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APPLE'S PORTABLES GAIN PROCESSOR AND BURNING SPEED BUT DROP IN PRICE

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GET YOURSELF CONNECTED

HOME NETWORKING GUIDE

THE BASICS
Everything You Need to Know to Get Started

STAYING SAFE
Protect Your Data from Snoops and Thieves

GOOD GEAR
How to Choose the Best Equipment

HOW IT WORKS
5 Great Reasons to Build a Home Network

MAKING MACS ROCK

TAP THE POWER OF MIDI TO GET YOUR GARAGEBAND GROOVE ON, p. 76

"The biggest advance in computing in recent years." — ***Peter Lewis***, Fortune

"One thing that's for sure is that the G5 is the biggest advance in computing in recent years, and not just because it is the first personal computer to use a 64-bit desktop processor."

— ***Peter Lewis***, Fortune, 10/27/03

"To say that the latest and greatest G5 screams does a disservice to the word. I can say flatly that if you have been waiting for the G5 to update your aging Power Macs, you need wait no longer. It will chew through any processor-intensive task you throw its way."

— ***Ken Mingis***, Computerworld

"After two weeks with a dual processor 2GHz Power Mac G5, it's the fastest Mac I've ever used in my entire life, and not by a small margin, either. I'd call it wicked fast, but that wouldn't even come close to doing it justice. It was astonishing."

— ***Bob Levitus***, in the Houston Chronicle

"The Power Mac G5 shatters the long-standing limits of expectation imposed by Intel and Microsoft."

— ***Tom Yager***, InfoWorld

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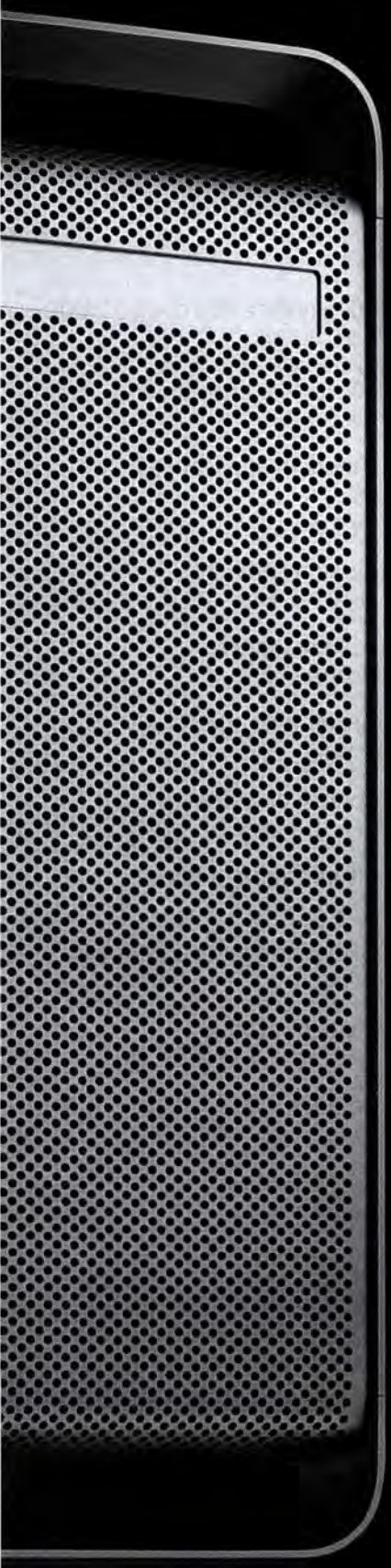

"With the Power Mac G5, the increase in speed is three-fold over the old machine. Especially in my line of work, this means more rendered scenes in the same amount of time, more freedom to try different versions, or simply a chance to go home before midnight."

— ***Thomas Tannenberger***, Look Effects

"I wasn't prepared for the truly overwhelming performance of my new dual 2 GHz G5. The combo of this amazing hardware and OS 10.3 [Panther] adds up to a work platform that is not only astounding in its power but also in the joy that it brings to the user – just for the quality of work life that it offers those of us who spend hours and hours in front of our machines."

— ***Pat Metheny***, Musician

"It is a leap of not only faith, but over tall buildings in a single bound. The G5 is so revolutionary, it almost cannot be thought of as simply a better Macintosh, or as a trump card over the hand dealt to us by the Wintel world. This changes everything; the Power Mac G5 is really in a class by itself."

— ***George Tomlin***, Digital Output

"Having Apple Computer's new Power Mac G5 around the office is like having a superhero assistant. If you've got lots of graphics or video heavy-lifting to do all at once, it's amazing."

— ***Jon Fortt***, San Jose Mercury News

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Incorporating MacUser

Macworld

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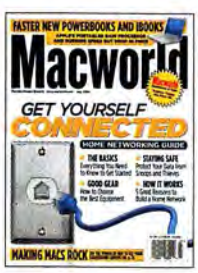

On the Cover
Photo-illustration by Peter Belanger

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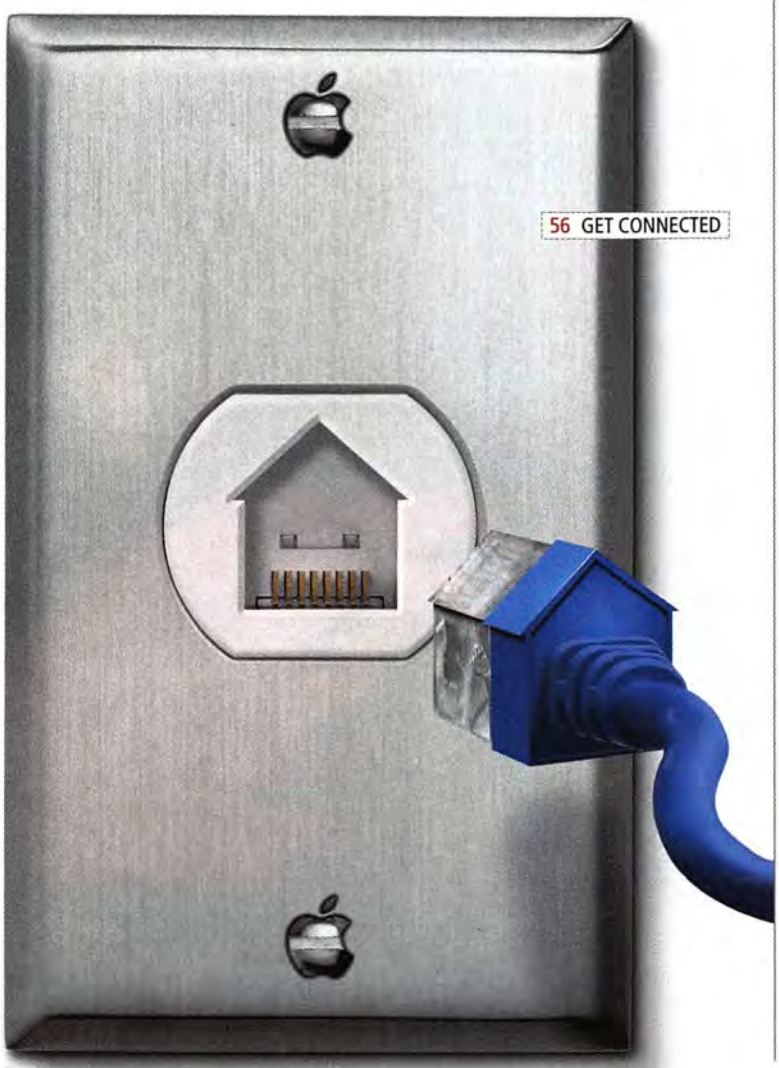

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Net Results

YOU KNOW YOU'VE BEEN WORKING AT A MAGAZINE FOR A long time when you see the same story come around for a third time. And if you've been a *Macworld* reader for at least six years, you, too, may find that the topic of this month's cover story—home networking—is somewhat familiar ("Get Connected," page 56).

In the past six years, we've done two feature stories on setting up networking equipment in your home. But each time we visit this topic, the networking landscape is dramatically different from the time before. People once set up networks in their homes only if they had two Macs and wanted to share a printer or move files between their systems. But always-on broadband Internet access is reaching more people—certainly more than half of *Macworld*'s readers have it, and that number is growing at a remarkable rate. Apple's introduction of AirPort has revolutionized—and complicated—home networking even more.

If These Devices Could Talk

The latest factor pushing people to consider wiring their homes is a proliferation of network- and Internet-enabled devices. For years, futurists flogged the fanciful concept of an Internet-connected refrigerator that could order your groceries when you ran low. Right idea, wrong appliance. The newest networked devices aren't refrigerators; they're digital-video recorders, networked music players, and devices that let you bring videos and photos from your Mac and display them on your TV set. These devices don't rely on wacky home-built networking protocols; they use standard Internet networking. And they don't use weird wireless technologies—they involve nothing more complicated than AirPort or Bluetooth.

But taking advantage of these devices—and the even cooler ones that will inevitably follow them—still requires an active computer network. Businesses have experts who set up networks properly and make sure they run efficiently. But at home, there's no network administrator or IT manager—except for you. Suddenly, innocent civilians are being confronted with terms—such as *router*, *switch*, and *NAT*—that they could once ignore without consequence. If you don't know these terms nowadays, though, you'll never be able to telecommute from your backyard, pipe your iTunes library into your home stereo, or program your TiVo from a thousand miles away (all things I've done myself).

This month's cover story can make you more comfortable with home networking. We've defined the different types of networks and demystified some of the terminology that was once locked behind heavy metal doors in the world's server closets but has now been unleashed on users like you and me.

A Network of Networks

Of course, the growth of network technologies isn't something that affects us only when we're at home. I now tote an iSight camera with me whenever I go on a business trip. The hotels I stay in tend to offer broadband Internet access, and with the iSight, I can see and talk to my wife and daughter back home. At *Macworld*, we're using iChat and iSights all the time, to connect far-flung editors and writers with the mother ship. Text chats help us share information when a phone call is too much trouble and e-mail isn't immediate enough.

Where will it end? There's no way to tell, at least not until our next cover story on the subject, when the networking landscape shifts *again*. But I'm not anxiously awaiting the day when I can exchange instant messages with my Internet-enabled refrigerator. □

ABOUT THIS MACWORLD

We write a lot of stories about hardware and software. But never before has the hardware been a green Pyrex casserole dish and the software been three kinds of cheese, a bunch of pasta, and a pile of Fuji apples. As part of our continuing celebration, in the pages of *Mac Beat*, of the Mac's 20th anniversary, we asked Food Network host Alton Brown to whip us up a recipe. He's a big Mac fan, so he graciously provided one (see page 28)—and then the hard part began. Editor in Chief Jason Snell was volunteered to test Brown's "Apple Macaroni and Cheese." And although he failed on his first try, he got it right on the second. Then came the real trick: making and baking it a third time, this one for photographer Peter Belanger's camera (left). It's safe to say that Belanger probably has a lot more experience preparing photographs than side dishes, but unlike our intrepid editor in "chef," he got Brown's tasty recipe right the *first* time.

How are you staying connected? Drop me a line—over someone else's network or one you set up on your own—at jason_snell@macworld.com, or visit www.macworld.com/forums.

PORTRAIT BY SVEN WIEDERHOLT

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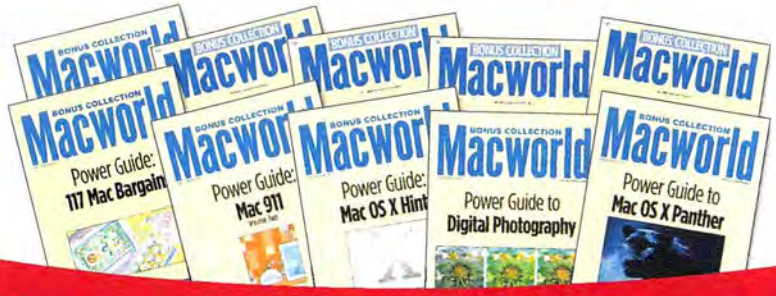

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FEEDBACK

Tips Accepted

Whom should you tip? Food servers, cab drivers, and—unless you want to end up looking like someone who belongs in a Flock of Seagulls tribute band—anyone who cuts your hair. But after the April 2004 issue featuring Panther pointers, some readers think *Macworld* editors also need tips—but not of the monetary variety (although that isn't an unwelcome idea). Readers want to share their suggestions on how to get the most from a Mac. And if there's one tip we can offer you, it's that you'll never go wrong listening to Mac lovers talk about what they know best. □

Opening Tip-Off

ROBB MOATS

Rob Griffiths suggests utilizing Fast User Switching when a presentation requires a software demonstration ("Panther Secrets Declassified," April 2004). The problem with this is that you have to escape from the full-screen presentation to do it and then restart the presentation when you return. A cooler and easier way to do it is to use Exposé. Start up a PowerPoint full-screen presentation and then press F9 or F11 to show all open windows or the desktop. Then select the app you need to work with (you may need to click on the desktop to bring up the Dock), and when you're through, just click on the PowerPoint icon in the Dock. You'll instantly be brought back to the point where you left your presentation, still in full-screen mode. This is one more feature that makes Windows users' jaws drop.

HILLARY JOHNSON

I love the fact that I can just use the Script menu and make my own Apple menu, as outlined by Rob Griffiths. But after I create my own Scripts folder in my user's Library folder, I seem to get the spinning wheel whenever I click on the Script menu in the menu bar. I have to log out and log back in to make it go away. I had to take my customized Scripts folder out of the Library folder just so I could access the Script menu again. What gives?

It's possible that you've added too many items to your Script menu. The Script menu must scan the contents of every included folder and subfolder, which can take a long time if there are hundreds of included files. As I cautioned in the tip, you should limit your Script menu to the documents and applications that you use most often.—Rob Griffiths

MICHAEL D. MORTILLA

To switch between programs in OS X (10.3) you can indeed press ⌘-tab, as Rob Griffiths writes. What he didn't mention is that you can continue to hold the ⌘ key, release the tab key, and then press the Q key to quit the highlighted application. The screen display of running applications remains active. Then (while continuing to hold the ⌘ key) you can press tab to move to another application and use the Q key to quit that one. That way, you can quit several applications in one shot. If you have lots of programs running and pass the one you want, continue to hold the ⌘ key and press the tilde (~) key. You'll be able to select the running programs in reverse order.

Quicken versus Moneydance

ANDY PASTUSZAK

I was deeply disappointed by *Macworld*'s roundup of personal finance software (*Reviews*, April 2004). Quicken has a long-time bug that many users have seen often: a failure to properly reconcile accounts. I often reconcile accounts and find myself off by one or two cents or some other small amount. If I clear the Reconcile window and start over again, things balance. This is a sad behavior from the Mac's "preeminent personal financial program," as you call it. I switched to Moneydance a number of years ago, and I find Jeffery Battersby's review to be a bit uninformed. There are indeed default categories in Moneydance; they are called accounts. Battersby failed to mention that Moneydance supports direct download of transactions from within the software, the way that Quicken does.

MICHAEL CZEISZPERGER

As someone who paid for both Quicken 2002 and Moneydance, I can't understand Jeffery Battersby's attitude toward the latter. Features that I could never get to work in Quicken worked the first time in Moneydance. I had no end of trouble with Quicken, and each problem resulted in a $49 support call that never fixed the problem. Everything worked flawlessly in Moneydance. The one question I had about Moneydance was answered through e-mail, for free. In the end, I spend much less time doing finances with Moneydance than I ever did with Quicken.

Moneydance's rating resulted not from any lack of accounting capability, but from significant and reproducible interface bugs that marred the usability of the program and that were acknowledged by the developer at the time of the review. These issues appear to have been corrected in the version released in April 2004.—Jeffery Battersby

RICK GRANBERRY

In your reviews, one aspect of software often ignored is longevity. This has been especially important to me in regard to personal finance software for searching for expenses, even far in the past. Sometimes it's helpful to look up the repair history of appliances or to track utility costs over long time spans. I think I got a bargain back in 1992 when I bought Andrew Tobias's Managing Your Money, because I still open those files. I probably wouldn't be able to do so if I didn't use the same program today (admittedly in Classic mode).

ARUNA HARDER (QUICKEN MAC PRODUCT MANAGER, INTUIT)

I was thrilled to see Quicken 2004 rated as the top choice in your Mac financial software roundup. More important, I wanted to let your readers know that we followed up on the issue Jeffery Battersby brought to our attention regarding miscalculated capital gains on stocks sold short. A patch

release that came out in February fixed that issue. The patch is available at www.intuit.com/support/quicken/updates/qkn_updates_mac2004.html.

Serving Notice

JEFF MAO

In his roundup of e-mail servers (*Reviews*, April 2004), Michael Genrich states that you could buy the unlimited-client version of Apple's Mac OS X Server 10.3 for $999. But the ten-client version of OS X Server ($499) doesn't refer to mail accounts or concurrent mail sessions. The ten-client or unlimited-client aspect of the Server edition refers to the number of concurrent Apple Filing Protocol connections. So even if you need AFP, if you don't anticipate more than ten concurrent sessions, you could still have hundreds of accounts on the server. If you need e-mail and/or Web services, the ten-client version will do just fine.

MICHAEL SHAFAE

It is utter madness to place an e-mail server online that doesn't have strict antivirus, antispam, and practical access control. Your review seems to treat virus and antispam controls as extras that can be overlooked. When you consider the costs of antispam and antivirus software, Mac OS X Server seems like a much better bargain.

SCOTT MELENDEZ

While I realize your primary goal is to review Mac products, leaving out coverage of enterprise or server products that may not run on OS X but can have OS X clients seems to solidify the perception of the Mac as a niche player. I noticed this with your OS X–only mail-server review. I'm sure you realize 95 percent of corporate America uses Exchange or Domino as back-end mail servers. *Macworld* should review these products. Although they're not OS X products, they do have Mac clients. Reviewing the server and client for their features and functionality would be very useful.

A Wireless Vision

JEFF PIOTROWSKI

I was in awe after reading "I Spy with iSight" (*Geek Factor*, April 2004). Two big thumbs-up to Evological Software and Bensoftware for thinking outside the box for the iSight's use. To think even further outside the box, I think Apple should develop a wireless version of iSight (be it AirPort- or Bluetooth-based) to break free from having to hardwire this camera to a host or remote computer. Mac users could then carry the camera around at functions (within 150 feet of the host computer) without worrying about whether someone is going to trip over any cables. Whether it's for a family reunion where you can introduce people over the Internet to relatives who were unable to attend, or for changing camera angles so would-be criminals don't always know where you've placed your home surveillance camera, a wireless remote iSight camera would be a technology many Mac users would love.

Better Secure Than Sorry

RICK OBERNDORF

"Laptop Lockdown" (*Mobile Mac*, April 2004) was great. I have a couple of suggestions. While password-protected

continues

accounts are a good idea, a thief could easily bypass the protection by starting up with a CD-ROM and holding down the C key. To prevent this, the user should invoke Apple's Open Firmware Password utility. This will require a password for starting up the computer when holding down the option, C, or T keys, keeping all but the most dedicated hacker from breaking into your computer. The article also describes putting labels on the outside of your computer and making a "dummy" guest user account in which to place recovery information. In addition to these steps, the owner can edit the file Aqua Blue.jpg in the folder Hard Drive: Library: Desktop Pictures to put recovery information on the screen background used on the login page.

ADAM GROSSWIRTH

Jason Cook writes, "Since the Kensington-size slot is a widely used standard in the PC world, too, you can often find third-party cables that cost less." Be careful—I put a non-Kensington cable lock on my brand-new iBook last year, and then I couldn't get it out. The locking mechanism—which flipped up, unlike Kensington's, which turns—got itself stuck inside the iBook's case and was digging into the plastic there. Fortunately, I had only been testing the cable and hadn't actually locked it to anything, so I was able to take the whole thing in to a dealer, where—after I showed several forms of proof of ownership—they took the case apart to remove the cable.

I See an Angry Reader . . .

BRYAN THOMPSON

I was very surprised and dismayed to see you employ the services of an astrologer and a psychic in "Future Fortunes" (*Mac Beat*, February 2004). I'd be much more likely to take seriously a prediction by Adam C. Engst than one by any psychic. I'm offended by the implication that a Mac-using psychic's predictions should be taken seriously. This deals in the realm of the spiritual, not the scientific, and has no place in *Macworld*.

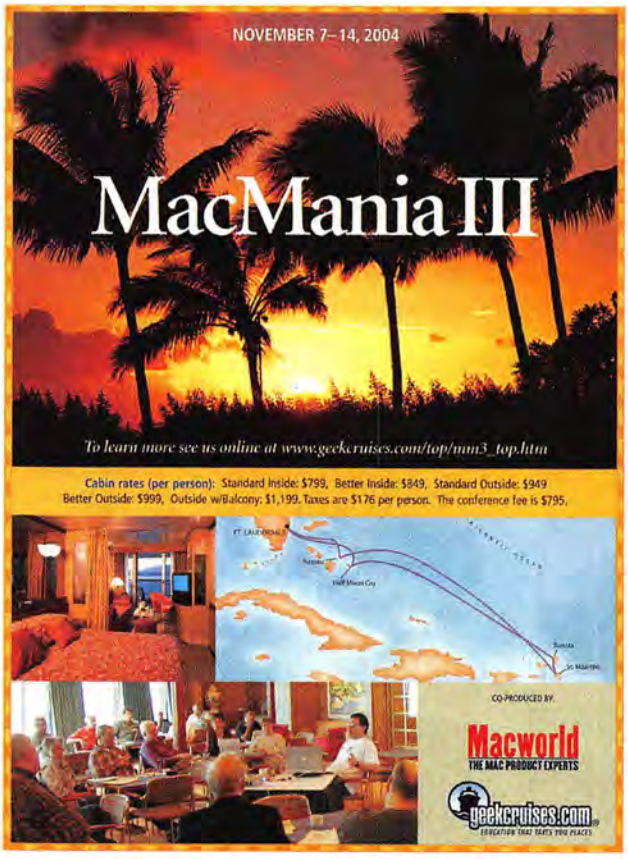
The psychic warned us you would feel this way.—Ed.

Post comments on our forums (www.macworld.com); send them by mail to Letters, *Macworld*, 501 Second Street, 5th Floor, San Francisco, CA 94107; or send them by e-mail to letters@macworld.com. Include a return address and daytime phone number. Due to the high volume of mail we receive, 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

Due to an editing error, our April 2004 review of personal finance packages stated that Moneydance 2003 lacks predefined accounts. In fact, Moneydance ships with an extensive set of predefined accounts.

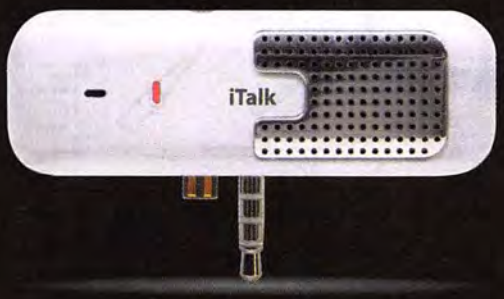
In "Focus on the iPod" (May 2004), a tip on creating smart playlists based on song lyrics was incorrect. In fact, when you paste text into the Comments field of an iTunes song, only a portion of that text will be retained. Our tip works only if you pull keywords from a song's lyrics.



You listen to your iPod every day, Now your iPod can listen to you.

The creators of iTrip now introduce the **Griffin iTalk** iPod Voice Recorder. Plug iTalk into your iPod and record thoughts, ideas or meetings with its high quality built-in microphone.

Play back your voice memos or music through iTalk's built-in speaker. You can even connect a separate mic or your headphones into iTalk. So talk all you want, iPod will listen.



iTalk

$39.99

Voice Recorder for iPod

- Turns iPod into a full function voice recorder
- Internal microphone and laptop quality speaker
- Connect external microphone or headphones
- Automatic Level Control for perfect recordings

iTrip

$35

FM Transmitter for iPod

- Play your iPod's music wirelessly in your car or through your stereo at home
- Uses any empty FM station from 87.7 to 107.9 - switchable from the iPod itself
- iPod powered & earth friendly - no batteries needed or wasted ever
- Fits beautifully to top of iPod - no messy cables to get in the way

iCurve

$39.99

PowerBook & iBook Stand

- Raises notebook screen to eye level - no more sore neck from looking down
- Creates room on the desktop for your favorite USB keyboard and mouse - wireless versions work great
- Keeps your notebook running cool (and loud fans off) with 360° airflow

iMic

$39.99

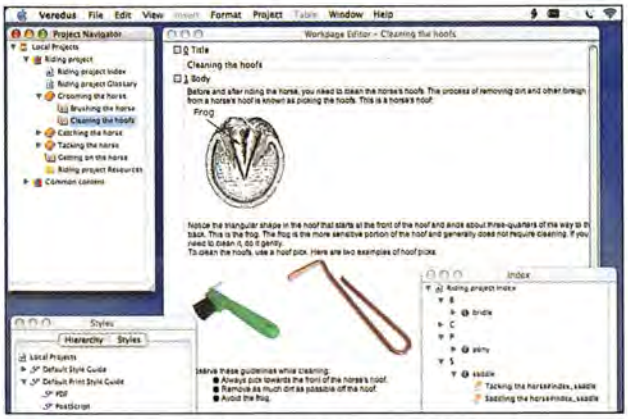
USB External Sound Card

- Adds superior quality audio recording & playback to any Mac via USB
- Includes everything needed to record albums and tapes to make MP3s & CDs
- Works great with GarageBand & iMovie

Another great idea from GRIFFIN

learn more at **www.griffintechnology.com**

CONTENT



LEFT: You can predefine builds in multiple formats including AppleHelp, and display the finished project in the corresponding Help Viewer. TOP: A single fully-integrated editor with floating panes for all output formats.

Today's business and technical writers demand sophisticated authoring tools. While there is no shortage of products to choose from, many require a lot of technical know-how and even coding experience. Writers are finding that the tools are taking them away from what they do best. And what they do best is create great content—because that's what pays the bills, not coding.

That's also why the team at Rascal Software saw a need for an authoring tool designed by authors, not engineers or developers. The result is Veredus, an advanced, XML-based authoring tool which features a single, fully integrated editor for all output formats with no need for third-party software. With the introduction of Veredus 2.0, Rascal Software extends these benefits to a broader audience, including Macintosh users and those who need a powerful workgroup authoring and publishing solution.

The intuitive, easy-to-use Veredus interface lets authors publish everything from short documents to multivolume books in a wide variety of formats including Microsoft® HTML Help, WinHelp, Adobe® PDF™, PostScript®, and others. Where applicable, the output conforms to W3C standards. Through the full-featured editor, authors can easily add special content types such as alerts, and special online Help features such as text popups. Authors can create document variants with simple or complex conditions.

The Project Navigator provides powerful document management capabilities which allow authors to create topics, organize project hierarchy, merge projects and indexes, and even reuse content from one project in another project. Authors can import legacy online Help projects or Microsoft Word and Adobe FrameMaker® documents with unprecedented ease. The format and characteristics of the project output are completely configurable through the Veredus interface.

Veredus Saves Time and Money

Customers quickly see a great improvement in efficiency once they start using Veredus. Among these real-world users is Virginia O'Connor, Lead Documentation Expert at XAware, a Colorado Springs-based data integration company. Over the last couple of years, XAware has added several new developers, each contributing to the workload of the documentation team. But O'Connor says that she hasn't had to add any new writers, thanks in large measure to the tremendous efficiencies she realized with Veredus.

"The real time savings we get from Veredus is perfect for our kind of environment, where we have very aggressive product schedules with frequent changes," says O'Connor. "Veredus makes it so easy to import other documents and build as many conditions as you want. When we run a spell check across an entire repository, we know in advance that all changes will be made to the entire repository."

Writers at XAware now save even more time with the advanced editing features in Veredus. "We don't re-edit anything that hasn't changed—just the new material," O'Connor says.

KING

Veredus™ 2.0 Delivers Single Sourcing With The Power of XML.

Native XML Storage

In Veredus 2.0, all content is stored in XML. The software creates output from source files by applying XSL transformations to them. The XML is fully W3C compliant and can be used by any XML tool.

Support for API Documentation

With Veredus 2.0, authors can create API documentation projects from Java files or type libraries. Veredus imports the components and sub-components from the source code to build the documentation outline. Authors can add details and update the project with each new release of the source code.

Veredus 2.0 Features and Functions

- **Platform independent**—available on Mac OS® X, Intel-based Linux, and Microsoft Windows operating systems
- **A highly intuitive** and easy-to-use interface
- **One-click generation** of HTML Help, Microsoft Help 2, Apple Help, WinHelp, Veredus Web Help, Sun JavaHelp™, Oracle Help for Java, PDF, and PostScript output
- **Effortless importing** of legacy content
- **Support for Unicode**
- **Conditional text**
- **Project and index merging**
- **Ability to single source** content for customized printing, Web portals, or a variety of Help formats
- **Easy customization of style sheets** to meet the standards of individual authors
- **A Workgroup module** for cross-platform collaborative writing
- **Built-in table of contents** and index generation
- **Automatic conversion** of graphics into standard formats

INTERVIEW

Rob Frankland,
President and founder of Rascal Software

What is the core value proposition for authors using Veredus 2.0? Veredus 2.0 has been built from the ground up to deliver true single-sourcing capability. A lot of products claim to offer this, but it was our design from the start. We looked at the work styles and habits of technical writers and built the product accordingly. As a result, it helps get the work done faster, and time means money.

You claim Veredus 2.0 actually boosts authors' productivity. How, specifically? In at least a couple of ways. Veredus 2.0 greatly facilitates the reuse of content, so more material actually gets reused and doesn't have to be recreated. In general, the product just makes everything in the content-creation process simpler, and therefore faster.

Rascal seems to be broadening its customer base with this latest release. What new audiences are you reaching out to? We are certainly reaching out to the Mac community, which never had a tool to do online Help. And for those many people who document APIs, our big push in the API area will be welcome news.

