 3-D layers and effects), the program now includes improved playback performance and better options for controlling which windows and comps will be mirrored for NTSC playback. The program's motion tracker can now track both scale and position, and it offers one-dimensional tracking, which is ideal for stabilizing one axis of a layer. Also, the motion tracker now generates a user-editable motion path, so you can edit its output by moving individual keyframes.

Painting and cloning tools also have some welcome improvements: version 6.5's painting tools more closely follow Photoshop's keyboard equivalents, and Adobe has added a Photoshop-style color picker.

The Clone Stamp tool's new controls make it much easier to select source and offset points for clone operations. You can now choose to have the source layer displayed as an overlay, which lets you see exactly what you're cloning from and makes it easier to clone quickly and precisely in just one area of your original frame. This is such a cool clone option, we'd like to see it added to Photoshop.

Edited Text

After Effects 6 introduced a new text engine, which, in addition to offering text creation and editing within the app, offered cool new text-animation capabilities. Version 6.5 improves upon this engine with several enhancements.

The new Randomize Order option lets you randomize text animations so letters appear in a random order, rather than sequentially. When combined with other text-animation properties, this lets you create very complex animations.

Other text improvements include the ability to specify one of the standard transfer modes (add, subtract, and multiply) for overlapping characters. So when characters overlap, instead of one simply covering the other, they can blend together to create intermediate shades.

Version 6.5 also includes a much more sophisticated scripting engine. Rather than limiting you to simple render control, as in version 6, the new scripting engine lets you script actual animation chores.

Bundle of Joy

After Effects 6.5 is bundled with an astonishing number of excellent plug-ins and assistants. The most exciting of these is the new X-Factor plug-in, from GridIron software, which lets you use other computers on your network to process preview renderings. Offering speed improvements of roughly 50 percent per each additional machine, X-Factor is a tremendous productivity booster for complex renderings.

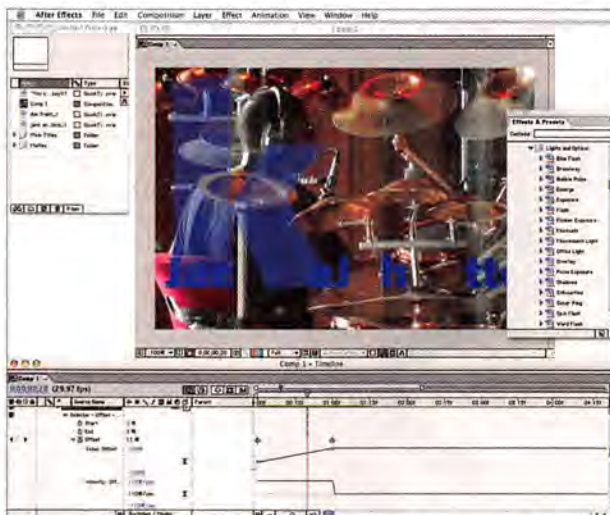
The package also includes Synthetic Aperture's Color Finesse, an exceptional color-correction tool, and Cycore FX, an update to the classic Final Effects (previously sold by MetaCreations).

This bundle is not only a tremendous deal from a price viewpoint but also a great productivity enhancer. You'll soon find yourself relying on these useful plug-ins.

Now the Bad News

Though version 6.5 includes some cool interface tweaks (such as the ability to change the interface's brightness—handy for accurate color correction), After Effects sorely needs a major overhaul. With version 6.5, the program has become even more palette-heavy than before. And although the palettes are dockable, the interface strains under the weight of the additional features.

After Effects has long had one of the best timeline interfaces of any compositing or animation program, but Adobe is trying to



Sophisticated Animations After Effects 6.5's animation presets let you quickly apply complex keyframe animations to any layer. The package ships with more than 250 high-quality effects.

do too much with it. At the same time, Adobe still hasn't added the ability to create true folders and groups of layers within the timeline—something that users have been requesting for years.

Macworld's Buying Advice

After Effects 6.5 Professional is a great value, whether you're upgrading or buying the program new. Its accelerated performance, built-in animation effects, and generous software bundle continue to make it a market leader. But its overburdened interface keeps it from being truly exceptional. □

RATING: ★★★★★

PROS: Convenient animation presets and preset library; improved performance; greatly improved text, scripting, cloning, and painting tools; fantastic collection of bundled plug-ins.

CONS: Palette-heavy interface is really showing its age.

PRICE: \$999; upgrade, \$99

COMPANY: Adobe Systems, www.adobe.com

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REVIEWS

SoundSoap Pro 1.0

Affordable Plug-in Professionally Scrubs Audio

BY CHRISTOPHER BREEN

Multimedia files can be full of superfluous sound—hum, rumble, hiss, crackles, and pops. Until recently, effectively removing this unwanted audio required professional tools that could cost thousands of dollars. But BIAS's SoundSoap Pro offers professional-quality audio restoration in an easy-to-use and relatively affordable (\$599) plug-in package.

SoundSoap Pro is the professional sibling of BIAS's \$99 one-button audio-cleaning program, SoundSoap (///; August 2003). Unlike SoundSoap, which can be used either as a stand-alone application or as a plug-in for other audio applications, SoundSoap Pro is available only as a plug-in. It supports the VST, RTAS, and Audio Units formats; no TDM version is currently available.

From within BIAS's Peak 4.12 audio editor, we tested SoundSoap Pro on a 78-rpm phonograph recording; a video file recorded with a cheap, hissy microphone; and a video clip shot at a nearby airport with jets roaring in the background. The program easily removed the antique album's pops and crackles and significantly reduced its hiss without wiping out the high frequencies. It performed just as well at removing the cheap mike's hiss while retaining the quality of the speaker's voice. With the airport clip, we had to tweak individual frequencies to avoid a flanging effect, but we eventually removed much (though not all) of the engine drone while leaving the narrator's voice sounding natural.

Modular Design

SoundSoap Pro consists of four intuitive modules: Hum & Rumble, Click & Crackle, Broadband, and Noise Gate. BIAS suggests that you use the modules in that order—first eliminating the most-obvious problems, such as hum and pops, and then attacking broader ranges of noise. (Of course, you don't have to use a module if you don't need it.) We found that this workflow was very easy.

The Hum & Rumble and Click & Crackle modules couldn't be more intuitive: you simply turn them on and then use sliders to zero in on the offending material.

To use the Broadband module, you select a portion of the file that contains the noise you want to remove, click on the Learn Noise button, and start playing the file; the plug-in then creates a filter that eliminates the noise. The Learn Noise feature cleaned much of the noise from our phonograph and cheap-microphone recordings. We had to do more work to filter noise from particular frequency



Noises Off SoundSoap Pro's easy-to-use interface has a main pane (top) that shows the module currently in use. The smaller panes (bottom) let you switch between the four modules.

ranges in our airport video (you can make adjustments within 12 frequency bands).

The final module, Noise Gate, is designed to eliminate any sounds that fall below a certain volume threshold. You might, for example, use it to eliminate soft intakes of breath in a narration track.

SoundSoap Pro lets you save and load presets and capture and recall as many as four configurations you've created. A Noise Only feature lets you hear only the noise you've removed—useful for determining when you've removed too much of the good audio.

SoundSoap Pro performed well from within BIAS's Peak. BIAS says the app is fully compatible with Apple's Logic Pro 6 and Logic Express and with MOTU's Digital Performer 4; its full interface also appeared for us from within Apple's GarageBand and Digidesign's Pro Tools LE 6.4. We wish that its interface were available in all Audio Units-compatible applications. In programs that don't support plug-ins with custom interfaces (Apple's Final Cut Pro, for example), you have to use a series of non-intuitive sliders to control the plug-in.

Macworld's Buying Advice

SoundSoap Pro combines powerful noise reduction with an easy-to-use interface, and it costs significantly less than other professional solutions, such as Waves' \$1,200 Restoration Bundle. If you need to scrub the noise from your files without getting soaked, a dab of SoundSoap Pro may be the audio cleaner you need. □

RATING: ///

PROS: Intuitive interface; effectively removes a wide range of noise.

CONS: Doesn't work fully with all Audio Units-compatible applications.

PRICE: \$599

COMPANY: BIAS, www.bias-inc.com

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Interarchy 7.2

Internet File-Transfer Program Aids Power Users

BY ANDREW T. LAURENCE

We live in an Internet world, and occasionally that means moving files over the ether. Web developers need to upload their work to Web servers, authors and graphic designers need to keep synchronized with far-flung collaborators, and sometimes we need to send files that are too darn big for e-mail.

Interarchy began life in 1993 as Anarchie, a program for transferring files using File Transfer Protocol (FTP). Alas, an unwise foray into interface skins marred Interarchy's middle years, and the initial OS X versions abandoned the network tools on which so many alpha geeks had come to rely. Meanwhile, *Macworld's* comparison review last year (★★★; September 2003) showed that relative newcomers RBrowser and Panic's Transmit had redefined the FTP landscape. Now, at version 7.2, Interarchy returns with a fresh new interface and a bevy of network tools. What began as a simple FTP program has matured into a Swiss Army chain saw for the power user's toolbox.

File Transfers

Interarchy handles basic FTP operations with practiced aplomb. You can download, upload, and create files and folders, as well as manage permissions, quickly and without surprises. Additional encryption options include support for the Secure FTP (SFTP) protocol and tunneling FTP sessions through a Secure Shell (SSH) connection.

Interarchy offers three methods for keeping files synchronized with a server. Mirror copies all files between a local folder and the server by downloading, uploading, or synchronizing the files. FTP Disk is an automated mirror that mounts as a disk icon in the Finder; it copies any changed files to the other side of the mirror. Designate a folder with the new Auto Upload function, and Interarchy becomes an upload droplet; drop a file therein onto Interarchy, and that file automatically uploads.

Interarchy recognizes that Web developers need to do more than move files around. HTTP Download quickly downloads a Web page (or an entire site) to your hard drive. The link checker scans local files and remote sites, and even verifies links to external sites. The HTTP Listing function lists a Web page's core objects in a window, quickly identifying all of the page's links, style sheets, and images.

You can execute transfer operations immediately, bookmark or schedule them for later, or put them into a transfer queue. The last option executes transfers in a

series, maximizing bandwidth for each transfer; you can also schedule queues.

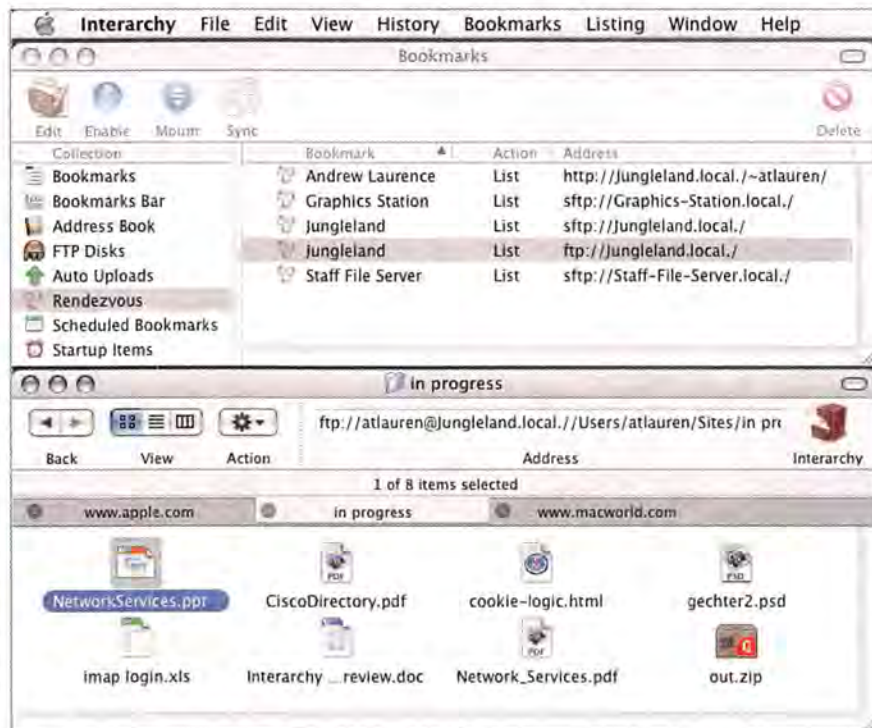
Interarchy doesn't support FTP over SSL/TLS encryption, HTTPS, WebDAV, and the Unix Secure Copy (SCP) function.

Interface, Integration, and Automation

Version 7.2 embraces the modern world with Safari-style tabbed windows and a bookmark bar. This innovation is a breath of fresh air that facilitates management of file

DNS, mail transfer, whois records, and ping results, all of which it displays in an expandable Get Info-style window. Traceroute and port scan operations are mouse-clicks away. While this information is available in Apple's Network Utility, Interarchy puts it all into one efficient window.

If you need to see just how much data you're pushing through the network, Interarchy's Network Status window shows a graphical display and statistical summary of all traffic. Network Connections offers a list



Flexible Access Interarchy can download files using multiple protocols from different Internet sites.

spaces on multiple servers. You can drag files to and from the Finder, or copy them to the system's download folder. The interface is perhaps a bit *too* clean, though—I'd like to see buttons for initiating a transfer.

Interarchy's Mac technologies run deeper than just its interface. The Bookmarks window includes nearby Rendezvous servers and any Address Book entries that include Web sites. You can store passwords in the Keychain by just selecting an option. The Get URL With Interarchy contextual menu makes Interarchy available to any application that supports contextual-menu plug-ins. In addition, the Edit With BBEdit command is a boon for users of that fine application.

Interarchy's AppleScript support remains superb, and its dictionary is a model of clarity. The command-line tool injects Interarchy's full functionality into the Terminal environment—even offering Keychain support.

Network Information

Interarchy offers several tools for network analysis and administration. The Network Host Info command queries the network for

of open connections in a friendlier format than Network Utility's netstat output. Interarchy amazes most when you need to watch the actual network packets. All the power of Unix's tcpdump is available from the Traffic function.

Macworld's Buying Advice

If you need only basic FTP abilities, Interarchy 7.2 is probably overkill. If your needs include encryption, Web transfers, automation, and network monitoring, Interarchy rolls together an impressive array of tools at an attractive price.

Pound for pound, round for round, Interarchy 7.2 returns as the baddest Internet file-transfer utility around. □

RATING: ★★★★★

PROS: Fast; efficient file synchronization; tabbed windows.

CONS: Interface could be clearer; no support for HTTPS, WebDAV, or Secure Copy.

PRICE: \$39

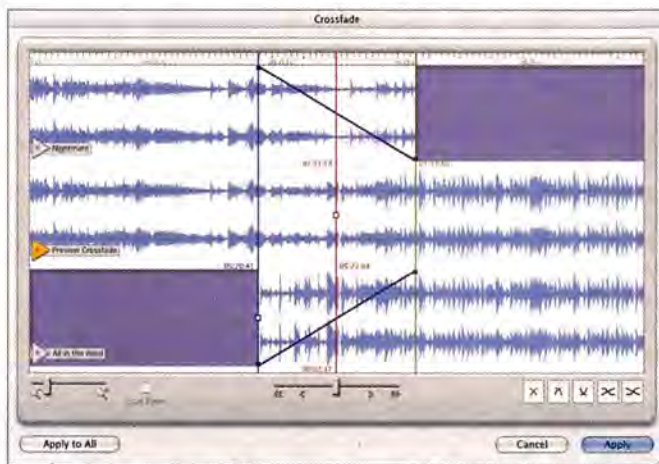
COMPANY: Stairways Software, www.stairways.com

Toast with Jam 6.0

Elegant Upgrade Simplifies CD and DVD Burning

BY JIM HEID

Toast with Jam 6.0.2, the gourmet version of Roxio's Toast 6 Titanium (●●●●; December 2003), has a feast of new features for burning music, photos, and movies to CD or DVD. In addition to Toast 6 (which includes the Toast burning software and companion programs for turning photos into movies, cleaning up old analog record-



Now You're Jamming Jam 6 gives you an interface for creating and previewing cross-fades between songs.

ings, backing up files, and designing disc labels), you get Jam 6, a separate program that provides far more control over creating audio CDs than Toast alone. Musicians and recording studios often use Jam to create "Red Book-compliant" replication masters for commercial audio CDs.

One of Jam's most popular features has been the ability to create DJ-like cross-fades between music tracks: one track fades out while the next track fades in. In Jam 6, the Crossfade editor is more versatile and elegant than ever—you can create different kinds of cross-fades between each track in a CD, and you can preview your cross-fades with a simple click (see "Now You're Jamming").

Roxio yanked the burn engine from Jam 5, so users have been relying on Toast to burn completed CD projects. In Jam 6, CD burning is back; there's no need to export to Toast.

The Toast with Jam 6 package also brings enhancements to Toast 6. When creating DVD-Video discs with Toast, you can compress your audio tracks into two-channel Dolby AC-3 format—the same audio format used for commercial DVDs. Because AC-3 audio uses far less disc space than uncom-

pressed audio, you can squeeze more than two hours' worth of video onto a DVD, depending on your content. Toast can also handle AC-3 files, even 5.1 channel (Dolby Digital) created outside of the program.

Toast with Jam 6 can also burn music DVDs, shoehorning up to 36 hours of music onto a single disc. You can create menus that enable listeners to skip from one song to the next, with each song accompanied by an on-screen graphic containing the song and artist name, playing time, album artwork from your iTunes library, or even a photo from your iPhoto library.

Roxio calls these discs DVD Music Albums, but they're actually standard DVD-Video discs that display static screens while a song is playing. Whatever you call them, they're a fabulous way to create a long music

mix for a friend's party without having to take your iPod along.

On the downside, it's difficult to create a DVD Music Album containing cross-fades between songs—you have to create the cross-fades in Jam 6, export a disc image, bring that disc image into Toast, and laboriously enter all the track and artist information. What's more, the menus and information screens

for DVD Music Albums are on the homely side. Roxio would do well to mimic some of the beautiful jewel-case templates in the latest versions of iTunes.

Macworld's Buying Advice

In Toast with Jam 6.0.2, Roxio has provided features that will please audio professionals and amateurs alike. The enhanced Crossfade editor makes a good thing even better, and DVD Music Albums and Dolby compression are welcome additions for digital-media enthusiasts of all kinds. While \$200 may seem like a lot of bread to many audio hobbyists, Toast with Jam 6's street price is much lower, thanks in part to a \$30 rebate that runs through the end of 2005. □

RATING: ●●●●

PROS: Improved Crossfade editor; convenient burning within Jam 6; cool new DVD audio-encoding options.

CONS: Difficult to create DVD Music Albums containing cross-fades; album menus and graphics are visually unexciting.

PRICE: \$200; upgrade from Toast 6 Titanium, \$100

COMPANY: Roxio, www.roxio.com

ChatBarrier X3 10.3

Instant-Message-Encryption Program Guards against Casual Eavesdroppers

BY JEFF CARLSON

When you send an instant message via Apple's iChat, your words are transmitted in the clear—anyone can use packet-sniffing software to read them, either on your local network or over AOL's instant-messaging network (which is used to transmit iChat messages). This may be of little concern if your chats revolve around last night's TV shows, but when chats contain sensitive personal or company information, security is a serious matter. Intego's ChatBarrier X3 10.3.1 applies what sounds like a high standard—"military-grade" 512-bit encryption—to iChat messaging, but this level of encryption may not satisfy every user's security needs.

ChatBarrier X3's intelligent design is unobtrusive. When you initiate a text chat with another ChatBarrier X3 user, a background pattern of gray padlocks, and a small padlock icon beside the text-entry field, indicates that the chat is encrypted. Using the packet sniffer in Interarchy 7.2 (see our review, page 34) to examine the data stream, I verified that ChatBarrier X3 does indeed encrypt text. But while the program is ideal for messaging between iChat users, it doesn't encrypt file transfers, chats with more than two participants, or Direct Instant Message sessions.

Unfortunately, ChatBarrier X3's encryption method appears to rely more on obfuscation than on published security protocols. Intego says that the "military-grade" encryption is a proprietary "derivative of triple-DES encryption." In practice, this means your iChat sessions are probably safe from casual eavesdropping, but the lack of an open, peer-reviewed encryption protocol precludes total security.

Macworld's Buying Advice

If you require confidential chats, then a program such as Fire (which uses GPG, or "open PGP") or BitWise Communications' BitWise (which uses the Crypto++ library) may better serve your encryption needs. But for most people, ChatBarrier X3's scheme is perfectly acceptable. □

RATING: ●●●●

PROS: Smart interface integrates well with iChat; encrypts and decrypts chats to prevent casual snooping.

CONS: Uses proprietary, unverifiable encryption scheme; limited to encrypting one-on-one text chats.

PRICE: single-user license, \$40; ten-user license, \$100; site license, \$1,000

COMPANY: Intego, www.intego.com

VueScan 8.0

Scanner Package Offers Alternative to Generic Software

BY JIM FELICI

Problem: your scanner's software is too simplistic, too hard to use, or outdated. **Solution:** Hamrick's VueScan 8.0.11. VueScan opens the door to professional-quality scanner control, and while it won't make you a pro overnight, it will give you the necessary tools at an amazingly low price.

The program can drive flatbeds, film recorders, and slide scanners using a range of interfaces. And because it replaces default scanner software, it can make older scanners compatible with OS X—no more popping into Classic just to use your venerable scanner. (It even can recognize old SCSI scanners.)

VueScan is available in Standard (\$60) and Professional (\$80) versions. At these prices, go pro: color-calibration tools, a selection of color spaces, and the ability to save raw scan files (so you'll never have to rescan) are worth the modest price of admission.

In addition to its versatile controls, VueScan offers color-balancing presets for many common situations, such as color distortion from fluorescent or incandescent light, washed-out skies in landscape photos, and

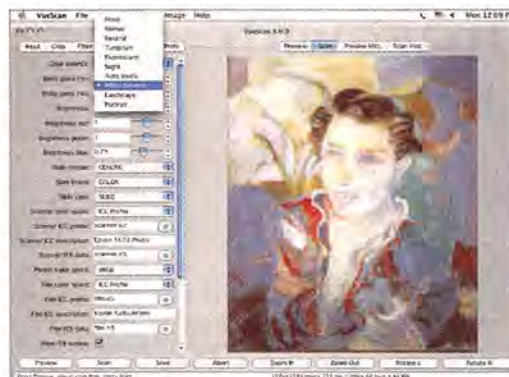
distorted skin tones. While the ten presets don't cover all situations, they can get you close to the exposures you're after. You can adjust settings for slides and film negatives, basing them on the type of film used.

All the adjustments you make can be previewed using the raw scan data, so you can tweak individual color-channel settings, for example, and save variations while keeping the original scan on screen. The preview window is ample and zoomable. An interactive channel-by-channel histogram view of either the preview or the final scan is also available.

VueScan can create ICC profiles for scanners, film, and printers for better color calibration, and IT8 reference targets are available online for about \$10. The program's tabbed interface is very easy to navigate, but a more fleshed-out manual would be helpful.

Macworld's Buying Advice

VueScan 8.0.11 is a tremendous value. It can't make great scans automatically, but the Professional version puts them well within reach. Because VueScan works by driving the scanner directly—emulating the command set used by the scanner manufacturers themselves (every command set has to be reverse engineered)—it doesn't work with



Color Calibration VueScan 8.0.11's color controls did an admirable job on a demanding scan: this slide of an original oil painting (by Jennifer Griffith). The program's many calibration, color, and brightness controls are augmented by a pop-up list of color-balance presets.

all scanners. Check Hamrick's compatibility list before diving in. □

RATING: ★★★★★

PROS: Very fine but quite manageable controls; excellent previews and color-management tools; can save raw scan data for reprocessing later; professional tools at a low price.

CONS: Skippy documentation too advanced for most nonprofessionals; doesn't support all scanners.

PRICE: Standard Edition, \$60; Professional Edition, \$80

COMPANY: Hamrick Software, www.hamrick.com

THE CONQUEST

DiskWarrior is Now OS X Native

It's the indispensable utility that repairs problems such as disks that won't mount, files you can't trash, and folders that have disappeared. MacUser magazine said, "It's the fastest and safest data recovery utility you can buy."

Macworld magazine said, "DiskWarrior is by far the best disk utility available for the Mac; it can repair virtually any disk problem you may

encounter...and it is likely to become the only tool you'll want to keep with you at all times."

David Coursey, ZDNet AnchorDesk, agrees in an article comparing disk utilities. He used it to fix a disk that no other utility could. "DiskWarrior is a great product, not just because it fixed a pretty serious screw-up, but because it showed me what it planned to do in minute detail before doing it."

