DIGITAL HUB EXPLOSION

20GB iPod and Smart Cell Phones Join the Mac Family

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SCREEN GEM

Apple Introduces a 17-Inch Wide-Screen iMac

Mac OS X 10.2

.Mac Internet Services

iTunes 3 and iCal

The Best of Macworld Expo

iMac

Plus | Office Power Tips | DVD Studio Pro | OS X–Windows Compatibility | Color Laser Printers

eMAC

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apple.com/xserve

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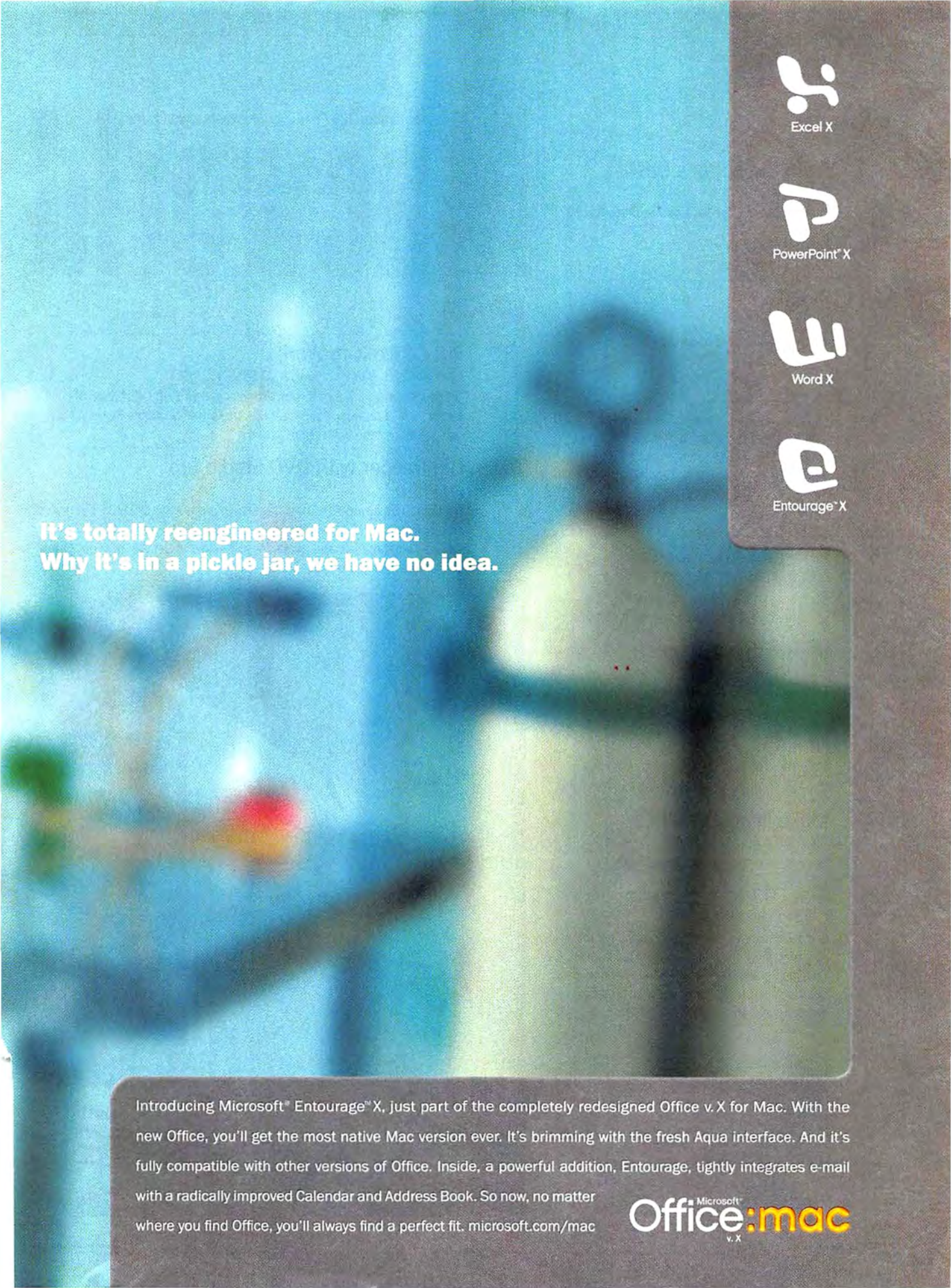
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Macworld

Incorporating MacUser

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BY RICK LEPAGE

Are For-Pay Internet Services a Good Idea for Apple?

Assessing .Mac

MANY OF US WHO LIVE IN THE MAC UNIVERSE SEE OUR year bisected by two weeks of Sturm und Drang, better known as Macworld Expo New York and Macworld Expo San Francisco. A frothy, and sometimes nasty, mix of rumor, informed speculation, and wishful thinking—doled out in roughly equal measures—marks the weeks that lead up to each event. Then Apple makes its pronouncements, at which point the preshow hype dissolves, and most of the Mac community goes about its business until the next show. This time around, Apple threw everyone a curveball.

As I write this column, Steve Jobs's Macworld Expo New York keynote is just a few hours old. As you'll notice in this month's *Mac Beat*, he didn't show off the usual bounty of hardware and peripherals, but there were plenty of announcements, including the new 17-inch flat-panel iMac, OS X 10.2 (which we covered in detail last month), a 20GB iPod, new and updated "i-apps," and dramatic changes to iTools.

It's this last item—iTools being replaced in September by a $100-per-year service called .Mac—that had people frothing online *after* the show. After all, Apple had pitched iTools' free e-mail accounts, Web hosting, and online storage as additional benefits for Mac owners.

But now Apple is taking it all away, and the grumbling has begun. Forget that the company is adding more storage space (and features such as password-protected partitions) to your iDisk, backup and virus software, and more. Apple is enraging people by forcing them to pay for something they used to get for free (though I truly believe that Apple's blanket upgrade charge of $129 won't help accelrate Mac OS X development).

While I'm sure it will engender lots of hate mail, I have to say I'm on Apple's side here—albeit with a few reservations (and suggestions).

Who Said the Internet Was Free?

If the past five years of boom and bust have taught us anything, it's that the Internet isn't really free. Many of the sites we go to regularly are labors of love, but their operators often struggle to make enough money to offset hosting charges or get some small compensation for the time they take to fill their pages.

And Apple is no different—it can't run a business while giving everything away for free. Well over a year ago, the company made a decision: to gain new customers and to get owners of older Macs to upgrade, it needed to offer a suite of free apps that would distinguish the Mac platform from the others. And the company has succeeded; there's no way Microsoft can claim that a Windows XP machine offers all the out-of-the-box functionality a new iMac does. And that's *without* using the .Mac service—your digital-hub apps will continue to work just fine without it, thank you very much.

Developers definitely aren't happy with this strategy, but I haven't heard a lot of users complain about iMovie, iPhoto, iTunes, or the rest of the digital-hub suite—and those who do complain go out and buy good, extra-functionality apps such as iView MediaPro, Adobe Photoshop Elements, Audion, and others.

Getting People Into .Mac

I said that I understand—and agree with—the .Mac plan, but my biggest concern is that Apple won't get enough people to try the service and experience its utility. The $50 upgrade for existing iTools users will help, but that opportunity expires on September 30, and I fear that the lingering anger over having Web pages deleted and mail accounts automatically shuttered will beget only more bad will (and few membership sign-ups after the deadline). You can get a free, 60-day trial to many of .Mac's services, but it would be nicer if Apple gave OS X 10.2 purchasers some period of free .Mac access.

> I'm on Apple's side—albeit with reservations.

I'd also like to see Apple keep some free services in its portfolio—Web-based e-mail, for example—so that Mac customers still have some options. Yahoo and Microsoft's MSN.com keep this as part of their offerings, and it would be good for Apple to do the same.

We've watched Apple struggle during the past decade to fight the Microsoft Windows juggernaut, and iTools was a good idea that helped—for a time. Is .Mac the answer? It's worth a try, but only time will tell if it adds to Apple's bottom line or becomes just another Web service that thought it could. □

Is .Mac for you, or would you just as soon use your ISP's service? Let me know what you think—good or bad—about .Mac, *Macworld*, or anything else Mac-related. Drop me an e-mail, at rick_lepage@macworld.com, or join in the discussion forums at www.macworld.com. I'd love to hear from you.

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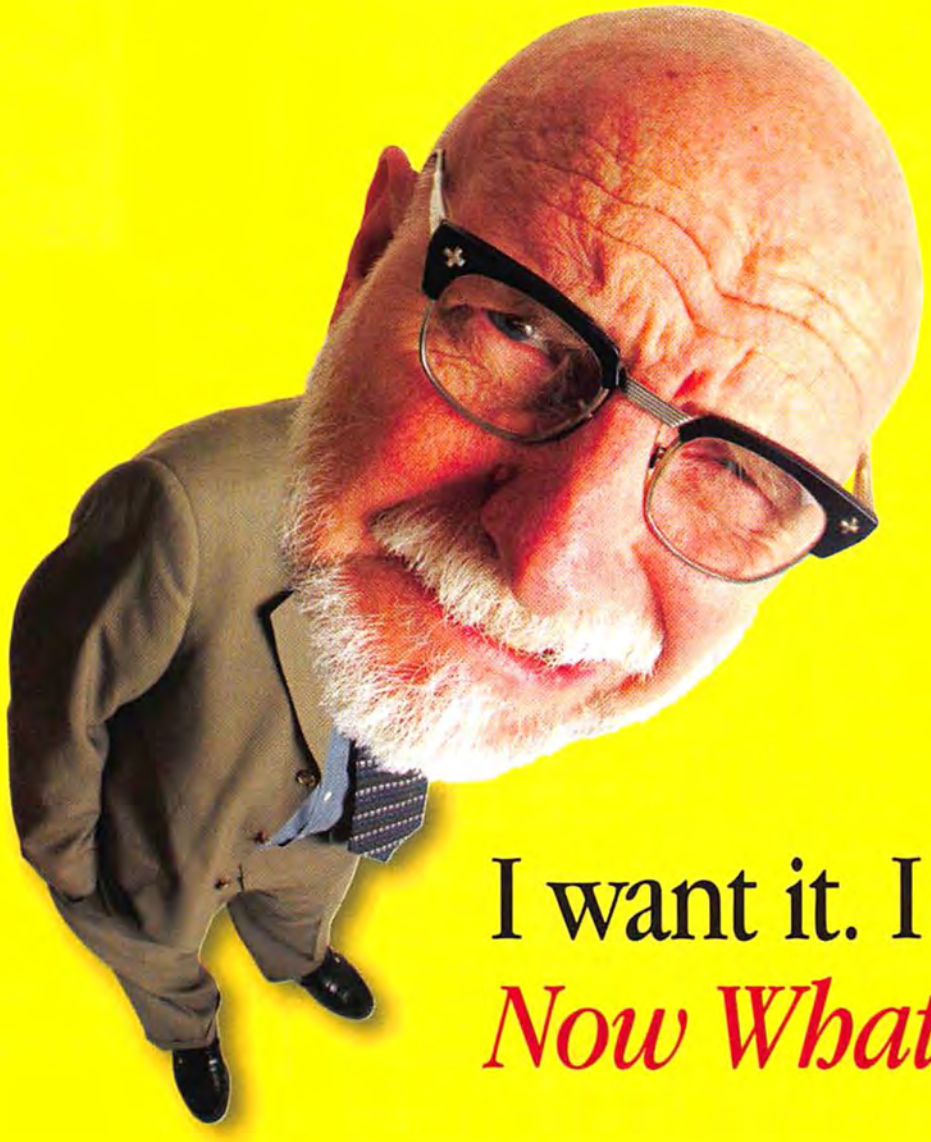

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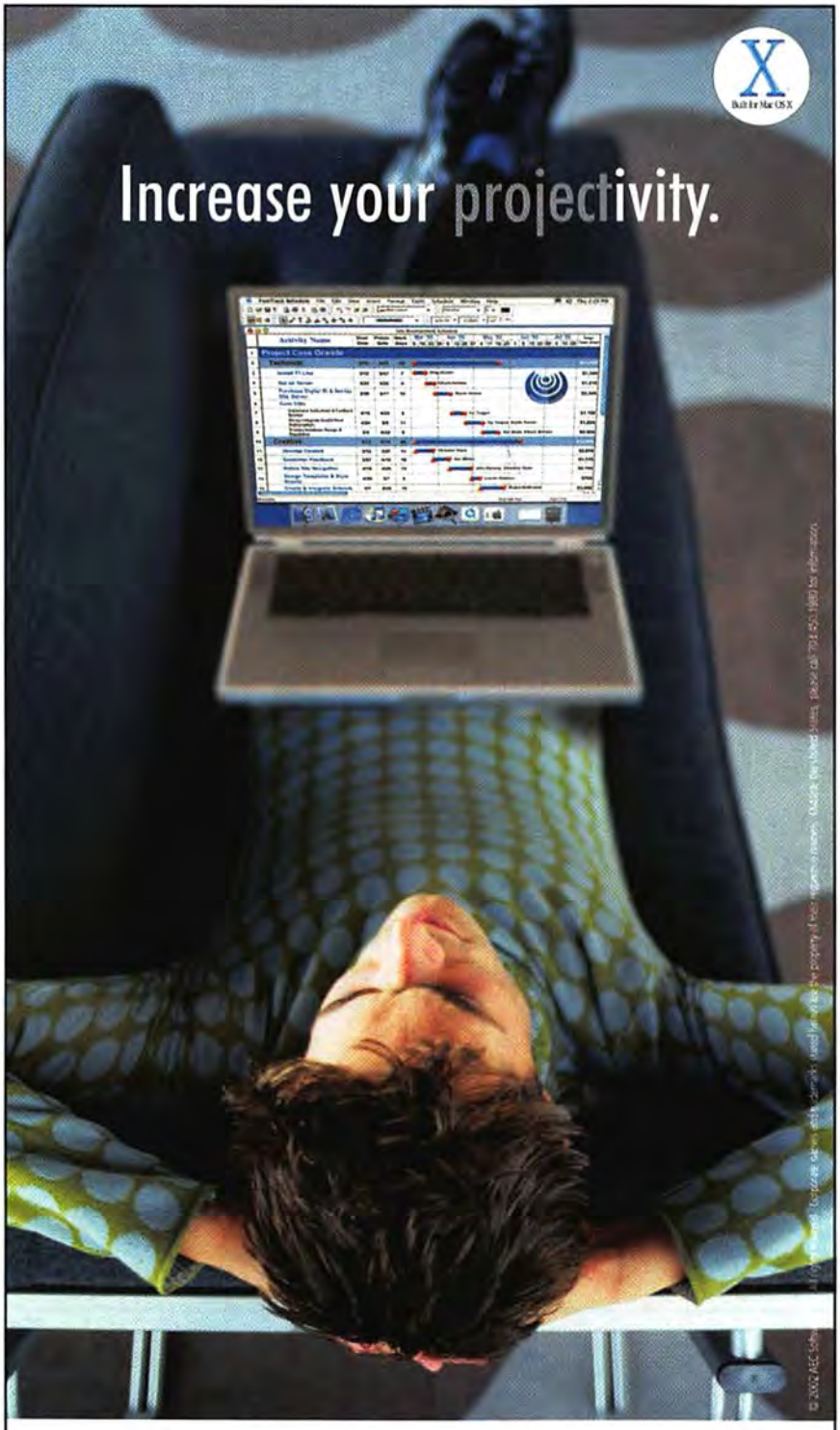

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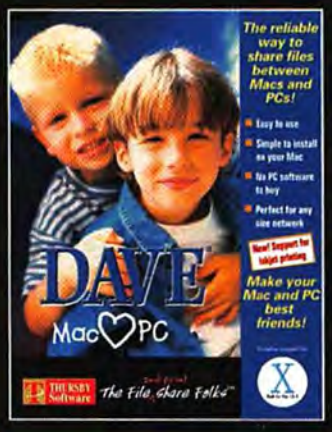

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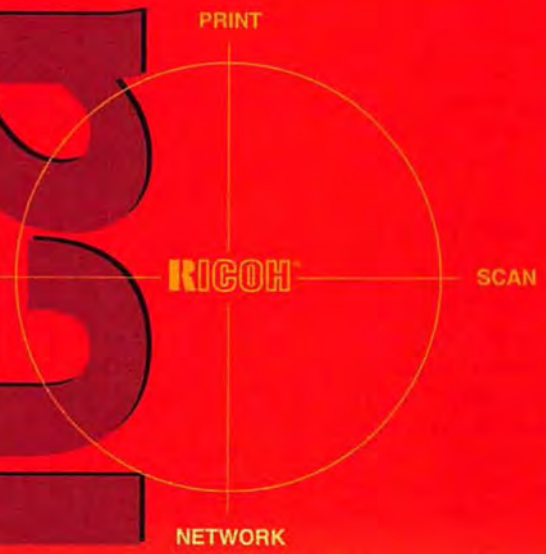

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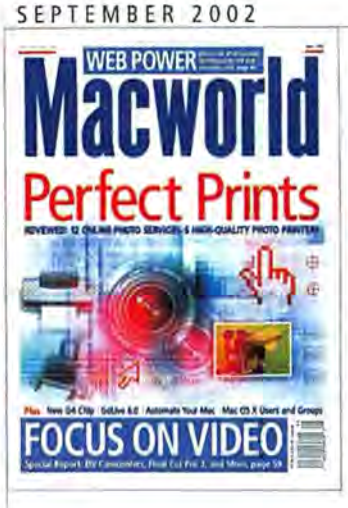

FEEDBACK

A Costly Lesson

There was a lesson on every page of our June 2002 issue—everything from the best online photo service to how to build your own Mac-powered Lego monster. So what did we learn? We learned that when it comes to opinions about software, no one comes close to matching the insight of Mac users. We learned that it's probably not a good idea to dismiss OS X critics as "geezers"—not unless you want a lot of mail, anyway. And if we ever try to have another cruel laugh at the expense of the Canadian dollar, we'll get the conversion rate right. We've learned our lesson the hard way. □

Picture Perfect?

BARNEY GREINKE

I enjoyed "Turn Pixels into Prints" (June 2002). One glaring omission for expert users, however, was a mention of the color-management issues involved in digital prints. Many online photo services do not recognize embedded profiles in images; their equipment simply ignores the profiles. Most of these services use Fuji machines, which are fairly close to sRGB in color space, to produce prints. Anyone wishing to use one of these services to make prints should keep the images in the sRGB space. Uploading images with other profiles will likely result in odd color shifts, which are particularly noticeable in skin tones.

MARSTON GOULD

You left out one online print vendor: NikonNet. Last fall, I tested NikonNet against Ofoto and Shutterfly and found that NikonNet had truer, better-quality prints. Perhaps of almost equal value, NikonNet is packed full of wonderful suggestions on getting the most from your digital camera.

GoLive Going-Over

ANDREW KATOR

I agree with your GoLive 6.0 review (June 2002), but with a caveat: GoLive 6.0 is great for creating new sites from scratch but not for working with sites created in GoLive 5.0. Version 6.0 can't effectively import sites created in GoLive 5.0, especially those with Dynamic Link. In speaking to Adobe, I was told not to import an entire GoLive 5.0 site, and instead to import the root site folder. If I do that, I lose all of the features that make GoLive good for professional site management, such as components, stationeries, designs, and libraries. The only way I could get the site into GoLive 6.0 was to redo the entire site, creating all-new pages using the same graphics that were in the old site. Then, all Dynamic Link (now Content) had to be re-created. For a completed Web site that took 500 hours to create, upgrading to GoLive 6.0 and importing the site took an additional 120 hours.

Here's a way to more easily import a site from GoLive 5.0, without having to re-create the site: Open the site and select Dynamic Content in the Site Settings dialog box. Typically, it shows ASP/JScript as the only scripting language; this is a bug. Enter ASP/VBScript as a scripting language in that area and delete ASP/JScript. The site gets rewritten, and the pages will work.—Glenn Fleishman

Burnt Up over Toast

BOB CRUMMETT

One might think Toast with Jam is a great update to Jam (*Reviews*, June 2002), but the truth is, there is no upgrade path for previous Jam users. Roxio has left them out in the cold. Jam was previously sold as a stand-alone product, but the current upgrade path is only from Toast Titanium. If I have to buy a full retail package, I'll be sure to reevaluate, and I'll probably lean toward the other products available for commercial audio production.

Roxio is offering a discount program for registered Jam users. Call 866/280-7694 for details.—Ed.

RAID Assayed

MICHAEL CRITZ

While I found Kristina De Nike's review of ATA/133 PCI RAID cards enlightening (June 2002), she should have mentioned that software RAIDs created by Mac OS X's Disk Utility are not compatible with Mac OS 9. The OS 9 software RAIDs created by SoftRAID and Hard Disk Speed Tools are also not compatible with OS X. (Though the article doesn't specifically mention it, OS 9's Drive Setup cannot format software RAIDs.) Surely many users still occasionally switch between OS X and OS 9. If users need their software RAIDs to work in both OSs, they can purchase ATTO's $99 ExpressStripe, which provides OS X–native RAID support and benchmarking that's compatible with OS 9.

A Difficult Path

BENSON LEE

I tried following David Blatner's directions in "Master Photoshop's Vectors" (*Secrets*, May 2002) by copying and pasting a logo from Illustrator 10 to Photoshop 6. Photoshop isn't giving me the option to paste the artwork as a path. It creates another layer and pastes the copied vectors as a bitmap image in one step.

In Illustrator 10, you have to open Preferences and turn on the option to copy AICB data to the clipboard. Otherwise, Photoshop can see only the pixels, not the paths.—David Blatner

Geezers Fire Back

TIM SEMPLE

A letter from 17-year-old Chris Laughlin called those of us who are critical of OS X "old geezers who don't like the new technology" (*Feedback*, June 2002). I have issues of *Macworld* older than he is, not to mention Macs. I've used the latest and fastest Macs since 1984. I've also used Macs in my business since 1991, but when Apple introduces an OS that brings my productivity to a >>

The missing piece of the Mac OS X puzzle

Introducing Drive 10 version 1.1.
Optimizes and defragments your Mac OS X drives and much more.

For Apple's next-generation operating system, you'll need a next-generation disk utility. That's why Micromat has introduced Drive 10, the first and final disk utility for Mac OS X. Problems with your drive? Drive 10 can repair almost any drive problem with one simple click of your mouse. All within Mac OS X's native environment.

And with the introduction of version 1.1, you can now optimize and defragment your Mac OS X drive from within Mac OS X. Plus, we've added a whole host of new repair routines that allows you to find and correct drives problems that other utilities would simply abandon.

Drive 10 is a world-class diagnostic and repair utility. Using time-tested routines developed exclusively for Mac OS X, Drive 10 offers many tools for checking and repairing any drive on your system. The included Drive 10 CD-ROM will boot your machine to repair hard drives that won't even appear on the desktop.

Don't entrust your Mac OS X drive to ancient and outdated utilities. Protect your data and drive safely with Drive 10.

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standstill, I think I'm acting responsibly when I criticize it. I love new technology. But I depend on technology that works easily all the time. If I were 17 and my only need for a computer were to watch movies, play games, and have a desktop that was pretty eye candy, the Mac would be great. But the old geezers who have been loyal Mac users for more than 20 years deserve technology that works.

NELL ALEXANDER

Perhaps as Chris Laughlin "ripens," he will become less bigoted toward old geezers. However, I do agree with his very positive opinion of OS X. But then, what would a 74-year-old geezer know?

Megahertz Matters

NOAH LIVINGSTON

I found "Apollo on the Rise" (*Mac Beat*, June 2002) interesting. David Read writes that we can expect "the gap between the PowerPC and its rivals to at least close this year." How the heck does he figure this, when earlier he states that "Apollo could reach a clock speed of 1.3GHz"? The Pentium 4 will be at 3GHz by the end of the year. I think that unless Apple introduces at least a 2GHz Mac by year's end, it will have serious trouble. Or maybe not—if it can create a computer that performs as well as a high-end PC, you won't hear me complaining, even if it has a clock speed of 600MHz.

A Not-So-Cheap Joke

CARL BLESCH

In "What's Hot" (*Mac Beat*, June 2002), you note that the iMac's price increase of $100 can't be all that bad since "that's only, like, $48 Canadian." I sure hope you didn't use that expensive iMac to do your currency conversion. On my last trip across the border, I had to fork over more like $150 Canadian to buy $100 U.S. Enough to drive you loonie, eh?

Several readers pointed out that jokes about currency disparities are much funnier when you use the correct conversion rate.—Ed.

Post comments on our forums (www.macworld.com); send them by mail, to Letters, *Macworld*, 501 Second Street, San Francisco, CA 94107; or send them electronically, to letters@macworld.com.
Include a return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters and posts. All published letters and forum comments become the property of *Macworld*.

CORRECTIONS

"Change Comes from Within" (*Mac Beat*, July 2002) listed an incorrect price for the Apple DVI-to-ADC Adapter. It sells for $149.

In our review of FireWire hard drives ("Room to Grow," July 2002), the photo (on page 73) of the QPS Que M3 120GB FireWire Drive appears on the left, and the Acomdata 120GB External FireWire Hard Drive is on the right.

In our review of Retrospect Backup 5.0 (*Reviews*, July 2002), we stated, incorrectly, that Retrospect Express can restore documents only to the hard drive of the Mac running Express. In fact, Retrospect Express can restore backed-up files to any new hard drive or new computer (not only to the hard drive they came from). The actual limitation is that Express cannot restore files to a network-mounted volume.

WITH A 17-INCH DISPLAY, THE FLAT-PANEL iMAC GOES WIDE

iMac Hits the Big Screen

>> When the flat-panel iMac was introduced in January, its floating-flat-panel design made one fact abundantly clear: unlike the original iMac, encased in a rigid plastic shell that limited changes to its basic design, this new model would be much easier for Apple to upgrade and modify.

Going Wide

It took only half a year for the promise of that design to be fulfilled, in the form of a new, $1,999 iMac with a 17-inch screen (in place of the 15-inch, 1,024-by-768-pixel display at the end of the older iMac's stainless-steel neck). In response to the popularity of the wide-screen aspect ratio in the PowerBook G4 and Apple Cinema Display, and to the ever-increasing need for more screen real estate, this new iMac offers a striking flat-screen display with a 1,440-by-900-pixel resolution—which Apple says is the equivalent of a 19-inch CRT monitor. It's dramatically more screen space than the 15-inch model iMac offers, and it even improves on the gorgeous 1,280-by-854 screen of the latest Titanium PowerBook G4s. It has slightly fewer pixels than Apple's 17-inch Apple Studio Display, which costs $999. An upgraded graphics chip set drives this high-resolution display. While the 15-inch iMacs are powered by Nvidia's GeForce2 MX, this new iMac has the impressive force of Nvidia's GeForce4 MX and 32MB of DDR SDRAM behind it.

In terms of dimensions, this new iMac is slightly bigger and heavier than the 15-inch model: it's 1.6 inches wider, and at 22.8 pounds, it's a little more than half a pound heavier. Still, it comes in at half the weight of Apple's other consumer desktop offering, the eMac.

Power and Price

Inside the iMac's white dome base, the 17-inch model is largely the same as the top-of-the-line 15-inch model. That's not necessarily a bad thing—Apple says that 50 percent of its iMac sales have been of the most expensive model, the one with the DVD-writing SuperDrive. Like that model, this iMac has an 800MHz G4 processor, a standard allotment of 256MB of RAM, included Apple Pro Speakers, and the SuperDrive. But Apple has upgraded this iMac's storage capacity, equipping it with an 80GB hard drive. The top 15-inch model has a 60GB hard drive.

Meanwhile, that 15-inch iMac has returned to its introductory price: $1,799. After the iMac was introduced, Apple raised the price by $100, citing a sharp spike in the cost of flat-panel displays (the other two iMac configurations remain at their post-hike prices). Now that high-end iMac is back where it started, filling one of six slots (seven if you count the $799 G3 iMac, which was still on Apple's price lists at press time) in the rapidly expanding Macintosh line of consumer-oriented desktop computers (see "The Consumer Mac Family").

Shopping Decisions

So which iMac model is right for you? If you're someone who uses applications with lots of floating palettes, you may find that the once mighty 1,024-by-768 resolution feels a bit cramped under

PHOTO COURTESY OF APPLE

WHAT'S NEXT

If it's September, this must be Apple Expo Paris. The trade show runs September 10–14.

Apple's Quiet Updates

The flat-panel iMac might have been the flashiest product to come out of July's Macworld Conference & Expo, and Apple CEO Steve Jobs may have focused the bulk of his keynote speech on OS X's upcoming Jaguar update and the new iCal and iSync applications. But those weren't the only product announcements to come out of the event. With little fanfare and no public announcement, Apple has added a new configuration to its eMac desktop line for consumers and updated its iDVD application.

The eMac (see *Reviews*, elsewhere in this issue) is now available with a CD-RW/DVD-R Combo drive, as well as with a CD-RW drive. All other specifications for this eMac remain the same—a 700MHz G4 processor, 128MB of memory, and a 40GB hard drive—no matter which optical drive you choose. The Combo-drive eMac sells for $1,199, $100 more than the CD-RW configuration.

This isn't the first time Apple has introduced a low-key change to its eMac offerings. Originally introduced last spring as a desktop option solely for Apple's education customers (see "Head of the Class," *Mac Beat*, July 2002), the company quietly announced in June that it would offer an eMac configuration for consumers. The eMacs for the education market are also available with either a CD-RW drive ($1,049 for individual educators and students) or a Combo drive ($1,149).

And Apple has rolled out an update to its free DVD-creation program, iDVD. Version 2.1 adds DVD-ROM data support, enhancements to the burning process, and AppleScript support, which allows you to automate the creation of DVDs by linking iDVD to other scriptable programs. A companion collection of Apple-authored scripts (downloadable from www.apple.com/applescript/idvd) includes iDVD Companion, which brings additional features to the program. Included are scripts for generating iDVD projects from folders full of media files, transferring iPhoto images to iDVD slide shows, and adding audio from iTunes playlists.—PHILIP MICHAELS

OS X. A wider, larger screen can feel quite freeing—but it will also set you back $2,000. Still, the high-end iMac offers a set of features that we'd once considered solely part of Apple's professional Power Mac line—including FireWire, the SuperDrive, a speedy G4 processor, powerful video processors, and an all-digital display. If you don't need to add PCI cards and aren't one to spend a lot of time upgrading and expanding your Mac, the iMac makes a remarkable workstation for graphics, publishing, and video tasks—not to mention everyday computing.

The 15-inch models are, of course, more reasonably priced. But the eMac, which is slightly faster than the low-end G4 iMac and costs $300 less, makes the iMac story more about style than about substance. After all, if you can buy an eMac with a DVD-playing, CD-writing Combo drive for $1,199, the best reason to buy a comparable iMac for $400 more is because the light, airy, flat-panel-based iMac is indisputably more attractive and flexible than the 50-pound slab that is the eMac.

Gamers, however, will find the new high-end iMac and its GeForce4 graphics chip quite appealing. The only downside? The iMac's lack of PCI slots means that when a new latest-and-greatest video chip set appears, upgrades will be out of the question. But until then, the new 17-inch iMac will be to gamers what it will be to many Mac fans: indisputably impressive.—JASON SNELL

The Consumer Mac Family

MODEL	DISPLAY	STORAGE	OPTICAL DRIVE	GRAPHICS CHIP	PRICE
iMac G4/800	17-inch LCD	80GB	SuperDrive	GeForce4 MX	$1,999
iMac G4/800	15-inch LCD	60GB	SuperDrive	GeForce2 MX	$1,799
iMac G4/700	15-inch LCD	40GB	Combo	GeForce2 MX	$1,599
iMac G4/700	15-inch LCD	40GB	CD-RW	GeForce2 MX	$1,399
eMac G4/700	17-inch CRT	40GB	Combo	GeForce2 MX	$1,199
eMac G4/700	17-inch CRT	40GB	CD-RW	GeForce2 MX	$1,099
iMac G3/600	15-inch CRT	40GB	CD-R	Rage 128	$799

ONLINE SERVICE GOES FROM FREE TO FEE

iTools Is Out, .Mac Is In

When Apple unveiled its iTools Internet services more than two years ago, the company promoted its free offerings as an opportunity for Mac users to take full advantage of the Internet. Indeed, millions of Mac users have done just that; Apple says that the number of iTools subscribers doubled—to 2.4 million—in the past year.

But even as the number of iTools subscribers climbed, Apple's Internet services were undergoing changes. Its KidSafe Internet-filtering software was discontinued, as was iReviews, a Web-site–review service that was launched concurrently with iTools and offered some privileges to iTools subscribers.

Now iTools itself is disappearing, to be replaced at the end of September with Apple's new .Mac service—and this time, if you want any part of what Apple has to offer, you're going to have to pay.

Mac users who want a mac.com e-mail account or who want to post iPhoto pictures on an Apple-hosted Web page will be charged $100, the price of an annual subscription to .Mac services. Existing iTools subscribers who sign up for .Mac before September 30 will pay $50 for the first year of service (.Mac subscribers will be able to add 10 additional mac.com addresses for $10 each per year).

Apple points out that other companies that once offered free services such as e-mail accounts and online storage have been forced to start charging subscribers—or have gone out of business altogether.

Apple insists that .Mac subscribers will get plenty for their membership fee. The revised online service includes several familiar iTools features, such as mac.com e-mail (which includes 15MB of IMAP/POP mail storage), 100MB of iDisk Internet storage now built into the OS X Finder and accessible even from Windows and Linux computers, and the HomePage Web-site–creation tool. Additions in .Mac include McAfee's Virex antivirus software and Backup, an Apple-created tool that lets users archive data to iDisk, CDs, or DVDs.

But Apple expects that the capabilities of its .Mac services will increase once OS X 10.2 ships. The company's soon-to-be-released iCal program will allow .Mac subscribers to publish and update calendars to the Web, so family members and colleagues can keep track of events. Another service, .Mac slides, lets OS X 10.2 users turn sets of photos into dynamic screen savers others can access.

Whether that's enough to convince Mac users to pay $100 per year for some services they used to enjoy for free remains to be seen.—PHILIP MICHAELS

iPOD AVAILABLE IN 20GB SIZE, WINDOWS VERSION |

Apple's Triple Play

When the original iPod debuted last fall, Mac users marveled at its then staggering 5GB of storage capacity. But less than a year later, Apple has quadrupled the iPod's maximum capacity, introducing a 20GB model of the popular MP3 player.

The company is now offering three versions of the physically slender iPod: the 5GB model (now priced $100 less, at $299); an updated, streamlined 10GB version ($399); and a 20GB monster ($499).

Although only the 5GB iPod's price has changed, the two larger-capacity models have been updated. The 10GB version is slightly thinner than the 5GB iPod, and the 20GB model is slightly larger and heavier than the original. Both have a no-moving-parts, touch-sensitive scroll wheel and a door that protects the iPod's FireWire port. Both the 10GB and 20GB versions also come with new, smaller headphones, a clip-on remote for controlling volume and tracks, and a protective case with belt clip. (The new carrying case and headphone-remote combo are also available separately—each costs $39.) The updated iPod models should be shipping by the time you read this.

Apple has also updated the iPod's software with several new features, many borrowed from the newly updated iTunes. The iPod can now organize songs by genre or composer, as well as by title, artist, album, or playlist. It can also keep track of how many times you play a song, and it can take advantage of iTunes' new Smart Playlists and Sound Check features (see "Keep Rockin'").

The iPod's new Extras menu provides access to contacts, calendars synced from Apple's new iCal app (see "Apple Makes a Digital Hubbub"), a clock, and the iPod's previously hidden Breakout game. You can also now play audio books and radio broadcasts purchased from Audible.com—the iPod will even remember where you are in an Audible.com program when you sync it to or from iTunes.

And if you've lorded your iPod over your Windows-using friends, it may be time to clam up. Apple is making Windows editions of the MP3 player. They'll cost the same as their Mac siblings and come in the same capacities, and they'll be compatible with PCs running Windows ME, 2000, and XP.—JONATHAN SEFF

Apple's Musical Trio

MODEL	SIZE (in inches)	WEIGHT (in ounces)	FIREWIRE PORT COVER	PRICE
5GB iPOD	4.0 by 2.4 by 0.78	6.5	No	$299
10GB iPOD	4.0 by 2.4 by 0.72	6.5	Yes	$399
20GB iPOD	4.0 by 2.4 by 0.84	7.2	Yes	$499

MACWORLD CONFERENCE & EXPO:

BEST OF SHOW

At each Macworld Conference & Expo trade show, the editors of *Macworld* magazine and MacCentral.com evaluate the many new hardware and software products that debut at the event, and they select the most exciting ones to receive Best of Show honors. Because these awards are based on noteworthiness and interest at the show, final versions of some winning products have not yet been released. Here are the winners from July's *Macworld* Conference & Expo in New York:

- ★ **@Last Software** (303/245-0086, www.sketch3d.com): SketchUp
- ★ **21st Century Media** (818/762-6264, www.21stcentury.com): cast:stream
- ★ **Blizzard Entertainment** (800/953-7669, www.blizzard.com): WarCraft III: Reign of Chaos
- ★ **Detto Technologies** (425/746-0110, www.detto.com): Move2Mac
- ★ **Discreet** (800/869-3504, www.discreet.com): Cleaner 6
- ★ **El Gato Software** (408/317-1740, www.elgato.com): EyeTV Digital Video Recorder
- ★ **Epson** (800/873-7766, www.epson.com): Stylus Color 960 printer
- ★ **GameRanger** (www.gameranger.com): GameRanger 3.0
- ★ **GeeThree** (650/328-8092, www.geethree.com): Slick Volumes 3 and 4
- ★ **M-Audio** (800/969-6434, www.midiman.net): Sonica
- ★ **NEC-Mitsubishi** (888/632-6487, www.necmitsubishi.com): MultiSync FP2141SB and Diamond Pro DP2070SB monitors
- ★ **Sonnet Technologies** (949/587-3500, www.sonnettech.com): Crescendo/WS G4/500 and Encore/ST G4/800 and G4/1GHz upgrade cards

MAC OS X GETS REAL |

OS X–Native Multimedia Player Finally Arrives

Any OS X user who's spent a good deal of time surfing the Web has run into a downside of using Apple's latest and greatest OS: streaming audio and video links that require RealNetworks' RealPlayer (800/444-8011, www.real.com). Since Apple shipped OS X last year, the multimedia player has run only in the new OS's Classic mode. Happily, the days of clicking on video links only to realize that you need to start Classic are over. The OS X–only RealOne Player has at last arrived.