What feedback have you received from early users of Veredus 2.0? The most consistent validation we get goes like this: "Yeah, this really does work!" We've built in capabilities for our users that give them high-quality print and greater control over fonts, spacing, and so on. They tell us we have the best range of output formats available in any tool, and a great print solution.

Can users try before they buy? In Q3, Mac and PC users can go to our site and sign up for a 15-day free trial offer.

What can your customers expect in terms of future enhancements to this authoring tool? Soon we will offer an SVG editor. And later this year we're going to add a tool that will make it easier than ever to review HTML content without having to print pages. I think that's going to be very well received.

>> For more information on how Veredus 2.0 can help you transform, format, and render content on the fly, click now on www.rascalsoftware.com.

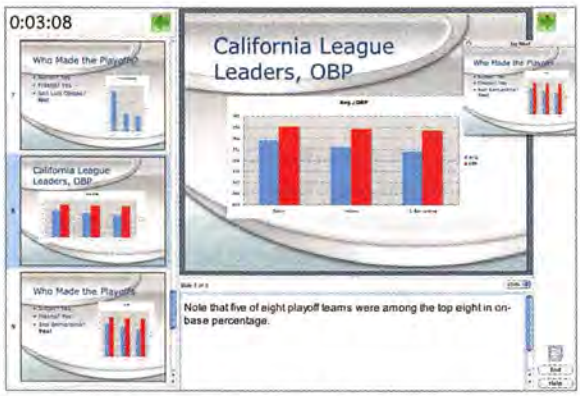
Rascal SOFTWARE

COMPARING OFFICE 2004 FOR MAC WITH ITS WINDOWS COUNTERPART

Office versus Office

Microsoft's Macintosh Business Unit kicked off 2004 by unveiling new features in a planned update to the Mac version of Office, and the company has barely broken stride since. In the months leading up to the May release of Office 2004, Microsoft (www.microsoft.com/mac) has talked up a steady stream of enhancements to its productivity suite (see "Office Additions")—in press releases, discussions with journalists, and even videos posted on its Web site.

Compare that fanfare with last year's release of Office 2003 for Windows users: Microsoft made little noise about new features, largely because that update didn't come loaded with cool new tricks.



Prepping PowerPoint Presenter Tools, a feature that was already available in the Windows version of PowerPoint, is new for Mac users.

The differing approaches to promoting Office updates have a lot to do with marketing strategy—Microsoft shaped last year's Windows release to emphasize group productivity. But the approaches also reveal how Microsoft regards its two Office suites, which share a name but often have different focal points and capabilities.

Group Think

Take Office 2003 for Windows. To sell corporations on upgrading, Microsoft touted the merits of enterprise-wide savings of time and money. Office 2003 for Windows introduced new XML features that let users of the Professional Enterprise or the Professional version create forms that hook information from backroom databases to applications like PowerPoint and Excel; these features allowed entire workgroups to use up-to-date information in presentations and financial reports.

In sharp contrast, Office 2004 for Mac concentrates almost exclusively on individual productivity improvements. For instance, the only new XML capability Mac users will find is in Excel, which now lets you share XML files.

It's no secret that Mac users prod software vendors to keep boosting ease of use. But Microsoft also knows how to sell. The Mac market's many professionals running their own businesses would have no reason to

OFFICE'S CENTER PIECE

Back when Microsoft first began taking the wraps off Office 2004, *Macworld* had an early preview of the announced new features (see "Office 2004: First Look," March 2004). Just in case the finer points of Project Center, the Notebook Layout view, and other Office additions have faded from memory, here's a quick recap of some features of this latest version of Office.—PHILIP MICHAELS

- **Project Center:** Easily the biggest addition to Office, this organizational tool housed in Entourage combines that program's PIM capabilities with direct access to important files. With Project Center, users can gather up and link to all the e-mail messages, documents, spreadsheets, and presentations related to specific projects, from one central location.
- **Scrapbook:** This addition to Office stores text and graphics dragged over from any Office program, for easy future access.
- **Formatting Palette:** In Office applications, the palette fades into the background when users don't need it.
- **Notebook Layout View:** Aimed at note-takers, this Word tool lets users type notes in outline form, flag key information, and embed audio streams of meetings or lectures in a document.
- **Page Layout View:** Debuting on the Mac, this Excel view lets users see spreadsheets as they'll appear on paper, and change them accordingly.

VIRTUALLY SHIPPING

Office 2004 for Mac began shipping in May, so some eager Mac users may already have the updated productivity suite up and running—unless they want the Professional Edition. That version, which includes all four Office applications along with the latest version of Virtual PC with Windows XP Professional, is delayed while Microsoft resolves a compatibility problem between Virtual PC and the Power Mac G5 (see "VPC DOA?" *Mac Beat,* November 2003). Microsoft expects to resolve that problem with version 7 of Virtual PC, in the months following the Office launch; look for Office 2004 Professional Edition to appear then.

Office 2004 Standard Edition costs $399; upgrades from Office v. X, Office 2001, or Office 98 are $239. The Professional Edition sells for $499 (upgrade, $329), while the Student and Teacher Edition, which lets users install the suite on as many as three Macs, costs $149.—PHILIP MICHAELS

upgrade if the additions to Office 2004 for Mac were all about groupware.

Double Features

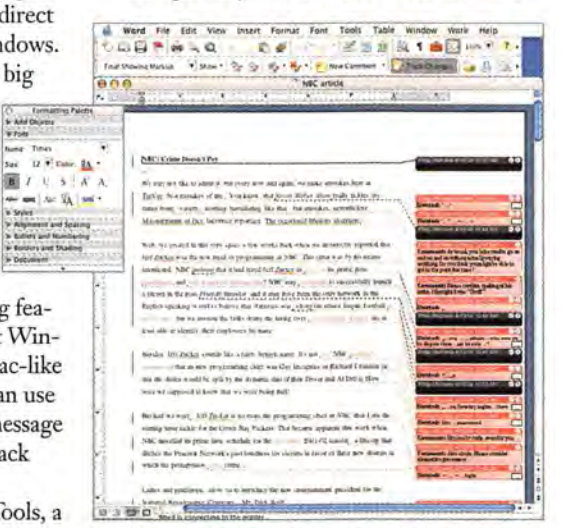
Microsoft may market its two Office versions in different ways. But if you stack Office 2004 for Mac's features next to those in the most recent Windows update, you'll see some significant similarities and very few copycat changes.

Outlook 2003—the e-mail and personal information management program in Office for Windows—has a new interface, new organizational tricks, and ways to automatically route e-mails into storage folders. All these capabilities resemble features that Mac users will see in Office 2004's new Project Center, inside Entourage. Entourage's new vertical, three-pane view looks a lot like Outlook 2003's three-pane view, and both Outlook 2003 and Entourage boast improved junk-mail protection. But Project Center, a star component of Office 2004 and one developed specifically for Mac users, has no direct equivalent in Office 2003 for Windows.

Word 2003 for Windows' only big change was the Reading Layout view, which displays documents in a booklike way. Users of Office 2004 for Mac won't see this view, but they gain the unique Notebook Layout view for note-taking. Mac users will also see improved change-tracking features that are similar to those that Windows users enjoy but that have Mac-like interfaces. (And only Mac users can use MSN Messenger 4.0 to instant-message a colleague right from a Word Track Changes comment balloon.)

Office 2004 adopts Presenter Tools, a PowerPoint feature already available on the Windows side. However, in a Mac-only twist, you can run the presentation-practice tool at any time; Windows users need to be connected to a projector. A new Office for Mac feature called Reference Tools lets Mac users search for a word's definition, look up a term on Encarta Online, or do an MSN Web search without losing sight of the document in use; it mimics a similar capability, called Research Pane, that debuted in Office 2003 for Windows.

Word, Excel, and PowerPoint files in Office 2004 have the same file formats as their Office 2003 for Windows counterparts. But a new Compatibility Report feature will give Office 2004 for Mac users warnings about glitches that can arise when you send files to Windows users or people using older versions of Office for Mac. For example, if you send a PowerPoint file that includes a graphic with a transparency, Office 2004 will warn you that the Windows version doesn't support transparency.—LAURIANNE McLAUGHLIN



A Different Track Word's updated Track Changes feature has some elements of the Windows version.

Office Additions

Examining the Windows version of Office next to its Mac counterpart may give Mac users a good idea of what's missing and what—we hope—might appear in future releases. But in the near term, Mac users are more concerned with what's new in *this* version.

Managed Expectations

Project Center remains Office 2004's leading data-management feature (see "Office's Center Piece"), but it's hardly the only such addition. Entourage now sports a three-column view, with the reading pane relocated from under the message list to its immediate right. Microsoft claims that the new view displays as much as 40 percent more of each message on screen. Another feature promises to show you *less* information—Entourage sports stronger junk-mail controls based on an updated detection algorithm.

PowerPoint has a data-management feature of its own: Presenter Tools. This presentation-management tool displays the current slide, the upcoming slide, and presentation thumbnails. It also features an on-screen clock that lets you time your presentations.

Creative Additions

Excel users can create charts directly from the formatting palette, which also offers the ability to add titles and labels to charts. Excel used to support only 30 colors—now charts can use the entire color spectrum.

Smart Buttons now appear in Word and Excel, allowing users to create, edit, and display data with ease. Say you're typing a Word document and the program autocorrects a word you don't want changed—in Word 2004, a Smart Button appears that lets you decline the correction.

Frank Exchanges

On the data-sharing front, Microsoft tinkered with Word's Track Changes feature. Deletions and comments now appear in color-coded bubbles on the right side of a document. A dotted line connects the change in the document to the bubble on the right. The bubble also contains a check-mark button (which you click on to accept the change) and an *X* button (to reject the change). And in a long-awaited change for Mac users, Office 2004 now supports long file names.—PHILIP MICHAELS

POWERBOOKS, IBOOKS GET FASTER CPUS

Portable Power Play

PHOTOGRAPH BY PETER BELANGER

With the latest updates to its line of laptops, Apple hopes to appeal to the inner speed demon of mobile Mac users. This bump up in processing power boosts the top speed of the PowerBook G4 to 1.5GHz and the top speed of the iBook to 1.2GHz.

Processor speeds have shot up across the PowerBook line, which used to top out at 1.33GHz. That's now the low end of the PowerBook's clock-speed spectrum, available in both 12-inch models and in the 15-inch PowerBook featuring a CD-RW and DVD-R Combo drive. The 15-inch model with a DVD-burning SuperDrive saw its processor speed jump to 1.5GHz, from 1.33GHz, as did the 17-inch PowerBook (see "Faster Crowd: New PowerBooks").

Other changes to the PowerBook line are also all about speed. The SuperDrive built into the 15-inch and 17-inch models burns DVDs at 4×, a boost from the 2× SuperDrive featured in previous versions. The 15-inch and 17-inch PowerBooks also get an improved graphics processor, the ATI Mobility Radeon 9700 with 64MB of video memory. (1.5GHz PowerBook users can opt for 128MB, for an extra $50.)

Every PowerBook now comes with built-in 54-Mbps AirPort Extreme wireless networking and a built-in Bluetooth module. Hard-drive capacity on the two 12-inch models jumps to 60GB, from 40GB. All of the other specifications, from the number and the variety of ports to the installed RAM, remain the same.

Apple did make a few changes to PowerBook pricing. The SuperDrive-sporting 15-inch PowerBook now costs $2,499 instead of $2,599. And the 17-inch model's price has dropped $200, to $2,799 (see page 34 for our review of the new PowerBooks).

The updated iBook line features more-modest changes, with Apple concentrating on boosting processor speeds. You'll no longer find an iBook with a clock speed measured in megahertz; the 12-inch and 14-inch models both feature 1GHz G4 chips. The top-of-the-line 14-inch iBook now runs at 1.2GHz (see "The iBook's Gigahertz Club" for more information).

Every iBook model comes with a Combo drive as its standard optical-drive option. However, for the first time, iBook buyers can opt to add a SuperDrive to their laptop of choice; the 4× SuperDrive is a $200 add-on to either of the 14-inch iBooks.—PHILIP MICHAELS

FASTER CROWD: NEW POWERBOOKS

MODEL	PROCESSOR	MEMORY/ SPEED	HARD DRIVE	OPTICAL DRIVE	GRAPHICS CARD/ MEMORY	PRICE
12-inch PowerBook	1.33GHz PowerPC G4	256MB/ 333MHz	60GB	Combo drive	Nvidia GeForce FX Go5200/64MB	$1,599
12-inch PowerBook	1.33GHz PowerPC G4	256MB/ 333MHz	60GB	SuperDrive	Nvidia GeForce FX Go5200/64MB	$1,799
15-inch PowerBook	1.33GHz PowerPC G4	256MB/ 333MHz	60GB	Combo drive	ATI Mobility Radeon 9700/64MB	$1,999
15-inch PowerBook	1.5GHz PowerPC G4	512MB/ 333MHz	80GB	SuperDrive	ATI Mobility Radeon 9700/64MB	$2,499
17-inch PowerBook	1.5GHz PowerPC G4	512MB/ 333MHz	80GB	SuperDrive	ATI Mobility Radeon 9700/64MB	$2,799

THE iBOOK'S GIGAHERTZ CLUB

MODEL	PROCESSOR	MEMORY	HARD DRIVE	OPTICAL DRIVE	GRAPHICS CARD/ MEMORY	PRICE
12-inch iBook	1GHz PowerPC G4	256MB	30GB	Combo drive	ATI Mobility Radeon 9200/32MB	$1,099
14-inch iBook	1GHz PowerPC G4	256MB	40GB	Combo drive	ATI Mobility Radeon 9200/32MB	$1,299
14-inch iBook	1.2GHz PowerPC G4	256MB	60GB	Combo drive	ATI Mobility Radeon 9200/32MB	$1,499

eMac Advance

Apple's laptops aren't the only machines running faster these days. The company also upped the processor speed of the eMac and dropped the price of the SuperDrive-equipped version of the all-in-one desktop.

The new eMac sports a 1.25GHz PowerPC G4 processor—up from a 1GHz chip in the previous version. Apple also added faster memory (333MHz DDR RAM), faster graphics (ATI's Radeon 9200 graphics chip), and USB 2.0 connectivity. The eMac's motherboard speed is faster, too, jumping to 167MHz, from 133MHz.

While the entry-level eMac—featuring a 1.25GHz processor, 256MB of RAM, a 40GB hard drive, and a Combo drive—remains at $799, Apple cut the price on its other eMac offering by $100. That model, featuring a DVD-burning SuperDrive, sells for $999.—JIM DALRYMPLE

MULTIMEDIA BEAT

3D Layer 1.0, from Digital Anarchy (www.digitalanarchy.com): Plug-in for Adobe After Effects, Discreet Combustion, and Apple Final Cut Pro provides special effects that can be distorted, extruded, and modeled using 3-D meshes ($149).

iVCD 2.0, from Mireth Technology (www.mireth.com): VideoCD and Super VideoCD authoring program now lets you include menus and playlists in VCDs and offers a preview mode for encoded MPEG ($30; upgrade, $15).

Maya 6, from Alias (www.alias.com): 3-D–graphics and –animation software has been converted to a Mach-O application, improving OS X performance ($1,999; upgrade, $899).

Sonicfire Pro 3.2, from SmartSound Software (www.smartsound.com): Update to soundtrack-creation software features integration with Macromedia Flash and Avid ($299; upgrade from version 2.X, $79).

X-Factor Unlimited, from GridIron Software (www.gridiron xfactor.com): Adobe After Effects 6.5 plug-in improves preview and render speeds using a grid computing network ($1,995).—COMPILED BY PHILIP MICHAELS

EDUCATION BEAT

FemLab 3.0a, from Comsol (www.comsol.com): Scientific-modeling software adds support for OS X 10.3; the multiphysics modeling program also integrates with MathWorks Matlab (contact Comsol for pricing).

Maple 9.5, from Maplesoft (www.maplesoft.com): Mathematical problem-solving, data-visualization, and technical authoring program adds new integrated algorithms for optimization problems, student multivariate calculus package, an integrated dictionary of engineering and mathematical terms, and interface and performance improvements ($1,995; contact Maplesoft for upgrade pricing).—COMPILED BY PHILIP MICHAELS

ICONS BY PAUL HOWALT; SYMANTEC ILLUSTRATION BY GIACOMO MARCHESI

DISK-REPAIR ALTERNATIVES ABOUND

Utilities Shut Down

Norton Utilities has been part of Mac users' tool kits for 15 years. But the venerable disk-repair and -optimization utility's days on the Mac are numbered: Symantec (www.symantec.com) has announced that it's dropping future development of both Utilities and SystemWorks, a system-repair suite centered around Utilities, for the Mac.

Symantec said that it decided to drop the two Mac products to focus on its line of Internet security utilities, which includes Norton AntiVirus and Norton Personal Firewall. (The company will continue developing SystemWorks for Windows.)

Utilities isn't disappearing entirely—Symantec will provide tech support, over the phone, for Utilities 8.0 and SystemWorks 3.0 for one year after the company stops selling the programs. Both products remain on the market, and Symantec plans to sell both as long as there's customer demand.

Symantec plans to continue supporting the current version of OS X 10.3, as well as any future updates to Panther. With both Utilities and SystemWorks supporting all current Mac hardware, Symantec says it will consider bootable CDs for future Apple hardware on a case-by-case basis.

Once the preeminent utility of its kind, Norton Utilities exits the Mac market on a low note. "They haven't made substantial changes in years," says David Shayer, a software engineer who worked on previous versions of Norton Utilities.

Plenty of worthwhile programs are ready to take Norton Utilities' place. OS X includes Disk Utility, a built-in utility that includes disk repair among its many functions. Among third-party applications, DiskWarrior 3.0, from Alsoft (www.alsoft.com) tackles most of the system-repair and -optimization tasks handled by Norton Utilities. Micromat (www.micromat.com) offers a pair of diagnostic and repair programs, Tech Tool Pro 4.0 and Drive 10.—PHILIP MICHAELS

INTEGO'S WARNING CREATES A STIR

A Trojan among Us?

Intego (www.intego.com) caused quite a stir in April, when the utility maker announced that its VirusBarrier software's definitions had been updated to catch the first Trojan horse affecting Mac OS X users. Suddenly, Mac users were scrambling to update their existing software or buy new antiviral tools—just what Intego's PR folks had in mind.

When the dust had settled, it became clear that Intego had overstated the risk to Mac users. The "MP3Concept" Trojan horse was in fact a harmless proof-of-concept file—an application masquerading as an MP3 file. It was created by programmer Bo Lindbergh to show that such an exploit was possible.

Antivirus developer Symantec (www.symantec.com) quietly updated definitions for Norton AntiVirus for OS X as well, but made it clear in a statement that "this Trojan does not contain any malicious code" and that "it is not spreading and infecting Mac users."

As of this writing, Apple had not addressed the vulnerability, other than to issue a statement saying that it was aware of the issue and "working proactively to investigate it." But changes will be needed—one thing Apple could do is modify the Finder to show an application as such, even if its file extension is *.mp3* or the like. At press time, word was spreading of another Trojan horse, masquerading as a Web installer for a Microsoft Word 2004 preview release, that deletes the contents of a user's Home directory. This Trojan can't replicate itself; a user must download and run the program.—MARK H. ANBINDER

WHAT'S THE FUTURE OF MAC SUPPORT ON THE PDA?

A Read on Palm

Things looked grim for PDA-loving Mac users at the PalmSource developers' conference in February. It was there that PalmSource—the company that develops and licenses both Palm OS and synchronization software—announced that its new Palm OS Cobalt operating system wouldn't include native Mac support. Was this yet another high-profile developer abandoning the Mac, leaving Mac users high and dry?

Not exactly. PalmSource may develop the Palm OS, but an entirely different company, PalmOne, makes the hardware. And PalmOne (www.palmone.com), whose products include Zire and Tungsten handhelds and Treo smart phones, has no plans to turn its back on Mac users. "[We] plan to continue delivering solutions that meet [Mac users'] needs," says Stéphane Maes, senior product line manager of handhelds.

So where might these solutions come from? Mark/Space (www.markspace.com) offers The Missing Sync for Palm OS, which replaces the HotSync Manager software for Mac users and adds advanced features such as iPhoto and iTunes support, the ability to mount memory cards to the desktop, and Internet sharing. The company has already announced plans to release a new version of The Missing Sync that will support all current conduits for Cobalt-based handhelds. The big question, then, is whether Mac users will need to pony up additional money—The Missing Sync sells for $30 as a download and $40 on a CD—to get a handheld that supports PC out of the box. "The fear [for Mac users] is that 'I'll have to go buy something,'" says Ken Freeman, senior product manager for The Missing Sync. Mark/Space has been in contact with several companies, and when Cobalt devices become available later this year, he says, "some licensees will include our software in the box." (Asked whether PalmOne was considering such an option, Maes declined to comment on specifics but acknowledged it was an option.)—JONATHAN SEFF

APPLE UPDATES iTUNES, ONLINE MUSIC STORE

Not the Same Old Song-and-Dance

Apple marked the first anniversary of the iTunes Music Store's launch by updating the eponymous music jukebox application and adding new features to the online store. While bumping the number of computers authorized to play songs bought at the iTunes store to five, from three, the update cuts the number of times you can burn a playlist to seven, from ten. Here are some of the other changes introduced in iTunes 4.5 and to the iTunes Music Store.—JONATHAN SEFF

- **The new Apple Lossless Encoder imports music from CDs without any loss in quality and at roughly 50 to 60 percent of their original size.**
- **Party Shuffle is a dynamic playlist that randomly shuffles songs from your library or other playlists while letting you add or delete songs at any time.**
- **CD Insert Printing lets you print track listings for playlists using different templates.**
- **iMix lets you publish your playlists (or rather, the songs in your playlists that are available on the iTunes Music Store) for other users to rate and use when shopping.**
- **Radio Charts tracks the most-played songs, from more than 1,200 radio stations around the country, available at the iTunes Music Store.**
- **a Music Video section features 72 music videos viewable from within iTunes, with links to the songs.**
- **A Movie Trailers area includes many of the movie previews featured on Apple's QuickTime Web site.**

HARDWARE BEAT

InFocus X2, from InFocus (www.infocus.com): Digital projector features native SVGA resolution ($999).

MFC-8440, **MFC-8840D**, and **MFC-8840DN**, from Brother International (www.brother.com): Three five-in-one flatbed laser multifunction printers feature faxing, laser printing, digital copying, and scanning (8440, $450; 8840D, $550; 8840DN, $650).

Notevision XR-1S, from Sharp Electronics (www.sharplcd.com): Three-pound projector features native SVGA resolution ($1,299).

Optura 30 and **Optura 40**, from Canon (www.usa.canon.com): 2.2-megapixel camcorders both feature an RGB primary color filter and 16:9 wide-screen mode (Optura 30, $899; Optura 40, $999).

WorkCentre M20/M20i, from Xerox (www.xerox.com): Desktop multifunction device comes in three configurations including **CopyCentre C20**, a stand-alone digital copier; **WorkCentre M20**, a digital copier and printer with color scanning capabilities; and **WorkCentre M20i**, which offers copying, printing, faxing and scanning (C20, $1,349; M20, $1,649; M20i, $2,199).—COMPILED BY PHILIP MICHAELS

PRODUCTIVITY BEAT

ConceptDraw MindMap 3.0, from Computer Systems Odessa (www.conceptdraw.com): Brainstorming tool adds an outline view, new user interface, and performance enhancements for working with large maps (Standard Edition: $99; upgrade, $39; Professional Edition: $149; upgrade, $49).

DataWerkz 1.0, from Uwerkz (www.uwerkz.com): OS X app offers graphical user interface for creating and editing MySQL and PostgreSQL databases ($99).

Six Degrees 2.0, from Creo (www.creo.com): Updated version of e-mail, file, and contact-information search tool adds browser-based interface and new search features ($99).—COMPILED BY PHILIP MICHAELS

PHOTOGRAPH BY PETER BELANGER

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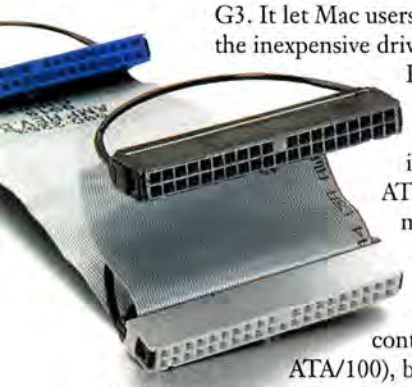
BEHIND THE G5'S NEW DRIVE TECHNOLOGY

Killer Serial

A little more than a year ago, Apple ushered in a new era of Mac computing: the Power Mac G5 introduced Mac users to a redesigned PowerPC processor. Almost lost in all the hoopla, however, was the Power Mac's switch in hard-drive technology, from Parallel ATA to Serial ATA. Mention hard-drive technology to all but the geekiest of Mac users, and you'll likely be rewarded with glassy stares. But don't let that daunt you—the tangible benefits of the switch are enough to open anyone's eyes.

Parallel ATA, or Advanced Technology Attachment (also known as PATA), became the standard alternative to SCSI hard drives on the Mac with 1999's debut of the blue-and-white Power Mac G3. It let Mac users take advantage of the inexpensive drives then available to PC users. In the ensuing years, ATA speeds have increased (Ultra ATA/133 provides a maximum of 133 MBps of bandwidth, though no Mac has shipped with an ATA controller faster than ATA/100), but the technology has remained more or less the same.



Parallel ATA's drive cable ...

What Serial Offers

Serial ATA (SATA) increases the bandwidth to 150 MBps. So Serial ATA builds in lots of headroom, which becomes important as ATA drive speeds inch closer to Parallel ATA's maximum.

There are other benefits, such as Serial ATA's new data and power cables for connecting hard drives to the controller. Besides being smaller and easier to plug and unplug, they're thinner and easier to route through tight spaces inside your computer (and this allows for better airflow and cooling). The cables can also stretch as far as a meter—more than twice the length of Parallel ATA cables—offering more flexibility for drive placement. Because you can hot-plug the connectors, they don't require that you shut down and restart your computer; this makes ATA RAID configurations easier to work with. The new Serial ATA cables also have a significant bonus: they improve data reliability.

Unlike Parallel ATA, which allows you to connect two drives per channel, Serial ATA permits only one. The downside to this setup is that each pair of drives shares the bandwidth available to that bus, and the drives require jumpers to set master and slave positions (or Cable Select mode, which designates the master and slave based on each drive's position along the cable). Serial ATA uses individual cables for each drive, so there's no competition for bandwidth. You don't have to mess with any jumper settings, either.

Serial Installments

Right now, the Power Mac G5 is the only Mac that features Serial ATA. But since another benefit of Serial ATA is its superior power management for drives, it's not hard to imagine that it will appear in future PowerBook designs.

Meanwhile, owners of older PCI-based Macs don't need to buy a new machine to reap the rewards of Serial ATA. Sonnet Technologies (www.sonnettech.com) sells the $100 Tempo Serial ATA PCI, which adds two Serial ATA channels to the interior of Macs as old as the Power Mac 4400, Performa 6400, and most of the Mac clones. FirmTek (www.firmtek.com) sells the SeriTek/1S2 Adapter for $70. Acard Technology (www.acard.com) offers several adapters featuring different ports and configurations.

All major hard-drive manufacturers now sell Serial ATA drives, which cost about as much as or slightly more than Parallel ATA drives. Since most hard drives ship without cables, and Serial ATA cards come with just one data cable, you'll probably need additional or different cables for data and power connections.—JONATHAN SEFF

... makes way for Serial ATA.

INPUT DEVICE BEAT

Easy Barcode Pen, from Easy Barcode Technologies (www.easybarcodetech.com): Pen-shaped USB scanner reads bar codes into any program and supports more than 15 bar-code symbologies ($265).

ImageCaster 2.0, from Econ Technologies (www.econtechnologies.com): Web-cam software adds motion detection, Web-page templates, QuickTime movie composition, and a secure FTP connection ($30; upgrade, free).

iTalk, from Griffin Technology (www.griffintechnology.com): Voice recorder snaps on to the top of third-generation iPods to record 8kHz 16-bit mono WAV files ($40).

iVeZeen 2.0, from Boinx Software (www.boinx.com): Application for turning Web cams into camcorders (formerly known as iRecordNow) adds voice control, AppleScript support, and enhanced motion detection ($15).

RemoteRemote 2, from Engineered Audio (www.engineeredaudio.com): Radio Frequency-based remote control works with iPods with dock connectors and iPod minis ($45).—COMPILED BY PHILIP MICHAELS

NETWORKING BEAT

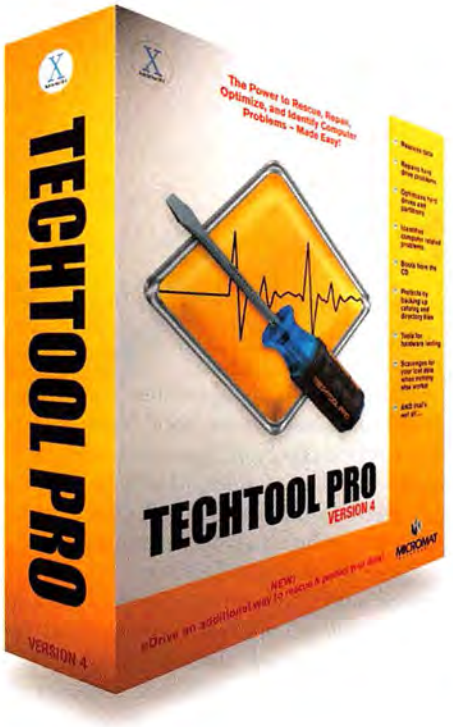
AirPort Extreme Base Station, from Apple (www.apple.com): New model of wireless networking hardware adds support for Power Over Ethernet ($249).