But disk damage isn't the only threat to your data. As hard drives get older, the drive mechanisms

THE UTILITY COMPANY
ALSOFT

Phone: 1-800-257-6381 Fax: 281-353-9868 Email: sales.info@alsoft.com Web Site: www.alsoft.com

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BumperCar 1.0

Kids' Browser Makes the Web Safer

BY JASON CRANFORD TEAGUE AND
JOCELYN CRANFORD TEAGUE

Like many other ubiquitous applications, Web browsers suffer from a one-size-fits-all approach that can leave specific audiences out in the cold. This is especially true for young Web surfers, whose needs are very different from those of adults. Primarily, youthful Web surfers need protection from the harmful content that pervades the Web, but they may also need help with reading, comprehending, and interpreting online content.

Freeverse Software—the maker of excellent games such as *Burning Monkey Solitaire* (♦♦♦♦; *The Game Room*, December 2003)—has created BumperCar, a browser designed for kids. Based on The Omni Group's OmniWeb (♦♦♦♦; "Battle of the Browsers," December 2002), one of the best Web browsers on the market, BumperCar has sophisticated but easy-to-use filters that block unwanted content without being overly restrictive. You must spend time setting up even the best filters so they don't inadvertently restrict innocuous content, but BumperCar's filters make it relatively easy to balance the need to show young viewers safe, appropriate content and the need

to prevent them from reaching questionable content. BumperCar lets you base filters on Web sites' ratings, set up black lists (sites that can never be visited) and white lists (sites that can always be visited), block ad banners and cookies, and screen Web pages for language. Parents can also specify the hours their children can surf the Web and how long they can stay online.

BumperCar launches with an animated page designed to give kids clear paths to what they're looking for. One especially good feature is the Tunnel of Mystery, a link to a random site from a list of approved sites (see "Sites for Kids").

But despite the colorful launch page, BumperCar offers few specific features that will improve young users' surfing experience. For example, many kids would benefit from having parts of Web pages read to them by the computer. Although BumperCar can read a page aloud (through a feature built into OS X), a child has to select the text and choose the Start Speaking command from the pop-up menu, which some adults might find challenging.

Macworld's Buying Advice

BumperCar provides excellent filters and restrictions that let parents guide their



Sites for Kids BumperCar's animated launch page provides kids with clear paths to the Web.

children's Internet experience. However, beyond a few simple introductory pages, it doesn't provide many advantages for kids, and some of its great features, such as speech, are buried in its interface. □

RATING: ♦♦♦

PROS: Simple parental control settings; effective filters; fun launch page.

CONS: Few kid-specific features; some controls too advanced for younger kids.

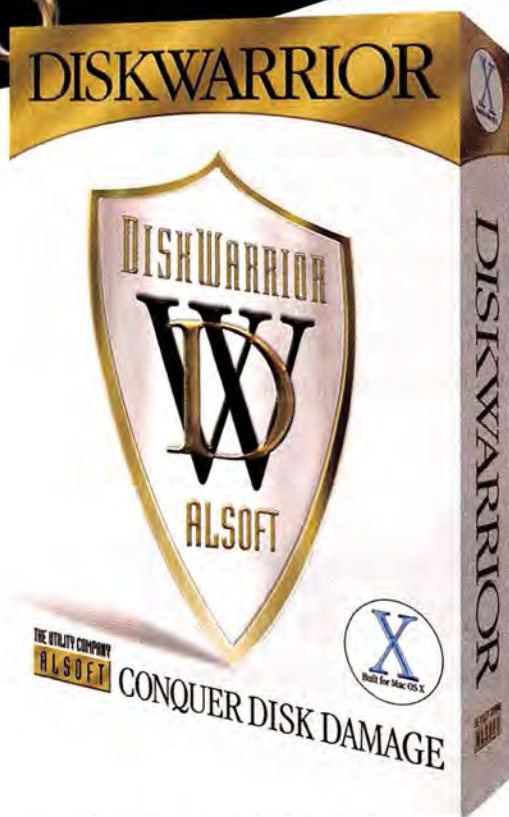
PRICE: \$50

COMPANY: Freeverse Software, www.freeverse.com

CONTINUES

begin to malfunction. Eventually, the malfunctions become so severe that the drive simply stops working. DiskWarrior can automatically test for hardware malfunctions, giving you the chance to back up your data before it's too late.

Be prepared. Don't wait until after you have a disk disaster to buy your copy of DiskWarrior. Bob LeVitus, aka Dr. Mac, said, "I feel naked without DiskWarrior." You can believe MacHome magazine when they said, "DiskWarrior is a quick, one-click solution to faster, more stable hard drives."



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Macworld
The Mac Product Experts

REVIEWS

MacDraft PE 5.5

Powerful CAD Program Reaches Out to Consumers

BY GREG MILLER

MacDraft PE (Personal Edition) 5.5 is a slightly scaled-down version of Microspot's well-known MacDraft, a 2-D CAD (computer-aided design) application for creating floor plans, architectural and landscape drawings, technical illustrations, and flowcharts. This version is aimed at the home, small-business, and education markets.

MacDraft PE includes nearly all the features of its more powerful sibling, such as drafting tools for lines, fills, dimensions,

and it's unusual even in more-expensive CAD programs. It provides higher-quality on-screen graphics, resulting in better differentiation between various line weights, for example. In addition, this version has a transparency feature for lines, fills, and other objects, and you can control the level of transparency—from 0 to 100 percent. This makes it possible for multiple overlapping objects to be visible at the same time. Another new feature is ATSUI (Apple Type Services for Unicode Imaging) text. This

makes text look terrific on screen no matter what its rotation is.

Graphics Import and Export

Version 5.5 lets you import graphics file formats such as PICT, TIFF, GIF, JPEG, BMP, Photoshop, and PDF. Imported images can be rotated and scaled and can have various levels of transparency applied to them. Drawings can be exported in formats such as PICT, TIFF, JPEG, Photoshop, and PDF. However, you can't import or export the architectural and engineering industry-standard formats DWG and DXF. To

work with these formats, you need the professional version of MacDraft.

And MacDraft PE now lets you undo your last 100 actions—an essential feature when you're working on a complex technical drawing.

Macworld's Buying Advice

MacDraft PE 5.5 is a complete drafting tool for anyone who creates architectural drawings, technical illustrations, and landscape designs. But if you're a professional, you should be aware of the product's limitations: no DWG or DXF import or export, no layers, and limited page size. If you don't need any of these advanced features, you'll find that MacDraft PE is both extremely capable and incredibly easy to use. □

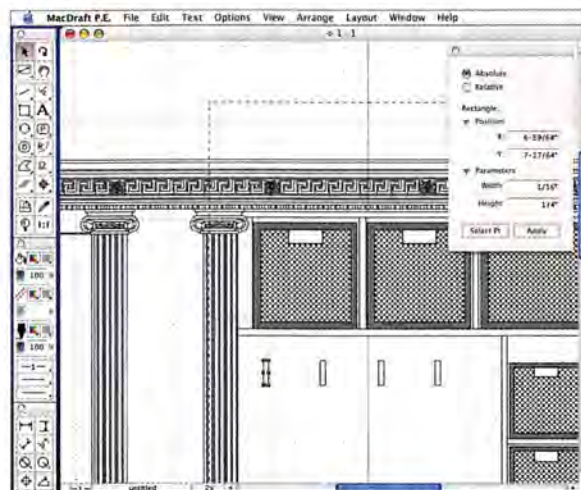
RATING: ★★★★★

PROS: Beautiful graphics; easy and fun to use; offers complete set of tools.

CONS: Limited page size; no layers; no pro-level import and export for industry-standard file formats.

PRICE: \$129; download, \$116

COMPANY: Microspot, www.microspot.com



Mac Look-and-Feel MacDraft PE 5.5 has a familiar user interface that makes the program easy to learn.

and more. And with a conceptual lineage that goes back to the original MacPaint and MacDraw, MacDraft has a familiar Mac interface that is very easy to learn and fun to use.

Attributes such as line weights, line styles, fill patterns, and line and fill colors can be easily viewed and changed via the Attributes and Resize palettes. You can also set an overall scale (choosing from 25 standard scales) and use European or American units of measurement.

MacDraft PE also lets you create and edit your own fill patterns, as large as 32 by 32 pixels; this facilitates more-complex and more-detailed designs.

But this version has limits. The maximum physical page size is only 17 by 17 inches (though that doesn't limit the size of your drawings). The consumer version also doesn't support layers, which professionals need so they can show and hide different parts of complex drawings.

Better-Looking Drawings

Quartz Graphics—the name refers to the high-quality native graphics engine in OS X—is a new feature for MacDraft PE,



Too much spam?

Intego Personal Antispam X3: The ultimate tool to fight spam

NEW



Experts say that in 2005, 80% of e-mail sent around the world will be spam. To fight this scourge of the Internet, Intego introduces Personal Antispam X3: the first intelligent program for eliminating unwanted e-mail from your in-box. Works with Apple Mail or Microsoft Entourage.

✦ Doesn't slow down your Mac • Keeps your in-box spam-free • Learns from the spam you receive



Intego NetBarrier X3
The first internet security solution for Mac, including firewall, filter, antispam, privacy and monitoring features.



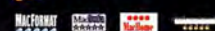
Intego VirusBarrier X
The ultimate antivirus solution for your Macintosh. Eliminates all known viruses.



Intego ContentBarrier X
Protects your family from the dangers of the Internet so your children can surf in peace.



Intego Personal Backup X3
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Top Products

Scanners

MIDRANGE FLATBED SCANNER

★★★★ CanoScan 9900F (\$400), from Canon (www.canon.com)

Inexpensive for its class, this flatbed scanner has 3,200-ppi optical resolution, produces all-around good image quality, and includes hassle-free software (August 2004). find.macworld.com/0089



Digital Cameras

8-MEGAPIXEL DIGITAL CAMERA

★★★★ C-8080 Wide Zoom (\$999), from Olympus (www.olympusamerica.com)

Good photo quality, durable design, and in-camera image editing, among other nice traits, make this camera an excellent choice if you need to make very large prints of digital photos (September 2004). find.macworld.com/0091

Printers

COLOR LASER PRINTER, \$1,000 RANGE

★★★★ C510n (\$1,019), from Lexmark (www.lexmark.com)



The C510n provides very good image quality at a low cost per page. And the printer ships with toner cartridges installed. Generous RAM and preinstalled toner just add to the package (June 2004). find.macworld.com/0084

Macs

PORTABLE FOR GENERAL CONSUMERS

★★★★ 12-inch iBook G4/1GHz (\$1,099), from Apple Computer (www.apple.com)

This diminutive Mac's combination of performance, features, and affordability makes it a winner. You can pack it with up to 1.25GB of RAM and add an AirPort Extreme card (September 2004). find.macworld.com/0087



PORTABLE MAC FOR PROS

★★★★ 12-inch PowerBook G4/1.33GHz with SuperDrive (\$1,799), from Apple Computer (www.apple.com)

Our favorite out of the four we reviewed, the 12-inch PowerBook G4 packs a lot of power into a compact and elegant case (July 2004). find.macworld.com/0088

DESKTOP MAC FOR GENERAL CONSUMERS

★★★★ 1.25GHz eMac (\$999), from Apple Computer (www.apple.com)



This eMac may have received only a tiny speed increase, but its performance is impressive, due to a better graphics card and a fast SuperDrive. At this price, it's quite impressive for a bottom-of-the-line Mac (October 2004). find.macworld.com/0090

IN THE MACWORLD LAB

Hardware Products We Tested This Month

★★★★ LaserJet 2550Ln (\$599), from Hewlett-Packard (www.hp.com)

This inexpensive, networkable color laser printer offers crisp text and very good color fidelity, and it supports Apple's Rendezvous. But with a paper capacity of only 125 sheets, you might consider paying the extra \$100 for the optional 150-sheet paper tray. find.macworld.com/0083



★★★★ C5150n Digital Color Printer (\$599), from Oki (www.okidata.com)

As a network-capable LED printer, this model delivers crisp text at a low price. But its clunky networking, undersaturated colors, and lack of PostScript support keep us from highly recommending it. find.macworld.com/0085



★★★★ SyncMaster 910T (\$600), from Samsung (www.samsungusa.com)

Here's an inexpensive 19-inch digital LCD that offers a very good viewing angle with no pronounced color shifts, as well as very legible text even at small point sizes. Colors appear accurate but a little undersaturated. find.macworld.com/0086



★★★★ FP992 (\$670), from BenQ (www.benq.com)

This 19-inch LCD with 1,280-by-1,024-pixel resolution is well priced, and it features both analog and digital inputs. A good all-around performer, this thin-bezel display did have some color shifts at extreme angles. find.macworld.com/0080



NEW: DISPLAYS

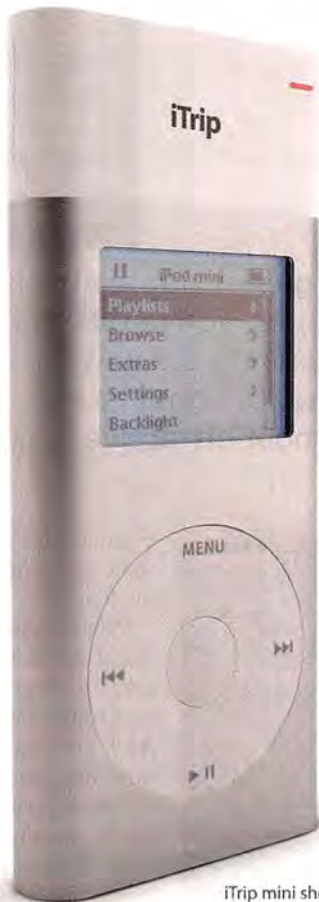
MIDSIZE FLAT-PANEL DISPLAY

★★★★ MultiSync LCD1960NXi (\$729), from NEC (www.necmitsubishi.com)

This 19-inch LCD has rich color, a wide viewing angle, and a competitive price. It can also adjust up and down, as well as tilt (October 2004). find.macworld.com/0081



Top Products are those we recently reviewed in a comparison of like products. As new products become available, we will update the list. For longer reviews of these products and for other product recommendations, go to www.macworld.com/reviews.



iTrip mini shown
(actual size)

Let me take you on a trip...

Quick, where do you most often listen to music? In your car, right? The easiest way to enjoy all of that music in your car is the Griffin iTrip. Snap iTrip on your iPod or iPod mini and suddenly your music is filling up your next road trip, daily commute or business trip - right through the built-in FM stereo of any car. Buy an iTrip for your iPod or iPod mini and your favorite song will always be on the radio.

iTrip FM Transmitter for iPod

\$39⁹⁹

- The **only** FM Transmitter designed exclusively for the iPod & iPod mini
- Choose any empty station from 87.7 to 107.9, and change your iTrip stations directly from the iPod

- iTrip for 4G iPods also available. Please visit us online for more information
- Draws power from the iPod, no batteries ever needed—or wasted



SightLight FireWire Light for iSight

\$39⁹⁹

- Adds direct LED light to any iSight camera
- Custom-designed Fresnel-based lens diffuses light to even out shadows
- Auto setting automatically senses the amount of ambient room light and adjusts its output accordingly
- Shares the iSight's FireWire connection



iTalk Voice Recorder for iPod

\$39⁹⁹

- Turn your iPod into a digital voice recorder with thousands of hours of recording time
- Automatic Gain Control assures the best possible signal level for recordings
- Features internal microphone and built-in laptop quality speaker for playback
- Connect an external microphone or even headphones to the built-in pass-through mini jack connection on top



iMic USB Audio Interface

\$39⁹⁹

- Record your old records and tapes to play in iTunes, put on your iPod, or burn to CDs
- Connect any keyboard, guitar or microphone directly to GarageBand for high quality recording
- Use line level output to connect your Mac to a stereo or external powered speakers

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> Homeworld 2
> Gish
> Rise of the Nile
> Star Wars: Knights of the Old Republic
> MTX: Mototrax
> Razer Viper

The Game Room

Let's face it—most real-time strategy (RTS) games are relatively two-dimensional. Despite their contoured landscapes, you're ultimately still playing on a flat map. But Aspyr Media's Homeworld 2, a new RTS game set in outer space, changes all that. It forces you to fight in a truly three-dimensional space. The result is one of the most attractive, enjoyable games you'll find on store shelves this year.

A sprawling space opera, Homeworld 2 tells the story of the Hiigarans, a space-faring race of people that has returned to Hiigara from a distant exile, only to find themselves persecuted by a warrior clan called the Vaygr. At the start of Homeworld 2, you and your fellow Hiigarans are putting the finishing touches on your new mothership, the *Pride of Hiigara*, when the Vaygr fleet launches a surprise attack. This sets in



Six Degrees of Destruction Set in outer space, Homeworld 2 forces you to think about strategy from all angles.

motion a series of events that will keep you on the edge of your seat straight through to the end of the game—if you survive that long.

The basic elements of Homeworld 2 will be familiar to RTS fans: Your mothership is your home base. It's where your fleet originates, where you research new technology, and where you refine resources from nearby asteroids and debris fields. But while the mothership's bulk enables it to withstand a tremendous amount of punishment, it doesn't have to fight alone. The ship has enough manufacturing resources to create an entire fleet of spaceships: shipyards and carriers (both of which can create vessels of their own); stationary gun platforms; swarms of interceptors and bombers that buzz around like lethal, angry insects; and more. Understanding how to develop and use all these resources is pretty easy, thanks to a clear and straightforward tutorial you can replay in

chapters if you miss some of the finer points the first time.

What makes Homeworld 2 different from other strategy games is its setting—outer space. And strategizing in three dimensions is very different from playing on a two-dimensional map. Rather than just swarming your strike forces straight at the enemy, for example, you'll often get better results by using space to your advantage—send-

ing forces in to attack from above, below, or behind.

Homeworld 2's user interface is relatively intricate. Pop-up menus and overlays provide you with data about your fleet's condition and operational characteristics, mission objectives, tactical analysis, research status, and more. But it's all very logical and easy to understand once you grasp the basics of camera control, fleet movement, and resource manipulation.

The game's visual details have a cinematic scope. The ship designs and settings offer the epic scale of a *Star Wars* movie and the complex technical detail and gritty realism of *Blade Runner*. The game also features awe-inspiring, colorful backdrops of nebulas, glowing planets, and blankets of stars.

The audio production is equally top-notch. Homeworld 2 features a properly grand soundtrack and excellent voice acting. The game's events are often accompanied by radio chatter from squadron leaders, ship commanders, and other voices from your fleet—all of which could quickly become irritating in an inferior game. But here, it all informs and enhances game play.

The game's single-player campaign is linear—each time you play, the Vaygr do the exact same thing. How you win your battles, however, is up to continues

HOMEWORLD 2

RATING: ★★★★★

PROS: Unique twist on the real-time-strategy genre; challenging game play; stunning art and design.

CONS: No support for cross-platform gaming.

PRICE: \$50

COMPANY: Aspyr Media, www.aspyr.com

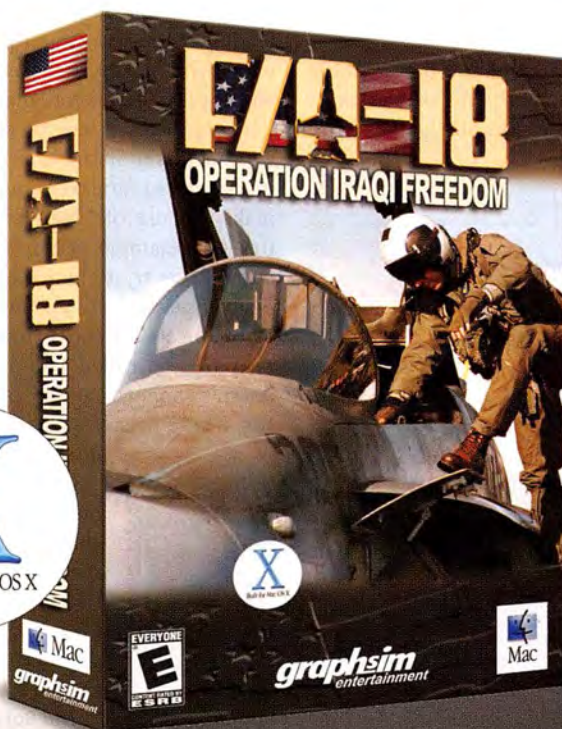
Liberated!

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- Accurate terrain elevations.
- Fly missions from an aircraft carrier in the Persian Gulf.
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- Simple and visual setup menus.
- Create and fly your own "what-if?" scenarios with the included Mission Creation Tool.
- Fly cooperatively with other allied aircraft: F-16 Falcon, F-15 Eagle, A-10 Warthog, F-117A Nighthawk, B-2 Stealth Bomber, B-52 Bomber.

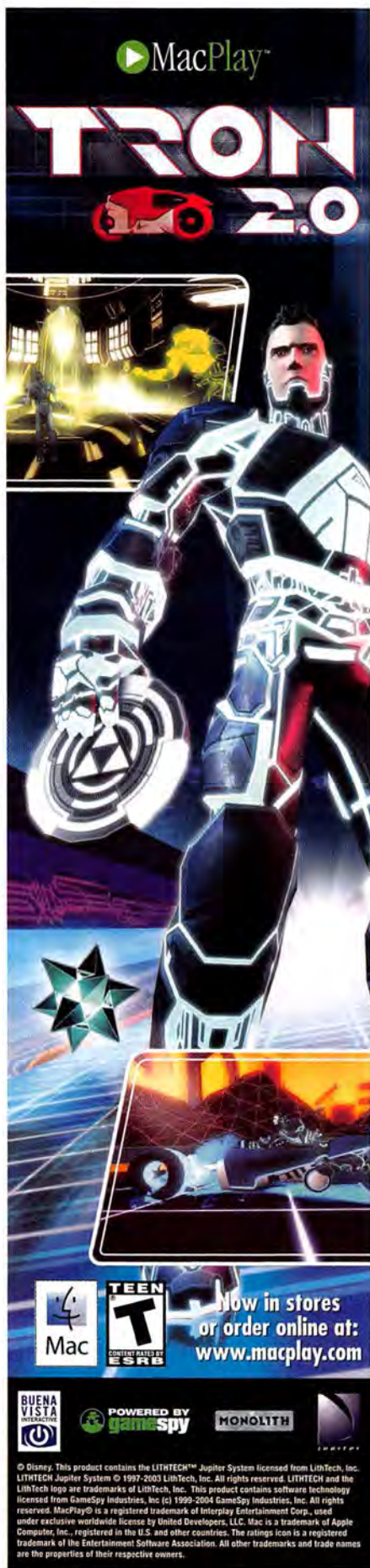
F/A-18
OPERATION IRAQI FREEDOM



graphsim
entertainment



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Mac

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MONOLITH

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you. And if you tire of the single-player campaign, you can take on the computer in a skirmish mode, which lets you play as the Vaygr.

Homeworld 2 lets you challenge other Mac players online using GameRanger, direct TCP/IP connections, or LAN connections. But the game doesn't support cross-platform competition—an unfortunate drawback caused by DirectPlay, the networking technology used in Windows versions. The game calls for an 800MHz G4 or faster running OS X 10.2 or later.

The Bottom Line Homeworld 2 is, without question, a tour de force in real-time strategy gaming. If you buy one RTS in 2004, this should be it.

Tarred and Feathered

The basic storyline behind Gish, a new side-scrolling platform action game by Chronic Logic, may sound a bit hackneyed. When his girlfriend, Brea, is captured by an evil fiend, Gish must descend into the labyrinthine subterranean sewer world of Dross to save her—jumping from platform to platform, knocking down walls, and battling all manner of strange creatures. There's just one catch: Gish doesn't have arms or legs. He's a 12-pound, animated ball of tar—and the driving force behind one of the most unusual and memorable games I've played this year.

GISH

RATING: ★★★★★

PROS: Advanced physics modeling; great soundtrack; fun hidden levels; unique multiplayer challenges.

CONS: Sparse sound effects; no network support.

PRICE: \$20

COMPANY: Chronic Logic, www.chroniclogic.com

Gish isn't your average ball of tar. He has menacing yellow eyes and a fanged visage—which made him an instant hit with the kids in my house. But his simple, hand-drawn appearance belies the sophisticated physical modeling behind his movements. Gish can make himself heavier by hardening up a bit—useful when smacking into objects and bad guys. Gish can also make himself sticky, to better adhere to walls, or slick, to better ease into tight spaces.

Getting used to Gish's physics may take some time. But once you've done so, these attributes make for some pretty clever gaming. By sticking to a wall, you'll be able to collect hidden bits of amber—the game's currency. You can also pry stuck objects loose—for example, an impeding column—by alternately hardening and relaxing Gish's body.

The game's creative level design often makes use of destructible objects. For example, you can knock away blocks or entire walls to reveal new passages. Occasionally, you'll even unlock secret levels similar to those in classic video games such as Pitfall and Super Mario Brothers.

Gish offers several additional game modes to keep things interesting. The Collection mode is a timed puzzle game in which you must retrieve as many globs of amber as you can before the clock runs out. The Versus mode lets you compete against another player on the same computer. This mode offers a variety of unusual games that make full use of Gish's physical properties—for example, there's Sumo, in which two players try to knock each other off a floating platform; Greed, where the player who collects the most amber wins; and a racing game called Dragster. Alas, Gish doesn't support gaming over a network. But sitting next to your opponent can be more fun, anyway.