"The Velocity Engine and the quality of the Mac's hardware architecture allowed us to deliver the smoothest AV playback on any platform," RealNetworks CEO Rob Glaser told *Macworld*. As for his company's delay in coming to OS X, Glaser said that late last year he made the decision to set his Mac engineers on developing a native version. And egged on by Steve Jobs, who guaranteed a spot in the Macworld Expo keynote address if RealOne Player for OS X was finished in time for the July trade show, RealNetworks has delivered.

But while RealOne Player is now in beta for the Mac, RealNetworks' RealOne SuperPass subscription service won't be Mac-compatible until later this summer, when Mac users will finally be able to check out programming from CNN, Fox Sports, Major League Baseball, and more.—JASON SNELL

INSIDE iTUNES 3 |

Keep Rockin'

It's difficult not to call iTunes 2 a success—Apple says that in the music-playing software's 18 months of existence, it has distributed 14 million copies. With the release of iTunes 3, it's time to restart the count.

Running only on OS X, this minor update adds several new features that improve the customizability of your personal music library. You can now rate individual tracks in your collection on a scale from zero to five, and the program tracks the number of times you listen to each song. That information is more than just trivia: it becomes quite useful when you're using another iTunes 3 feature—Smart Playlists.

With Smart Playlists, you can set up playlists that contain rules, rather than songs. The rules work a lot like those in an e-mail program: Smart Playlists will automatically fill up with tracks that match the rules you set (for example, only rock songs from the 1980s). And as with the Make Playlist feature in iTunes' predecessor, SoundJam MP, you can even create a playlist that contains a random collection of songs of any running time or file size. Smart Playlists even carry over to your iPod when you synchronize it with your Mac.

Another new feature, Sound Check, analyzes your sound files and adjusts volume accordingly, saving you the trouble of having to constantly fiddle with your volume controls when a quiet song fades out and a noisy one fades in.

And people who aren't as interested in music can now listen to many books, magazines, and radio programs through iTunes. You can download content from Audible.com—which publishes audio books, radio programs, and other spoken-word material—to iTunes and play it on your Mac or iPod.—JONATHAN SEFF

iSYNC, iCAL EXPAND MAC CONNECTIVITY |

Apple Makes a Digital Hubbub

Apple's digital-hub strategy centers on connecting Macs to various portable digital devices—something Apple calls "Mac to mobile." The catch is synchronizing the data on your Mac with PDAs, cell phones, and other digital gadgets.

To that end, Apple is introducing two new apps—iCal and iSync—that it contends will tackle the challenge of controlling data across multiple devices. These calendaring and synchronization applications, which require Mac OS X 10.2, will be available as free downloads in September.

Synchronicity

Apple has high hopes for iSync, the first utility to appear in the "i-apps" product line. iSync is an all-purpose synchronization tool that syncs Macs with mobile devices. Through Apple's .Mac services, subscribers will also be able to synchronize data between different Macs.

iSync works with Palms and the iPod—allowing iCal calendars and Address Book contact lists to flow freely between your Mac and those devices. But perhaps the most intriguing addition to the digital-hub product family is a new breed of cellular phone.

The latest generation of cellular phones offer wireless networking via Bluetooth (see "Bluetooth Breaks Through," August 2002), built-in calendars and contact managers, and the ability to synchronize data with other devices. iSync can work with such phones to wirelessly synchronize your Mac's calendar and contact information with your phone.

Connected With iSync, you can synchronize contact and calendar data between a Mac and a Bluetooth-enabled phone, such as this Sony Ericsson model.

Mark Your Calendars

Apple's iCal displays multiple calendars in a single window and puts an Aqua spin on the standard calendar interface: color-coded rectangles track different appointments and tasks on a daily, weekly, or monthly basis.

iCal features built-in Internet sharing, allowing users to share calendars over the Web. A Publish Calendar panel lets you publish a calendar on a Web server or via Apple's new .Mac services; coworkers, family members, and friends can then subscribe to that calendar—viewing (but not editing) it through their own copies of iCal.

Other iCal features include built-in to-do–list management, event notification via e-mail or via text messaging to a mobile phone or pager, the ability to send standards-based e-mail invitations to events, and a search tool for finding events, tasks, or names entered into iCal.—PHILIP MICHAELS

MAC OS X 10.2 UPDATE DUE AUGUST 24 |

Jaguar Unleashed: Mac OS X 10.2 Arrives

You've already heard about the features of OS X's new version (see "Mac OS X Evolves," August 2002). But now the update has a formal name, a price, a release date—and a cute package.

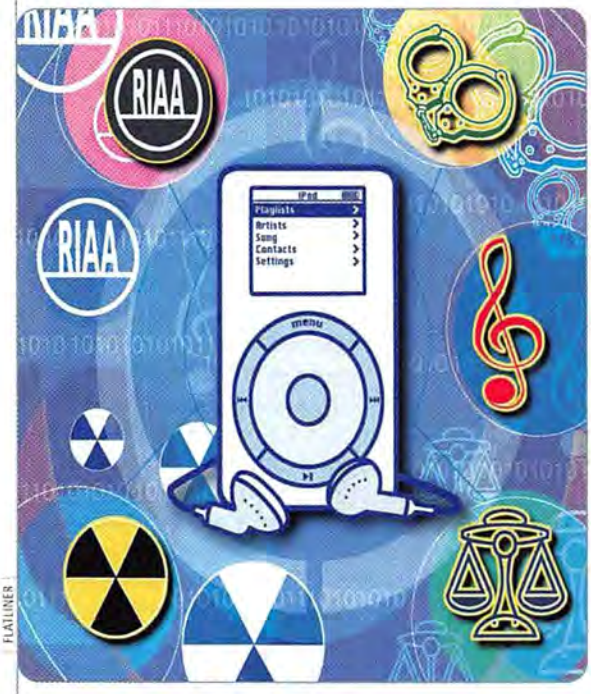
Due August 24, Mac OS X 10.2 will offer an enhanced Finder, the new iChat application, and updated versions of Mail and Sherlock. It will also feature several new technologies, including Inkwell handwriting recognition, Rendezvous ad hoc networking, and Quartz Extreme accelerated graphics.

And Apple has apparently become enamored with version 10.2's Jaguar code-name, which has been integrated into the final product's logo. The shipping version's box is labeled "Version 10.2 Jaguar," and it features the familiar *X* logo covered in a furry, spotted wildcat pattern instead of the usual blue.

Apple has also cleared up a mystery surrounding the OS X update—what this version will cost. While version 10.1 was available for only $20 (shipping and handling), version 10.2 will cost $129. Apple says that users who purchased a Mac running OS X 10.1 between mid-July and version 10.2's ship date will be able to upgrade to the new version for the $20 shipping-and-handling cost.—JASON SNELL

DIGITAL COPYING TECHNOLOGY COMES UNDER FIRE—HOW IT COULD AFFECT YOU

iPod, Therefore iSteal?



FLATLINER

Next time you're standing in front of a mirror, take a long look at the face you see. Maybe even turn your head to the side and imagine a block of mug-shot numbers hanging around your neck—because that's how some in the entertainment industry see you: guilty of what the hit summer movie *Minority Report* might call a *precrime*. You own all the tools necessary to commit an act of thievery, and whether you know it or not, you're going to steal music. The media companies are out to stop you.

iMac, PowerBook, iPod, SuperDrive, CD-RW drive, cable modem, DSL—name your favorite piece of Apple's digital hub, and chances are, you've come face-to-face with the entertainment industry's greatest fear: perfect digital copies of its copyrighted material. "Digital technology," says the Recording Industry Association of America's (RIAA) Cary Sherman, "opens up all sorts of opportunities for new delivery options. But it also opens up the threat of uncontrolled piracy." The fact is, it's become very easy to make and disseminate perfect copies of digital media, and companies such as Sony and Disney are afraid that instead of buying their entertainment, you're simply going to steal it.

Apple Accused

Who's responsible for your newly acquired taste for a life of crime? According to the entertainment industry, it's Apple. Testifying before the U.S. Senate Commerce Committee in February 2002, Disney CEO Michael Eisner said Apple's "Rip, Mix, Burn" ads suggested "that [you] can create a theft if you buy this computer." Nonsense, says Apple, pointing to the "don't steal music" message wrapped around just about every piece of its hardware that can make digital copies. "If you legally acquire music, you need to have the right to manage it on all other devices that you own," Steve Jobs told the *Wall Street Journal*—a position that seems obvious to anyone with an MP3 player, but one that the entertainment industry plans on fighting tooth and nail.

To stem the tide of stolen music, record labels have begun copy-protecting CDs so that they can't be played, much less copied, on your Mac (see "Copy Protection: The Day The Music Died?"). And they promise that more copy-protected discs are on the way. Tim O'Reilly, president of O'Reilly Publishing, thinks copy protection is a huge mistake that will result in even fewer music sales. "The software industry faces exactly the same conditions the entertainment industry fears will destroy its markets," he says. "What's more, copy protection was widely explored by software companies in the 1980s, and what they learned was that consumers avoided copy-protected products."

All's Fair

Two legal points lie at the heart of this debate. The first is the Digital Millennium Copyright Act (DMCA)—enacted in 1998 to prohibit decrypting copy-protected materials. The second is the Fair Use Doctrine—which is the portion of the Copyright Act that allows you to make legitimate copies of copyrighted materials for

Copy Protection: The Day the Music Died?

As methods for digitally producing—and reproducing—music proliferate, some in the music industry are trying to prevent computer users from passing around music files. Some Mac users have run afoul of Key2Audio, which prevents would-be listeners from playing a CD on a personal computer. Sony Audio uses the technology, currently being tested in Europe, to add extra data to music discs, rendering them incomprehensible to a typical computer's CD-ROM drive. For some Mac-using music-lovers, the frustration of not being able to play *J to tha L-O!* was compounded by discovering that the disc—which a Mac can't read—can also prohibit a Mac from rebooting properly. (Apple's Knowledge Base offers a quick fix: if the Mac lacks a manual eject button on the CD drive, users can try of a number of alternate methods of prying loose the unreadable disc, including rebooting the Mac while holding down the mouse key, and resorting to the paper-clip-in-the-manual-eject-hole trick.) At press time, Sony planned to release a newer version of its copy-protection technology in the United States—this one permitting discs to be read, but not copied, on computers. While that may soothe some Mac users, the inability to copy the music they own is unlikely to have them whistling a happy tune.—LISA SCHMEISER

your personal, noncommercial use (see "Rip. Mix. Burn. Steal?" *Mac Beat*, October 2001). Historically, the Fair Use Doctrine has allowed consumers to "time-shift" content—for example, recording a TV show on a VCR so they can watch it later. While it hasn't yet been tested in the courts, "space-shifting"—moving content you own to your preferred listening platform, such as downloading songs from a CD you've bought into iTunes and transferring them to an iPod—is expected to be allowed as well.

And therein lies the rub. The language of the DMCA is open-ended and impacts everything from hardware, such as ReplayTV and TiVo video recorders, to streaming Internet radio stations. The way the current DMCA law is written, if you circumvent copy protection on a CD you own, it's a crime—even if you're just moving it to your iPod. It doesn't matter that you have no criminal intent or that the act of circumvention is as easy as rubbing a magic marker around the edge of a CD.

What's Ahead

So how can you keep the DMCA out of your computer? The answer might seem unbelievably obvious: Don't steal music. Stealing simply bolsters the argument that allowing digital media to be copied leads to illegal distribution. Also, write, call, or e-mail your representatives in Congress, asking them to support any legislation that would limit the scope of the DMCA, and to uphold space-shifting as a legitimate aspect of the Fair Use Doctrine. Finally, let the entertainment companies know that if they limit your ability to legally use their products in any way you choose, you'll find other ways to spend your money.

Otherwise, the only tune your iPod will be playing may be a swan song.—JEFFERY BATTERSBY

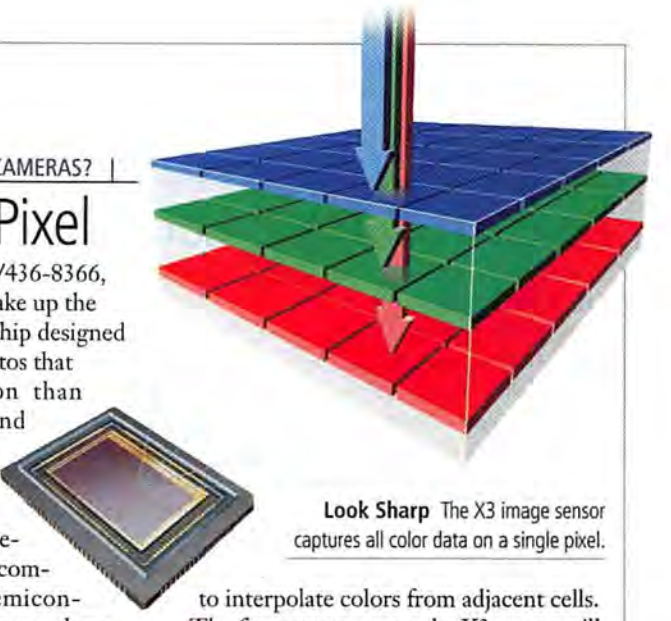
More Info:

www.macworld.com/2002/09/macbeat/copy.html
Macworld.com offers troubleshooting tips for freeing unreadable discs from your Mac, as well as the latest news on copy-protection technology.

SHARPER IMAGES FOR DIGITAL CAMERAS?

Power to the Pixel

Hardware maker Foveon (877/436-8366, www.foveon.com) hopes to shake up the digital-camera market with a chip designed to produce sharper digital photos that have better color rendition than today's cameras provide—and offered at a similar price.



Look Sharp The X3 image sensor captures all color data on a single pixel.

Most digital cameras capture images to sensors based on either CCD (charge-coupled device) or CMOS (complementary metal oxide semiconductor) chips. Over the years, these technologies have proven themselves in terms of cost effectiveness and performance.

Current CCD and CMOS image sensors capture only one color—red, green, or blue—per pixel, using a mosaic of adjacent pixels to blend the data and build the composite RGB image your camera captures. Foveon claims this mechanism produces color artifacts and images that lack sharpness. With Foveon's X3 image sensor, based on CMOS technology, every pixel reads red, green, and blue color data on its own, building a composite image without having to interpolate colors from adjacent cells.

The first camera to use the X3 sensor will be the SD9, from Sigma (631/585-1144, www.sigmaphoto.com). This 3.5-megapixel digital camera will compete with the Canon EOS D60 and Nikon D100 (see "In Focus," *Mac Beat*, June 2002) for the attention—and dollars—of the advanced amateur photographers known as prosumers. The SD9 is tentatively scheduled to ship in August, at an estimated street price of $2,300.

As for the X3 image sensor, Foveon expects the chip to make its way into other cameras, and even video cameras, by year's end.—RICK LEPAGE

SOFTWARE TRACKS MISSING MACS

Dude, Where's My Mac?

The same quality that attracts consumers to Mac laptops—all that power in a compact and portable package—also appeals to computer thieves. Rather than resigning yourself to never seeing your pilfered laptop again, you can take a bite out of crime in a number of ways. At least one report making the rounds on the Internet tells of a Mac user employing Netopia's (800/485-5741, www.netopia.com) Timbuktu remote-control software and a carefully placed AppleScript to erase sensitive data on the hard drive and later trace the physical location of a stolen iMac. For Mac owners looking for a less labor-intensive way to find a lifted laptop, there's PC PhoneHome from Brigadoon Software (845/624-0909, www.brigadoonsoftware.com).

TAVIS COBURN

The $30 program, which cannot be easily detected or uninstalled, transmits a "stealth" e-mail to a predetermined address whenever it senses that your Mac is plugged into a different IP address. (A free version of the utility is also available, but unlike the $30 pro version, it won't withstand reformatting.) Don't be fooled by its seemingly PC-centric name—PC PhoneHome works on Macs running OS 8.6 and later, including OS X. As portable as Mac laptops may be, with PC PhoneHome, they're never out of reach.—LISA SCHMEISER

A YEAR AFTER BIG iBOOK PURCHASE, HENRICO COUNTY LOOKS AHEAD

Laptop Learning Curve

When the Henrico County, Virginia, school district placed an $18.6 million order for 23,000 iBooks in May 2001, the size and scope of the purchase garnered headlines. Over the course of the 2001–2002 school year, Henrico County's computer purchase continued to make news—and not all of it welcome.

After discovering that students had accessed the Internet for personal use during school hours, the school district set up guidelines, in October 2001, that prohibited activities such as sending e-mail and instant messages from the iBook and file sharing without teacher approval. The following February, Henrico made news again as the district recalled the laptops for maintenance, scrubbing the computers of file-sharing programs and other software deemed disruptive to the educational experience.

"We definitely have had to navigate in a goldfish bowl," Henrico County school district supervisor Mark Edwards says. But despite all the external scrutiny, Edwards believes the past school year has been a good one.

"We are more enthusiastic than ever about implementing one-on-one technology with the students," Edwards says. "This will be the future of public education."

The future, Edwards contends, depends on the migration from standard classroom materials to digital texts that can be either supplemented with multimedia or updated to include current events.

"A lot of school systems have been plagued with a culture of preparing students for a world that no longer exists. We're preparing students for a world of information. This will give students a tremendous advantage," Edwards says.

It also gives them an opportunity to confront some of the challenges of that new world of information. In addition to discovering exactly what kind of file sharing works in a classroom environment, Edwards notes, the school district has also wrestled with the question of how to define computer-assisted collaboration versus plagiarism. "It's really a balancing act," he adds.

Edwards stresses that 99 percent of the students with iBooks during the 2001–2002 school year "have demonstrated appropriate care and use of the computers." And the few who made headlines for inappropriate computer use weren't even the toughest of Henrico's iBook challenges.

"Our biggest challenge and toughest hurdle has been the reliability of our network," Edwards says. Apple has offered technical assistance all year to address that problem.

Henrico plans to roll out iBooks on schedule, with middle-school students and staff receiving theirs this fall.—LISA SCHMEISER

iBook Smart High school students and teachers in Henrico County, Virginia, began using iBooks in class last year. The program will expand to middle schools this fall.

DIGITAL-VIDEO RECORDER COMES TO THE MAC

When Macs Meet TiVo

Sure, you can use your Mac to edit digital videos and assign every song in your CD collection to various playlists. But Apple's vision of the Mac as a centerpiece of the digital lifestyle will never be fulfilled until you're able to record *Friends* reruns on your computer and watch them whenever you want. Stepping up to fill this need is El Gato Software (408/317-1740, www.elgato.com), maker of the EyeTV digital-video recorder. Think of the $199 EyeTV as the Mac equivalent of TiVo and ReplayTV personal video recorders—or rather the equivalent of Windows-only products from SnapStream Media and InterVideo. Connected to your Mac (via USB) and your cable receiver, the EyeTV box encodes an incoming cable signal in the MPEG-1 format, for live viewing on your computer in a resizable window. EyeTV's OS X–only software lets you pause live TV, record television programs onto your hard drive, and record one program while you're watching another. The interface resembles a TV remote control—with buttons for slow motion, instant replay, and jumping ahead by 30 seconds (coincidentally, the same length as many commercials), so the latest misadventures of Chandler and Joey need never be more than a mouse click away.—PHILIP MICHAELS

MACS AT WORK

New Paper, New OS

Back in April 2002, the *New York Sun* became one of the first major daily newspapers to debut in the new century. And the first issue to roll off the presses bore another distinction: it was produced on this century's first major new OS, Mac OS X.

The *Sun*'s editors produce the newspaper exclusively in OS X, using Microsoft Office v. X, Adobe Illustrator, Fetch Softworks Fetch, and Extensis Suitcase. In fact, after upgrading recently to Adobe Photoshop 7.0, they use only one non–OS X app—QuarkXPress.

"It was weird at first, with the multiple desktops and Home," says Anthony Smith, *Sun* design director. "But then I got accustomed, discovered its elegance and simplicity, and now I couldn't go back."

The *Sun* chose OS X for its stability, says the paper's technology consultant, Michael Elias of Treespan. "It offered us superior Unix-based administrative tools," Elias says. "Darwin helped us cater to a more sophisticated, advanced user. We liked that the applications were truly threaded, eliminating system lockups familiar to previous versions of the Mac OS."

Naturally, OS X hasn't been a completely trouble-free experience for the newspaper. "We recently had a connectivity issue where user connections would just terminate at will for no apparent reason," Elias adds. "The flexibility of the Unix shell allowed us to monitor packet traffic and notice zone updates weren't occurring, letting us troubleshoot the issue and arrive at a quick resolution."—MATHEW HONAN

PRO FILE | Q&A WITH HAROLD GREY

TYPESETTERS

Adobe's announcement this spring that it would be converting its Type Library fonts into the OpenType format didn't produce banner headlines. But for designers, the move to a simple, single-file, cross-platform format is revolutionary. OpenType, which contains all outline, metric, and bitmap data, promises to bring ease of use and a unified font format to layout and design. *Macworld* talked to Harold Grey, Adobe's group product manager for type, about the reasons behind the move.—ANDREW SHALAT

AT A GLANCE

HAROLD GREY
Group Product Manager for Type, Adobe
MAC: 800MHz Power Mac G4
SOFTWARE: Microsoft Office, Qualcomm Eudora Pro

You're converting the Adobe library to OpenType, but will PostScript and TrueType versions remain available?

We will continue to make PostScript Type versions of the fonts available via our Web site, but at some time in the future we'll probably stop selling the Type 1 versions. We'll continue to support the Type 1 versions in our applications and our technologies, but we want to migrate customers to the OpenType format.

Why?

Type 1 served us really well for 15 years and was the foot soldier in the desktop-publishing revolution. But it was a little limiting, because the format was somewhat static. It didn't take into account the need to extend the capabilities of the font format. Because of the extensible nature of OpenType, we can add additional tables to the font files [as needed]. That wasn't possible with Type 1 fonts. For example, with embedding permissions, we have permission within the font. With Type 1 fonts, that concept wasn't even fully realized.

What does "embedding permissions" mean?

Font foundries can set a level of embedding that they want to allow for their fonts—no embedding; allow preview and print embedding; editable embedding, which embeds the font in the file and lets the end user who receives the file modify the content and structure of the document; or installable embedding.

Do most applications support OpenType fonts?

Applications like QuarkXPress using ATM Light can read OpenType fonts. But the one thing they won't have access to is the additional glyphs in the OpenType Professional fonts; the application will need to add OpenType support. You do see this support in InDesign 2, where there is a pop-out menu under the Character palette. The Character palette has an OpenType menu where you can turn on these features with glyph variants.

More Info:

www.macworld.com/2002/09/macbeat/grey.html
Harold Grey outlines what OpenType will mean for designers in *Macworld*'s online interview.

FOR WEB SERVICE, IMAGE EDITING IS EVERYTHING |

Photo Finishers

For the amateur shutterbug with neither the time nor the inclination to master a powerful image-editing application such as Adobe Photoshop, the complex edits required to turn a simple photo into a memorable gift can be daunting. But just as your friendly neighborhood film developer saves you the trouble of building your own private darkroom, Image-Edit & Art (www.image-edit.com) provides photo restoration and editing services via the Web, for folks who'd rather not do it themselves. While applications such as Apple's iPhoto offer some editing features, Image Edit & Art boasts a full range of capabilities—everything from color correction to removing extraneous people. But it's the premium services that really give a complete picture of what Image-Edit & Art has to offer. The Web-based service can restore old photographs, digitally hand-color images, create caricatures based on your photos, or produce a Hollywood-style glamour shot (as pictured below). Prices range from $10 to $35 for basic procedures and $25 to $50 for premium services; faster delivery costs extra. That's not an insignificant chunk of change, but for people who'd rather not spend time tinkering with image-editing software, it could be money well spent.—PHILIP MICHAELS

PLUG-IN TAKES PHOTOSHOP EFFECTS BEYOND LAYERS |

The Power of the Pen

Adobe Photoshop filters traditionally affect a selected area or layer. But Wacom Technology (800/922-9348, www.wacom.com) and nik multimedia (619/725-3150, www.nikmultimedia.com) are teaming up to create a new approach to filters. The result is penPalette, a Photoshop plug-in that lets you use a pressure-sensitive pen to apply effects with varying intensity to any part of an image.

This plug-in resides not in the Filters menu, but in the Automate submenu of Photoshop's File menu. After choosing an effect from a palette, you can paint that effect using any of Photoshop's brushes, erase portions of it, cancel it, or apply it.

The $100 package—free to anyone who's bought Intuos2 and Cintiq products since February 1, and $50 for those who bought any Wacom product before then—includes effects for amplifying warm or cool tones, adding color, softening, increasing or decreasing noise, and altering contrast. Should you crave additional effects, you can buy a variety of nik multimedia's Photoshop filters. All are compatible with penPalette, which works with the OS X–native version (but not the OS 9 version) of Adobe Photoshop 7.0. The penPalette plug-in works with a mouse or a Wacom product, but not with any other pressure-sensitive tablet. Wacom wants to reserve this new approach for its own customers.—DAVID WEISS

ADOBE'S VIDEO-EDITING APP COMES TO MAC OS X

Premiere Event

Imagine watching a trailer for a film you can't wait to see, only to learn that the movie isn't due to hit theaters for another year. That's what Adobe Premiere fans have had to endure. More than a year before Adobe (800/833-6687, www.adobe.com) delivered a finished product, it was showing off its digital-video–editing program running in OS X.

With Premiere 6.5, the wait is over. The program now runs in OS X and continues to run in OS 9.1. But Premiere 6.5 also supports real-time previews of every effect, filter, and transition—similar to what Avid Xpress DV 3.5 offers and actually more complete than what Apple's Final Cut Pro 3 offers.

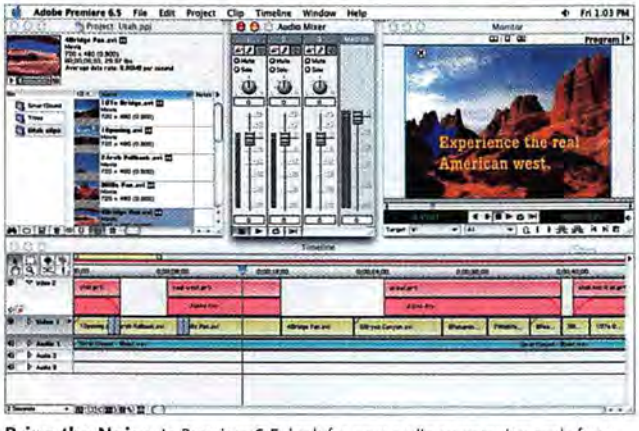
Even Mac users with G3-powered computers can take advantage of Premiere's real-time feature, although Adobe recommends using a G4 processor. If the real-time preview is too much for your CPU to handle, Premiere dynamically reduces frames and enters a draft mode to preserve real-time playback.

Also new in Premiere 6.5 is Adobe Title Designer, for creating broadcast-quality title sequences. It includes more than 300 templates for making still layouts, rolls, and crawls. Title Designer offers typographic control over kerning and outlines, as well as the ability to map textures onto text, control transparencies, and apply multicolor gradients.

Premiere has always had tight integration with other Adobe products, but this version works smoothly with Apple software, too. As with Final Cut Pro 3, you can export chapter and compression markers along with your Premiere 6.5 projects when saving out to MPEG-2 for use with Apple's DVD Studio Pro.

Premiere 6.5 comes with five new After Effects plug-ins—Blend, Channel Blur, Directional Blur, Ramp, and Lightning—pushing the number of included plug-ins to more than 30. Also included is SparkLE, from TC Works—a two-track audio editor with support for VST plug-ins and ASIO hardware.

Expected to ship in August, Premiere 6.5 costs $549; existing users can upgrade for $149.—JONATHAN SEFF



Bring the Noise In Premiere 6.5, look for new audio-sweetening tools from TC Works and an updated version of SmartSound Quicktracks.

PRODUCT WATCH

SEPTEMBER 2002

Corel's Name Game

"What's in a name?" isn't a rhetorical question at Corel (800/772-6735, www.corel.com). Last year, the Canadian software maker spun off new divisions called Procreate and Deep White. Now the changing monikers have hit the product level: the latest version of Corel's collection of graphics programs has gotten a name change, from Corel Graphics Suite to CorelDraw Graphics Suite.

The new name emphasizes the suite's drawing and page-layout program, CorelDraw. Not coincidentally, that's where most of the new features in CorelDraw Graphics Suite 11 are. Two new brushes, Smudge and Roughen, push and pull existing vector shapes. These brushes respond to pressure, tilt, and bearing. Three new drawing tools—Three-Point Ellipse, Rectangle, and Curve—quickly create and angle vector shapes. CorelDraw also features a new Polyline freehand-drawing tool, as well as a new Pen tool that, according to Corel, will give you greater control than simpler Bézier tools.

Both CorelDraw 11 and Corel RAVE 2 (another app in the suite) include symbols—objects you reuse in a document to reduce the size of PDF, SVG, and SWF files.

Corel Photo-Paint 11, an image editor, features a refined interface. It also adds tools for red-eye removal and cutout masking—the latter is based on the more sophisticated Procreate application, Knockout.

Unlike version 10 of the suite, which came out on Windows almost a year before it was available to Mac users, this version is shipping on both platforms at the same time.

CorelDraw Graphics Suite 11, which should be shipping by the time you read this, sells for $529. You can upgrade from the previous version for $249.—TERRI STONE

Hardware

Displays

A 15-inch flat-panel monitor from Hitachi America (800/441-4832, www.hitachidisplays.com): The **CML152** ($449 for ivory; $459 for black) features a full 15-inch viewing area and a native resolution of 1,024 by 768 pixels. It connects to any Mac with a VGA connector.

Two LCD monitors from NEC-Mitsubishi (888/632-6487, www.necmitsubishi.com): The **MultiSync LCD1920NX** ($1,299) is a 19-inch flat-panel display. The **MultiSync LCD1700NX** ($749) is a 17-inch flat-panel display. Both monitors have an effective resolution of 1,280 by 1,024 pixels.

Four LCD monitors from Sony (888/595-8246, www.sonystyle.com): Sony's X series of LCDs includes the 20-inch **SDM-X202** ($2,000), the 18-inch **SDM-X82** ($1,100), the 17-inch **SDM-X72** ($900), and the 15-inch **SDM-X52** ($550). All four include built-in stereo speakers, a DVI-D cable, and an internal power supply. The X82 and X52 should be available by the time you read this. The X72 and X202 are set to ship in August and September, respectively.

Input Devices

An optical trackball from Logitech (800/231-7717, www.logitech.com): The **Cordless Optical TrackMan** ($70) is a finger-operated trackball that combines optical and cordless technology. The AA battery–powered device features a scroll wheel, a drag-lock button, and thumb-operated forward and back buttons for faster Internet navigation.

Storage Devices

A FireWire-based CD-RW drive from EZQuest (714/694-0031, www.ezq.com): The **Boa 48×12×48× FireWire CD-RW** drive ($219) sports a 2MB buffer and buffer-underrun technology. It comes bundled with CharisMac's Discribe software.

System Hardware

A port replicator from Keyspan (510/222-0131, www.keyspan.com): The **Mini Port Replicator** ($79) combines a USB serial adapter, USB parallel print adapter, and two-port USB hub in a bus-powered device intended for laptop users.

Software

Audio Software

Deck 3.5, from Bias (800/775-2427, www.bias-inc.com): The multitrack digital-audio workstation adds OS X support, OMF file importing, and 5.1 channel surround mixing ($399; upgrades, free if you bought Deck 3.0 after October 1, 2001, and $149 if you bought Deck 3.0 before).

Reason 2.0, from Propellerhead Software ([46] 8 556 08 400, www.propellerheads.com): The updated virtual music studio adds OS X support. It also runs in OS 9. Other additions include a detachable sequencer, the NN-XT Advanced Sampler, and a polyphonic Granitable synthesizer ($399; upgrade, $89).

Graphics Software

Photoshop Elements 2.0, from Adobe (800/833-6687, www.adobe.com): The image-editing tool adds a wizard for common correction tasks and includes the paint engine and paintbrushes introduced in Photoshop 7.0 ($99; upgrade, $69).

Productivity Software

Readiris Pro 7, from Image Recognition Integrated Systems (561/395-7831, www.irisusa.com): The optical character recognition software now runs in OS X, in addition to OS 9. The latest version features a new OCR engine, extensive PDF support, automatic page-orientation detection, and digital-camera image recognition ($100).

Six Degrees, from Creo (604/451-2700, www.creo.com): The e-mail-driven productivity tool automatically connects and displays related e-mail messages, files, and contacts on the desktop. It runs in OS X ($99).

TimeSlice 2.5, from Casady & Greene (800/359-4920, www.casadyg.com): The time-tracking and billing program has a new invoicing capability for printing invoices and tracking applications. TimeSlice runs on OS 8.6 and higher, including OS X ($60; upgrade, $30).

Science/Engineering Software

JMP 5, from JMP (877/594-6567, www.jmpdiscovery.com): The statistical analysis software, which runs on OS 8.6 and higher, including OS X, features customization capabilities, more platforms, and more ways to access data ($995; academic institutions, $450; upgrades, $395 for JMP 4 users, $195 for academic institutions).

Announced

Acquisitions

The purchase of three multimedia software companies by Apple (800/692-7753, www.apple.com): With the purchase of Prismo Graphics, which develops motion graphics for broadcast- and digital-video projects, Apple obtains Prismo's DVFonts technology and its **India Titler Pro** software for creating animated titles. Apple also bought cinema-compositing–software maker Silicon Grail, including its **Rayz** and **Chalice** product lines. And Apple bought Emagic, the makers of **Logic** music-production tools.—COMPILED BY PHILIP MICHAELS

PALM-SIZED SPEAKER LETS YOUR MUSIC BE HEARD

Audio to Go

Thanks to the iPod, your favorite tunes—as much as 20GB of them—are never more than an arm's length away. Unfortunately, if you want anyone else to listen in on your music, you'd better have a stereo system and a set of speakers within reach, too—unless you have the Olympia Soundbug, from Wave Industries (888/890-8983, www.soundbug-us.com). While adapter cables or transmitters such as First International Digital's iRock 300W (see "Do Touch That Dial," *Mac Beat*, June 2002) connect your iPod to a nearby stereo, the palm-size Soundbug is a speaker that suctions to any flat surface, providing a portable way to share audio in an 8-ounce package. The $50 Soundbug connects to any audio source via a standard ⅛-inch minijack plug. For a louder, more-robust sound, hook two Soundbugs together for stereo output. You mustn't expect stellar sound from the Soundbug, but with a set of three AAA batteries, it'll provide four hours of audio. And when you're on the go and want to share your tunes, that's all you can ask for.—JONATHAN SEFF

Mac OS X Updates

powered by versiontracker.com

Adobe Photoshop 7.0 Scripting plug-in 1.0.2
Automates repetitive tasks and key workflows

Apache 2.0.39
Open-source Web server software

Apple AppleScript X 1.8.3
System scripting utility

Apple Repair Privileges 1.0
Restores privileges to default setting

AutoMask 4.0
Photoshop plug-in performs density masking

Canon PowerShot ImageBrowser X 2.3
Adds support for various Canon digital cameras

CD Session Burner 1.0
Burns multiple CD-R sessions

CE QuickMail Pro 3.1p2
Client component for e-mail system

CopyPasteX 1.4
Communicates with pre–OS X version of multiple clipboard editing app

FinkCommander 0.3.1
GUI front end for Fink software packaging system

iCab X 2.8.1
Bug fixes for Web browser

IPNetTunerX 1.0
Optimizes Internet connections

iSwipe X 1.1b2
Client for Web, FTP, Hotline, OpenNap, and Gnutella downloads

Kensington MouseWorks 2.0
System-preferences integration for mice and trackball software

LiteSwitchX 1.0.1
Enhanced keyboard-application switcher

Logitech Control Center 1.0b23
Beta release of USB mouse and keyboard drivers

Lyrictracker Client 3.1
Tool searches database of more than 20,000 song texts

MAPublisher 5.0
GIS and cartographic plug-in tools for Adobe Illustrator

Mathematica 4.2
Enhances features in math solving, visualization, and programming app

Microsoft Internet Explorer 5.2
Adds support for Quartz text smoothing to browser

MS-MPEG4v1 Decoder 2.0
MS-MPEG4v1 video codec for QuickTime 6

NikonView 5.1.1
Driver software for most CoolPix cameras

OmniOutliner 2.0.2
Outlining and organizational tool

WeatherPop Advance 1.2b
Displays weather conditions in the menu bar

Unity Session 3.0.3
Audio synthesizer and sampling environment

URL Manager Pro 3.0
Extensive bookmark manager for browsers

For these and other current updates, visit:
www.macworld.com/subject/updates

WHAT'S HOT

A Quick Look at the World of Tech

1. **Real Networks ships RealOne Player for OS X.** *The company knew it had to put out something for OS X after Rob Glaser woke up one morning and found the screen of a decapitated flat-panel iMac in his bed.*

2. **The latest version of iTunes adds a five-star rating scale for ranking your music.** *Rumor has it that the next version of iDVD will include a commentary track from Roger Ebert, panning all your movies.*

3. **Apple's profit falls as demand for PCs slumps.** *To spur more sales, Apple launches controversial "Switch faster, damn it!" ad campaign.*

4. **Microsoft worries that Apple isn't doing enough to promote OS X.** *Helpful Microsoft officials offer suggestions: "You know what helps increase OS market share? An illegal monopoly."*

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APPLE eMAC

All-in-One G4 with Flat CRT Display Proves the True Successor to the Original iMac

BY JASON SNELL

When it comes to the late-1990s revival of Apple under Steve Jobs, the original iMac gets a whole lot of the credit—and rightly so. This year, Apple replaced that bulbous G3 Mac with the groundbreaking iMac G4, which boasts a flat-panel display (see "The Fast Crowd," May 2002). While that Mac is a remarkable value in terms of speed and power, it can't match the low price or rugged construction that made the original iMac a hit with schools and Mac users on tight budgets. With the introduction of the eMac, Apple has created a fitting successor to the iMac that started it all.