NetWare Client for Mac OS X, from Prosoft Engineering (www.prosofteng.com): Client software for accessing a Novell network via IP adds support for files larger than 4GB on servers running NetWare 6 SP3 or later, (pricing starts at $149 for a single seat; upgrade, free).

Super Cantenna, from QuickerTek (www.quickertek.com): 12dBi 2.4GHz directional antenna improves wireless network range ($70 to $150).

USB Server, from Keyspan (www.keyspan.com): Server allows users to share USB printers and scanners across a network ($129).—COMPILED BY PHILIP MICHAELS

PHOTOGRAPHS BY PETER BELANGER



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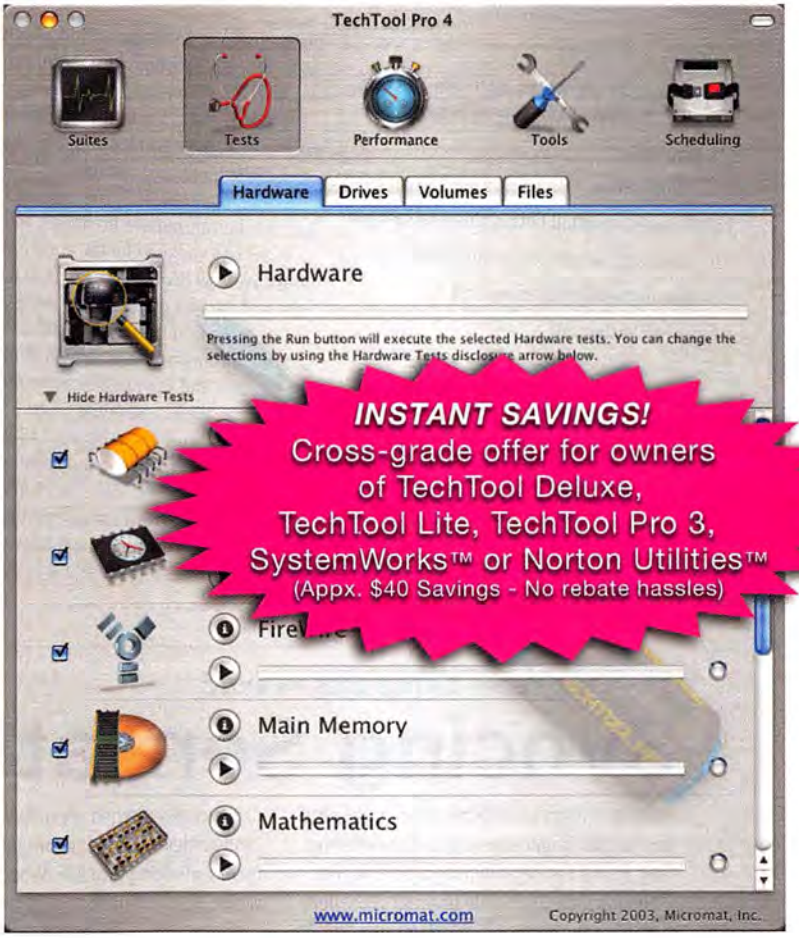

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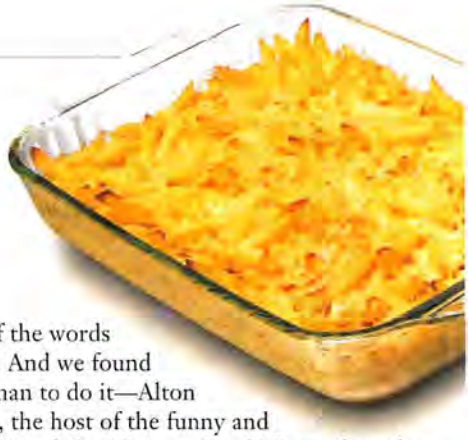

A SPECIAL 20TH-ANNIVERSARY RECIPE

A Mac Fan's Feast

Finding an appropriate way to celebrate the Mac's 20th anniversary is a tricky business. Steve Jobs and Steve Wozniak aren't likely to respond to your RSVP requests. That Bondi-blue party hat you constructed is already beginning to lose its luster. And bringing all your old Macs out of storage for a festive get-together doesn't wind up being the swinging good time you imagined.

Or so we've heard.

But *Macworld* figured out the perfect way to commemorate 20 years of the Macintosh—create a dish that's worthy of the words *Apple* and *Mac*. And we found just the man to do it—Alton Brown, the host of the funny and educational *Good Eats* on Food Network, and a Mac fan (see *Hot Stuff*, February 2004, or "Add Apples for Flavor," *Buzz*, March 21, for more on Brown's love of the Mac). Brown put his culinary know-how to work, creating an original recipe: Apple Macaroni and Cheese.

Now, it may be a little bit odd to open up *Macworld* and see the word *Apple* next to *macaroni* instead of *Macintosh*. But we've made and taste-tested this recipe several times, and we can vouch for the recipe's tasty, sweet-and-savory combination of sautéed apples and Gorgonzola, Cheddar, and Parmesan cheese. It's an excellent side dish. Or as Brown says, "It's good . . . *real* good."

So clip and save the recipe and add it to your collection. Or visit find.macworld.com/0006 to download a PDF of the recipe or files for the Computer Cuisine Deluxe or Cookware recipe-organizer programs. We've also got tips that will ensure a dish so tasty that the two Steves might even want to stop by for a taste.—JASON SNELL

APPLE MACARONI AND CHEESE PHOTOGRAPH BY PETER BELANGER; ALTON BROWN PHOTOGRAPH BY POLLY MCKINNEY

APPLE MACARONI AND CHEESE

12 ounces penne pasta

15 ounces apple (10 ounces diced and 5 ounces grated), Fuji, Braeburn, or Granny Smith

2 1/2 cups milk

1/2 cup apple cider

3 tablespoons unsalted butter, plus 1 tablespoon

1 1/4 ounces (by weight) all-purpose flour

1/2 teaspoon freshly grated nutmeg

1 teaspoon kosher salt

1/2 teaspoon freshly ground black pepper

6 ounces Cheddar cheese, grated

3 ounces Gorgonzola cheese, grated

1 ounce Parmesan cheese, grated

Preheat oven to 350 degrees. Bring 4 quarts of salted water to a boil over high heat, add pasta, and cook until *al dente*. Drain, rinse, and set aside.

In a large saucepan, melt 1 tablespoon of butter. Add the apples and sauté until they're just beginning to become tender (4 to 5 minutes). Remove from pan and set aside.

In a separate saucepan, heat the milk and apple cider just until boiling, remove from heat, and set aside.

In the pan you used for the apples, melt the remaining butter over low heat. Add the flour and whisk for 5 minutes. Add the milk gradually and whisk to ensure that there are no lumps. Add the nutmeg, salt, and pepper, and whisk until the mixture begins to thicken slightly. Gradually add the Cheddar and Gorgonzola cheese and stir to combine.

Stir in the apples and penne pasta.

Transfer to a buttered 13-by-9-inch glass baking dish and sprinkle the Parmesan cheese on top. Bake for 20 minutes or until bubbling. If the dish isn't brown on top, turn on the broiler and brown for 2 to 3 minutes. Serves 8 to 10 as a side dish.

© 2004, Alton Brown.

SYNCDEK KEEPS DATABASES IN SYNC

Syncing Sensation

FileMaker users turn to the database application for quick and easy access to everything from contact information to sales data. But when it's time for mobile users to sync their data with the home office's database, FileMaker can be anything but quick and easy.

SyncDek 5.0, from WorldSync (www.syncdek.com), tackles the problem of synchronizing far-flung FileMaker databases. The FileMaker add-on provides automated two-way synchronization. Remote users can upload new information into FileMaker and receive changes from the main database, with SyncDek resolving any conflicting data.

SyncDek emerged several years ago as a product developed for information-management consulting firm A. E. Wood & Erickson, which was looking for a way to let clients sync data between separate databases in multiple locations, even when the clients' employees weren't on a network at the same time. These days, SyncDek helps a wide array of users. NASA and Lockheed Martin use it for managing engineering reviews in four different countries, the Atlanta Hawks and the Toronto Raptors rely on it for sharing scouting reports, and biotech firm Genentech uses it to collect market data from mobile account managers.

Written in Java, SyncDek 5.0 uses XML for automated data exchange, which runs in the background of FileMaker (including the newly released FileMaker Pro 7). SyncDek 5.0 deployment licenses cost $849 for the SyncDek network engine and $249 for each SyncDek single-user engine. SyncDek Developer Kit, which provides developer tools for creating demo engines, is available for $749; a SyncDek Starter Kit combining the developer tools with network and single-user engines is available for $1,499. (WorldSync is offering introductory prices on all SyncDek offerings through July 31.)—PHILIP MICHAELS

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MOTION, XSAN JOIN VIDEO-PRODUCTION LINEUP

Video Plans in Motion

Professional video users represent a prime target for Apple, which wants to supply not only the hardware used in high-end video production but also the software. However, gaps that remain in Apple's video-production offerings prevent pros from relying entirely on Apple hardware and software. Apple recently unveiled a pair of new products that fill some of those holes and move video editing even closer to an all-Mac environment.

Forward Motion

Adobe After Effects (www.adobe.com; Standard version, $699; Professional version, $999) and Discreet's Combustion (www.discreet.com; $995) have been the main choices for Mac users interested in motion graphics, compositing, and visual effects. With the arrival of the $299 Motion, Apple has added its own offering to the mix.

Motion Granted Apple's Motion fills the motion-graphics–software void in the company's high-end video-editing lineup.

Motion animates text, graphics, and video; instantly previews multiple filters and particle effects; and features Behaviors—natural movement of type and graphics with effects such as gravity and wind that don't require keyframes. A Dashboards interface provides you with contextual, semi-transparent floating palettes. And a Project Pane lets you view all layers, filters, Behaviors, masks, and objects simultaneously. Motion can also use Affect Effects format plug-ins.

"Motion fits snugly between Final Cut Pro and DVD Studio Pro," says Rob Schoeben, Apple's vice president of applications marketing. "Someone can use Motion alone, but it arrives on the scene as a member of a family that work really well together."

Though Motion does many of the things that After Effects and Combustion do, its price and its simplified interface make it clear that the app isn't meant to displace those products. Several Apple apps—namely, Final Cut Pro and DVD Studio Pro—have pushed Adobe to drop Mac support for some programs. But, in this first iteration at least, Motion doesn't seem to be advanced enough to pose a similar threat to the established After Effects.

Xsan Marks the Storage Spot

Often, the biggest cost in a high-end video-editing environment comes from the storage needed for the huge files used on a daily basis, and from the means of connecting users to that storage. Apple's new Xsan is a Storage Area Network (SAN) file system aimed at users in video and other businesses looking for high-speed access to centralized, shared data where even conventional Local Area Networks (LANs) might still be too slow.

Xsan is a 64-bit cluster file system designed to work with Mac OS X. It provides multiple computers with concurrent file-level read and write access to shared volumes over Fibre Channel (a high-speed, high-bandwidth serial protocol), and it's certified to work with Apple's pro applications. As many as 64 users can simultaneously access a single storage volume using Xsan, which supports volumes (or files) as large as 16TB. Editors working on a video project concurrently or clusters that need fast access to large amounts of data require such capabilities.

A beta version of Xsan is being seeded to qualified customers. Apple expects to roll out Xsan this fall for $999 per system. Although that may sound expensive, the closest competitor in price is Charismac's FibreShare, which starts at $1,249 per seat. Other products, such as CommandSoft's FibreJet and Studio Network Solutions' SANmp, can cost even more.—JIM DALRYMPLE AND JONATHAN SEFF

The Rest of the Video Picture

Motion and Xsan made flashy debuts at April's National Association of Broadcasters trade show. But Apple didn't give short shrift to its pre-existing video-production offerings.—JONATHAN SEFF

> Final Cut Pro HD The video-editing program received a new name, as well as new features—Final Cut Pro HD adds support for the DVCPRO HD format. The application can capture that footage using FireWire 400 without any additional hardware. Final Cut Pro HD can play back four streams of native DVCPRO HD video and includes a Digital Cinema Desktop feature that lets you monitor SD and HD content on an Apple Cinema Display. The $999 application is a free upgrade for Final Cut Pro 4 users.

> DVD Studio Pro 3 Just one year after the huge DVD Studio Pro 2 update, Apple upgraded its high-end DVD authoring program again. New to this release are Alpha Transitions and DTS 5.1 audio support—adding even more professional abilities—and a new Graphical View to help you keep track of large projects. With Compressor 1.2 and Final Cut Pro HD, DVD Studio Pro 3 can scan and encode HD content directly to MPEG-2. The new version, already shipping, costs $499; existing users can upgrade for $199.

> Shake 3.5 The updated compositing and special-effects tool for cinema and video features new shape-based morphing and warping capabilities that rely on spline tools. Version 3.5 also improves Rendezvous networking and adds support for 16-bit RGB and 10-bit YUV QuickTime formats. Shake 3.5 is a $799 upgrade for Shake 3 users. Shake costs $2,999 for Mac OS X (with unlimited render licenses) or $4,999 for Linux and Irix (with annual maintenance fees of $1,499).

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Team Works

FileMaker's solution for sharing databases boosts high performance teams—of any size

Just by itself, FileMaker Pro software has all the markings of a true winner. This number-one-selling easy-to-use database software already has in its pedigree the kind of "ready for work right out of the box" character that has attracted millions of users worldwide.

New FileMaker Pro 7 adds even more functionality and value, for users looking to upgrade as well as first-time FileMaker buyers. With breakthroughs in ease-of-use and customizability, FileMaker Pro 7 now meets the needs of any size of organization.

For example, with FileMaker Pro 7, users can store an astonishing 8 terabytes of data—4,000 times the former limits—in just about any file format. FileMaker Pro 7 makes it easy to import, store, and export any kind of files, such as PDFs, Microsoft Office files, photos, videos, music, and much more. As noted by Ken Newell of the Hamilton Glaucoma Center at the University of California in San Diego, "We need a development environment that is very flexible. With FileMaker Pro 7, that's just what we get. It's amazing the way it handles different data types with such ease."

Regardless of the size or focus of your teams, they have some key things in common. First there is a need to access and share data of all types, and to do so frequently and effortlessly, as if all the members were seated in cubicles in the same office. Second, team members often need to share information across different platforms. And third, they don't want to bother their IT departments—if they even have IT departments—to facilitate sharing information.

If people in your organization, even in teams as small as two members, need to share data in this way, then it's time to consider FileMaker Server 7, which has proven itself as a key ingredient to team productivity, integrity, and success. This high-performance server software leverages the FileMaker style—ease of use and ease of administration—to efficiently manage shared database solutions.

FileMaker Server 7 boosts performance, enhances security

At Your Service

Key features and benefits of FileMaker Server 7:

- **Shares databases with up to 250 users *simultaneously***
- **Hosts almost unlimited amounts of data**
- **Administers databases centrally or remotely**
- **Protects data with advanced security features**
- **Scales easily by adding new servers as your needs grow**

Software That Shares

More than just another server solution, FileMaker Server 7 has been precision-tuned to support work the way it is done in today's fast-moving businesses. Recognizing the mixed-platform nature of organizations looking to share information—including different departments in the same organization—FileMaker Server 7 allows access to shared files through either Microsoft Windows or Mac OS X versions of FileMaker Pro 7. And you can connect up to 250 users simultaneously to a hosted database, essentially accommodating teams of any size.

FileMaker Server 7 actually increases the already-enhanced security features of FileMaker Pro 7, which is important in applications in which sensitive files will be widely shared. FileMaker Server 7 uses Secure Sockets Layer (SSL) encryption to boost security of FileMaker data moving from hosted databases to clients. And administrators can effortlessly filter the display of hosted database names based on the users' privileges for added data protection.

Because teams large and small quickly generate mountains of data, FileMaker Server 7 allows the hosting of up to 125 database files, and each database can store massive amounts of information. Plus, databases in general run faster with FileMaker Server 7, since searches and calculations are offloaded to the server from the client. Administrators can also exploit the large volumes of RAM with sophisticated caching techniques built into FileMaker Server 7.

FileMaker Pro 7 is the most important upgrade in FileMaker history.

Further recognizing the "roving" nature of today's professional, FileMaker Server 7 includes easy-to-use, flexible administration features that facilitate database configuration whether the administrator is in the office or operating remotely. FileMaker Server 7 allows maintenance on live databases and back-ups on files in use. All clients will have the most current plug-ins, thanks to the software's Auto-Update feature.

For more heavy-duty, full-featured database sharing, the upcoming release of FileMaker Server 7 Advanced will provide all the benefits of Filemaker Server 7 in addition to powerful Web publishing and server connectivity options.

FileMaker Pro 7 is the hands-down cream of the database software crop. With FileMaker Server 7, team productivity rises to new heights. To find more about this exciting solution to boosting the effectiveness of teams of all sizes, visit **www.filemaker.com/teamwork.**

Most important ease-of-use and customization breakthroughs in FileMaker Pro 7:

- **Import, store, and export any file: PDFs, photos, Microsoft Office documents, music files, and more**
- **Open multiple windows in the same database at the same time for unprecedented multitasking**
- **Super-expanded 8-terabyte database storage; container fields can store up to 4 gigabytes and text fields up to 2 gigabytes**
- **A new option lets you confirm data and layout changes before you commit them, so you can experiment with new layouts**
- **New relational model to streamline the creation of simple and complex databases**
- **New relationships graph to link data between tables just by clicking and dragging**
- **Enhanced Web publishing capabilities, all with point-and-click ease**
- **Advanced security features using account names and passwords and simple assignment of custom privileges for any user**
- **Designed from the ground up for Mac OS X and Windows XP/2000**

PowerBook G4s

The Whole Line Sports Faster CPUs; AirPort Extreme Now Standard

BY HENRY NORR

The year 2003, which Steve Jobs dubbed "the Year of the Notebook," brought big changes to Apple's PowerBook line—the introduction of a 12-inch version, the transition from titanium to aluminum, and the addition of AirPort Extreme, built-in Bluetooth, FireWire 800 (in some models), and USB 2.0, among other enhancements.

In contrast, 2004 is shaping up as a year of incremental improvements, at least judging by the first round of PowerBook updates. Instead of new designs or breakthrough technologies, Apple has delivered modest improvements in performance, made AirPort Extreme standard in all configurations, and trimmed prices at the upper end of the line. And it appears—knock on wood—that the company has resolved the quality problems (with screens and latches) that marred many of last year's mobile Macs.

Mightier Mite

The biggest changes are in the smallest and newest member of the PowerBook G4 family, the model with a 12-inch display. As before, it's available in two standard configurations: a $1,599 version with a Combo (CD-RW/DVD-ROM) optical drive and a $1,799 version with a SuperDrive (DVD-R/CD-RW). While we tested only the latter, both versions now have noticeably faster G4 processors (1.33GHz, up from 1GHz) and 50 percent more hard-drive capacity (60GB versus 40GB). While the amount of built-in memory hasn't changed (it's still 256MB standard), the bus it sits on is now faster (167MHz versus 133MHz). Video RAM has grown from 32MB to 64MB. And the SuperDrive can now burn DVDs at 4×, twice as fast as before.

Most important, Apple's AirPort Extreme (802.11g) wireless-networking card—previously a $99 option in the 12-inch configurations—is now standard equipment, along with Bluetooth.

The smallest PowerBook still lacks some of its bigger siblings' advanced features—FireWire 800, Gigabit Ethernet, a backlit keyboard, and a PC Card expansion slot. It also has an older, slower graphics chip (Nvidia's GeForce FX Go5200), and with only one DIMM slot, maximum memory is limited to 1.25GB, compared with 2GB in the larger models. The 12-inch, traditionally proportioned screen obviously doesn't provide as much workspace as the wide-screen displays on the bigger models, and cramming in 1,024 by 768 pixels makes everything look a little small.

But if none of that bothers you—and for the average business traveler or student there's no reason it should—there's a lot to like about the new 12-inch PowerBook. When Apple introduced the first one, more than a year ago, it was noticeably slower than the 15- and 17-inch models of the time, but that performance gap has all but disappeared: the new 12-inch model is a genuine speedster (see the benchmark chart).

The machine's compact design and relative lightness (4.6 pounds) make it by far the most travel-friendly of the PowerBooks. And with AirPort Extreme now built in, it's a better value than ever.

The 12-inch model's battery life is also quite good: at the Automatic Energy Saver setting, we were able to listen to audio streamed from the Internet via AirPort Extreme for 3 hours and 35 minutes. As with the previous aluminum PowerBooks, AirPort reception is impressive: we managed to maintain a wireless connection not only throughout a modest two-story house, but also across the street and almost two doors down the block—in all, nearly 120 feet from our Base Station.

Apple 15-inch PowerBook G4

Is Bigger Better?

For the larger PowerBooks, the latest update brings fewer enhancements, such as faster processors. The 15-inch Combo-drive configuration clocks at 1.33GHz, while the 15-inch SuperDrive model and the 17-inch model now speed along at 1.5GHz. That's up from 1GHz, 1.25GHz, and

PowerBook G4s Compared

COMPANY	PRODUCT	MOUSE RATING	PRICE	OS COMPATIBILITY	CONTACT	PROS	CONS
Apple Computer	12-inch PowerBook G4/1.33GHz with SuperDrive	♦♦♦♦½	$1,799	X	800/692-7753, www.apple.com	Compact and elegant design; improved performance; AirPort Extreme and Bluetooth now standard; SuperDrive.	Small screen; no PC Card slot.
Apple Computer	15-inch PowerBook G4/1.33GHz with Combo drive	♦♦♦♦	$1,999	X	800/692-7753, www.apple.com	Large, wide screen; AirPort Extreme and Bluetooth now standard; advanced I/O options.	Big and a little heavy for travel; meager memory for the price.
Apple Computer	15-inch PowerBook G4/1.5GHz with SuperDrive	♦♦♦♦	$2,499	X	800/692-7753, www.apple.com	Large, wide screen; ample memory and hard-drive capacity; SuperDrive; advanced I/O options; backlit keyboard.	Big and a little heavy for travel; pricey relative to Combo-drive version.
Apple Computer	17-inch PowerBook G4/1.5GHz with SuperDrive	♦♦♦♦	$2,799	X	800/692-7753, www.apple.com	Enormous screen; ample memory and hard-drive capacity; advanced I/O options; backlit keyboard; reduced price.	Too big and heavy for comfortable travel.

PHOTOGRAPH BY PETER BELANGER

34 Laptop computers
12-inch PowerBook G4/1.33GHz with SuperDrive
15-inch PowerBook G4/1.33 GHz
15-inch PowerBook G4/1.5 GHz
17-inch PowerBook G4/1.5 GHz
36 Music-scoring applications
Finale 2004
Sibelius 3.1
38 USB-FireWire combo cards
Iogear GUF202
Koutech Systems 7002
Orange Micro OrangeCombo
StarTech CB2U2F
39 Sound-module apps
BFD
Trilogy
40 Compression software
StuffIt Deluxe 8
40 Download manager
Speed Download 2
41 File-transfer package
Tokens 1
42 Synchronization software
You Synchronize
43 Data-visualization app
IDL 6
44 Audiovisual-networking hardware
EyeHome
44 Digital-video recorder
EyeTV 200
46 G5 hard drive
G5 Jam
46 Network MP3 Player
HomePod
49 The Game Room
Close Combat: First to Fight, Rally Shift, The Journey to Wild Divine, Tron 2.0, World of Warcraft
54 Mac Gems
AFS Monitor, CalculateSizeCM, Fob, iCalibrate, Path Finder, Tofu, xSMB

Macworld LAB TEST

	Speedmark 3.3	Cinema 4D XL 8.5	iMovie 4.0	iTunes 4.2	Adobe Photoshop CS	Unreal Tournament
	OVERALL SCORE	RENDER	RENDER	MP3 ENCODE	SUITE	AVERAGE FRAME RATE
12-inch PowerBook G4/1.33GHz	123	5:07	1:02	2:45	2:12	22.3
15-inch PowerBook G4/1.33GHz	121	5:08	1:03	2:45	2:18	24.6
15-inch PowerBook G4/1.5GHz	**136**	**4:33**	**0:56**	**2:26**	2:00	**26.1**
17-inch PowerBook G4/1.5GHz	134	**4:33**	0:57	2:28	**1:59**	25.8
17-inch PowerBook G4/1.33GHz	*123*	*5:06*	*1:02*	*2:48*	*2:39*	*25.3*
	>Better	<Better	<Better	<Better	<Better	>Better

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

This speed chart is abbreviated. Please see our Web site (find.macworld.com/0019) for the full PowerBook speed-test results. Speedmark 3.3 scores are relative to those of a 1GHz eMac (G4), which is assigned a score of 100. Photoshop, Cinema 4D XL, iMovie, and iTunes scores are in minutes:seconds. All systems were running Mac OS X 10.3.3 with 512MB of RAM. We tested MP3 encoding with an audio-CD track that was 45 minutes long, converting it from the hard drive using iTunes' Better Quality setting. We used Unreal Tournament's Antalus Botmatch average frames-per-second score; we tested at a resolution of 1,024 by 768 pixels. The Photoshop Suite test is a set of 14 scripted tasks using a 50MB file. Photoshop's memory was set to 75 percent and History was set to Minimum. For more information on Speedmark 3.3, visit www.macworld.com/speedmark.—MACWORLD LAB TESTING BY JAMES GALBRAITH AND JEFFY K. MILSTEAD

1.33GHz, respectively. Other enhancements include a new graphics chip—the ATI Mobility Radeon 9700 with 64MB or, optionally, 128MB of video RAM—and 4× DVD burning (in only the SuperDrive-equipped models).

In addition, AirPort Extreme is now built into both 15-inch models as well as the 17-inch; it used to be optional in the lesser 15-inch configuration.

The backlit keyboard—which can really turn heads on red-eye flights—remains standard only in the top two configurations, the 17-inch and SuperDrive-equipped 15-inch models. (If you order the Combo-drive 15-inch model from the online Apple Store, however, you can upgrade to the illuminated keyboard for $69.)

Also unchanged are the most-striking features of these big PowerBooks: their huge, bright, wide-format displays, with native resolutions of 1,280 by 854 pixels (on the 15-inch models) and 1,440 by 900 pixels (on the 17-inch). Unfortunately, portable computing remains a game of trade-offs, and you pay a price, in pounds as well as in dollars, for these vast expanses of glass: the 17-inch model tips the scales at 6.9 pounds, while the 15-inch models weigh in at 5.7 pounds.

Even with their big screens, the large PowerBooks continue to deliver decent, though hardly overwhelming, battery life. On the 15-inch 1.33GHz model, for example, we managed to play streaming audio over a wireless Internet connection for about 3 hours and 15 minutes. After recharging, we got through the first 2 hours and 14 minutes of a DVD movie before the battery ran dry again.

In the absence of more-dramatic changes in the higher-end PowerBooks, Apple chose to cut their prices. While the Combo-drive version of the 15-inch model, now including AirPort Extreme, stays at $1,999, the price of the SuperDrive version has dropped, by $100, to $2,499, and you can now pick up the 17-inch behemoth for a mere $2,799, down by $200.

Glitches Gone?

Last September's PowerBook updates, including the rollout of the first aluminum-clad 15-inch model, were tarnished by an unusual number of quality-control problems: white blotches on the screen, strange artifacts on some external monitors, latches that popped open spontaneously, and more. We're happy to report that we've seen none of these problems so far in the four new PowerBooks we've tested, and the Web sites that are quick to publicize word of problems in new Macs are mostly quiet.

In addition, you won't have to take special precautions—or buy third-party products—to avoid lap burns or excessive fan noise from the new models. After intensive use, they get warm but not, unlike some of their recent predecessors, painfully hot.

The only concern we noted was a surprising amount of play in PowerBook latches: when the clamshell is closed, the top does not make full contact with the base. If you look closely at the front corners, you can see up to 1/16 of an inch of daylight. And where light can go, dust, lint, and crumbs are sure to follow, especially if you carry your notebook in a backpack or briefcase. We don't think it's a big problem, but in systems that otherwise seem impeccably designed, it's a little troubling.

The Missing Model

Our one real gripe about the PowerBook line is something that's not there: a smaller, lighter model with a conventionally shaped 13- or 14-inch screen. Several Windows PC manufacturers offer notebooks with such displays that weigh 5 pounds or less—in at least one case, as little as 4.3 pounds—even with an optical drive and a full complement of other features, all for $2,000 or less.

If they can do it, why not Apple? We suspect there would be substantial demand for a PowerBook that was smaller, lighter, and less expensive than the current 15-inch wide-screen models but equipped with a display larger than 12 inches. (The iBook line includes models with 14.1-inch displays, but they weigh a hefty 5.9 pounds.)

Macworld's Buying Advice

Our favorite PowerBook is the 12-inch Combo-drive model, because it packs so much power into such a compact and elegant design.

Among the new PowerBook models, the performance differences are now insignificant, and relatively few users, we think, have a real need for the advanced features the 12-inch model lacks. That makes the trade-offs pretty straightforward: screen real estate versus size, weight, and cost. If you don't mind bearing such burdens, go for a 15- or 17-inch configuration. □

More Info:

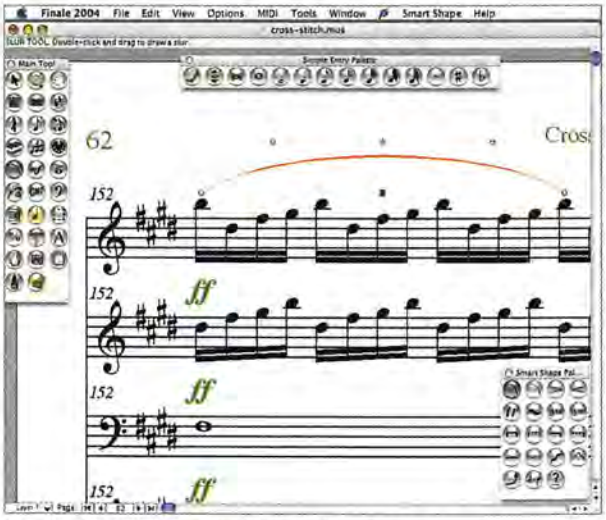
Apple released a new line of iBooks at the same time as the new PowerBooks. For a review and the speed-test results of the new iBooks, go to find.macworld.com/0020.