Gish is complemented by an eclectic and enjoyable soundtrack—though the game's other sound effects are a bit sparse. Gish requires a 1GHz machine or better and OS X 10.1 or later.

The Bottom Line Gish is an absolutely top-notch game that shows just how creative and imaginative an independently developed and published game can be. Download the demo and give Gish a try.

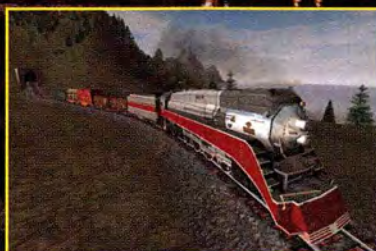
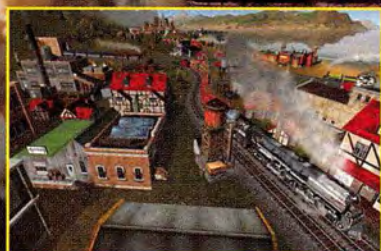
continues



Stuck on You Gish moves just like a ball of tar would if the ball of tar were alive—and really angry.

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Play like an Egyptian

The ancient Egyptian god Seth (also known as Set) has unleashed an awful drought upon the land, and the queen has called upon you to make things right. To do that, you'll need to redirect the mighty Nile River to irrigate the earth and make crops flourish. This is the premise behind *Rise of the Nile*, a new action-puzzle game by Evil Genius Games.

Rise of the Nile is an old-fashioned pipe-laying game with a new twist. You're presented with various pieces of river—some

sections are straight while others zigzag or bend. Your job is to assemble the pieces into closed loops—rotating them if necessary—to complete your irrigation system. Once you do, the earth absorbs the water and turns green with life.

Of course, Seth won't be pleased with your interference. He'll throw rocks in your path and send armies of scorpions to kick up the dust. You can fight Seth's scorpions with the flaming Kopeshe Sword, an extra goodie that shows up from time to time in

continues



FIRST LOOK

Star Wars: Knights of the Old Republic

At the risk of making generalizations, I find that most Dungeons and Dragons fans also have an abiding love for *Star Wars*. Aspyr Media has brought the two together, with the Mac version of *Star Wars: Knights of the Old Republic*—a single-player role-playing game (RPG) set in the *Star Wars* universe.

Knights of the Old Republic takes place four thousand years before Darth Vader and Luke Skywalker enter the picture. The Sith, *Star Wars*' resident bad guys, are waging war against the Jedi Knights, protectors of the Republic and all-around hero types.

In typical RPG fashion, you select your gender, character class (soldier, scoundrel, or scout), and physical appearance before you begin playing. At the game's opening, you're sent to rescue a captured Jedi warrior, who then recognizes your potential as a Jedi pupil. Eventually, you'll be initiated into the Jedi order, where you'll learn important offensive and defensive skills that help you tap into the universal power known as the Force.

Of course, what you do with your power is entirely up to you. Your alignment with the light or the dark side of the Force is mainly determined by your actions—the way you speak with nonplayer characters, the decisions you make, and the quests you pursue. All these things have a profound impact on whether you ultimately become good or evil.

Although *Knights of the Old Republic* is exclusively a single-player game, you'll meet AI characters you can invite to join your party. You control each of these characters individually, so you can use each of their unique skills to complete the task at hand.

The game includes plenty of combat, which combines the turn-based strategy of an RPG with the real-time action you'd expect of a fully



Feel the Force In *Star Wars: Knights of the Old Republic*, your actions will determine which side of the Force you end up on.

3-D game. When your party encounters an enemy, the action pauses so you can tell them what actions to take. Combat then proceeds until one side has won or until you tell your characters to change their strategy or weapon.

Aspyr has set the game's system requirements rather high. Thanks to some nifty graphical effects, the game requires Panther or later and at least a 1GHz machine.

Knights of the Old Republic should be on store shelves by the time this issue reaches you. But you'll have to pay \$50—more than twice what the Windows and Xbox versions currently cost.

The Bottom Line The sheer abundance of game play and the ability to choose your own destiny make *Star Wars: Knights of the Old Republic* a must-have for *Star Wars* enthusiasts.

STAR WARS: KNIGHTS OF THE OLD REPUBLIC

PROS: Rich and complex story lines; unusual combat system; good character development.

CONS: Mac version costs twice as much as the current Windows and console versions.

PRICE: \$50

COMPANY: Aspyr Media, www.aspyr.com

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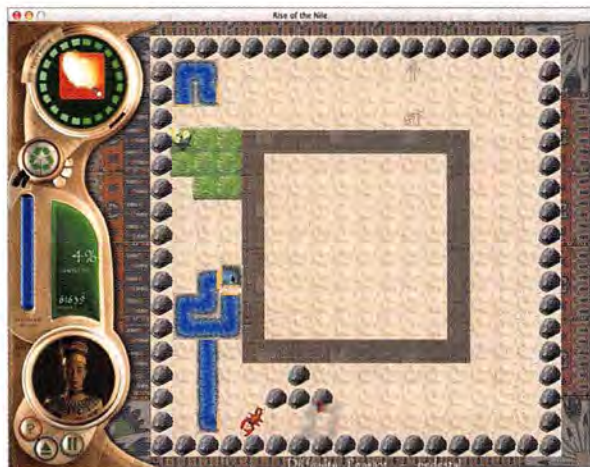
THE GAME ROOM

place of a river segment. You can also use the sword to crush rocks into dust and to bury sections of river in the sand when you make a mistake. For big mistakes, you can release rushes of sand to bury an entire section of river.

Rise of the Nile requires that you cover a certain percentage of each level with fertile ground. You can lay river pieces over ground that has already been irrigated—a handy way to fill in dry land within a closed loop. The lush your vegetation becomes, the more points you'll rack up. You'll occasionally find sacred symbols, such as an ank, hidden in the sand. Placing water pieces over them will earn you bonus points.

The game offers two playing modes. In Strategy mode, you'll have to contend with an overflow meter, which declines every time you trash a puzzle piece that won't fit. When the meter runs dry, the game is over. The Timed mode adds to the challenge by forcing you to lay down an adequate number of river segments before the clock runs out. However, the clock runs a little too fast to be anything but frustrating.

You can turn off the game's sound effects and music—a good thing, as they get irri-



Desert Bloom In Rise of the Nile, you'll bring life to the Egyptian desert by harnessing the power of the mighty river.

RISE OF THE NILE

RATING: ★★★

PROS: Offers a new twist on an old favorite.

CONS: Frustrating timed mode; tedious sound effects and music.

PRICE: \$20

COMPANY: Evil Genius Games, www.evilingeniusgames.com

tating quickly. You'll need at least a G3 with 128MB of RAM and OS X 10.2 to play.

The Bottom Line Rise of the Nile adds an interesting twist to a tried-and-true puzzle genre. But its timed challenges are likely to leave you frustrated.

Get Dirty

Over the past couple of years, Aspyr Media has built a collection of extreme-sports games that includes skateboarding, surfing, and wakeboarding. They've now added motocross racing to the mix with MTX: Mototrax, a top-notch game that puts you behind the handlebars of an off-road dirt bike as you race the pros and perform stunts.

Like most games in this genre, MTX: Mototrax lets you create a custom rider—defining your physical features as well as your equipment—and then gives you a choice between two game paths: Career mode and Freestyle mode. In Career mode you'll move up through different motocross disciplines, developing skills, unlocking new tracks, earning money and sponsorships, and developing alliances with new motocross racing

MTX: MOTOTRAX

RATING: ★★★

PROS: Built-in track editor; varied game play; great graphics.

CONS: Freestyle challenges can be frustrating.

PRICE: \$20

COMPANY: Aspyr Media, www.aspyr.com



Fast and Furious Race against other motocross pros in Aspyr's MTX: Mototrax.

Precision Gaming

Razer has a reputation for creating top-quality mice designed specifically for the gaming community. Its newest release, the Viper, is a high-precision optical mouse that offers greater sensitivity than many other mice, as well as several other useful amenities.

The Viper sports 1,000-dpi optics—that's about 25 percent higher than you'll find in many other precision mice. This results in greater sensitivity, and lessens the chance that your cursor will get the jitters if your hand moves fast across the table in the midst of a particularly frantic fragging session.

The Viper also has an ambidextrous two-button design that fits a variety of hand sizes. Razer coated the two buttons—which are contoured to the sides of the mouse—with a rubberized material to prevent sweaty fingers from slipping and to make the mouse easy to grip. A clickable scroll wheel sits nestled between the big buttons. The underside of the Viper has Teflon-coated feet, which cut down on friction against your desktop. Of course, the design isn't *all* about function. The casing's translucent black material shows off the red glowing optics as you move the Viper across a desktop surface.

Alas, the company doesn't make its own Mac drivers; the included CD offers only Windows drivers. However, its Web site points Mac customers to the venerable shareware




Built for Speed

Razer's first optical mouse, the Viper, offers the kind of speed and precision that are essential for eliminating your enemies.

application USB Overdrive (www.usboverdrive.com). Most full-featured OS X games include tools for programming a second mouse button and scroll-wheel commands. But Mac users will lose the ability to adjust sensitivity and acceleration settings—something that Windows users can do.

The Bottom Line Razer's Viper was built for speed. If you're looking for a fast mouse designed for the demands of fast and furious gaming, this may be the one for you.

RAZER VIPER

RATING: 

PROS: High-precision optics; nonskid buttons; fast response.

CONS: No Mac drivers.

PRICE: \$50

COMPANY: Razer, www.razerzone.com

teams. Win enough races, and you can upgrade to a more powerful bike. You can also compete against as many as seven online opponents.

You can test your skills at different types of events, including motocross races, which happen at large outdoor tracks filled with winding trails spread over varied terrain; supercross races, which take place inside stadiums and require that you exercise more skill in turning tight corners and hitting jumps; and freestyle events, which focus specifically on your ability to perform tricks in rapid succession. Freestyle events are essentially the motorcycle equivalent of a skate-park half-pipe; you have a series of goals to complete in a specific amount of time—such as getting enough air on your jumps to hit floating hoops. Some of these sequences, however, are challenging to the point of frustration.

In the game's Freestyle mode, you can forgo racing entirely and instead focus on developing your tricks. More-difficult and more-creative tricks will earn extra points.

The game includes an integrated track editor, which lets you create your own

supercross courses inside an arena—it's a bit like assembling a Hot Wheels track. But while the editor has a good collection of track pieces, your design possibilities are ultimately limited by space constraints.

MTX: Mototrax looks great. Aspyr did a nice job of converting the console version of the game. It also runs fast as blazes on my 1.5GHz PowerBook G4. The game requires at least 800MHz. The game's soundtrack features the typical mix of metal and punk, including bands such as Disturbed, Metallica, and the Misfits.

One of the game's most surprising features is its price. **MTX: Mototrax** is debuting for \$20. This makes the game less expensive than some shareware games, with much better production quality.

The Bottom Line Motocross is a novelty on the Mac. And **MTX: Mototrax** is a solid introduction to the genre. If you're looking for a different kind of racing game, **MTX: Mototrax** merits a look. □

MacCentral.com Senior Editor PETER COHEN regularly practices his Jedi Force powers, but he still has to get up off the couch to get the remote.

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Photography
by Peter Belanger

iMac G5

IF YOU WERE TO RANK ALL THE REASONS FOR APPLE'S MID-NINETIES REVIVAL, YOU'D HAVE TO PUT THE SUCCESS OF THE ORIGINAL IMAC (ALONG WITH THE RETURN OF A GUY NAMED STEVE) RIGHT

at the top of the list. The brightly colored plastic all-in-one not only inspired all sorts of copycat designs, computer-related (mice, printers, and hubs) and otherwise (the George Foreman grill), but also made computing fun again. The flat-panel iMac introduced two years ago had the same effect—here was a computer you wouldn't mind displaying out in the open, instead of tucking your system away behind closed doors.

In many ways, the new iMac G5 represents an even more radical design leap than the two models that came before it. Apple's Web site touts the new iMac as being "from the creators of iPod." That's more than a not-so-subtle reminder to buyers that the iMac shares a bank account with a certain sleek, white consumer product that accounts for most of Apple's profits these days. It also speaks to some striking similarities in look and style.

"We're making a connection to the iPod at a marketing level, but the connection existed long before we dreamed of the marketing," says Greg "Joz"

Joswiak, Apple's vice president of hardware product marketing. "They're both very simple products that people couldn't figure out how to do simply."

"And obviously," he adds, "we have one design team, so there's no doubt that you see similarities." In other words, it fits neatly into Apple's recent design aesthetic.

But even though it's not too difficult to imagine the new iMac G5 appearing soon on desks in every TV show, movie, and comic strip out there, there's more to the machine than just a new look. We had a chance to see it up close and personal when we got a tour of the iMac G5—inside and out—from

Joz. (For the full text of our interview with Joz, go to find.macworld.com/0095). Turn the page to find out what we learned. □

Senior News Editor JONATHAN SEFF has reviewed many Apple systems, including the 17-inch iMac G4/1.25GHz, and specializes in new Apple hardware—especially the cool Apple hardware.

Get the Skinny on Apple's Superslim All-in-One

iMAC G5: THE LINEUP

SYSTEM	PRICE	FRONTSIDE BUS	L2 CACHE	RAM (MAXIMUM)	RAM TYPE	GRAPHICS	HARD DRIVE	OPTICAL DRIVE
17-inch iMac G5/1.6GHz	\$1,299	533MHz	512K	256MB (2GB)	PC3200 (400MHz)	Nvidia GeForce FX 5200 Ultra (64MB)	80GB Serial ATA	Slot-loading Combo drive
17-inch iMac G5/1.8GHz	\$1,499	600MHz	512K	256MB (2GB)	PC3200 (400MHz)	Nvidia GeForce FX 5200 Ultra (64MB)	80GB Serial ATA	Slot-loading SuperDrive
20-inch iMac G5/1.8GHz	\$1,899	600MHz	512K	256MB (2GB)	PC3200 (400MHz)	Nvidia GeForce FX 5200 Ultra (64MB)	160GB Serial ATA	Slot-loading SuperDrive

Inside: Guts of a New Machine

Open up the new iMac G5 (it's easy: just loosen the three captured screws along the all-in-one's bottom edge and lift off the back), and you'll be struck by how clean it looks inside. There's none of the clutter and confusion you'd expect to be the result of cramming all those components into a case that's just two inches deep. Here's how Apple packed so much computer into such a small space.

OPTICAL DRIVE Like Apple's iBook and PowerBook, the iMac uses a slot-loading mechanism to fit a full-size optical drive in a tight space. Models come with either a CD-burning and DVD-reading Combo drive or a CD- and DVD-burning SuperDrive (the SuperDrive is limited to burning DVDs at 4x, the fastest speed available in a slot-loading drive, according to Apple). The placement of the drive is also worth noting: you insert a disc on the right side, near the top of the iMac. "Not necessarily the easiest place to put it for us," says Joz.

AIRPORT/BLUETOOTH WIRELESS The iMac includes internal antennas for AirPort wireless networking, but the \$79 AirPort Extreme card is optional and easy to add yourself if you decide to buy one later. Support for Bluetooth—the short-range wireless protocol for input devices and accessories such as keyboards, mice, cell phones, and PDAs—is a little different. To get Bluetooth support, you must either add the \$50 internal Bluetooth module when you order or add a similarly priced USB module later.

GRAPHICS The entire iMac G5 lineup comes with the Nvidia GeForce FX 5200 Ultra graphics chip with 64MB of DDR RAM (it's housed underneath the G5's heat sink). It's the same chip that came with the 17- and 20-inch flat-panel iMacs, and a step up from the 32MB Nvidia GeForce4 MX chip of the 15-inch iMac—but with 8x AGP support instead of 4x. As with Apple's laptops, the graphics processor is integrated on the motherboard, not on a card. That processor can, in theory, be upgraded—but only by having an authorized Apple service provider replace the entire midplane assembly.

COOLING The G5 processor throws off lots of heat. To remedy that, the iMac G5 (like the Power Mac G5) has multiple cooling zones: one over the processor, one over the hard drive, and one over the power supply and logic board. ("We take a big heating challenge, and break it into smaller ones," says Joz.) The power-management system also pulses the fans only when, and only as fast as, necessary, keeping things cool and quiet. (Joz says that the new iMacs run at 25 dB—compared with 28 dB for the G4s and 32 dB for a whisper.)

HARD DRIVE With the Power Mac G5, Apple became one of the first computer makers to make Serial ATA (SATA) its standard hard-drive technology. The new iMac becomes the second Apple CPU to include SATA drives, which can be custom-configured to 250GB. SATA drives use smaller connectors and thinner cables—ideal for routing through tight spaces like the inside of the new iMac—and they also offer higher bandwidth for data throughput.

RAM The iMac G5 includes two memory improvements over the last model. The first is speed: the new iMac uses 400MHz PC3200 DDR SDRAM—the same kind that powers the Power Mac G5, and a step up from the 333MHz RAM in the previous iMac generation. The second is that the iMac G5's two RAM slots can accommodate up to 2GB of RAM, twice that of the iMac G4. The angling of the RAM slots also means that the iMac takes standard RAM, rather than expensive slim chips. But note that iMac G5s ship with the same 256MB of RAM as the last iMac—the bare minimum for iLife and OS X.

PROCESSOR The iMac's processor (beneath the heat sink) used to top out at 1.25GHz, so the leap in these new models to 1.6GHz and 1.8GHz is significant. But the real news is that the processor has gone from the 32-bit G4 to the 64-bit G5. The G5 has two floating-point units (instead of the G4's one), can address more memory, and speeds up communication with that memory. The G5 chip has also allowed Apple to bump the frontside bus from 167MHz on the iMac G4 to 533MHz on the 1.6GHz iMac G5 and to 600MHz on the 1.8GHz iMac G5. The iMac G5 has the same 512K L2 cache as the Power Mac G5, but the consumer-level iMac has just a single processor; the entire Power Mac line now includes dual-G5 processors.

SPEAKERS The new iMac's built-in stereo speakers replace the previous iMac's external Apple Pro Speakers (which were antithetical to the iMac's all-in-one mantra). According to Joz, "We knew this one had to be the ultimate when it came to designing an [all-in-one] iMac, so we needed to incorporate speakers." The iMac has a 12-watt digital amplifier built in, to power the stereo speakers. The speakers point downward, with the sound reflecting off the surface under the iMac. Joz says this design still "allows you to have nice stereo sound with separation and good range."

continues

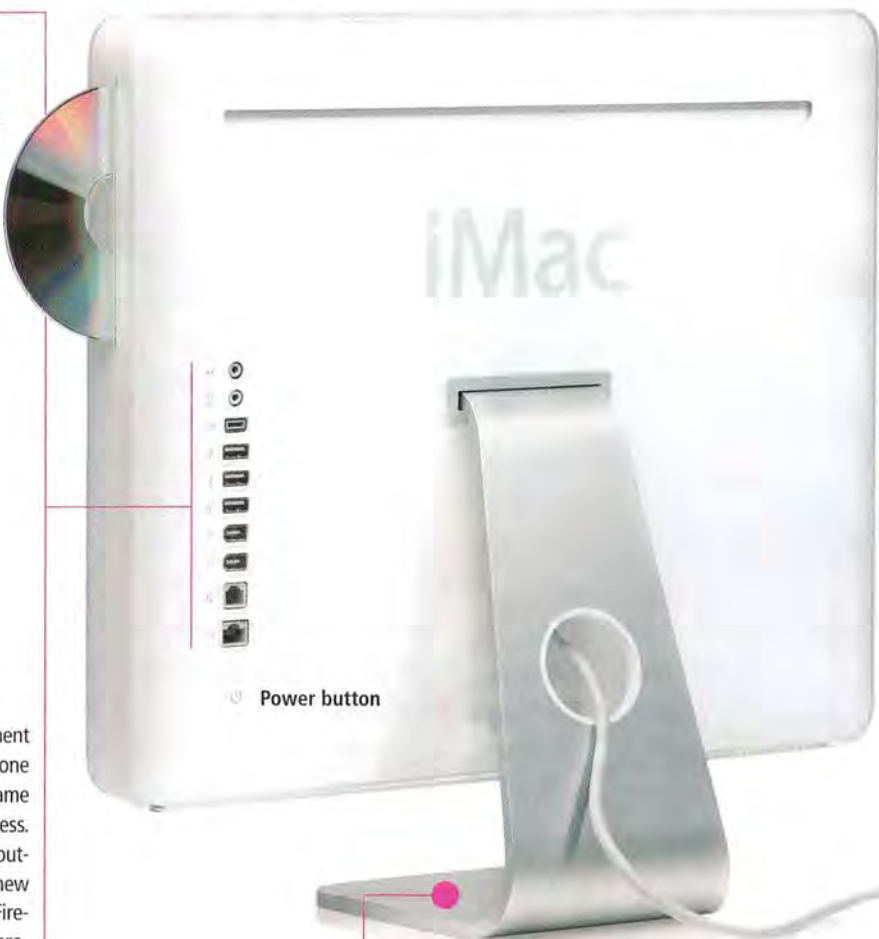
Back: Behind the Latest iMac

Even the back of the new iMac G5 is the result of some typically savvy Apple design decisions, such as the neat row of ports on the left—"I/O [input and output] doesn't naturally occur all in the same spot," Joz points out—or the way the screen moves smoothly when you adjust the tilt yet comes to a rest without jiggling. "There's a lot of technology, in what appears to be a simple design, to quickly dampen motion," Joz says.



PORTS The iMac G5 has the standard complement of ports, in one row on the back. The analog headphone jack doubles as an optical-digital output, using the same mini-Toslink connection found on the AirPort Express. With that connector, Apple brings native 5.1-channel output to a consumer Mac. Like its predecessor—and all new Macs—the iMac G5 includes fast USB 2.0 ports. But FireWire 800, the faster version of Apple's data-transfer protocol, is missing. Those FireWire and USB 2.0 ports are particularly important because the iMac has no PCI slots.

If you want to add extras such as high-quality audio-capture and -processing capabilities to the iMac, you'll need to rely on external USB or FireWire devices.



FOOT With its flexible neck, the previous iMac allowed users to position the screen at all sorts of heights and angles. Instead of the lamp neck, the iMac G5 has a single foot attached to its back; this allows the display to tilt from -5 degrees to +25 degrees. But you can't adjust the height of the screen, only its tilt. Apple insists that most users don't actually end up raising or lowering the screen, so it didn't build height adjustment into the foot. As for side-to-side swiveling, "We still have the ability to swivel left and right, but it does it on the entire base," Joz says. The foot actually mounts inside of the computer at the iMac's center of gravity—making it easy to tilt. A hole in the foot assembly gives you a place to gather whatever cables you've got attached to the iMac. And you can detach the CPU from the foot and attach it instead to a wall mount or an articulating arm.

iMAC: THEN AND NOW

Here's how the top-of-the-line configuration of the new iMac G5 stacks up against its G4-powered predecessor.