STAN MUSILEK

A Tour of the eMac

On the outside, the eMac looks remarkably like the original iMac. Like its progenitor, it's a single unit encased in molded plastic, with a screen and optical drive in front and ports on the right side. Its large front face tapers to a rounded backside. However, this silver-and-white 50-pound hunk of computer (without a carrying handle like the original iMac's) does offer several variations on the all-in-one theme.

The most impressive change is in the display, a 17-inch flat-screen CRT. This display puts the ones in the old iMacs to shame: it's bright, extremely sharp, and free of flicker, even at its top resolution of 1,280 by 960. The larger display makes the eMac's front a sheer wall, rather than a curved face (as on the original iMac), but the system's overall dimensions are almost exactly the same.

The eMac's all-in-one design does create one difficulty: like the iMac, the eMac tends to sit a bit low on a desk. Apple offers a $59 clear plastic stand that raises the eMac's height by about 4 inches and allows you to tilt and rotate it. It's probably a good investment—unless you're a kid or a fairly small adult, you'll need a relatively high desktop or this stand to get the eMac's display up to a comfortable viewing height.

Below the display are stereo speakers with optional snap-on grilles to protect them from poking fingers—good news for teachers. Apple claims that these speakers are much better than the original iMac's, but in our tests they sounded only slightly louder than a Flower Power iMac's, albeit with better range and fuller bass.

Between the two speakers is the eMac's optical drive. Previously, only the education-model eMac could be outfitted with a CD-writing, DVD-reading Combo drive, but at press time, Apple made the Combo drive available to consumers via the Apple Web site.

The eMac's AirPort card slot also lies behind the CD-RW drive door. To add an AirPort card, you must unscrew two Phillips screws to remove the

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OUTSTANDING: ●●●●● VERY GOOD: ●●●● GOOD: ●●● FLAWED: ●● UNACCEPTABLE: ●

One eMac, Two Worlds

Apple originally announced the eMac as a product it would sell only to the education market (see *Mac Beat*, July 2002), but after a few weeks of complaints from other Mac fans, Apple reversed this decision and offered a version for regular consumers. However, in terms of features and price, there are still clear differences between the education and consumer editions of the eMac.

Traditionally, education customers have gotten better deals from Apple than noneducation buyers have—and that's true of the eMac. In this case, noneducation buyers also don't get the preconfiguration options that education customers do—for example, a model without a modem. Here's a quick look at the differences between the various models, all of which offer a 700MHz G4 processor, 128MB of RAM, and a 40GB hard drive.

AVAILABLE TO	PRICE	OPTICAL DRIVE	MODEM
Consumers	$1,099	CD-RW	Standard
Comsumers	$1,199	Combo	Standard
Education	$999, $1,049*	CD-RW	None
Education	$1,099, $1,149*	Combo	Standard

* The lower price is for educational institutions. The higher price is for individuals affiliated with educational institutions.

plastic door in front of the AirPort slot (this design is meant to discourage theft of AirPort cards in education environments). Apple also provides both machine-readable bar codes and human-readable printouts of the eMac's serial number and Ethernet ID on the drive door—a convenient location for which eMac network administrators will be grateful.

Along the eMac's right side is a row of ports: three USB, two FireWire, one 56K modem, and one 10/100BaseT Ethernet. Its mini-VGA port (like the one on the iMac and iBook) accepts Apple's optional $19 VGA adapter, allowing video mirroring on an external monitor or projector. The eMac's side panel also offers one microphone jack and one headphone jack—down from the two headphone jacks included on the front of the original iMac.

When Apple released the second generation of CRT-based iMacs, it made a big deal of the air-cooling technology in those models, which required no fan. The extra heat generated by the eMac's G4 processor, however, has necessitated the addition of a cooling fan. This machine is quiet, but it's definitely not silent.

The eMac comes with 128MB of RAM—which we found a little scant when it came to running OS X—but you can expand this to 1GB, via two 168-pin DIMM slots that are located beneath a panel on the eMac's underside. Unscrewing the panel was relatively easy and provided clear access to the two RAM slots, but a glance inside also suggested that upgrading any other part of the eMac would be a harrowing experience, as it is with the earlier CRT iMacs.

Power on the Inside

The iMac has always represented the low end of Apple's desktop computer line. As such, it has lower processor speeds than professional desktop systems, and the G4 processor never did appear in the original iMac form factor. Nobody will ever confuse an eMac with a 1GHz dual-processor Power Mac, but with its 700MHz G4 processor, 100MHz system bus, and 40GB hard drive, it performs admirably.

In Macworld Lab tests, we found that the eMac was, except in our Quake III test, slightly faster than the $1,399 flat-panel 700MHz G4 iMac (see "The eMac Takes the Silver"). And as you might expect, the eMac blew the CRT-based 700MHz G3 iMac out of the water in all of our tests—especially with data-intensive multimedia tasks that take advantage of the G4's Velocity Engine subprocessor. Likewise, our Quake III test showed that the eMac's Nvidia GeForce2 MX graphics card can handle complex 3-D screen rendering with ease.

Macworld's Buying Advice

The eMac provides what original iMac buyers have wanted all along: a fast, low-cost computer in a rugged enclosure. Its 700MHz G4 processor makes it more suitable for graphics and video work than any of the G3 iMacs, but its hardware is not easily upgradable. If you are looking for the elegant design of the flat-panel iMac Apple announced in January, you won't find it in the eMac. But with its beautiful flat CRT display, surprising speed (for an entry-level Mac), and remarkable value, the eMac is the natural successor to one of Apple's most successful products of all time. □

RATING: ●●●●
PROS: Slightly faster overall than a 700MHz G4 iMac; bright, big CRT display; robust design.
CONS: Sits a bit low on a desk; limited upgrade options.
PRICE: $1,099
OS COMPATIBILITY: Mac OS 9, Mac OS X
COMPANY: Apple Computer, 800/538-9696, www.apple.com

The eMac Takes the Silver

Macworld LAB TEST

	Speedmark 3.1	Adobe Photoshop 6.0.1	iMovie 2.1.1	iTunes 2.0.3	Quake III v1.30b1
	OVERALL SCORE	SUITE	RENDER	MP3 ENCODE	NORMAL
Apple eMac 700	**134**	**44**	**64**	**65**	**52**
Apple iMac G3/700	*119*	*69*	*87*	*106*	*40*
Apple iMac G4/700	*132*	*46*	*69*	*68*	*53*
Apple iMac G4/800	*140*	*38*	*63*	*63*	*56*
	>Better	<Better	<Better	<Better	>Better

BEST RESULTS IN **BOLD**. REFERENCE SYSTEMS IN *ITALICS*.

Speedmark scores are relative to those of a 500MHz iMac (Flower Power), which is assigned a score of 100. Photoshop, iMovie, and iTunes scores are in seconds. Quake scores are in frames per second. We tested each system with Mac OS X 10.1.2 installed and 256MB of RAM. We set displays to 1,024-by-768-pixel resolution and 24-bit color. For the Photoshop Suite test (which runs in OS X's Classic environment), we upgraded the systems to 512MB of RAM; the test is a set of five scripted tasks using a 50MB file. We set Photoshop's memory partition to 200MB and History to Minimum. We tested MP3 encoding with an audio-CD track that was 9 minutes and 25 seconds long, converting it from the hard drive using iTunes' Better Quality setting. We tested Quake III at a resolution of 640 by 480 pixels with Graphics set to Normal. For more information on Speedmark, visit www.macworld.com/speedmark.—MACWORLD LAB TESTING BY JAMES GALBRAITH

MEETINGMAKER 7.1

Automated Group-Scheduling Package Adds OS X–Based Server and Java Client

BY JEFFERY BATTERSBY

The value of a group-scheduling package can be difficult to grasp—until you're on the losing end of a double-booked conference room. Meetingmaker's self-titled Meetingmaker 7.1 promises to keep your calendar in order. This client/server-based program is designed to manage a variety of scheduling needs, from selecting meeting locations and borrowing a video projector to coordinating CEOs' and sales managers' appointment books.

Version 7.1 adds an OS X–based server and client, user-defined time zones, contact management, and real-time messaging to its existing features. The program continues to make group scheduling a snap, leaving you time to focus on your meetings' content.

Thousands Served

This latest version of Meetingmaker Server runs on OS X, Linux, Solaris, and all current Windows-based PCs and servers. To test Meetingmaker's capabilities, we set up two servers (one running OS X and the other running Windows 2000) and OS 9, OS X, Windows, and Java clients. It took only a matter of minutes to install the application, create a server, and get it ready to add users. (Whether you're a novice or an expert, setting up a Meetingmaker server is a no-brainer.)

Before you can use Meetingmaker, you need to use the Meetingmaker Admin tool to create users, meeting locations, and resources—such as video projectors and amplifiers. This management utility runs in all the same OSs. The company claims that the interface looks exactly the same on every platform; via the interface, you are able to manage a server running on Windows, Linux, Solaris, or OS X.

Creating new users was easy and intuitive, but using the Admin tool to create meeting locations and resources was confusing. For example, when we created a record for an overhead projector, we were required to provide a first and last name, as well as a sign-in name and password. The same was true when we created a new location. In either case, it would be logical if you could add a descriptive name and either a serial number or an asset ID to represent equipment and conference rooms.

When you generate either a new meeting location or a resource, the program offers the option of making it available only on a first-come, first-served basis. This proves to be one of Meetingmaker's more useful features, especially for large organizations that have several conference rooms or a lot of meeting-related equipment to manage. When this option is selected, it's impossible to double-book that resource during the scheduling process.

Meetingmaker says that one dedicated Meetingmaker server can handle as many as 2,000 registered users and around 500 simultaneous connections. In case you have more than 2,000 users or expect more simultaneous connections, Meetingmaker provides a software hub that connects two or more servers, allowing the data from those servers to be shared throughout your entire organization. But our tests by no means stretched the server's limits; our configuration consisted of only five registered users and five simultaneous connections.

Have My Agent Call Your Agent

The Meetingmaker client comes in two flavors: as a standard application that runs in either OS 9, OS X, Solaris, Linux, or Windows, and as a Java client. Clients include a calendar; contact and to-do lists; and a new, integrated messaging system—roughly similar to AOL Instant Messenger—designed only to send messages to your fellow Meetingmaker users. The program also readily syncs your schedule and your contact list with any Palm-based device.

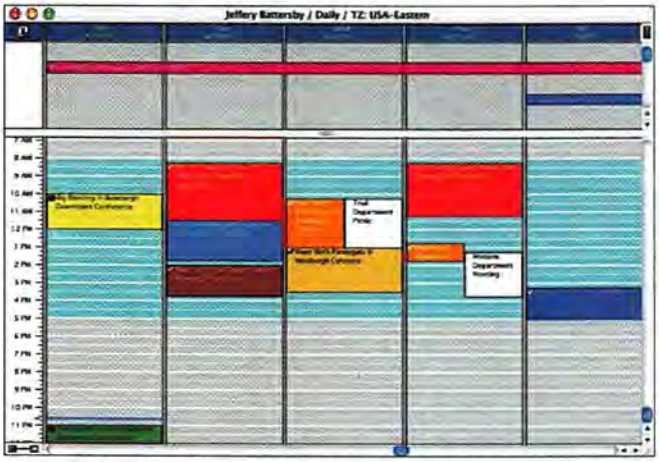
When we reviewed Meetingmaker a couple of years ago (♦♦♦♦; *Reviews*, January 2000), we noted that the user interface was fairly drab, and nothing has changed in that regard. No matter which platform you're working on, the Meetingmaker interface is quite sparse. That said, its simplicity makes the program easy to learn. Selecting a date range in any calendar window brings up a New Activity window where you enter meeting details and notes, add labels, and change the notification level for an appointment. You then click on the Invite Guests button, which lets you select meeting rooms, reserve other resources, and choose your attendees.

Using the OS X–native client, you select an individual or a resource—both of which Meetingmaker refers to as Invitees. The program queries the server and tells you whether or not the Invitees are available during the time you've selected. In the event that any of your Invitees are unavailable, you can simply click on the Auto-Pick button for your Invitees' next open time slot; we found that this feature worked perfectly.

Rescheduling events with the program is also quite simple. You can drag your existing calendar event to a new date and time, or you can double-click on the event to change the date manually. As with newly created events, Meetingmaker checks everyone's schedule and notifies them of the meeting change.

The Java client is functionally the same as the OS X–native client, but it has a more modern look-and-feel. To use the Java client on the Mac, you'll need to run OS X 10.1 or later, and you'll need to run the Tomcat servlet on your Web server (for more information and a download, visit http://jakarta.apache.org/tomcat/). (Meetingmaker states that it has officially tested the Java server and client using SSL on NT and Solaris systems; but it says that, unofficially, the

> continues on page 45



Easy Is as Easy Does Meetingmaker 7.1's powerful calendar is easy to master.

RATING: ♦♦♦½

PROS: Excellent schedule management and notification for individuals and assets across entire corporations; client-side time-zone settings; Palm synchronization; secure Java client for remote access.

CONS: Unrefined Admin tool; remote notification requires that client be running; minor printing bug.

PRICE: Meetingmaker Server, $499; Ten-User Pack, $950

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Meetingmaker, 781/487-3538, www.meetingmaker.com

CALCULATIONCENTER 2

Powerful Math Program Makes Hard Stuff Easy for Mac Users with Real-World Problems

BY CHARLES SEITER

As Stephen Wolfram, founder of Wolfram Research, proved in his recent book *A New Kind of Science*, Wolfram's Mathematica application can be used for profound investigations of the complexities of nature. But if your job description does not include "overhauling the conceptual basis of physics itself," maybe the program you need is CalculationCenter. It's ideal for educators and students, and it's an excellent choice for most business and technical users.

The new version, CalculationCenter 2, expands the program's library of functions to include the most-useful distributions for statistics, makes it simple to post equations to the Web, and adds a few new import file formats (AutoCAD's DXF, for example).

Filling In the Blanks

Making the power of the Mathematica kernel (the part of the program that actually does the calculations) easily accessible to mere mortals is the goal of CalculationCenter 2. Like the first version (★★★★; *Reviews*, July 2001), it does this mainly through two helpful features.

First, it provides templates (called Instant Calculators) that cover 95 percent of real-world science and engineering problems. Using these templates spares you programming chores and syntax struggles—just plug in a few values from your problem, and you get an instant answer. Second, the program provides a "grammar checker" for dealing with the necessarily nitpicky requirements of statements that are to be fed to the Mathematica kernel.

When you extend, modify, or write a formula from scratch in CalculationCenter 2, the program instantly advises you of any syntax corrections your work needs. Note also that every function automatically works in symbolic mode (calculating with variables, rather than numbers alone), making it easy to generate useful formulas rather than just onetime answers.

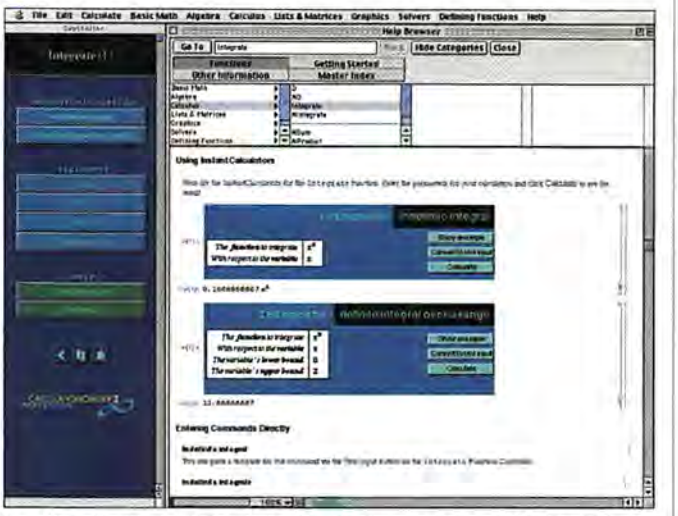
Down to Business

The big new computational feature in CalculationCenter 2 is the addition of about a dozen common statistical distribution functions, including Poisson, binomial, and normal. The point of this addition is to increase the program's appeal to Microsoft Excel users who'd like to convert their business models to a much faster computing engine.

When translating an Excel business model, CalculationCenter 2 makes it relatively easy to treat every variable as a probability distribution rather than a single value, a great step up from the last version in matching results to reality. As a basic example, the model can represent next year's third-quarter sales as a range of possible values, a big improvement on a single-number possible value.

As a slightly more complex example, consider retirement investing. Is it realistic to project the results of an average return of 10 percent over 20 years by simply compounding the 10 percent 20 times? If you make an average of 10 percent from 20 possible values ranging around 10 as the mean, and use these values as the year-by-year returns, you will find a huge range of 20-year results, corresponding to many possible outcomes for such an investment plan.

Of course, you can formulate the more realistic model in Excel, but you can produce a faster and more flexible version, including comprehensive graphical representations of possible results, in CalculationCenter 2. All the new probability functions have Instant Calculators at the ready, and the expanded Help for these functions includes prepared examples you can apply right away to real-world business problems.



Any Questions? CalculationCenter 2's Help Browser displays definitions and examples, and its Instant Calculators let you begin using functions immediately.

Version 2 also includes special Help topics for Excel users (there's also help for MathCAD users) and offers convenient import of Excel work, such as individual formulas, spreadsheet data tables, and spreadsheets saved in CSV format. And Calculation Center 2 offers graphical help in the form of inequality plots, allowing visual display of regions where variables meet certain conditions.

Share and Share Alike

CalculationCenter 2 maintains the previous version's ability to save results in Mathematica-format notebooks (*.nb* files), as well as its word-processing functionality. The Controller window's Characters button puts menu options at your fingertips, giving you immediate access to palettes of math symbols, Greek letters, and dozens of other special characters. It's a simple business in CalculationCenter 2 to compose a short document full of typeset-quality equations for print output. However, one of our few complaints about the program is that between the Controller window and the other windows, screens get crowded on smaller monitors (older iMacs with 15-inch CRT displays being the prime example).

By introducing support for MathML 2.0, the math-representation standard based on XML, version 2 also simplifies sharing of information. The practical implication of this is that you can compose a document in real math notation, including figures that will be translated as GIFs, and post it all to a Web page, readable by anyone who's installed the (free) MathML plug-in in his or her Web browser. And anyone with CalculationCenter or Mathematica can reuse your equations via the cut-and-paste command. Happily, this ends a 500-year tradition of laboriously copying math work from print or manuscript sources.

Macworld's Buying Advice

Whether you're an educator or a businessperson, CalculationCenter 2 has enough power to solve any problem you'll find in either a textbook or a real-world situation, and it will give you usable results within 15 minutes of installation. □

RATING: ★★★★½

PROS: Makes Mathematica's power accessible to new users; adds special features for Excel users; provides MathML 2.0 support.

CONS: Best used on larger monitors.

PRICE: $295

OS COMPATIBILITY: Mac OS 9

COMPANY: Wolfram Research, 217/398-0700, www.wolfram.com

COLOR LASER PRINTERS

The Big Players Bring Quick Prints within Reach

BY BRUCE FRASER

Not long ago, color laser printers were slow, balky, very expensive beasts. Only highly trained professionals could change their consumables, and they needed to live in a climate-controlled room to produce consistent color. Given that history, we were pleasantly surprised by the quality of the latest crop of single-pass color laser printers. Macworld Lab tested five: the Brother HL-4000CN, Hewlett-Packard Color LaserJet 4600, Lexmark C750n, Minolta-QMS Magicolor 3100DN, and Xerox Phaser 6200N.

We found that these printers produced color pages at almost the same speed as black-and-white pages. And thanks to a new single-pass printing technology, they offer easy replacement of toner and vastly improved color stability. Best of all, their prices—between $2,199 and $2,399—won't break the bank.

All five printers are aimed at small businesses and workgroups that need fast, versatile output in both monochrome and color. They are well suited to business printing but can also be just the thing for small design shops that want quick, inexpensive comps.

Three of the printers—the Phaser, HL-4000CN, and Magicolor—appear almost identical on the outside, and they're based on the same Fuji Xerox engine. But a lot more goes into a color laser printer than the engine, the three use very different controller hardware that makes them differ significantly in speed and in print quality.

Speed

Speed is a major reason for choosing color laser over other color printing technologies. We tested the printers by printing four different document types on each printer: a 20-page Microsoft Word document printed in black-and-white; a 20-page Word document printed in color; a 10-page PDF file of text and graphics; and a 22MB, 8-by-10-inch Adobe Photoshop image.

Xerox, Brother, and Minolta-QMS claim that their printers have an engine speed of 16 pages per minute. HP promises 17 pages per minute; Lexmark, 20 pages per minute. As with other printers we've tested over the years, these printers' actual speeds were not even close to the speeds claimed by their manufacturers (see "True Colors"), who measure the speed at which the printer can produce multiple copies of the same page after the printer processes the information.

In our tests, the Phaser proved to be the speed champ, due to its 500MHz processor (the others weigh in at 350MHz or 400MHz); it took first place in our black-and-white-text and Photoshop-image speed tests, and it finished in second place in the color-text and PDF-document tests. The LaserJet finished a respectable second overall and was the fastest at producing the PDF document. The C750n, despite having the highest-rated engine speed, tied with the Magicolor for last place—it actually finished a distant last in all tests except the Photoshop-image test, in which the Magicolor had the slowest time by far.

The HP Color LaserJet 4600

Print Quality

If the quality of your output isn't up to snuff, you may not care how quickly it comes out of the printer. In ranking the output of the five color laser printers, our jury carefully examined a wide range of printed material, including monochrome and color text, line art, and photographic images. They looked for problems with registration, sharpness, and color, and they then assigned ratings to each printer's gray-scale, color-gradient, black-text, and color-photo output. We found that the printers differed substantially in output quality, even among the three that share the same engine.

The clear winner was the LaserJet. It produced excellent results in two of the four tests, printed acceptable gray-scale images, and performed poorly only on the color photo, which was washed out and overly red. But the HP driver was a prerelease version and did not include any ICC profiles, which help ensure color fidelity, for the printer. (HP says that the release version of the driver and the final printer profiles should be available by the time you read this.) We liked the dithering in the LaserJet's output, which made for sharp, clear images, but the color was very inaccurate.

The C750n's and Magicolor's output was acceptable in all but one test. Of all the printers, the C750n produced the worst rendering of the color photo—dark, muddy, and completely lacking in strong blues. The Magicolor showed significant registration problems on colored type, producing visible color outside the edges of the text.

True Colors

Macworld LAB TEST

	Speed				Output Quality			
	20-PG. BLACK-AND-WHITE WORD DOC.	20-PAGE COLOR WORD DOCUMENT	10-PAGE PDF DOCUMENT	22MB PHOTOSHOP IMAGE	GRAY-SCALE IMAGE	COLOR GRADIENT	BLACK TEXT	COLOR PHOTO
Brother HL-4000CN	1:44	**1:34**	1:06	2:04	●●	●	●●	●●
Hewlett-Packard Color LaserJet 4600 (with JetDirect 615n)	1:41	1:42	**0:56**	1:42	●●	●●●	●●●	●
Lexmark C750n	1:50	1:52	1:34	1:16	●●	●●	●●	●
Minolta-QMS Magicolor 3100DN	1:45	1:50	1:14	2:38	●●	●●	●●	●●
Xerox Phaser 6200N	**1:36**	1:37	1:01	**0:44**	●●	●●	●	●●
	< Better	< Better	< Better	< Better	●●● EXCELLENT	●● ACCEPTABLE	● POOR	

BEST RESULTS IN **BOLD**.

All scores are in minutes:seconds. We tested each printer with 128MB of memory installed. Each was connected via Ethernet on a closed network, with the exception of the HP Color LaserJet 4600. The LaserJet shipped with 96MB of memory to which we added 64MB. The Magicolor shipped with 256MB of RAM, from which we removed 128MB. Additional testing was performed to ensure that its performance did not suffer due to the removed memory. Our test system was a Power Mac G4/500 with 512MB of RAM and OS X 10.1.4, Adobe Photoshop 7.0, Microsoft Word X, and Adobe Acrobat installed. We timed how long it took for each printer to print the entire document, from the time we clicked on the Print button until the last page dropped into the output tray. Word and Acrobat documents were printed in Normal mode; the Photoshop document was printed in Best mode. A jury of experts judged the output of several test documents and rated quality as excellent, acceptable, or poor.—MACWORLD LAB TESTING BY JAMES GALBRAITH

Color Laser Printers Compared

COMPANY	PRODUCT	MOUSE RATING	PRICE	OS COMPATIBILITY	CONTACT	PROS	CONS
Brother	HL-4000CN	♦♦♦	$2,399	Mac OS 9, Mac OS X	800/521-2846, www.brother.com	Built-in duplexer.	Needed more than 128MB of RAM to print our Photoshop image; comes with only 64MB of RAM; mediocre output quality.
Hewlett-Packard	Color LaserJet 4600	♦♦♦♦	$2,254*	Mac OS 9, Mac OS X	800/752-0900, www.hp.com	Very good overall output; heaviest duty cycle; fast; inexpensive.	Color quality lacking due to missing ICC profiles; OS X driver exhibited some problems.
Lexmark	C750n	♦♦♦	$2,399	Mac OS 9, Mac OS X	800/539-6275, www.lexmark.com	Good output quality.	Slow; only 64MB of RAM included.
Minolta-QMS	Magicolor 3100DN	♦♦♦	$2,199	Mac OS 9, Mac OS X	800/523-2696, www.minolta-qms.com	Built-in duplexer; inexpensive.	Very slow printing on Photoshop images.
Xerox	Phaser 6200N	♦♦♦	$2,399	Mac OS 9, Mac OS X	877/362-6567, www.xerox.com	Fast.	Mediocre output, particularly on text; unstable color.

*Base price, $1,999; optional JetDirect 615n print server, $255.

The Phaser, while speedy, left a lot to be desired in terms of output quality. It did a decent job of printing the color photograph, but it displayed obvious registration problems with the colored type and surprisingly fuzzy monochrome black type. Unless we printed the entire document as black-and-white, any black text was rendered as black type made with a combination of the four colors. The HL-4000CN fared poorly in the line-art test, with dropped pixels in curved lines, and it had almost no blue in the color gradient (which means that it's unlikely to render strong blues anywhere).

Color Stability

An important drawback of color laser printers has been unstable color. Color would often shift over the course of a few hours; changes in temperature and humidity caused the toner to form larger or smaller clumps, directly affecting how much toner was laid down. We checked color stability by comparing a test target printed in the morning with an image printed at the end of the day.

We were pleased to find that the new toners specially formulated for this generation of printers offer much better color stability than previous ones. The only printer in our roundup that displayed a significant color shift was the Phaser, which still compares favorably with older color laser printers. The LaserJet had the best color stability; it was followed closely by the C750n.

Paper Handling

When deciding on a color laser printer, you'll also want to consider duplexing (printing on both sides of the paper) and tray options, as well as duty cycle—the number of pages it's capable of printing, measured in pages per month. All of the printers we tested had reasonable paper-handling specs.

Duplexing is a standard feature of the Magicolor and HL-4000CN. It's available as an approximately $500 add-on for the C750n and Phaser units. But the LaserJet we tested didn't have a duplexing option: if you want an HP printer and duplexing, you'll be better off buying the $2,499 HP Color LaserJet 4600dn, which includes both a duplexer and an Ethernet interface as standard equipment.

All of the printers have a standard 600-sheet capacity—500 sheets in the main tray and 100 sheets in the multipurpose tray, which also allows for printing envelopes and other specialty media. All have optional extra paper trays that increase capacity by 500 or 1,000 sheets, but the C750n offers the highest capacity, at 3,100 sheets. All print as large as legal size, and the Magicolor can print banners as large as 8.5 by 34.5 inches. As single-pass color laser printers, all five have much simpler paper paths than previous color laser generations, so it's a lot easier to clear paper jams, which happen much less frequently.

The LaserJet has the heaviest duty cycle—85,000 pages per month—and the others are rated at 60,000 pages per month. Exceeding the duty cycle isn't necessarily a problem; it doesn't make the printer explode or fail drastically, but it generally leads to problems with paper jams and, sometimes, compromises output quality. The duty cycle is best interpreted as the number of pages per month at which you can expect trouble-free operation.

Setup and Networking

You'll probably want to share your printer in a network. Each printer we tested either includes Ethernet connectivity or has an option that will support it. We tested the base model HP Color LaserJet 4600, which comes with parallel and fast infrared interfaces. We added an Ethernet card—the $255 HP JetDirect 615n internal print server—to the LaserJet to provide 10/100BaseT Ethernet connectivity, which is equivalent to that of the other printers. All the other printers offer USB, bi-directional parallel ports, and 10/100BaseT Ethernet, except the C750n, which lacks a parallel port.

All five printers offer PostScript 3 support (from Adobe in the case of the Phaser and HL-4000CN printers, and from third parties in the others) so they should perform well in printing from the latest versions of desktop-publishing applications. The Phaser offers PCL5c, while all the others offer PCL6 (the LaserJet offers both PCL5c and PCL6). The Phaser, HL-4000CN, and LaserJet all offer Web-based printer-configuration and -management tools, which generally worked well.

We had relatively few problems setting up the printers, but there were some exceptions. Most of the printers allow you to perform registration tests and adjustments quite easily, but the C750n's registration adjustments involve secret button combinations that dump you into engineering-level menus.

Most OS X printer drivers are still works in progress, partly due to limitations in the OS itself. We couldn't find any way to make the Magicolor print in black-and-white, rather than color, from OS X, and we had to use the printer's front-panel controls to adjust quality settings—neither of these issues were present in the OS 9 driver. We also had some problems connecting the LaserJet over IP, even after upgrading to OS X 10.1.5, though we were eventually able to make it work. We hope that the release version of the driver will resolve these issues.

The HL-4000CN, which came with 64MB of RAM, was the only one that needed an additional 64MB installed to print our 22MB Photoshop image in Best mode. If you're planning to print larger files, you'll need to factor in the price of a RAM upgrade to HL-4000CN's price.

Macworld's Buying Advice

We were pleasantly surprised by the overall quality of this crop of printers, but the clear winner was the HP Color LaserJet 4600. It produced the best-looking output (and will likely do even better when the appropriate ICC profiles become available), and while it wasn't quite as fast as the Xerox Phaser 6200N, its better output quality more than made up for that. The Minolta-QMS Magicolor 3100DN deserves an honorable mention as the least-expensive duplexing color laser printer currently available. It produced acceptable (though not spectacular) output and was reasonably speedy in all tests except the Photoshop test. □

VIDEO-CAPTURE CARDS

If You Work with Uncompressed Video, These Four Professional Cards Can Help You Take Apple's Final Cut Pro to the Next Level

BY ANTON LINECKER

Final Cut Pro works admirably as a software-based, nonlinear editor, but adding hardware to the mix can expand its capabilities. PCI video-capture cards allow editors to capture and edit uncompressed and even high-definition video and graphics. Choosing the right card can be daunting, though, since there is more to consider than just image quality.

Final Cut Pro supports four capture cards: AJA Video Systems' Kona SD, Aurora Video Systems' IgniterRT, Digital Voodoo's D1 64AV, and Pinnacle Systems' CinéWave Classic. But be aware that you'll need peripheral equipment to support them: an Ultra-SCSI RAID is a must for the data rate these cards produce, and to control your videotape deck, you'll also need an RS-422 serial port.

Our test systems were an 867MHz Power Mac G4 and a dual-1GHz Power Mac G4, each with 1GB of RAM, an Ultra-160 SCSI RAID, an ATA-133 hardware RAID (for comparison), and a digital beta video source. The cards performed as promised, so their individual features are what set them apart.

The Contenders

Of the four capture cards we tested, there are two types: standard cards and breakout box (BOB) cards. The Kona SD and D1 64AV are standard capture cards with built-in video and audio inputs. Meant for high-end work, these cards have only serial digital interface (SDI) video inputs and AES audio connections. If you want to work with composite video, you'll need to connect a composite-to-SDI converter to the card. Both cards have a desktop-mirroring ability for routing a desktop workspace to a video monitor.

Unlike the Kona SD and D1 64AV, the IgniterRT and CinéWave Classic are base cards *without* built-in video inputs. You add functionality to these cards through BOBs—connection boxes tethered to the capture card—and/or daughter cards. To gain SDI inputs, for example, you'd have to add an SDI BOB, which costs $1,295 from Pinnacle and $2,999 from Aurora.

Additionally, these cards have upgrade options that significantly expand their capabilities. The IgniterRT has a unique $3,999 film-option upgrade for converting telecined video footage from its 30-frame sequence to the film's original 24 frames per second; and the CinéWave Classic card can even step up to high-definition editing with the addition of the $9,995 HD BOB.

Real-Time Capabilities

Real-time (RT) effects are the ultimate time-saver, and in this arena, the CinéWave Classic is the clear champ. With its dual-stream system, the CinéWave Classic can play back either two streams of video and one graphics track with an alpha channel, or one video stream with two graphics layers. You can even add keyframeable RT effects and filters—such as color balance, tint, opacity, and scale—to these simultaneous streams. However, to unlock any of its powerful effects, you'll need to part with $2,495 for Pinnacle's RT software upgrade. The only other card with dual-stream capabilities is the Kona SD, whose accompanying software currently offers 11 dissolve and color effects. (AJA says more RT effects will be added in future free software upgrades.)

Both the IgniterRT and the D1 64AV are single-stream cards and have fewer RT effects. The IgniterRT can handle Final Cut Pro 3's (♦♦♦♦; *Reviews*, May 2002) new three-way color corrector in real time—this is definitely handy—and it has a few additional RT color effects, including a tinting effect. Presently, it can't perform a RT dissolve between two clips; the D1 64AV, an older board, offers even less in terms of RT effects; it's capable only of simple RT dissolve transitions. (Digital Voodoo's D1 64RT, which was released too late for review, has additional real-time effects.)

Offline Capabilities

Having good offline quality is essential in saving hard-drive space for large projects. In this department, not all cards are created equal.

The Kona SD makes use of Final Cut Pro's Offline RT format for its low-resolution solution; the resulting files are small enough that you can load them onto your PowerBook and edit them on the road. Unfortunately, the results of AJA's conversion to Offline RT are noticeably blockier and less detailed than Final Cut Pro's DV-to-OfflineRT conversion.

The D1 64AV has an offline feature as well; the quality is acceptable, but at 5 MBps, a lower bit-rate option would be useful for projects such as documentaries, which can have 30 or more hours of original footage.

The CinéWave Classic resizes uncompressed images but does no compression otherwise. The CinéWave's offline function, CinéOffline, offers quality levels of 75 percent, 50 percent, and 25 percent. The results are only passable in the 25 percent offline quality, despite consuming nearly twice the bandwidth of DV, at approximately 6 MBps.

But when it comes down to it, there's no contest: the IgniterRT reigns supreme here, using its MJPEG-A codec for multiple levels of offline quality. You can determine your desired level of compression exactly, and the

The AJA Video Systems Kona SD

Professional Video-Capture Cards Compared

COMPANY	PRODUCT	MOUSE RATING	PRICE	OS COMPATIBILITY	CONTACT	PROS	CONS
AJA Video Systems	Kona SD	♦♦♦♦½	$3,295	Mac OS X	800/251-4224, www.aja.com	10-bit video input; desktop mirroring for graphics programs; free RT upgrades.	Requires converter to handle analog video; poor offline quality; no OS 9 support.
Digital Voodoo	D1 64AV	♦♦♦♦	$3,495	Mac OS 9, Mac OS X	702/948-4976, www.digitalvoodoo.net	10-bit video input; fantastic codec for online work; desktop mirroring for graphics programs; runs in OS 9 and OS X.	Very limited RT effects; requires an analog-to-digital converter for analog video.
Aurora Video Systems	IgniterRT	♦♦♦♦½	$4,999*	Mac OS 9	586/726-5320, www.auroravideosys.com	Easily upgradeable; film option; analog inputs; great offline capabilities.	8-bit video input only; OS X drivers still months away.
Pinnacle Systems	CinéWave Classic	♦♦♦♦	$5,495*	Mac OS 9	650/526-1600, www.pinnaclesys.com	Excellent RT effects; customizable; can be upgraded to high-definition.	Offline codec is a bit weak; costs of various BOB options and software add up.