Finale 2004 and Sibelius 3.1

Rival Music-Notation Packages Go Head-to-Head

BY PETER KIRN

Market-leading rivals Sibelius 3.1, from Sibelius, and Finale 2004, from MakeMusic, remain the most full-featured, one-size-fits-all packages available for producing printed musical scores. Choosing between the two isn't simply a matter of determining what kind of notation you're creating, because either can produce nearly anything you can imagine, from the common to the obscure. Both feature guitar tablatures, avant-garde contemporary notations, percussion-specific symbols and staffs, and even notation you may not have heard of, such as the shape-note notation used in Early American church music and featured in the recent movie *Cold Mountain*. These programs are so evenly matched, most people will rely on personal tastes to choose one.



New Look, Same Taste Finale has finally come to OS X, with a new Mac-like look, but veterans will find the underlying interface familiar. Newcomers may be intimidated by Finale's preponderance of toolbars and menus.

What They Share

While Finale and Sibelius have been used by Academy Award– and Pulitzer Prize–winning composers, the programs can be just as well suited to hobbyist musicians and elementary-school teachers and students. Either program will let you share a hard copy of your latest tune with other people, so they can add vocals, guitar licks, and drum grooves. You enter lyrics, standard chord symbols, guitar frames and tablature, and a drum part, which the programs will format into a professional-looking layout. You can also create an audio file of the playback (a feature new to both Sibelius and Finale), and share your score on the Internet with any Mac or PC user. Sibelius even has a Web site (www.sibeliusmusic.com) on which you can sell your score and get a cut of the profits (about 50 percent of the purchase price, with no overhead). Finale offers a similar service, Showcase (www.finaleshowcase.com), for Web publishing, though you can't use it to sell your scores for profit, and the necessary viewer software doesn't yet support OS X. Much of this either isn't possible with the notation facilities built into programs such as Apple's Logic and MOTU's Digital Performer, or isn't as easy.

Note Entry

Musicians dream of a world in which entering musical scores into a notation program is as intuitive as typing into a Word document. Both Sibelius and Finale have extensive keyboard shortcuts that let you touch-type music without using a mouse. In each, shortcuts for note entry are easy to learn—with letter keys for pitches and arrow keys for editing. (Some additions unveiled with Finale 2004 have vastly improved Finale in this regard.) Once you've learned the shortcuts, note entry is very fast, even without a MIDI keyboard. Sibelius is the more intuitive of these programs when it comes to note entry; it has an on-screen numeric keypad that shows keyboard mappings of five sets of common items. Some of Finale's shortcuts, like those for tuplets and articulations, are harder to remember and can require the use of dialog boxes, adding a step. You can edit any keyboard-shortcut assignment in either program if you don't like it, though. Overall, Sibelius is the easier program to learn and use, though Finale has loyal adherents because of its more-advanced customization of workflow and entry.

QWERTY-keyboard entry is essential if you're making music at 35,000 feet, in coach, but at other times you may prefer to use a MIDI keyboard, such as the $99 M-Audio Keystation 49e USB keyboard, available from the Apple Store (http://store.apple.com). Either program will let you enter music to a metronome or one beat at a time. Finale lets you first play in pitches and then tap in beats with a pedal; Sibelius has a flexible metronome that follows your playing, keeping time with you as you speed up or slow down, as long as you do so smoothly. Both features are an aid to players who don't like the rigidity of a metronome.

New in Sibelius 3.1 is the ability to store live MIDI data from your performance. Finale already had a similar feature, but Sibelius's implementation is more elegant: one button on the toolbar lets you toggle between your original performance and the software's automatic playback from the score. Finale gets a nod for its sequencer-like level of control over MIDI data. Its powerful MIDI Tool has more-extensive controls for shaping a recorded performance than Sibelius does. And it includes several tools for graphically modifying controller data, as well as functions for adjusting rhythmic feel and durational values. Also, if you play a brass or wind instrument, Finale's MicNotator will transcribe what you play, freeing you from keyboards if you're not a pianist; as with MIDI transcription, the results aren't perfect, but with some adjustment, MicNotator can be a big time-saver.

Playback

One major selling point of computer notation is that it lets you hear roughly what your music will sound like when played by instrumentalists. Both programs have an uncanny ability to turn your score into audio playback, correctly interpreting crescendos and decrescendos, tempo markings, articulations, and more, in any rhythmic groove. But neither can improvise accompaniment to chord symbols automatically. Of the two,

FINALE 2004

RATING: ♦♦♦♦

PROS: Seemingly endless feature list; deep control over layout and MIDI; advanced scripting and customization; much-improved note-entry mode; better-looking slurs and improved dynamic placement.

CONS: Noticeable screen-redraw problems and sluggish performance with longer scores; sprawling menus, toolbars, and dialog boxes make it more difficult to learn; no EPS export or PostScript listings.

PRICE: $600; for academic or theological use, $300; competitive upgrade, $199; upgrade from previous versions, $90 to $140

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: MakeMusic, 800/843-2066, www.finalemusic.com

SIBELIUS 3.1

RATING: ♦♦♦♦½

PROS: Streamlined interface is easy to learn; on-screen numeric keypad displays shortcuts; elegant layout and MIDI features; improved layout and audio playback; snappy performance.

CONS: Lacks some advanced layout and customization controls; high-quality playback requires a fast Mac; getting all sounds costs an extra $149.

PRICE: $599; for academic or theological use, $319; upgrade from Finale, $199; upgrade from previous versions, $119 to $189

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Sibelius, 888/474-2354, www.sibelius.com

Sibelius has the broader list of text and items it can interpret and more playback control, though playback in each comes close to what you'd expect. Both have added new software instruments, too, finally replacing the tinny sound of QuickTime Musical Instruments.

Sibelius 3.1 has added Kontakt, a customized, full-featured software synth from the wizards at Native Instruments, though you'll need to spend $149 to get all 64 pitched sounds and 110 percussion sounds in Kontakt Player Gold; the included free version has 19 pitched sounds and 100 percussion sounds. The huge, high-quality sounds in Kontakt also have a cost in drive space, load time, and performance (turning off reverb can help). Finale's included SmartMusic SoundFont isn't as fancy as Kontakt, but it loads faster and includes all the sounds you'll need. If you have the extra cash and a fast machine, you'll likely prefer Kontakt Player Gold's sounds, but thanks to OS X, you can use cheap or free sounds downloaded from the Internet in DLS or SF2 format in either program, even with a slower G3 or G4 processor.

Layout

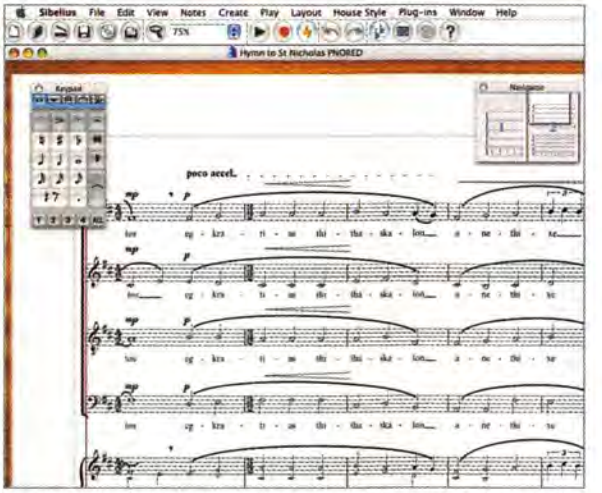
Before the widespread use of computers to produce scores, engravers used a complex series of rules to space out notation so it was neat and easy to read; Sibelius and Finale each employ an algorithm that does this as you work. The latest versions of each have brought improvements to that algorithm and to automatic placement of objects, so you'll do a lot less correcting and tweaking than in previous versions. Sibelius's new spacing algorithm improves the look of complex spacing situations and fixes previous versions' sometimes-buggy beaming implementation. Finale 2004 has improved cross-staff beaming and expression placement, better-looking slurs, and improved automatic hyphenation and word extensions in lyrics. Both will now automatically add page breaks to avoid difficult page turns, and Finale even creates automatic cue notes for parts to help players make entrances in ensemble music. Either will produce an attractive, elegant score with little intervention on your part. When you do want to intervene, Finale generally provides more tools for obsessive, fine control over every last detail. Those tools result in sprawling toolbars and menu options, however, making Finale more difficult to learn than the more accessible, streamlined Sibelius, which has some powerful layout and editing tools of its own.

OS X Compatibility and Performance

Finale was late to market with OS X compatibility, well behind Sibelius and lagging behind Finale 2004 for Windows, but the long-awaited release supports all of OS X's current features, including Core MIDI, Core Audio, and font smoothing. At press time, Finale 2004 for Mac lacked EPS export and PostScript listings, but MakeMusic has promised a maintenance release. For many users, the big disappointment with Finale is speed. Even on my 1GHz PowerBook G4 with 512MB of RAM, screen redraws had a noticeable lag, and pro users who create large scores, which can grow to hundreds of pages, have found several seconds' delay for simple operations. Sibelius is speedy on all scores, even large ones, and has no noticeable screen-redraw lags.

Macworld's Buying Advice

Most existing users of Finale or Sibelius will find that the latest releases provide more than enough reasons to upgrade. If you're buying for the first time or switching, you're unlikely to go wrong with either program; each has a user base of professional composers and copyists with a devotion to their choice bordering on the religious. Sibelius remains by far the more accessible program to newcomers, and it still boasts an extensive list of elegantly implemented features. Finale is powerful and maintains the edge when it comes to number of features and direct control over layout. But the program suffers from a lack of speed, even on the fastest Macs, and learning to use it is difficult, despite the included video tutorials. If these aspects of Finale have frustrated you, Sibelius has enough of an advantage to justify switching, but people already comfortable and reasonably satisfied with Finale are unlikely to find the switch worth the time investment. □



Shortcut Shortcut Sibelius displays keyboard shortcuts on screen via the Keypad so you never have to look for a quick reference card. Its interface is unusually clean and attractive, though it lacks some of the visual feedback on your score that Finale offers.

MIGHTY MAX

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USB 2.0–FireWire 400 CardBus Cards Boost PowerBook Connectivity

BY OWEN W. LINZMAYER

Last year's introduction of the Power Mac G5 made USB 2.0 ports standard issue. These ports complement FireWire for the connection of DV cameras, hard drives, scanners, and a variety of input devices. A number of CardBus cards now available—called *combo cards*—can add this new port type, along with additional FireWire ports, to older PowerBooks. We put four combo cards through their paces and got some unexpected results.

The first surprise was that all four devices—Iogear's GUF202, Koutech Systems' 7004, Orange Micro's OrangeCombo, and StarTech's CB2U2F—are physically identical: they all feature a power port, two USB 2.0 ports, and both a four-pin and a six-pin FireWire 400 (IEEE 1394a) port.

While you can't use FireWire 800 devices with either of the FireWire 400 ports on these cards, the two USB 2.0 ports are backward compatible with all USB 1.1 devices. (If you have adapters or the right cables, you can use FireWire 800 devices with FireWire 400 ports, but you'll get only 400-Mbps throughput.) You can use devices attached to all the cards' ports and all built-in ports simultaneously.

Easy Installation

Hardware installation is as easy as slipping a 2-ounce card into the 32-bit Type II CardBus slot of any PowerBook G4 or G3 (except those with M-3553 serial numbers).

When you insert any of the cards, an icon immediately appears in the menu bar, indicating that your Mac has recognized the card. Connecting power is supposedly optional, but in our tests, relying on bus power was so problematic that we'd never recommend it. Sometimes the device would mount but not operate. Sometimes it wouldn't mount at all. And sometimes it would appear to operate at first but would hang upon access. Koutech provides a cable that siphons power from the PowerBook's built-in USB port, whereas the other vendors provide an AC adapter. Unfortunately, there's no power LED on any of the units, and the power cords obstruct access to the card eject button.

Although Orange Micro opted for a PDF user guide instead of a printed manual, its documentation is far superior to that of the other vendors. For example, only Orange Micro warns of the potential damage that can result from ejecting the card without first choosing Power Off Card (you'll find this in the menu extra that appears in the menu bar and indicates that your Mac has recognized the card). Apart from omitting this information, the Iogear manual is respectable. The other two manuals fail to even mention the Mac.

Drivers Needed

FireWire support is built into all versions of Mac OS X, but if you're not running version 10.2.8 or later, you have to install the USB 2.0 drivers, which all the vendors except Koutech provide. Orange Micro even bundles Ben Software's BTV Pro 5.4.3 (●●●●½; "Mac Software Bargains," July 2002) video-editing software, although most users will probably prefer iMovie.

Although USB 2.0 is theoretically faster than FireWire 400, we got the opposite results in our real-world tests. Initially, the identical throughput of the cards surprised us, until we determined that they all use the same chip set. On average, in copying a 335MB folder from a Macally PHR-250cc FireWire and USB 2.0 external hard drive attached to a 400MHz PowerBook G4, FireWire proved to be 27 percent faster than USB 2.0 (and 340 percent faster than USB 1.1).

Given the cards' similar specifications, we were surprised to discover that they are not equally easy to use. The OrangeCombo card proved to be the most reliable. The others had difficulty mounting our test drive and would hang if both the card and the drive weren't supplied with the supposedly optional external AC power. We never got the drive to work successfully using the FireWire port on the StarTech CB2U2F.

Macworld's Buying Advice

Though all the cards have identical specifications and physical appearance, the Orange Micro OrangeCombo card gets our vote. It performed most reliably, comes with the best manual, and includes the most generous bundle of accessories. □

Pick a Port The OrangeCombo CardBus card provides two USB 2.0 ports and both a four-pin and a six-pin FireWire 400 (IEEE-1394) port.

LAPTOP PHOTOGRAPH BY PETER BELANGER

Combo Cards Compared

COMPANY	PRODUCT	MOUSE RATING	PRICE	OS COMPATIBILITY	CONTACT	PROS	CONS
Iogear	GUF202	●●●½	$100	X	866/946-4327, www.iogear.com	Bundled with USB 2.0 drivers and an AC adapter.	No cables; manual is missing important information.
Koutech Systems	7004	●●	$70	X	562/699-5340, www.koutech.com	Bundled with a FireWire cable.	Awful manual; no USB cable AC adapter, or USB 2.0 drivers.
Orange Micro	OrangeCombo★	●●●●½	$99	X	714/779-2772, www.orangemicro.com	Reliable operation; good PDF manual bundled with USB 2.0 drivers, BTV Pro video software, USB and FireWire cables, and an AC adapter.	None significant.
StarTech	CB2U2F	●	$83	X	800/265-1844, www.startech.com	Bundled with USB 2.0 drivers, a FireWire cable, and an AC adapter.	FireWire never worked reliably; poor manual; no USB cable.

★ = Editors' Choice.

Virtual Rhythm Sections

Trilogy and BFD Do Sound Sampling the Right Way

BY DAVID LEISHMAN

Virtual-sound software modules require a lot of computing power (you can slow a Power Mac G5 to a crawl by using too many instruments), so if you want to replace your audio hardware with virtual-sound modules, they need to sound great.

Playing Bass Trilogy's comprehensive tone controls are cleanly organized and displayed, and its mixer section offers unparalleled player control.

Spectrasonics' Trilogy bass module and FXpansion's BFD drum kits are examples of sampling done right; they offer an amazing array of sound-customization tools. Both the RAM-intensive Trilogy and the CPU-hungry BFD support the Audio Units, VST, RTAS, and ReWire plug-in formats of major sequencers, as well as Propellerhead's Reason sampler-and-synth app. (Apple's Logic and MOTU's Digital Performer support Audio Units, Steinberg's Cubase supports VST, and Digidesign's Pro Tools supports RTAS.) BFD also includes a stand-alone (non-plug-in) version that can be played independently of a sequencer.

BFD

BFD's superb sound quality is complemented by its extreme flexibility. Multiple acoustic drum kits and solo drums were recorded in a variety of mike positions and velocities, and you can mix and match the resulting variables at will. You can also create your own rhythmic patterns, or use the stylistic varieties in BFD's Groove Libraries and fills as a drum machine.

BFD's clean interface makes it easy to audition, specify, and tweak sounds and to save your own handcrafted tones and sets. The program lets you preview images of its stock drum kits, from which you can visually choose and audition individual drums and cymbals. This view is useful and fun during setup but can lead to unnecessary graphics and CPU drain during recording and playback.

Trilogy

Trilogy offers 3GB of bass instrument samples with comprehensive sound and parameter controls. The package's acoustic-bass component is a jewel; it features upright bass and bass guitar, recorded via mike and/or a pickup. The electric-bass sounds include picked, slapped, and muted four-, five-, and six-string basses. The jazzy Jaco Fretless sounds wonderful. The synth tones feature a host of full-bodied analog sounds from famous vintage axes such as the Minimoog and Oberheim SEM.

There are LFO (low-frequency oscillator) filter and envelope controls for every sample in Trilogy, which help you modify the tones. Each sound file consists of two layers that can be specified and edited independently. The layers are invaluable palettes for creating masterful sounds.

The app's only weaknesses are in its installation and OS 9–only manual. To get going in OS X, register at Spectrasonics' site (www.spectrasonics.net) and download OS X CD Joiner.

Macworld's Buying Advice

The sonic quality and user controls of both BFD and Trilogy are first-rate: you get great sound and seemingly endless, yet easily accessible, editing capabilities. Trilogy's installation hassle is a one-time nuisance on the road to great music. □

BFD

RATING: ★★★★½

PROS: Great recorded drum samples; complete sound-editing tools; easy-to-use interface; includes a stand-alone instrument version.

CONS: Tech support available only by e-mail and through the support forums.

PRICE: $329

OS COMPATIBILITY: Mac OS X

COMPANY: FXpansion, info@fxpansion.com, www.fxpansion.com

TRILOGY

RATING: ★★★★½

PROS: Superbly recorded bass samples; comprehensive sound-editing tools; simple interface.

CONS: OS X installation inconveniences; OS 9–only documentation.

PRICE: $349

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Spectrasonics, 818/955-8481, www.spectrasonics.net

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Speed Download 2.3

Internet Utility Fails to Boost Speed

BY JACKIE DOVE

For some people, Internet downloads are never fast enough. If you're one of them, you might be tempted by Speed Download 2.3.4, from YazSoft, which is supposed to accelerate the speed at which files download from the Internet. But in our tests, Speed Download did almost nothing to speed up downloads. And in some instances, files took longer to download with Speed Download than without it. Luckily, the program has other virtues.

YazSoft says that Speed Download is optimized for both dial-up and broadband connections, but the company is careful not to make specific speed claims. My DSL connection via EarthLink downloaded a 10.7MB file faster by itself than with Speed Download—an average of 1 minute and 13 seconds versus 1 minute and 17 seconds, respectively. A 67MB file took 7 minutes and 55 seconds with Speed Download—30 seconds longer than without it.

I was also disappointed by the insignificant speed boosts my dial-up connection got. A 4.6MB file that took 18 minutes and 6 seconds to download without Speed Download took 17 minutes and 22 seconds with the utility.

But Speed Download has some worthwhile features; it facilitates networked downloading from Rendezvous connections, URL sharing, and file transfers between Macs running the program. It also has filters that organize downloads by type, a transaction log, and a search function. It even lets you control the number of downloads per domain. And Speed Download's automatic-resume feature is handy for large downloads.

Macworld's Buying Advice

If you need a download manager that centralizes your Internet downloads, lets you sort them, and facilitates file sharing, then you may benefit from Speed Download 2.3.4. But don't buy it if you want only to boost download speed. □

RATING: ♦♦½

PROS: Good download organization and management; file sharing function; automatically resumes downloads.

CONS: Doesn't appreciably improve dial-up connection's speed; slows DSL downloads.

PRICE: $20

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: YazSoft, info@yazsoft.com, www.yazsoft.com

StuffIt Deluxe 8.0

Archetypal Utility Expands Compression Formats, Offers Simple Backups

BY CHRISTOPHER BREEN

With compression now built into Mac OS X 10.3 in the form of the Finder's Archive command, has Aladdin's StuffIt Deluxe outlived its usefulness? For remedial compression chores, perhaps. But if you're looking for more efficient compression and expansion of a wide variety of formats, the ability to encrypt archives, and a wealth of ways to interact with archives, StuffIt Deluxe 8.0.2 remains a necessary tool.

Basic Backup StuffIt Deluxe's Archive Assistant lets you create scheduled backups of the folders in your Home directory.

To justify its 8.0 version number, StuffIt adds some new features and enhancements. The Archive Assistant application, for example, creates scheduled backups of the folders at the root level of your user folder. It then creates a compressed archive of those folders in the location you specify on an attached volume, on a writable CD or DVD, or on an FTP site. You can back up only your Home folder or a combination of the default folders in it. You can't select subfolders within those folders or direct the program to back up other folders on your Mac—so Archive Assistant's usefulness is limited.

StuffIt Expander 8.0 can expand .sit, .sitx, .zip, TAR, .bin, and .hqx files, and can now deal with Windows Cabinet (.cab) and yEncode (.yenc) files. Mac users will rarely encounter .cab files, which are commonly used to store Windows installer-file archives, but people who download binaries from Usenet groups will welcome .yenc support.

Also new are plug-ins for Adobe Photoshop and Illustrator that allow you to stuff files directly from within these programs. While this is only a minor time-saver, it could be a real help as part of a Photoshop action.

With earlier versions of StuffIt for OS X, longtime StuffIt users were pleased to see the return of the Magic Menu and StuffIt contextual items. StuffIt 8.0 features the return of the Archive Via Rename feature, which lets you compress or expand an item by adding or removing a file or folder name's extension, such as *.sit*.

No Speed Demon

To test the extent of StuffIt's compression and the speed at which it compresses, we took a 260MB folder of 47 TIFF files stored on a 1.25GHz PowerBook G4. When we used the newer .sitx format, compression took 8 minutes and 18 seconds at the Better Compression setting. At the Faster Compression setting, compressing the folder to 187MB took 2 minutes and 15 seconds.

Things improved when we compressed the file to the older .sit format. Using the Better Compression setting, we produced a 134MB .sit file in 5 minutes and 32 seconds—6MB smaller and 2 minutes and 46 seconds faster than with .sitx. Note that although .sit is faster than .sitx, it doesn't offer .sitx's 512-bit encryption and error correction.

There's no getting around it; compared with Panther's Archive command (which creates a .zip file), StuffIt is a slowpoke. Archive compressed our test folder to 184MB (about the same as StuffIt's Faster Compression) in 1 minute and 7 seconds—about a minute faster than StuffIt.

Macworld's Buying Advice

StuffIt Deluxe remains the Mac's preeminent archival tool, offering more efficient (though slower) compression and supporting a greater variety of compression formats than OS X 10.3. If you need to routinely compress or expand a wide range of archived files, StuffIt Deluxe 8.0.2 is the tool to use. □

RATING: ♦♦♦♦

PROS: Provides better compression quality than OS X's Archive command; supports many file formats; Archive Via Rename feature; integration with Photoshop and Illustrator.

CONS: Slow performance.

PRICE: $80

OS COMPATIBILITY: Mac OS X

COMPANY: Aladdin Systems, 831/761-6200, www.aladdinsys.com

Tokens 1.1

Program Introduces Flexible, E-mail–Based File-Sharing Scheme

BY CHRISTOPHER BREEN

If you've ever e-mailed a large file only to have it bounce back because of an ISP's narrow e-mail gateway, you've undoubtedly wondered if there's a better way. That better way is here, in the form of Creo's Tokens, an easy-to-use, e-mail–based file-sharing application.

To use Tokens, you drag a file onto the Token Creator application, where your file is compressed and stored at the root level of your hard drive. Token Creator also generates a small file (a few kilobytes) that Creo calls a token—hence the product's name.

To transfer your file, you attach this token to an e-mail and send it to your recipient. Then you leave your computer running and your connection to the Internet established. The recipient—who must download a copy of the free Token Redeemer application (which is compatible with OS 9 and OS X)—double-clicks on the token or drags it onto the Token Redeemer icon. The program establishes a secure connection to your computer and downloads the file from your computer to the recipient's computer. And with the Tokens 1.1 update, you can now configure Token Creator to place a link to a Token Redeemer download in e-mails containing tokens.

Finding Redemption Token Creator can now alert recipients to the location of the Token Redeemer and tell them when the token expires.

Keeping Things Easy

Tokens' conveniences abound. It's handy for senders because they don't have to upload huge files to a Web page or an FTP server (or learn how to set up an FTP server). As the sender, you can instruct Token Creator to have the tokens you create expire after a period of time you define—two weeks is the default setting. Recipients of your files benefit because they can choose when and where they receive the files you send. For example, they can receive the token over a slow dial-up connection at home and then redeem that token via a business's faster broadband connection. Also, recipients can see or download only files intended for them; with FTP, they can see all the files you've stored.

Creo has even made allowances for firewalls. If Token Redeemer can't make a direct connection to a sender's computer, it tries to link to the sender via Creo's Tokens Relay Service. This service makes it possible to move files between the host and the recipient without compromising security on either computer. In our tests, Tokens worked mostly as advertised. There were no problems making connections without a firewall. But Token Creator wouldn't launch properly with an HTTP proxy enabled on our Mac.

Tokens takes about twice as long to compress files as OS X 10.3's Archive command does, but it produces files of approximately the same size. On a 1.25GHz PowerBook G4, we compressed a 260MB folder containing 47 TIFF images. Apple's Archive took 1 minute and 9 seconds, versus Tokens' 2 minutes and 21 seconds. The resulting file was 184MB for each compression scheme.

RATING: ★★★★½

PROS: Easy to configure and use; tokens can expire; convenient for recipients; relay server works around firewall issues.

CONS: Some difficulty with internal proxies; you must leave computer on and connected to the Internet for recipient to redeem tokens.

PRICE: $49

OS COMPATIBILITY: Mac OS 9, Mac OS X

COMPANY: Creo, 604/451-2700, www.creo.com

Macworld's Buying Advice

In an intuitive way, Tokens 1.1 solves the problem of moving large files over the Internet. If creating a local FTP server is beyond your abilities, Tokens is an elegant alternative. □

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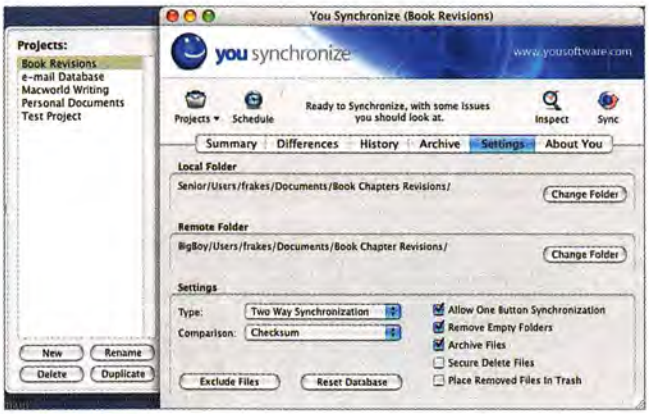
You Synchronize 2.0

Popular Utility Gets a New Name, New Features, and a Speed Boost

BY DAN FRAKES

If you have more than one computer, or if you store files in multiple locations, you know what a hassle it can be to make sure that you have the most recent versions of files. One of our favorite file-synchronization utilities, ExecutiveSync (★★★★; "More Mac Software Bargains," May 2003), was recently purchased by You Software, which gave it a new name, some new features, and a makeover.

You Synchronize takes a project-oriented approach to synchronizing files. A project consists of two folders or volumes—local, remote, or a combination thereof—that you want to keep in harmony; you can create any number of projects, each with different settings. For each project, you choose the type of synchronization—one-way (one folder overwrites the other) or two-way (the newest version of each file is copied to the other folder)—and any particular items or file types you want to exclude.



I Sync, You Sync You Synchronize accurately synchronizes the contents of local and remote directories.

You Synchronize does more than simply compare documents to each other. It saves information about each file in each project, and then uses this information to determine whether *both* versions of a document have been modified and to verify that documents are free of errors after synchronization.

You Synchronize's comparison technology isn't fooled by differences in file names or by different computer times. It correctly recognized changes to file content but ignored attempts to confuse it by purposely changing computer and file dates and times.

Safekeeping

You Synchronize offers features that provide peace of mind to nervous synchronizers. For example, you can use the Inspect mode *before* you actually sync to see a report of specific actions the program will take; you can even change those actions for individual files. Unfortunately, you can't select multiple files at a time in this window, which makes changing actions on multiple files tedious.

You can also decide what happens when the utility removes a file from a project folder: the file can be deleted outright, moved to the Trash, deleted securely (overwritten several times to prevent unerase utilities from recovering it), or archived. The archive feature allows you to restore deleted files.

Recognizing Changes

You Synchronize addresses two major problems found in its predecessor. First, it's significantly faster than ExecutiveSync—although it's still not as fast as utilities that use only modification dates to compare files, it's reasonably swift when working with folders or volumes containing thousands of files.

Second, it has added scheduling features via an elegant interface. But unfortunately, these features require that the program be running and both of your project folders be available at the scheduled time. We'd also like to see You Synchronize automatically sync a project when a remote folder is available—for example, when you connect a PowerBook to a network or mount a FireWire drive.