SYSTEM	20-inch iMac G4/1.25GHz	20-inch iMac G5/1.8GHz
RAM	PC2700 (333MHz) DDR SDRAM; 256MB standard, 1GB maximum	PC3200 (400MHz) DDR SDRAM; 256MB standard, 2GB maximum
FRONTSIDE BUS	167MHz	600MHz
HARD DRIVE	160GB Parallel ATA	160GB Serial ATA
GRAPHICS	Nvidia GeForce FX 5200 Ultra (64MB)	Nvidia GeForce FX 5200 Ultra (64MB)
WEIGHT	40.1 pounds	25.2 pounds
AUDIO OUTPUT	analog	analog and digital (multichannel)
PRICE	\$2,199	\$1,899

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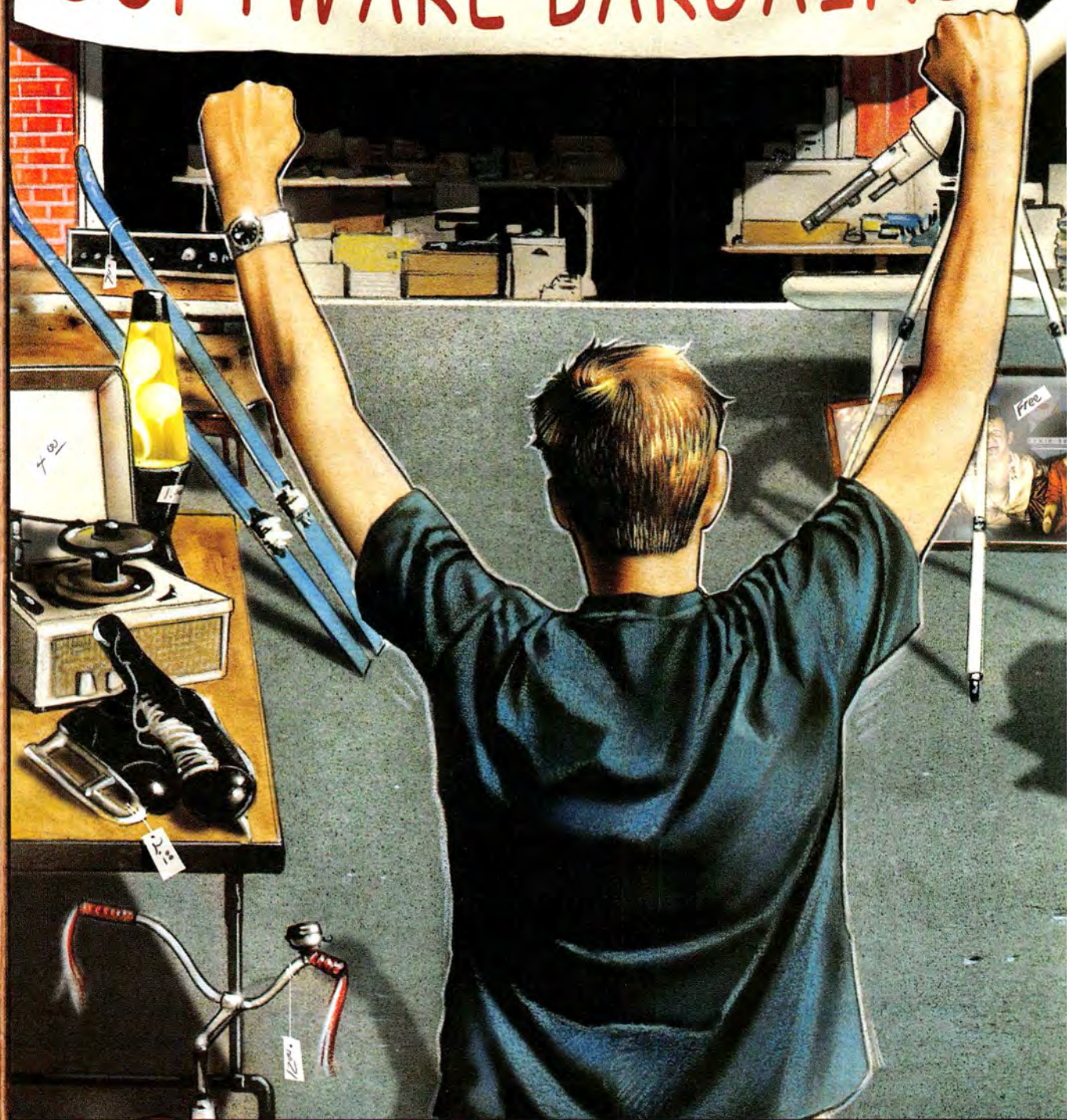
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Illustration by Rob Johnson





Be Creative

Aquallegro 3.1

🔧🔧🔧; Andy Van Ness, <http://andyvn.ath.cx>; free

If you want to learn music theory, Aquallegro can function as your personal deck of aural flash cards. It offers five categories of quizzes: Notes, Keys, Intervals, Chords, and Keyboard. Select what you want to learn, and Aquallegro creates a quiz and monitors your progress. Preferences let you set music notation for either the English (C, D, E) or the European (do, re, mi) system. You can also choose the sound that plays to praise you for a correct answer (any system sound or audio file). The Chords and Intervals quizzes can test your ear harmonically or melodically. Aquallegro won't make you a maestro, but it's great for studying the basics.—ROBERT ELLIS

Blender 2.3

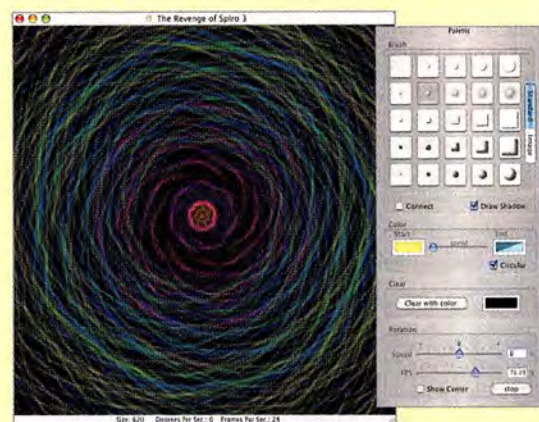
🔧🔧🔧; Blender Foundation, www.blender.org; free

Blender is a full-featured application for 3-D modeling, animation, game creation, and rendering. It has a range of 3-D objects, including meshes, NURBS, curves, metaballs, and fonts. It supports Yafaray, a popular rendering engine. You can save files to most common file formats, and import and export DXF and VRML files. The application's unconventional interface makes it

hard to learn, but an active user community provides ample documentation, tutorials, and other resources online. You can't do everything with Blender that you can do with Alias's Maya—but while Maya Unlimited costs \$6,999, Blender costs \$0.—RE

ColorDesigner 1.1

🔧🔧🔧; Kasper J. Jeppesen, <http://macosx.narcissisme.dk>; free
Designing pleasing color sets may be a joy for designers, but for the rest of us it's a daunting task—often with muddy results. If you're designing a Web site or a brochure, ColorDesigner can help you quickly create color combinations based on four different schemes (Complementary, Split Complementary, Triad, and Analogous). A palette lets you adjust brightness and saturation, as well as the angle, spread, and deviance of the color scheme. After you've created a color set, save it as a ColorDesigner file, export a CSS style sheet, or save a TIFF of the Preview window.—RE



Like a Circle in a Spiral Cosmic Painter, a drawing application with a rotating canvas, is a lot of fun. If you need to quell any work-ethic objections, just call it a stress reliever.

Cosmic Painter 1.2

🔧🔧🔧; GarageCube, www.garagecube.com; free

Remember the design toy Spirograph? Imagine it in motion, and you'll get an idea of what Cosmic Painter can do. Cosmic Painter is a drawing application with a rotating canvas. You can adjust the rotation speed and frame rate, or freeze the image. There's a palette of standard brushes, and you can create custom brushes with imported image files. Save files and view them as animations, or export still images to PNG format. Cosmic Painter is addictive, but getting satisfying results takes experimentation. Fortunately, numerous sample files are included. Check out the hypnotic *The God of Bugs* and the eerie *V-Ghost*.—RE

Perfect Pitch 1.1

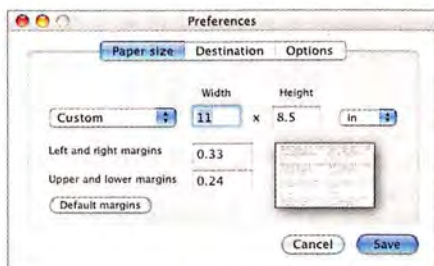
🔧🔧🔧; Line of Site Software, www.los.dtcurre.net; shareware (donations accepted)

This spiffy tuner is the perfect companion to Apple's GarageBand. As you play, Perfect Pitch listens to your microphone input and displays the note and octave. A VU-style gauge shows you how close you are to perfect pitch. As the needle dances, its color changes from red to yellow to green, indicating

CocoaBooklet 1.2

🔧🔧🔧; Fabien Conus, find.macworld.com/0057; free

CocoaBooklet lets you repaginate, or change the *imposition*, of any PDF file, so you can print it as a booklet. Just drag and drop a PDF file into the CocoaBooklet window, or install the utility as an OS X service and create PDF booklets from the Print dialog box. You can select any page size and adjust the margins. (It's great for printing CD inserts.) If your document is only four pages, print them on one side and create a minibooklet: CocoaBooklet arranges the pages so you can fold the page over twice, as you would a greeting card.—ROBERT ELLIS



PDF Pages Want to print a booklet for a CD insert but can't figure out how to arrange the pages? It's easy with the free CocoaBooklet.

whether you're in tune. You can also display precise information, including real and ideal frequencies and percent error. Perfect Pitch supports three tuning styles—Standard Chromatic, Quartertone, and Harmonic—and the program lets you tune to any even division of an octave.—RE

SoundSource 1.0

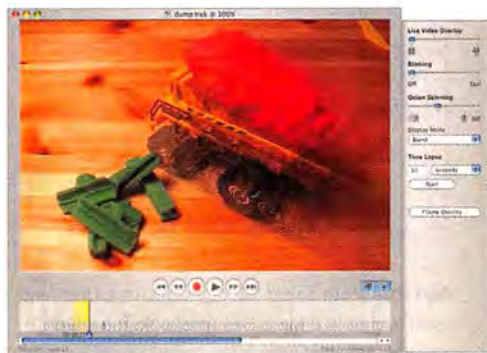
★★★★; Rogue Amoeba, www.rogueamoeba.com; free

If you have more than one audio-input or -output device—a USB audio card, analog speakers, a digital receiver—you probably know that you can switch between them using the Output and Input tabs in the Sound preference pane. But then you also know how much of a hassle this can be if you make these changes often. With SoundSource, you get a compact menu-bar menu that lets you quickly switch between input and output devices. Even better, you can choose a *different* output device for system sounds; for example, you can play your music through your speaker system but have your alert sounds play through your Mac's tiny (and quieter) internal speaker.—DAN FRANKS

iStopMotion 1.0

★★★★; Boinx Software, www.istopmotion.com; \$40

Not everyone with a digital camcorder wants to mimic traditional movies. iStopMotion takes you beyond the ordinary with its two modes: Stop Motion, which lets you move objects incrementally and capture a single frame at a time, and Time Lapse, where each frame is shot at an interval (such as every minute). An onion-skinning feature displays a ghosted image of one or more previous frames, to help you position your Claymation-inspired creatures, while an optional blinking effect gives you a better idea of how the motion will look when finished. You can assign a helper application, such as Adobe Photoshop, to edit individual frames, which are automatically reincorporated into the iStopMotion project. You can even use voice commands to operate iStopMotion if your movie set is situated away from the Mac. The only drawback I encountered was choppy playback when previewing the movie, but a simple export to a DV or QuickTime file made the movie easy to watch in iMovie or QuickTime Player.—JEFF CARLSON



Animate Your World To help you position your objects, iStopMotion's onion-skinning feature overlays a ghosted image of the previously captured image.



Get Organized

chartConstructor 1.5

★★★★; Headshack, www.headshack.com; \$30

chartConstructor is a simple program that constructs PERT and Gantt charts. You create charts by entering a project's various tasks and subtasks, as well as the duration of each of those tasks. You can assign team members to each task and easily rearrange tasks by dragging and dropping. You can add notes to tasks, and an inspector shows you which tasks are dependent on other tasks. If you're a professional project manager, chartConstructor may not have all the features you need. But it's a basic, relatively easy-to-use project-management charting tool.—ROB GRIFFITHS

Genius 1.5

★★★★; John R. Chang, find.macworld.com/0054; free

Genius 1.5 won't make you a genius, but it will help you remember things. It tests you using a "spaced repetition method," asking a series of questions and repeating them at intervals to aid retention. Genius adapts to your performance, emphasizing areas you're having problems in and letting you make important items repeat more frequently. You can test in both directions—for instance, see a word and guess its definition, or see a definition and guess the word.—RE

iOrganize 5.5

★★★★; Bruno Blondeau, www.iOrganizeX.com; \$20

If you want to keep track of text, pictures, URLs, and other bits of information, iOrganize is a

DiskTracker 2.3

★★★★; Portents, www.disktracker.com; \$30

External hard drives, network volumes, and CDs and DVDs are all great places to back up and store files—the hard part is remembering which files are stored in which locations. DiskTracker solves the problem by cataloging the contents of any hard drive (local or networked) and removable media into an easily sortable and searchable file. The program can batch scan, and you can set it to automatically scan every mounted disk. It also includes editable templates for creating disc labels—so you don't have to fire up your Mac to see what's on one. As someone with more than 800 CDs and DVDs of backed-up files, I've found DiskTracker invaluable.—JONATHAN SEFF



Hypertext Magic

VoodooPad Lite is a hypertext notepad that connects your thoughts and your projects through linked words, phrases, images, URLs, files, and applications.

ever leaving the application.—DF

MyMind 1.0

★★★★; Sebastian Krauss, find.macworld.com/0058; free

This lightweight outlining and mind-mapping program is easy to use and produces results that rival those of costlier programs such as Inspiration and NovaMind. Use MyMind to create an outline, and then display your information in one of three kinds of maps: Ordered (nodes arranged on both sides), Balanced (nodes balanced for height to save vertical space), or Tree (main topic on the left, with nodes on the right). An Inspector palette lets you adjust various attributes, such as fonts and lines. You can add images to your maps and export them as text, HTML, or images with transparent backgrounds, for use in other applications.—RE

TheRecipeManager 1.0

★★★★; Xtreme Mac, www.xtrememac.com; \$40

TheRecipeManager lets you store and organize ingredient lists and preparation instructions for your favorite dishes, but it also stores nutrition information, photos, and preparation and cooking times. You can also use it to create shopping lists for the ingredients in your meals—the program will even keep an inventory of your pantry and fridge.

NoteTaker 2003 1.8

★★★★; AquaMinds, www.aquaminds.com; \$70

NoteTaker 2003 employs a spiral-bound-notebook metaphor, and—like a notebook—it has many uses. Each notebook that you create can contain audio (including voice notes), images, URLs, and anything else you want to categorize. To organize notebooks and their contents, you divide them with tabs and categorize and prioritize notebook items. You can also have a to-do section for task management.

If you've stored a URL, you can browse the Web site in NoteTaker—you can even block pop-up windows while doing so. NoteTaker's Web browser isn't as full-featured as Safari or Firefox, but it's more than sufficient when all you want to do is take a quick look at the contents of a given URL. And since NoteTaker uses Apple's WebKit, Web pages in NoteTaker look very much like they do in Safari.—ROB GRIFFITHS

SubEthaEdit 2.0

★★★★; TheCodingMonkeys, find.macworld.com/0069; donations accepted for noncommercial use; commercial use, \$35
Sharing a document between several people who want to make changes simultaneously has traditionally been a recipe for disaster. SubEthaEdit makes such collaborative efforts feasible—even enjoyable—by allowing an unlimited number of participants to join an editing session over the Internet or via Rendezvous. Each person's contributions are tracked in a different highlight color, and each participant can see what other participants are doing in the document. Integration with Apple's iChat and Mail means you can chat or e-mail with participants on the side. SubEthaEdit is also a full-fledged text editor, with powerful formatting and search-and-replace functionality, and it provides automatic syntax highlighting for a number of development languages.—DAN FRANKS

You can search your recipes by any of the interface's fields. When you're ready to cook, the Kitchen Helpers screen shows common measurements and substitutions, and a Cooking View displays ingredients and/or instructions in a separate window with large text—perfect for viewing across a kitchen counter or a room.—DF

VoodooPad Lite 1.1

★★★★; Flying Meat Software, www.flyingmeat.com; free (full version, \$20)

VoodooPad is a unique, featherweight hypertext notepad. Highlight a word or a phrase and click on the Link button, and VoodooPad creates a new page. Type the name of a page in your document, and VoodooPad automatically creates a link. Link to images, URLs, files, or applications via drag and drop. Export notes as text or XML files, or export them to your iPod's Notes or Contacts folder (see "Hack the iPod's Notes," *Geek Factor*, September 2004). Surf through pages in your iPod Notes folder using the same hyperlinks. The full version adds AppleScript support, more export options (HTML, RTFD, and Microsoft Word), a clippings folder, and remote editing.—RE



Notable NoteTaker Store images, text, URLs, and even sounds in a NoteTaker notebook. The interface includes a drawer (which can be hidden) that shows an overview of all the pages in the notebook, a toolbar along the top of each page, and tabs down the right side for quickly jumping between sections.

The Best of Mac Gems

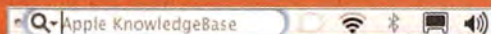
Every month, in our *Mac Gems* column, Senior Writer Dan Frakes reviews the hidden gems of the Mac software market. But although he has uncovered many true jewels, he doesn't often give out ★★★★★ ratings. Here are four programs he has deemed worthy of that rating in 2004:

Ambrosia Software's **Snapz Pro X 2.0** (May 2004) is a screen-capture utility that goes far beyond what's built into OS X. You can capture an entire screen, objects, and selected areas. You can even capture movies (screenshot-only version, \$29; movie version, \$69; upgrade, \$20).

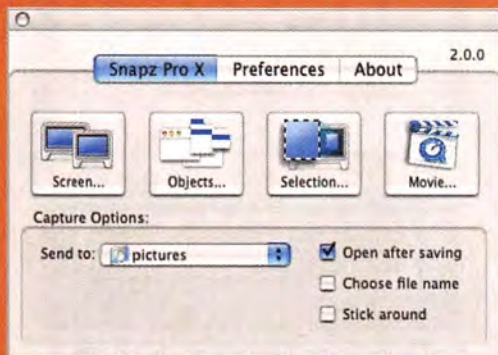
CharlesSoft's **\$20 Pacifist 1.6** (April 2004) shows you what an installer package will install before it does so, and the program lets you choose exactly which items to install from any package. You can also verify installations. Pacifist is a great tool for troubleshooting.

Granted Software's **\$7 Peripheral Vision 1.6** (March 2004) keeps a sharp eye on FireWire, USB, Bluetooth, and network connections to your Mac. It alerts you by sight or sound as connections come and go. And when a particular device connects, Peripheral Vision can launch an application or run an AppleScript or Unix script.

Ambrosia Software had another winner with the **\$15 iSeek 1.0** (January 2004). Using its menu-bar search box, you can check a long string of Web search sites, such as CNN.com, eBay, Google, the iTunes Music Store, National-Geographic.com, and VersionTracker.com. And because you can invoke and control iSeek through user-defined key commands and the tab and arrow keys, your fingers don't have to leave the keyboard.—MACWORLD STAFF



The Seeker With the very handy iSeek, a Web search is always at your fingertips—from within any application. It's even better than Searching.



Celluloid Hero The new Snapz Pro X 2.0 lets you capture anything on your screen—even if it's moving.



Stay in Touch

AddressBook to CSV 1.1

★★★★; Ken Ferry, find.macworld.com/0059; free

This single-purpose program exports your Address Book contacts as a CSV (comma-separated values) file, which you can then import into Gmail, Google's new Web-based e-mail service. AddressBook to CSV is fast and efficient. It breaks up contacts with multiple e-mail addresses into separate Gmail contacts (one for each address). I wish only that it gave you a visual indication when it completed the job.—KELLY LUNSFORD

Book2Pod 1.2

★★★★; Tom Sutcliffe, www.tomsci.com/book2pod; free

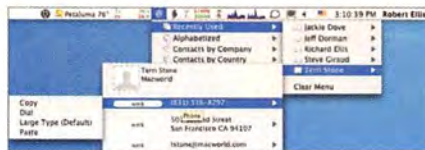
If you've ever tried to use your iPod's Notes feature to read text documents on-the-go, you've likely discovered that each note has a small size limit (4K, to be exact). To view a larger document, you need to split it into smaller chunks of text. Instead of doing this work manually, let Book2Pod do it for you. It can break documents into individual 4K notes, or, if a document has existing page or chapter markers, into chapters or pages. You can also use Book2Pod to manage notes.—DF

iAddressX 3.2

★★★★; Mibasoft, www.mibasoft.dk; \$8

iAddressX puts your Address Book at your fingertips. It organizes your contacts and displays them in the menu bar for quick access. You can group contacts alphabetically, by company, by country, by

recently used contacts, and by Address Book groups. iAddressX installs as a preference pane, and you can customize the settings to display only the information you want. Or search Address Book and display only the results in the menu. (Invoke the search with a hot key; you can also set hot keys to invoke the iAddressX menu or preferences, or to open Address Book.) After you find a contact, iAddressX lets you display information in large type, copy addresses, display a map, open iChat, show a birthday in iCal, send an e-mail, or dial a number (using the speaker, Vonage, or your modem), all in a couple of clicks.—ROBERT ELLIS

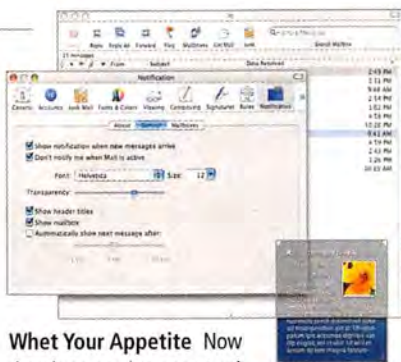


Organize Your Address Book Once iAddressX has grouped your Address Book contacts by company, country, groups, or last time of use, it displays the contacts in your menu bar.

Mail.appetizer 1.0

★★★★; Bronson Beta, www.bronsonbeta.com; free

Don't want to miss an important message but hate switching to Apple Mail every time the new-mail sound chimes? Mail.appetizer, a plug-in for Mail, displays a resizable notification window, including the sender's photo, a preview of the message, the mailbox name (it's not limited to just your in-box—you can include or exclude individual mailboxes), and the number of messages. Dismiss a message, mark it as read, delete it, or preview the next message (either manually or automatically after a delay you specify), all without opening Mail. You can adjust the transparency of the notification window, change the display font, and hide the subject or mailbox. Mail.appetizer ignores any messages filtered out by rules in Mail, so it won't bother you with spam. —ROBERT ELLIS



Whet Your Appetite Now there's no need to open Apple Mail to see a preview of an incoming message and how many additional messages are waiting for you. You can even delete a message and go on to the next one.

Formation 1.0

★★★★; Mekanika Software, www.mekanika.com; \$29

Feeling constrained by your personal information manager? Formation lets you organize information *your way*. Manage contacts, calendars, to-do lists, bookmarks, media, notes—anything you can imagine. Customize lists with up to 14 columns that can contain text, icons (140 are included), priorities, check boxes, pop-up menus, passwords, or dates. Query a dictionary server and save definitions for easy reference. A Media Browser lets you browse any folder and preview QuickTime movies, audio files, images, and documents. Formation integrates seamlessly with Address Book (alas, this isn't currently true of iCal). —RE

Gmail Status 0.8

★★★★; Carsten Guenther, find.macworld.com/0060; free

gCount 0.4

★★★★; Nathan Spindel, find.macworld.com/0061; shareware (donations accepted)

If you own a Gmail account, you can keep tabs on it from the Finder's menu bar by installing either

Gmail Status or gCount. Both programs check your Gmail account at an interval of your choosing and alert you when you've received new messages. If you've set up Labels (which use rules to classify your incoming mail) for your account, Gmail Status will show you how many of your new messages fall under each label.

From the menu-bar icon, you can choose to open your Gmail in-box (which appears in a new Safari window), compose a new message, or manually check for new mail. Unfortunately, neither program can log you into your account for the first time, and neither can check multiple accounts. —KL

iCal Publish

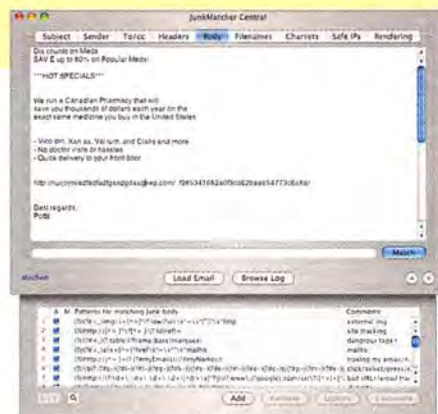
★★★★; Jeffrey Mattox, find.macworld.com/0062; \$7

If you work with several iCal calendars, you know that publishing those calendars to your .Mac Web site is annoying. Because you must post them individually, they must be viewed separately. iCal Publish merges any number of selected calendars into a single calendar and publishes it. The only problem is that the combined calendar shows all events in the same color, so you need to describe each event clearly to know exactly what, or whom, it refers to. —KIRK McELHEARN

Mail Scripts 2.2

★★★★; Andreas Amann, find.macworld.com/0063; free

Apple Mail includes good support for AppleScript scripting technologies, but there are only a few useful scripts in its script menu. Andreas Amann has taken advantage of Mail's AppleScript support: Mail Scripts lets you accomplish otherwise difficult or impractical tasks. For example, you can use Mail Scripts to add all recipients of the current message to your address book, archive messages for backup or transfer, switch between SMTP servers (a boon for frequent travelers), create rules based on the current message, remove duplicate messages, schedule messages to be sent at particular times, and conduct complex searches of your address book. If you're a Mail power user, Mail Scripts are sure to please. —DF



Stop More Spam If Apple Mail's built-in junk filter isn't enough, install JunkMatcher. It's free!