* Price for base card with SDI option.

Image quality is the primary reason for choosing to work with uncompressed video. Two of these cards—the Kona SD and the D1 64AV—capture video at 10-bit quality, which is technically superior to the 8-bit quality allowed by the IgniterRT, though either is sufficient for impressive results. The CinéWave Classic, in addition to its 8-bit capture, offers a unique 16-bit option (but because there isn't a standard video format that works at higher than 10 bits, this one-of-a-kind capture rate serves only to take up valuable hard-drive space).

For graphics-card animation sequences, the 10-bit Kona SD or D1 64AV cards are the clear choice. But for standard video, it's difficult, if not impossible, to see the difference between 10-bit and 8-bit (and most video formats are 8-bit).

But here's one thing to keep in mind: Final Cut Pro's render engine is 8-bit. So even if you start out capturing in 10-bit, your rendered video will be processed through an 8-bit pipe. This is where each card's software codec, which determines the rendering quality, comes into play. In our tests, the D1 64AV, IgniterRT, and Kona SD fared better than the CinéWave Classic. The CinéWave RGB to YUV codec showed some contouring (albeit minor) in rendered material, particularly with graphics. Unless you work in a graphics-intensive environment, you're unlikely to see much difference among the cards in terms of uncompressed image quality; your purchasing decision will be largely influenced by the other factors discussed in this review.

resulting offline clip quality is respectable, even at data rates much lower than the D1 64AV's and the CinéWave's offline features.

Mac OS 9 or Mac OS X?

Capture cards are complex, and the more features they offer, the more challenging it is to develop the software drivers for them. It's not surprising, then, to see that the simpler Kona SD and D1 64AV cards are now OS X compatible. At press time, both the CinéWave Classic and IgniterRT worked only in OS 9. Pinnacle stated that OS X drivers would be ready by the time you read this; Aurora said that an OS X driver is still months away.

Macworld's Buying Advice

No professional capture card does it all. But when it comes to standard cards, AJA Video Systems' Kona SD has a slight edge over Digital Voodoo's D1 64AV. And if you're into RT, the Kona has a superior RT-effects update strategy (for free) and costs $200 less than the D1 64AV.

If you're a Final Cut Pro user looking for a BOB card with a lot of flexibility, offline quality, and a film option, consider Aurora Video Systems' IgniterRT. If timesaving techniques are paramount, Pinnacle Systems' CinéWave Classic is ruler of the RT world. This may also be the card for you if you're a pro looking toward high definition. □

GEMINI UDS 1.1

Internet Search Utility Drills Deep to Bring You the Results You Want

BY FRANKLIN N. TESSLER

By cataloging Web sites in advance, search engines can query more than 1.5 billion pages in less than a second. But even the best engines force you to spend time weeding out dead or irrelevant links. Snowtide Informatics Systems strives to eliminate this with Gemini UDS (Unified Data-mining System) 1.1.6, a stand-alone application that polls numerous search engines concurrently to hone in on relevant Web pages. While it's not perfect, the OS X–only Gemini largely delivers on its promise to make Web-based research more productive.

Quality Searches

Most search engines treat all your search terms equally, but Gemini's Query form lets you assign levels of importance to keywords. This form also sports check boxes that let you specify the type of content to look for—JPEG images or MP3 files, for example—and the search services to access.

Gemini begins by sending a query to the services you select. As results come in, the program downloads them and uses a proprietary algorithm to decide whether the pages meet your criteria. It uses a Java class file called an Evaluation Plugin to evaluate, rank, and format the results.

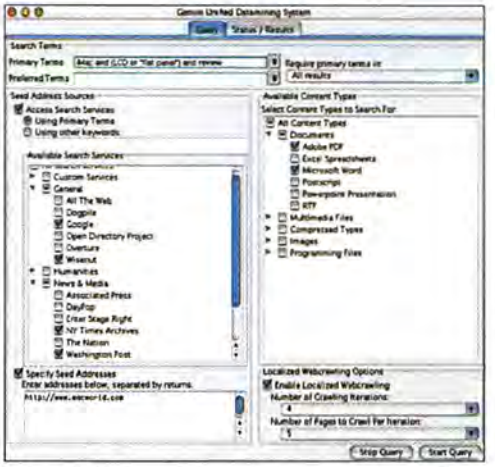
When it's done evaluating results from the first pass, Gemini examines every link on the highest-ranked pages. This process, called Localized Webcrawling, lets the engine dig beneath the surface to find even more pages. Because this takes more time, Gemini's advanced Query form lets you specify both the number of passes and the number of pages to "crawl" (or mine) on each pass.

Localized Webcrawling also lets you search individual Web sites. This feature comes in handy when you want to look for information on multipage FAQs and other sites that don't provide search functions.

As soon as you begin a search, a second tabbed window opens, with progress bars that indicate Gemini's status. Your list of results appears below the bars and shows each entry's URL, along with an optional summary, modification date, and other information about the page. You can preview pages in plain text format without leaving Gemini, or you can open the page in your default browser by clicking on the link.

Patience Rewarded

We performed searches on several subjects and used a wide variety of sources, ranging from general-purpose engines, such as Google, to specialized online databases, such as the National Library of Medicine's PubMed database. Gemini was most beneficial when we weren't sure where to begin. But the program wasn't as helpful with specialized databases, which often provide content-specific search functions that Gemini lacks.



In Search Of Gemini's Query form supports a variety of search parameters, from complex Boolean expressions to the program's patented Localized Webcrawling options.

Because Gemini actually downloads pages to evaluate them, it's much slower than conventional search engines, sometimes taking ten minutes or so to complete a search. Although you can tailor Gemini's network usage, our cable-modem–equipped Power Mac G4/500 bogged down when we jacked up its Webcrawling parameters.

Macworld's Buying Advice

Gemini UDS 1.1.6's sophisticated capabilities aren't for everyone. If you do only casual Web browsing, free services such as Google already do an excellent job. Likewise, people who use one specialized database probably won't benefit from Gemini. But if your work demands wide-ranging Web-based research, Gemini merits strong consideration. □

RATING: ▮▮▮½

PROS: Weeds out dead links; accesses multiple search services at once.

CONS: Complex searches slow down your Mac.

PRICE: $110

OS COMPATIBILITY: Mac OS X

COMPANY: Snowtide Informatics Systems, 413/493-6667, www.snowtide.com

OMNIS STUDIO 3.1

Software Lets Pros Quickly Develop Database Apps

BY DENNIS R. COHEN

The Holy Grail for database users and developers is an intuitive, fast, and powerful development tool that lets them create and package the entry forms and reports that make a database more than just a storehouse of information. Omnis Studio 3.1 approaches this Holy Grail status, albeit with some bumps along the way.

A descendant of Blythe Software's Omnis, Omnis Studio 3.1 is now in the hands of Raining Data. In its current form as a RAD (rapid application development) tool, Omnis Studio enables the relatively easy creation of database applications, whether the underlying database is an Omnis, Oracle, Informix, Sybase, DB2, or ODBC-compliant (Open Database Connectivity) database (such as Microsoft's SQL Server).

As you might expect, Omnis Studio 3.1 targets database professionals and programmers, not the occasional database user. But even if you have experience in database-application development, you might find the program puzzling if you aren't prepared for a Windows interface in a Mac application.

Omnis Studio comes in three flavors: Standard Edition, for individuals and small businesses; Enterprise Edition, for midsize and large businesses and organizations; and Web Edition, which targets the VAR (value-added reseller), ISP, and ASP (application service provider) markets.

What's Windows Doing Here?

The product's complexity means that one of the first things you'll have to do is open up its manuals. Omnis Studio 3.1's documentation consists of PDF files on the installation CD. Experienced database programmers will find it complete but difficult to use efficiently.

The PDF manuals and the online help files (which duplicate a great deal of the information in the manuals) use Windows screen captures throughout. These did not render well on screen in OS X's Preview application or in Adobe Acrobat Reader 5, and they're even less readable in a Web browser.

In addition to the Windows-centric documentation, a significant portion of the user interface is reminiscent of Windows, in that various windows have their own menu bars and toolbars (see "Staring Down Windows"). While this provides a level of consistency across the various platforms on which Omnis Studio is implemented (OS 9, OS X, Windows, and Unix), it's jarring nonetheless.

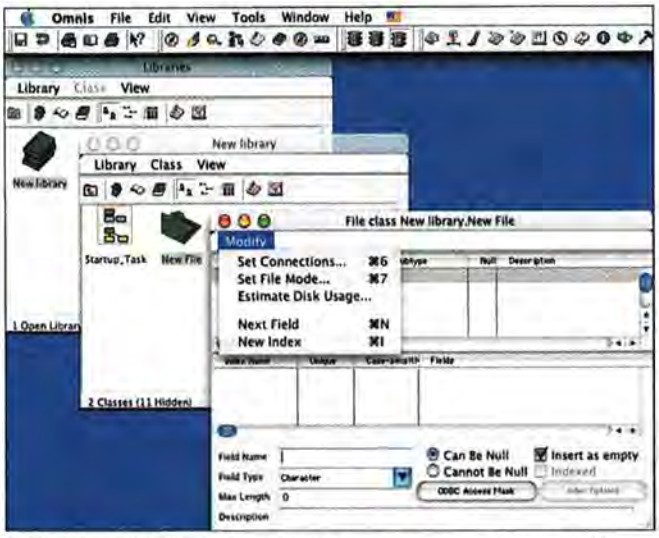
Powerful Database Creation

Now for the good news: If you understand the hierarchical structure of object-oriented development systems, you can put together a database application fairly easily and quickly using Omnis Studio 3.1.

You build projects around a *library*, which holds all the pieces of your application: windows, data files, methods, and so forth. In OS X, Omnis Studio defaults to creating libraries in the Omnis directory of the Applications folder, which is a bad idea; as a rule, user-specific documents should be created in the user's directory.

Omnis Studio also includes a window called the Component Store (think of it as a supermarket that carries the various components you might use in your project). The objects you drag from the Component Store to your library—such as menus, windows, queries, and toolbars—invoke wizards that build an object based upon your responses to their questions.

At any point, you can use the Property Manager window to tweak an object's attributes. Double-clicking on an object in your library presents an editor for that type of object. For example, double-clicking on a button allows you to edit its *methods* (the code it executes when clicked) in the Method Editor, a helpful editing environment that tries to anticipate what you're trying to do (based on what you've already typed). Or you can just select the commands from the lists in the Method Editor window.



Staring Down Windows Omnis Studio 3.1's Windows-centricity can take Mac users by surprise; most windows even have their own menu bars.

Omnis Studio also lets you add your own menus and toolbars to your applications, without requiring that you write any code, unless you want to augment the wealth of presupplied methods. This is where the learning curve becomes difficult and the casual user will likely get lost.

Creating reports is as straightforward as creating forms, and Omnis Studio can either display the results on screen or save them to a file for later perusal, printing, or e-mailing.

Web-ify Your Database

Omnis Studio also includes *remote forms* capability, so you can allow your users to browse the database via the Internet or an intranet. While Omnis Studio makes creating these remote forms simple, in some places they deviate from the standard Mac user interface. For example, when you're presented with a list of fields from which to choose your key field, the list includes check boxes. However, you can check only one box at a time; hence, the check boxes should be radio buttons.

You can also create multiple versions of the database form that are dependent on the viewer's browser (Internet Explorer or other). But if you want to deploy your app on the Web, you need the Web Edition of Omnis Studio. An added downside is that the Omnis Server required for Web deployment runs only in Windows NT and 2000 and Unix (Linux, actually, so you can't run it in OS X). Raining Data says Mac support is coming "real soon."

Macworld's Buying Advice

If you need a database-development tool for your business or organization, Omnis Studio is a very good choice, filling the need for a powerful database-application–development environment that's deployable across a breadth of platforms and database servers. At $149, the Standard Edition is an attractive purchase for an interested hobbyist who isn't afraid to learn a little programming or to deal with a nonstandard interface. □

RATING: ♦♦♦½

PROS: Appropriate for database-application deployments of any size; cross-platform; effective Web capabilities; relatively easy to use.

CONS: Documentation and help files target Windows users; Windows-centric, nonstandard user interface.

PRICE: Standard Edition, $149; Enterprise Edition, $695; Web Edition, $1,495

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Raining Data, 800/367-7425, www.rainingdata.com

ADVC-100

Digital-Video Converter Preserves Memories in True Form

BY JONATHAN SEFF

Canopus's ADVC-100 is a small box used for converting video from VHS, camcorder, or other analog sources to DV-format digital video on your hard drive. Once the video is there, you can edit it and create DVDs or QuickTime movies to send to friends and family, or you can export it back to analog tape. The ADVC-100 isn't a professional-level video-capture card (see our review of video-capture cards, elsewhere in this issue), but it gets the job done well, and pros will likely find a use for it.

The ADVC-100 joins a host of similar products, including Dazzle Multimedia's $300 Hollywood DV-Bridge, Formac's $399 Studio, and Miglia's (formerly Power R's) $400 Director's Cut (see "Analog-to-DV Converters," *Reviews*, August 2001 [Sony has discontinued its DVMC-DA2 Media Converter]).

Like most products in its category, the ADVC-100 has a simple design. On the front of the unit, you'll find composite RCA inputs for video and stereo audio, as well as an S-Video port for higher-quality video transfer, a four-pin FireWire connector (a four-pin-to-six-pin cable is included), and an input-selection button for switching between analog and digital inputs. On the back are similar connectors for output: a six-pin FireWire port, a ⅛-inch minijack audio input, and an additional S-Video input, as well as the power input and the power switch.

As with other converters, you don't need drivers to use the ADVC-100. When you fire up a video-editing program such as iMovie or Final Cut Pro in either OS 9 or OS X, the software recognizes the box as if it were a camera from which you'd be importing video. We tested the ADVC-100 by capturing video from several VHS tapes and via the analog-out port of a TiVo, and each resulting DV stream was true to its original. And because the ADVC-100 can work with the NTSC and PAL video standards, it's suitable for use in the United States and abroad.

Another nice feature of the ADVC-100 is its ability to capture locked audio, which ensures that your audio and video stay in sync. To change options such as NTSC or PAL, locked audio, and the default input mode, you move the six DIP switches on the bottom of the unit. Though these switches are awkward to use, they control settings that don't need to be changed too often and reduce the chance that you will accidentally change options when moving the box, as you might with button controls.

Macworld's Buying Advice

The ADVC-100 delivers high-quality DV output and a nice feature set at the lowest price in its category. But if all you need is to convert video from analog to digital (not back again), and if you have a spare PCI slot in your Mac, it may be worth looking at Canopus's similar (and lower-priced) offering, the $199 ADVC-50. □

RATING: ♦♦♦♦½

PROS: High-quality video import; accurate conversion; NTSC and PAL support; locked-audio mode.

CONS: Old-fashioned DIP switches.

PRICE: $299

OS COMPATIBILITY: Mac OS 9, Mac OS X

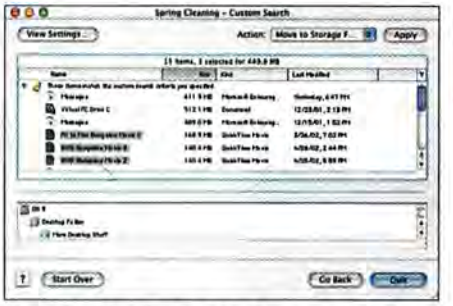
COMPANY: Canopus, 888/899-3348, www.justedit.com

SPRING CLEANING 5.0

Uninstaller Application Supports OS X and Provides Powerful Searching—but It Remains an Untidy Utility

BY CHRISTOPHER BREEN

The problem of how to dispose of extraneous files without also deleting desirable data has long plagued Mac users. Aladdin Systems' Spring Cleaning 5.0 tries to make this task easier; it locates and lets you deal with unnecessary files, such as unused preference files, old e-mail attachments, and duplicate items. The latest iteration of the program adds new capabilities and works natively in OS X, but Spring Cleaning is still an uneven amalgam.



Finds What You Seek Spring Cleaning 5.0's Custom Search tool lets you quickly find bloated files.

You can operate Spring Cleaning 5.0 in either Standard Mode or Advanced Mode. The first presents you with categories of cleaning tasks such as Clean Up, for finding duplicates and orphaned preference files; and Maintenance, which checks for damaged files, seeks out unattached aliases, and cleans out browser cache files. Advanced Mode allows you to access each of Spring Cleaning's 16 tools individually. Once you find the offending files, you have multiple ways to deal with them—including moving them to another location or duplicating them for use elsewhere (a boon for asset management); moving them into a StuffIt archive; or tossing them into the Trash.

Among the best tools is the new Custom Search tool—a Sherlock-like file finder that lets you search for files by name, size, creation date, and creator and file type, for example, and then move or remove the found files. For example, we quickly deleted more than a gigabyte of old QuickTime movies by searching for files larger than 50MB. Access Monitor—a tool that displays files you haven't opened in a user-determined period of time—is also useful. And the included iClean utility, for removing Web effluvia (cookies, caches, and history files, to name some) remains a highlight.

Not all the program's tools are as worthwhile. The Orphaned Pref Finder tool, for example, displayed necessary files such as iTunes' com.apple.iTunes.plist preference file. And on our test Macs, the Mail Cleaner tool couldn't delete attachments from an Entourage database containing several hundred of them. In addition, the program's OS X installer locks up on a small percentage of Macs—if you're one of the afflicted, Aladdin can provide an alternative installer.

Macworld's Buying Advice

Spring Cleaning contains some immediately helpful tools, but if you get a little reckless while using it, you'll lose files that your Mac needs. Although the program can be useful, we recommend using it with caution. □

RATING: ♦♦♦

PROS: Easy to use; detailed searches; iClean is a nice tool for expunging Internet-related files.

CONS: Makes it easy to delete files that users may need; Mail Cleaner falters with large e-mail databases.

PRICE: $50

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Aladdin Systems, 800/732-8881, www.aladdinsys.com

iDRAW 1.1

Illustration and Animation Program Has Many Problems

BY GALEN FOTT

What Apple's powerful iPhoto and iMovie are to managing photos and editing movies, so you might assume MacPowerUser Software's iDraw would be to drawing illustrations and animations. iDraw 1.1.1 shares OS X compatibility and an elegant interface with the aforementioned Apple applications, but unfortunately, the resemblance ends there.

The iDrawing Board iDraw 1.1.1's lean interface consists of a document window with a toolbar, an Info Panel, and a Frames panel.

iDraw provides most of the basic tools found in vector drawing applications. Graphic artists can use iDraw to create attractive work, but it's not easy. The simple shape-drawing tools work more or less as expected, but the Bézier Pen tool has several quirks, and the freehand Pencil tool leaves too many points along a path; this balloons file sizes and makes tweaking the path after you've drawn it impractical.

The Combine Outlines command lets you meld drawn shapes, but the only option is to exclude the intersection of those shapes. There are distortion tools in the toolbar, but many of these "tools" can't actually be used in the document window—clicking on the toolbar icon merely activates a slider (in the Info Panel) that controls distortion. On the plus side, a shape's line and fill can utilize transparency.

The Frames panel allows you to base subsequent animation frames on your initial frame, but the program lacks interpolation; if you want an object to move across ten frames, you have to set the position for each frame by hand. A timeline of some sort would be welcome.

iDraw exports still images in a nice variety of formats: JPEG, GIF, animated GIF, PNG, SWF, TIFF, PDF, and EPS. You can control JPEG quality but not GIF compression—gradients and imported images display heavy banding upon export.

It's a good thing iDraw is fairly easy to figure out, since there's no manual or built-in help. The Read Me file provides a brief tour of the program and an e-mail address for further questions. But after a week's time, our e-mail messages remained unanswered.

Macworld's Buying Advice

Although iDraw 1.1.1 can be used to create illustrations and animations, it has many quirks and problems. Considering the dearth of OS X alternatives, the program might be an option for those with modest budgets and needs. □

RATING: ◆◆◇

PROS: Lean interface; uses transparency; many image-export formats.

CONS: Nonstandard tools; no animation interpolation; unresponsive tech support.

PRICE: $40

OS COMPATIBILITY: Mac OS X

COMPANY: MacPowerUser Software, 402/323-6692, www.macpoweruser.com

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> Meetingmaker 7.1

continued from page 36

server and client work fine on OS X–based systems as well.)

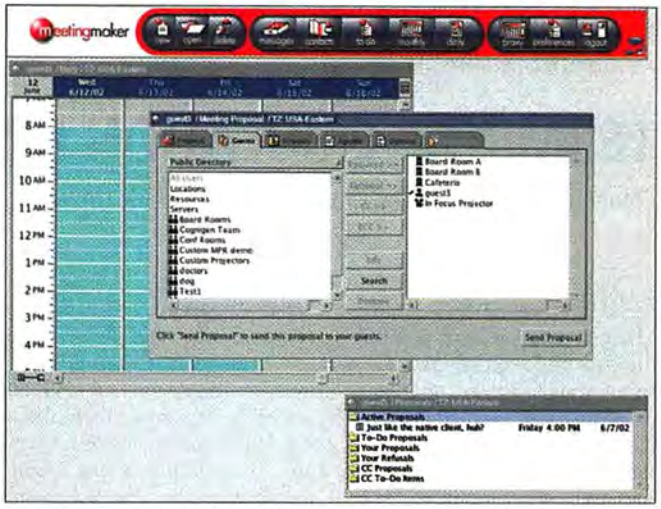
One of Meetingmaker's new features should thrill users who regularly travel to different time zones—you can now change your time zone when you sign in to the client application, and the program adjusts your schedule accordingly. This feature can keep your colleagues from scheduling meetings at less-than-optimal times, such as the middle of the night, if you happen to be halfway across the world.

You can also configure the client to forward meeting proposals and reminders to your cell phone or pager, and you have the option of turning these notifications off for specific times, such as evenings and weekends. Unfortunately, the client, not the server, takes care of these notifications, so you have to keep the Meetingmaker client application running on your Mac for this feature to work.

Stumbling Blocks

Printing calendars revealed a minor bug. If you have too many characters in a scheduled event's name, or if a word is too long, it gets broken up and is almost unreadable. This was especially true of multiday events printed when viewing the calendar a week at a time—they overwrote one another from one day to the next and ended up looking like a thick black line across the top of the calendar.

Meetingmaker lacks import capabilities for contacts and to-do lists, unless you can sync them with your Palm device. So if you want to include items that you have in an existing database, you must enter the information by hand. The same holds true for calendar events you may be storing in Microsoft Entourage or Power On Software's Now Up-to-Date & Contact.



Rise and Shine Meetingmaker 7.1's Java client sports a more visually pleasing interface than its desktop-based relative.

Macworld's Buying Advice

Meetingmaker 7.1's instant access to a range of calendaring information—from a CEO's availability to when meeting rooms are open—makes it an excellent scheduling package for any office environment. The program is especially useful for larger companies that need to manage not only their employees' meeting schedules but also the conference rooms and equipment that help those meetings run effectively.

Although it still needs a facelift, better print and administration functions, and import capability, Meetingmaker 7.1's easy setup, cross-platform capacity, and nearly infinite scalability make it the perfect choice for all of your group-scheduling needs. □

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TERMINAL-EMULATION PROGRAMS

PowerTerm and CelView Make Their Mac OS X Debuts

BY JEFFERY BATTERSBY

Many of us spend our computing days and nights looking at a shiny Aqua interface, but plenty of people still earn their lunch money staring at screens that look more like DOS than anything remotely graphical. Those systems include everything from Unix and Linux to IBM "Big Iron," such as the AS/400, and nearly all require that you have some kind of terminal-emulation program to manage and program them. Two new OS X–native terminal-emulation programs—Ericom's PowerTerm 1.0 and Celcorp's CelView 3.0.1—give your Mac quick access to these powerful systems, and while both work well, neither is a standout.

PowerTerm

The $150-per-seat, OS X–only PowerTerm comes to the Mac for the first time in this version, ported from a Unix terminal-emulation program of the same name. As such, it comes with a quiver full of features that will appeal to users who need to connect to a variety of systems: VT terminals, IBM terminals (both 5250 and 3270), Data General, AIXTERM, WYSE, HP, TANDEM—basically, you name the terminal type, and PowerTerm has it covered. Entering commands is easy; you can click on any on-screen menu item to execute the command instead of typing it in a command line. Using the program's graphical keyboard editor, you can change keyboard mapping with a simple drag and drop, and PowerTerm supports a wide range of languages.

The program includes powerful scripting tools that can capture your keystrokes and save them as macros, but it's missing a key feature and has an irritating quirk. First, PowerTerm gives you no way to transfer files to or from your connected system, a shortcoming that may have you running to a PC or fudging with an FTP program to get the job done. Second, when you save a configured terminal session for future use, you wind up with four generic icons, none of which can be double-clicked on to open your saved terminal session.

When it comes to IBM host-based printing, PowerTerm includes excellent host print transform capabilities. This feature—which allows IBM mainframe and midrange systems to select drawers and envelope feeders on printers attached directly to your Mac—is especially important to remote users who need full IBM printing support when they're outside of the office.

Do You Believe in Button Magic? Any macro you create in CelView 3.0.1 can be saved and added to a customizable floating palette.

CelView

When it comes to terminal emulation on the Mac, CelView is the veteran, and it runs in OS 8.6 through OS X. CelView can connect to two platforms: either Mainframe systems or the IBM AS/400. Unfortunately, you can't use one package to connect to both platforms. You'll need to buy either the Mainframe version or the AS/400 version, and at $250 a pop, this is guaranteed to put a dent in your budget, especially if your work environment requires that you connect to both systems. Compare that with PowerTerm, which costs $150 and connects to them both, and more.

Like PowerTerm, CelView is capable of recording keystrokes that you can save as macros. The macros run at about one-quarter the speed of PowerTerm's macros, but in CelView you can also create Quickstep toolbars and turn your macros into buttons that stay in a floating palette. In fact, CelView comes with a preconfigured set of macros that put every function key and a variety of other important commands one click away.

CelView one-ups PowerTerm by letting you transfer files to and from your connected system from within the program. But file transfer is limited by the fact that there is no EBCDIC-to-ASCII translation while you perform the transfer. This shortcoming severely limits the value of the transfer program. Also, CelView's response time was noticeably slower than PowerTerm's.

Unlike PowerTerm, CelView doesn't support host print transform using TCP/IP, although host print transform is available if you're willing to run AppleTalk. If you do use the AppleTalk option, you'll have to set up a second Mac to act as a server for the print jobs, which is a less than optimal solution, especially in a small remote or home-office environment.

Macworld's Buying Advice

Both PowerTerm 1.0 and CelView 3.0.1 perform terminal emulation without a hitch, but the choice between them is a toss-up—it will depend on what you need to get done. PowerTerm offers more than a dozen terminal-emulation types, has snappy response times, and includes one-click access to many on-screen commands, all for a very low price. But a big strike against it is that it has no file-transfer capabilities and odd file-saving quirks that can make working with it frustrating.

CelView's custom toolbars of your own macros, file transfer to and from your connected system, and ability to use an older Mac OS make it an appealing choice for anyone who needs to connect to legacy systems. But those capabilities come at a premium, especially if you have to connect to more than one type of system. □

CELVIEW 3.0.1

RATING: ♦♦♦½

PROS: Good file transfer to and from connected system; customizable button bars.

CONS: Need separate versions for AS/400 and Mainframe connection; no EBCDIC-to-ASCII translation on file transfer.

PRICE: $250

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Celcorp, 780/438-2323, www.celcorp.com

POWERTERM 1.0

RATING: ♦♦♦½

PROS: Supports 25 terminal types; quick system response; drag-and-drop keyboard mapping; one-click access to all system commands.

CONS: No file transfer; can't easily open saved terminal sessions; no support for earlier OSs.

PRICE: $150

OS COMPATIBILITY: Mac OS X

COMPANY: Ericom, 888/769-7876, www.ericom.com

CONCEPTDRAW PRESENTER 1.0

Presentation Software Offers a Comprehensive Collection of Drawing Tools but Lacks Important Basic Functions

BY FRANKLIN N. TESSLER

For Mac and Windows users alike, the terms "PowerPoint presentation" and "electronic slide show" have been almost synonymous for years. But Computer Systems Odessa's ConceptDraw Presenter 1.0.1 aims to provide a viable alternative to Microsoft's PowerPoint. The company bills Presenter, which runs in OS 9 and OS X, as the perfect solution for creating slide presentations and enhancing PowerPoint shows. But before Presenter can even approach PowerPoint's ubiquity, it will have to grow to include items such as global editing and QuickTime importing.

Quick on the Draw

Presenter's extensive suite of drawing functions, including splines and curves, ought to keep most artists satisfied. It also has Smart Connectors, which let you draw connecting lines that stay with objects as they move. For those who need a head start on their projects, Presenter has Libraries, which let you import prerendered drawings into your slides.

We also appreciated Presenter's responsiveness, especially during slide shows, an issue that occasionally makes users reluctant to run PowerPoint X presentations on slower Macs. Presenter provides more animation options than PowerPoint, including controls that let you fine-tune animation timing and a function that lets you add scrolling text captions to live presentations. Path-based animation would be a welcome addition, but you can accomplish a great deal with Presenter's existing tools.

PowerPoint Files Get the Cold Shoulder

We were initially intrigued by Presenter's ability to import and export PowerPoint 98 files. While the program imported PowerPoint 98 presentations with nary a complaint, the translation was often flawed. For example, the background of some slides changed color inexplicably, making text impossible to read. We encountered severe banding in shaded backgrounds, and many text animations didn't work at all. We determined that we would've had to do a good deal of work to restore most of our imported PowerPoint files.

Presenter didn't fare much better when exporting to PowerPoint, but it did correctly save presentations in Flash, PDF, and HTML format. (Computer Systems Odessa says that the glitches are caused by PowerPoint's lack of comprehensive specification for its file format.)

Missing the Basics

Presenter's glaring omission of support for global editing surprised us—the program has no master slides or text placeholders. In Background view, you can place and edit text blocks, and they will appear identical on every slide. But if you decide later that you don't like the color or size of your titles, for example, you have to edit each one individually.

Presenter's inability to place QuickTime movies on slides is another red flag for educational, scientific, and other professional presenters, who often must import video clips into their presentations. (You can, however, import sounds and static images.) Presenter also doesn't have a find-and-replace function, and it doesn't include a spelling checker or provide tools for bulleted text, tables, or graphs.

The Art of Presentation ConceptDraw Presenter 1.0.1's Libraries make it easy to add drawings to presentations.

Macworld's Buying Advice

While it's refreshing to see a new presentation package on the market, ConceptDraw Presenter 1.0.1's missing features put it out of the running for most professional work. For the time being, Presenter is worth considering only if you covet its drawing tools and can live with its many shortcomings. □

RATING: ♦♦½
PROS: Extensive drawing tools and animation functions; responsive during slide shows.
CONS: No QuickTime import; no way to globally edit text; flawed PowerPoint importing and exporting.
PRICE: $199
OS COMPATIBILITY: Mac OS 9, Mac OS X
COMPANY: Computer Systems Odessa, info@conceptdraw.com, www.conceptdraw.com

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Mac

SPINIMAGE DV PRO

Easy-to-Use VR-Object–Creation Software Lets You Take Things for a Spin

BY BEN LONG

A VR object—a QuickTime movie of a rotating object—can be a great way to spice up online catalogs and photo galleries. But creating these objects is usually a time-consuming process involving expensive VR rigs and lots of still photos. Autolycus's SpinImage DV Pro automates this process, letting Web designers and multimedia developers use any DV camera and motorized turntable to generate single-axis VR-object movies; Web-site visitors can then click on and spin those objects to their hearts' content.

Object Creation

SpinImage's strength is its simplicity. You use your DV camera to shoot full-motion video of your object while it's rotating, and the program pulls only the frames it needs from that video stream. To create our movie, we attached a DV camera to our Mac with a FireWire cable. SpinImage displayed a live image from the camera, which allowed us to adjust framing and composition in real time. (The program can also work with prerecorded movies.) We used a turntable from Autolycus capable of supporting as much as 350 pounds, so we were able to spin a variety of objects, including people.

Once the program has captured one full revolution of your object, it displays a continuous loop of your movie in a special editing window. This window provides easy-to-use manual controls for trimming extra frames and for cropping.

Buttons at the top of the editing window let you preview or export your movie. From the Preview mode, you can view your movie a frame at a time and set compression settings for each frame, to optimize the size-quality balance of your final file.

Getting the Results You Want

Besides cropping and frame trimming, SpinImage provides no tools for correcting or editing your images. For the most part, this is not a problem. As the manual wisely advises, good object movies are the result of good lighting and shooting. Trying to make seamless, uniform edits to each frame of an object movie can be very difficult, so it's much better to spend time properly lighting and exposing your image. But we'd still like to see, at least, a levels control that allowed for some simple white and black point corrections; this would go a long way toward easing the lighting chores.

Picture Perfect You can use SpinImage DV Pro's editing window to trim excess frames or resize your image.

Object Output

SpinImage can export a standard 320-by-240-pixel or 640-by-480-pixel QuickTime VR movie, as well as an HTML file that provides the code you need to place your movie on a Web page. It can also output a proprietary SpinImage-format movie, which doesn't require a special plug-in for viewing.

SpinImage provides a number of output options for its HTML files. For example, objects can be made to spin either automatically or when the user mouses over them. SpinImage even includes special options and instructions for constructing movies that are ready to place on popular auction sites such as eBay. (Autolycus also offers the $250, entry-level SpinImage DV version, which provides fewer output options and lower output resolution.)

Macworld's Buying Advice

SpinImage DV Pro is definitely the fastest, easiest way to create a single-axis VR-object movie, but for $1,000, we'd expect more and better editing controls. If you need to knock out VR-object movies quickly, though, it's hard to imagine a simpler solution. □

RATING: ♦♦♦

PROS: Simple interface; produces very good results.

CONS: Lacks a levels control; expensive for its limited functionality.

PRICE: $1,000

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Autolycus, 717/761-9080, www.autolycus.com

ATTENTION APPLE AIRPORT OWNERS

TO: Anyone in the United States who bought a new Apple AirPort Base Station and AirPort Card (the "AirPort System") on or before September 8, 2000, and who, at the time, subscribed to an Internet service provider that was not compatible with the AirPort System ("the Class").

This is to inform you of a proposed settlement that may affect your rights. **This is only a summary of the full Class Notice. You may obtain a full Class Notice, which explains your rights and gives instructions on how to claim settlement benefits, by calling toll-free (800) 207-0343. You can also download a copy of the full Class Notice at http://www.AirPortClaimsAdmin.com or www.blbglaw.com.**

The proposed settlement involves a class action lawsuit where the plaintiffs claim that Apple Computer, Inc. ("Apple"), did not disclose that the AirPort Base Station ("Base Station") and AirPort Card ("Card") (together the "AirPort System") was not compatible with certain Internet service providers ("ISPs"). Apple denies these claims.

Settlement Benefits

If the court approves the settlement, you may be entitled to one of the following benefits for each AirPort System you bought on or before September 8, 2000, if you subscribed to an incompatible ISP at the time you bought your AirPort System:

ISP Payment: If you kept your AirPort System and switched to another ISP or subscribed to America Online ("AOL")'s "Bring Your Own Access" option, you may be able to receive a $45 cash payment.

Restocking Repayment: If you returned your AirPort System and paid a restocking fee, you may be able to receive repayment of the restocking fee you paid up to a maximum of $45 for the Base Station and $15 for the Card.

Resale Reimbursement: If you resold your AirPort System at a loss and/or incurred costs for the sale, you may be able to receive reimbursement for the amount you lost up to a maximum of $45 for the Base Station and $15 for the Card.

In addition, if the settlement is approved, Apple will be required to include a notice of the AirPort System's incompatibility with certain ISPs on all of its web site pages that mention the AirPort System's connectivity to the Internet, and on AirPort product packaging.

How To Receive Settlement Benefits

To be eligible for any of the above benefits, a Claim Form and Release must be submitted. Please call the toll-free number or visit the web sites listed above to get copies of the full Class Notice, Claim Form and Release, as well as instructions on how to submit a claim.

Hearing Notice

A Final Hearing will be held before the Honorable Jack Komar of the Superior Court of California for the County of Santa Clara, located at 191 North First Street, San Jose, California, on October 8, 2002, at 9:00 a.m. to determine: (1) whether the proposed settlement is fair, reasonable and adequate; (2) whether a settlement class should be certified; and (3) whether the application of counsel for the class for an award of attorney's fees and expenses in an amount up to $304,000 and the two class representatives' requests for awards of $500 each should be granted.

Right To Object, Request Exclusion or Seek To Intervene

If you are a member of the proposed Settlement Class, you also have the right to exclude yourself from the settlement, object to the settlement or to the payment of attorneys' fees and expenses, or seek leave from the Court to intervene. **These rights must be exercised by September 13, 2002.** The full Class Notice explains how to exercise these rights.

DO NOT CONTACT THE COURT OR THE CLERK'S OFFICE FOR INFORMATION.

IN BRIEF

MACBREAKZ 3.2 9X

●●●●; Publicspace.net, www.publicspace.net; single license, $25; five licenses, $100

Ergonomics experts say that taking frequent breaks makes computer users less likely to injure themselves. To provide the necessary encouragement to take a breather from your beloved Mac, MacBreakZ 3.2 unobtrusively tracks your keyboard and mouse activity, reminds you to take breaks, and recommends constructive break-time activities. You can even set it to lock your mouse and keyboard during breaks if you're incorrigible.