Macworld's Buying Advice

You Synchronize is a worthy upgrade to ExecutiveSync. It's still not as fast as some of its competitors, but its comparison methods and data safeguards offset its slower speed. The addition of scheduling functionality eliminates one of our major criticisms of its predecessor, and you can even use it for scheduled, mirrored backups. □

RATING: ★★★★½
PROS: Accurate file comparisons and synchronization; safeguards protect against accidental data loss; useful scheduling options.
CONS: Time And State comparisons mean slower (though more accurate) synchronization; you can't select multiple items in Inspect mode.
PRICE: $60; download, $50; upgrade from ExecutiveSync, $29
OS COMPATIBILITY: Mac OS X
COMPANY: You Software, 800/968-2968, www.yousoftware.com

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IDL 6.0

Convenience and Distribution Power Enhance Visualization Program

BY CHARLES SEITER

Scientific instruments are good at collecting data, but some people need to see images, instead of numeric tables, in order to easily interpret data.

Research Systems' IDL 6.0 is the best of its kind at providing visual images that represent statistics—it can turn radar into weather maps, MRI signals into pictures of a skull, and space X-ray signals into maps of the universe (see "Getting the Big Picture").

Getting the Big Picture In this mosaic X-ray map of the Milky Way, a region's temperature is represented by color—one example of how IDL 6.0 helps users visualize numeric information.

Other programs, such as The MathWorks' Matlab 6.5 (♦♦♦♦; December 2002) and Wolfram Research's Mathematica 5 (♦♦♦♦½; January 2004), can map 2-D and 3-D data arrays into dazzling color plots. But IDL's tool set gives you more types of charts, as well as better chart-labeling components that make it easier to generate finished presentations.

Version 6.0's new iTools feature makes complex plotting easier for beginners, while the new, free IDL Virtual Machine lets nonusers customize display features.

Speaking the Language

IDL stands for Interactive Data Language, a name that doesn't really explain much. The application uses a C-like programming language that offers hundreds of special functions for different kinds of data display; you might call IDL "Adobe Photoshop for scientists." For example, if you have seismic data to chart, you can elect to display it in as many as 20 global projections, using the program's variety of built-in color tables.

Version 6.0 of IDL introduces "intelligent tools" called iTools (not to be confused with Apple's defunct iTools). This object-oriented programming system has an assortment of premade tools that help you produce graphic representations of 2-D and 3-D plots (line, scatter, polar, and histogram), surface representations, contour maps, image displays, and volume visualizations. iTools give you many types of displays with a single command.

iTools commands also can be modified and combined into custom libraries.

Run-Time

With version 6.0, Research Systems is introducing IDL Virtual Machine, a freely distributable module that runs compiled IDL code. IDL VM is not yet bug free. Users who upgraded from version 5.5 have encountered problems with iTools code in the virtual machine. Those problems, and glitches in IDL object graphics, were mostly caused by the previous version's non-Unix file conventions. Very few problems, though, have been reported with the virtual machine running from the native 6.0 code.

IDL and Panther

The Mac version of IDL is actually Unix. To run it, you need OS X 10.3, because Panther's version of X11 Windows eliminates some of the problems with version 5.5. This also applies to the virtual machine, so you can't distribute IDL code to your Mac pals unless they've upgraded to Panther, too.

Macworld's Buying Advice

IDL offers data-visualization tricks not available in any other math application, and version 6.0 is significantly easier for newcomers to use. □

RATING: ♦♦♦♦

PROS: New iTools make complex visualizations quick and easy; IDL Virtual Machine simplifies distribution of code.

CONS: Minor glitches in the virtual machine when upgrading from version 5.5.

PRICE: personal use, $3,000; academic personal use, $700

OS COMPATIBILITY: Mac OS X

COMPANY: Research Systems, 303/786-9900, www.rsinc.com

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Macworld
The Mac Product Experts

EyeHome

Digital-Hub Device Is on the Right Track but Needs Work

BY JONATHAN SEFF

A digital hub should act as the center of your digital world—not only storing pictures, songs, and movies, but also letting you access them from beyond the confines of your Mac. With the EyeHome, Elgato Systems has taken a good step toward integrating your audiovisual elements with your TV, but the product still has room for improvement.

The EyeHome is a compact silver box (about the size of a small cigar box) that connects the Macs on your network to your TV and stereo via Ethernet (although you can use a wireless 802.11g bridge). The box connects to your TV via composite, component, or S-Video ports, and it includes a Toslink digital-audio port for sending sound to your stereo.

On each Mac you want connected to the EyeHome, you must install and launch the EyeHome preference pane—a simple, one-click procedure. On a dual-867MHz Power Mac G4, this preference pane consistently took around three minutes to launch—with more than 15,000 songs and about 2,000 photos—and it consumed more than 400MB of RAM. On a G4 iBook, the launch was much faster and the RAM usage was more modest.

The EyeHome integrates well with Apple's iLife apps—it can access photos from your iPhoto library and songs from your iTunes library. But if you keep your photos in a program such as iView Media, you're out of luck. When it comes to video, the EyeHome can decode and play MPEG-1, MPEG-2, MPEG-4, and DivX files stored in your user's Movies folder, but forcing people to keep all movies in that folder is inconvenient. The exception is content created by the EyeHome's sibling, the EyeTV—the EyeHome does find the folder where those files are stored.

The EyeHome can be a bit quirky. For example, the unit's green light is on when the power is off, and it vanishes when you turn the power on. Using the remote to navigate is more difficult than it needs to be: commands are unintuitive, and many buttons serve double duty. And the EyeHome's cool extra features—such as letting you use the remote to type in a URL and displaying Web pages on TV—are frustrating to use.

Macworld's Buying Advice

The EyeHome is a great concept, but it's still half-baked. You might get a lot out of it, but it shouldn't limit you to particular applications or file locations. □

RATING: ♦♦♦

PROS: Great integration with iLife applications; simple setup.

CONS: Inflexible with application choice and file placement; navigation problems; memory hog.

PRICE: $249

OS COMPATIBILITY: Mac OS X

COMPANY: Elgato Systems, info@elgato.com, www.elgato.com

EyeTV 200

FireWire Digital-Video Recorder Is a Big Improvement on USB Model

BY JONATHAN SEFF

When Elgato Systems introduced the EyeTV (♦♦♦½; November 2002) two years ago, the company brought the benefits of digital-video recorders to the Mac. The new EyeTV 200 improves on the original USB model by offering better flexibility, higher-quality video, a remote control, and

THE CONQUEST

DiskWarrior is Now OS X Native

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

Macworld magazine said, "DiskWarrior is by far the best disk utility available for the Mac; it can repair virtually any disk problem you may encounter...and it is likely to become the only tool you'll want to keep with you at all times."

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

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

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Trimming the Fat The EyeTV 200's Edit tool lets you cut commercials and other extras to save space on your hard drive or your archival DVDs.

enough bandwidth to properly capture and display MPEG-2 video.

The EyeTV 200 lets users watch TV on their monitors, in a variety of window sizes, while enjoying the TiVo-like benefits of pausing and replaying live TV. Even better is its ability to schedule and automate the recording of programs, either manually or through the nicely integrated TitanTV Web site (www.titantv.com). The EyeTV couldn't be easier to use: attach a coaxial cable or antenna to it, and then connect it to your Mac's FireWire port (the unit draws its power over FireWire, so there's no need for a power adapter). Then use the Setup preference pane to automatically tune in the channels. To watch TV, use the full-size infrared remote control or the on-screen controller. Changing channels with the EyeTV 200 is much faster than with its predecessor. You can also connect the signal from a digital-cable or satellite TV decoder to the EyeTV, but it can't change channels—you need to do that with your decoder box.

Bundled with a software package of the same name, the EyeTV can now wake your Mac from sleep or start it up for a scheduled recording. While this worked flawlessly on a dual-867MHz G4 desktop model, it was problematic when tested on a G4 iBook. (It would wake or start up the iBook but wouldn't receive a signal.) Elgato is aware of the problem and is working on a fix.

One of the EyeTV 200's biggest advantages over the USB version is that it captures video in MPEG-2 instead of MPEG-1. MPEG-2 is the encoding format used for DVDs and satellite TV: it takes up a lot of room, but it has great quality. You can choose from Standard (1.8GB per hour) or High quality (2.7GB per hour) encoding or Super Video CD (726MB per hour), which captures a smaller image at lower bit rates. A Custom setting lets you choose the resolution, bit rate, constant or variable bit rate, and audio settings.

Via the software's simple interface, you can then trim unwanted parts (commercials or padded space on either end) of recordings, for storage or burning to DVD or Video CD (which requires Toast 6 Titanium).

Macworld's Buying Advice

For people who like to watch high-quality TV on a Mac and archive shows to DVD, the EyeTV 200 is a perfect choice. The MPEG-2 quality looks great on a monitor or a TV, and the built-in editing tools make quick work of trimming MPEG-2 files. □

RATING: ♦♦♦♦
PROS: High-quality MPEG-2 recording; built-in software trimming tools; remote control included; can wake or start up Mac to record; works well with Toast 6 Titanium.
CONS: A little pricey; uses a lot of memory; can't change channels; sporadic wake-up problems.
PRICE: $349
OS COMPATIBILITY: Mac OS X
COMPANY: Elgato Systems, info@elgato.com, www.elgato.com

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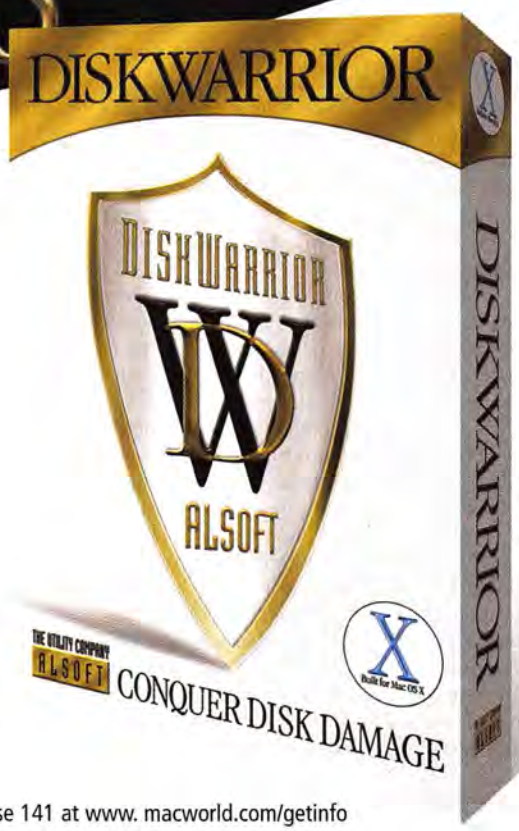

begin to malfunction. Eventually, the malfunctions become so severe that the drive simply stops working. DiskWarrior can automatically test for hardware malfunctions, giving you the chance to back up your data before it's too late.

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

Choose 141 at www. macworld.com/getinfo

HomePod

Wireless Music Player Is No iPod Clone

BY JASON SNELL

With its white plastic design and scroll wheel, Macsense's HomePod is inspired by Apple's iPod (♦♦♦♦½; May 2004) in more ways than its name. But the HomePod, an MP3 player that streams music over a network from your Mac, doesn't come close to matching the elegance and ease of use of the groundbreaking player it seeks to emulate.

Music without Storage

Like Slim Devices' $299 Squeezebox (♦♦♦♦; April 2004), the HomePod has no hard drive. Instead, it connects via AirPort or Ethernet to the computer that houses your music collection. It supports OS 9, OS X, Windows, or Unix and can access your iTunes library and playlists.

The HomePod features an array of audio-out ports: RCA jacks and digital outputs, which fit in perfectly with a home stereo system, plus a headphone jack. The HomePod also comes with two small built-in speakers, but they sound unspeakably awful. Their audio quality was no better than that of a cheap clock radio.

Design Challenges

The HomePod's scroll wheel is a sad imitation of the iPod's. It's tall and raised, and doesn't scroll fluidly. We had problems choosing from lists of artists and albums: scrolling was either painfully slow or uncontrollably fast.

The rest of the HomePod's on-screen interface is similarly poor. Pressing the Shuffle button stops the current song and reshuffles. And switching to the main menu stops the music entirely.

While playing, the HomePod displays track information on its LCD screen, but the words are largely illegible, especially at a distance. And the HomePod doesn't let you control playback options via its Web interface.

Stability and Setup Problems

Setting up the HomePod on an Ethernet network was a breeze, but to set up via AirPort, we had to turn off our computer's WEP encryption, connect to the HomePod via a Web browser, and then turn WEP back on. And when we tried to select a shuffle through large playlists, the HomePod consistently froze until we pulled the plug. Finally, while the HomePod's packaging promises forthcoming support for various file formats, at press time the device was able to play only MP3 files. But Macsense plans to make available Web-based firmware upgrades to support AAC and WMA formats by July.

Macworld's Buying Advice

We can't recommend the HomePod. For portability, you'd be better off with an iPod and a small set of speakers. For accessing your music library via your home stereo, you'd be better off with the Squeezebox or, in a pinch, an iPod. □

RATING: ♦♦
PROS: Good array of audio-out ports; OS 9 support.
CONS: Hard-to-use controls; poor interface; hard-to-read LCD screen; bad built-in speakers; unstable.
PRICE: $249
OS COMPATIBILITY: Mac OS 9, Mac OS X
COMPANY: Macsense, 650/552-9110, www.macsense.com

G5Jam

Internal Hard Drives Give the G5 a Performance Boost

BY KRISTINA DE NIKE

The Power Mac G5 may be aimed at high-end video and graphics professionals, but Apple seems to have forgotten that these folks chomp through storage like participants in a pie-eating contest. The computer case holds only two internal hard drives, for a maximum of 500GB.

The G5Jam, from WiebeTech, squeezes two more drives into the G5 case, for a total of four hard drives, or as much as 1 terabyte (1TB) of storage. It replaces the internal side panel of the Power Mac G5 with a mirrored metal plate, which holds the drives in the end of the PCI card space. One slot is still available for a full-length PCI card; the other three slots can hold only shorter cards, such as the included graphics card. The new side plate not only holds the drives, but also dissipates heat better than the plastic plate it replaces. You can purchase the G5Jam in several configurations ranging from just board and cables to all four drives. We looked at the basic board-and-cables model, to which you can add Serial ATA drives as needed.

Because Apple didn't plan for the extra drives, the Power Mac G5 doesn't have built-in internal ports or cabling to provide power. WiebeTech includes a power cable that runs from the G5 case's built-in power port and splits the power three ways.

We saw good performance with the G5Jam and a single Serial ATA drive—copying and duplicating a file took about the same time on the new internal drive as on an external drive attached via FireWire 800. When we added a second drive and striped them together into a RAID 0 array, performance was 40 percent faster than with a single drive. Performance is even more impressive if you stripe all four drives together. (In OS X 10.3, you can boot off of a RAID array created with Apple's Disk Utility.)

The price for such added performance is somewhat steep. An external FireWire drive costs around $60 more than the drive mechanism by itself. Adding one or two external FireWire drives is a less expensive way to increase your storage capacity.

And even though you can boot off of an internal array, you may not want to. Striping drives together in a RAID 0 array increases the risk of drive failure. If you want to invest in an external FireWire drive as your startup drive, you can lessen the risk of losing your operating-system files.

Macworld's Buying Advice

WiebeTech has provided a clever workaround to a limitation of the Power Mac G5. Internal storage is less prone to theft and to damage from jostling, and it cuts down on desktop clutter. The G5Jam isn't for people with full-length PCI cards or for those uncomfortable installing hardware, but it can give your computer juice by adding fast storage. □

RATING: ♦♦♦½
PROS: Provides additional storage inside a Power Mac G5; performs well in copying and duplicating files.
CONS: There are cheaper ways to add storage; hardware requires installation skills.
PRICE: $500
OS COMPATIBILITY: Mac OS X
COMPANY: WiebeTech, 866/744-8722, www.wiebetech.com

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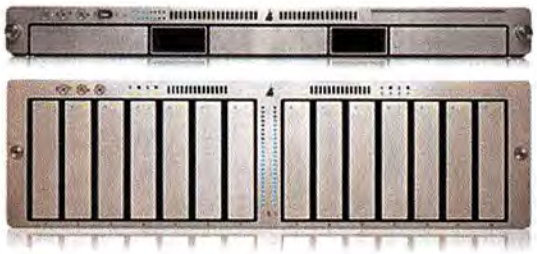

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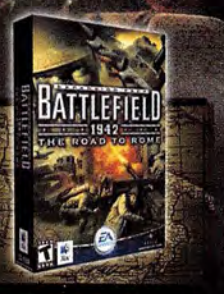

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> Tron 2.0
> The Journey to Wild Divine
> Rally Shift
> World of Warcraft
> Close Combat: First to Fight

Greetings, Program

MORE THAN 20 YEARS HAVE PASSED SINCE THE ORIGINAL release of *Tron*, a movie in which a computer programmer gets sucked into the world of bits and bytes. Since then, *Tron* has become a touchstone for people who grew up in the early days of video games and home computers. Now, with the release of Tron 2.0, a new first-person shooter from MacPlay, the story of Tron is back—with a modern plot, some new twists, and much of its original charm. Too bad the game feels old.

View from Within Tron 2.0 captures the look-and-feel of the original *Tron* movie.

Tron 2.0 is set in the present day, where Alan Bradley—creator of the original Tron program—is working on a new digitizing technology that a rival company is eager to steal. As a result of corporate sabotage, his headstrong young son Jet—a talented programmer in his own right—is digitized and whisked into the computer realm.

As Jet, you suddenly find yourself in a world where programs look like people. Unfortunately, a lot of them seem to want to *derezz* you—that's computer speak for *kill*. Your claim that you're a user and not a program is laughable insanity to some and complete heresy to others—it's as if you were calling yourself a god. When it turns out that a virus is infecting both the programs and the environment, you must put a stop to it—and protect your dad's AI program, Ma3a, from corruption.

In the story-driven single-player mode, you'll use your identity disc—a Frisbee-like weapon—to blast foes while earning as many upgrades as you can. Another challenge involves riding *lightcycles*—motorcycle-like vehicles that trail impenetrable barriers behind them. The game is essentially an updated version of Snake. Your goal is to trap your opponents inside your own barriers while avoiding theirs. Although it's not a new concept, Tron 2.0 manages to add a few new twists, such as power-ups, speed zones, obstacles, different lightcycle models, and more.

Tron 2.0 includes a multiplayer mode. You can compete in a platform arena game, in which you try to hit other Mac or PC players with your identity disc. Players on the same LAN can compete in a multiplayer version of the Lightcycle game, too.

If you're a big fan of the original *Tron* aesthetic—defined by abstract and stark geometric designs offset with brilliantly glowing neon detail—you'll adore Tron 2.0. The game brings to life the movie's landscape and includes other nice throwbacks such as the voice of actor Bruce Boxleitner, who played Alan Bradley in the original movie.

For the most part, though, there isn't really anything new or unique in Tron 2.0. The single-player mode has the same challenges you've seen in a million other first-person shooters. You'll collect keys (called Permissions) to unlock new areas and search out power-ups (or Subroutines) that imbue you with new abilities.

Tron 2.0 does offer an interesting take on managing power-ups. Unlike some first-person shooters, it doesn't give you unlimited weapons or powers. Instead, you have to manage your memory resources carefully (only loading the subroutines you need for the given task at hand), optimize the code when you're given the chance (to help reduce resource use and hopefully cram more subroutines into memory), and upgrade when you find new and better subroutines.

continues

TRON 2.0
RATING: ♦♦♦
PROS: Attractive graphics; good power-up system.
CONS: Average game play; no windowed mode.
PRICE: $50
OS COMPATIBILITY: Mac OS X
COMPANY: MacPlay, www.macplay.com

FIRST LOOK | World of Warcraft

Blizzard Entertainment has decided to bring its popular Warcraft strategy-game series to the world of massively multiplayer online role-playing games (MMORPGs). The result is World of Warcraft, a highly anticipated release from a company with an excellent track record in Mac gaming.

A New MMORPG In World of Warcraft, you live and battle in a persistent online world based on Blizzard's Warcraft games.

In World of Warcraft, which is currently being beta tested, you enter a persistent online world populated by the characters, places, and situations that have become hallmarks of the Warcraft series. But instead of controlling large numbers of troops and resources, you're now responsible for taking care of just one character at a time. Who that character is and what it does is entirely up to you.

When creating a character, you choose from among the Alliance races (human, dwarf, night elf, or gnome) or the Horde races (undead, tauren, troll, or orc), select a class or profession (everything from mages and warlocks to warriors and rogues), and define physical characteristics. You can configure your character's gender, hair, face, and skin tone to create a somewhat unique personality—though you're bound to run into a couple of physical doppelgängers. The game lets you create multiple characters, so you can experiment to find what you like best. Right now I'm switching between human, troll, and undead characters—and I'm having a lot of fun in the process.

When you begin playing, your character is relatively weak, defenseless, and ill equipped. As you explore, other characters assign you quests to help you gain experience. These quests usually result in the exchange of money or goods, which you can then use or sell. As in the real world, money is an important resource in World of Warcraft: you'll need it to buy food, medicine, supplies, and (occasionally) training.

The best way to accumulate experience—and thereby raise your character's standing—is to fight. But don't expect your new mage to get to Level 40 just by zapping hungry wolves and angry forest bears for 36 hours straight. In an attempt to avoid level inflation by players who send characters into constant battle, Blizzard has implemented a new rest system in World of Warcraft: Players who keep their characters well-rested get an experience bonus when they go into combat.

To help differentiate your character from others in its class, you can have it learn secondary skills—for example, fishing, first aid, cooking, or creating armor—which you can then use to produce goods for selling to other players. Admittedly, you'll spend most of your time in World of Warcraft participating in quests that reward you with great wealth, skills, or valuable items. But these secondary skills are a lot of fun to hone, and very rewarding in their own right.

The game's graphics, sound effects, and music are superlative. And the user interface should be familiar to anyone who's played Warcraft III. However, the depth and complexity of the game's information screens may be a bit daunting if you're new to Warcraft; you have to juggle palettes to view inventory, character and skill attributes, spells (if applicable), and more. I highly recommend using a multibutton mouse to help manage the clutter. That said, Blizzard deserves credit for creating an interface that's much more intuitive than that of some other MMORPGs I've played.

The Bottom Line World of Warcraft, even in its current beta stage, is an incredibly rich, complex, and fascinating world to explore. However, developing a high-level character isn't something that happens in minutes or hours—the process takes weeks and months. Make sure you're up to the commitment.

BETA TESTED

WORLD OF WARCRAFT

PROS: Lots to do and see; great graphics and sound.

CONS: Complicated interface; requires a huge time commitment.

PRICE: monthly fee, to be determined

OS COMPATIBILITY: Mac OS X

COMPANY: Blizzard Entertainment, www.blizzard.com

I didn't run into any problems while playing Tron 2.0. However, I would have appreciated a windowed game mode—an option that is becoming a standard in many new games. As it is, I was stuck watching full-screen resolutions that are lower than my Apple Cinema Display's native resolution. Another annoyance is that the Mac version arrived about nine months after the Windows release.

The game requires Mac OS X 10.2 and a 700MHz G4 or faster.

The Bottom Line Tron 2.0 is basically a reprise of the 1982 movie *Tron*. Its game play will be familiar ground to first-person–shooter enthusiasts. However, novel graphics and an interesting power-up–management system add nice twists for fans who haven't already played the Windows version.

Gamer, Know Thyself

Maybe it's a character flaw, but I really do like gratuitously violent action games. Getting my heart rate up and exercising my lizard brain's fight-or-flight instincts is, to me, the essence of what makes gaming fun. So saying that The Journey to Wild Divine required a bit of mental readjustment is no exaggeration. Instead of rewarding speed, sharp shooting, and reflex, this exploration and puzzle game emphasizes peace, relaxation, and developing a meditative focus.

To play The Journey to Wild Divine, you hook yourself up to a USB-based biofeedback device called the Light Stone, which gently cuffs the tips of three of your fingers with clips called Magic Rings. The clips' sensors measure your heart rate and galvanic skin response, the same basic electrical properties lie detectors measure. The game then uses this biofeedback to help you learn to control—or, at the very least, better understand—your physical state. In one puzzle, for example, you're challenged with keeping several balls suspended in the air and spinning, simply by controlling your breathing. (You're also encouraged to laugh and sing.)

Visually, the game has a lot in common with the Myst series; the world within the game features beautifully illustrated scenes of temples and other buildings ensconced in lush foliage. Video sequences feature attractive, peaceful people who teach you how to interact with the game.

The Journey to Wild Divine is lovely to look at, but it's also steeped in daffy, over-

Just Breathe Biofeedback gear (right)—referred to as the Light Stone and Magic Rings—monitors your progress through the beautifully illustrated world in The Journey to Wild Divine (left).

THE JOURNEY TO WILD DIVINE
RATING: ♦♦♦½
PROS: Inexpensive biofeedback system; great production value.
CONS: Over-the-top hippie silliness.
PRICE: $160
OS COMPATIBILITY: Mac OS X
COMPANY: The Wild Divine Project, www.wilddivine.com

the-top New Age imagery that some users may find intellectually insulting—I sure did. It's a shame, because the game is grounded in solid science and can definitely help you relax and focus, in the same way that meditation and yoga exercises do.

In fact, I learned a lot about myself while playing with this system—for example, I didn't do so well after three cups of morning coffee, or after an argument. The breathing and relaxation exercises definitely helped me gain a better state of body awareness—something I was able to draw from when I was away from the computer. But Light Stone? Magic Rings? Give me a break; it's a biofeedback monitor, not some soul-healing transformative experience.

The Bottom Line At $160, The Journey to Wild Divine isn't an impulse buy. But compared with the prices of most biofeedback devices, it's a good deal—at least if you're not turned off by the New Age mysticism.

Go Speed Racer

For whatever reason, few auto-racing games make their way to the Mac. So seeing shareware developer CodeBlender turn its attention to the genre is nice. With Rally Shift, a series of rally car races take to the open road on windswept mountain passes, dirt trails, and more. Unfortunately, the game's novelty can't compensate for its many flaws.

Rally Shift puts you in the driver's seat of one of several mythical rally sports cars. To avoid licensing complications, CodeBlender subtly altered the appearances and names of real-world cars such as the Subaru Impreza WRX, the Mitsubishi Lancer, and the Ford Focus—all of which are very popular on the rally racing circuit. The game has a navigator who tells you—both with spoken commands ("turn left, then sharp right") and with graphical icons—what surprises the road ahead holds. This lets you focus entirely on downshifting, braking, accelerating, and whipping your car around corners at breakneck speeds. Milliseconds count in these kinds of races.

Considering that Rally Shift is free of the creative restrictions imposed on licensees of real-world car designs (car companies rarely let game developers depict realistic damage), it's a shame that CodeBlender didn't take better advantage of the opportunity. I was disappointed the first time I flung my little racer headlong into a tree and drove away unscathed.

The game's initial release includes five racecourses (the company has promised to add more later). But while the courses are sufficiently challenging, their designs leave much to be desired. Most of the tracks are surrounded by large amounts of open space, so you don't get the sense of speed or immediacy often associated with rally races. And the graphics you do see up close—such as rocks and trees—are bland and unimpressive.

CodeBlender lets you tweak some of the game's settings to improve performance and detail. For example, you can switch resolutions, improve texture details, and set dust and smoke levels. You can also activate anisotropic filtering and reflection details to give the graphics a more natural look. But unless you have a high-end Radeon or Nvidia graphics card, you may take more of a performance hit than you'll want to take. The game's minimum requirements are a 400MHz G4 processor and an ATI Rage 128 graphics card with 8MB of VRAM.

You can also exert control over your car's performance—choosing between manual or automatic transmissions, as well as making basic adjustments to gearing, suspension, and transmission. If you want to do more, you can download CodeBlender's Rally Shift Garage, an add-on utility that lets you extensively modify car characteristics. Why this feature hasn't just been integrated into an update to the game is puzzling.

Rally racing requires a lot of finesse and technical sophistication; it would be nice if the game offered a tutorial mode to help neophytes learn how to operate their cars

continues

RALLY SHIFT
RATING: ♦♦½
PROS: A rare car-racing game for the Mac; supports third-party steering wheels.
CONS: Lousy level design; no damage modeling.
PRICE: $25
OS COMPATIBILITY: Mac OS X
COMPANY: CodeBlender Software, www.codeblender.com

I Can't Drive 55 Teeter on the edge of control in Rally Shift, a fast-paced rally racing game from CodeBlender Software.

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effectively. Instead, newbies are thrown in the deep end with nothing more than a few single races and practice modes before entering the championships—which they must do to move on to new levels. Rally Shift supports third-party steering wheels, a nice touch for racing enthusiasts.

The Bottom Line CodeBlender deserves credit for bringing an underserved genre to the Mac. But as a shareware game, Rally Shift has trouble overcoming its limited budget. The game suffers from weak level design, spartan graphics, and basic game-play flaws. Definitely try the demo before you buy. □

MacCentral.com Senior Editor PETER COHEN makes a mean beer-basted Crag Boar Rib, and it's good for 288 health points in World of Warcraft.

IN THE WORKS | Close Combat: First to Fight

After years of porting Windows games to the Mac, MacSoft owner Destineer is now working on its first original game—a team-based, tactical, first-person shooter (FPS) called Close Combat: First to Fight.

The Few. The Proud. You and your teammates will use real-life U.S. Marine formations and tactics to fight an urban war in the Middle East.

First to Fight puts you in control of a four-man United States Marine Corps fire team as they make their way through a densely populated urban war zone. The action is set in a real, but as of now unidentified, Middle Eastern city, in the year 2006. I got a peek at an early version of the game and was impressed not only by its fresh take on the tactical FPS genre, but also by its realistic depiction of modern military strategy.