JunkMatcher 1.19

★★★★; Benjamin Han, find.macworld.com/0074; free

JunkMatcher is a spam filter that picks up where Apple Mail's built-in filter leaves off. JunkMatcher adds a rule to Mail, and a bundled companion application—JunkMatcher Central—lets you fine-tune settings, though the default installation works impressively well. JunkMatcher checks e-mail messages against a *white list*, or list of protected senders, so important messages get through. It tests against various e-mail properties (like malformed sender addresses or missing subjects). It matches malicious patterns, like *Vi-ag-raE* or *M0rtg agE*. It can even sniff out offending patterns hidden in the raw source of a message. Then, it checks e-mail against a black list of IP addresses. JunkMatcher Central also lets you view log files and statistics (where you can identify and rank the most egregious abusers), and manage your white list. You can download updated patterns to keep one step ahead of spammers. If Mail's built-in filter can't keep your in-box clean, let JunkMatcher snag the interlopers. —ROBERT ELLIS

CharViewer 1.1

★★★★; MacParc, find.macworld.com/0064; free

OS X's Character Palette is extremely useful for adding obscure characters to your documents; unfortunately, the only way to access it is by activating the Input Menu in OS X's International preference pane, which adds yet another item to the Finder's menu bar. (Some applications provide access to Character Palette, but most don't.) CharViewer is a tiny app that, when launched, opens the Character Palette—nothing more, nothing less. Stick it in the Dock, in a menu, or on the Desktop, and Character Palette will always be close at hand without the need of another menu-bar icon.—DF

Compost 1.2

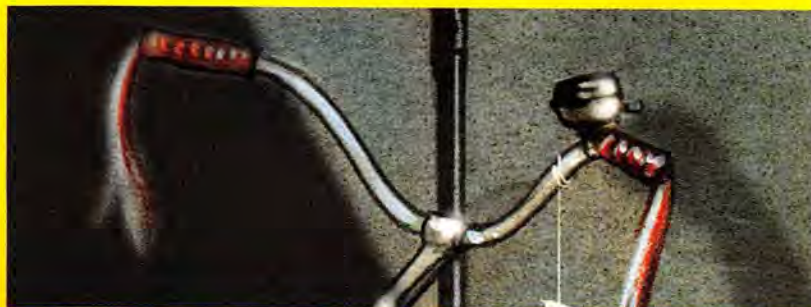
★★★★; Greg Weston, find.macworld.com/0065; \$5

The Trash in OS X is an all-or-nothing thing: When you empty it, everything inside it is deleted—lock, stock, and barrel. And if you forget to empty it, it can grow too huge in size. Compost adds more features to OS X's Trash, giving you a selective Trash that automatically deletes individual files once they've been in the Trash for a certain amount of time, or empties the Trash only when it grows larger than a particular size (or when a volume's free space dips below a certain size). You can have Compost delete locked items and delete files so they can't be resurrected by disk-recovery software. You can also have different settings for each volume.—DF

CornerClick 0.4

★★★★; Greg Schueler, find.macworld.com/0066; free

By assigning frequent actions to the corners of your screen, CornerClick makes executing them as easy as a quick flick of the wrist. You can assign each corner a single action, a sequence of actions, or multiple individual actions. These actions include opening a file, folder, or application; hiding the current application; hiding other applications; opening a URL; and running an AppleScript. You trigger a corner's action or sequence by clicking on the corner. Each action or sequence of actions can also be assigned a modifier key, so that, for example, shift-clicking does something different than option-clicking.—DF



Tweak Your System

DockFun 4.6

★★★★; Donelleschi, www.dockfun.com; \$20

DockFun lets you have multiple OS X docks, each of which can contain unique collections of apps and documents, and have its own size, screen location, and background picture. A floating window identifies the active dock and makes it easy to switch between docks in your collection. In the new Dockpit window, you manage your collection of docks, adding and removing docks, documents, and apps without breaking a sweat. DockFun can help you control the size and complexity of OS X's original Dock by offloading work to other docks that you call upon only when needed.—RG

Do Something When 1.0

★★★★; Azarhi Software, www.azarhi.com; free

If you have an external hard drive, there's a good chance that you want to launch an application, such as a backup utility, when you connect the drive. Similarly, you may frequently connect to a remote server to open a particular document. Do Something When can automate these processes—and many others—through action *rules*. These rules can automatically launch or quit applications, or even unmount specific volumes, when particular actions occur—for example, when you mount or unmount a specific volume, or launch or quit a particular application. Using various combinations of rules, you can save yourself a lot of repetitive work.—DF

CronniX 2.1

★★★★; Koch und Schmidt Systemtechnik, find.macworld.com/0072; shareware (donations accepted)

Like most versions of Unix, OS X includes the cron utility, which runs in the background, always checking for any actions—contained in schedules called *crontabs*—that are due to run. Although editing crontabs isn't for novices, there's no better utility for doing so than CronniX, which provides a graphical interface for editing both the system crontab and individual-user crontabs. With CronniX, you can modify existing events—for example, altering OS X's built-in Unix maintenance routines so they run during the daytime (see "Easy Mac Maintenance," *Hands On*, December 2003)—or create your own events, which can be used to run Unix commands, AppleScripts, or OS X applications on set days, dates, and times. Unix geeks will also appreciate the fact that CronniX lets them edit the environment variables for each crontab event.—DAN FRANKS



A Kinder, Gentler Unix CronniX gives you a graphical way to work with OS X's cron utility.

GeekTool 2.1

####; Tynsoe projects, find.macworld.com/0070; free

GeekTool turns your Mac's desktop into an information resource. The contents of a file, the output of a Unix command, or an image from the Web can appear on the desktop. All of this data updates automatically according to a schedule you set, and you can set each GeekTool object to a different schedule. For instance, you can display your computer's CPU usage updated every few seconds, your Web server's log file updated every five minutes, a radar weather map updated hourly, or a series of stock charts updated at 15-minute intervals. GeekTool's ability to show the output of Terminal commands leads to a world of possibilities, especially if you have Unix experience: resource utilization via `top`, uptime statistics via `uptime`, and disk usage via `du` are just a few of the things you can easily monitor with GeekTool.—ROB GRIFFITHS



Work Your Desktop Your desktop will be far from boring when you use GeekTool. Here, it's displaying Apple's stock price (top left), a hurricane approaching Florida (top right), the current month's calendar (lower right), and the computer's uptime and load average (lower left).

Ejector 0.6

####; Jeb-Soft, find.macworld.com/0067; shareware (donations accepted)

It's fairly easy to eject mounted volumes in OS X if you've chosen (via Finder preferences) to view them on your desktop or in Finder-window sidebars. But if you prefer to keep your desktop tidy and don't have any Finder windows open, ejecting these volumes becomes a minor hassle. Ejector's small menu-bar menu lets you quickly eject any mounted volume: CDs, DVDs, iPods, network volumes, flash drives, and even mounted disk images. The program is also handy for figuring out whether your iDisk is currently mounted.—DF

FastScripts 2.0

####; Red Sweater Software, www.red-sweater.com; \$15
OS X's Script Menu is a great way to quickly access AppleScripts and shell scripts, but by replacing it

with FastScripts, you gain even more functionality. The biggest advantage is the ability to easily create keyboard shortcuts for scripts. But FastScripts also provides better performance, by preloading scripts into memory so they execute instantly; quick access to both user and systemwide Scripts folders; and better menu organization—application-specific scripts, those that appear only when a particular application is active, show up at the top of the menu for easier access. (Apple's Script Menu sticks them at the very bottom.)—DF

InforMac 0.03

####; Maconnect, find.macworld.com/0068; free

Apple's System Profiler utility is quite useful, but it could use a better interface. InforMac provides just such an improvement, along with more information than System Profiler does for some devices (though it doesn't display log files). And it has a few additional features. Like System Profiler, InforMac lets you save a summary of your Mac's information, but InforMac provides the ability to encrypt that data, so it's safe when you send it via e-mail. And if you manage a bunch of Macs, you can also create quick-reference Identity Cards for each computer; each card contains the model name and number, serial number, installed RAM, hard-drive size (and amount used), processor speed(s), OS version, IP address, and current user at the time the card was created. InforMac's Library view lets you quickly browse these cards.—DF

IPMenu 1.1

####; Loopware, www.loopware.com; free

If your Mac has a dynamic IP address, other people may have a hard time connecting to it for personal file sharing, Web sharing, or even Internet or LAN gaming. Because your IP address may change regularly, you have to figure out what your IP address is at a given moment and then provide it to those people. IPMenu sits in the menu bar and gives you instant access to your Mac's IP address; if your Mac is behind an Internet router, it provides both the local (inter-

R-Name 3

####; Yoichi Tagaya, find.macworld.com/0071; free

R-Name is a one-trick utility, but it's a very useful trick. R-Name lets you rename multiple files quickly and easily, such as all those `IMG_` files from your digital camera. You can replace text strings in file names, add or remove characters from the beginning or end of file names, change the names' type case, and more. If you know Unix, you can even use regular expressions for powerful pattern-matching replacement tricks. I also appreciate the New Name Preview, which shows you exactly how each file will be renamed before you rename anything. With 14 different methods of modifying file names, R-Name offers a lot of flexibility for the unglamorous but necessary task of batch file renaming.—ROB GRIFFITHS



Quick-Change Artist Use R-Name's Number Sequentially option to renumber file names and add text before and/or after the numbering. Selecting the Recuse Folder option forces R-Name to navigate into folders within folders, quickly changing all affected files within a given folder.

nal) and Internet (external) IP addresses. IPMenu can even send you (or someone else) an e-mail message when your external IP address changes, which can be useful when your Mac is also a server.—DF

Konfabulator 1.7

####; Arlo Rose and Perry Clarke, www.konfabulator.com; \$25 Apple's preview of Dashboard, a feature that will be included in Tiger (the next version of OS X, which will be out sometime next year), created quite a stir—because of its impressive appearance and its similarity to Konfabulator. But if you don't want to wait until next year, give Konfabulator a try now. Each of Konfabulator's JavaScript-based *widgets* performs a specific function, and you can run as many of them as you want. Widgets include clocks, calculators, calendars, and iTunes controllers, and they can provide information such as stock quotes, weather alerts, and battery levels. (Those are just a few examples—more than 700 widgets are at www.widgetgallery.com.) Each widget can float on your desktop, over your desktop, or above all other windows—or you can quickly reveal or hide it via an Exposé-like feature called Konsposé.—DF

Net Tool Box 2.5

####; Charlie Boisseau, www.nettoolbox.net; see Web site for pricing information

Apple's Network Utility is a sufficient network-monitoring tool for most of us, but power users and network administrators should check out Net Tool Box. With 23 network tools—from DNS queries to MX lookups to SSL terminals—Net Tool Box has nearly every feature that power users need for network testing and monitoring. It also has some nice surprises: its Mapper shows—on an actual map—the location of any computer on the Internet, Rendezvous functions let you test your local network functionality, and Favorites lists store frequently used addresses. An editable, searchable port database is included as a handy reference.—DF

Peek-a-Boo 2.0

####; Clarkwood Software, www.clarkwood.com; \$20 Peek-a-Boo is similar to Apple's Activity Monitor. At its simplest, Peek-a-Boo is a means by which you

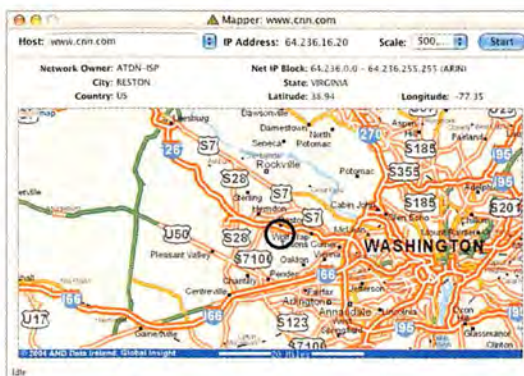
MemoryStick 1.3

####; Matt Neuburg, www.tidbits.com/matt/; free

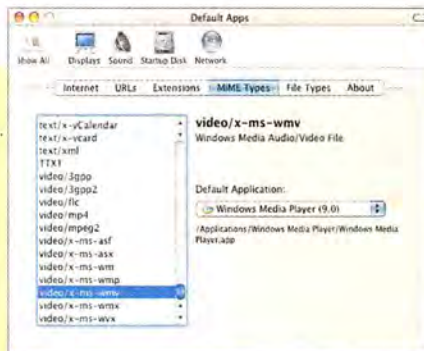
OS X's advanced memory architecture means that you don't have to worry about memory issues as much as you did under OS 9. But you (and misbehaving applications) can still push your Mac's memory system too far, especially if you don't have enough physical RAM, resulting in performance slowdowns, spinning beach balls, and excessive virtual-memory swap files that can take up significant amounts of hard-drive space. MemoryStick helps you keep an eye on your memory allocation by providing a small graphical display of your Mac's RAM usage broken down into Wired, Active, Inactive, and Free categories. It can also notify you when new virtual-memory swap files are created and when pageouts—memory contents being swapped between actual RAM and your hard drive—occur. MemoryStick is a great tool for figuring out when you have too many applications open, or when it's time to buy more RAM.—DAN FRANKS



Get on the Stick MemoryStick helps you keep an eye on your memory allocation: it shows you whether your Mac's RAM is wired, active, inactive, or free.



can view a list of running processes, sorted in various ways. But you can also easily change the priority of any given process, and you can export a log of process activity into a text file. (These logs could help a developer figure out why a program crashes on your machine.) My favorite Peek-a-Boo feature is its ability to create CPU-usage graphs for individual applications. By checking out a program's usage graph, which is displayed in a small floating window, you'll be able to quickly spot a program that's using more of the CPU than it should be.—RG



RCDefaultApp 1.1

####; Rubicode, find.macworld.com/0073; free RCDefaultApp is a preference pane that combines the best features of More Internet (####; November 2003), MisFox (####; March 2004), and OS X 10.2's Internet preference pane, and then adds even more functionality. Using RCDefaultApp, you can choose your preferred helper application for each of the main Internet protocols (Web, e-mail, newsgroups, and FTP), as well as the helper for each URL protocol—from AFP (Apple Filing Protocol) to whois and everything in between (such as HTTP, HTTPS, ITMS, and SSH). MIME

Types settings let you decide the default application for each kind of MIME content—such as the Windows Media videos and PNG images you encounter on the Web. RCDefaultApp also lets you choose the application that should be used to open files with particular file-name extensions (such as .rtf, .doc, and .mpg) and file types (the OS 9-style Type Codes, such as TTXt and ttrr). Unlike other utilities, RCDefaultApp also lets you disable types of files or protocols, such as URL schemes that pose security risks, providing you with a one-stop solution for customizing default application preferences.—DAN FRANKS

Multifaceted Internet Helper RCDefaultApp sets your preferred helper application for Internet and URL protocols. It can also disable types of files or protocols, such as URL schemes that may make you vulnerable to attack.



Work the Web

Cyberduck 2.3

####; David V. Kocher, <http://sudo.ch>; free

There are a few free FTP clients for the Mac, but none is as polished or as easy to use as Cyberduck. Making a connection is as easy as typing the name of the server in the address bar. Save bookmarks to a bookmark drawer, or drag them to your desktop. Cyberduck supports multiple connections and can resume interrupted transfers. It also supports SFTP, Keychain, and Rendezvous (so connecting with your local network is a breeze). When you select a file for editing, Cyberduck opens the document in your chosen editor and uploads the changes automatically when you save.—RE

Denim 1.1

####; Group for User Interface Research, find.macworld.com/0053; free

Denim is a unique pen-based Java app for designing Web sites. It lets you sketch out site maps, storyboards, and Web pages quickly and easily. To create a page, just write a name in Denim's Canvas window. Zoom in to see the page and to outline your ideas. To create a link, just draw a line from any word to another page in your site. Denim takes a little getting used to,

but there's a video on the Denim Web site that will get you up-to-speed. You can export your chicken scratch and doodles to HTML for testing.—RE

iRecordMusic 1.3

####; Bitcartel Software, www.irecordmusic.com; \$20

There are several radio programs I'd like to listen to, but they don't play at convenient times. Could iRecordMusic be the "radio-TiVo" I so desperately desire? iRecordMusic records streaming Internet radio feeds, whether they are served by QuickTime, RealPlayer, or Windows Media Player. And it works with iCal to let you schedule upcoming or repeating radio shows. After recording, the content is encoded as unprotected AAC (MP4) or MP3 files that you can play back in iTunes. You can even fast-forward through the dull parts. However, iRecordMusic's Web-browser interface isn't as straightforward as it could be, and the recordings aren't named in a way that's easy to differentiate. Still, iRecordMusic's utility brings me a bit closer to my dream of a "radio-TiVo."—JEFF CARLSON

JBidWatcher 0.9

####; Morgan Schweers, www.jbidwatcher.com; free

There are numerous utilities designed to help you be a more efficient eBay user, but JBidWatcher beats them all. Although it's a Java app, the program is well designed and responsive. It can help search for items, monitor items you're watching and selling, and keep track of all your transactions. You can drag auctions right from your Web browser into JBidWatcher, or use the Search Manager to import searches, create custom searches, and update searches at regular intervals. Best of all, JBidWatcher can *snipe* (automatically enter bids at the last possible moment), which might help you get a better price.—RE

PithHelmet 2.0

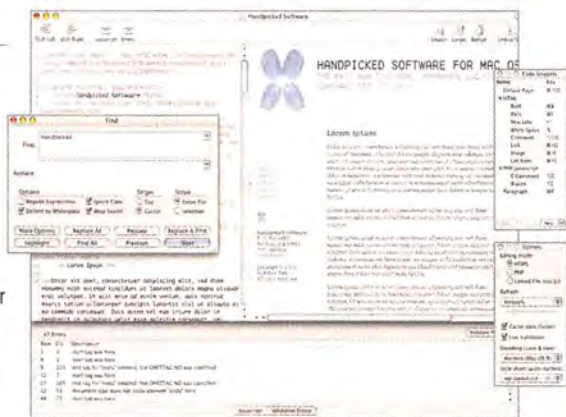
####; Mike Solomon, www.culater.net; free

Safari can block pesky pop-up menus, but what about all those annoying animated GIFs and boring

HyperEdit 1.0

####; Jonathan Deutsch, www.tumultco.com/HyperEdit; \$20

If you can handle hand-coding Web pages, HyperEdit can get the job done without the bloat (or cost) of Adobe GoLive or Macromedia Dreamweaver. HyperEdit is a split-pane editor. Edit HTML, CSS, JavaScript, or PHP in one pane, and a preview pane renders the results as you type. HyperEdit has syntax highlighting with custom colors and fonts, and it includes a Javascript code evaluator and live W3C validation (errors are underlined in red and displayed in an error drawer). A Code Snippets palette stores frequently used tags, and you can create your own snippets with custom shortcut keys. Linked files (such as style sheets or images) can be edited externally, and they automatically refresh in the preview pane when saved. Live previewing makes HyperEdit a real time-saver and ideal for learning.—ROBERT ELLIS



Hand-Coding with HyperEdit Creating Web pages by hand isn't for everyone, but if you don't need programs such as Adobe GoLive or Macromedia Dreamweaver, you can save big bucks with the \$20 HyperEdit.

banner ads? Like a spam filter for the Web, Pith-Helmet hides unwanted content, blocking ad-size images, hiding links to blocked sites, or hiding content from off-site domains. You can create your own rules, blocking or exempting specific sites. Want to see everything on a blocked page? Just reload without applying filters. A contextual-menu item lets you block images from any site or add a site to your list of exempt sites as you surf. You can set animations to play once, never, or always.—RE

Pod2Go 0.7

★★★★; Kainjow Software, www.kainjow.com; free
Pod2Go adds PDA functions to your iPod via its Notes feature. Using a simple interface, you can set Pod2Go to automatically download news, RSS feeds, weather forecasts, local movie listings, driving directions, horoscopes, song lyrics, and more. The program installs an icon in your menu bar. You click on it to quickly sync your data or to access the Notes Editor, which lets you create new notes and note folders, as well as edit existing notes. I just wish Pod2Go did a better job of organizing notes. For example, it places all movie listings in their own note at the top level of the Notes folder rather than in a more convenient Movies folder.—KL

PrintMagic 3.5

★★★★; MacEase, www.macease.com; \$25
When you print text from the Web, you may not want all the images and ads—sometimes you just want plain text. You could copy and paste the content into a text document and print it, or you could use PrintMagic. Select some text in your browser, and PrintMagic will print that text and *only* that text. (You can also choose to include a date stamp, or any notes you want to add, to the printout.) Alternatively, you can drag and drop text or images to the PrintMagic window to print them. A PrintBoard mode lets you collect text and images to print together, and PrintMagic also makes it easy to quickly print the contents of the clipboard. And although MacEase doesn't promote this fact, PrintMagic works with any application.—DF

URL Manager Pro 3.3

★★★★; Alco Blom, www.url-manager.com; \$25
If your Web browser's URL-management abilities are lacking—or if you use more than one browser—let URL Manager Pro corral your bookmarks. You can consolidate all your browsers' bookmarks and then access them—and create new bookmarks from within any application via a systemwide menu. (You can also access them from the application's Dock menu.) URL Manager Pro even keeps a single history file for all browsers—useful if you don't remember which browser you used to view a particular site. The utility's impressive bookmark-management features include the ability to validate bookmarks, to delete duplicates, and to automatically sort bookmarks within folders.—DAN FRANKS

Saft 7.0

★★★★; Hao Li, find.macworld.com/0075; \$10

Saft's maker says that it adds "full-screen browsing to Safari." And that's true, but it's only a fraction of what this plug-in can do. It allows you to read RSS feeds, search both history and bookmarks, bookmark a group of tabs, and create customized contextual searches. And the features are all so well integrated that you'll soon assume that they're just part of Safari—until you try to use someone else's Mac. Add the ability to save lengthy Web pages as single-page PDFs, to save and restore browser windows when quitting and starting up, and to block images and plug-ins (just a few more of its features), and you'll never want to use Safari without Saft.—DORI SMITH



A Side of RSS Saft's sidebar lets you put an RSS reader and a Google search box on the side of Safari's browser window.

Safari Magic 1.0

★★★★; MacEase, www.macease.com; \$20

When you frequently need to print out just parts of Web pages, you'll soon be frustrated by Safari's limited print capabilities. Safari Magic lets you drag and drop text and graphics into its PrintBoard, which you can then edit before printing out. The stand-alone application is a small, resizable menu (either horizontal or vertical), which displays only when Safari is the frontmost application. It's not perfect (you can't, for instance, drag both text and graphics at the same time), but it bypasses some Safari printing limitations.—DORI SMITH

SafariSorter 2.13

★★★★; Jerry Krinock, find.macworld.com/0052; free

Safari makes managing your bookmarks easy, but it lacks one important feature: it won't sort them for you. SafariSorter can sort your bookmarks by name, complete URL, or domain. Sort folders and bookmarks together, or keep folders at the top. Sort all your bookmarks, or specify how many levels down in your Bookmarks Bar, Bookmarks Menu, or Collections to sort. SafariSorter can filter useless prefixes (such as "Welcome to . . ."). Best of all, it can run in the background and automatically sort your bookmarks daily. Until Safari adds sorting, SafariSorter is an indispensable tool for the bookmark hoarder.—RE

JEFF CARLSON is the author of *iMovie 4 and iDVD 4 for Mac OS X: Visual QuickStart Guide* (Peachpit Press, 2004). ROBERT ELLIS is the author of *Handpicked Software for Mac OS X: The Best New Freeware, Shareware, and Commercial Software for Mac OS X* (Futurology, 2002); he publishes the Handpicked Software Web site (www.handpickedsoftware.com). Senior Writer DAN FRANKS (www.danfrakes.com) is the author of *Mac OS X Power Tools*, second edition (Sybex, 2004). Contributing Editor ROB GRIFFITHS is the author of *Mac OS X Hints, Panther Edition* (O'Reilly, 2004) and runs the Mac OS X Hints Web site (www.macosxhints.com). KELLY LUNSFORD is Macworld's senior how-to editor. KIRK MCELHEARN is a Mac author and journalist; his latest book is *How to Do Everything with Mac OS X Panther* (McGraw-Hill Osborne Media, 2004). JONATHAN SEFF is Macworld's senior news editor. DORI SMITH (www.dori.com) is a coauthor of *JavaScript for the World Wide Web: Visual QuickStart Guide*, fifth edition (Peachpit Press, 2003).

The Keychain's Hidden Powers

Passwords, serial numbers, ATM codes—we're all swimming in a sea of information that's secret (or should be). Make it easy to remember, and someone may swipe it. Make it hard to guess, and you may forget it yourself. Mac OS X has the answer: the Keychain. Here's how to use the Keychain in OS X 10.3 to hide all sorts of information, from password hints for Web sites to notes on a confidential business deal.

Keychain Access

If you've ever entered a password in your Web browser or e-mail client, or provided a password for an encrypted disk image, your Mac has probably asked whether you'd like to save that password to your Key-

chain. In addition to accessing your keychain through these dialog boxes, you can work directly with your Keychain via Keychain Access (Applications: Utilities).

When you launch Keychain Access, you see a list of all the items in your

the specific URL, application name, or disk-image name for which you use the password. You can view the actual password by selecting the Show Password option and entering your Keychain password. To paste a password into another application, click on the Copy Password To Clipboard button. You can also add comments about the item—say, to remind you what a particular item is for, or to include a Web site's password hint and answer.