MacBreakZ runs in OS 9 and OS X, and it alerts you when it's time for two kinds of breaks: microbreaks (0 to 60 seconds) and longer rest breaks (2 to 60 minutes). You control the interval between breaks and the length of breaks, and, appropriately, the program bases your options on the advice of ergonomics experts. During your time out, the program shows ergonomics tips and charming cartoon people who demonstrate recommended stretches.

MacBreakZ offers an impressive number of customization options. In addition to break frequency and duration, the Settings menu lets you control audio warnings of upcoming breaks, the number of ergonomics tips and stretches that display during a rest break, and even the gender of the cartoon characters. However, some of the controls, such as the timing sliders, could give clearer feedback.—TERRI STONE

FILE BUDDY 7.1 9X

●●●●½; SkyTag Software, 919/933-9595, www.skytag.com; $50

File Buddy 7.1 is a unique utility that gives advanced users unprecedented control over files and folders in both OS 9 and OS X. By dragging and dropping a file, folder, or even an entire volume into File Buddy's List window, you gain instant access to every visible and invisible file for which you have privileges. You can then perform various actions on your files, including moving, deleting, creating aliases for, and batch-renaming them. This is a much more efficient way to work with your file system than using the Finder for these tasks.

File Buddy also includes an information window that outdoes the Finder's Show Info window by a long shot: it lets you change file and creator types, file privileges, and much more. (If that feature is all you need, Rainer Brockerhoff's XRay does an excellent job at a fraction of the price.) Another intelligent feature allows you to take snapshots of folders before and after changing their contents, so you can compare them—particularly useful for tracking down files created during those often mysterious OS X installations.

File Buddy offers you the ability to create and apply custom icons, make droplet applications, and set keyboard shortcuts for quickly modifying files and folders. Top it off with an excellent search function that surpasses Sherlock, and you've got an all-around helpful utility that's easy to use. Some may balk at its $50 price, but for everything File Buddy does, it's a good value.—JONATHAN SEFF

PLUGGO 3.0 9

●●●●; Cycling '74, 415/974-1818, www.cycling74.com; $199

If you want one affordable package that contains a slew of audio plug-ins compatible with Steinberg's VST, Mark of the Unicorn's MAS, and Digidesign's RTAS effects formats, you need look no further than Cycling '74's Pluggo 3.0.3. At $199 for more than 80 audio plug-ins and 20 virtual instruments, Pluggo delivers tremendous bang for the buck.

Pluggo includes traditional (and well-implemented) reverb, delay, chorus, and distortion effects. It includes its fair share of exotic effects as well. The Space Echo effect, for example, can replicate a badly aligned EchoPlex (a vintage, tape-based delay effect), and the Granular-To-Go effect can produce sounds similar to a CD skipping or the kinds of blurps and beeps emitted by *Star Wars*' R2-D2 droid. The bizarre nature of some of these effects demonstrates how flexible they can be (and how far you can push them). Thankfully, it's not difficult to find a musical use for most of them.

The equally varied virtual instruments include drum machines; theremin; and additive, sampling, wave-table, and FM synthesizers. While you'll likely find a place for these instruments, they're a little thin sounding, so don't expect them to replace high-end VST instruments or a hardware synthesizer.—CHRISTOPHER BREEN

TYPESET 1.1 9X

●●●; Vizspring Software, www.vizspring.com; $15

Vizspring Software's Typeset 1.1.1 is a shareware application that lets you view your active fonts in a WYSIWYG format. It won't activate them for you, but it works well with the more complex font-management applications that will, such as Extensis's Suitcase 10.1 (*Reviews*, April 2002) or DiamondSoft's FontReserve 3 (*Reviews*, May 2002).

In both OS 9 and OS X, the interface is so clean and simple it borders on cute. A two-pane operational window lets you choose fonts on the left to preview them on the right.

With Typeset's main feature, Favorites (or font groups), you can see select sets of fonts rather than the whole mass of active fonts on your system. It would be great if the program let you add more than one font to a group at a time; creating a group larger than five typefaces becomes tedious because you must add them one by one.

But Typeset does factor one twist into the font-preview equation: It allows you to easily display formatting variations such as bold, italic, underline, and font and background color. (Be aware, however, that imposing variants onto a roman font is considered a real no-no by many pros.)

For home projects or office use, previewing fonts with Typeset can be very helpful; the program is an inexpensive and speedy utility that will readily find a home on almost anyone's Mac.—ANDREW SHALAT

SCATTERLIGHT LENSES 9

●●●½; Andromeda Software, 805/379-4109, www.andromeda.com; $98

Andromeda Software's ScatterLight Lenses filter for Adobe Photoshop provides a way to give your photos a dreamy, soft-focus look. The filter offers four main categories of lens effects, each loaded with multiple presets. The DreamOptic, SoftFocus, and SoftDiffuser lenses all distribute light to add a hazy glow to images. SoftFocus tends to be the most useful of the bunch; it produces the subtle softening often seen in professional portraits. The fourth category, StarLight, turns focused points of light into stars. Its presets offer several different star patterns, and it works best when used in combination with the selection tool.

The filter's interface—which, regrettably, has a Windows look—provides sliders for refining each of the effects. For even more control, you can switch from Novice to Expert mode and tinker with additional settings. In another nice touch, ScatterLight Lenses gives you two preview windows: a large one that displays a downsampled version of your entire image, and a smaller zoom window. However, the previews were not always reliable. On some occasions, they varied dramatically from the actual result.

The ScatterLight Lenses filter works with Photoshop 5 and later, but since it's not OS X compatible, Photoshop 7 users will have to work in OS 9 or Classic.—KELLY LUNSFORD

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The award-winning Formac Gallery 1740 clearly outperforms comparable flat panel monitors in picture and video quality. Formac's proprietary technology offers numerous advantages, including: truly distortion-free colors and an ultra wide viewing angle; better brightness and contrast ratio; and amazingly accurate colors that conform to PANTONE® display standards. And now, Formac also offers Gallery CAL - the most advanced digital color management solution for professionals working in color-critical applications on either Macs (ADC) or PCs (DVI). Formac's Gallery 1740 starts at only $899. To fall in love with it, visit **www.formac.com**

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Gritty Action, Kid Adventure, and Everything in Between

Something for Everyone

BUCKSHOT FROM A SHOTGUN SHELL DISPERSES IN A WIDE pattern. That's just one lesson I learned while playing Max Payne, one of the games I review this month. And like scattered buckshot, the other products I look at cover the gamut—from a noir-style action game in which you fill the shoes of a rogue cop, to a bouncing ball of clay for kids, a medieval-castle simulator, a free puzzle game, and even a book that will take you down memory lane if the words *Pac-Man Fever* stir a melody in your heart.

Bullet Time Slow down time *Matrix*-style and use it to your advantage with Max Payne's Bullet Time feature.

Max Power

Max Payne is an undercover cop whose wife and child have been murdered, and he, framed for a crime he didn't commit, is on the run from the law. The victim of a cabal headed by a notorious crime family, Payne is out for payback. That's the gritty noir setting and the background of MacSoft's latest, Max Payne, a third-person action game à la Tomb Raider.

The game's title not only refers to the protagonist's name but also aptly describes what he suffers while you're playing the game. Taking you through the seedy underbelly of New York City's graffiti-ridden slums, rat-infested subways, dilapidated lofts, and dark and dangerous wharfs, Max Payne features action sequences that rival those of a John Woo movie.

Third-person action games are often criticized for their failure to deliver the precise aiming you can get with a first-person shooter such as Unreal Tournament. This could easily have been a problem in Max Payne, too: there's always another thug around the corner, armed to the teeth and ready to take you down. Max Payne's solution is a game-play feature called Bullet Time, modeled after the clock-stopping special-effects sequences used in *The Matrix*.

Worried about getting pummeled with a hail of bullets when you charge into a room filled with bad guys? Invoke Bullet Time; then dive in, take aim at your targets, and let loose with your own weapons. You don't walk, run, or jump any faster than your enemies—but you have more time to react, and you can set up your shots more carefully.

Max Payne is, fundamentally, a tough game. You'll have to get used to its QuickSave and QuickLoad features, because you will die over and over and over again as you play, especially in several sequences where you have only one chance to get things right.

For all its difficulty, though, the game play in Max Payne isn't terribly varied. With a few notable exceptions, you'll find yourself running, jumping, shooting, ducking, blowing open crates and cabinets to replenish your stockpile of ammunition and health kits, and not much more.

But Max Payne's graphics are beautiful—especially its graphic-novel–style interstitial sequences (narrated by Max himself, in true film-noir style). And its tone is perfect, right down to the self-consciously cheesy dialogue: "He was dead. I could tell by the empty, accusing stare in his eyes."

Despite its repetitive nature, the game is compelling enough to play from start to finish. There are no multiplayer options, though, so once you're done, you'll never play it again.

Max Payne is not short on gore. It's rated Mature for its use of violence and blood, so parents who are trying to limit their kids' exposure to mayhem may want to steer clear.

The Bottom Line Bullet Time, the film-noir setting, and the hammy dialogue make Max Payne a >>

MAX PAYNE

RATING: ♦♦♦♦

PROS: Innovative Bullet Time twist on fight sequences; enjoyable noir setting.

CONS: No replay value; cheesy dialogue can be off-putting.

PRICE: $50

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: MacSoft, 763/249-7600, www.wizworks.com/macsoft

unique addition to the pantheon of third-person action games available for the Mac.

Follow the Bouncing Ball

Ollo in The Sunny Valley Fair is an entertaining kids' game from Plaid Banana Entertainment, publisher of Moop & Dreadly in The Treasure on Bing-Bong Island—an excellent adventure game for older kids (★★★★; *The Game Room*, August 2002).

Geared toward kids aged three and up, Ollo in The Sunny Valley Fair tells the story of an affable blue clay ball who helps his friends through adversities in the land of Sunny Valley. Ollo's anthropomorphic animal friends all have important jobs that he has to help with as this story's six chapters play out. For example, Ollo helps one friend grow a prize-winning tomato for the county fair. But the giant plant gets much bigger than Ollo expects, and the tomato rolls away, wreaking havoc as it makes its way through Sunny Valley.

Each panel of the story is rife with clickable elements that provide entertainment and education for young players. The game reinforces pattern and shape recognition, simple arithmetic, and other basic concepts. Specific activities garner marbles as rewards, which Ollo carries in a bag. When players get tired of the regular game, they can use their marbles to create a Pachinko-style marble maze.

The Bottom Line Ollo in The Sunny Valley Fair combines learning and fun in an approachable game with excellent production values. It's probably not challenging enough for players of grade-school age, but preschoolers will love it.

OLLO IN THE SUNNY VALLEY FAIR

RATING: ★★★★½
PROS: Lots of clickables; the marble maze makes for a fun distraction; great for preschoolers.
CONS: Older kids will quickly lose interest.
PRICE: $20
OS COMPATIBILITY: Mac OS X
COMPANY: Plaid Banana Entertainment, 800/328-4712, www.plaidbananagames.com

Wild Pitch Living ball of clay Ollo meets a frog in a dunk tank during one Sunny Valley Fair adventure.

Have Fun Storming the Castle!

If you've seen *The Princess Bride*, you know that storming a castle guarded by 60 men is easy if you've got a swordsman, a giant, and a wheelbarrow handy. Fortunately, it's not so easy to take control of the castle in Stronghold, a great blend of strategy game and city-building simulator that focuses on the creation and destruction of medieval castles.

Castles really were run like little cities, and that historical note wasn't lost on the game's developers. First you must find a suitable location with easy access to local resources, and only then do you begin to build. You can increase the population of the serfs you depend on for cheap labor, and you can tax them to improve your revenue base.

In the initial stages, Stronghold is all about collecting the resources you require to survive. As time goes on, your needs and those of your people grow more complex. To build specific fortifications for your castle, you must stockpile certain resources, such as wood, stone, or gold. Before you can attack your enemies, the game may require that you have specialized units, such as engineers who build smelters, which produce pots of boiling oil to dump on any who dare to scale your castle walls.

Stronghold has several basic play modes, but combat-oriented missions and economic missions make up the bulk of your challenge. The combat missions include a 21-mission campaign, several scenarios involving the attack or defense of historic castles, and Mac-to-Mac multiplayer games over the GameRanger service or a local area network. The economic missions focus on your skills as administrator (instead of warlord), in >>

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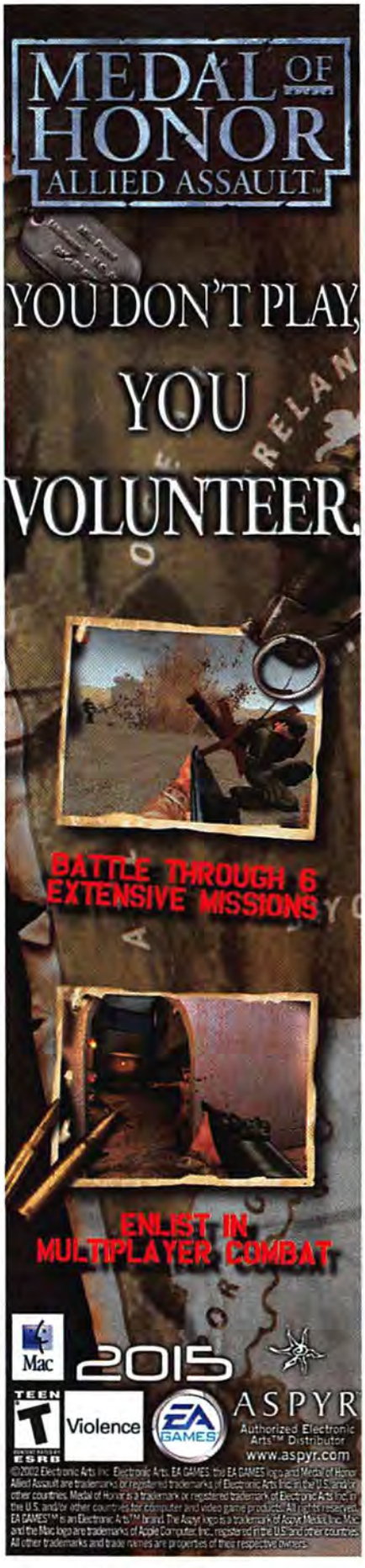

The Brute Squad Stronghold lets you save a castle under siege—or destroy one yourself. Just watch out for the boiling oil.

either a five-mission campaign or individual missions with predefined goals. A Free Build mode lets you go wild with castle designs of your own imagination, unfettered by pesky enemies or economic goals.

The 67-page manual that accompanies Stronghold is more than enough to familiarize you with the game's details, from how to harvest and refine resources to how to attack your foes.

The interface and the military campaign have a couple of shortcomings. The game takes place on an isometric playing field, and switching between different modes and views can be cumbersome. It was jarring to switch cardinal directions when I wanted to check whether I had properly built a wall or placed a granary. The pace of the military campaign (a story line involving the overthrow of four corrupt barons in southern England) also seemed a bit plodding, and it lacked the overall sophistication of other games from the same creative team, including Caesar III and the Lord of the Realms series.

The Bottom Line Medieval strategy games rarely have universal appeal, but Stronghold is a standout in the genre—albeit one that has a few warts. With multiplayer gaming, free play, and a variety of play modes that allow you to hone your martial and administrative skills, there's a little something for everyone.

STRONGHOLD
RATING: ★★★★½
PROS: Variety of game-play modes will keep you entertained for hours; great attention to detail.
CONS: Predictable AI; cumbersome interface.
PRICE: $40
OS COMPATIBILITY: Mac OS 9, Mac OS X
COMPANY: MacSoft, 763/249-7600, www.wizworks.com/macsoft

Destroyer of Productivity

Giles Williams has created a disturbingly addictive puzzle game called JewelToy, and I'll warn you now that it's one of those games you have to be very wary of. JewelToy will get you in trouble at work because it's such a productivity drain.

The game begins with an 8-by-8 grid filled with jewels of varying shapes and colors. You swap the positions of adjacent gems to create a row or column of at least three matching gems. Do so, and you'll make the gems disappear, but in their place you'll see more jewels drop from the top of the screen, Tetris style. Match more than three gems, and you'll score more points.

But there's more to this game than just shape matching. You also have to beat the clock. At the bottom of the JewelToy screen is a time bar that slowly ticks down. If time runs out, the game is over. Matching gems increases incrementally the amount of time you have.

Just because it's free doesn't mean that JewelToy skimps on the details. It sports an alternate set of graphics, an automatic hint feature that'll tip you off to combos if you don't move for 20 seconds, a high-score list, multiple difficulty settings, >>

Software Gem JewelToy is a blissfully simple—but hopelessly addictive—puzzle game.

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CONTENT RATED BY ESRB

Mac

*Requires The Sims™ to play.

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built-in help, and even a pause feature so you can take a bathroom break (it blanks the screen, though, so you can't cheat). If the game has a rough spot, it's the sound: JewelToy uses a couple of sound effects borrowed from the movie *Tron*, and that's about it. But again, for the price, who am I to complain?

The Bottom Line Other programmers on other platforms have recycled JewelToy's concept. But this polished little OS X gaming gem takes only a minute to learn, and it's just what the doctor ordered when you're looking for a quick diversion in your spare moments. Download it now.

JEWELTOY
RATING: ♦♦♦♦
PROS: Addictive; easy to learn.
CONS: Lame sound effects.
PRICE: Free
OS COMPATIBILITY: Mac OS X
COMPANY: Giles Williams, http://homepage.mac.com/aegidian/jeweltoy/

Great Bathroom Reading

I've had a consuming passion for video games ever since I saw my first coin-op Pong game in the 1970s. As part of the first generation of kids who grew up with video games, I consider them an important part of my own history. That's why I took notice when Rusel DeMaria and Johnny L. Wilson—both experts in the field—collaborated on a $25 book, published by McGraw-Hill/Osborne, titled *High Score! The Illustrated History of Electronic Games.*

This 328-page tome starts with the prehistory of computer games—for example, bagatelle parlor games dating from Victorian times—and ends with the latest generation of video-game consoles: Microsoft's Xbox, Sony's PlayStation 2, and Nintendo's GameCube. In between, there are fascinating stories about the constant cycle of innovation and destruction that makes the electronic-game industry re-create itself every few years.

Early successes (the Magnavox home game consoles), giants (the Atari VCS and Nintendo Entertainment System), and coin-op standard-bearers (Asteroids and Dragon's Lair) are all recounted here, with many comments from the people who built the computer- and video-game industry into the multibillion-dollar empire it is today.

Even Apple makes a few appearances—most notably for its success in establishing the Apple II as a viable game console—complete with a sepia-toned photo of a bearded, shaggy-haired Steve Jobs and a clean-shaven Steve Wozniak, both in suits, posing with an Apple II.

Sadly, the Macintosh isn't discussed except in passing, since PC compatibles ultimately succeeded the Apple II as the dominant computer-gaming platform. It's a shame, because in the early days the Mac had compelling content you couldn't find on other platforms. Mac-game fanatics will surely love some of the trivia, however, such as a photo of an Afro-sporting but recognizable Bill "Burger" Heineman, and a brief history of id Software. There are also a few pages on companies that continue to be major players in the Mac market, such as Blizzard Entertainment.

The lack of extensive Macintosh content aside, this fascinating and well-researched book is a must-have for video- and computer-game enthusiasts who want a book that puts the last few decades into historical perspective. It's complete with tons of art and photos from throughout the history of electronic gaming, too, so there's plenty of material to stir your brain's visual center when descriptions of games may not jog your memory.

The Bottom Line *High Score!* is a great coffee-table (or bathroom) book for game geeks everywhere, regardless of their platform preferences. □

After spending some time at the beach, MacCentral.com Senior Editor PETER COHEN has discovered that using Stronghold on his PowerBook to build castles may be even more challenging than building the sandy variety, and it's a lot more hazardous when the tide comes in.

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BY | NAN BARBER, TONYA ENGST, AND TOM NEGRINO

Put Office X to Work

Be More Efficient in Word, Excel, PowerPoint, and Entourage

Whether you work for a multinational corporation or run a small business out of your basement, you've probably got at least one—if not all four—Microsoft Office apps installed on your computer. But although Microsoft's Office suite ($499; 800/426-9400, www.microsoft.com/mac) is one of the more widely used software packages on the Mac, few users tap into its full potential. The fact is, most people are too busy *using* Office to spend time learning how all its tools work.

To help you squeeze more power out of your Office applications, we asked three experts to share their favorite Office v. X tips and tricks. (Much of the advice also applies to earlier versions.) From timesaving shortcuts in Word to parent-friendly e-mail filters in Entourage, these often overlooked features will help you work faster and more efficiently.

ILLUSTRATION BY STEVE DITKO

Word

Word, arguably the most popular Office program, lets you do just about everything, from writing the Great American Novel to designing a basic Web page. But no matter how you use Word, you can save valuable time by taking advantage of its numerous shortcuts and automation tools.

Know Your Shortcuts

In Word, almost anything you can do with your mouse can also be done with the keyboard. By learning the keystrokes for just a few of the commands you use frequently, you'll work faster—and you may even minimize work-related strain on your arms.

Word is packed with useful keyboard shortcuts—most of which don't appear in the program's menus. (For a list of our favorites, see "Top 10 Word Shortcuts.") And you can easily assign your own shortcuts to commands that don't already have them (see "Create Your Own Shortcuts").

To see an index of all the shortcuts available in Word—including the ones you've created—open the Tools menu and choose Macros from the Macro submenu. In the resulting dialog box, open the Macros In pop-up menu and choose Word Commands. Scroll through the Macro Name box and select ListCommands. Click on Run.

When the List Commands dialog box opens, select the Current Menu And Keyboard Settings option and click on OK. Word creates a new document (which you can save or print) that lists all menu and keystroke commands.

Find Your Style

When you open a new Word document, only a few of the many available styles appear in the Formatting Palette's Style menu (Heading 1, Normal, Default Paragraph Font, and so on). For quick access to the gamut of styles Word offers (myriad Heading styles, bulleted lists, and other specialized formats), simply shift-click on the down arrow next to the Style menu.

AutoCorrect with Symbols

In addition to correcting common typos, Word's AutoCorrect feature can automatically insert symbols you use regularly. For instance, if you're a Valentine's Day consultant, you might appreciate a quick way to drop the ♥ symbol into your documents. Open the Symbol dialog box (Insert: Symbol), select the symbol you want, and click on the AutoCorrect button. (If you don't see the symbol you want in the Normal Text panel, open the Font pop-up menu and select a different set of symbols.) When the AutoCorrect dialog box opens, type an abbreviation in the Replace field. Be sure to choose an abbreviation that's unlikely to appear elsewhere in your document—**ht**, for example. To finish, click on Add and then on OK (see "Instant Symbols"). Whenever you type **ht**, Word will automatically replace it with the symbol you selected.

Spike Your Text

By using Word X's Multi-Selection tool, you can select multiple, unconnected items within the same document (hold down the ⌘ key while selecting). But what if you want to take chunks of text from multiple *documents* and paste them into a new one? For example, you might want to grab job descriptions from several old resumes to assemble a comprehensive work history. You can use the old and almost unknown Spike feature to quickly cut and paste from multiple sources. (You can't use it to copy text—it only cuts.)

To add text—or an image—to the Spike clipboard, select it and press ⌘-F3. Then select the next item (open another document if necessary) and press ⌘-F3 again. The Spike adds each selection to the end of the one it collected previously. When you're ready to paste the Spike's contents into your document, press ⌘-shift-F3.

Because the Spike feature is part of Word's AutoText feature, you can also paste its contents without emptying it. Just type **spik** in your document and press the return key. Word drops the Spike's contents into your document but saves them so they can be pasted again.

Turn Word Documents into PDFs

When e-mailing Word documents such as brochures, catalogs, or resumes, consider turning them into PDF files first. PDF files (a format created by Adobe Acrobat specifically for electronic delivery) are advantageous because they can be opened on any computer with all their fonts and graphics intact.

Thanks to a feature in OS X, you can create a PDF in Word X without launching another program (in fact,

TOP 10 Word Shortcuts

Word often gives you more than one way to do the same thing. Of these, the keyboard shortcut is usually the quickest—once you've taken the time to memorize it. We think the following commands are so useful that it would be a waste of time not *to commit them to memory:*

1. ⌘-shift-C Copy the font and paragraph formatting of a selection.
2. ⌘-shift-V Paste the formatting to another selection—the keyboard equivalent of the Format Paintbrush tool.
3. shift-→ *or* shift-← Select one character at a time.
4. option-shift-→ *or* option-shift-← Select one word at a time.
5. shift-↑ *or* shift-↓ Select one line at a time.
6. option-shift-↑ *or* option-shift-↓ Select one paragraph at a time.
7. shift-home Select from the insertion point to the beginning of the line.
8. shift-end Select from the insertion point to the end of the line.
9. shift-F5 Return the insertion point to the last place you were working in the document.
10. ⌘-8 Reveal formatting (a great way to spot double spaces and extra paragraph breaks in your document).

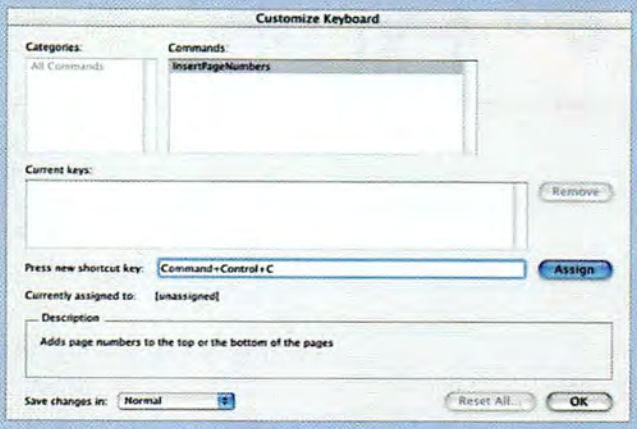
Create Your Own Shortcuts

If Word or Excel doesn't have a keyboard shortcut for a menu command you use frequently (to insert page numbers, for example), you can create your own with the Customize Keyboard feature.

Quick Keystrokes in Word To assign a new keyboard shortcut to a menu item in Word X, press ⌘-option-plus sign (+, on the numerical keypad); this turns the cursor into a ⌘ sign. Quickly use the mouse to select the menu command you want to use. The Customize Keyboard dialog box will open, showing the command you've just chosen. Next, press a key combination that will be easy to remember. It must include the ⌘ or control key, as well as one or more letters or numbers, or a function key. (You can add the shift and option keys to the mix as well.)

As you try different key combinations (⌘-control-C, for example), watch the bottom of the dialog box; Word tells you if a keystroke is already taken by another command. If it says Unassigned in the Currently Assigned To field, you're all set. Click on the Assign button and then on OK.

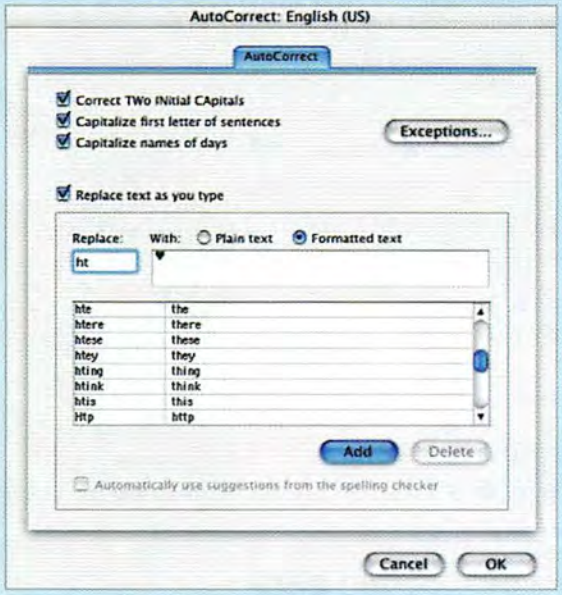
Ordering Off the Menu If the command you want doesn't appear in a menu (Copy As Picture, for example), or if you're working in Excel, you can use the Customize Keyboard dialog box to assign a keyboard shortcut. To access this dialog box, choose Customize from the Tools menu and click on Keyboard. In the Customize Keyboard dialog box, scroll down the Categories list and select All Commands; then choose the desired command from the Commands list. In this case, the command is EditCopyAsPicture. (Commands often start with a menu name and contain no spaces.) In the Press New Shortcut Key field, enter the key combination you'd like to use. If it isn't already assigned to another command, click on Assign and then on OK.



Custom Shortcuts If a Word or Excel command you use regularly doesn't have a keyboard shortcut, you can assign one from the Customize Keyboard dialog box. Try different key combinations until you find one that isn't already assigned to a command.

Shortcut Cheat Sheet To print a cheat sheet of just your custom Word keystrokes, press ⌘-P to open the Print dialog box, choose Microsoft Word from the pop-up menu, and then choose Key Assignments from the Print What menu.—NAN BARBER

you can also do this in TextEdit, Excel, and PowerPoint). Open Word's Print dialog box (⌘-P) and choose Output Options from the third pop-up menu; then select the Save As File option. Choose PDF from the Format pop-up menu and click on Print.



Instant Symbols You can use the AutoCorrect dialog box to automatically replace specific letter combinations with symbols. Make sure the Formatted Text option is turned on.

Create a Table of Contents

Word's built-in Heading styles are good for more than quick text formatting. They can also be used to define the structure of a long document and then automatically build a table of contents.

When creating your document, apply Word's built-in Heading styles (or styles based on them) to the title of each section. The selected Heading style should correspond to the level of information presented (for example, use the Heading 1 style for section titles, Heading 2 for subheads, Heading 3 for secondary subheads, and so on).

To create a table of contents once your document is finished, place the cursor at the beginning of the document and choose Index And Tables from the Insert menu. Click on the Table Of Contents tab to preview your table. If you've modified Word's built-in style formats, stick with the From Template option (in the Formats list) so your table of contents will match the fonts you used in your document. Otherwise, browse through the different designs and see if one grabs you. If your table's hierarchy requires more than three levels, click on the Options button to add more. When you click on OK, Word will gather your headings and place them in the selected format at the beginning of your document.

TIP

Don't reach for your mouse when saving documents. From the Save dialog box, press D for Don't Save, C (or the escape key) for Cancel, and S for Save.

Excel

The almost unlimited options for analyzing data in Excel can at times be overwhelming—even for experienced users. Here are some tips for entering and filtering information; they'll help you get the results you need quickly and minimize repetitive tasks.

Ensure Perfect Data

If you make template spreadsheets for others to fill out—or if you simply want to keep yourself in check—you can use Excel's Data Validation feature to prevent the entry of bogus data.

Start by selecting the cells that will hold the data. Open the Data menu and select Validation. In the Data Validation dialog box, use the three tabs to limit the values that can be entered, write an input message with tips for correctly entering data, and create an error message that will pop up when incorrect data is entered.

Fill Lists Fast

Excel can take some of the boredom out of data entry by automatically filling in common lists, such as the days of the week. Just type in the first day and then drag the fill handle in the lower right corner of the cell to the end of your list. Excel does the rest. But if you want Excel to fill your lists with less-common data, such as the names of a league's softball teams, branches of a business, or periods in a school day, you'll have to teach it what to do.

Open the Excel menu and choose Preferences. From the left side of the Preferences dialog box, select Custom Lists and then New List. Type your list items in the List Entries text box, pressing return after each entry. When you're done, click on Add.

If you already have the list in the current worksheet, you can save time by importing it into your preferences. Click on the up arrow next to the Import List From Cells field to collapse the dialog box, and then select the list on the worksheet. When you finish your selection, click on the Expand button (the upside-down triangle) and then on OK. Excel adds your custom list to its AutoFill know-how.

Get Organized with Customized Toolbars

Toolbars put a program's most useful features at your fingertips, saving you the trouble of hunting through menus for the right command. But the fact is, not everyone uses the same set of tools. This is why Word, Excel, and PowerPoint all let you customize toolbars to put your most-valuable tools right where you need them. Any command can be added to (or removed from) a toolbar, not just those that already have fancy buttons. You can even build an entirely new toolbar from scratch. For instance, an editor might want to have buttons for the Check Spelling, Word Count, and Protect Document tools all in one easily accessible toolbar. Here's how (the process is the same in all three programs).

Choose Customize from the Tools menu. In the Customize dialog box, select the Toolbars tab and click on New. Give your toolbar a name, such as Editing, and click on OK. The new toolbar should appear at the bottom of the Toolbars list, and a short, empty, floating toolbar should appear on screen.

You're now ready to add buttons to your toolbar. In the Customize dialog box, click on the Commands tab and search for the first item you want to add to your menu. To narrow down your search, select the name of the menu or type of command (Tools, for example) from the Categories box on the left. Once you've found the command (Check Spelling, for example), drag it to your newborn toolbar.

If your favorite commands don't have cute buttons (see "Retooling Your Toolbars"), you can assign your own. With the Customize dialog box open, control-click on the text-based button in your toolbar and choose Properties from the contextual menu.

The Command Properties dialog box has a blank button in its upper left corner, with a disclosure triangle next to it. Click on that triangle to see a panel of icons you can use for your button. But don't feel limited to the somewhat stodgy selection Word gives you. If you've installed the Office X Service Release 1 update, you can design and upload icon images yourself: Use a graphics program to create a 20-by-20-pixel button. Copy the image, return to Word, and choose Paste Button Image from the Command Properties dialog box.

After selecting a button, choose Default Style from the View pop-up menu to remove the command name from the toolbar. Close the Command Properties dialog box and repeat this process for each toolbar item. (If you forget what a button means, you can always hold the cursor over it to read the tool tip.)—NAN BARBER

Retooling Your Toolbars Since the Protect Document and Word Count commands don't come with their own icons, they show up as text. You can assign buttons to them from the Command Properties dialog box.

Give Results a New Look

Use Excel's Conditional Formatting feature to draw attention to important numbers, such as falling test scores or rising profits. To apply a standout appearance to all values above 100 in a selected group of cells, for instance, open the Format menu and choose Conditional Formatting. In the resulting dialog box, set the first pop-up menu to Cell Value Is and the second to Greater Than. Enter **100** in the text box. (You can click on the Add button to add more conditions, but keep in mind that Excel doesn't apply these conditions cumulatively—that is, if the first condition is met, Excel does not look for a second condition.) Next, click on Format and specify how you want your data to look—blue text, for example. When you finish, Excel will display all values greater than 100 in blue.

Focus on Important Data

To show only certain data in a list, work with AutoFilters, a powerful technique for temporarily hiding unwanted list entries. For instance, a nonprofit organization might use AutoFilters to single out patrons whose memberships run out in July *and* who renewed as boosters the previous year.

To set up AutoFilters, select the top cell in the first column you'll use to filter your data. Then choose Data: Filter: AutoFilter. Excel places a pop-up menu inside the cell. Choose criteria from this menu to display only the data that you want. Repeat this process for additional columns to further refine the filter. Excel doesn't delete the filtered data; to view it again, choose Show All from the filter's pop-up menu.

Get the Right Answer

If you know the result you want but can't figure out how to get it, make Solver—an Excel add-in—do the detective work for you. You may want to make your monthly expenditures add up to $5,000, for example, without having to sort out limits on individual budget categories. Solver can help (see "Solve Your Problems").

Before you can use Solver, you have to make sure it's installed. Open Excel's Tools menu. If Solver is missing, you can install it from the Office CD (or from your network if someone has kindly preloaded the Value Pack). Run the Value Pack installer, and install Solver from the Excel Add-ins category. When you're done, Solver should appear in the Tools menu.

To get started on your budget, choose Solver from the Tools menu and indicate the Target Cell (the cell containing a formula that should compute to your known value—in this case, your total monthly expenditures) and Target Amount ($5,000).

Next, specify the cells that Excel is allowed to change: click on the Guess button, or enter cell addresses or ranges. Click on the Add button, and set up any constraints Excel should respect, such as a sports budget that must not exceed $100. Finally, click on Solve.

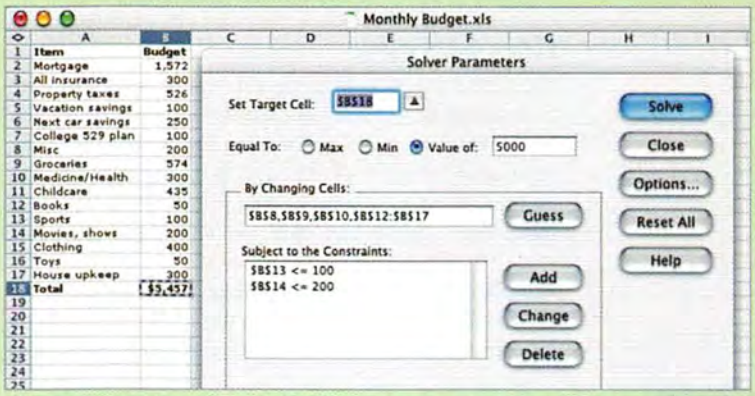
TOP 10

Excel Shortcuts

You can spend less time doing the mouse shuffle—and more time perfecting your spreadsheets—by becoming familiar with a few essential keyboard shortcuts:

1. control-shift-1 Apply number formatting.
2. control-shift-4 Apply currency formatting.
3. control-~ Show or hide all formulas.
4. F11 Create chart from selected data.
5. ⌘-option-0 (zero) Apply outline border.
6. ⌘-option-hyphen (-) Clear border.
7. control-9 Hide rows.
8. control-shift-9 Unhide rows.
9. control-0 (zero) Hide columns.
10. control-shift-0 (zero) Unhide columns.