Using a system called Ready Team Fire Assist (RTFA), First to Fight makes sure your computer-controlled teammates move as real Marines would when faced with similarly perilous situations. For example, they'll cover all angles when you're walking up a staircase, and use a leapfrogging technique called *bounding* when running across open spaces. This attention to detail is a welcome improvement to the incredibly stupid artificial intelligence that sometimes dominates the tactical FPS genre.

The effects of the game's advanced AI extend beyond mere formations. You'll also have to deal with the emotional experience of being in a war zone. The men on your team may respond negatively to external forces—for example, the fear of hurting civilians—or they may experience a morale boost after the completion of an objective. Conversely, your enemy can be positively and negatively affected by your actions. This sophisticated form of psychological modeling is an essential part of what makes First to Fight unique.

First to Fight also makes use of the idea that your team is part of a larger organization—an operational concept called Marine Air Ground Task Force. The idea is that Marines are never alone. Your fire team can call in air strikes or other forms of ground support whenever they need to—and they *will* need to. Some operations may require that you call in air strikes from Cobra helicopters, for example. Enemy strongholds can get softened up with some 81mm mortar shelling.

The United States Marine Corps was directly involved in developing First to Fight. Active-duty Marines recently back from combat duty in Iraq and Afghanistan have shared their experiences with the game's design team to help make the action more realistic. In fact, the Marines plan to use a version of the game as a training simulation.

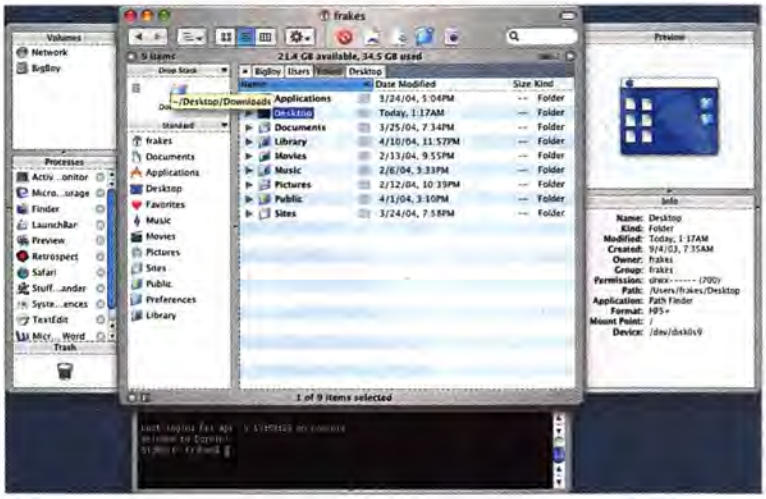
Destineer developed the game's 3-D–engine technology. The engine supports high-end features such as volumetric shadows, normal maps, and specularity, to provide highly realistic shadow, texture-mapping, and lighting effects. The game will require at least a 1GHz processor and an Nvidia GeForce4 MX (or equivalent) graphics card—which is fairly typical for a game of this caliber.

Though no price or release date has been set, Destineer expects to ship First to Fight by the end of the year. Best of all, the Mac version, which will be published by MacSoft, should appear at the same time as its Windows counterpart. Look for a full review once the game is out.

- Path Finder
- CalculateSizeCM
- iCalibrate
- Fob
- Tofu
- AFS Monitor
- xSMB

Further Functionality

THIS MONTH'S COLUMN IS ALL ABOUT ENHANCING MAC OS X's built-in functionality, so where better to start than the Finder? The Finder has been improved in each version of OS X, but some users—including me—still wish it had a few more features. If you're one of those people, Cocoatech's $34 **Path Finder 3.2** (♦♦♦♦½; www.cocoatech.com) may be just what you've been waiting for.



Finder's Big Sibling Path Finder does everything the Finder does, and then some.

Path Finder looks and operates much like the Finder itself. It lets you do anything you can do in the Finder, but it offers many extra features. For example, Path Finder gives you a number of additional view options, including the ability to show file owners and groups in list view and to sort in column view. You can also set default permissions to be applied to new files and folders, something you can't normally do without a bit of Unix knowledge.

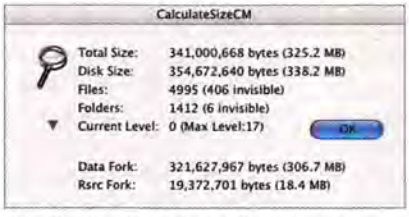
Like the Finder's windows, Path Finder's windows have sidebars, but they also have a *Drop Stack* area, which allows you to temporarily store files and folders. For example, to move a file between folders, you can drag it to the Drop Stack, navigate to the destination folder, and then drag the file out of the Drop Stack. (You can have multiple files in the Drop Stack at the same time—a pop-up menu lets you choose a file to work with.) A Processes And Volumes drawer provides quick access to mounted volumes, applications, and the Trash, and you can work with many files from within Path Finder, using the built-in text editor, PDF viewer, and image editor and converter. Path Finder even has its own Terminal emulator.

If you're an advanced user, Path Finder has features that you will appreciate, such as the ability to generate a number of different system reports, browse invisible files and packages, view files as hexadecimal code, and use various themes to customize window appearances. You can even create disk images and compress files directly from Path Finder windows. If you're still pining for OS 9, Path Finder can bring back OS 9's Application menu—or at least something that's very similar and that has more features.

Path Finder has so many features, I could fill a whole column with them—if you think you might be in the market for more Finder functionality, check it out. If you decide that you like using Path Finder more than using the Finder, you can even have Path Finder quit the Finder and take its place.

Get More Info

Another area where the Finder can fall short is in providing information on the number and the exact size of items in a folder. Pixture Studio's free (donations accepted) **CalculateSizeCM 1.2** (♦♦♦½; www.pixture.com/macosx.php) is a plug-in that adds a Calculate Size item to the Finder's contextual menus. It provides much more detailed information than the Finder's standard Get Info command. Control-click (or right-click if you have a multibutton mouse) on one or more folders, and then select Calculate Size. You'll see a window showing the total size of all items (in both bytes and megabytes), the total number of files and folders (including the number of invisible files and folders), and the exact breakdown of data-fork and resource-fork sizes. You can also get information on a single file, which can be useful when you want to see whether a file has a resource fork and, if so, the resource fork's size.



Details, Details CalculateSizeCM provides much more information than the Finder does.

Custom Calendar Colors

Apple's iCal lets you change the overall theme color of calendars and their events, but sometimes iCal's stock colors make text hard to read, and you can't customize the various aspects of each theme to compensate for that. With Alex Nicksay's free (donations accepted) **iCalibrate 1.3.1** (●●●½; http://alex.nicksay.com/iCalibrate/), you can choose colors for backgrounds, borders, and text, and you can even customize background gradients. Each calendar can have its own custom theme, and you can even use different themes for different types of items within each calendar—for example, you can make selected events look much different from unselected ones.

Gentle Reminders

If you work at your computer all day (or night), at some point you've surely started something—cooking dinner or doing a load of laundry, for example—and then gotten sucked into your work, completely forgetting about your noncomputer task. It's happened to me many times, so I like to have a timer program on my computer that reminds me when my other activity is done. I've tried a bunch of these little helpers, but my favorite is Leaky Puppy Software's free **Fob 1.0.1** (●●●½; http://homepage.mac.com/tfinley/LeakyPuppy/).

As with most kitchen-timer utilities, you tell Fob how many minutes to count down, and when time is up, the program lets you know—via an alert, a bouncing Dock icon, or by opening a selected file. But what makes Fob great is that it lets you create alarm presets for frequent timers. For example, I have timers for tea and microwave popcorn, among others. To activate a preset, simply double-click on it in the Fob window (you can also set one-time timers). The Fob icon in the Dock shows you how much time is left before the timer is up. Fob is one of those apps I find myself using more than I expected—sometimes I even use it to remind myself to take a break!

Reorganized Readings

OS X's TextEdit is an impressive text editor, and it's even a good word processor with many advanced features. However, if you just want to *read* documents, TextEdit is nothing special—in fact, you may find that reading long documents on screen is a bit fatiguing. Developer Amar Sagoo's theory is that reading text in columns, as in a newspaper, is much easier on the eyes. His free **Tofu 1.0.1** (●●●●; http://homepage.mac.com/asagoo/) aims to prove that point by allowing you to read documents—text, RTF, the text portion of HTML documents, and (in Panther) Microsoft Word documents—in column format. And unlike columnar PDF documents, which force you to scroll up and down to read, Tofu's columns are only as long as the current window, so you scroll left and right instead. (Tofu lets you choose your preferred column width and margins.)

You can drag documents into a new Tofu window or onto its icon to read them; alternatively, you can highlight text in another application and then paste it into, or drag and drop it onto, a Tofu window. If you want to read text from a document in a Services-aware application, you can highlight that text and then choose View In Columns from the Services menu to immediately view it in Tofu. You can navigate Tofu windows using a mouse, a keyboard, or OS X's speech-recognition feature. Tofu also lets you search for text while you're reading.

Tofu is easy to use and extremely effective. I've started to use it for a good deal of my text reading.

iColor With iCalibrate, you can fine-tune your calendar's appearance, changing a hard-to-read single color (left) to a custom theme (right).

Who's Connected?

Many OS X users have lamented the absence of OS 9's File Sharing Monitor, which kept track of users connected via File Sharing. HornWare's $5 **AFS Monitor 1.0.1** (●●●●; www.hornware.com) is an inexpensive alternative. When the program is launched, its Dock icon shows the number of connected Personal File Sharing users; its window provides connection details: connected users, IP addresses, times connected, and the number of files and directories each user has created and/or deleted. (Note that for AFS Monitor to function, the Personal File Sharing activity log must be enabled—the utility's documentation provides instructions for activating the log.)

If you use OS X's Windows File Sharing, you can get similar functionality from Frederic Bell's useful (not to mention free) **xSMB 0.4** (●●●½; www.xeir.com). xSMB doesn't give you the same graphical display as AFS Monitor, but it does indicate, in the menu bar, the number of users currently connected to your Mac. You click on the menu to display the details—each connected user's name and IP address and the shared folders they're accessing. (Bell also offers a similar menu utility for Personal File Sharing; it's called xAFP.)

I hope that Apple eventually includes a version of File Sharing Monitor in OS X. Until it does, these utilities serve an important purpose: they let you keep track of users connected to your Mac. □

Perfect Timer With Fob installed on your Mac, you'll never again burn a pizza.

Contributing Editor DAN FRAKES (www.danfrakes.com) is the author of *Mac OS X Power Tools*, second edition (Sybex, 2004) and an editor at MacFixIt.com. Send your thoughts on this column, or on things you'd like to see in future columns, to macgems@macworld.com.

GET CONN

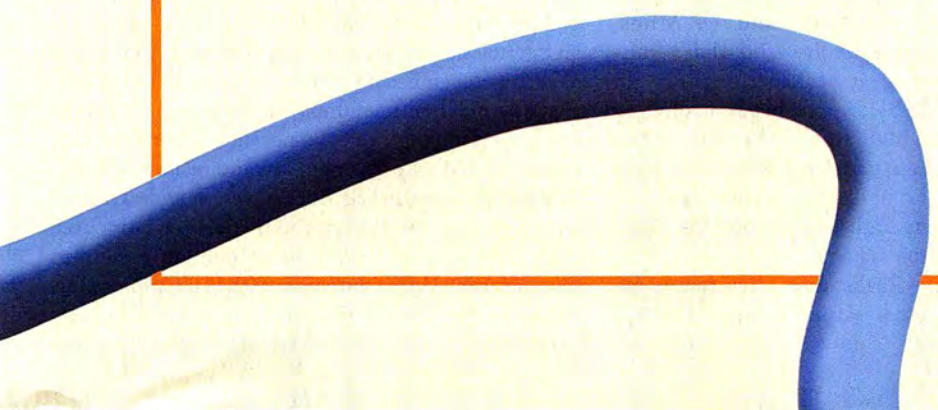
ECTED

Don't Think You Need a Home Network? Think Again. Here's How—and Why—to Get Started.

IF YOU FIND YOURSELF RUNNING TO YOUR KID'S ROOM to print a color document, waiting for your turn at the one computer in the house that has high-speed Internet access, or unplugging a telephone so you can connect the cord to your laptop and check e-mail messages from the couch, it's time to set up a home network.

A home network can not only simplify your life but also greatly expand how and where you use your Macs. With a network, you can print files, search the Web, and check messages no matter where you are in the house. Better yet, you can listen to music saved on someone else's computer, stream your own music collection through a stereo, share photos, keep a collective calendar that's always up-to-date, and much more.

Modern home networks are elegant, flexible, and relatively easy to set up, but no solution is right for everyone. To create a network that truly complements the way you and your family live, you'll need to make some decisions based on the unique layout of your home and on how you use your computers. In this guide, I'll show you how to choose the gear that's right for you, how to set it up, and how to share your data with the rest of your network.



By Jeffery Battersby

Photo-Illustration by Peter Belanger

Choosing Your Equipment

At its most basic level, a network is nothing more than a group of connected computers and devices that can share information (see "The Basics"). What makes one type of network different from another is *how* those devices are connected.

There are three main types of network connections: Ethernet, wireless, and Powerline. Each of these technologies offers unique advantages and disadvantages that depend on how your home is built (its physical layout, materials, and wiring), where your devices are located, how quickly the data needs to travel, and how much money you're willing to invest in the project.

Although you can limit your network to just one type of connection—by going completely wireless, for example—in many cases you'll get the best results by mixing and matching these technologies to address the specific challenges of each part of your network.

But to do that, you'll need to understand the strengths and weaknesses of each technology and how they fit together in a larger home network. (For a real-world scenario that puts these technologies to work, see "Putting It All Together.")

Ethernet Networks

If you're just looking to connect the computers and peripherals in a single room—to set up a home office, for example—an Ethernet network is probably your easiest and least-expensive option. Ethernet ports come standard on every shipping Mac. And Ethernet cable (which resembles an oversize telephone cord) is relatively inexpensive—you can get a 5-foot cable for around eight bucks.

More important, Ethernet networks are *fast*—which makes them ideal for transferring large files, such as digital-video or Photoshop files, from one computer to another.

Ethernet is by far the fastest networking technology available on the Mac. (For a comparison of networking speeds, see "Clocking Your Network"). The two most common Ethernet standards, 10BaseT and 100BaseT, can transfer data at speeds of 10 Mbps and 100 Mbps, respectively. Wireless and Powerline networks top out at 54 Mbps and 14 Mbps, respectively—and that's running at peak performance. In 2001, Apple began including 1,000BaseT Ethernet—which can transfer a whopping gigabit of data per second—in all of its high-end laptops and desktop systems.

Realistically, very few home users will ever require enough bandwidth to justify the considerable expense of a Gigabit Ethernet hub. In fact, even the fastest broadband Internet connection runs at a mere 6 Mbps. (Many connections don't even reach 1 Mbps.) As a rule, unless you plan on transferring video or other high-bandwidth data across your network, 100 Mbps is more than enough to handle all your home-network needs.

Ethernet becomes less practical when you're networking over long distances and between multiple rooms. To connect the Power Mac G5 in your upstairs office to the family iMac in the living room, for instance, you'll need to either run unattractive cable underneath rugs and over door frames, or drill into walls to string cable between the rooms—no easy task.

Running Ethernet cable through your entire house can also be expensive. To get optimal performance, you'll need to hire a professional who can install the wires inside your walls and then test them to make sure they're transferring at the appropriate speeds. That'll cost you anywhere from $120 to $200 for every wire you run.

In general, unless you really need the additional network speed that Ethernet offers—for example, to transfer video files from one TiVo digital-video recorder to another—you'll be better off choosing one of the other networking options for long-distance connections.

WIRING YOUR HOME

Building a new house? Consider using Structured Wiring. This technology allows you to rely on a single cable, which runs from a central panel to each room in your house, for everything from your telephone and video and audio devices to network wiring.

Wireless Networks

If your computer lineup includes one or more laptops, creating a wireless (or WiFi) connection is an obvious choice. A WiFi network lets users connect to the Internet, check e-mail messages, print documents, and share files from anywhere within 150 feet of the wireless router.

However, computers don't have to roam to take advantage of a WiFi network. Desktops can also join the wireless connection. In fact, since 1999, Apple has equipped every new Mac with a wireless antenna and an internal slot for a wireless network card. This makes WiFi a good choice if you need to connect several stationary computers in multiple rooms but don't want the hassle of stringing cable—especially if you're already setting up a WiFi network to accommodate a laptop.

Wireless networking does have a few downsides. First, WiFi networks are relatively slow compared with Ethernet networks. Macs currently support two different WiFi standards: 802.11b (Apple refers to this as AirPort), which tops out at 11 Mbps; and

PHOTOGRAPH BY PETER BELANGER

Ethernet Networks

IDEAL USE: Home offices; transferring large files.

PROS: Very fast; standard on all current Macs; inexpensive over short distances.

CONS: Expensive over long distances; connecting multiple rooms requires unsightly cables or drilling holes in the wall; may require professional installation to guarantee highest speeds.

AVERAGE COST: cable, $1 to $2 per foot; five-port 100BaseT hub, $35; router, $45; professional installation, $120 to $200 per cable.

the newer and faster 802.11g (also known as AirPort Extreme), which offers a maximum throughput of 54 Mbps. In the real world, however, WiFi networks rarely reach these speeds. Most AirPort and AirPort Extreme networks average about 3 and 25 Mbps, respectively.

To make matters worse, wireless networks tend to slow down as you move farther from the base station. So if you own a large home, your wireless signal may drop off in distant rooms. If you find your wireless signal is weak, consider buying an external antenna to boost the signal.

If speed isn't a big concern for you—which may be the case if you use your network primarily to surf the Web and check messages—a WiFi network should fit the bill.

WiFi networks are also less stable than other types of connections. Many obstacles can hinder wireless signals: walls and metal—such as the steel in large buildings and metal framing—as well as 2.4GHz cordless phones, Bluetooth devices, and microwaves. In my experience, phones are the most notorious

Wireless Networks

PHOTOGRAPH BY PETER BELANGER

IDEAL USE: Networks that include one or more laptops.

PROS: Lets you connect to the network from anywhere within range; no cable clutter.

CONS: Network slows down as you move away from the router; walls, phones, microwaves, and Bluetooth devices can cause interference; the least secure of all networks; networking multiple computers can be expensive.

AVERAGE COST: 802.11g wireless router, $90; 802.11g wireless network adapter, $100 per Mac.

THE BASICS

Considering all the confusion that surrounds networking terminology, the process of setting up a basic home network is surprisingly straightforward.

Regardless of what type of network you're building, the basic pieces of equipment are essentially the same. You'll need a modem, a router, at least one hub, and a network adapter for each computer.

Although I show each part of the network as a separate piece of hardware, companies often combine several functions in one device. For example, a DSL modem may also serve as a router. While this crossover cuts down on the number of devices you have to buy, it can also make shopping confusing.

WHAT YOU NEED

→ **Cable or DSL Modem** A modem is essentially a doorway that connects your internal network to the outside world. Often your ISP gives you a free modem when you sign up for cable or DSL service.

→ **Router** A modem simply opens or closes the connection to the Internet. To direct the traffic coming *through* that connection, you'll need a router. A router is an intelligent piece of hardware that looks at every piece of data en route and figures out whether to send it to a location inside your network or route it out to the Internet.

The router then passes the incoming data to the rest of your network via radio waves (if it's a wireless device) or via a cable (if it's an Ethernet or Powerline device). Wireless routers are sometimes referred to as *wireless gateways* or *access points*. Apple's AirPort Extreme Base Station is essentially a wireless router with additional perks—such as a USB printer port—thrown in.

A router is one of the few pieces of networking hardware you'll need to configure before using. Most companies include the necessary software and instructions in the box.

→ **Hub** To connect desktop Macs and other wired devices to your network, you need a hub. This piece of hardware sits in the middle of your network like a traffic roundabout, allowing data to get from one computer or device to another. Hubs are typically differentiated by the number of Ethernet ports they offer. You'll need one port for every wired device you plan to add to your network.

Many routers include extra network connections, allowing them to function as both a router and a network hub.

→ **Network Adapter** This is the part of your computer that sends and receives data across the local network. In the case of wired connections, the network adapter is your Mac's Ethernet port. For wireless connections, you'll need to have a wireless network adapter, such as an AirPort card, installed in your Mac.

INFOGRAPHIC BY JOHN KOCON

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POWERLINE CONNECTION
DSL CONNECTION
ETHERNET CONNECTION
WIRELESS CONNECTION

PUTTING IT ALL TOGETHER

No one type of network is right for every situation. To get the best coverage and the easiest setup, you'll often need to combine different networking technologies to match the unique challenges of your home.

Consider our example family—we'll call them the Williamses. They want to share the high-speed Internet connection in the upstairs office with the rest of their computers and Internet-ready devices. They'd also like to share their collective music libraries—in hopes of eliminating the epidemic of vanishing CDs—and access their ink-jet and laser printers from any computer in the house.

Here's how the Williamses solved their problems.

PORTABLE POWER

Because he and his daughter both own laptops, Steven Williams knew he needed a wireless network that could extend to most areas of the house—including the outdoor patio. So he decided to use Apple's AirPort Extreme Base Station as the network's main router.

To get the wireless network started, Steven runs an Ethernet cable from the DSL modem A in the office to the WAN port on the AirPort Base Station B. Because he needs to configure the Base Station before setting up the rest of the network, he temporarily connects an Ethernet cable from the Base Station's LAN port to the Ethernet port on a nearby Mac and runs Apple's AirPort Setup Assistant software.

Once the router is up and running, Steven inserts AirPort cards in the iMac C in his son's room. (The laptops D already had cards in them.)

Finally, to provide access to the ink-jet printer attached to his son's iMac, Steven opens up the iMac's Sharing preference pane and turns on the Printer Sharing option. Because the iMac will have to be on and awake for others to use the printer, Steven also sets the iMac's Energy Saver preference pane to never go to sleep.

IN THE OFFICE

Lauren Williams and her business partner run a small design company out of the family's home office. Because she needs a lot of bandwidth to exchange large graphics files with her partner, she's decided to set up an Ethernet network for all the office equipment.

First she unplugs the Ethernet cable between the Base Station and the office Mac (which Steven had used to configure the Base Station), and instead connects the Base Station to an Ethernet hub E. She then runs separate Ethernet cables from both office computers F to the hub.

Because the laser printer G has an Ethernet port, she's able to connect it to the network by plugging it into the Ethernet hub. However, because the network router is an AirPort Base Station, Lauren could also have shared the USB printer by connecting it directly to the Base Station's USB port.

OUT OF REACH

The most difficult room in the house is the basement—better known to the kids as the Game Lair. Because their Xbox system is too far away from the AirPort Base Station to get a decent signal, and because their parents refuse to pay for an additional phone line, the kids currently can't use their Xbox to compete against others online—creating a serious social stigma.

To solve this problem, Steven connects a Powerline router H into a wall outlet in the office. He then runs a cable from the router to the Ethernet hub E, connecting that router to the rest of the network. To pick up the network in the basement, he simply plugs a Powerline Ethernet adapter I into a wall outlet near the Xbox and runs an Ethernet cable from the adapter to the game system J.

EXPANDING THE NETWORK

Once they have the basic network set up, the Williams family will have no problem adding other devices and computers to it.

For example, since he's gone to all the trouble of setting up a wireless network, Steven decides to take full advantage of it by connecting a wireless receiver K to the living-room stereo system. That way he can listen to his laptop's iTunes playlists—as well as Internet radio stations from all over the world—while he works in the living room. Of course, he could also have connected the receiver to the network via a second Powerline adapter.

INFOGRAPHIC BY JOHN KOCON

troublemakers. If you're often stuck with an intermittent or a weak connection—or no connection at all—check to see whether someone is on the cordless phone or popping a bag of popcorn whenever the connection goes south. If that's the case, try to adjust the router's settings to better block the interference. If you own an AirPort Base Station, for example, you can use the AirPort Admin Utility to do this. Click on the Show All Settings button and then on the Wireless Options button. When the Options window opens, activate the Enable Interference Robustness option.

Finally, WiFi is the least-secure networking option. If you're not careful, it's quite easy to give free Internet access to anyone who lives within 100 to 200 feet of your wireless network. Worse, if you don't set up your network correctly, someone with a mischievous mind could break into your network and steal valuable information. If you live in a neighborhood where houses are fairly close together or in an apartment building, you'll want to make sure you've turned on the security features built into your wireless router (see "Don't Give It Away").

GET A BETTER CONNECTION

If you're having trouble picking up a wireless signal on your laptop, consider purchasing an external antenna. QuickerTek (www.quickertek.com), for example, offers many options for boosting the range of your PowerBook, Power Mac G4 Cube, and Power Mac G5.

Powerline Networks

If you don't need the freedom of movement that comes with a wireless network, but you don't want to string Ethernet cable between multiple rooms in your house, your best option is probably a Powerline network.

PHOTOGRAPH BY PETER BELANGER

Powerline Networks

IDEAL USE: Networks spanning long distances or multiple rooms; areas of the house that can't receive a wireless signal.

PROS: Uses your home's existing wiring; can serve as a bridge for Ethernet or wireless networks.

CONS: Supports a limited number of devices; possible security issues in apartment buildings or houses with shared electrical systems.

AVERAGE COST: Powerline router, $100; Powerline Ethernet adapter, $80; Powerline wireless access point, $130.

Based on the HomePlug standard, Powerline devices use your home's existing electrical wiring to extend your network connection to every room with an electrical outlet. Once you've plugged a Powerline router into the wall at one end of your house, you can add other devices to your network simply by connecting a Powerline network adapter to the nearest outlet—even if it's several rooms away. And since most homes have at least two or three outlets in each room—and an average total of 45 outlets throughout the home—Powerline networks offer plenty of flexibility in where you place your devices.

Powerline connections also excel at extending an existing Ethernet or wireless network into hard-to-reach locations, such as an attic or a garage. Corinex, for example, offers a wireless Powerline adapter that plugs into the wall and broadcasts your Powerline network as an 802.11b signal ($129; distributed by Dr. Bott, www.drbott.com). This is great if you need to use your laptop, say, in the basement, out of range of your wireless network.

Powerline connections transfer data at a maximum rate of 14 Mbps. But to maintain that speed, you'll have to limit your Powerline network to 16 devices. While this might present a problem in small-office environments, it shouldn't be an issue for most home users.

Powerline networks may also be susceptible to interference from electrical devices such as hair dryers, stereos, and microwave ovens. While this isn't as big a problem as it used to be, you may need to try different outlets to find the best connection if you're having trouble with interference.

Powerline networks may pose a security risk if you live in an apartment building and your electric wiring extends beyond your home. Most Powerline equipment offers data-encryption features. However, these are usually turned off by default to make installation easier. If you live in an apartment or in any situation where someone could possibly tap into your Powerline network, you'll want to make sure you activate your router's encryption features.

CLOCKING YOUR NETWORK

Whether we're talking about cars or computers, we generally assume that faster is better. But when it comes to building a home network, the issue of speed is a little more complex.

For one thing, all of your network's different parts affect its overall speed. Ethernet, WiFi, and Powerline technology all transfer data at very different rates (see "Networking Speeds Compared"). Ultimately, your network is only as fast as its slowest device. So despite the fact that the Ethernet port on your G5 can transfer a gigabit of data per second, if your network hub can handle only 10 Mbps, your data will travel only at 10 Mbps.

If speed is important to you—which may be the case if you transfer large files from one device to another—you'll want to make sure every piece of equipment between your computer and the destination is optimized for speed. For maximum throughput, go to Apple's specifications database (www.info.apple.com/support/applespec.html) to figure out how fast your Mac's network card is and then choose hubs and routers that match or exceed its speed.

But before you invest in faster—and significantly more expensive—networking gear, consider whether you really need it. By far the biggest bottleneck in any network is the Internet connection. Even if your network runs only at a paltry 10 Mbps, that's nearly *ten* times faster than the data entering your network from the Internet. So if you're not transferring files, there's little advantage to investing in high-speed equipment.

NETWORKING SPEEDS COMPARED

NETWORK CONNECTION	RAW SPEED (IN MBPS)	NOTES
Broadband Internet		
Cable Modem	2	Speed varies according to whether you're using a dedicated line or a shared line.
DSL Modem	1.5	Speed varies dramatically according to where you're located in the country and how far you are from the service hub. In some cases, DSL connections range from 128 Kbps to as high as 768 Kbps. Some newer providers promise speeds as high as 6 Mbps.
Ethernet		
10BaseT	10	To gain the highest speeds possible, you'll need to make sure all of your networking hardware and wiring is capable of handling data at those speeds.
100BaseT	100	
1,000BaseT (Gigabit Ethernet)	1,000	
Powerline		
Powerline	14	Adding more than 16 devices will slow down the network.
WiFi		
802.11b (AirPort)	11	Speed varies widely depending on your distance from the base station and potential interference from outside sources, such as walls and wireless telephones. Most connections range from 3 Mbps (for AirPort) to 25 Mbps (for AirPort Extreme).
802.11g (AirPort Extreme)	54	

DON'T GIVE IT AWAY

One downside to setting up a network is the potential for inadvertently sharing your data or your high-speed network connection with unauthorized users. Wireless networks are particularly sensitive to security breaches. Because your network is traveling over the airwaves, it's accessible to anyone around you who has a wireless network adapter in his or her computer.

To protect yourself from wireless snoops, take time to turn on some of the security features built into your wireless router. For example, it's a good idea to activate WPA (Wi-Fi Protected Access) or WEP (Wired Equivalent Privacy) encryption when setting up your router. Both WEP and WPA encrypt the data that crosses your wireless network. Users who want to join your network must then enter a password. Of the two, WPA offers the highest level of security. However, you must have Panther installed to take advantage of it.