You can edit any of these fields by clicking in the field; however, the Comments field and the password field (which isn't labeled but appears just below the Show Password option) are the only ones I recommend touching. Make password field changes only if your password has actually changed. When you're done editing, click on the Save Changes button.

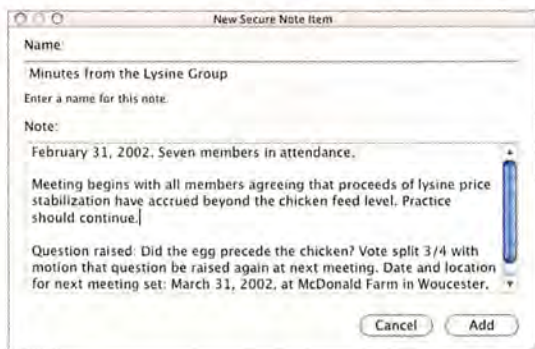
The Access Control tab lists the applications allowed to access each item. Although you can manually change these settings, errors are less likely if you use the dialog box that appears when an application requests access to your Keychain.

Add Your Own Secrets

Beyond application passwords, the Keychain is a great place to store ATM-card PINs, software serial numbers, and other sensitive data. To add a new password item, click on the Password icon in the Keychain Access toolbar. Give the new item a name (for example, ATM PIN), enter the account or user name associated with the password (if applicable), and then enter the password or passphrase you want stored in the Keychain. Click on Add to save the new item.

Save Notes Securely

The Keychain can also store *secure notes*. These are just snippets of text, but because they're part of your Keychain, they're safe from prying eyes. To create a secure note, click on the Note icon in the toolbar. Give the note a name; then type your note text or paste it in from another application, such as TextEdit, Microsoft Word, or your e-mail client (see "Don't Pass This Note").



Don't Pass This Note

OS X's Keychain goes beyond password protection. You can store secure notes in it, too.

Keychain, including information about each item's name, kind, creation date, and modification date. If you haven't opened Keychain Access before, most of these items will be passwords—Internet passwords, application passwords, disk image passwords.

Select any password item to bring up information about that item at the bottom of the window: the item name and kind; the account name (if applicable); and

Keychain First Aid

Because the Keychain manages so many different pieces of information, it may eventually develop minor corruption, causing problems—for instance, the e-mail client may repeatedly ask for your account password, or the Keychain may fail to save your .Mac password.

When this happens, you need Apple's Keychain First Aid. In Mac OS X 10.3 and later, you'll find it in the Keychain Access Window menu; if you have an earlier version of OS X, you must download it as a separate utility from Apple's Web site (find.macworld.com/0104).

To repair your Keychain, enter your user name and password, select Verify, and click on Start. If the utility finds any problems, you'll see a description of each and you'll get a prompt to repair them. Select Repair, and then click on Start. (An administrative user can also verify and repair other users' Keychains, though without the ability to see the details.)



TRY THIS



A secure-note item works much like a password item: you can see information about the note in the Attributes panel at the bottom of the Keychain Access window. By selecting the Show Note option and providing your account password, you can view the note itself.

You can delete Keychain items—notes or passwords—at any time. Simply select an item and press the delete key (you can also click on the Delete icon or choose Edit: Delete). OS X then permanently deletes the item.

Keep Your Keys Safe

Now that you've stowed your valuable data away, it's time to lock the Keychain itself. This is a useful feature when you're stepping away from your computer and you want to make sure no one can access Keychain items.

You can lock your Keychain by launching Keychain Access and clicking on the Lock icon in the toolbar, but if you lock your Keychain frequently, a more convenient method is to enable the systemwide Keychain menu. From within Keychain Access, choose View: Show Status In Menu Bar. This adds a menu extra (a padlock icon), to your systemwide menu bar. You can then lock the Keychain by clicking on the icon, choosing Lock Keychain *Name*, and entering your Keychain password. As a bonus, the menu's Lock Screen command lets you immediately turn on OS X's screen saver—and turning it off will require a password, even if you don't have this feature enabled in the Security preference pane.

You can also set your Keychain to lock automatically after a period of inactivity. (In Keychain Access, go to Edit: Change Settings For Keychain *Name*.) Just be aware that each time an application accesses the Keychain qualifies as *activity*—so if your e-mail client stores your account passwords in the Keychain and checks for new mail frequently, your Keychain may never lock automatically. Another option is to tell the Keychain to lock when your Mac goes to sleep; when you wake your computer, you'll need to enter your password before you or any application can access your Keychain.

Change the Locks

By default, your Keychain password is the same as your OS X account password, and OS X unlocks your Keychain when you log in. If you'd rather do the unlocking yourself—so that nothing and no one can access your confidential data until you explicitly authorize it—you can disable this behavior in your Keychain's settings or, more securely, change your Keychain password (Edit: Change Password For Keychain *Name*). Click on the *i* (info) button in the Change Keychain Password dialog box to view the Password Assistant, which shows how secure your

Four Quick iCal Tips

1. Transfer iCal Calendars

You can transfer your Apple iCal calendars from one computer to another by exporting each calendar from within iCal and then copying the calendar file from one Mac to another. However, if you use iSync, you may not need to. Select Go To Folder from the Finder's Go menu and enter `~/Library/Application Support/iSyncService/LastSync Data`. In the resulting folder are backups of your iCal calendars, Address Book data, and Safari bookmarks. Copy the Calendars folder to your other Mac and double-click on the ICS files within to add those calendars to the other Mac.

2. Take a Break

Create line breaks in an iCal event by pressing option-return. This can be handy when you want to create short lists in an event—for example:

Meeting with Marketing:
Bill Jones
Rachael Johnson
The Weird Intern

3. Get Twice as Alarmed

Sure, iCal's alarms will ring, open a file, or even send you an e-mail message to remind you of an event. But what if you're feeling really paranoid about missing an appointment? In that case, create *multiple* alarms for the same event. For example, create one alarm that alerts you a week before your dentist appointment so you can clear the company calendar. Then, with your event selected, go to Window: Show Info and click and hold on the Alarm entry. Choose Add Alarm to create another alarm, reminding you an hour before you're supposed to leave for the tooth doctor.

4. Make Your Alarm Personal

As cute as iCal's bulging alarm clock is, there's no reason to live with it day in and day out. To create a custom alarm, first make a QuickTime movie that's a bit taller than it is wide (Apple's alarm clock is 53 pixels wide and 66 pixels high), and save it with the name `alarmclock.mov`. Control-click on the iCal icon, choose Show Package Contents from the contextual menu, and go to the Resources folder. Locate the `alarmclock.mov` file within the Resources folder, change its name to `oldalarmclock.mov`, and move it to another location. Now replace it with your new `alarmclock.mov` file. When an iCal alarm next goes off, it will display your QuickTime movie (see "Your Own Alarm").—CHRISTOPHER BREEN



Your Own Alarm Ditch the generic iCal alarm for one that reflects your personality.

new password is. (For more on the Password Assistant, see find.macworld.com/0044.)

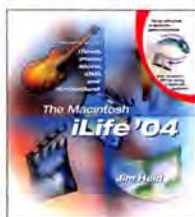
Explore Your Keys

Having your confidential information fall into the wrong hands is no joke. But if you exploit the full powers of OS X's Keychain, your secrets will remain just that—secret. □

Senior Writer DAN FRAKES (www.danfrakes.com) has much more to say about the Keychain and data security. For the full story, see his book *Mac OS Power Tools*, second edition (Sybex, 2004; www.macosxpowertools.com).

Create CD Inserts in iTunes

The iPod and iTunes are great, but sometimes you still need a CD. Maybe you want to listen to music compilations on a long car trip. Or maybe you're backing up the albums you bought from the iTunes Music Store (a good idea, by the way). The problem is, all store-bought CD-Rs look pretty much the same: *boring*.



By the Book This article is an excerpt from *The Macintosh iLife '04* by Jim Heid (2004; reprinted by permission of Pearson Education, Inc., publishing as Peachpit Press).

To give your burned CDs more panache—and to clarify what's on each one—why not print an insert that slides into the disc's jewel case? You won't even need to switch programs. Apple includes printing features in iTunes 4.6 that let you do this and more.

When printing a case insert from iTunes, you can choose from a variety of designs called themes. Some themes take advantage of the album artwork that accompanies Music Store downloads. You can even put your own artwork on a jewel-case insert with a few clicks of the mouse. CD inserts are also a great way to produce a hard-copy reference of your music library and favorite playlists.

Choose Source To switch the artwork display between the currently playing song and the currently selected song, click here.



Switch Images

A song can contain multiple images. Clicking on the little arrows displays the next or previous image associated with the song.

Add Images To display the artwork in a larger window, click here. To add a new image to the currently selected song, drag the image here. To copy the art into another program, drag it from here to the program.

View Art To see album art for a particular song, click on the Show/Hide Artwork button in the iTunes window.

Finding CD Artwork

iTunes can store album artwork—for example, an image of the CD cover—along with your music. The artwork is embedded into a music file itself, so if you move the file to another Mac, the art moves with it.

Music that you buy from the iTunes Music Store usually has artwork. To display it, click on the Show/Hide Artwork button in the lower left corner of the iTunes window (see “View Art”). From the Artwork pane, you can specify how iTunes displays images, choose between multiple images (if there's more than one), or even add new images.

But what about all the songs in your library that don't have artwork? If you'd like to add art to them, you have several options. Some free utilities will search for and retrieve artwork over the Internet; I use Fetch Art, by Yoel Inbar (find.macworld.com/0045). Like other artwork utilities, it looks up the name of an album on Amazon.com and then retrieves the artwork from Amazon's site. (For more artwork-related utilities, see www.maclife.com/itunes.)

Modify Artwork Settings

You can also view and modify a song's artwork via the Song Information dialog box. Select a song in iTunes, choose Get Info from the File menu (or press ⌘-I), and then click on the Artwork option.

As I mentioned, songs can contain more than one image. But keep in mind that each image increases the size of your music file, thus leaving less free space on your hard drive and iPod.

To import a new image into the list, click on Add. To delete an unwanted image, select it and click on Delete.

When creating a jewel-case insert, iTunes uses the first image listed in the Artwork Information dialog box. If you have multiple images listed there, you can rearrange their order by dragging them left and right. To use a specific image in a jewel-case insert, drag it so it's the first image in the list.

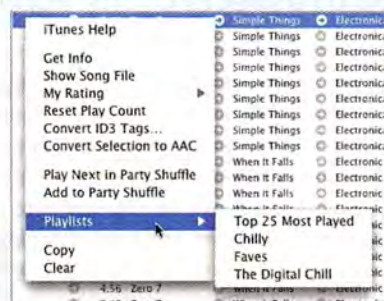
You can also print your own artwork—for example, a photo from your iPhoto library—on a jewel-case insert. First, add the image to a song. (For a photo, simply drag it from the iPhoto window to the Artwork area in the Song Information dialog box.) Drag the image

Powerful Playlist Tricks

With iTunes playlists, you can mix and match songs in any way you see fit. You can add a song to as many playlists as you like, or even create a playlist that plays one song five times in a row. After you've created your playlists, you can, of course, play them. But you can also transfer them to an iPod or burn them to create your own compilation CDs.

Here are some lesser-known tricks for working with playlists in iTunes 4.6.

Open a Playlist in a Separate Window To open a playlist in its own window, double-click on the empty space to the right of its name. iTunes opens the playlist in a new window and switches its main window to the Library view. You can open as many playlist windows as you like, and then you can simply drag songs between them. This is a handy way to work, since it lets you see the contents of your library and your playlist at the same time.



Create a Shopping List In iTunes 4.5 and later, you can drag a song

The Lowdown Want to see every playlist that includes a particular song? Just control-click on the song and then select Playlists.

preview from the Music Store into a playlist.

This can be a handy way to put together a temporary shopping list. To help you tell a preview from a full-length song, iTunes displays a 30-second marker (:30) adjacent to a preview song's name.

Create a Playlist from a Selection Here's a shortcut for creating a playlist: in the Library view, select the songs you want to include in a playlist, and then go to File: New Playlist From Selection. iTunes will add the songs to a new playlist, which you can then rename.

Name Playlists with an iPod in Mind If you plan to transfer your playlists to an iPod, here's a trick you can use to ensure that a given playlist will appear at the top of the iPod's Playlists menu. Precede the playlist's name with a hyphen (-) or a period (.)—for example, "- Mac's Greatest Hits." This cuts down on the time and scrolling required to find a specific playlist.

See Where You've Used Songs Curious about which playlists contain a particular song? Control-click on the song's name to bring up the contextual menu. Under the Playlists submenu, you'll see a list of all playlists containing the selected song. To jump to a specific playlist, select its name from the Playlists submenu (see "The Lowdown").

From CD to Playlist in One Drag You're about to rip an audio CD and you'd like to add some of its tracks to a playlist. Here's a shortcut: simply drag the tracks from the CD list to the playlist. iTunes will import the tracks and add them to the playlist for you.



so it's the first one in the list; then print. To reduce the size of the song file, delete the image after printing.

Printing a Jewel-Case Insert

Step 1 Select a playlist in the Source area, and then choose Print from the File menu.

Step 2 Click on the CD Jewel Case Insert option (see "Instant Art"). You'll also see options here for printing several types of song and album lists.

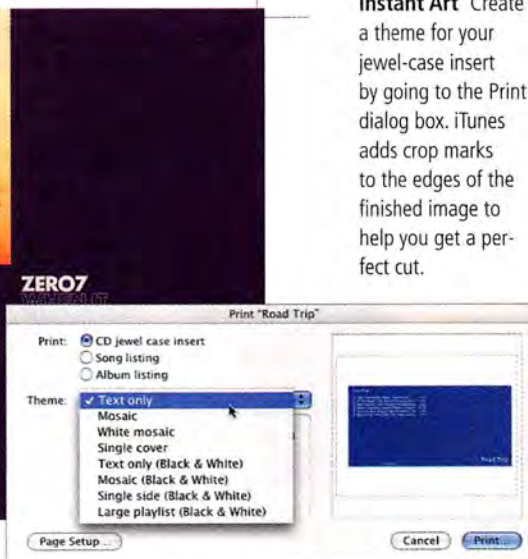
Next, choose an album design from the Theme pull-down menu. If your playlist contains songs from

multiple albums, you can use the Mosaic themes to produce a collage of album art. Want to use just one album's art for the cover? Select the playlist song containing that art *before* choosing Print.

Step 3 Click on Page Setup and adjust the settings for your printer as needed. Click on OK to return to the Print dialog box, and then click on Print.

Step 4 Once it's printed, trim the case insert using the crop marks at the edge of the image as a guide. □

Contributing Editor JIM HEID publishes iLife tips at www.maclife.com.



Instant Art Create a theme for your jewel-case insert by going to the Print dialog box. iTunes adds crop marks to the edges of the finished image to help you get a perfect cut.

Photoshop Top Tips

Creative professionals in almost every field use Adobe Photoshop CS. The program owes its popularity to a long, diverse list of features, but this complexity also makes Photoshop difficult to master. No matter what kind of work you do, the following tips will help you sharpen your Photoshop skills—and may even introduce you to aspects of the application you haven't encountered before.

Get Three Lassos in One

Photoshop CS (\$649; www.adobe.com) has three lasso selection tools—Lasso, Magnetic Lasso, and Polygonal Lasso—and each is a separate item in a fly-out menu. But when you use the Magnetic Lasso tool, you have the power of all three without having to go back to the Tools window. To select a free-form shape (as you would with the normal Lasso tool), hold the option key and drag within your image. To create straight segments in your selection (as you would with the Polygonal Lasso tool), hold down the option key and click on multiple areas of your image (without dragging). Release the option key to restore the Magnetic Lasso tool to its normal behavior.—BEN WILLMORE

Set Filter Defaults

You can change the default settings for any filters that use the new Filter Gallery dialog box within Photoshop. Just choose Filter: Filter Gallery, select the filter you'd like to work with from the pop-up menu, modify its setting, and ⌘-click on the Cancel button (see "Change Filter Defaults").—BW

Change Filter

Defaults The Filter Gallery dialog box, new to Photoshop CS, makes it easy to change default settings.

Control the File Browser

You can open the File Browser by clicking on its icon (which looks like a folder and a magnifying glass) on

the right side of the Options bar. ⌘-clicking on that icon will hide all the visible palettes and cause the browser window to fill your screen. When Photoshop is active, you can also drag a folder from the desktop onto the File Browser icon to instantly navigate to that folder in the File Browser. When you double-click on a file to open it from the File Browser, hold down the option key to simultaneously close the File Browser. And when you're opening a RAW-format image, you can hold the shift key to open the image directly in Photoshop, bypassing the Camera Raw dialog box altogether.—BW

Preview in the Background

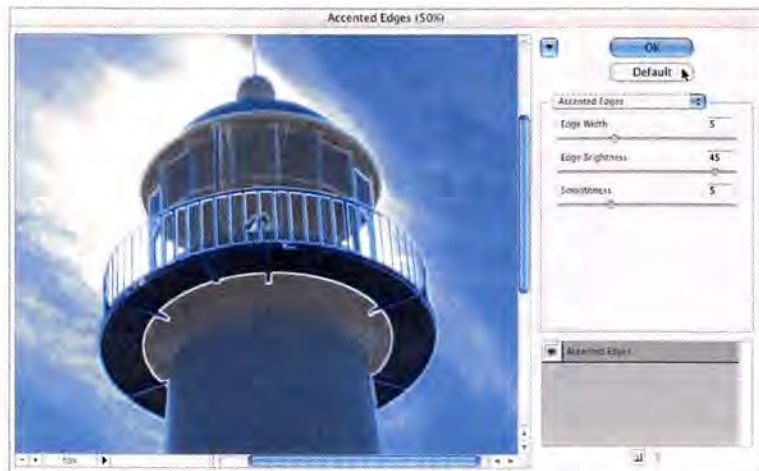
If you find that Photoshop takes too much time to generate thumbnail and preview images for all your files in the File Browser, choose Preferences from the Edit menu in the File Browser and select the Allow Background Processing option. This will allow Photoshop to create thumbnails and preview images while you spend your time checking your e-mail and browsing the Internet.—BW

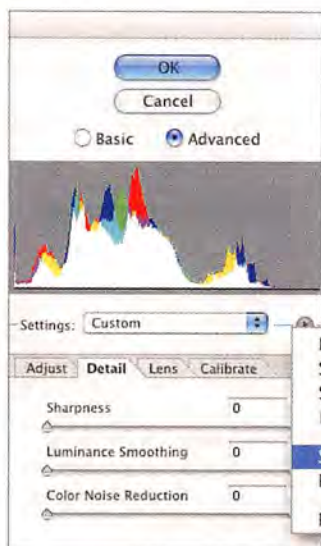
Autoflatten Layers

Do you have a large TIFF or PSD file with a lot of layers and wish you could open it as a flattened file? No problem—hold down the option and shift keys while double-clicking on the image in Photoshop's File Browser or in the Open dialog box. Choose OK when asked, "Read the Composite Data Instead?" Note that this method works for a PSD file only when the file was saved with a composite image, which is the default.—DAVID BLATNER

Crop to an Aspect Ratio

Before sending digital photos to an online printing service, you may want to crop the images to the common print size, 4 by 6 inches. Just *don't* use Photoshop's Crop tool, which can't crop an image without also changing its resolution. Instead, select the Rectangular Marquee tool and choose Fixed Aspect Ratio from the Style pop-up menu in the Options bar. The Options bar then lets you type values in the Height





No Blur, No Sharpen

You can change the Camera Raw dialog box's default settings so that it doesn't automatically modify your images.

and Width fields (here, type 4 and 6 or 6 and 4). Then use the Rectangular Marquee tool to select the area you want cropped, and select Crop from the Image menu.—DB

Change Camera Raw Defaults

By default, Photoshop CS's Camera Raw dialog box blurs (in an attempt to remove noise) and then sharpens every RAW-format image you open. To change the defaults, open any RAW-format image, and when the Camera Raw dialog box appears, choose Camera Default from the Settings pop-up menu. Now select the Advanced option in the upper right corner of the dialog box and click on the Detail tab. Change both the Sharpness and the Color Noise Reduction settings to 0 (zero) and then choose Set Camera Defaults from the menu to the right of the Settings pop-up menu (see "No Blur, No Sharpen").—BW

Control Your Batch Processing

The File Browser is the most convenient launching point for your batch operations, particularly if you want to control the order in which the files are processed. Simply drag and drop to move the files in the desired order, and then select only those files you want to process. The selected files will be processed in the order in which they appear. You can even process files that sit in different folders. Just flag the files first or add a common keyword or other metadata to all of them, and then perform a search for the desired flag or metadata. The files will appear in one view, where you can change their order and then batch-process them.—KEVIN CONNOR

Apply a Layer Mask to Another Layer

When you've perfectly masked one layer using a layer mask and want to apply the same mask to a second layer, just click on the layer to which you'd like to apply the mask, click on the layer mask you want to copy (but don't release the mouse button), and drag it to the Layer Mask icon at the bottom of the Layers palette. That copies the layer mask you dragged to the

WIN COOL STUFF!

See Your Name in Print

We can't promise you a spot on the *New York Times* Best-Seller List—but we can publish your Mac advice. We're interested in your workarounds for Adobe InDesign and your advice on using type in any program. We'll publish our favorites in a future *Create* column.

And fame isn't your only reward. The first 500 people to submit tips will receive a copy of *Words At Play*, a typographic tour de force you can't buy anywhere. This brainchild of Adobe uses the company's typefaces and InDesign CS to illustrate quotations from 21 well-known people (see "Win This Book").

For official contest rules and restrictions, and to submit your tips and tricks, visit find.macworld.com/0096. Please include your name, street address, city, state, zip code, and e-mail address.



Win This Book This spread in *Words At Play* is dedicated to Gustave Flaubert. His portrait was created entirely out of characters from the typeface Nuptial Script.

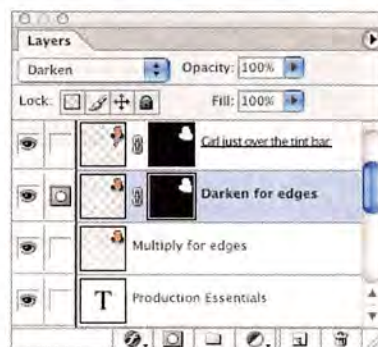
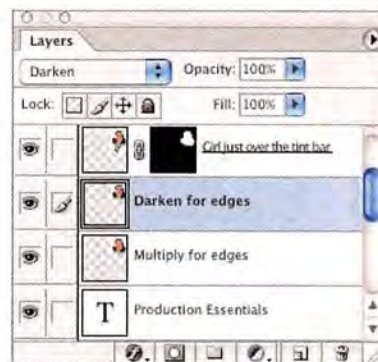
active layer (see "Layer Your Layer Mask").—BW

Switch Layers Quickly

If you're tired of mousing over to the Layers palette every time you want to switch to a different layer, choose the Move tool, hold down the ⌘ key, and click on any visible area of the desired layer within the main image window. Once you've done that, Photoshop makes that layer active.—BW

Take Command of Brush-Tool Settings

When working with the Brush tool, you can use your keyboard to change all the settings that appear in the Options bar at the top of your screen. Press the square-bracket keys ([and]) to change the brush size, and add the shift key to that command to change the softness of the brush. Hold shift and press the equal sign (=) and hyphen (-) keys to cycle through the choices that are available in the Blend Mode pop-up menu. Press the number keys to change the Opacity setting continues



Layer Your Layer Mask It's easy to apply one layer mask to a second layer in Photoshop CS.



TRY THIS

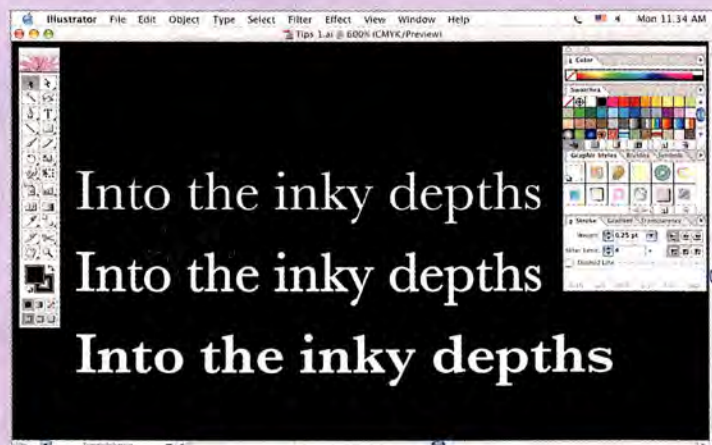
Illustrator Tips

Photoshop isn't the only complex application in Adobe's lineup. Illustrator CS (\$499) has its own unplumbed depths. Let these tips be your guide.