Excel inserts its results into your worksheet and presents a dialog box that gives you the option of restoring your original values, saving the new values as a scenario for future reference (you can view past scenarios by choosing Scenarios from the Tools menu), or creating a report (to view a report, click on its tab at the lower left of the Excel window). If you're not satisfied with the results, you can run several Solver iterations, each time posing different constraints and saving the resulting scenarios until you find a solution that works.



Solve Your Problems To begin figuring out your monthly budget, tell Solver how much money you can spend ($5,000, for example) and set spending limits for specific categories ($100 for your sports budget, say). Solver will adjust the amounts.

Access Remote Data

Thanks to the Service Release 1 update to Office v. X—which was released in early June (see "Cleaning Up the Office," *Mac Beat*, August 2002)—Excel X can now connect to a remote FileMaker Server database via TCP/IP.

Whether you connect locally or remotely, you have two data-import options: a one-time import that slurps FileMaker data into Excel (choose Open from the File menu and then open the FileMaker file), or an updating import that reflects changes made to the FileMaker database. To import updated data, select Refresh Data from the Data menu.

>>

PowerPoint

PowerPoint is more single-minded than the other Office programs—it helps you create slide-show–like presentations, and that's about it. You can do a lot in PowerPoint by going along with its defaults. But to work more efficiently, or to customize your presentation for greater flexibility, try these tips.

Make Connections

When creating a flowchart or other linked graphics, don't use the Line tool to connect elements. If you resize or rearrange your objects, you'll have to manually reposition each and every line. Instead, use connectors. In the Drawing toolbar, click on the AutoShapes button and select a line or an arrow from the Connectors submenu. Drag your cursor between two elements on screen, and the chosen connector will snap into place. When something in your chart changes, the connectors will stay attached.

TIP

To quickly create an organization chart, use Office's built-in software that's specifically designed for the task. From PowerPoint or Word, choose Insert: Object: Microsoft Organization Chart. After you've designed your chart, Office drops it into the program you're working in.

Select Small Items

You may have trouble using a mouse to select an item that's small or partially hidden by another shape. You could solve the problem by zooming in, but using the keyboard is often more effective. Press the escape key to clear any existing selection; then press tab repeatedly to select items, one by one, until you land where you want.

Temporarily Shorten Your Show

If you have a long presentation but a client grants you only 15 minutes to make it, you can easily trim slides that can't be covered, without permanently deleting them from your slide show.

Choose Custom Shows from the Slide Show menu and click on New. In the Define Custom Show dialog box, give your truncated show a name. From the list on the left, select the slides you want to use in your new show, and click on Add to move them to the custom-show list on the right. Your longer presentation will remain intact while sharing slides with the shorter show. You can even use this process to make several custom shows of varying lengths.

To access one of your custom presentations, choose Set Up Show from the Slide Show menu. In the Slides section of the Set Up Show dialog box, select the Custom Show option and, from the associated pop-up menu, choose the show you want to access. Or, while you're in Slide Show View mode, control-click on a slide, and then select the show from the Go submenu.

Create Nonlinear Slide Shows

Another easy way to add flexibility to a slide show is to link optional custom shows to a main presentation. For instance, you can create a button that links a slide's bullet point to a custom show that expands on the point's topic. Then you can decide on-the-fly to open these slide-show branches if time—or your audience's interest—allows.

To create a button that links your main presentation to a custom slide-show branch, open the Drawing toolbar and select AutoShapes: Action Buttons: Custom. Use your cursor to draw a button on your slide. In the resulting dialog box, select the Hyperlink To option, and then choose your custom show from the list.

Make To-Do Lists

If a presentation tends to create follow-up questions or tasks for audience members, you can create a to-do list in PowerPoint as you give the presentation. While you're in Slide Show View, control-click on a slide, and choose Meeting Minder. In the Meeting Minder window, click on the Action Items tab and enter your item. PowerPoint automatically adds items to a new slide at the end of your show. You can also export the tasks to Word.

Retain Master Formatting

To ensure that slides retain their master formatting when pasted into a new document, open the PowerPoint menu and choose Preferences. Click on the Advanced tab and enable the option under Multiple Masters. To make new slides adopt the formatting of their new destination, clear this check box.

PowerPoint Shortcuts

Although you can always use the mouse to operate PowerPoint, sometimes the keyboard is faster. Here are a few handy keyboard shortcuts:

1. control-shift-Z Normal View mode.
2. control-shift-V Slide Sorter View mode.
3. shift-F3 Change case (keep pressing to change to different options).
4. option-return Move to next text area or create a new slide.

Use these in the Presentation Outline mode:

5. option-shift-← Promote.
6. option-shift-→ Demote.
7. option-shift-1 (numeric keypad) Show titles only.
8. option-shift-9 (numeric keypad) Show all.
9. option-shift-minus sign (-, numeric keypad) Collapse text below a title.
10. option-shift-plus sign (+, numeric keypad) Expand text below a title.

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Entourage

If you spend a lot of time reading and replying to e-mail messages, organizing your mail folders, or working with your schedule, Entourage X has the tools you need. Its powerful mail client can handle even the most-demanding e-mail traffic, and its PIM can keep your schedule and to-do items on track. Here are some tips that will help you take full advantage of Entourage.

Get Categorically Organized

Entourage's color-coded categories help you organize, filter, file, and sort your e-mail—as well as your contacts and events—so you can easily recognize and find items. You can even assign multiple categories to a single item, so you can search for it with a variety of criteria.

TIP

Save time when sending attachments: drag the file onto the Entourage icon in OS X's Dock. Entourage attaches the file to the existing draft message if one is open, or creates a new message with the file already attached.

But constantly mousing to the Categories list to label new contacts, tasks, or e-mail messages can quickly become tedious—so use your keyboard instead. Press ⌘-comma (,) to open the Assign Categories dialog box. Type the first few letters of the category's name to select it (**Fri** for Friends, say) and then press the spacebar to activate it. If you want this to be the primary category (which determines how the item is sorted in a list), press ⌘-S. You can repeat this process to assign additional categories, or press return to select OK and close the dialog box. (For other useful Entourage keyboard shortcuts, see "Top 10 Entourage Shortcuts.")

TOP 10

Entourage Shortcuts

There are many useful keyboard shortcuts in Entourage, and some of the best aren't listed in the menus:

1. **spacebar** Scroll down in a message.
2. **shift-spacebar** Scroll up in a message.
3. **⌘-shift-=** Increase the font size.
4. **⌘-shift-hyphen (-)** Decrease the font size.
5. **⌘-]** Display the next message.
6. **⌘-[** Display the previous message.
7. **control-option-[** Delete the current message and display the previous unread message.
8. **control-option-]** Delete the current message and display the next unread message.
9. **⌘-=** Add the sender of a message to your address book.
10. **⌘-shift-V** Paste the clipboard's contents as quoted text.

Find Your Way

Need directions to your next business appointment? If the person's address is in your Address Book, a single click can get you driving directions. Next to the address in the summary view of every contact is a small information icon. By clicking on it, you can choose to open your Web browser and download a map of that address, get driving directions from your home or office, or copy the contact's name and address to the clipboard (so you can paste the information into an e-mail or another program).

Store Old Mail

Don't keep all the mail you've ever received in Entourage. Doing so will eventually make the program less responsive. You can archive old mail in three ways:

Archive Folders You can archive an entire folder of mail by dragging it onto the desktop. Entourage archives the folder—along with any file attachments—in the Unix standard MBOX file format, which can be read by Word or any other text editor. You can also drag MBOX files from the desktop to the Folder List to import archived mail.

Archive Messages For a more selective approach, you can archive one or more messages by dragging them from the message list onto the desktop. Entourage turns each message into a separate text file; attached files are included as encoded text within the file.

Archive to Word You can archive the text of selected messages to a single Word file with the help of a handy AppleScript called Entourage Many to Word. This script, available on AppleScript Central (www.applescriptcentral.com), extracts just the text of selected messages and archives it to a Word file. The benefit of this approach is that it allows you to use Word's powerful searching abilities to quickly dig up information from archived e-mails.

Change Multiple Calendar Events

A big annoyance of Entourage's Calendar views is that you can't select multiple items. As a result, there's no good way to delete many items at once (say, if you wanted to suddenly scrap your overly ambitious plans to spend two hours at the gym every day) or to change their categories. But there is a good workaround. You can use Entourage's Advanced Find feature to search for and display all the items that you want to change (for example, "Go to the gym"). You can then select multiple items from the Search Results list and apply the changes you want.

Rule the Road

When you're in a hotel room with just a dial-up modem connection, don't waste time downloading big files you don't need—especially spam. Entourage's Online Access feature lets you download only message headers from your POP server. This allows you to check the subject lines, select the messages you want, and delete the rest—without clogging your bandwidth with wasted mail.

Extending Entourage with AppleScript

Entourage X is an exceptionally capable application, but even the best program doesn't always do everything you want it to. If you crave extra control, use AppleScript, the systemwide scripting language built into OS X, to make Entourage do practically anything you want.

Even if you don't know how to program with AppleScript, you can take advantage of AppleScript's power by downloading and installing some good scripts. Once installed, these scripts are available in Entourage's Scripts menu (the menu farthest to the right in Entourage, with the icon that looks like a scroll).

Here are four useful scripts that should be part of every Scripts menu. All of these scripts are available at AppleScript Central (www.applescriptcentral.com), which has a large collection of Entourage AppleScripts for Office v. X and Office 2001. To install the scripts, open your Microsoft User Data folder and drag the downloaded script file into the Entourage Script Menu Items folder.

File Reply in Original's Folder This script places your e-mail replies in the folder that contains the original messages, instead of the Sent Items folder, improving organization of your correspondence.

Duplicate Calendar Events X This script lets you duplicate events in Entourage's Calendar and set a new date and time for a duplicated event.

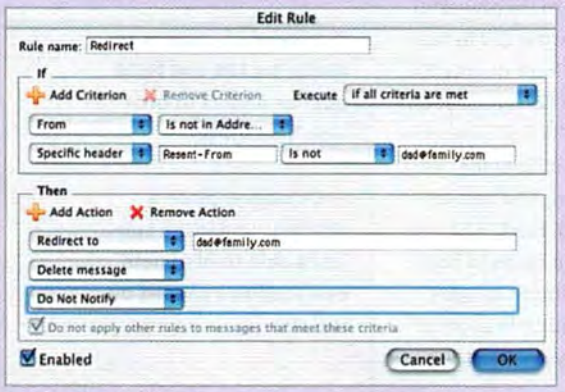
Insert Notes This script turns Entourage's Notes into a repository for boilerplate text you can use in your e-mail messages. You can insert one or more Notes anywhere in your message, each with a different text block. This is more flexible than using the Signature feature, which limits you to one signature per message. First create a note and then assign it to the Stationery category. To use one of your notes, run the script and select the note to insert into your e-mail from the dialog box.

Make Contact A message with *.vcf* attachment contains a vCard, which contains a person's complete contact information. This script takes the vCard file and turns it into an Entourage contact record.—TOM NEGRINO

To set up a POP account for online access, choose Accounts from the Tools menu and double-click on the name of the account you want to change. In the Edit Account window, go to the Options tab and then select the Allow Online Access option. Click on OK.

Entourage puts a new icon in the folder list, with the name of the account you just changed; this is the online-access icon for that account. To have Entourage check for new messages from this account, just click on the icon in the folder list. Entourage connects to your mail server and downloads only the message headers of any waiting e-mail, putting the names of the messages in the message list. If you see a message that looks interesting, select it from the message list. Entourage then downloads the entire message and displays it in the Preview pane.

To delete e-mail from an online account, select one or more messages in the message list and then press the delete key. An icon will appear next to the deleted messages showing that they are marked for deletion the next time that you connect to the server.



Setting the Rules This Entourage mail rule redirects mail from people not in your child's Address Book, so you can inspect it.

Shield Your Kids

If your children have Entourage or Outlook Express accounts, you can use mail rules to filter out inappropriate spam, allowing only mail from people they know to reach their in-boxes. To do this, you'll redirect messages from senders not in your child's Address Book to yourself, so you can review them. (Redirecting is like forwarding, but it preserves the original sender's e-mail address, so the mail appears to be from that person.) Approved messages can then be redirected back to your child.

Select Rules from the Tools menu and then click on New. Give the new rule a name. In the If section, open the first pop-up menu and choose From; then choose Is Not In Address Book from the second menu. To exclude approved messages that you're redirecting to your child, click on Add Criterion and change the next pop-up menu to Specific Header. Type **Resent-From** in the text field. From the pop-up menu to the right, choose Is Not; then enter your e-mail address. Make sure the Execute menu is set to If All Criteria Are Met (see "Setting the Rules").

In the Edit Rule's Then section, choose Redirect To, and enter your e-mail address. Change the second Then action to Delete Message. To ensure that there is no New Mail sound to confuse your kid, click on Add Action and choose Do Not Notify. Click on OK; then drag the new rule to the top of the Rules window. Any mail from people not in your child's Address Book will go to you. So that mail from people you know doesn't get caught in the mail filter, simply add their addresses to your child's address book. □

NAN BARBER is a coauthor of *Office X for Macintosh: The Missing Manual* (O'Reilly & Associates, 2002). When TONYA ENGST isn't playing with her three-year-old, she works as senior editor of the e-mail newsletter and Web site TidBits (www.tidbits.com). Contributing Editor TOM NEGRINO is the author of *Microsoft Office v. X Inside Out* (Microsoft Press, 2002) and *Microsoft Office v. X for Macs for Dummies* (Hungry Minds, 2002).

INSTANT GRATIFICATION

Fashion photographer and art director Patricia Martine knows the value of immediate results. Martine, whose clients include Talbots, Macy's, and Nine West, works with models who earn as much as $2,500 per day. "For each pose, I'll take between 20 and 30 photos. And I want to know immediately if I have images that I can use, or if I have to re-shoot them," she says.

Instant feedback is why Martine, like most other professional and casual photographers, "does digital." But that's just one of many reasons to acquire a digital camera. The ease of posting an image of something you're selling on eBay, e-mailing your mother a family picture, posting a product photo on your Web site, and eliminating the hassle and cost of developing film are some of the many others.

If you're planning to buy or upgrade to a feature-rich digital camera, what are the most important things to consider? Price? Convenience? Image quality? The "coolness factor"? Why not get them all? Olympus's new C-4000 Zoom, a compact four-megapixel digital camera, sets a new standard for delivering rich, vivid images and deep, saturated colors with razor-sharp clarity. And it's loaded with features, such as an all-glass 6.5mm-19.5mm, f2.8-f11 3X optical zoom lens, coupled with a 3.3X digital zoom that delivers a 10X total zoom capability. Capable of producing sharp prints in sizes up to 11" x 14", the C-4000 provides an outstanding combination of features at a price point that will set a new standard for value—less than $500.

▲ **Loaded with features, the new Olympus C-4000 Zoom digital camera is compact and a great value.**

When Less is More

Today's cameras offer more of everything, except bulk. When size and weight matter, Olympus has plenty of experience delivering heavyweight features in a lightweight shell. Consider, for example, another of their advanced cameras, the 11-ounce, three-megapixel C-720 Ultra Zoom. Designed for the photographer who is ready to move up to a more powerful camera, the C-720 features a high-quality 8X optical ultra-zoom lens (24X total seamless zoom) plus a 1/1000th-of-a-second shutter speed, making it ideal for recording sports, action, and nature scenes. Like the C-4000, the C-720 uses removable SmartMedia cards to hold hundreds of high-resolution images, enabling you to take multiple shots of each scene without any worry of running out of storage.

▲ **The 11-ounce, three-megapixel C-720 Ultra Zoom, for the more serious photographer.**

A Pro's Suggestions

"Some of the best techniques can add drama and visual interest to images with very little effort. Everyone should try experimenting with them," says professional photographer and art director Patricia Martine. Her recommendations include:

- **Keep your subject off-center. Consistently centering subjects can indicate a lack of creativity.**
- **Compensate for the off-center subject with focus. For example, keep the subject sharp and blur the background.**
- **Get close to the subject. Too much background tends to distract and confuse the eye.**
- **Instead of straight-on shots, try left and right quarter angles to provide highlights.**
- **Outdoors, place a reflector under the subject's chin to eliminate eye shadows caused by the sun.**

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BY | JIM HEID

DIG DEEPER WITH DVD STUDIO PRO

Apple's DVD Studio Pro 1.5 (800/692-7753, www.apple.com) is a powerful and feature-rich program that leaves iDVD in the dust when it comes to professional DVD production (see *Reviews*, August 2002). With it, you can subdivide your content into chapters that viewers can get to from a menu—the fast, nonlinear access that's one of DVD's many advantages over videotape. You can apply alternate language tracks, create complex scripts that control your DVD's actions, and embed security features such as region coding and CSS—all from within OS X. But DVD Studio Pro isn't an easy program to use, and Apple's documentation is woefully inadequate. After you've encoded your audio and video assets, knowing the workings of DVD Studio Pro can really make a difference (see "Crunching Your High-Quality Video" and "Audio Options" for more details). We can help you get more out of this pro app.

Let Our Expert Guide Show You How

Making Menus

The DVD format's nonlinear access to content is aided by the menus you create. The first stages of this process actually take place outside of DVD Studio Pro.

Similar to rollovers on many Web pages, DVD buttons have different appearances for unselected, selected, and activated states. If you follow the tutorial in DVD Studio Pro's manual (and as detailed in "Designing DVD Menus" *How-to*, July 2001), you'll create menus with separate layers for each button state—using an app such as Adobe Photoshop or the bundled Corel Photo-Paint.

Although this method is good—and it's the only way to create button states in full, 24-bit color—its results are very slow. Each button state is actually stored as a separate menu, and when your DVD's users navigate from one button to the next, their players have to seek and display an entirely different menu, which can take as long as one second.

It's Simple: Highlight Browse the menus on your favorite Hollywood DVDs, and you'll see that most of them have a much faster way of indicating selected and activated menu buttons. They employ the *simple highlight* method—rather than displaying a different button image when you select a button, they display a colored highlight next to the button. In some cases, the button itself changes color.

To provide faster menu browsing for your viewers, use the following technique: Create

ILLUSTRATION BY CAMPBELL LAIRD

your menu in Photoshop, at a resolution of 720 by 540 pixels. Then use the Image Size command to resize the graphic to 720 by 480 pixels (you'll need to deselect the Constrain Proportions option). The image will look slightly squished, but don't worry—it will display properly. Save the resized image as a PICT file, import it into DVD Studio Pro, and assign it to your menu.

Make the Overlay Your next step is to create the menu's overlay graphic—an 8-bit gray-scale image that determines what viewers see when they navigate from one button to the next.

The easiest way to create the overlay graphic is to modify your original menu graphic. Open it, and hide any fancy-colored background layers—you want a plain, white background.

Next, add elements that you want to appear next to buttons when they're selected. For example, you may want to display a small arrow or greater-than sign (>) next to a selected button, giving your viewers a "you are here" cue. If you want the buttons to change color, leave them where they are. Otherwise, delete them—the overlay graphic should contain only the items that you want to appear when buttons are selected.

Resize the completed overlay graphic to 720 by 480 pixels, convert it to gray scale, and save it as an 8-bit PICT file. Then import it into DVD Studio Pro, select your menu tile, and choose the overlay graphic's name from the Overlay Picture pop-up menu (in the Button Hilites area of the Property Inspector window).

Set the Colors The overlay graphic simply tells DVD Studio Pro that you want to use a highlight color to indicate selected and activated buttons. The overlay doesn't specify the color—you do that in the Property Inspector window.

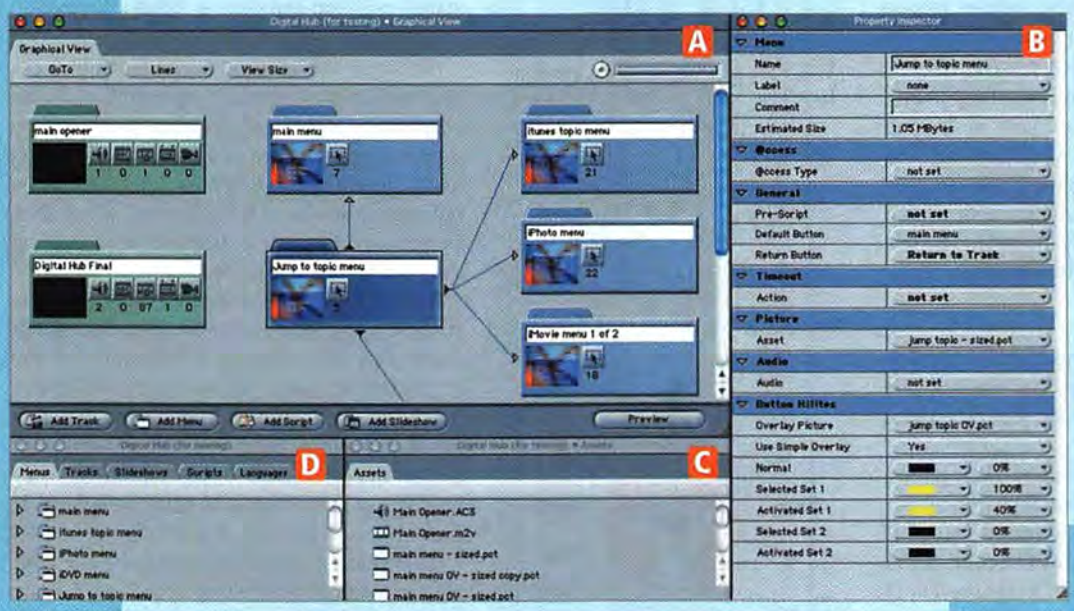
After selecting the overlay picture in the Button Hilites area of the Property Inspector window, make sure the Use Simple Overlay property is set to Yes. Next, use the Selected Set 1 and Activated Set 1 pop-up menus to specify the colors you want for selected and activated buttons. You don't have a very big palette of colors to choose from; because of the way menu highlighting works in the DVD standard, you're limited to the 16 colors that appear in DVD Studio Pro's pop-up menus. But you can choose one of 16 different transparency levels for the colors.

Choose the color and transparency schemes that work best for your menu designs. Keep in mind that some of your viewers may have trouble discerning colors or may even view your DVD on a black-and-white TV set, so you may not want to rely exclusively on color to indicate menu selections.

Making Buttons

DVD Studio Pro doesn't know a button from a cuff link. After importing your menu graphics, you use DVD Studio Pro's menu editor to draw button objects on top of the buttons you created in your graphics application. (Select the menu in the Graphical View window, and press ⌘-E or choose Edit from the Item menu.)

Button basics are straightforward: click and drag in the menu editor to create a new button, and then assign a jump action for that button (in the Property Inspector window). Usually, you'll set your buttons to jump to the beginning of a video track or to a marker within a video track, but a button can also jump to another menu.



The Big Picture DVD Studio Pro's interface comprises several windows. The Graphical View window A shows your project as a series of *tiles* that represent elements such as video tracks and menus. Use the Property Inspector window B to view and change settings for the disc and its elements. The Assets window C lists the items—encoded audio and video files, menu graphics, and so on—you've imported into the project. The Project View window D displays your project's elements as folderlike *containers*.

The Order of Things The order in which you create buttons affects a menu's button links. A button link specifies what happens when users press the arrow keys on their DVD remote controls. DVD Studio Pro saves you some time by automatically creating button links to the next and previous buttons in a menu.

DVD Studio Pro assumes that you've created your buttons in sequential order. If you haven't, you can either specify button links (in the Property Inspector window) or reorder the buttons by dragging them up and down within the Project View window: Select the Menu tab; then click on the triangle next to the menu whose buttons you want to reorganize. When the menu's buttons appear, drag them up and down to specify their order.

Name Your Buttons Name each button you create; DVD Studio Pro's names are uncreative variants of Untitled Button. When you're troubleshooting button links—or adding scripts to your DVD project—you'll be glad you gave your buttons descriptive names.

How Big a Button? You can resize a button by dragging its edges or by typing specific pixel dimensions in the Property Inspector window. In general, make your button objects the same size as or slightly larger than the buttons in your menu graphic—but make the button large enough to include any you-are-here symbols you used in your overlay graphic. (To see those highlights, choose Show Selected State from the Buttons menu.)

Remember that people who view your DVD on their computers will be able use a mouse to click on buttons. You should give them generously proportioned targets—don't create tiny buttons that make clicking difficult.

Your Options Are Numbered DVD Studio Pro gives each button a numeric shortcut: rather than using their DVD remotes to tap through your menu options, users can choose a button by pressing a number on their remote controls that corresponds to the button's order in your menu. Consider doing your users a favor by preceding each button name with a numeral. (Be sure to explain the shortcut in your DVD's documentation.)

What Is the Matrix? If you have a lot of buttons and jumps to create, get in the habit of opening DVD Studio Pro's Jump Matrix window—using it to specify jump actions is much faster than using the Property Inspector window (see "Inside the Matrix").

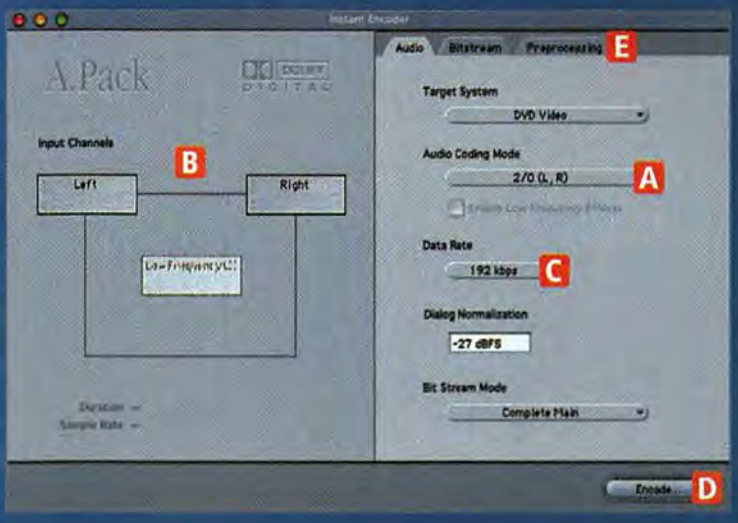
The Jump Matrix window is reminiscent of the driving-distance charts in road atlases. Along the chart's vertical axis is a list of the buttons in the current menu. Along the horizontal axis is a list of possible jump actions—places the buttons can lead to, such as markers, other menus, and tracks. To create a jump from a button to a target, click in the box that represents the intersection of the two items.

To view a menu's jump matrix, select the menu's tile or open the menu editor, and then choose Jumps Of Menu *Menu Name* from the Matrix menu or press ⌘-5.

AUDIO OPTIONS

Audio on a DVD can be stored in several formats, but the two most common are PCM (large and uncompressed) and Dolby AC-3 (much smaller but still high quality). Using the A.Pack program, included with DVD Studio Pro, to encode your audio in AC-3 format is worth the extra step. A stereo PCM audio track requires about 1.5 Mbps; an AC-3 version of the same stereo track requires less than 200 Kbps. AC-3 encoding will reduce the size of your audio, which is important for overall budgeting of your DVD's space, and it means that you can encode your video at a higher rate and not worry as much about hitting a DVD's maximum data rate. For stereo sound tracks containing music, use a bit rate of 192 Kbps. For sound tracks consisting primarily of speech, you may find that rates as low as 128 Kbps deliver acceptable quality. Test out a few and let your ears decide.

To use A.Pack to encode a two-channel stereo sound track, launch the program and choose 2/0 (L, R) from the Audio Coding Mode pop-up menu **A**. Next, click on one of the channels in the Input Channels area; then locate and double-click on your PCM stereo audio file. A.Pack will ask you which of the PCM file's channels you want to assign to the channel you clicked on. Choose the channel. Repeat this process for the other channel **B**. Choose the desired data rate **C**; then click on Encode **D**. You generally don't need to adjust any other A.Pack settings; however, you may find that audio quality improves if you go to the Preprocessing tab **E**, select None in the Compression Preset pop-up menu, and deselect the RF Overmodulation Compensation option.



Advanced Topics

Once you get the hang of using DVD Studio Pro, there are many more features that can add professional touches and control to your projects. Here are some you may want to use:

Tell Me a Story A story is a series of markers that play chunks of video in an order that's different from the DVD's normal flow. Stories allow users to view your video in different ways. In a cooking video, for example, you could create one story that plays back all the main-dish sequences and another story that plays back all the dessert sequences. Because stories simply shuffle existing content, they don't use additional disc space.

To create a story, first use DVD Studio Pro's marker editor to create markers that denote the beginning >>

and ending of each video chunk you want to include in the story. Next, click on the story icon in the track tile and choose New Story from the Item menu. Drag the markers you created to the new story, and then create a button that links to the story.

Audio Alternatives You can assign as many as eight audio tracks to one video track. You can use this capability to deliver sound tracks in more than one language, or to provide a director's commentary for your future classic.

Creating additional audio tracks is easy. Simply encode them in A.Pack, import them into DVD Studio Pro, and then drag them to the track tile you want to assign them to. Preview your efforts by clicking on the Audio button in DVD Studio Pro's Preview mode. When viewers play your DVD, they can jump from one audio track to the next by pressing the Audio button on their remote controls.

Note that each audio track has its own bandwidth requirements, whether it's playing or not. For example, five audio tracks encoded at 192 Kbps use up about 1 Mbps. If you're encoding your video at a high bit rate, make sure the total bit rate—the video and all audio tracks—doesn't exceed 10.08 Mbps, the maximum of the DVD specification. (If it does, DVD Studio Pro will warn you when you build your final disc.)

Language Alternatives Using alternate audio tracks is the easiest way to create a multilingual DVD. But you can also set up DVD Studio Pro to automatically deliver the correct language and even localized menus. The most time-consuming part of the process is creating separate audio tracks and menus for each language.

In the Project View window, activate the Languages tab and rename the default language (it's set to English, and its name is Untitled Language). Next,

CRUNCHING YOUR HIGH-QUALITY VIDEO

An important phase of DVD authoring is compressing your video content into the proper format. Here's a quick refresher and some important things to remember.

Capacity Concerns Chances are you'll be creating one of two types of DVD: a DVD-5, which has a capacity of about 4.7GB, or a DVD-9, which holds about 8.54GB. Both are single-sided, but a DVD-9 has two separate layers; at playback time, the DVD player refocuses its laser and peers through one layer to read the second. (To specify the type of DVD you're creating, use the Disc Media pop-up menu in the Property Inspector window.)

Compress your video lightly, and you'll be able to fit only about 60 minutes on a DVD-5 (the 4.7GB DVD-R discs Apple's SuperDrive creates). Compress the video heavily, and you can shoehorn several hours of video, but it may have unacceptable compression artifacts, such as blocky patterns in scenes that contain a lot of motion.

As a very rough rule of thumb, a DVD-5 created in DVD Studio Pro can accommodate about 90 to 120 minutes of good-quality video—a DVD-9, nearly twice that.

Compressing Video Encoding your content into MPEG-2 is one of the first steps in the authoring process. By far the easiest way to compress video for DVD Studio Pro is to use Apple's MPEG encoder, a codec that's installed with the program and works with any program that can export QuickTime movies (see "What's Your Rate?").

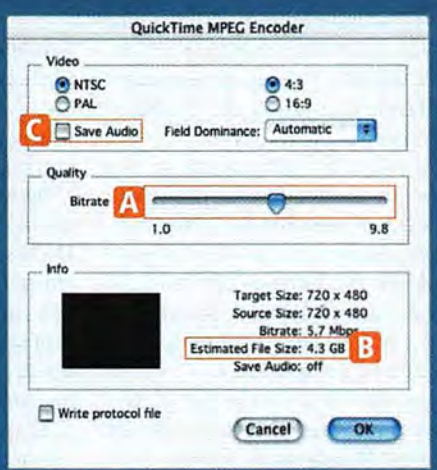
If you edit your original video in Final Cut Pro, you can create chapter markers to divide your video segments, and the markers will be preserved during the compression process—truly unbeatable workflow convenience.

Data-Rate Decisions When compressing video, you specify the data rate—the number of bits per second—that the MPEG video stream gets. The higher the data rate, the less your original video will be compressed. Hollywood studios use high-end encoding systems that can deliver excellent quality at data rates as low as 3.5 Mbps. But these encoding systems use dedicated hardware and sophisticated encoding techniques—and they cost an arm and a leg.

Apple's MPEG encoder requires no additional hardware, but its compression quality isn't very good at low bit rates. All encoders have a sweet spot where they do their best compression—between about 5 Mbps and 7.5 Mbps for Apple's encoder. The DVD standard allows for a video data rate as high as 9.8 Mbps, but older Macs and Windows PCs can have trouble decoding and playing high-bit-rate content without stuttering. If a large percentage of your audience will view your DVD on personal computers, particularly older machines, think twice about using bit rates higher than 6 Mbps. Also, some set-top DVD players have trouble playing back high-data-rate video from a DVD-R disc.

Divide and Conquer For example, let's say your video is one hour long and contains several distinct segments. Should you encode the video as one large file with chapter markers or divide the video into separate segments that can play sequentially?

If the video's content is similar throughout and you want each segment to play sequentially, there's no real advantage to breaking it down into separate movies. But if the content varies dramatically, you can improve quality by encoding each segment separately and using the bit rate appropriate to each segment. For example, if you're producing a sports DVD containing some talking-head interviews with the players and some action-packed baseball footage, use a lower bit rate for the static scenes and a higher one for the sports scenes. To have the segments play sequentially, set each segment's jump action—via the Jump When Finished pop-up menu in the Property Inspector window—to play the next segment. (Note that there will be about a half-second delay between segments as the DVD player jumps to a different location on the disc.)



What's Your Rate? To export your Final Cut Pro project and its markers, specify a data rate by dragging the Quality slider A. Keep an eye on the Estimated File Size indicator B; it tells you how large your final MPEG-2 file will be. To also export the audio track in PCM format, select the Save Audio option C.

choose New Language from the Item menu, and then use the Property Inspector window to assign a name to the new language. Choose the desired language. Repeat this process for each language you want to support.

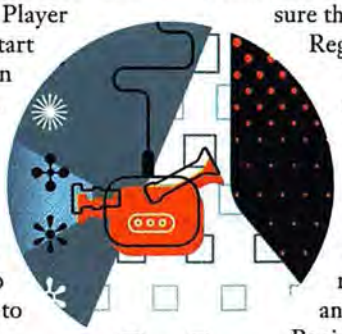
When you've specified additional languages, the Property Inspector displays a pop-up menu listing each one. This pop-up menu appears whenever you've selected an audio track, a menu, or other item that can have multilingual assets assigned to it. For example, to designate an audio track as the Spanish-language track, select the audio track and choose Spanish from the Language pop-up menu.

When viewers insert your DVD, their players will use the assets whose language assignments match the language their players are configured to use. For example, on players set to Spanish, the Spanish-language menus will appear.

Output Options

DVD Studio Pro can burn your final project to a DVD-R disc. Choose File: Build: Format Disc, and then choose a destination folder for your disc's files. In the Format Disc dialog box, choose your DVD burner as the output device. DVD Studio Pro will translate your DVD's assets into the format required by the DVD standard, a process called multiplexing (or *muxing*).

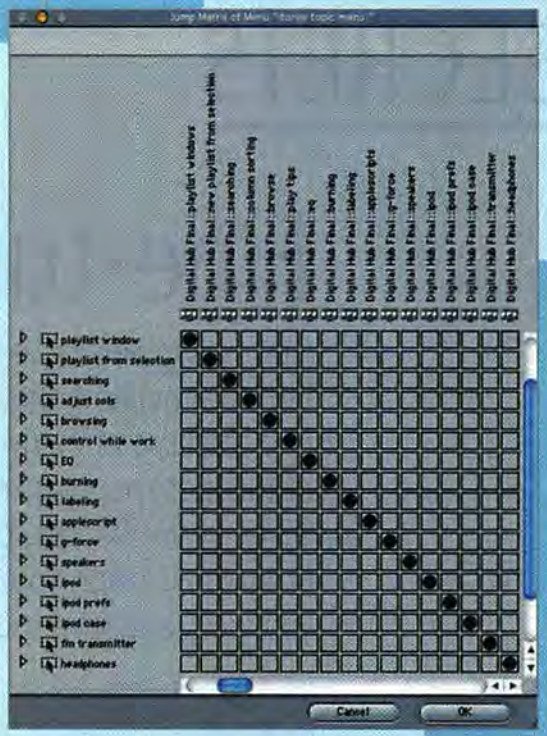
When multiplexing is complete, your destination folder will contain two folders: Audio_TS and Video_TS. You can use Apple's DVD Player program to preview your DVD: start DVD Player and choose Open Video_TS Folder from the File menu. (If you don't see this command, you'll need to upgrade to DVD Player 3.1.1.) This is a much better way to preview your disc than using the Preview button in DVD Studio Pro. Even though you need to take some time to build the disc, you don't have to burn it to see how it will work.



You can also drag the Audio_TS and Video_TS folders into Roxio's Toast and use Toast to burn a DVD. But whatever you do, don't move or rename any of the files located in the Video_TS folder; if you do, your DVD won't play properly.

Unlike iDVD, DVD Studio Pro supports third-party DVD-R burners, as well as digital linear tape (DLT) drives and burners that use DVD-R Authoring media.

The SuperDrive's Limitations Because of the popularity of DVD-R drives, many disc replicators will now create a master from a DVD-R General disc—the kind burned by Apple's SuperDrive and third-party DVD burners that use Pioneer's mechanisms. But DVD-R General drives are not able to burn critical tidbits of information in what's called the *control area* of the disc.