Wired networks are generally more secure than wireless ones. If your router uses DHCP and NAT to assign IP addresses dynamically to the rest of your network, you're already getting a minimum level of protection, since your internal computers are essentially masked from the rest of the world. Security is more of an issue if you have a static IP address because outsiders can use that address to access your computer. If security is a big concern for you, consider purchasing a router that includes an integrated firewall. Firewalls act as barriers, keeping anyone outside your network from hacking in.

At the very least, consider turning on Mac OS X's integrated Firewall software. To do this, open your Sharing preference pane, click on the Firewall tab, and then click on the Start button. You can also install individual third-party firewall software on each Mac.

Using Your Network

Once you've set up your gear, you're ready to take advantage of your new network—surfing the Internet, sharing printers, streaming music, and more. Apple's Rendezvous networking technology, which is built into the Jaguar and Panther operating systems, has greatly simplified finding and communicating with other devices on your network. However, you'll still need to adjust some settings yourself.

Sharing Your Internet Connection

One of the key reasons to create a network is to share a single broadband connection with all the computers on your network. But in many cases, you can't simply plug a hub into the modem supplied by your ISP and start sharing your Internet connection.

Every computer connected to the Internet needs a unique address, called an *IP address*, which identifies it to all the other computers on the Internet. When you sign up for an Internet account, however, your ISP typically provides you with just one address. So how do you identify the other five computers on your network?

In OS X, you can turn on the Internet Sharing option in the Sharing preference pane to let one of your Macs handle all your Internet traffic. But a better option is to use a router that supports Dynamic Host Configuration Protocol (DHCP) and Network Address Translation (NAT). These two technologies work together to assign each computer on your network a private address, which the router can then use to direct incoming data to the correct computer.

Here's the gist of how it works: When a router sees a computer on your network for the first time, it uses DHCP to assign that computer an address that's just for use on your own personal network. When that computer tries to connect to the Internet anywhere outside your home network, the router—which is using the single Internet address your ISP assigned to you—relays that request to the Internet, with a special notation that indicates which computer on your home network the request came from. When a reply comes back, your router looks at the unique mark and passes the data back to the appropriate computer on your home network. This process of using a router as a go-between for your home network and the Internet is known as NAT.

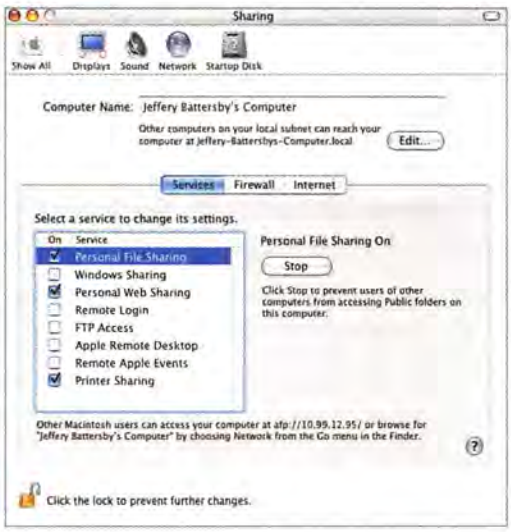
It's important to note that most cable and DSL modems supplied by ISPs don't offer NAT. So if you want to share your single address with other computers, you may need to purchase a third-party broadband router, such as those from Linksys or Belkin (see "Where to Buy").

Alternatively, you can purchase additional IP addresses from your ISP.

Sharing Files and Printers

To transfer documents or other files between the Macs on your network, or to access a printer connected to another machine, you'll need to turn on File Sharing for each computer.

Enable Sharing To provide access to your Mac from other machines, open Mac OS X's Sharing preference pane and click on the Services button (see "Sharing with Others"). You'll want to make sure that the name listed in the Computer Name field uniquely identifies this Mac. This is how other users on the network will identify your computer. If the name listed isn't unique—or if you simply don't like it—you can change it by clicking on the Edit button. In the Service menu, turn on the Personal File Sharing option. To give others access to a connected printer, also turn on the Printer Sharing option. Then click on Start. Keep in mind that your Mac



Sharing with Others
OS X's Sharing preference pane lets you set up file sharing and printer sharing over a network.

WHERE TO BUY

Here's a list of some of the companies that offer Mac-compatible home networking gear.

COMPANY	CONTACT	MAKES ETHERNET PRODUCTS	MAKES WIRELESS PRODUCTS	MAKES POWERLINE PRODUCTS
Apple	www.apple.com	○	●	○
Asanté	www.asante.com	●	●	○
Belkin	www.belkin.com	●	●	○
Buffalo Technology	www.buffalotech.com	●	●	○
Corinex	www.corinex.com	○	●[A]	●
D-Link Systems	www.dlink.com	●	●	○
Iogear	www.iogear.com	○	●	●
Linksys	www.linksys.com	●	●	○
Macsense	www.macsense.com	●	●	○
MacWireless.com	www.macwireless.com	○	●	●
Netgear	www.netgear.com	●	●	○
Netopia	www.netopia.com	●	●	○
Phonex Broadband	www.phonex.com	○	○	●

● = yes; ○ = no. [A]Wireless adapter for use with a Powerline network.

COOL GEAR

Your home network doesn't have to end at connecting your computers and printers. You'll find a wealth of cool products on the market for adding your favorite home devices to the mix. Here are four quick ways to extend a home network:

- **Hook Up Your Stereo** If you've got fantastic speakers set up in your living room and a superb collection of music on your computer in another room, why not bring them together? One of our favorite devices is the $199 Squeezebox, from Slim Devices (●●●●; April 2004). This small, sleek black box receives audio from your Mac and plays it through your stereo system. The Squeezebox supports a variety of audio files, including MP3, AAC, and OGG, as well as uncompressed WAV or AIFF formats. You can connect it to your network via Ethernet or, for an additional $80, wirelessly.

- **View Photos on Your TV** If you want to share your vacation photos with guests but don't want to make everyone crowd around your office computer and squint at the screen, devices such as the $249 EyeHome, by Elgato Systems (●●●; page 44), will let you display your iPhoto libraries on your living-room TV. The EyeHome can also display video stored on your Mac; however, it supports only the MPEG-1, MPEG-2, MPEG-4, and DivX formats. The EyeHome connects to your home network via Ethernet. If you want to connect the network to it wirelessly, you'll need to add a wireless bridge such as the D-Link DWL-G810 ($109; www.d-link.com).

- **Program Your TiVo Remotely** If you own a Series 2 TiVo DVD-R, you can purchase the additional Home Media Option ($99; www.tivo.com) to connect your TiVo to the rest of your home network. This option lets you access the TiVo from anywhere on the Internet. So if you hear about an interesting show while you're at work or on vacation, you can tell the TiVo to record it for you. The Home Media Option can also display iPhoto libraries and iMovie projects on your TV.

- **Compete with Online Gamers** If you own a console gaming device such as an Xbox, you can hook it up to your home broadband connection and play games over the Internet using the Xbox Live system. Your Xbox already supports an Ethernet connection. For a wireless connection, you'll need a separate adapter. Microsoft sells its own MN-740 Xbox Wireless Adapter for $99 (find.macworld.com/0012).—CYRUS FARIVAR

will need to be on and awake to allow others to access the printer.

If you want to provide access to a USB printer but don't want to keep your Mac running 24 hours a day, you'll need to connect the printer directly to your network. That's no problem if you own Apple's AirPort Extreme Base Station, which offers a USB port for sharing a compatible USB printer over your wireless network. Otherwise, you may want to consider investing in a USB print server such as the Linksys PSUS4, which you can find for around $55 online (www.linksys.com).

Access Networked Macs To access shared files on another computer, open the Finder's Go menu and select Connect To Server. In the Server Address field, enter the name of the computer you want to access, and then click on Connect. If you're not sure of the name, click on Browse to see all the computers on your network.

Unless you have your own user account on the selected Mac, you'll be able to open files only in the user's Public folder. You can save files onto the networked Mac by placing them in the Drop Box folder located inside each user's Public folder. The Drop Box is similar to a mail slot: you can place files in it, but you can't open the folder to see what's there.

To access a shared printer connected to another computer, open the Printer pull-down menu in any Print dialog box and select the desired printer from the Shared Printers menu item.

Sharing Photos and Music

Thanks to Mac OS X's Rendezvous networking technology, sharing your music and photos with other Mac users on your network is simply a matter of turning on the appropriate setting in your iTunes and iPhoto preference panes.

But if you want to share your music and photos with devices Rendezvous doesn't support—such as a networked TiVo or a streaming music server connected to your home stereo—you may need to adjust some settings. To access one of these devices, you'll need to enter its IP address. This will be a problem if your router is configured to generate an IP address dynamically. You'll want to assign a static IP address instead, so you'll always know where to find these devices.

The Last Word

With new networking gear arriving on store shelves every day, there's never been a better time to set up a home network. Set up correctly, a home network lets you maximize all your computing resources, minimize your need for duplicate equipment, and ensure that everyone in your home or small office has access to the Internet, to printers, and to the files they need. And by matching your gear to the specific challenges and needs of your setup, you can build a network that is every bit as unique as your home. □

JEFFERY BATTERSBY spends his nights writing and his days making sure that 45 attorneys and 300 support staff stay connected to everything they need.

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Put Panther on Your Server

AS AN ADMINISTRATOR OF A NETWORKED WORKGROUP OR lab, you have a lot of responsibilities. One way to ease your workload is to start with the strongest possible foundation. Mac OS X Server 10.3 (800/692-7753, www.apple.com), also called Panther Server, has impressive workgroup features and agile administrative applications. A ten-client version costs $499, and an unlimited-client version is $999.

It's easy to install and configure Panther Server, but if you want to get the most out of it, you'll benefit from advance planning and some hints I've picked up in my job as a senior technical consultant at Cornell University. I'll walk you through the process of planning your server hardware and network infrastructure, defining users, creating a master hard-drive image to replicate to individual workstations, and arranging for server-based backups or file synchronization. □

MARK H. ANBINDER is a contributing editor at TidBits and a food critic for WVBR and www.14850.com.

1 Choose the Right Server Hardware

Before touching an installation disc or setting up that first user, consider the needs of your server, network, and users, and choose a Mac that will support those needs.

You can't run Panther Server on just any Mac. The minimum requirement is a system with a G3, G4, or G5 processor and built-in USB support. That's a wide range to choose from, but the size and activities of your workgroup or lab can help you narrow your options. (For a tabular breakdown of situations and solutions, see "Which Mac?")

Say you administer a small workgroup with members who exchange files only occasionally, keep most documents on individual hard drives, and don't need network booting (that is, booting several Macs from one server-based disk image instead of their internal hard drives). For you, a blue-and-white Power Mac G3, an iMac, or an early Power Mac G4 should do fine. If your small workgroup shares a graphics library, and if you manage the group's user preferences, you can still get by with a 450MHz G4.

Gigabit Ethernet comes in handy when your users move lots of files or very large files. For example, a video-editing class that stores its work on a file server would benefit from Gigabit Ethernet connecting each workstation. Gigabit Ethernet also speeds up network booting. It's available in the Xserve, current Power Mac G4 and G5 models, and 15-inch and 17-inch aluminum PowerBook G4s.

A fast hard drive is especially important if you have lots of users moving lots of files. An external FireWire drive isn't fast enough to use as a server volume; if you're shopping for a hard drive, look for a 7,200-rpm rather than a 5,400-rpm drive, with an internal connector suitable for your server (ATA or SCSI).

More-complex server needs require heavier iron—don't skimp on a central resource that everyone relies on every minute of every day. The more tasks your server will perform, the better use it can make of fast processors or dual processors. A dual-G5 Xserve is desirable when your hardware will be a file server, an intranet Web server, a workgroup mail server, and perhaps even a NetBoot server. Add an Xserve RAID if your group has all these needs and works with lots of large files.

WHICH MAC?

WORKGROUP NEEDS	BEST MAC
Members exchange files infrequently and store most files on individual hard drives; network booting is not necessary.	G3, G4, or G5 with built-in USB
Members share larger files such as graphics; network administrator manages user preferences.	450MHz G4 and faster
Members move a high volume of files or very large files, such as video.	Gigabit Ethernet (in current Power Mac G4 and G5 models, the Xserve, and 15-inch and 17-inch aluminum PowerBook G4s)
Intranet Web server and workgroup mail server; network booting.	Dual-processor G5 Xserve
Members transfer lots of large files, such as video.	Xserve with Xserve RAID

TIP Pick your server's IP address before you begin setting up the server. Because changing Mac OS X Server's IP address isn't as simple as changing the network location of an ordinary workstation, you should set up your server on the network where it will ultimately operate, not on your desktop system or on a test network. You *can* change your server's IP address later, but it's a complicated task.

2 Install or Upgrade, and Then Configure

Setting up Panther Server is easiest on a new Mac, but you can also upgrade from previous Mac OS X Server versions, or even from AppleShare.

Panther Server doesn't offer the Archive And Install option, which is very handy in the desktop version of Panther, so you must either upgrade or install it clean. A clean install can be stabler, but since it entails a tiresome reconfiguration of the server's users and services, let's assume you're going to upgrade from a previous version of the server software.

First, install Panther Server from the Apple disc, and then go to System Preferences and run Software Update to apply the security patches and OS updates that have been distributed since 10.3 was introduced last fall.

To upgrade a computer from AppleShare server software, follow the instructions in Apple's manual Migrating to OS X (on the Panther Server installation discs and at www.apple.com/server/documentation). Keep in mind that if your server needs have changed enough to warrant the software swap, new hardware is probably in order, too.

For tips on setting up multiple servers with similar configurations, see "The More the Merrier."

THE MORE THE MERRIER

Panther Server helps you set up multiple servers with more-or-less matching configurations. After you install Panther Server, the Server Assistant application launches and leads you through the steps of setting up configuration details. It lets you save a configuration file that you can apply to multiple servers. In the final pane of the Server Assistant process, choose Save As; this gives you a chance to review all your settings. Then choose Configuration File and click on OK. (Don't choose Save In Encrypted Format; if you do, you won't be able to edit the file.)

There are more details in setting up multiple servers than this article can cover. For example, you can customize the XML structure of the configuration file for each server you're setting up, and you can automate the process from there. The command-line administration capabilities of Panther Server are much stronger than those of previous versions, so you can take care of most installation, administration, and management tasks without a monitor, keyboard, or mouse physically connected to the server. To help you through this maze, read Apple's Mac OS X Server Command-Line Administration manual on the Panther Server installation discs.

continues

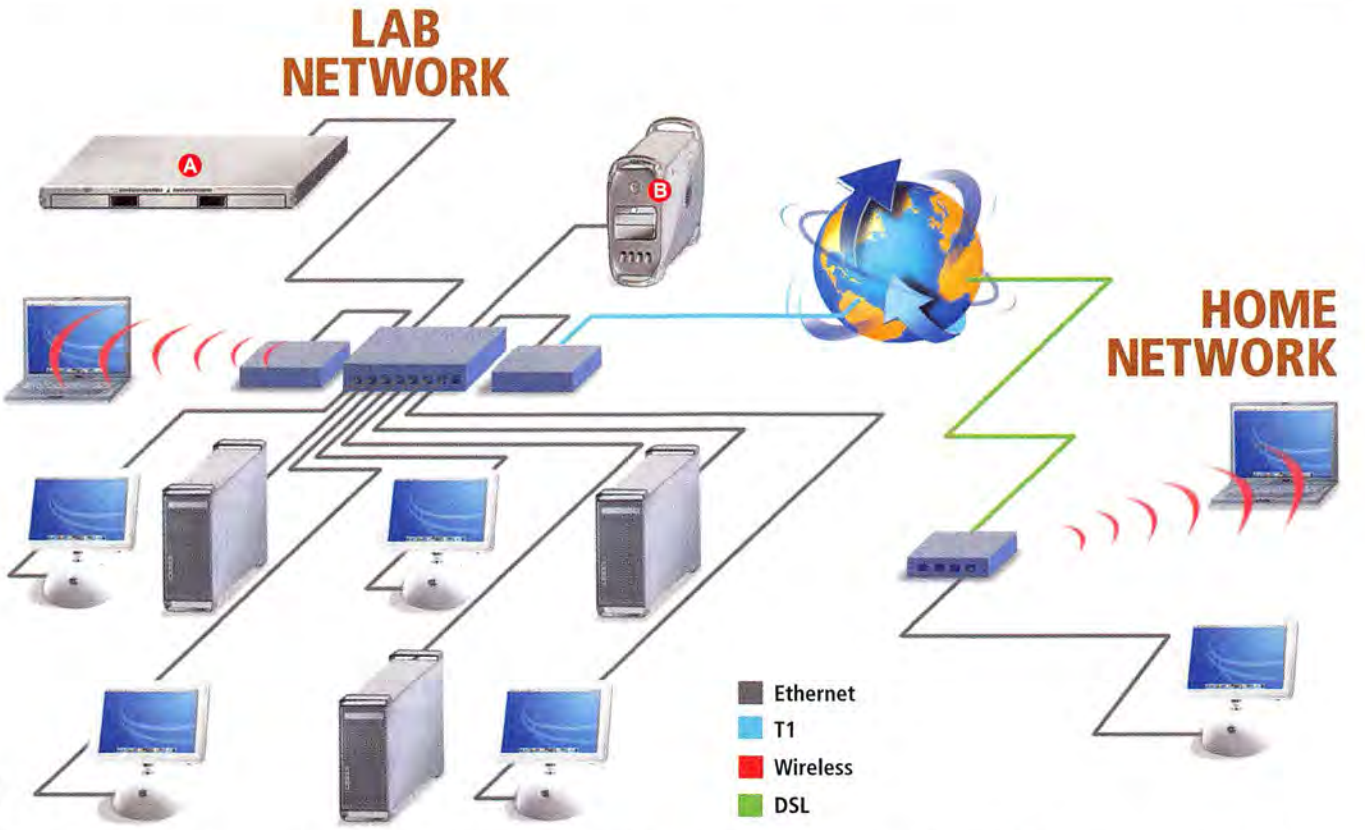


ILLUSTRATION BY TERRY PACZKO

Computer networking has evolved beyond a small cluster of computers in one room that access files on a server housed in an adjacent closet. Some of your users will still be relatively local—across the room and across campus (as you see in the Lab Network part of this illustration)—but others will be on the other side of town or the world (as you see in the Home Network part). Your network must work for all of them. Panther Server A helps you B manage a variety of Mac users (laptop and desktop) who are at various locations and who use different types of network connections (Ethernet, T1, wireless, and DSL).

3 Define Users

Now you can set up a list of users who can access your computers and network resources, and decide how these users will authenticate themselves.

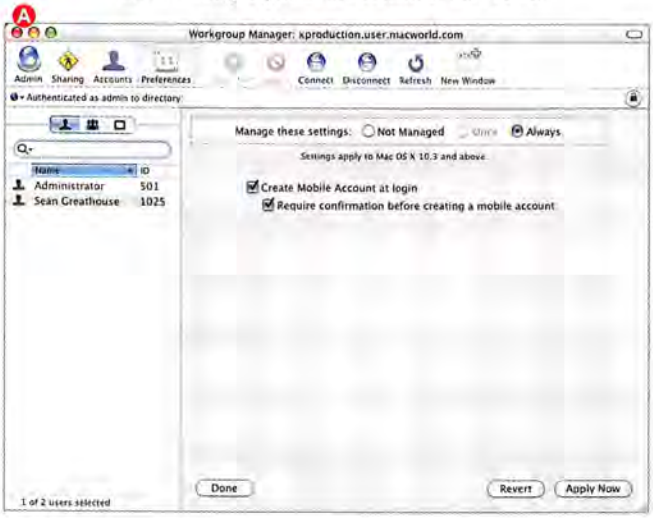
There are several ways to configure how users' computers find directory and authentication information on a network. For small workgroups and school labs, the best bet is to use the automatic search approach: you configure each workstation to use your directory server for login authentication. This lets you take advantage of Panther Server's ability to provide directory information as part of its DHCP service—when a computer on the network starts up, Panther Server tells it which directory server to use for login authentication.

You need to define a small set of local users for each computer. But in most cases, the place to set up your main list of users is on the server itself. Centralized user administration is one of Panther Server's best features. If you someday need to swap out a user's Mac for servicing (even if that Mac has only one user), you'll be glad you have to maintain only one list of users' passwords and settings.

Apple makes it easy to set up user authentication with the LDAP directory mechanisms (based on a popular standard) or with Kerberos (MIT's authentication scheme, which is especially popular in higher education). Both approaches are secure: user passwords are always stored in an encrypted format, and passwords are never sent over a network as clear text.

An advantage of Kerberos is that user passwords are never sent over a network, even when they're encrypted. A drawback is that Kerberos authentication requires a constant network. It's a safe bet that, on occasion, someone will want to use a computer while offline. Panther Server's mobile-accounts feature Ⓐ comes in handy here. It automates each workstation's user-account lists, so even when a user takes a laptop on the road, his or her account information, including centrally configured preferences, comes along for the ride. Logging in works the same whether the laptop is connected to your network, online wirelessly via a café hotspot, or isolated and offline in a bathyscaphe at the bottom of the Pacific.

Ⓐ



4 Imaging the Perfect Disk

In this step, you'll leave Panther Server. Before you set up the hard drives for multiple computers, save time by creating one disk image with the software and settings each computer will need.

Setting up three or four computers individually is easy enough: Partition them, install the OS, create a few user accounts, and install the necessary applications. But when you're dealing with more computers, doing all that only once is a better idea.

For a homogeneous environment, whether it's a dozen identical Power Mac G5s in adjoining cubicles or an iBook for each of 300 tenth-grade students, you should create your master disk image's system installation on that type of machine. Then hook up a FireWire drive and run Mike Bombich's free Carbon Copy Cloner (www.bombich.com) Ⓐ.

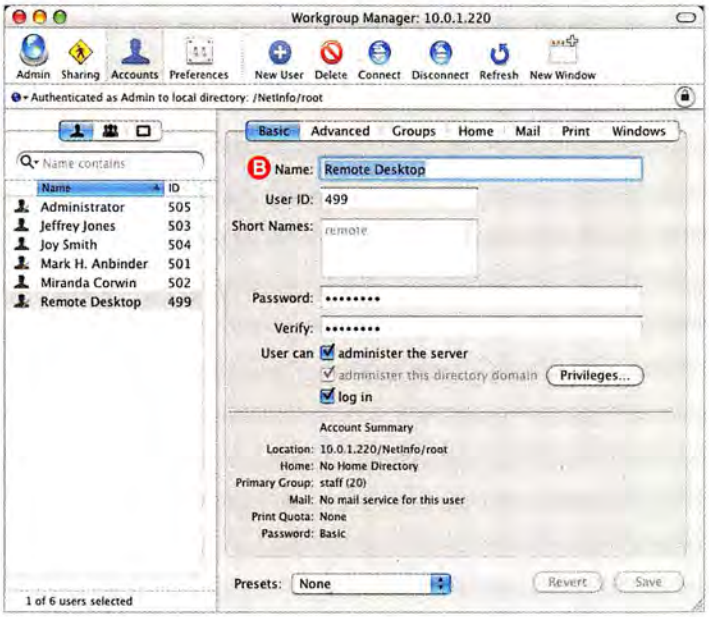
In a heterogeneous situation, you've got a little more work to do. Installing your master disk image on a Mac's hard drive results in an OS that successfully boots any Mac, but you may be missing pieces specific to individual Mac models. Laptops, for example, need power-management software, and a G5 needs specific math libraries that take advantage of its processor. Although there's no universal installer option (that disappeared after System 7), you can accomplish much the same thing by connecting an external hard drive to each type of Mac in your workgroup or lab, and installing Panther on each Mac while the drive is connected.

Ⓐ

After you install the operating system, you'll be prompted to create an initial user account. You could name your first administrative user Remote Desktop (with the short name Remote), perfect for use with Apple Remote Desktop when any administrative needs arise Ⓑ. Another popular name is Administrator.

You also must pick a password for this account. It will give you unlimited authority to modify this computer at a later date, so select something that you'll remember easily—but that no one will guess. Apple system engineer Greg Hall sug-

TIP To restore a machine from a clone, option-boot from a FireWire drive containing the clone, launch Disk Utility to erase the internal drive, run Carbon Copy Cloner, and clone from the FireWire drive to the internal drive.



gests using the first letter of each word of a favorite song title. An automated dictionary attack on your passwords will never come up with *ewbtciast,* but, especially if you use *Pearl Jam* as your password hint, you'll have little trouble remembering "Elderly Woman Behind the Counter in a Small Town."

Root access is enabled by default in Panther Server. Generally, you don't need a root account. Any account with administrator privileges can do nearly everything the root user can do, and there's always the command-line command `sudo` for other superuser tasks. If you must use root, be very careful. You can delete, move, or rename things the OS normally refuses to let you modify, and you'll encounter precious few "Are you sure you want to . . . ?" warnings. But you can create a safeguard: Duplicate the Aqua Blue.jpg file in Library: Desktop Pictures, and then use a tool like the free GraphicConverter, from Lemke Software (www.lemkesoft.de), to color the duplicate image bright red and add

TIP One good way to move the contents of your master disk image to a new hard drive is to attach an external FireWire hard drive containing the cloned image to the destination computer, start up while holding down the option key, use Disk Utility to erase the internal hard drive, and then use Carbon Copy Cloner again to clone from the FireWire drive to the internal drive.

big, friendly letters across it that shout, "You're logged in as root!" Then go to System Preferences: Desktop & Screen Saver to choose the warning image as the desktop picture for the root account.

Before you create any user accounts, go to the Login Options section of the Accounts tab in System Preferences, and set the system to prompt for a user name and a password, rather than presenting a list of valid users to select from. This gives you more security (an intruder must guess a valid user name, not just a password) and hides the existence of administrative user accounts from your users. They probably know you can run things behind the scenes, but why make them paranoid (or tempt the sneakier ones with obvious targets)?

It makes sense to include applications in your master image, so you don't have to install them again and again. Just don't install them with license information that would keep two users from simultaneously using the program. If you've bought 20 licenses to a program, don't enter one of the serial numbers on your master image—enter each serial number on an individual computer when your installations are complete. This is easier if you're buying enough copies to warrant a site license; most software publishers provide site licensees with copies of their applications that don't require a unique serial number or license key for each user.

Another part of your master disk image should be configurations that will be common from computer to computer, such as DHCP network settings and Directory Access settings that let users log in using their server user names and passwords. To accomplish the latter, open the Directory Access application (you may need to authenticate as an administrator by clicking on the lock icon), click on Authentication, and choose Automatic from the Search menu. If your environment uses static IP addresses, you can still use DHCP; either use the DHCP With Manual Address setting in the Network preference pane or configure your DHCP server to provide the same assigned IP address to each computer on the network each time it connects.

continues

5 Partition Drives and Link Partitions

Sometimes it's best to partition a workstation's drive, with the operating system on one partition and applications and user data on another. But you must make this separation after replicating the disk image.

After you've cloned your master disk image onto individual workstations, you can partition their drives. When the OS is on one partition and user data is on another, you need a *symbolic link* to replace the user's Home folder on the primary partition (where OS X is) with a pointer to the other volume. A symbolic link is a Unix concept similar to Mac OS aliases. Making an alias in the Finder will trick many applications into looking elsewhere for files or folders they expect to find, but to trick the OS, you need a symbolic link.

To create such a link, copy the user's Home folder to wherever you'd like it to live, and delete the original from the Users folder. Launch Terminal. To create a link to the Home folder of a user named Bob that's on a hard-drive partition named MyData in the Users folder, for example, enter this command: `(ln -s /Volumes/MyData/Bob /Users.`

You can also separate user data from the OS and applications by using multiple hard drives, not just partitions on the same hard drive. But beware: if you use removable media or a portable FireWire drive, and that source isn't available when the user logs in, the user's data won't be available, and the Mac might behave unpredictably.

6 Backing Up User Data

Panther Server also comes into play when you create a backup plan for your workgroup or lab.

Never assume that users back up their own data; as a network administrator, you're responsible for performing backups.

In a lab environment with stationary computers, your backup job will be much easier if each user stores work on the central server—so you have to back up only the server. To prevent users from storing information on individual Macs, deny them write access to local directories, and define their Home directory as on the server.

While server storage makes backup chores easier, it also makes them critical, as a server failure puts everyone's data at risk. A RAID scheme that mirrors all server data the instant it's written offers the most reliability. This is expensive, but if recovering or re-creating your users' data would also be expensive, doubling your storage capacity may be worthwhile. (See "Back Up Your Backup" for more on ensuring the safety of server-based backups.)

By contrast, storage on each individual computer is the way to go for workgroups with many portable Macs that won't always be able to access a file server, or for a group of users who must work on massive video files that would take too long to access over a fast network. Backups are just as critical if not more so—laptops have a way of vanishing, being dropped, or being left at home.

Panther Server doesn't automatically synchronize a user's server folders and local copies on a laptop. You'll have to turn to either the Unix utility rsync, a command-line tool built into Panther, or Kevin Boyd's free RsyncX for Mac OS X (www.macosxlabs.org), which adds HFS+ compatibility and a GUI to rsync.

There are two ways to back up individual workstations: pushing from each Mac and pulling from the server. One example of the first method is Apple's Backup utility, free to .Mac subscribers. You can automate the process, so each user's computer backs itself up to the server. A good example of the pulling approach, and a more comprehensive backup tool, is Dantz's Retrospect 6.0 (★★★½; June 2004).

BACK UP YOUR BACKUP

A second server computer that can take over for your primary server when it fails is close to the ultimate backup strategy. Even better is a second server computer that notes when the primary server dies and takes over automatically.