Snap to Stroke Edges The dimensions Illustrator CS expresses for a stroked object such as a rectangle are based on the centerline of that stroke, not on the edge of the visible line. So when you ask for a square of 100 points with a 10-point stroke weight, the outer dimensions of that square are 110 points. To precisely control the size of such objects, always subtract the stroke weight from the size you specify. To get the edge of a stroked object to snap to a guide or another object, use the Object: Path: Outline Stroke command, which lets you snap the visible edge of an object to a point or guide.

Semi-semibold Reversed Type When printed, reversed type (white type on a black background) can appear to break up because the ink spreads slightly and pinches the closed narrow portions of certain characters. The traditional solution for this has been to use a semibold version of the typeface to thicken up the thin strokes. But when a semibold isn't available, or when, as in the bottom line here (see "Be Bold but Not Too Bold"), semibold is just too bold, you can use Illustrator CS's Stroke command to thicken type a wee bit. The top line in the illustration shows Baskerville Regular. The middle line shows the same face with a 0.25-point stroke applied to it. Since the stroke is applied along the centerline of the character's outline, only half that stroke weight—0.125 point—is actually added to the weight of the character, creating a sort of semi-semibold.

Control Headroom You're trying to make text sit below the top of an Illustrator frame. Logically, you go to Window: Type: Paragraph, choose Show Options from the fly-out menu, and tweak the Space Before Paragraph control. Nothing happens. This is because Illustrator's First Baseline alignment is set to Ascent by default. To move it down, select the text frame with the selection tool and go to Type: Area Type Options. In the resulting dialog box, set First Baseline to Leading; then, with the first line of text selected, adjust your leading to position the text vertically. The leading control defines the distance from the first baseline of the text to the top of the frame. —JIM FELICI



Be Bold but Not Too Bold When a typeface isn't the right weight for reversing out of black, you can customize it in Illustrator.

(03 equals 3 percent, 23 equals 23 percent, and so on), and add the shift key to change the Flow setting. Press shift-option-P to toggle the Airbrush option on or off.—BW

Get out of Trouble Fast

If one of Photoshop's tools isn't acting the way you expect it to, you can reset it by holding down

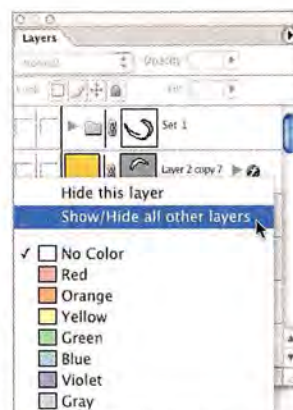
the control key, clicking on the tool icon that appears on the far left of the Options bar, and choosing Reset Tool.—BW

Copy Image Sizes

If you want to create a new Photoshop image that's the same size as one that's already open, press ⌘-N to bring up the New Document dialog box, and then select the open file's name from the bottom of the Window menu. The Window menu is still active when the New Document or the Image Size dialog box is open.—DB

View All Layers

In previous versions of Photoshop, option-clicking on an eyeball icon in the Layers palette toggled the visibility of all other layers in the palette. In Photoshop CS, option-clicking twice on a layer's eyeball icon brings back only the layers that were visible when you first option-clicked on that eyeball icon. To make all the layers visible in Photoshop CS, control-click on the eyeball icon and then choose Show/Hide All Other Layers from the resulting pop-up menu (see "Visible Layers").—BW



Visible Layers In Photoshop CS, making all layers visible is a little more involved than it was in previous versions.

Zoom into Web Images

You can use Viewpoint's ZoomView technology to export high-resolution images as fast-downloading, zoomable images. Go to File: Export: ZoomView, and follow the instructions. Individuals, such as photographers posting their online portfolios, can register for a free license to host these images on their Web sites. Companies running larger Web sites usually need to purchase a license from Viewpoint.—KC

Move Transparent Objects Magically

With the Patch tool, you can move a transparent object—such as a glass—from one location in a photo to another. Select the Patch tool and draw an outline around the transparent object. Select the Transparent option (in the Options bar) and drag the object to the new location, where the object automatically blends with its new background. Of course, it's not *really* magic, and there are limits. This trick works best when the object is against a plain original background.—KC

DAVID BLATNER is a coauthor of *Real World Scanning and Halftones*, third edition (Peachpit Press, 2004). KEVIN CONNOR is a Photoshop product manager at Adobe. BEN WILLMORE is a Photoshop author and educator.

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Laptop Battery Smarts

According to Apple, a 15-inch aluminum PowerBook G4 will operate for nearly four and a half hours before putting itself to sleep. But that's like saying that a four-person tent can hold four people—it's technically possible but not usually realistic. I'll show you how to get the most life and performance out of your PowerBook or iBook battery, so you won't be stuck without juice when you really need it.

Care and Feeding of a Healthy Battery

No rechargeable batteries last forever. In fact, the lithium-ion batteries in today's iBooks and PowerBooks begin to degrade as soon as they're shipped from the factory.

Calibrate the Battery New Apple batteries, those included with a machine and those bought separately, arrive partially charged and need to be calibrated. This procedure provides a baseline for the processor built into the battery, so the processor can effectively regulate power consumption. To calibrate your battery, first plug in the laptop and charge the battery to 100 percent capacity; the light at the end of the Apple-supplied power cable will go from orange to green when the battery is fully charged. Next, unplug the power adapter and let the battery run down. The machine will put itself to sleep and refuse to wake up. Plug the adapter in again and fully recharge the battery. (You can use the laptop as you normally would during the calibration process.) You need to calibrate the battery only once.

Work Smart It's nice to have desktop power on your lap, but do you need to use all that power all the time?

When your laptop is running on battery power, use the Energy Saver preference pane to minimize performance and maximize battery life. From the Optimize Energy Settings pop-up menu, choose Longest Battery Life, which puts the hard disk to sleep when possible and reduces the processor's performance.

Also, use the laptop's brightness-control keys (usually F1 and F2, depending on the model) to dim the screen's backlight. And if you don't need AirPort and Bluetooth, turn them off; even if no other devices are nearby, the wireless radios in the laptop continually scan for networks.

Store the Battery Properly

When it's asleep, a laptop steals power from its battery to maintain the contents of its memory. If you won't be using the computer for several days, putting it to sleep could drain the battery. Instead, charge the battery to about 40 or 50 percent capacity and shut the computer down. If you need to store a battery for six months or more, remove it from the machine and keep it in a place that won't get too hot or too cold (between 50 and 90 degrees Fahrenheit).



iPod Battery Booster



Is your iPod's battery on the fritz? Does it tire out just when you've started to rock? It may be time for a new battery. For \$99 (plus shipping), Apple will replace the battery in an out-of-warranty iPod. But you can do it yourself for considerably less—and we'll show you how. Go to find.macworld.com/0097 and download our step-by-step guide to replacing the battery in a first-, second-, or third-generation iPod.

Stay in Charge

How you charge the battery is just as important as how you discharge it. Current iBooks and PowerBooks ship with a 65-watt AC adapter that powers the machine and recharges the battery. If you've moved up from an iBook (dual USB) or a Titanium PowerBook G4, you can use the older machine's 45-watt adapter as an extra charger for the new Macs, but Apple doesn't recommend it: that wattage is enough to keep you working but not enough to charge the battery at the same time.

Of course, you don't have to use Apple's chargers. The iAdapter2, sold by Lind Electronics (\$70; www.lind-electronics.com)

.lindelectronics.com), is lighter and more compact than Apple's little white bricks. Madsonline sells the diminutive, 45-watt MicroAdapter (\$78; www.madsonline.com) for previous-generation iBooks and PowerBooks. Kensington's Universal Laptop Power Supply (\$120; www.kensington.com) can deliver 90 watts of power and is smart enough to judge how much wattage your laptop can safely handle. It includes a car adapter for charging on the road, and it features several plug tips that allow the power supply to work with other laptop models.

Don't Use Just the AC Adapter If you always plug your laptop into the wall while you work, the battery doesn't discharge; its electrons stagnate, and the battery's life span is reduced. Even if you usually use an AC adapter, make a point of working from the battery once a month and then recharging.

Recharge Smart Nickel-cadmium batteries suffered from the "memory effect"—if you didn't fully discharge a nickel-cadmium battery occasionally, some of its capacity would become unusable until you ran the battery to zero and charged it up again. Although lithium-ion batteries don't suffer from the memory effect, they do need to have their electrons jostled occasionally to prevent premature decay. Try to complete a full charge-and-discharge cycle at least once per month. According to Apple, a lithium-ion battery should retain 80 percent of its original capacity after 300 full charge-and-discharge cycles.

Is It Time for a New Battery?

At some point, even smart power management can't overcome the physics of an aging battery. When testing batteries for this article, I found a great example of battery neglect: an iBook that I'd been using as a music server had remained plugged in at the same location for a couple of years. Its lithium-ion battery registered an embarrassing 1 hour and 21 minutes of life with the Energy Saver options set to Longest Battery Life. A replacement battery from BTI (www.batterytech.com) clocked in with a more respectable 3 hours and 57 minutes (see "Stamina Testing").

It's useful to measure your battery's capacity over time. To determine a battery's capacity, use a utility such as Jeremy Kezer's XBattery (\$15; www.kezer.net) or Rayner Software's iBatt (\$15; www.raynersoftware.com). iBatt compares your battery's capacity with a median of other iBatt users' batteries, and it helps determine whether you need a replacement. If the battery provides less than 50 percent of its original capacity and you're still covered by the laptop's one-year warranty (or Apple Care's three-year warranty), Apple will replace the battery at no cost.



GO TO WEB:

Keep your battery healthy while on the move: go to find.macworld.com/0097 and download our wallet-size guide.

STAMINA TESTING

COMPUTER	BATTERY MODEL	BATTERY LIFE IN STANDARD MODE ^A (HOURS: MINUTES)
Apple iBook G3/600MHz (dual USB)	original factory-supplied battery	1:21
	replacement battery from BTI	3:57
Apple Aluminum PowerBook G4/1GHz	original factory-supplied battery	1:48
	replacement battery from Apple	2:17
Apple Titanium PowerBook G4/400MHz	original factory-supplied battery	3:37
	replacement high-capacity battery from NewerTechnology	4:05
>Better		

^AStandard mode: Screen Brightness set to 75 percent; Processor Performance set to Automatic; Energy Saver set to Longest Battery Life.

If you're using a much older model, such as a PowerBook 1400cs, your only option is to turn to a third-party battery vendor such as BTI or Lind Electronics since Apple no longer sells batteries for older models. Nearly all battery and computer vendors sell replacement batteries for current models. To be competitive, some companies offer higher-capacity batteries that benefit from improvements in battery technology since the original models were introduced.

For more backup battery power, look into buying an external battery such as the Valence N-Charge (\$300; www.valence.com)—when fully powered, it acts as a self-contained AC adapter that keeps your internal battery charged for up to ten hours. (But remember, that's the manufacturer's best-case scenario.) For some frequent travelers, this type of device may be preferable to juggling multiple battery packs, though it adds about three pounds to your bag.

And remember that when you buy a new battery, you must get rid of the old battery properly. Organizations such as the Rechargeable Battery Recycling Corporation (www.rbcc.org) ensure that the batteries' dangerous components are safely recycled and disposed of.

Power On

Taking care of your laptop isn't too difficult: don't drop it, throw it, submerge it, or set it on fire. Taking care of the battery is a bit more complicated. But by managing your power—calibrating the battery when you first get it, charging and discharging it to prevent premature decay, and extending your portable capabilities with extra batteries and chargers—you can get much more out of your iBook or PowerBook. □

JEFF CARLSON is the managing editor of the free weekly Macintosh newsletter TidBits (www.tidbits.com). Having owned seven Apple laptops, he knows a thing or two about battery life.

BATTERY RECALL

Do you own a 15-inch aluminum PowerBook G4? If so, you may qualify for a new battery. In August, Apple announced that it was recalling specific batteries that it sold from January 2004 through August 2004. For more details, go to find.macworld.com/0076.

Killer Mac Robots

Maybe you've always wanted to make C-3PO or R2-D2, or wondered whether you could create a Roomba Robotic Floorvac yourself. Whatever your motivation, the Lego MindStorms Robotics Invention System has everything you need in order to build robots. So you put down \$200, take the kit home, and build something brilliant—only to discover that the software is Windows only.

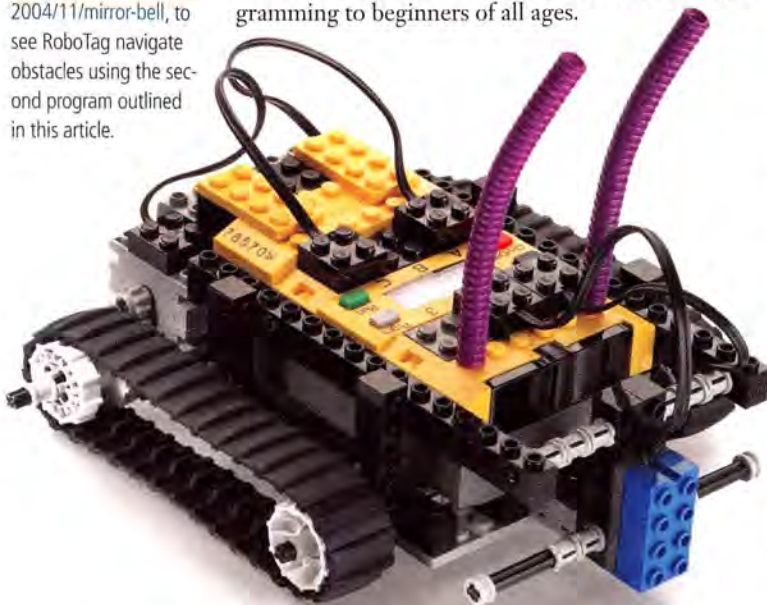
Can't you use a Mac to program robots? Of course you can! Several excellent Lego robot-programming tools exist for the Mac, many of them free. I'll show you how to get started with one of the most popular tools, MacNQC. (For others, see "Programming Choices.")

About Lego Robots

The Lego MindStorms Robotics Invention System (RIS) kit (<http://mindstorms.lego.com>) contains more than 700 Lego bricks, including motors, sensors, gears, wheels, and a robot brain called the RCX. You can write programs for the RCX on your computer and then download the programs to your robot via an infrared link. The kit includes an infrared USB tower that you plug into your computer so it can talk to the RCX.

So what can you do with all this stuff? Whatever you want. Imaginative builders from around the world have built robot bugs, pets, tanks, plant waterers, lawnmowers, chess players, and just about everything else. You won't be making C-3PO or the Jetsons' Rosie, but you're going to have fun and learn a lot. In fact, many teachers now use Lego robots to teach programming to beginners of all ages.

See It Now Check out the CD that came with this issue, or go to <http://cd.macworld.com/2004/11/mirror-bell>, to see RoboTag navigate obstacles using the second program outlined in this article.



Meet MacNQC

Although there's Windows-only software in the regular MindStorms box, the clever and dedicated Lego robotics community, composed of enthusiastic fans worldwide, has created a wide variety of alternative RCX programming environments.

NQC (Not Quite C), originally developed by Dave Baum, compiles text source files and can download the compiled programs to the RCX. In its purest form, NQC can be a little uncomfortable for people who don't live on a command line. Fortunately, there's MacNQC (find.macworld.com/0077), an excellent GUI version of NQC that runs in OS 9 and OS X. At this writing, the current version of MacNQC X (the version for OS X) was 3.0 r2.

MacNQC Quick Start

The first thing you need to do to start programming robots with MacNQC is install firmware on the RCX. The RCX is a very tiny computer. Like a Mac without system software, or Frankenstein without a brain, the RCX can't do much by itself. The firmware serves as a kind of operating system, enabling you to download and run your own programs.

MacNQC does not come with its own firmware; you will use the firmware that Lego supplies with the RIS kit. The easiest way to get the firmware file is to download the RCX 2.0 Beta SDK (find.macworld.com/0078). Click on the link at the bottom of the page to download the SDK. (You'll need to click through one or two more pages to get to it.) Once you've downloaded and unzipped the SDK, copy the `firm0328.lgo` file into the Firmware directory of your MacNQC folder.

If you don't have an Internet connection handy, you can get the firmware file from the RIS disk, but you'll need to install the RIS software on a Windows computer first. Then you can copy the firmware file from Windows to your Mac and install it on the RCX using MacNQC. On the Windows computer, you can find the firmware file here: `\Program Files\LEGO MINDSTORMS\RIS 2.0\script\Firmware\firm0328.lgo`. Copy it to your Mac and place it in the Firmware directory of your MacNQC folder.

Programming Choices

Less Geeky You can't use the Windows-only software that comes in the MindStorms box, but you can use Lego's Robolab software for OS 9. (It also runs in Classic.) In this visual environment, snap together little program blocks, such as Set Power or Tone. When you're finished, click on a button to download the program to your robot for testing. This is a good choice for younger robot builders or those with little computer experience. Buy it separately at the Pitsco Lego Dacta store (www.pldstore.com) for \$69.

Also, don't miss the cool kits sold at the Pitsco site, such as the \$114 Robolab Intelligent House Building Set (find.macworld.com/0042), which you can use to create a working model of an automated home.

Geekier If you're familiar with Java, try the free leJOS (<http://lejos.sourceforge.net/>), an environment based on the Java programming language.

At this point, you're ready to plug in the infrared tower and start up MacNQC. Turn on the RCX and place it near the infrared tower. Choose RCX: Download Firmware from the MacNQC menu. MacNQC will find the firmware file you just copied and install it on the RCX. Be patient; this takes a couple of minutes. With the firmware installed, you're ready to start playing.

Choose RCX: Motor And Sensor Panel from MacNQC's menu. This window allows you to control motors (outputs A, B, and C) and view sensor readings (inputs 1, 2, and 3). For example, you can see the current reading of a light or temperature sensor. To turn on a motor, click on one of the green arrows for forward or reverse, and then click on the Start button. To view a sensor value, first choose the sensor type from the pop-up menu and then click on Refresh to get the sensor values from the RCX.

Ready Your Robots!

Programming in NQC is simple. Let's start with a rudimentary example: a program that makes a robot move forward for one second and then stop. If you haven't built a robot yet, make a basic one, such as my own RoboTag or Trusty (find.macworld.com/0079).

I'll assume you have a robot that uses motors A and C to move. All the program has to do is turn on the motors, wait one second, then turn them off.

In MacNQC, create a new file and enter this:

```
task main() {
  OnFwd(OUT_A + OUT_C);
  Wait(100);
  Off(OUT_A + OUT_C);
}
```


The commands in this program are all straightforward. You just need to remember that the Wait command accepts a time measured in hundredths of a second, so Wait(100) means "wait for one second."

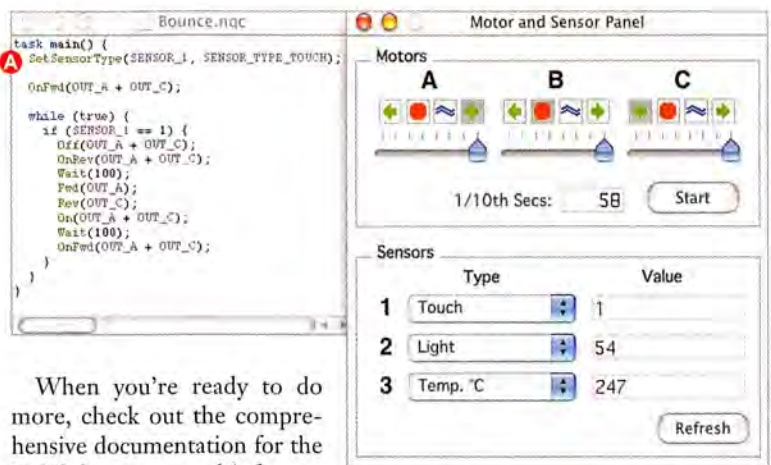
You can save the file if you want, but it's not necessary for testing. Make sure that your RCX is turned on and that the infrared tower is pointed at it; then click on the toolbar button that looks like 1s and 0s. MacNQC will download your program to the RCX. (Your robot will chime when it has received instructions.) To try the program out, press the Run button on the RCX.

If you'd rather just check your program for errors without downloading it, click on the red check-mark button. MacNQC will tell you about any errors it finds in a separate error window. Double-click on an error to go to that spot in your program.

The next example (see the program in "Making Robots Think") moves the robot forward until it bumps into something. You'll need a robot with a bumper on the front, connected to input 1. (The bumper should press a touch sensor on input 1 when the robot bumps into something.) Also, motor A should control the left side of the robot; motor C, the right side. RoboTag will work for this project.

After a bump, the robot will back up, turn right, and then drive forward again.

The SetSensorType line  tells the RCX that a touch sensor is attached to input 1. Next, the program moves the robot forward. If the bumper ever touches anything (that's when SENSOR_1 equals 1), the robot backs up for one second, turns for one second, and then starts moving forward again.




When you're ready to do more, check out the comprehensive documentation for the NQC language, and information about MacNQC, available from the Help menu.

Welcome to a New World

By now you should be pretty pleased with yourself. You have successfully used your Mac to program Lego robots, and it didn't cost you anything.

You are now part of an amazing global community whose nexus is LUGNET, the Lego Users Group Network (<http://news.lugnet.com/robotics/>). You'll find other enthusiastic, brilliant people who like to build Lego robots. Browse or search the archives for project ideas or information about troubleshooting, advanced programming, and building techniques. Or you can join (for free) and participate in the discussions.

Now go forth and program robots with your Mac. Have fun! 

JONATHAN KNUDSEN (<http://jonathanknudsen.com/>) was the author of one of the first Lego MindStorms books in 1999. By day, he writes about Java technology.

Making Robots

Think Use MacNQC's Motor And Sensor Panel to control robots directly, or create programs in a color-coded text editor.

Mac OS X Hints

Use Font Book to compare several fonts, modify an iMovie clip's speed more dramatically, delete iTunes artwork, make OS X move in slow motion, change the behavior of OS X's crash reporter, create an icon-only sidebar, and control a file's sort order in the Finder.

Compare Fonts Using Font Book

If you use Apple's Font Book to manage your fonts in Panther, you may have found that comparing two fonts is difficult—especially when those fonts aren't close to each other alphabetically (Arial and Times, for example). You have to scroll from one to the other, and the preview of one font disappears when you click on the next. Here's an easy but often overlooked solution: double-click on the name of any font in the Font column, and a preview of that font

will open in its own window—you can open as many fonts as you want in this manner. Unfortunately, you can't highlight multiple fonts to open with one double-click, so you'll be doing a lot of clicking if you have many fonts to compare.

Stretch and Condense Time in iMovie

If you've used iMovie, you've probably used the Clip Speed slider below the timeline to speed up or slow down a particular video clip for a neat effect. But what if you've already moved the slider to either extreme, and you want to adjust the clip's speed even further?

You can reset the slider by applying any video effect—and you can do so without actually adding any effects to your clip. Select your modified clip in the timeline and click on the Effects button. Look for an effect that has a None option, such as Earthquake, Letterbox, or Soft Focus. Set the slider(s) for the chosen effect to None; then click on Apply. iMovie will render the effect onto your clip, which will not change it at all. However, when you're done, you'll find that the speed slider has been reset and that you can now further increase or decrease the speed of your clip.

Set Skinny Sidebars

One of OS X 10.3's new features is the sidebar, a storage area for drives, files, folders, and applications that lives on the left edge of every Finder window. Though useful, the sidebar can take up quite a bit of screen space—especially if you use a small-screen PowerBook or iBook. One option is to disable the sidebar completely by double-clicking on the divider that separates it from the window's contents, but there's a middle ground.

You can make the sidebar less intrusive by dragging the divider bar slowly to the left. As you do so, you'll notice a point at which the bar jumps and locks into place with just the sidebar icons visible (see "Sidebar Sliver"). "Great," you're thinking, "but I can't tell what any of those icons are." Not to worry—position your cursor above any of the icons, and its name pops up without delay. This even works when you're dragging and dropping, so it's easy to see exactly which icon you're selecting.

Another option is to alter the folders in your sidebar with custom icons. You can find great icon collections at <http://interfacelift.com/icons-mac/> and www.iconfactory.com.

A skinny sidebar offers the same advantages as a wider one, while conserving precious screen real estate.

If you want to return to a normal-width sidebar, just drag the divider bar back to the right.

Sidebar Sliver With a simple drag to the left, you can force the sidebar into super-skinny mode. When you move your mouse over a sidebar icon, you'll instantly see the full name of the file or folder.



Remove iTunes Cover Art

iTunes' ability to attach an album cover to each song in your collection is a great feature. But you may not realize that each of those covers is actually embedded in the music file on your hard drive—and those covers can take up a significant amount of space. Removing a cover from a song purchased from the iTunes Music Store reduced that song's file size from 3.8MB to 3.3MB. While half a megabyte may not seem like much on the spacious 160GB hard drive in your G5, it's quite a bit when you're trying to cram songs onto a first-generation, 5GB iPod.