Inside the Matrix DVD Studio Pro's Jump Matrix window makes it easy to set and double-check your buttons' jump actions. The buttons appear along the left edge of the matrix, while markers and other assets appear along the top. To set a jump from a button to a marker or asset, click at the point where the two columns intersect.

Because of this, you can't use a DVD-R General disc if you want to use region coding—a DVD feature that enables you to restrict playback of your title to only certain regions of the world. If you'll be using a DVD-R General disc as a master, check the General area of the Property Inspector and make sure the Region Code pop-up menu reads All Regions Selected.

You also can't use a DVD-R General disc if you want Macrovision or CSS copy protection.

The DLT Connection If you need the capacity and capabilities that a DLT drive offers, you'll need to add a SCSI card to your Mac. An excellent resource for details on DLT drives—and DVD Studio Pro in general—is the Recipe4DVD Web site (www.recipe4dvd.com). And for more on the DVD-authoring process, check out Jim Taylor's book *DVD Demystified* (McGraw-Hill, 2001).

The Last Word

Using DVD Studio Pro can be bittersweet—its poor documentation makes it difficult to learn, and its interface can be cumbersome. But at the same time, the program is helping to fuel the DVD revolution by making professional-level authoring affordable. Mac-based DVD development is still in its infancy, but if you're willing to endure the teething pains, the rewards can be substantial. □

Contributing Editor JIM HEID is the editorial director of Avondale Media (www.avondalemedia.com), producers of DVD-based training videos. He used DVD Studio Pro 1.5 to author the DVD that accompanies his latest book, *The Macintosh Digital Hub* (Peachpit Press, 2002).

Fine-tune Your Tablet

Graphics tablets have become essential tools for digital illustrators. In addition to simulating the distinctive look of real-world tools such as paintbrushes and chalks, a properly configured tablet can make you more productive. One of the most popular lines of graphics tablets is Wacom's Intuos (800/922-9348, www.wacom.com). By customizing pressure curves, pen functions, and program settings, you can tailor your Intuos tablet to complement the way you work and give you maximum control over your designs.

Working under Pressure

Because no two artists paint in the same way, each graphics tablet must be trained to accurately interpret its user's unique style of motion. If you find that your strokes leap from light to dark, skipping some of the subtler stages, or that you have to bear down on the tablet to get the heavy strokes you're looking for, you probably need to adjust your tablet's pressure settings.

Training Your Tablet The first step in improving your tablet's sensitivity is to adjust its pressure curve. To access your tablet's pressure curve, open the Wacom Tablet control panel. (In OS X, open the Wacom folder in your hard drive's Applications folder and double-click on Wacom Tablet. In OS 9, you'll find it in the Apple menu's Control Panels submenu.) In the Wacom Tablet window, select the pen from the Tool list and then go to the Tip Feel tab (to adjust the eraser, go to the Eraser Feel tab). If you want to base the parameters on your typical stroke, click on the More Options button and draw a brushstroke in the drawing pad farthest to your right. You'll notice the pressure curve (located in the middle) changing accordingly. When doing pencil sketches, I usually prefer a soft pressure curve; I don't have to press as hard to get subtle variations when shading. To achieve this, I draw first very lightly and then gradually more heavily on the drawing pad. To test your results, you can draw in the scratch pad to your left. If you're not satisfied, repeat the process.

ILLUSTRATION BY CAMPBELL LAIRD

Brushing Up on Brush Tracking If you're using Procreate's Painter 7 (800/772-6735, www.procreate.com), you can refine your tablet's sensitivity even further with the help of the program's Brush Tracking feature. Brush Tracking lets you customize parameters such as stylus pressure and brushstroke speed, and it works in tandem with the control panel's pressure curve. Because I draw with a heavier hand and make faster movements when creating initial sketches than I do when adding the finishing touches to a painting, I reset Brush Tracking before most work sessions to match my current task.

To set Brush Tracking, choose Edit: Preferences: Brush Tracking, and make a continuous stroke in the window. The higher the setting for Pressure Power, the more sensitive Painter becomes. For instance, with Pressure Power set to the maximum, you can create fine, delicate line work with the Scratchboard variant of Painter's Pens category or build up subtle shading with one of the brushes in the Pencils category. When you're done, click on OK, and Painter will reconfigure itself to match your pacing. Painter retains this Brush Tracking setting until you reset it.

Power Buttons

As with the assignable buttons along the top of your Intuos tablet, which can perform common tasks such as copying and saving, you can also customize your pen to speed through tasks. The i2 Grip pen, included with Wacom's Intuos2 tablet, has three programmable buttons: the rounded top of the stylus (which serves as an eraser by default) and the long button on the pen shaft—which is actually two buttons in one. By default, the lower part lets you double-click, while the upper part functions as a control key, giving you easy access to timesaving contextual menus in Adobe Photoshop and Painter. Using the Wacom Tablet control panel, you can change the buttons' functionality to match the type of work you're doing.

Wild and Free When you're doing gestural drawing (a style that uses strong, quick, intuitive strokes), programmed buttons can easily get in the way. To make sure you don't accidentally activate menus or tools while tilting and rotating the stylus in your fingers, it's a good idea to temporarily disable the shaft buttons. To do this, open the Wacom Tablet control panel, select the pen from the Tool list, and click on the Tool Buttons tab. In the Tool Buttons window, set the two pop-up menus located on the right of the pen shaft to Ignore.

Keys for Quick Access When the task involves a more-controlled use of tools and brushwork—retouching, for example—the pen buttons can be essential for quickly accessing your tools. It's often useful to leave the upper portion of the shaft set to the control key so you can open context-sensitive menus. But rather than using the lower portion to double-click, set it to a different modifier key or a useful keyboard shortcut. When working in Photoshop or Painter, for example, you can set it to the option key; with one click, you can then switch temporarily from the Brush tool to the Eyedropper tool. In the Wacom control panel, open the Tool Buttons tab. Click on the pop-up menu to the left of the lower shaft button and choose Modifier. In the Define Modifiers dialog box, click on the Option check box and then on OK.

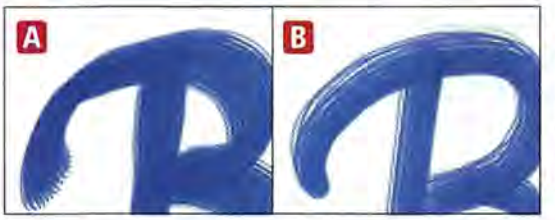
Painting in Photoshop 7

With a vastly improved drawing engine, Photoshop 7 (800/833-6687, www.adobe.com) offers new possibilities for tablet users. It lets you exert pressure-sensitive control over not only dozens of new paintbrushes but also retouching tools such as Clone Stamp, Dodge, Burn, and Liquify. This lets you make subtle, carefully controlled edits to your artwork. For example, you could apply a pressure-sensitive airbrush to a layer mask to hide or reveal portions of the edited layer.

To build an airbrush that has pressure-sensitive size and opacity, select the Brush tool in the Tools palette and open the Brushes palette (Window: Brushes). From the preview list, choose a soft-edged brush preset that varies in width (for instance, the Soft Round 35-pixel preset). Enable the Airbrush option in the left-hand column of the Brushes palette. (This option allows the medium to continue flowing regardless of movement. You can also access it from the Options bar when the Brush tool is selected.) Make sure the Shape Dynamics option is enabled, and select Pen Pressure from the Control pull-down menu. To make the brush's opacity pressure-sensitive, click on Other Dynamics and set Opacity Control to Pen Pressure.

Using Realistic Brushes in Painter 7

Pressure-sensitive tablets are the heart and soul of Painter 7. By interpreting subtle hand, wrist, and arm movements through the tablet and pen, Painter excels at mimicking a real paintbrush. In fact, all drawing, painting, cloning, and retouching tools in Painter 7 respond to the pen's pressure, tilt, and bearing. Using the Brushes palette, you can choose brushes that reproduce almost any effect created by traditional media (see "Different Strokes"). Here are two Painter brushes that take advantage of the sensitivity and power of a tablet to re-create the motion and behavior of real-life brushes:



Different Strokes Painter 7 lets you mimic the brushwork of traditional paintbrushes. The Opaque Flat brush changes with the pen's tilt and bearing for a calligraphy effect A. The Opaque Bristle Spray brush, on the other hand, spreads out along the tops of curves in response to the pen's tilt B.

Tilt and Bearing For a brush that twists and twirls as you draw, choose one of Painter's flat brushes, which can sense tilt and bearing input from the tablet. Tilt represents the angle of the pen relative to the tablet; when the two are perpendicular, the tilt is 0 degrees. Bearing represents the position of the pen relative to the tilt. So when you roll the pen in your fingers—a natural drawing movement—Painter interprets the motion by changing the shape of the brushstroke, making the mark twist and twirl as a traditional brush would. To use this brush in Painter 7, open the Brushes palette and select Brushes from the pull-down menu in the bottom left corner of the palette. Then choose Opaque Flat from the Variant pull-down menu.

When painting with a flat brush, think of the brush as a thin rectangle, with the long side of the rectangle oriented to the long button on the shaft of the stylus. If you tilt the pen and roll the stylus in your fingers as you draw, your brush strokes will twist and twirl as they switch from thick to thin.

Splay It For a different effect, you can *splay* your brush. Splaying mimics the behavior of traditional long-bristled brushes, the bristles of which actually spread out individually as the brush is pressed on and rotated. To get this look, choose a brush that incorporates a variation of the Bristle Spray dab type (such as the Opaque Bristle Spray variant of Brushes or the Fine Bristle variant of Watercolor). Splay is useful for painting brushstrokes where the brush's hairs dynamically spread out along the top of a curve based on the angle of your stylus tilt.

CHER THREINEN-PENDARVIS

Ocean View Painter 7's Round Camelhair, Smeary Flat, and Opaque Flat brushes were used to paint this vision of the ocean. These brushes allow expressive brushwork because they respond to pressure, tilt, and bearing.

Something for Everyone

Whether you use your tablet for doodling or for professional painting and retouching, configuring your tablet and stylus settings will improve your productivity and greatly enhance the quality of your work. □

CHER THREINEN-PENDARVIS (www.pendarvis-studios.com) teaches digital-illustration workshops using Painter and Photoshop and is the author of *The Painter 7 Wow! Book* (Peachpit Press, 2002).

Digital Brushstrokes

Professional artist and teacher Cher Threinen-Pendarvis began her career in fine art using traditional media. Then in 1988 she bought a Mac II for her small studio and taught herself how to use Adobe Illustrator 88 and Letraset's Image Studio, one of the first image-editing programs available for personal computers. The Mac has served as her digital palette ever since.

The Artist's Palette

- Power Mac G4 with 512MB of RAM
- Procreate Painter 7
- Six-color Epson Stylus 2000P printer with archival-quality inks
- Epson Stylus 3000 printer (for proofing)
- LaCie electron22blue monitor
- Wacom Intuos2 tablet

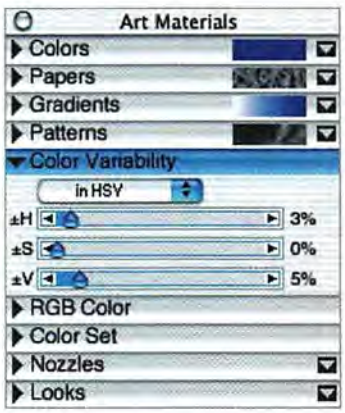
Today Cher uses a Power Mac G4 and Procreate's Painter 7 ($479; 800/772-6735, www.procreate.com) to create works of art. Cher prefers Painter because of its realistic feel. "It's the best simulation of traditional tools I can imagine," she says. When used in conjunction with her graphics tablet, Painter lets Cher re-create real-world brushstrokes and media. Cher also appreciates the flexibility that working with digital media offers. "For example, you can go too far with a watercolor and ruin it," says Cher. "But with Painter's layers, you can experiment more freely." And since Painter offers a wealth of tools—everything from chalks to oil paints—she saves valuable space in her small studio.

Here Cher reveals the process behind *Downstream Weather*, one of a series of landscape studies—based on a cherished spot on the San Diego coast—created in Painter. In this painting, Cher blends layers of brushstrokes and colors to capture a weather phenomenon common in southern California. "Right now it's hot and sunny," explains Cher. "But soon the fog will come in—it's already started to affect the atmosphere on the distant hill." Cher printed the finished piece, which was 5,600 pixels wide and 56MB, on a six-color Epson Stylus 2000P printer.

TERRI STONE is *Macworld*'s senior features editor.

LINE BY LINE

After making numerous on-site studies with traditional media (right), Cher began her digital painting by creating a composition sketch using Painter's 2B Pencil (above). This Pencil setting, which darkens to black, allows loose, expressive strokes and is perfect for spontaneous scribbling. To get the most sensitive line with the Pencil tool, you can set Painter's Brush Tracking preference before you begin (Edit: Preferences: Brush Tracking). This setting helps Painter accurately interpret the pressure and speed of your pencil marks. (For instructions on setting Brush Tracking, see "Fine-tune Your Tablet," elsewhere in this issue.)



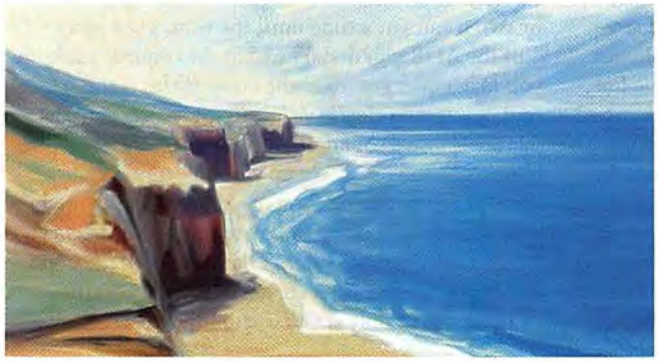
A COAT OF MANY COLORS

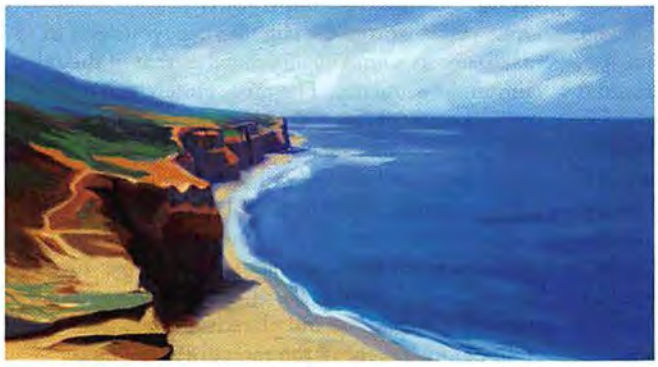
To add interest and complexity to the landscape's colors, Cher used Painter's Color Variability settings. Color Variability lets you paint with more than one color at a time by applying variations of the specified color to different areas of your brush. The result is similar to mixing paint colors on a palette—ultramarine blue, cerulean blue, and blue-green, for example—and sweeping a wet flat brush over them, picking up a little of each color on the bristles. To create this effect, open the Color Variability section of the Art Materials palette, set the Hue slider to somewhere between 3 and 5 percent, and set the Value slider to 4 or 5 percent.

IMAGES COURTESY OF CHER THREINEN-PENDARVIS

THE SKY'S THE LIMIT

To give her clouds a wispy look in the finished painting, Cher used a technique called *scumbling*. When scumbling, you lightly brush pastels over the peaks of the paper's texture, leaving subtle layers of color that glimmer in the light. To get this effect in Painter, Cher sketched the clouds with Dry Media's Large Chalk variant (left) and blended the strokes with the Liquid brush set to Grainy Water. Then, to add subtle pink and purple highlights, Cher set her paper's texture to Cold-Pressed Watercolor and very lightly brushed the canvas with the Artist Pastel Chalk variant.





IN THE WORKS

Cher built her painting in stages, gradually layering colors and brushstrokes to develop visual complexity and depth. With her composition sketch still on the Canvas, she added new layers and then used Dry Media variants such as Square Chalk to block in the basic areas of color (above left). Once she'd established the broad areas, she selected more-intense colors, switched to Brushes (primarily the Smeary Round and Round Camelhair variants), and added shadow details—such as the rock stratification (below left). To make her colors react more like wet paint—smearing as she worked the brush—Cher opened the Well section of the Brush Controls palette and set Bleed higher than Resaturation.

DEEP END OF THE OCEAN

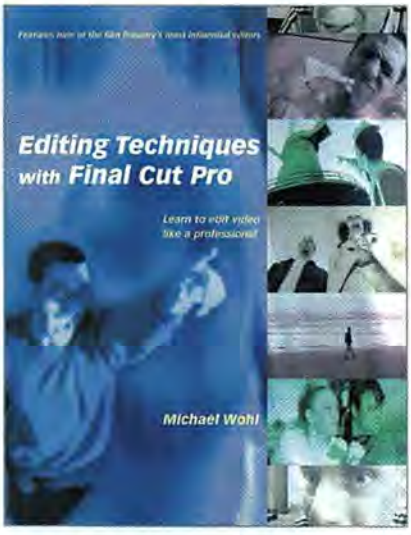
Cher gave the ocean a sense of depth and motion by creating new layers and enabling the Layer palette's Pick Up Underlying Color option. This let the brush pull up colors from lower layers, creating a more natural blend. Then, using a Round Camelhair brush, she painted on the new layers with little squiggles and dabs of blue, teal, and green paint.

Final Cut Pro Audio

If you want to create a convincingly realistic soundtrack for your digital videos, you must sculpt the sound to match the environment. *Sweetening* involves altering a clip's audio to make it better fit your video. This is most important when you rerecord dialogue after a shoot and have to edit it into the scene. Instead of using an expensive audio program, you can do much of this work right in Apple's Final Cut Pro.

ADR Made Easy

Inevitably, some piece of your production sound will be unusable: a plane or truck will be audible in a scene supposedly taking place in the 17th century, or you'll discover that a wireless microphone was overwhelmed by static in the middle of a critical line. Whatever the problem, rerecording some audio to replace objectionable sound is quite common. The technical name for this process is *automatic dialogue replacement*, or ADR.



By the Book This article is an excerpt from *Editing Techniques with Final Cut Pro* (Peachpit Press, 2002), by Michael Wohl. You can find the book at www.peachpit.com or at your local bookstore.

Professional postproduction facilities usually have an ADR stage designed for this process. The scene in question is projected in a loop, over and over, while the original dialogue is played in the actor's headphones. As she speaks along with the line, her voice is recorded and matched to the lip movements on screen. The process is repeated until the actor gets the line as close as possible to the original.

If you don't have access to a professional ADR stage, you can do most of this at home. Plop your actor in front of your Final Cut Pro workstation, load the problem clip into the Viewer, and select Loop Playback from the View menu. You'll probably want to record one line or section at a time, so set In and Out points around that section, and use the Play In To Out command (shift-\ [backward slash]). Send the original audio into the actor's headphones and record her new line readings on a new DV tape. Let her repeat the section several times to get the line reading as close as possible to the original. Ideally, you should use the same microphone you used in the original recording to match the original sound quality.

Tip: If you're recording ADR at home, put the actor in the most noise-deadened space possible. Surround her with walls of sound blankets, and cover your computer to mask any fan noise.

Integrate the New Clip

Once you've recorded the new dialogue, you're only halfway done. Now you have to sync up the recording with the original picture. If your actor did a good job of matching the pace and timing of the original delivery, this should be fairly easy.

Drop the new clip in the timeline, on a track right below the audio from the original clip. Zoom in and line up the audio waveforms as closely as possible. When you play back the sequence, you'll probably hear a slight echo as the two tracks are playing simultaneously. Select the new clip and move it one or two frames at a time until the echo goes away.

If the ADR clip doesn't match the original perfectly, you may never get rid of the echo. If this is the case, find one or two clearly visible lip movements in the picture (plosive sounds like "p" and "b" are good ones to choose) and line them up with the appropriate spots in the waveform. You may have to break up the new recording and add or delete tiny spaces between words to get a good match. Once you have the clips lined up as well as you can, delete (or disable) the original clip so only the new clip is heard.

Create Seamless Sound Quality

Once you've gotten the clip lined up, you need to make sure its sound quality matches that of the other clips in the sequence. The more closely you duplicate the original recording situation (mainly by matching the microphone type and placement), the better the sound quality will match right off the bat. Even so, minor adjustments will help.

Equalize It To match the tone of the new clip with that of the old, first use one of the equalizer filters to modify the sound. Take an acceptable section of the original dialogue and place it in a new sequence right before a piece of the rerecorded dialogue. >>

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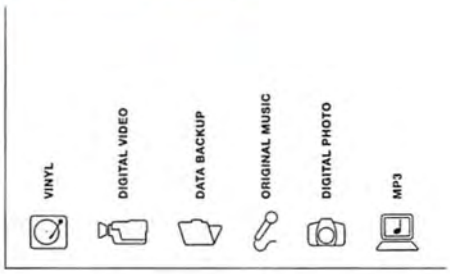

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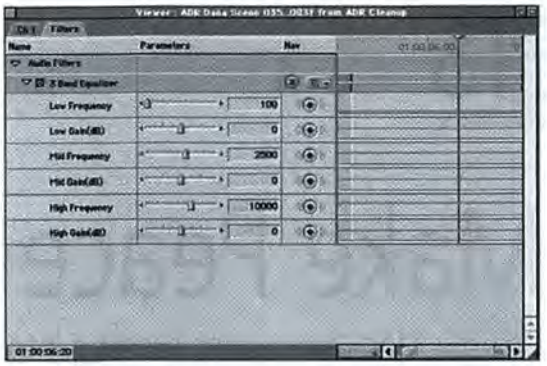


Filter Power Choose Final Cut Pro's Filters tab to make adjustments to the filters you apply to your clips.

Then experiment with filter settings for the new clip until the two sections of dialogue sound identical. Once you've decided on the filter settings you want to use, apply them to all the new clips.

To apply a filter, select the clip and choose the desired filter from the Effects menu. (In this case, we're going to use the 3 Band Equalizer.)

To adjust the parameters of a filter you're applying to a clip, you must open that instance of the clip in the Viewer. Do this by double-clicking on the clip in the timeline. To verify that you're editing the instance of a clip used in the sequence, look for the sprocket holes visible in the Scrubber area of the Viewer.

Use the Filters tab to adjust the parameters of the filters applied to your clips (see "Filter Power"). Final Cut Pro's 3 Band Equalizer is quite straightforward and similar to equalizers you may have used on your home stereo. For example, if your ADR track is too bassy compared with the original recording, you can reduce the level of the low frequencies in the clip by moving the Low Gain filter's slider. If the sound you're trying to eliminate is a very low-frequency rumble that's not affected by the default setting, lower the Low Frequency value to include that particular range. Just pull the slider down until the rumble is affected.

Parametric Equalizer If you prefer, you can select the Parametric Equalizer filter (Effects: Audio Filters). This filter has only one frequency adjustment, plus a Q setting. To filter a specific frequency, start by choosing the precise frequency you want to be affected. Smaller numbers (starting at 10Hz) are lower tones; larger numbers (as high as 20,000Hz) are higher tones. Then adjust the Q control to set the *wideness* of the filter (how many frequencies above and below your target frequency will be affected).

For example, let's say you're working with a clip in which some electrical interference produced a high-pitched whistle. First you need to determine the whistle's frequency. Set your Q setting at 1 (which narrows the bandwidth to virtually a single frequency) and adjust your Gain slider to –20dB (which makes your selected frequency inaudible). Then run through different frequencies until you hear the whistle go away, or at least get a lot quieter. Since it's a high-pitched noise, you might start at around 8,000Hz to 10,000Hz and slowly move up, playing back the clip until you hear the whistle being affected.

Once you identify the appropriate frequency, raise the Q level so surrounding frequencies will be affected as well. When the whistle is completely inaudible, you've found the correct Q setting. Then slowly raise the Gain slider, bringing it as close to zero as you can without hearing the whistle. That way, you're reducing the attenuation to the lowest effective level. Overattenuating even a narrow frequency range will sound weird, since voices comprise so many harmonic frequencies that modifying even a narrow band can noticeably change the quality.

Tip: It's far better to reduce the level of unwanted frequencies than to boost the level of wanted ones.

Give It Some Space

Once you've matched your new clip as closely as possible to the tone of the original, you need to apply some reverb to match the effects of the natural space the original sounds were recorded in.

Sound waves bounce off walls and other surfaces, creating subtle echoes that interfere with the original sound waves. Those echoes are called reverberations. The larger the space, the farther waves travel before they bounce back and the more pronounced the reverberations are. This can be reproduced digitally.

Final Cut Pro's Reverberation filter is very powerful and can simulate acoustic environments ranging from a small room to a large cathedral. The trick to getting a natural result is to use lower settings to produce a subtle effect. The default settings are a bit too dramatic for most practical purposes. As with the EQ filters, the best way to match clips for reverb is to put a copy of the original clip alongside the new (filtered) clip. Play them back in sequence while you experiment with the reverb settings. When the two clips sound indistinguishable, you've got it right.

Once you've applied the Reverberation filter by selecting it from the Effects menu, begin by choosing the type of reverb you want to apply. I find that the Thin Plate settings create natural-sounding effects.

The Effect Mix slider controls how much of the reverb effect gets mixed in with the original. The Effect Level slider controls how loud the reverb itself is. I recommend leaving the Effect Level slider at its default setting of 0dB and controlling the amount of reverb by lowering the Effect Mix slider.

The Reverberation filter also contains a Brightness slider. In a natural environment, sounds become muddy as they reverberate around a large space, and the lower frequencies overpower the higher ones. The Brightness control allows you to counteract that phenomenon, resulting in a cleaner effect.

Once you've got your new clip thoroughly filtered to match the surrounding clips, mix in your room-tone track. With any luck, the new clip's sound will be indistinguishable from the original's. □

MICHAEL WOHL has worked as a professional film and video editor for 12 years.

Make Peace with PCs

Being a Mac user means running into Windows—you know, the operating system the other 95 percent use. Since you can't beat 'em, you might as well join 'em—but you don't have to give up your Mac. Peaceful coexistence with Windows PCs is possible, as long as you arm yourself with some knowledge and tools. (See "Your PC Passport," August 2000, for OS 9 tips.)

Sharing Files by E-mail

E-mail is a real time-saver. In moments, you can send a photo or spreadsheet to someone on the other side of the world, who can edit it and send it back just as quickly. Most of the time, Mac and Windows users don't know what computer the other person is using—until someone attaches a document.

One problem you may encounter when e-mailing files to or receiving them from Windows users is that a file can't be opened or consists of garbled text. People often assume that something got messed up in transmission. In fact, the problem is usually caused by an encoding or compression standard that the receiver's e-mail software doesn't understand or that requires an extra utility to decode.

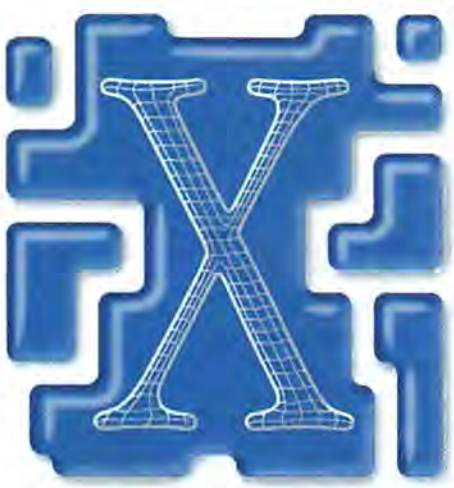


ILLUSTRATION BY CHRISTOPH NIEMANN

Encoding is always necessary. It turns the bits in your file into a stream of text that is sent with your e-mail message. You can also use compression to make a file smaller, but this is less important with today's high-speed Internet connections.

Sending Encoded E-mail

When you attach a file to a message, your e-mail software uses one of several standards to encode the file. AppleDouble and BinHex are best if you're sending the attachment to a Mac user. They preserve the Mac icon, file type, and creator information. If you're e-mailing a file to a Windows user, use AppleDouble or MIME/Base64. Many Windows e-mail programs can also handle UUencode. But don't use AppleSingle or BinHex to send a file to Windows users—most PC e-mail programs can't decode these formats.

Unfortunately, at press time, Apple Mail, which comes with OS X, still didn't allow you to change message encoding. It uses the AppleDouble format, which works in most situations. But if you're trying to send an attachment to a Windows user who has trouble with AppleDouble, you'll have to change e-mail clients.

Fortunately, you can select encoding in most e-mail applications, including Microsoft Entourage X, which comes with Office v. X ($499; 800/426-9400, www.microsoft.com/mac); Qualcomm's Eudora (Lite and sponsored versions are free, others are $40; 800/238-3672, www.eudora.com); PowerMail, from CTM Development ($49; www.ctmdev.com); Mailsmith, from Bare Bones Software ($69; 781/687-0700, www.barebones.com); and CE Software's QuickMail Pro ($35; 800/523-7638, www.cesoft.com).

It's usually not difficult to change the encoding setting. In Entourage, for example, you set encoding in the message window. Under the subject line, click on the triangle to open the Attachments field. Click on the Encoding bar to reveal a window that displays your options (see "Easy Encoding").

Sending Compressed Files Some e-mail applications compress files by default. Generally, Mac e-mail programs use Aladdin's StuffIt format (which adds the filename extension *.sit*) and Windows uses the Zip format (which adds the extension *.zip*). There's a free version of StuffIt Expander for Windows (www.stuffit.com/expander/index.html), but unfortunately, not many Windows users have it. And since not all Zip utilities use the same format, the safest choice is to avoid compressing file attachments whenever you can.

If you must compress, use a utility that will let you create a Windows-friendly Zip archive. The best are Tom Brown's ZipIt ($20; 877/597-7271, www.maczipit.com), Ascent Solutions' PKZIP Mac ($20; 937/847-2374, www.asizip.com), and Aladdin's DropZip ($30; 888/245-1723, www.aladdinsys.com) and StuffIt Deluxe ($80). When creating Zip archives for Windows users, always look in the utility's Preferences dialog box for a MacBinary option—and make sure it's turned off; otherwise, recipients won't be able to read the file.

Receiving Attachments When you receive files from Windows users, you can't always tell them what encoding or compression standards to use.

Luckily, OS X comes with a helpful utility: Aladdin's StuffIt Expander. This tool can decode most Windows and Mac formats, as well as a few Unix encoding standards. It can also decompress Zip archives and Unix compression formats. To use it, simply drop your problem file onto the StuffIt Expander icon in OS X's Utilities folder.

Sometimes StuffIt Expander can't decode the file. In that case, you might need a beefier tool. DataViz's MacLinkPlus Deluxe ($100; 800/733-0030, www.dataviz.com) does a good job of filtering out extraneous information. It can also translate between different file formats, as we'll describe later.

Sharing Files over a Local Network

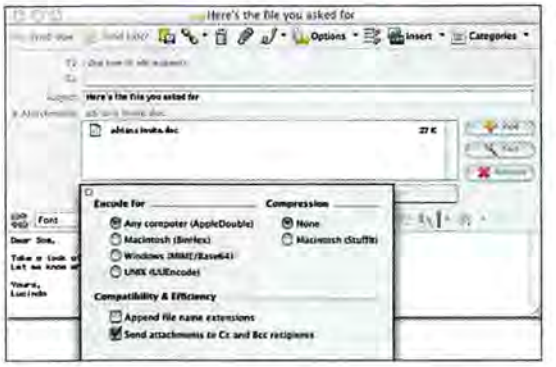
As important as e-mail file-sharing skills are in getting along with the Windows world, they aren't the whole story. If you're on a local network, there's a different set of issues.

Traditionally, the file-sharing features of Macs and PCs have been incompatible—they used two different technologies: the AppleShare compatibility of Mac OS, and the Microsoft Client and Services in Windows. Microsoft has long given its file servers the option of supporting Macs. Starting with OS X 10.1, Apple gave its OS the ability to access native Windows file services. This means that an OS X user can theoretically access Windows file servers in two different ways: the Apple way or the Microsoft way. The Apple way is easier for the Mac user, but the Microsoft way is easier for Windows server administrators.

The Apple Way The Apple way is to use the Apple Filing Protocol (AFP), employed by AppleShare-compatible servers. Windows servers aren't AppleShare compatible without special software that provides the AFP service to Macs. Luckily, Microsoft's Services for Macintosh is an AFP service that comes with every Windows server CD, although it isn't installed by default.

Macs can access Services for Macintosh over TCP/IP if the server is running Windows 2000 Server. Services for Macintosh on Windows NT Server, however, does not support TCP/IP, which means you'll need AppleTalk turned on (in the Network pane of OS X's System Preferences).

AppleTalk's drawbacks include slower performance than TCP/IP, as well as the fact that it is not well liked by Microsoft-certified network administrators, who often see it as a foreign technology that they don't have much training in. You can avoid AppleTalk on Windows NT Server by replacing Services for Macintosh with a third-party TCP/IP-based AFP server, such as Group Logic's ExtremeZ-IP (starting at $395; 800/476-8781, www.grouplogic.com) or Cyan's MacServerIP 8 Server ($150; distributed by Applied Technical Systems, 800/496-8387, www.themacplace.com). Both claim to be faster than Microsoft's AFP server and run on Windows 2000 Server and Workstation. (Services for Macintosh runs only on the server versions of Windows.)



Easy Encoding Microsoft Entourage X makes it easy to set the correct encoding for e-mail file attachments.

You access a Windows server running an AFP service just as you would access a Mac server—through the Connect To Server command in the Finder's Go menu (⌘-K). The name of the server will appear in the browser window—double-click on it, and the log-in window will appear.

The Microsoft Way The Microsoft method of cross-platform file sharing is to use SMB/CIFS (Server Message Block/Common Internet File System), the Windows-native file-sharing technology.

If you want to get on your network administrator's good side—and if there are only a few Macs on the network—use OS X's built-in SMB/CIFS to access your Windows server. When you do, your Mac interacts with the Windows server exactly as a PC would.

The drawback to OS X's SMB client is that it won't support network browsing until Apple's Jaguar update is released later this summer. In OS X 10.1, you won't see a list of Windows servers on the network. Instead, you'll have to type a URL in the Address field. First, select the Connect To Server command in the Go menu of the Finder (see "Where's the Server?"). Then type the URL, in this format, in the Address field:

smb://*servername/sharename*

The server name can also be an IP address. The share name is the name of the shared volume, usually a folder on the server's hard drive. A larger network may also require your Windows workgroup:

smb://*workgroup;servername/sharename*

When you click on the Connect button, a dialog box will pop up; there, you can type the Windows domain, user name, and password. If you're having trouble, try including your user name in the URL, like this:

smb://*workgroup;username@servername/sharename*

Once you're connected, the server volume will appear on your desktop, just like a network Mac icon. The next time you need to log in to this server, you won't have to type the URL. The Connect To Server window will

If you have only a few PCs in a predominantly Mac network, consider using Miramar's PC MacLAN ($189; 800/862-2526, www.miramarsys.com). Install it on Windows machines to allow them to share files and access printers.

remember the server and display it in the At pop-up menu, under the Recent Servers subheading. To keep the server in the menu permanently, select the server and click on the Add To Favorites button or make an alias to the server.

The lack of browsing isn't a bad deal if you have only one or two servers, and you know what the server names and volumes are. But if you're on a bigger network, you may want to upgrade your Mac's SMB abilities with Thursby Software's Dave ($150; 817/478-5070, www.thursby.com). (See *Reviews*, April 2002.) Dave allows you to see the Windows servers and the PCs with file sharing enabled. In addition, it enables Windows PCs on the network to access your Mac's files and printers, something that Mac OS X can't do by itself. (At press time, it appeared that PCs would be able to access local files when Jaguar is released.)

Sharing Files over a Virtual Private Network

If the Windows file server is not in the same building as your Mac, you may need to use a virtual private network (VPN) connection, which is the most popular way of accessing a company network from an off-site location. A VPN provides an encrypted stream over the Internet, between you and the VPN server.

A typical setup consists of a VPN service and clients. The VPN service is often a standard part of a Windows server but can also run in stand-alone gateway or router boxes, such as those from Cisco Systems, Netopia, and others. People trying to access the network from another location may need VPN client software on their computers.

Unfortunately, OS X doesn't come with a built-in VPN client, and until version 10.1, there was no OS X software to do the job. (Apple hasn't promised a VPN client in Jaguar, but it has promised enabling technologies that may facilitate the creation of VPN clients.)

Where's the Server? You won't see a list of Windows servers on the network when you use Mac OS X 10.1. Instead, you'll have to type a URL in the Address field.

Today, a few clients are available. Before you decide on one, you'll need to find out which of the two VPN protocols your organization uses. Microsoft's Point-to-Point Tunneling Protocol (PPTP) is what you'll typically find running on Windows servers. The other, known as IPsec (IP Security), offers superior security. Jaguar will have some internal support for IPsec and PPTP.

If your business runs a Cisco VPN system, the company offers its own IPsec client for OS X to accompany its Cisco VPN 3000 Series Concentrator (www.cisco.com/warp/public/471/vpn3k_MAC_os.html). Sadly, it's a bit complex to configure.

To access a VPN server hosted on a Windows machine, you'll need a third-party VPN client, such as Rob Newberry's PiePants (http://homepage.mac.com/robthedude/PiePants/). At press time, PiePants was a free download. PiePants is a simple PPTP client that supports a single VPN connection to a Windows VPN server or hardware gateway (see "Your VPN Friend"). Another PPTP client for OS X is Gracion Software's DigiTunnel 1.0 ($88; 541/488-3488, www.gracion.com/vpn/).

Sharing without Wires

Ethernet and the Internet aren't the only game in town anymore. These days, Mac users also communicate with Windows PCs over wireless networks.