If you'd like to save some space, you could open the Get Info window for each song in iTunes, click on the Artwork tab, click on the album cover, and then click on Delete and OK. But, needless to say, if you've got a few thousand songs with artwork, this will take a very long time. Here's a much quicker solution:

Select a number of songs at once in the iTunes library, and then select File: Get Info. iTunes will ask whether you're sure you want to edit information for multiple songs (unless you've disabled this warning); click on Yes. In the resulting dialog box, the Artwork field is empty. To remove the artwork from all the selected songs at once, simply put a check mark in the box next to the Artwork field (see "Art, Begone") and click on OK. Although you seem to be enabling artwork, you're actually enabling blank artwork—in other words, deleting it.

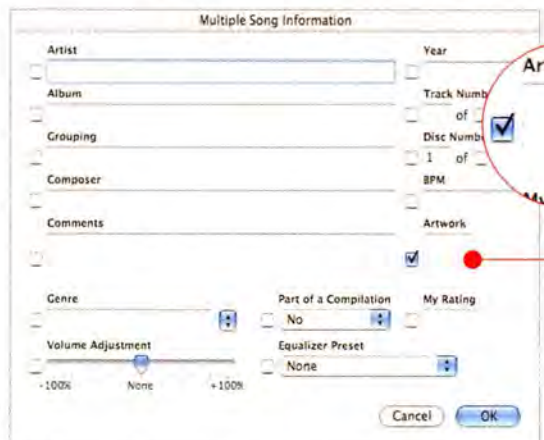
If you miss the album artwork, you can use an application such as Sprote Rsrch.'s free Clutter (www.sprote.com), which can display artwork on the desktop without adding it to your music files.

Slow Down OS X's Movements

Have you ever seen OS X move in slow motion? During Apple keynotes, Steve Jobs often shows a window slowly and gently gliding into or out of the Dock. Even if you've seen this effect, you may not know just how pervasive it is in OS X. It's also amazingly simple to do yourself.

To make a graphical effect move in slow motion, just hold down the shift key before you activate the effect. For example, hold shift and then click on the minimize (yellow) button in any window, and watch the window creep into the Dock (this also works when you maximize the window again). For real fun, launch Safari (or any Cocoa application) and open six or seven new windows. Minimize all of them to the Dock, and then shift-option-click on any one of the minimized windows. You'll be treated to a visual feast as all the minimized windows return to the screen in super-slow-mo mode.

But the slow-motion fun isn't reserved for minimizing and expanding windows. How about Exposé? Sure. Hold shift and press F9 or F11. Switching Address Book's view mode from Card and Columns to Card Only (the top left buttons)? Yep. The iTunes



Art, Begone To remove the artwork from many songs at once, just put a check mark in the box next to the Artwork field in the Multiple Song Information dialog box.

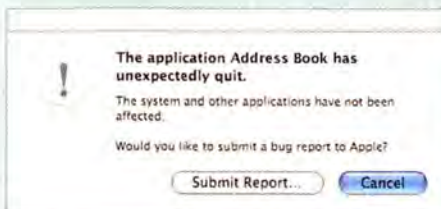
Banish the Crash Reporter

Though OS X is a very stable operating system, applications themselves will occasionally up and quit, presenting a dialog box when they do so (see "Crash Boom Bam"). As nice as this dialog box is, it may interfere with the operation of your Mac—for instance, if you want to automatically restart the crashed application via an AppleScript, you need some way to remove the dialog box. Or perhaps you simply find it annoying when the system reminds you that your three-hour video project has just vanished into thin air. In either case, here's how to banish the dialog box:

Open Terminal and type `defaults write com.apple.CrashReporter DialogType none`, and then press return. From now on, when applications unexpectedly quit, you won't receive any notice at all.

If, on the other hand, you're a good Mac citizen who uses the Submit Report button to send crash reports to Apple, you might prefer to run this command with `crashreport` at the end instead of `none`. When an application unexpectedly quits, you'll be taken directly to the crash submission form.

Finally, if you'd like to bring the standard crash dialog box back, use the previously mentioned command with `prompt` as the last word.



Crash Boom Bam You've probably seen this crash dialog box. Using Terminal, you can prevent it from appearing or opt to go directly to the bug-submission form after crashes.

Music Store? Shift-click on the blue arrows at either end of the New Releases, Exclusives, and other home page areas. System Preferences? Shift-click on any icon. Mail? If you use threaded views, shift-click on the blue "expand thread" arrow. The login window? Just shift-click on any user name.

Control the Finder's File-Name Sort Order

Before OS X, the tricks for controlling the Finder's file-name sort order were pretty simple. For instance, if you added a tilde (~) to the beginning of a file name, that file would move to the bottom of list-view Finder windows. Adding a space or an underscore would move the file to the top of a list.

In OS X, the rules have changed. The characters that moved files to the bottom of a list in OS 9 now move files to the top of a list. What can you do if you want a certain file or group of files to appear at the bottom of a list-view window? If you're using OS X 10.3, you could use the Labels feature to assign a color label to each file, and then sort by label. But there's another way to go: you can use one of three Greek letters— μ (*mu*; option-M), π (*pi*; option-P), or Ω (*omega*; option-Z)—or apple (the Apple-logo character; shift-option-K) to force that file to the end of the list.

Contributing Editor ROB GRIFFITHS is the author of the forthcoming *Mac OS X Power Hound, Panther Edition* (O'Reilly, 2004), and he runs the Mac OS X Hints Web site (www.macintoshhints.com).

Mac 911

Are you perplexed by duplicate events on your Palm and Mac? Desirous of a Print button in Safari? Seeking an empty iDVD theme? Then this month's *Mac 911* is for you. We'll also look at ways to capture iMovie stills, play full-screen movies in QuickTime Player, and create a volume that's equally at home on the Mac and on a Windows PC.

Cleaner Palms

I've been syncing a Palm T3 with my PowerBook for a couple of months, and I now have duplicate entries on my Palm and the computer. How do I wipe the entire calendar clean on the Palm and then write just from the computer to the Palm?

From the Macworld.com forums

You have two options for wiping the Palm clean. One option is to disable syncing in iSync for all the devices from which you don't want data erased—an iPod and a mobile phone, for example—and then choose Reset All Devices from iSync's Devices menu. In the resulting dialog box, you can choose to replace the data on the remaining devices with the information on your Mac. Select Reset All, and your next HotSync will vaporize the contact and calendar data on the Palm and replace it with the information you've chosen to copy from Apple's Address Book and iCal.

The other option is to remove your Palm device from iSync and then add it back using HotSync Manager. When you do so, you'll see that the iSync window associated with the Palm lets you opt to erase data on the Palm during the first sync.

To accomplish this, select the Palm in iSync and choose Remove Device from the Devices menu. Launch HotSync Manager (inside the Palm folder

within your Applications folder). Choose Conduit Settings from the HotSync menu, select iSync Conduit in the resulting Conduit Settings window, click on the Conduit Settings button, enable the Enable iSync For This Palm Device option, and click on OK. The Palm will reappear in iSync. Click on it, and you'll see that a new For First Sync pop-up menu appears. Choose Erase Data On Device Then Sync from this pop-up menu. Initiate a HotSync, and the contact and calendar information you've chosen to copy from Address Book and iCal will overwrite the data on the Palm.

One more bit of advice: If your Palm device doesn't work properly with Palm Desktop, take a look at Mark/Space's \$40 The Missing Sync for Palm OS (www.markspace.com). When Palm drops support for synchronizing your Palm in OS X (as it plans to do with future versions of Palm Desktop), The Missing Sync will be the way to coordinate your Palm and your Mac.

Pushing Print

How do I create a Print button in Safari's Address Bar?

Noel Espinosa

A simple JavaScript will do the job. Just type `javascript:window.print()` in the Address field and drag the globe next to the field into the Bookmarks Bar. Enter a name for the script (Print, for instance) and click on OK. When you click on the new button, the Print sheet will appear. You can use the same method to open a new browser window—type `javascript:window.open()`.

Theme Scheme

In iMovie 4 and iDVD 4, how can you export a short iMovie to DVD without using built-in themes, chapter markers, and menus?

Dick Faris

You'll need to make some adjustments to an iDVD theme and export your movie from iMovie without using the latter's iDVD tab.

To make a completely themeless theme, create a white graphic file with a 4:3 aspect ratio—I do this by using `⌘-shift-4` to take a screenshot of a portion of a



TIP OF THE MONTH

Full-Screen QuickTime

The free version of QuickTime Player will not play full-screen movies—unless you know this trick. Launch AppleScript's Script Editor (Applications: AppleScript) and enter the following script:

```
tell application "QuickTime Player"
    activate
    present
end tell
```

Then save the script as an application. Open a movie file in QuickTime Player and run the script by double-clicking on it. Your movie will fill the screen.

Nathaniel Black



Miraculous iTunes

AirPort Express—Apple's portable wireless base station, which can also stream music between an AirPort-enabled Mac and your home stereo—is darned close to a miracle. But its miraculous musical nature so overwhelms some people that they fail to explore the cooler capabilities provided by iTunes.

For example, you can stream music stored on an iPod attached to your Mac by flipping that iPod into Manual mode (via the iPod Preferences window), selecting a song or playlist on the iPod, and clicking on iTunes' Play button. You can also create an EQ setting in iTunes so that when music streams to your stereo, music with that EQ will play on its remote speakers—a real boon if you have speakers that need a little nudge on the low or high end. Finally, if you have a music recorder of some kind attached to your stereo—a Minidisc or cassette deck, for example—you can use it to record music streamed from the Internet radio stations included with iTunes.

Variable Volume

Is it possible to format a partition on an external FireWire hard drive so that both a Mac and a Windows PC can open files on that drive?

Sam Gerstenzang

If you mean “carve up the hard drive so that one partition is formatted as a Windows NTFS volume and another is formatted as a Mac OS Extended volume,” I haven't come across a scheme that works. You can, however, take advantage of OS X's tolerance of Windows' FAT32 format to create a hard drive that's compatible with both Mac OS and Windows.

To format such a hard drive, plug it into your Mac and launch Disk Utility (Applications: Utilities). Click on the FireWire drive's name (the entry that lists the drive's manufacturer rather than the name you've given the drive) in the first pane of the Disk Utility window, and then click on the Erase tab. Choose MS-DOS File System from the Volume Format pop-up menu and click on the Erase button. This formats the drive as a FAT32 volume that will mount on both the Mac and a Windows PC.

This technique has a couple of gotchas you should be aware of. The first is that the Mac won't recognize more than 128GB of storage on the drive if it's formatted this way, so don't bother purchasing a humongous drive. Second, Windows won't let you use certain characters when naming files. They include the question mark (?), square brackets ([and]), slashes (/ and \), equal sign (=), plus sign (+), angle brackets (< and >), colon (:), semicolon (;), quotation mark ("), and comma (,). Windows NT Server also demands that you not end a file or volume name with a period or a space.

Alternatively, you can force the PC to recognize a Mac OS Extended volume by installing Mediafour's \$50 MacDrive 5 (www.mediafour.com) on the PC. This utility allows Windows PCs to mount drives formatted for the Macintosh. □

blank text document. Launch iDVD, click on the Customize button, and choose the Green Linen One theme. Click on the Settings button and drag your white graphics file into the Background field. Click on each text box in the theme and press the delete key. In the Text portion of the Customize drawer, select No Title from the Position pop-up menu. You now have a blank theme. Click on the Save As Favorite button at the bottom of the drawer to save your theme.

In iMovie, open the movie you want to export and then select Share from the File menu. Click on the QuickTime tab, choose Full Quality DV from the Compress Movie For pop-up menu, click on the Share button, and name and save your movie in the resulting Save dialog box.

You can now drag the movie file you exported into iDVD's main window to add it to the project. If the point of your project is to create a looping kiosk presentation that the viewer can't skip over, click on iDVD's Map button, drag your movie into the box farthest to the left in the DVD Map window, and choose Loop Movie from the Advanced menu (see “Going Loopy”). This first box is generally reserved for the FBI warning material that automatically plays on commercial DVDs—a graphic or bit of video that a DVD player's fast-forward or skip controls can't influence. When you loop your movie, it will play over and over again.

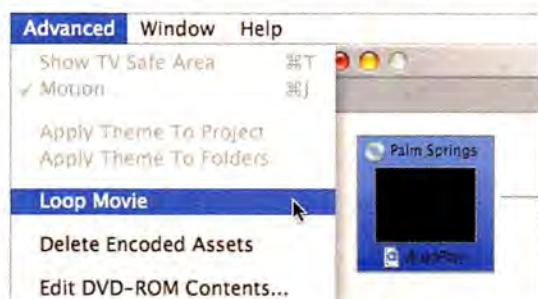
Photo Finish

Can I import the still images I make in iMovie as photos to iPhoto or Adobe Photoshop?

Yves Nadon

Absolutely, but the resulting pictures will be slightly pixelated. If you have the option of using an original still from a digital camera, do so. If not—say, if the only picture you have of your dear departed armadillo is from a movie—follow this procedure:

Move iMovie's playhead to the frame you want to export, and choose Save Frame As from the File menu. In the resulting sheet, name your picture, save it as a JPEG file, and click on Save. You can save it as a PICT file rather than a JPEG, but frames exported as JPEGs are less pixelated than their PICT counterparts.



Going Loopy Configure iDVD with a looped movie in the Map window's first slot for a never-ending kiosk presentation.

Contributing Editor CHRISTOPHER BREEN is the author of *Secrets of the iPod*, fifth edition (Peachpit Press, 2004).

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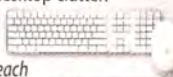


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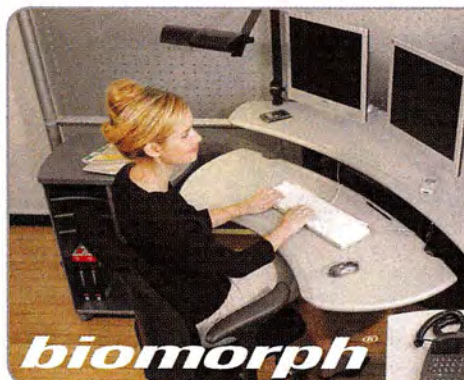
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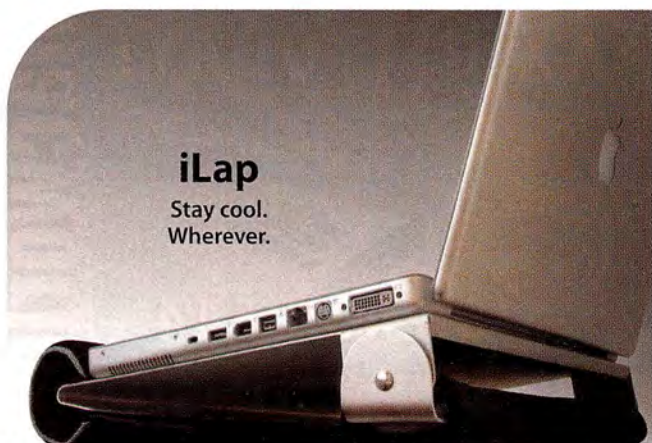


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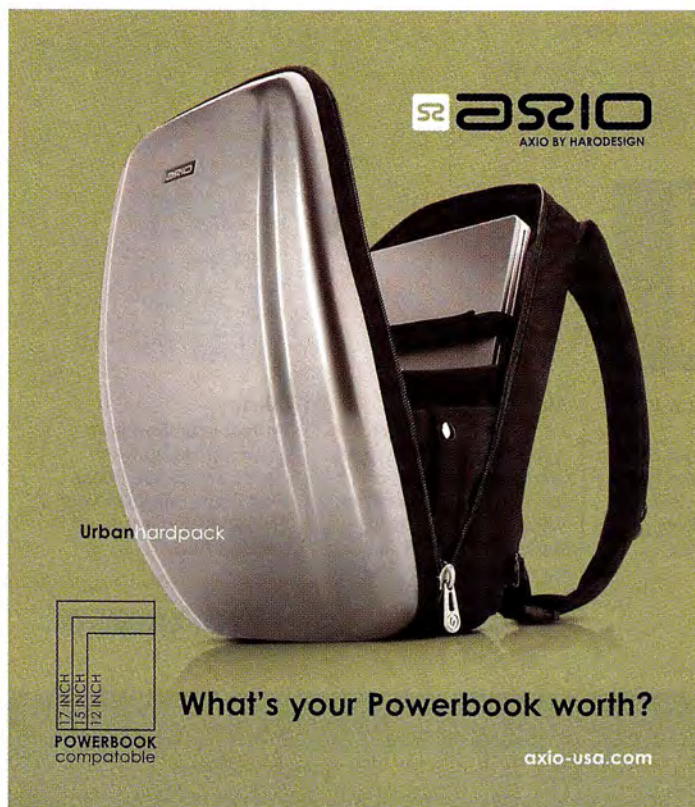


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Hot Stuff

The Month's
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Developments

FROM THE EDITORS OF MACWORLD



TECH FOCUS: ATI'S VERSAVISION

Mac users were left out in the cold when Portrait Display Labs decided not to update its monitor-pivoting software for OS X. Now, thanks to ATI's Versavision-enabled cards with hardware-accelerated display rotation and scaling, Mac graphic designers and others can once again view life vertically. Both the \$399 Radeon 9800 Pro Mac Special Edition (8x AGP Pro with 256MB of DDR RAM; ADC and DVI ports; G5 only) and the \$129 Radeon 9200 Mac Edition (PCI with 128MB of DDR RAM; VGA, DVI, and S-Video ports; G3, G4, and G5 support) include this technology. But Versavision isn't available on the ATI cards that ship with Macs (www.ati.com).

Kid Pix Deluxe 3 for Mac OS X

For years, kids have been enjoying Kid Pix painting, drawing, and animation software on the Mac. Now, after two years of work by Software MacKiev, OS X users can join the party. But the \$40 Kid Pix Deluxe 3 for Mac OS X adds much more than OS X compatibility. It works with iMovie, iPhoto, and iTunes, and it lets you easily send finished artwork to friends using Apple's Mail. The OS X version also greatly increases the work-canvas size, and it offers more than 7,000 enhanced graphics, larger buttons, and millions

(instead of thousands) of colors to work with. It's the next best thing to pencil and paper—some may say it's better (www.mackiev.com).

pPod

The next time you find yourself wandering the streets of London after a few pints too many, avoid the improper urge toward public urination and consult your trusty iPod instead. The free pPod uses the iPod's Notes feature to help you find public rest rooms in London's Tube and other rail stations—including hours of operation, cost (if any), and (in some cases) audio reviews by both male and female patrons. pPod even comes with MP3 files of appropriate tunes, such as Handel's "Water Music." No self-respecting iPod-wielding tourist—or native—should be without it (www.nykris.com).



TACTIC VIDEO CONTROLLER

VJs—people using multiple video sources for live performances—looking for a way to stand out from the crowd might want to check out Livid's Tactic. This \$2,999 handcrafted wooden device, which the company dubs a "real-time video mixing instrument," is paired with custom OS X software (it works only on the Mac) that lets you mix and edit digital-video files on-the-fly. The kidney-shaped hardware has an LCD screen, 16 assignable sliders and knobs, and USB and MIDI connectivity, and it's designed to rest on a keyboard stand. The proprietary software provides access to more than 4,000 QuickTime clips and 100 effects parameters, controls audio files, and takes advantage of OpenGL for compositing and 3-D effects (www.lividinstruments.com).

WHAT'S HOT A Quick Look at the World of Macs

- 1 Apple unveils the iMac G5, which features components nestled behind the display, in a thin case. The creators of the Etch A Sketch responded by immediately filing a copyright-infringement suit.
- 2 Apple marketing promotes the new iMac as "from the creators of the iPod." Meanwhile, the iPod now is touted as "from the people who had nothing to do with the Newton, no sirree."
- 3 The iTunes Affiliate program offers 5 percent commissions to Web sites providing direct links to Apple's online music store. But Web sites linking to songs from any American Idol finalist will be fined \$10.
- 4 Microsoft unveils an online music store available through its MSN service. In keeping with a long-standing Microsoft tradition, the only songs available at the store will be cover versions of other people's music.

REVOLUTION 5.1

One enduring Mac gamer's lament: Macs don't support 3-D positional audio, as most PCs do. Those days are over, thanks to M-Audio's Revolution 5.1, a PCI card that supports OpenAL, an open standard for 3-D audio that's seeing increasing support in Mac games. In fact, the \$100 card is bundled with a Mac game—a version of Aspyr Media's Wakeboarding Unleashed Featuring Shaun Murray that has been "remixed" for maximum surround-sound potential. The card's minijack outputs connect to just about any 5.1 computer-speaker systems out there, and the coaxial digital output can hook up to your home entertainment system—with much less stress on the CPU than the G5's digital output (www.m-audio.com).



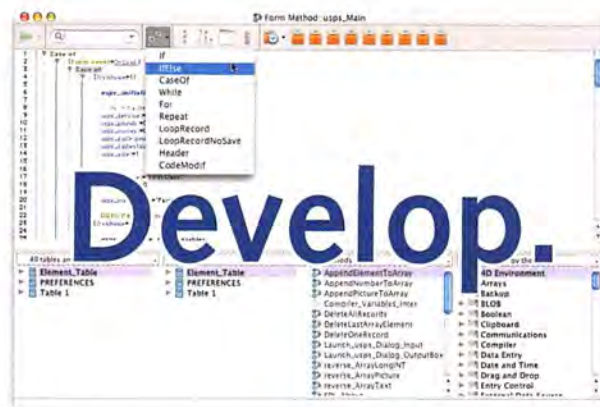


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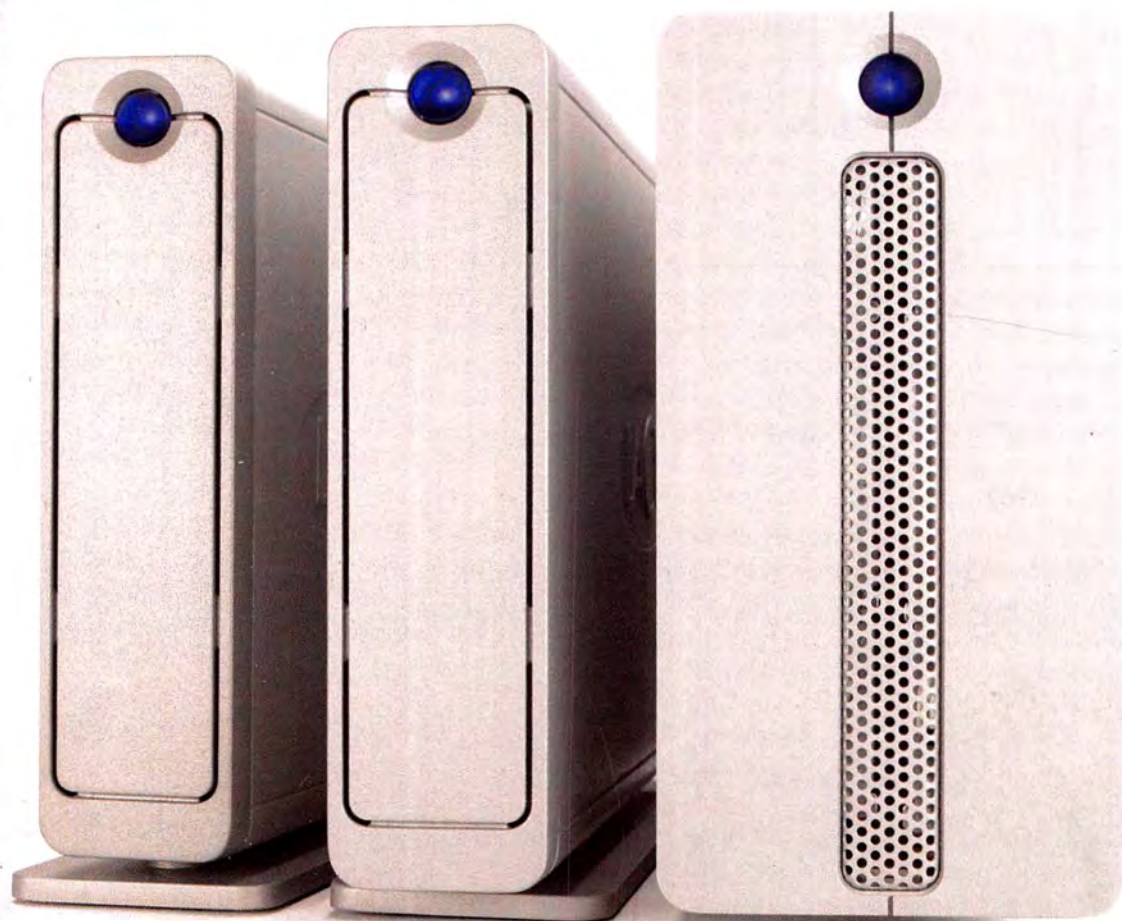


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