Apple's AirPort cards and Base Station use the same 802.11b technology in PC wireless products such as the Lucent Orinoco and Dell Aironet lines. This means that Macs and Windows PCs can communicate using an AirPort Base Station or a wireless access point aimed at the PC market, such as those from Lucent, 3Com, and D-Link. An AirPort Base Station configured for Internet access will allow PCs to access the Internet as well. (For detailed instructions on creating a cross-platform wireless network, see "Make AirPort Cross Platforms," *How-to*, November 2001.)

Cross-Platform AirPort Setup When you're creating a cross-platform wireless network, it's usually easiest to use Apple's AirPort Base Station, because the software to configure it comes with your Mac.

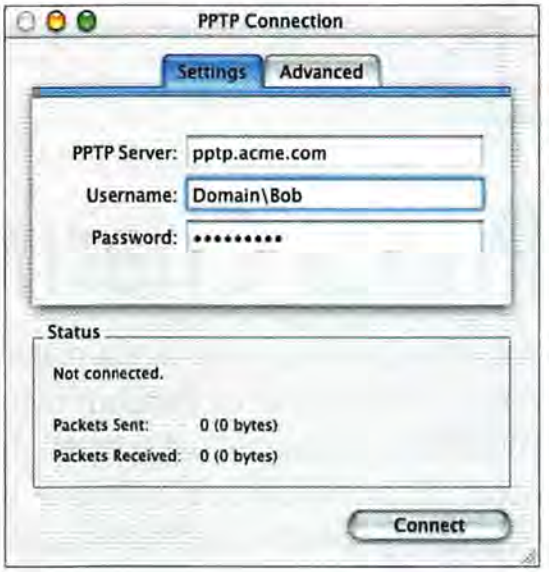
If you use WEP (Wireless Encryption Protocol), you may find that the AirPort network doesn't accept the passwords Windows PC users enter. You can try using the *network equivalent password* to fix this. Open OS X's AirPort Admin utility, select the Base Station from the list, and click on Configure. Enter the Base Station password in the dialog box that pops up. Now click on the Password icon at the top of the window. A new window will appear with the network equivalent password, which you can use on the PC.

Configuring AirPort from a PC You can also configure an AirPort Base Station from a Windows PC. Apple has a Windows version of the AirPort Admin utility that you can download for free at http://docs.info.apple.com/article.html?artnum=120093. This software works on the newer dual-Ethernet Base Station (the white model, not the older silver model).

Setup Troubles You may run into trouble setting up your wireless cross-platform network if you try to establish a VPN connection. What's probably amiss

is that your AirPort Base Station or other firewall uses a technique known as network address translation (NAT). NAT is a common firewall technique that prevents computers on the Internet from seeing the IP addresses of machines on a local network, blocking intruders from accessing your local network.

One way to deal with this is to turn NAT off. For the AirPort Base Station, open the AirPort Admin utility, select the Network tab, and then deselect the Distribute IP Addresses option. Fortunately, you don't have to give up your firewall—you can install NAT or another firewall elsewhere on the network, such as on a server or stand-alone router or gateway box. An option available in some of the higher-end servers, such as the Cisco VPN, is a NAT transparency mode. This basically makes the router VPN-aware.



Your VPN Friend Rob Newberry's free client software, PiePants, provides a simple way to create a virtual private network connection to a Windows VPN server.

What to Do Once You've Got the File

Whether you use e-mail or file sharing to swap files with Windows users, you'll need an application that can read the file once you've got it. For instance, Microsoft Word X can read files created by Word for Windows. The same is true for Excel and Adobe Photoshop, as well as many other applications that exist on both Mac and Windows. Sometimes, applications can read files created by other applications. For instance, AppleWorks 6.2 can read and save Word and Excel files.

You can run into trouble with older versions of software. An older version of Excel for Mac may not save enough information for a Windows PC running Excel XP. Or you may receive a file in a format that none of your Mac applications can read. In these cases, you'll need a file-translation utility.

Conversion Aids The best all-around file-translation tool is DataViz's MacLinkPlus Deluxe, which can translate between Mac and Windows word-processing, spreadsheet, graphics, and database formats. (It can also decode e-mail attachments.) MacLinkPlus also lets you view the contents of certain files before you translate them. Just drag and drop your file (or folder full of files) on the MacLinkPlus alias in the Finder to launch the utility.

If you only need to read and print Word or Excel files (not create or edit them), two programs from Panergy, icWord and icExcel ($20 each or $30 for both; www.icword.com), offer a cheaper solution.

OS X's QuickTime can translate many PC graphics formats—just open them with QuickTime Player. But it can't save files in PC formats. MacLinkPlus can open and save a few PC graphics formats (such as WMF, BMP, and PCX), but Lemke Software's GraphicConverter ($30; www.lemkesoft.de) can translate dozens of graphics formats.

Lost in the Translation One problem with file translation is that the conversion isn't always exact. The translation program or your application may substitute fonts, resulting in different text sizes, or text that no longer fits neatly on one page. Differences in the Mac and Windows software can change the placement of graphics or the colors in graphics.

If it's important that the PC users see the formatting you've created and they only need to be able to *read* the file, save the file in PDF format. You don't need a special utility to do this, since OS X has the built-in ability to convert most files to PDF. To do this, select Print from the File menu of an OS X application. In the Print dialog box, click on the Preview button to view a preview and then save from there in PDF.

Naming No-No's When you create files for Windows users, pay attention to how you name the files. OS X allows a more varied use of characters in file names than does Windows. Using illegal characters in file names can render a file invisible or unopenable on a PC. Stay away from punctuation, such as slashes (/ and \), question marks, and brackets. (Although OS X prevents you from using forward slashes in the Save dialog box, you can use them when naming files in the Finder or in Classic applications' Save dialog boxes.) Hyphens and underscores are OK. Never begin a file name with a space.

Also, make sure that the file ends with a period followed by the appropriate three-character extension, such as *.doc* for Word files, *.mp3* for MP3 music files, and *.jpg* for JPEG images. (Many Mac OS applications will add the extension, but Classic applications usually don't. OS X also lets you delete extensions and choose whether to display them [Finder: Preferences].) Don't include any other periods in the file name.

More Coexistence to Come

Mac OS X 10.1 began a new age of cross-platform compatibility, and the Jaguar release will advance that compatibility. But it will always be up to you to know what OS X can do. Many network administrators don't recognize the Mac's cross-platform capabilities and will often assume that it can't be done. You can show them that it can. □

JOHN RIZZO is the editor of MacWindows.com, a resource for information about cross-platform integration. He is also a CNet contributing editor.

Prints Charming

We all realize that the idea of a paperless office is so much utopian claptrap. What—at your next all-company meeting you're going to pass around a PowerBook displaying that quarter's financial results? Hardly. With reality in mind, this month's *Mac 911* looks at the devices that make your paperwork possible—printers. In addition to printer issues, I examine ways to fatten up an inadequate Microsoft spelling-checker dictionary, open a SuperDrive drawer, optimize hard drives on the cheap, and move analog video to DVD.

Setting Settings

I recently purchased an Epson Stylus C80 printer for my Mac running Mac OS X. Because I want the best possible prints the printer can produce, I move the Quality/Speed slider in the Print dialog box to Quality. Yet when I next select Print, the slider has moved back to Speed. Is there some way I can configure this dialog box to select quality over speed?

John Stern, *Macworld.com forums*

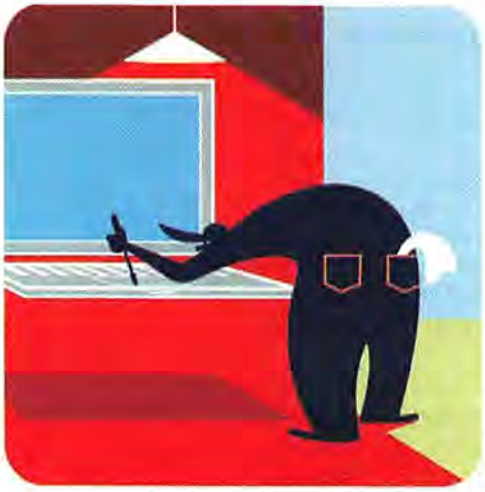


ILLUSTRATION BY LEO ESPINOSA

Absolutely. I know of a procedure that works for the Stylus C80 and many other Epson printers supported by OS X.

Simply open any application that supports printing and select the Print command. In the resulting dialog box, click on the Copies & Pages pop-up menu and select Print Settings. Muck around with the settings you want to change—in addition to Quality/Speed, you can change media type (the material on which the printer will print) and black ink versus color. Now select Save Custom Setting from the same pop-up menu. At this point you can print or cancel; either way, you've saved your settings.

When you next elect to print a file, select Custom from the Presets pop-up menu that appears in the Print dialog box. Custom contains the settings you previously made. Epson's OS X printer software allows you to save only one custom preset.

You can also create custom printer settings in the Classic environment and in OS 9. To do so, first select the Epson printer in the Chooser. Next, open any application, in the Classic environment or OS 9, that supports printing. Select Print. In the resulting Print dialog box, choose a new media type, move the Quality/Speed slider, or change from color to black ink; then select the Custom option.

When you open a Custom Settings pop-up menu, an Advanced button appears. Click on it to open a dialog box in which you can make further adjustments—color-management settings and changes to brightness and contrast, for example. When you're satisfied with your settings, click on the Save Settings button. Yet another dialog box appears, asking you to name your setting. Provide that name and click on Save. Click on OK in the second dialog box to return to the original Print dialog box; then click on either the Print or Cancel button. Epson's OS 9 printer software allows you to save multiple custom presets.

The next time you want to use this custom setting, select the Print command, click on the Custom option, and select your setting from the Custom Settings pop-up menu.

Oblique Strategies

I'm trying to print a particular font in a bold and italic style. It displays fine on screen and prints in bold italic on an ink-jet printer, but it won't print correctly on my high-end laser printer. Why is this?

Chuck White, *Macworld.com forums*

In all likelihood, it's because there is no italic version of the font you're trying to use. The text looks like italic on screen and in your ink-jet printer's output because both your Mac and the ink-jet printer attempt to simulate italic by slanting the font to the right (they're actually simulating an *oblique* typeface—a roman typeface that's slanted).

Keyboard Capers
Among its other key-commandeering capabilities, Keyboard Maestro 1.1 allows you to open a SuperDrive's drawer from a third-party keyboard.

High-end PostScript laser printers may not play this oblique game, often substituting the Courier font instead of producing the elegant italic you desire. If you need to "italicize" just a few words, you could skew them in an application such as Adobe Illustrator, but font fanatics consider such practices an abomination. To maintain the purity of your printing, consider using a similar font family that includes an italic typeface.

Desktop Printers in Mac OS X

When using Mac OS 9, I often print documents by dragging and dropping them onto my printer's Desktop Printer icon. Mac OS X doesn't appear to support Desktop Printers. Is there some way I can bring this functionality to my Mac running Apple's new operating system?
Dan Gilbert, *Carson City, Nevada*

Although OS X doesn't support Desktop Printers either natively or in the Classic environment, you can duplicate this functionality with Nick Zitzmann's $5 DropPrint (click on the Mac OS X tab at www.versiontracker.com; then search for DropPrint). This OS X application allows you to print documents by dropping them onto the DropPrint icon. Much like a Desktop Printer, DropPrint opens the document in its host application—in Microsoft Word if you've dragged and dropped a Word document, for example—and then displays the application's Print dialog box. In applications such as AppleWorks that allow direct printing, DropPrint will open and print the document without displaying the dialog box.

AppleTalk Won't

When attempting to add a network printer with OS X's Print Center, I get a message saying that no AppleTalk printers can be found because AppleTalk isn't enabled. On my PowerBook G4, I've enabled AppleTalk for both my Ethernet and AirPort connections in the Network system preference, so I know this isn't true. Why won't Print Center allow me to add an AppleTalk printer?
Jeff Bates, *Grants Pass, Oregon*

Sometimes, duplicating your efforts—like doubling your dose of painkillers or driving 130 mph in a 65-mph zone—isn't such a hot idea. Print Center reports this AppleTalk error because you have AppleTalk switched on for both your Ethernet and AirPort connections. Print Center can use an AppleTalk printer only when a single network port has AppleTalk enabled.

You could open the Network system preference, select AirPort from the Show pop-up menu, click on the AppleTalk tab, and deselect the Make AppleTalk Active option. But if you sometimes need to enable AppleTalk over AirPort—when you take your PowerBook on the road, say—select New Location from the Network system preference's Location menu, give it an intuitive name such as AirPort And AppleTalk, click on OK, and configure this system preference so that AppleTalk is enabled for AirPort and disabled for Ethernet. When you need AirPort and AppleTalk to see eye-to-eye, choose AirPort And AppleTalk from the same Location pop-up menu.

Thanks to the SMB networking protocol, Mac OS X makes it a lot easier to connect to Windows machines. However, it can be a little tedious; once you use Apple's recommended **smb://*workgroup*;*servername/share*** naming scheme to log on to the PC, you have to enter a user name and password in the SMB/CIFS Filesystem Authentication window.

To avoid having to enter your user name and password, use this address format in the Address field of the Connect To Server window: **smb://*workgroup*;*username*:*password*@*servername/share***, where ***workgroup*** is the name of the workgroup the server belongs to, ***username*** is your Windows user name for access to the machine, ***password*** is the password for that user name, ***servername*** is the name of the computer to which you are connecting in the workgroup, and ***share*** is the shared folder or device. Here's an example: **smb://workgroup;michael:password@mypc/c**.

This shortcut allows others using your Mac to log on to the PC just as easily. If this potential security issue concerns you, use Apple's addressing convention.
Michael Hall, *Simi Valley, California*

Developing Dictionaries

As much as I like Microsoft Office 2001 Entourage's spelling-checker feature, I wish I could add several words at one time. Is there any way to do this? And how can I make Entourage stop autocorrecting the word *iMac* when it's the first word in a sentence?
Merrilee Vaughn, *Miami, Florida*

It's quite possible to add a slew of words all at once, with the help of a simple text editor in either OS 9 or OS X. But to make this trick work, you must switch off the Suggest From Main Dictionary Only option (under the Spelling tab of Entourage's Preferences window).

To expand Entourage's vocabulary in OS 9 and earlier, locate the Custom Dictionary file (in System Folder: Preferences: Microsoft, at the root level of your hard drive). Open this file with a text editor such as BBEdit Lite 6.1 (www.barebones.com/products/bbedit_lite/lite-download.html), and enter words to your heart's con- >>

UNSOLICITED ADVICE

Like anyone with a lick of sense who owns both Macs and PCs, I do my best to keep the platforms' files separate. However, this behavior has led me to maintain one library of MP3s on my Mac and another on my Windows PC.

After spending most of a day switching between my PowerBook running OS X, to listen to Elvis Costello's latest, and my PC running Windows ME, to tune into an old Bill Evans album, it dawned on me that there's a way to do it all on one computer.

In the OS X Finder's Go menu, select the Connect To Server command and use the SMB networking protocol to mount your PC's hard drive. Once it appears on the Mac's desktop, go ahead and launch iTunes 2. Select Add To Library from iTunes' File menu. In the resulting Choose Object window, navigate to the folder that contains the PC's MP3 files, and click on Choose. iTunes will add any MP3, WAV, and AIFF files it finds in this folder to its library. Click on one of these tunes, and then click on Play in the iTunes interface—the tune will stream from the PC across the network to your Mac's speakers.

tent. When you finish, save the document. The next time you conduct a spelling check within Entourage (and in other Microsoft applications that use this dictionary, such as Word and PowerPoint), the program won't flag the added words as errors.

In OS X, this procedure is even easier, because you can open and edit Office v. X's Custom Dictionary file with OS X's own TextEdit application (*your user folder*: Library: Preferences: Microsoft: Custom Dictionary). Just edit and save the file.

As for breaking Entourage of the habit of capitalizing the first letter in a sentence, choose AutoCorrect from Entourage's Tools menu and deselect the Capitalize First Letter Of Sentences option.

Open Sesame, Part 2

I read with interest the April 2002 *Mac 911* column that detailed ways to eject a CD from Apple's SuperDrive. I seek a similar solution for opening the SuperDrive's empty drawer on my new iMac—in Mac OS X, my ergonomic keyboard's F12 key won't open the CD drawer. Is there a way to remap OS X's Eject function to a key on my keyboard?

Scholle Sawyer McFarland, *Portland, Oregon*

At the time I wrote that column, there wasn't. Thanks to Michael Kamprath, now there is. Version 1.1 of Kamprath's $10 Keyboard Maestro (www.keyboardmaestro.com) adds the ability to assign a key combination to the eject command, so you can make the SuperDrive stick out its tongue and say "ahhh" (see "Keyboard Capers").

Just launch Keyboard Maestro, click on the Create New Hot Key button, select Perform System Action from the New Action menu in the Edit Hot Key window, select Open/Close The CD-ROM Tray in the sheet that appears, and click on Save. Now click on the Keystroke field. Type a key command—⌘-F7, for example—and click on Save. From this day forward, your SuperDrive's media tray will pop out whenever you press this command.

Economical Optimizer

I want to defragment my iMac's hard drive but can't find any utilities on my computer or system discs that allow me to do this. Do you know of a good—and extremely cheap—utility for defragmenting my hard drive?

Nick Lancaster, *Macworld.com forums*

Extremely cheap? Sure. Just back up your drive, use OS 9's Drive Setup or OS X's Disk Utility to erase the drive, and restore your data. In less time than it takes to stroll from Baltimore to Baton Rouge, you'll have your data on your drive in an unfragmented state.

But if you find the prospect of such a tediously time-consuming operation as uninviting as I do, root around in the cracks of the couch for enough change to purchase a real disk-optimizing utility such as Symantec's Speed Disk (part of the $100 Norton Utilities 7.0; www.symantec.com) or Alsoft's $30 PlusOptimizer (www.alsoft.com). Although only Speed Disk runs natively in OS X, each utility can optimize OS 9 and OS X volumes formatted with the Mac OS Hierarchical File System Extended (HFS+) format.

TV to DVD

On a couple of occasions, columnist Andy Ihnatko has mentioned that he's burned his favorite television shows to DVD. I love this idea and would like to do it myself. How do I go about it?

John Edward, *Irvine, California*

Knowing Andy, I suspect his method incorporates tiny robots, voice recognition, and a large beaker of a well-known soft drink. My scheme is pedestrian in comparison. I simply record a program to my VCR, record that recording to my Hi8 camcorder via the camcorder's S-Video and audio-output ports (you could do this with a digital camcorder as well), record the video with iMovie via the camcorder's FireWire port, and then move the resulting QuickTime DV movie into iDVD, where I create and burn the disc.

The dump from VCR (analog) to camcorder results in a generation loss—meaning that you lose quality. You could skirt this issue by recording directly from your VCR to your Mac via an analog-to-digital conversion box such as Formac's $400 Formac Studio (www.formac.com). □

He may not be a prince, but charming contributing editor CHRISTOPHER BREEN is the author of *Mac 911* (Peachpit Press, 2002) and the soon-to-be-released *Secrets of the iPod* (Peachpit Press, 2002).

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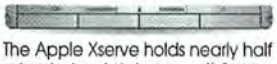

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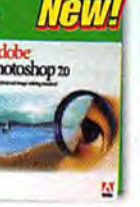

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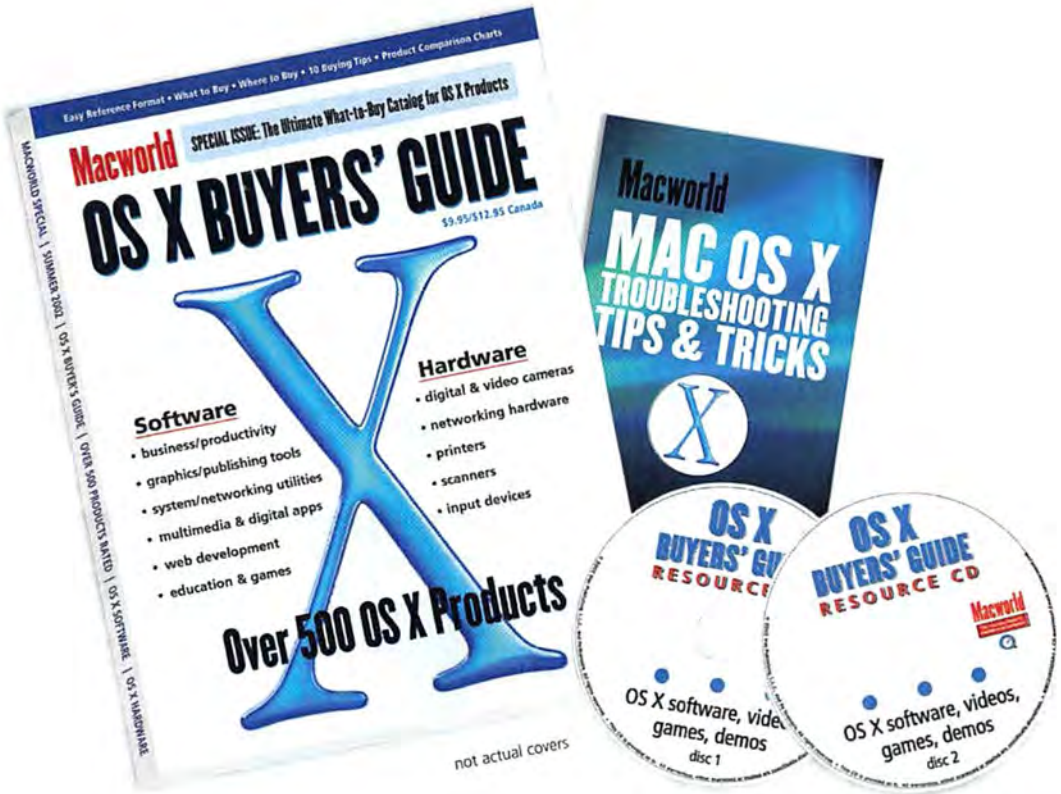

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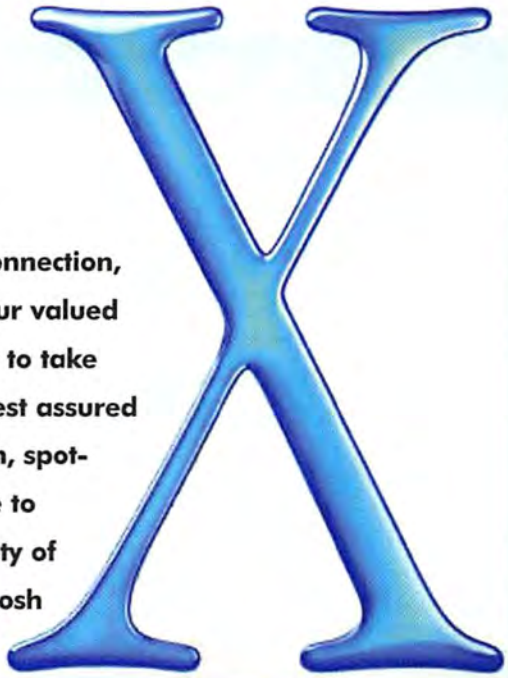

Macworld magazine, in conjunction with the Apple Developer Connection, built this very special Mac OS X Showcase section to keep you, our valued reader, apprised of the hottest products built especially to take advantage of Apple's new operating system. You can rest assured that this new section will grow with each passing month, spotlighting the coolest new products for Mac OS X. Be sure to check the Mac OS X Showcase monthly for a wide variety of new and innovative solutions that will make your Macintosh and Mac OS X experience as enjoyable as possible.

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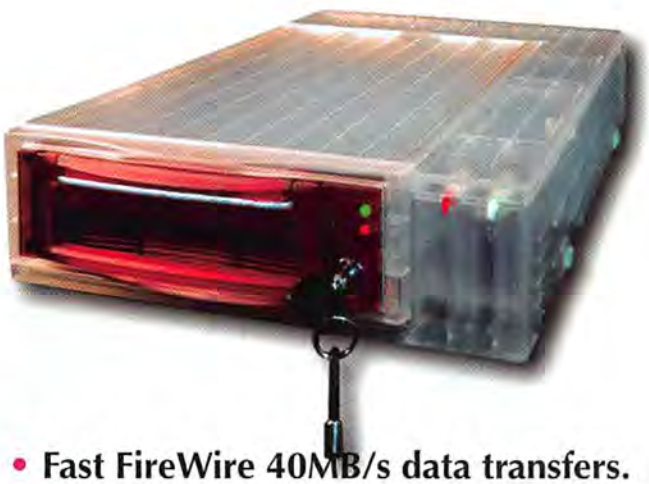

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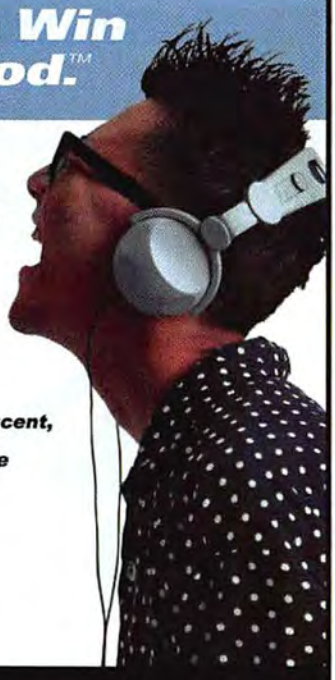

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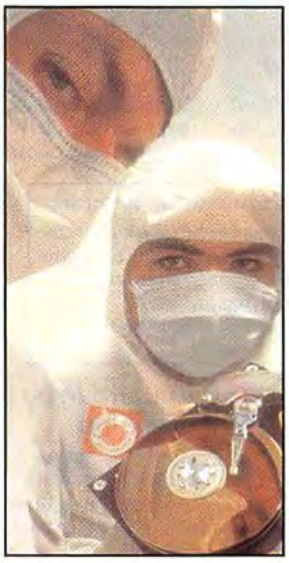
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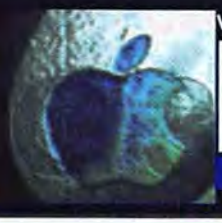

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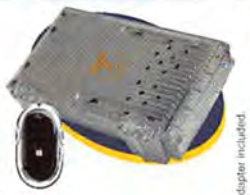

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Mercury On-The-Go

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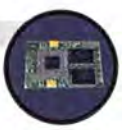

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First of all, you *have* to give the Macintosh Business Unit a decent name, for God's sake. Those guys have earned it, plus free Fudgsicles for a whole month.

In future made-for-cable movies and dramatic reenactments, the part of Bill Gates must be played by either Eddie Deezen or that Urkel guy.

You should finally come out with ActiveSync for Macintosh, so that we can use those increasingly ginchy PocketPC devices with the Mac. Or just acquire PocketMac (www.pocketmac.net)—lock, stock, and barrel. Just try not to be all Microsoft-y about it, telling the guy you'll take him to court unless he agrees to sell all rights for $100 and a bunch of old *National Geographics*.

And on the subject of Chairman Bill, undo the charm lessons your PR geniuses forced him to take after his first federal testimony. The Bill Gates who looks at a member of Congress with unvarnished disdain while explaining that the world's computer users want *less* freedom, not more, is the Bill we all fell in love with.

Most important, renewal of the Apple-Microsoft détente must come with a restating of Microsoft's commitment to the Mac platform, not just in the software realm but also in the field of Internet standards. Personally, I think Bill Gates's vision of every useful personal, corporate, and government Internet resource relying on Microsoft's .Net services and its Passport system of verification is refreshingly nuts. In his last days, Nixon would say things like that, sending his staff edging out of the Oval Office to punch the number for the Joint Chiefs of Staff and tell 'em to ignore any and all direct orders regarding nuclear missiles.

> Gates's vision of every computer using Microsoft security is refreshingly nuts.

However, the future is built not on software, but on standards. A shimmering purple cloud descended over America in 1975, and then, bang, disco happened. Who's to say that a similar mass madness couldn't make .Net the status quo? A public commitment, stating that Microsoft's glorious new vision for the Internet will include desktops of all faiths, can do nothing but good—not only for us but also for any future platforms scurrying for survival.

Of course—and here I'm addressing you, Bill—the Xbox you'll be sending to me, care of this magazine, will benefit no one but myself. Still, it's probably in your best interests to make sure my wrists are nice and limber when I reach for my signet ring and try to stamp the proper box on my "Approval of Renewal" decree. □

Contributing Editor ANDY IHNATKO (www.andyi.com) has got a little list, and not one of the people on it will be missed.

ANDY IHNATKO

After Five Years, I've Got a Few Demands

Microsoft's Penance

AUGUST 7 MARKS THE FIFTH ANNIVERSARY OF THE HISTORIC Boston Accords. In 1997—after a spectacular lunch (which put four waiters in the hospital with repetitive strain injuries) at the Four Seasons Hotel—Apple's and Microsoft's representatives, logy and eager to end the meeting so they could go back to their rooms and sleep off the meal, grudgingly agreed that maybe it was counterproductive to be putting as much money and manpower into their mutual lawsuits as NASA put into the entire Apollo program. They also agreed that Internet Explorer would become the Mac's default browser and that Microsoft would start making some decent Mac software.

(Oh, and there was some sort of blurb about Microsoft buying $150 million in Apple stock. But hell, Microsoft knew that the largest software company in the world would be making a splashy announcement by committing to the Mac platform. This way, the investment looked more like a brave symbol of industry solidarity and less like insider trading. I'm perfectly aware that Bill Gates would last about 12 minutes in prison, and so is Bill.)

It worked out well for both parties. In 1997, Apple's biggest problem was its (wholly false) public image as a company that was circling the drain. Microsoft's was the absurd notion that it was a corporate mega-bully that sought to crush other companies, and ultimately all of humanity, underneath its hobnailed boot heel, with the long-term goal of building a fleet of interstellar-class warships to explore the galaxy in search of intelligent alien civilizations managing to lead productive lives without paying Microsoft any licensing fees. But within weeks of the momentous agreement, analysts and the public were giving Apple the credibility it deserved. And Microsoft—then as now battling antitrust suits—could point to a high-profile independent alternative to Windows.

The past five years have been good for Mac users, too. It's hard to look at Microsoft's Mac offerings today and believe they come from the same company that released Microsoft Word 6 way back when. Microsoft used to make Mac products just good enough so that the company logo would stick to the box.

Thank goodness that these days, the Macintosh Business Unit floats inside its own bubble at Microsoft, attracting some of the best people from some of the Mac's best software and hardware developers. This group has pulled off the neat trick of making the OS X edition of Office equal to the Windows edition but distinct in and of itself. Explorer for Macintosh is the best browser available on any platform, and updates to MSN Messenger and Windows Media software have made it clear that Microsoft builds Mac products as though the company dominated the marketplace by a factor of only 10, not 17.

Hooray?

Good news. Really. But I dunno; would it be terribly professional of me to just rubber-stamp my approval on another five years of détente? To just *let* Microsoft continue to make Mac software? No, no—let's make them sweat it out a little. I mean, how much of this is a for-real positive achievement for Apple?

Of *course* Microsoft is going to be diligent about giving us a beefy chat client. Chat, and instant messaging, is probably the largest and most lucrative acreage of undiscovered country left on the digital frontier, and MSN still has to catch up with AOL and open standards. Microsoft is also desperate to win some credibility for Windows Media. The company is so desperate that it's offering theater owners immense incentives to adopt it as their digital-projection standard, even though Windows Media is only a slightly better solution than just printing out the whole movie in ASCII text and then flipping the pages in front of the projector really, really fast.

And the lack of real alternatives to Microsoft Office continues to depress me. No one has the slightest inclination to try something breathtakingly new, years ahead of its time, and guaranteed to be a commercial failure.

> Microsoft's Mac unit floats inside its own bubble, attracting some of the best people in the business.

I'll mumble and concede that having documents you can transparently share in a mixed Windows-Mac office is more important than having a word processor with translucent, Jell-O–like windows. Office sells Mac boxes; it's lamentable that this one package sets the standard for world business, but it's a relief that our version is so relentlessly good and not just some small piece in a larger strategic deployment.

List of Demands

So on that basis, OK, sure, let's allow Microsoft to keep going—but not without some provisions:

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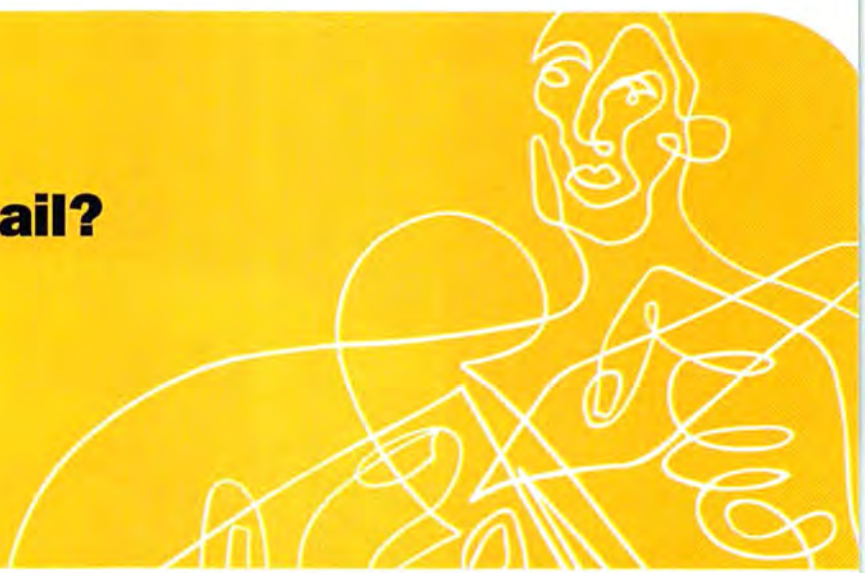

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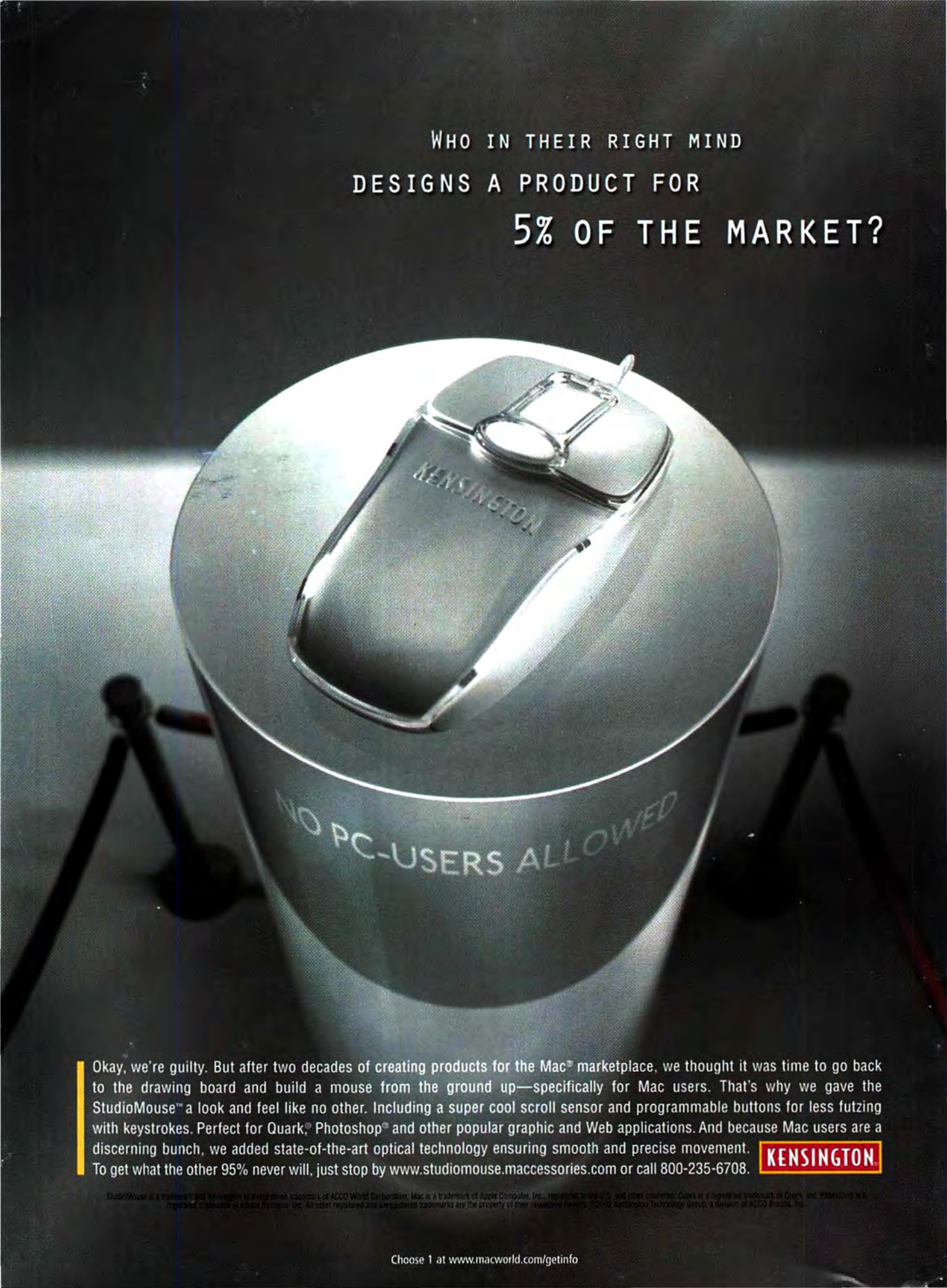

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