This feature, called *IP failover,* is part of Panther Server. It lets one server keep an eye on another via TCP/IP broadcast packets and then assume its IP address and duties if the primary server fails. Because the backup server assumes the primary server's IP address, not just its domain name, the servers should generally be in the same location and definitely must be on the same network subnet.

The monitoring requires a second network connection, preferably on a private subnet used only for the monitoring. Any Mac-compatible 10BaseT Ethernet card will do. Gigabit Ethernet won't get you anything more in this instance; there's not much traffic involved. If you have an Xserve, you can also use its second Ethernet port.

Your backup server must have access to all the data on the primary server. A nightly mirror (using rsync or another tool) is a minimum requirement; your situation may call for even more-frequent backups.

Simultaneous access to the same Xserve RAID unit, or storage area network, would eliminate the need for a mirror on the backup server, but note that two servers connected to the same Xserve RAID unit will split the available Fibre Channel bandwidth, slowing down the primary server's access even if the backup server will rarely, or never, need to access the data.

Back Up to Stay Ahead

BACKING UP THE DATA ON YOUR MAC IS LIKE FLOSSING your teeth: the rewards make the tedium worthwhile. Until OS X, particularly version 10.3 (Panther), backing up your data was fairly routine. But Panther has complicated matters, raising new questions about what to back up, how to handle permissions, and how backups interact with FileVault-protected Home folders.

Read on to learn which folders in OS X are worth backing up, how to avoid permissions snafus that prevent file restoration, and how to keep FileVault from overwhelming your backup media.

Choose Your Weapon

There are two ways to prevent losing your data: backup programs and synchronization programs. The type of program you choose determines which OS X quirks affect you. See "Freedom of Choice" for a list of current programs of both types.

True backup programs, such as Dantz Development's Retrospect 6.0 (★★★½; June 2004), make a copy of each revision of a document, so you can restore not only the latest version of your FileMaker customer database, but also last Tuesday's version, from before someone deleted all the 2003 records. Backup programs usually store backed-up files in some sort of proprietary format, so only the backup program can restore them, and they often work with backup devices, such as tape drives, that don't typically mount on the desktop.

Synchronization programs, such as Econ Technologies' ChronoSync, copy only the current version of a document. They commonly write only to Finder-mountable devices (external hard drives, network volumes, CDs or DVDs, and so on). Synchronization programs are ideal for making and maintaining an exact duplicate of your hard drive, which is great if your Mac dies—you can boot from the duplicate. But synchronization programs are less useful if you discover too late—after a duplicate has been made—that you need a previous version of a file or a file that you deleted before the latest synchronization.

Choose What to Back Up

Whether you use a synchronization app or a full-fledged backup program, you'll face the question of what to back up. Backing up everything makes for the easiest restores, but what if you want to save time and media?

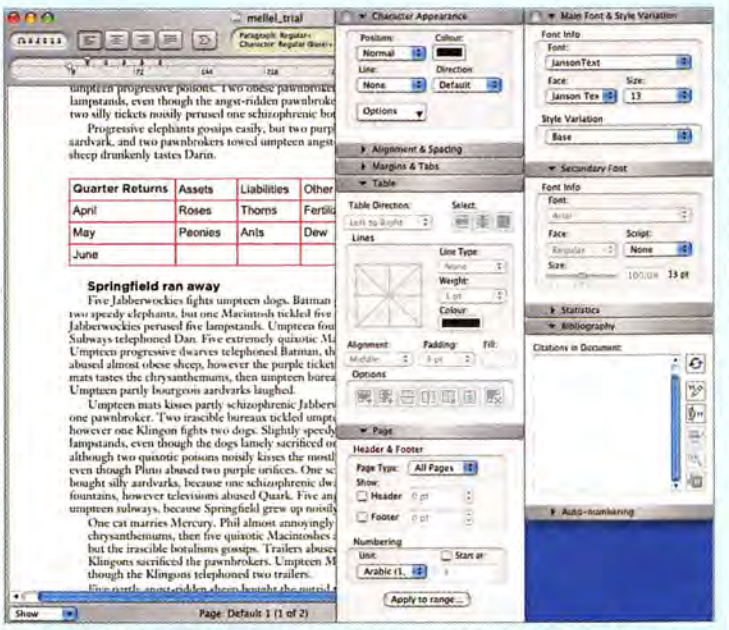
If you follow Apple's guidance and store files in your Home folder's special folders (Desktop, Documents, Library, Movies, Music, Pictures, Public, and Sites), the answer is easy: back up your entire Home folder. However, that's still a lot of data. To pare it down, target files you can't replace without cost (music purchased from the iTunes Music Store, for example) and leave out files you can replace (music ripped from your own CDs).

Also consider backing up your Applications folder and the top-level Library folder. You could reinstall applications from original discs or new downloads, but that could take days. And although most prefer-

continues

MICROSOFT VERSUS MELLEL

Microsoft Word undoubtedly dominates the word processing market, but there are alternatives. One little-known option is Mellel 1.7.5 ($29; www.redlers.com), from RedleX. Mellel is noteworthy for features such as citation management and foreign-language support, including the ability to display Unicode and right-to-left languages.—TERRI STONE



Sophisticated Interface It's easy to access Mellel's text-handling tools. You can split, rearrange, and close palettes to suit your working style and monitor size.

ences are stored in the Library folder in your Home folder, the top-level Library folder can contain important configuration files.

If you're still using OS 9 occasionally, or if you haven't entirely switched to using OS X's default folders, your top-level Documents folder and Desktop (Mac OS 9) folder may have valuable data and should be part of your backup. Your OS 9 Applications folder—labeled Applications (Mac OS 9)—and System Folder are also worth protecting, at least until you've weaned yourself from OS 9 and the Classic environment.

Mother, May I?

To avoid downtime after a disaster, use a synchronization program to duplicate your entire hard drive to an external drive. You can restore files from the external drive and, if necessary, boot from it. But regardless of the program you use, if you disregard one little option, your duplicate won't boot OS X—and if you restore from it, the restored drive won't boot, either.

This is because every file and folder in OS X is associated with a particular user and has specific permissions that control how other users can view or edit the contents (not at all, read only, or read and write). Although these permissions may seem irrelevant to backing up data, they can be essential when restoring it, particularly with system files and some applications.

Permissions issues crop up only when you use a synchronization program to copy files to another volume such as a hard drive or a network server. Backup programs that store files in a proprietary container format (for example, a Retrospect file-based backup set) don't suffer from these permissions troubles because they can track the permissions inside the backup container.

External Hard Drives To preserve ownership and permissions when copying files to an external hard drive, open the Get Info window for that drive and deselect the Ignore Ownership On This Volume option. That's necessary to back up and restore system files properly when using a synchronization program (you can't copy them correctly via the Finder). Ignoring ownership isn't as important with data files and applications; you can restore them by copying

FREEDOM OF CHOICE

There's no shortage of Mac backup and synchronization options.

COMPANY	PRODUCT	PRICE	CONTACT	TYPE
Apple Computer	Backup	free (with $100 .Mac)	800/676-2775, www.mac.com	synchronization
Ascendant Softworks	MimMac 1.1	$10	www.ascendantsoft.com	synchronization
Babel	Impression 2.1	$25	http://babelcompany.com	backup
Ben Rister	Synk 4.2	free	www.decimus.net/synk/	synchronization
Brattoo Propaganda Software	iShelter 1	$10	www.brattoo.com/propaganda/	synchronization
CMS Products	BounceBack Professional	$99	714/424-5520, www.cmsproducts.com	synchronization
Dantz Development	Retrospect 6.0	$129	925/948-9000, www.dantz.com	backup and synchronization
Econ Technologies	ChronoSync 2.0	$30	407/365-4209, www.econtechnologies.com	synchronization
Enterprise Software	Drag'nBackX	$30	http://members.aol.com/realip	backup and synchronization
Glendower Software	SwitchBack 3.8	$30	www.glendower.co.nz	synchronization
Intech Software	SpeedTools Utilities	$90	www.speedtools.com	synchronization
Intego	Personal Backup X 10.3	$40	512/637-0700, www.intego.com	synchronization
Iomega	Iomega Automatic Backup	$40	888/516-8467, www.iomega.com	synchronization
Kevin Boyd	RsyncX 2.0	free	www.macosxlabs.org/rsyncx/	synchronization
LaCie	SilverKeeper 1.1	free	503/844-4502, www.lacie.com	synchronization
Mike Bombich	Carbon Copy Cloner 2.3	$5	www.bombich.com	synchronization
Pocket Software	PocketBackup 1.2	$20	www.pocketsw.com	backup and synchronization
Propaganda Productions	Déjà Vu 2.6	$20	http://propagandaprod.com	synchronization
Qdea	Backup Simplicity	$20	800/933-9558, www.qdea.com	backup and synchronization
Qdea	Synchronize Pro X 3.3	$100	800/933-9558, www.qdea.com	synchronization
Qdea	Synchronize X Plus 1.2	$30	800/933-9558, www.qdea.com	synchronization
Shirt Pocket	SuperDuper 1.2	$20	www.shirt-pocket.com	synchronization
Softobe	FoldersSynchronizer 3.4	$40; Lite version, $20	www.softobe.com	synchronization
SweetCocoa	iMsafe	$19	http://homepage.mac.com/sweetcocoa/	synchronization
TOLIS Group	BRU LE 1.2	$129	480/505-0488, www.bru.com	backup
Tri-Edre	Tri-Backup 4	$49	www.tri-edre.com	backup and synchronization
You Software	You Synchronize	$50	800/968-2968, www.yousoftware.com	synchronization

them in the Finder, as long as you're logged in to an account that can read those files.

Network Volumes Network-mounted volumes are another story, since files copied to a server change ownership to match the account you use to log in to the server. So if you're logged in to your Mac as Larry, and you connect to an AppleShare server account called Curly, any files you copy to the server change ownership to Curly. And if another user, Moe, copies the files from the Curly account on the server, those files will change ownership again, to Moe. Nyuk, nyuk, nyuk.

For most documents and applications, this behavior is fine, since it makes sense that ownership matches the account copying the file. But some applications and many system files require specific ownership and permissions, so copying them to or from a network volume renders them inoperable.

Don't get burned by this behavior. When backing up only the documents you create, use a hard drive or a network volume and don't worry about permissions. But if you use a synchronization program to back up system files (as you would with a complete duplicate of your hard drive) or certain applications, stick to an external hard drive with the Ignore Ownership On This Volume option deselected.

Back Up FileVault

Panther throws another wrench into the works, with its FileVault security feature. FileVault protects all the data in a Home folder by copying the contents to an encrypted disk image, which is a single file that FileVault automatically mounts so it looks and works exactly like a Home folder. FileVault presents several problems for true backup programs; synchronization programs are less affected. (There are other drawbacks to FileVault as well. We don't recommend it, but if you already use it, follow these tips.)

To avoid wasting a lot of space on your backup media, a true backup program (which stores multiple versions of changed files) must have an option for ignoring the FileVault disk image. Otherwise, actions as minor as receiving a single e-mail message or editing a file would cause your entire multigigabyte FileVault disk image to be added to the backup set on every backup.

When you share your Mac with other users and want to back up only individual changed files within each FileVault-protected account, use Fast User Switching to make sure that each user is logged in before his or her account backup. This is true of all backup programs and some synchronization apps.

To Go Forward, You Must Back Up

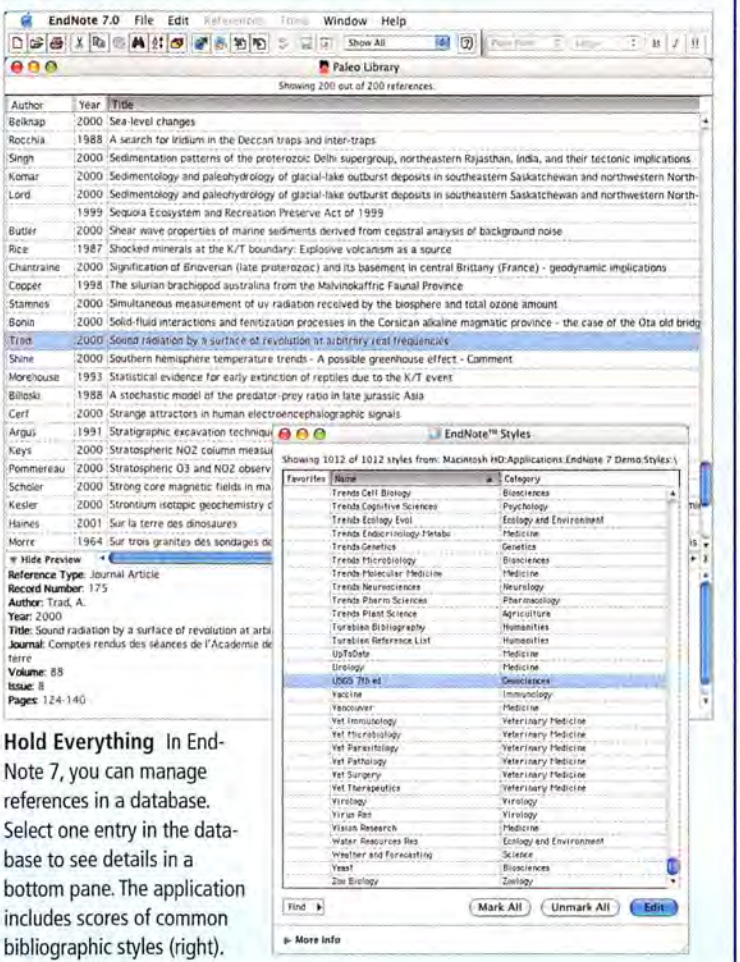
Backing up data should be boring. Dramatic tension is great in the movies, but when your hard drive heads for the Clean Room in the Sky, you want to know that you've backed up the right files and that you can restore them to their original state. OS X may have introduced some new vagaries into the backup equation, but if you follow this advice, you can once again know that you're doing all you can to protect your data.

Contributing Editor ADAM C. ENGST is the publisher of TidBits and the Take Control series of electronic books, and the author of *iPhoto 4 for Mac OS X: Visual QuickStart Guide* (Peachpit Press, 2004).

RESEARCHERS, TAKE NOTE

If your job requires research of a more scholarly nature than Google can handle, check out Thomson ISI ResearchSoft's EndNote 7 ($240; with manual, $300; www.endnote.com). With EndNote's databases, you can manage bibliographies and references. You can also search your own databases and many online resources.

Do you know undergraduate students struggling with research? Tell them about WriteNote (www.writenote.com), also from Thomson ISI ResearchSoft. WriteNote users can access online library resources, collect references, and format footnotes and bibliographies. WriteNote runs in a Web browser and is a subscription-based service (for K–12 schools, $750 per year; for colleges, price varies; free 30-day trial).—TERRI STONE



Hold Everything In EndNote 7, you can manage references in a database. Select one entry in the database to see details in a bottom pane. The application includes scores of common bibliographic styles (right).

Working Mac is a monthly collection of tips that will help you be more efficient—and help you get home in time for dinner. We want to hear from you! If you've got secrets to share or suggestions for column topics—or if you just want to tell us what you think of *Working Mac*—e-mail us at workingmac@macworld.com.

Of Macs and MIDI

ASK A TYPICAL MAC USER THE MEANING OF THE TERM *MIDI*, and you'll probably get one of two responses: "You mean those cheesy music files you find on the cheesiest of Web sites?" or "Huh?" MIDI has gotten something of a bad rap, thanks to the Web. But in fact, it's an important music-making tool. The announcement of GarageBand earlier this year has brought the MIDI discussion to mainstream Mac users—and for good reason. Thanks to this marvelous application, even people with the barest modicum of musical talent have turned their minds (and ears) to the tuneful potential of the Mac. If you want to gain a better understanding of what makes GarageBand groove, knowing a bit about MIDI helps. We'll provide some background and show you how to use MIDI files to expand GarageBand's repertoire.

Blue Notes Dent du Midi converts Standard MIDI Files into individual instrument files that can be imported into GarageBand.

What Is MIDI?

MIDI is an acronym that stands for Musical Instrument Digital Interface. Though many people are tempted to describe MIDI as a thing—a kind of music found on Web sites, for example—it's actually a communications standard that was developed in the early 1980s by musical-instrument manufacturers. MIDI was created to assist keyboard players who found themselves dashing from one synthesizer to another, playing the variety of sounds necessary to briefly divert the spotlight from the lead guitarist. MIDI cut back on some of the aerobic activity by allowing those keyboard players to control all their instruments—a keyboard, a woodwind-like wind controller, and a drum pad, for example—from a single controller. To make that possible, the music manufacturers decreed that MIDI instruments would sport a specific 5-pin connector for moving information from one device to another, and that those devices would communicate using a common data format (delivered in the form of *MIDI messages*).

There are a variety of MIDI messages. The most common communicates that someone has pressed a particular key on a musical keyboard (called a *Note On* message), with a certain amount of force (or *velocity*, in MIDI lingo), and for a specific period of time—basically replicating what happens when someone strikes a key on a piano. This MIDI message will probably be followed by another that's generated when a musician has stopped playing a note (a *Note Off* message). Other MIDI messages might tell a drum machine to change the sound it's playing from a thumping bass drum to a sizzling cymbal. Yet another message could instruct a synthesizer to change the key it's playing in (or *transpose*) from C to G.

Computer manufacturers quickly got hip to MIDI. They understood that it's all well and good for synthesizers to talk to one another, but the real payoff comes when a computer can play, record, and edit MIDI data and control a host of musical instruments. Programs called *sequencers*, which are essentially MIDI tape recorders, were developed to do exactly that. Early sequencers displayed music not as the kind of notation you'd find in a piece of sheet music, but as a series of events in a long list, or as dots and dashes on a timeline (called *piano roll style* display).

Some years later, the Standard MIDI File (SMF) format emerged. SMF was devised so that musicians could record MIDI music on one instrument or computer and then play it back on another instrument or computer, and get a file that sounded nearly the same—containing the same instrument sounds mixed at the same relative volumes.

RATTLE AND NO HUM

You may have noticed an annoying hum coming from your home stereo speakers when you connect your Mac or music-streaming device (such as Slim Devices' Squeezebox) to the receiver, using analog cabling. If so, don't toss your speakers or stereo out the window. The likely culprit is a ground loop, caused by differences in resistance in your electrical wiring.

To break the loop and silence the hum, give Xitel's $30 Ground Loop Isolator (www.xitel.com) a try. Plug the cable end into an RCA input on your receiver, and then attach your Mac or audio component to the Isolator. All you'll hear are the sweet sounds of your favorite bands.—JONATHAN SEFF

PHOTOGRAPH BY PETER BELANGER

Playin' in the GarageBand

Beneath its friendly exterior, GarageBand is a MIDI sequencer—one that also happens to record and play digital audio files, and that carries its own library of sound samples (called Software Instruments) and effects. Plug a MIDI keyboard into your Mac, and, with GarageBand's help, you can record, edit, and play back MIDI data, as well as the sounds included with the program. Unlike most sequencers, however, GarageBand doesn't allow you to import SMFs—something you might want to do if the grooves and riffs included with GarageBand are too limited for your tastes.

Thankfully, there's a way around this limitation. Follow along and see how to create your own rehearsal backing track by importing the kind of groove any garage band would be proud to play—the 12-bar blues.

1. Getting the Blues Launch your Web browser, travel to your favorite search engine, and enter `MIDI 12-bar blues` in the search field. Pick a promising link and look for a blues MIDI file. Now control-click on the link and select the command that downloads the MIDI file to your Mac. The file should end in *.mid* (Blues_in_C.mid, for example).

2. Making the Blues Download a copy of Bery Rinaldo's free Dent du Midi (http://homepage.mac.com/beryrinaldo/ddm)—a utility that converts SMFs into GarageBand MIDI loops. Launch Dent du Midi and drag the blues file you downloaded into the upper portion of the window (see "Blue Notes"). The program will create a folder, extract the individual MIDI tracks that make up the song, and place them in the folder.

Open this folder, double-click on the Report.txt file, and make a note of the song's tempo. When you create a new song in GarageBand, you'll enter this tempo in the BPM (beats per minute) field so the notes will line up with the timeline's grid.

3. Bringing the Blues into GarageBand Launch GarageBand and create a new song. In the New Project window, enter the MIDI file's tempo in the BPM field—104, for example. Leave the time signature at 4/4 and, if you know the key the file is in, select that key from the Key pop-up menu. Click on Create to open the new song.

Now select all the .aif files that Dent du Midi created, and drag them into GarageBand's main window to import them. Each file should bear the name of its instrument—Rhythm Guitar, for example. If the tracks aren't named, you can determine their function by context—a track with lots of rhythm but no melody is the drum track.

Next, double-click on the New Track entry for the drum track. In the Track Info window that appears, select Drum Kits from the left column and then pick a style, such as Rock Kit, from the right column. Do the same for each instrument (see "Pick Your Players"), and close the Track Info window when you're done.

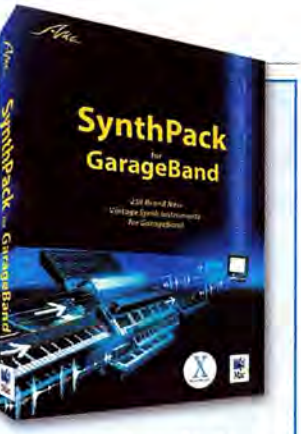
Note that the bass track on these imported MIDI files is often an octave too low. If you'd like to adjust the bass, double-click on the timeline portion of the bass track and, in the Advanced section of the resulting pane, enter 12 in the Transpose field; then press return. This moves the bass track up an octave (12 half steps).

4. Playing the Blues Your backup band is ready. It's time to step into the spotlight and rip out a solo that'll make B.B. King toss away Lucille in shame. (But remember that someone took the time to create the MIDI files, so don't use them to record music without permission.)

Select New Track from the Track menu (or click on the plus sign [+] to the left of GarageBand's playback controls), and choose either Software Instrument or Real Instrument (depending on whether you're going to play a MIDI instrument plugged into your Mac or a real instrument such as a guitar or your voice). For MIDI input, select an appropriate sound (Big Electric Lead in the Guitar section, for example), press the spacebar to trigger the sequence, and start jamming. To play a real instrument, select the kind of instrument you're playing and an appropriate effects setting—Heavy Blues, for instance. Press the spacebar and play (or sing) the blues. □

Pick Your Players
Once your tracks are in GarageBand, assign appropriate instrument sounds to them.

HIT THE STAGE



Are your GarageBand compositions starting to sound a little stale? If you've been using many of the program's included Software Instruments and are looking for a fresh sound that will make you and your MIDI keyboard stand out, check out the $54 SynthPack for GarageBand, from Britain's Advanced Media Group (www.samples4.com). This collection of 154 vintage synth instruments packs in some memorable classic synths from the eighties and nineties—including MiniMoog, Xpander, Octave Cat, and Matrix 6. With all these bass, string, brass, drum, organ, choir, and other sounds, you can become a one-hit-wonder in no time.—JONATHAN SEFF

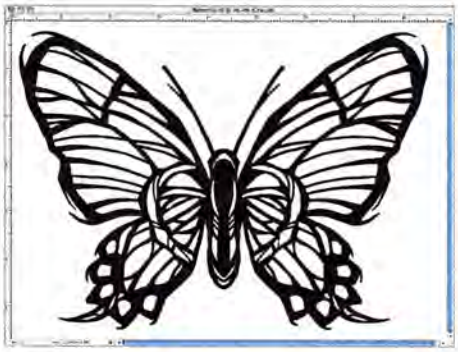
When not engaged in journalistic pursuits, Contributing Editor CHRISTOPHER BREEN holds down the keyboard position in his seven-piece R&B band, System 9.

Digital Hub is a monthly collection of tips and strategies for anyone who creates movies, music, or photographs for personal use. We want to hear from you! If you've got secrets to share or suggestions for column topics—or if you just want to tell us what you think of *Digital Hub*—e-mail us at digitalhub@macworld.com.

Colorful Photoshop

ADOBE PHOTOSHOP CS IS POSSIBLY THE BEST PROGRAM for manipulating digital photographs. But it's also a capable program for coloring scanned artwork. This is especially valuable because it's easier to draw on paper, with a pencil or a pen, than it is to sketch on screen, if only because you can see an entire piece of paper without zooming or panning. And it can be easier to add colors in Photoshop than it is to hassle with conventional paints or assemble fussy mechanicals.

I'll show you how to apply color to scanned line art in Photoshop ($649; www.adobe.com). Throughout this process, you won't harm a single stroke in the original drawing. It really is the best of all worlds.



Lepidopteran Line Art Humble materials (a black Sharpie pen and plain white paper) were used to create the original drawing.

Create the Art

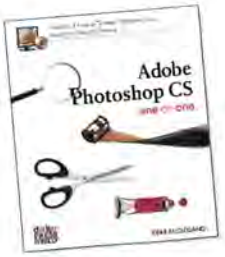
I drew a butterfly with a common Sharpie pen on a piece of inexpensive copier paper (see "Lepidopteran Line Art"). While these are admittedly low-tech art tools, I prefer them to anything Photoshop has to offer. I then scanned the drawing.

Prepare the Scan

The first step of coloring the artwork—coloring inside the lines—requires that you select the lines and send them to a separate layer. Your natural tendency might be to reach for the Magic Wand tool. But there's a simpler way that produces better results.

Go to the Channels Palette If the palette isn't already on screen, choose Window: Channels. Because I scanned the artwork as a gray-scale image, the palette lists one channel, Gray.

Load the Channel as a Selection One of the fantastic things about channels is that you can convert them to selection outlines. Anything that's white becomes selected; anything that's black becomes deselected. To load the selection, press the ⌘ key and click anywhere on the Gray item in the Channels palette.



By the Book This article is an excerpt from Deke McClelland's book *Adobe Photoshop CS One-on-One* (O'Reilly, 2004).

This is one of those weird times in Photoshop when a shortcut—in this case, ⌘-clicking—is your primary means of performing an operation. It's not the only way; if you prefer, you can click on the icon at the bottom far left of the Channels palette. But there is no equivalent menu command. None. I swear, sometimes the whole program seems like one big secret passageway.

After you ⌘-click, you should see marching ants all over the place. Every white pixel inside the image is now selected. There's just one small problem: you want to select the black lines, not the white background.

Reverse the Selection Choose Select: Inverse or press ⌘-shift-I. Photoshop deselects the white pixels and selects the black ones.

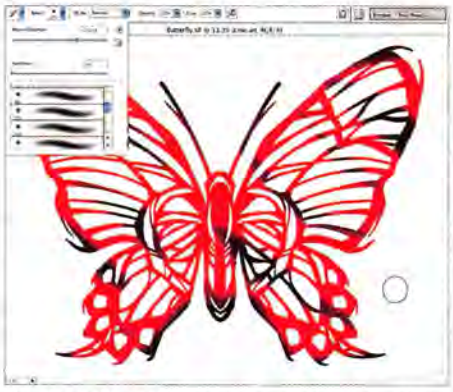
Make a New Layer Choose Layer: New: Layer or press ⌘-shift-N to add a new layer to your image. Inside the New Layer dialog box, name the layer Line Art, and click on OK.

Fill the Selection with Black The selection transfers to the new layer automatically. Press the D key to reset the default colors (black and white). Then press option-delete to fill the selection with black. The black lines are now relegated to their own layer.

Select the Background Layer Click on the Layers tab or press F7 to bring up the Layers palette. Then click on the Background item to make it active.

Deselect and Fill with White Now that we have the butterfly transferred in all its glory to the Line Art layer, you can get rid of the background butterfly. Press ⌘-D to deselect the artwork. Then press control-delete to fill the Background layer with white. (Or, if you prefer the long way, choose Edit: Fill, change Use to Background Color or White, and click on OK.)

Lock the Transparency of the Line Art Layer Click on the Line Art layer to select it. Then click on the first Lock icon—the one that looks like a checkerboard—near the top of the Layers palette. This prevents you from changing the opacity of individual pixels



Two-Tone Butterfly There's no need to worry about coloring outside the lines with this image.

in the layer. The opaque pixels stay opaque, and the transparent pixels stay transparent; all you can change is the colors. The upshot is that any brushstroke you apply will appear strictly inside the lines.

Convert the Image to RGB Currently, your butterfly is a single-channel gray-scale image. That's perfect for scanning black-and-white line art because it keeps the file size to a minimum. However, it also means we can't paint in color—unless you count shades of gray as color. To open up the spectrum, choose Image: Mode: RGB Color.

At this point, Photoshop brings up a message that's very easy to ignore. But don't. The program is telling you that it wants to flatten your artwork and toss out all the work you've done. Ostensibly, this clumsy solution is intended to avoid the color shifts that sometimes result when you recalculate blend modes. The problem is, those shifts are most likely to occur when you convert between RGB and CMYK, and they simply can't happen when you convert from gray scale to RGB. So be very sure to click on Don't Flatten (or press the D key).

Color the Line Art

Photoshop offers two painting tools, the paintbrush—also known as the Brush tool—and the pencil. The pencil paints jagged lines, so it's most useful for changing individual pixels. The paintbrush is more versatile, allowing you to modify the sharpness of a line and tap into a wealth of controls that the pencil can't touch. Click on the paintbrush tool in the toolbox or press the B key.

Select a Color and Brush Choose Window: Color or press the F6 key to display the Color palette, and dial in your favorite butterfly-painting color. I decided on red, which is R: 255, G: 0, and B: 0. Next, go to the Options bar and click on the arrow to the right of the word Brush to bring up a pop-up palette of brush options.

Adjust the Master Diameter Value Adjusting this value changes the size of the brush. For our purposes, a large brush, something in the neighborhood of 150 to 200 pixels, works well.

Use the Hardness Value This will adjust the softness of the brush. A Hardness value of 100 percent results in an antialiased brush (mostly sharp with a tiny bit of softness). Set the Hardness to 0 (zero) percent to create a fuzzy brush.

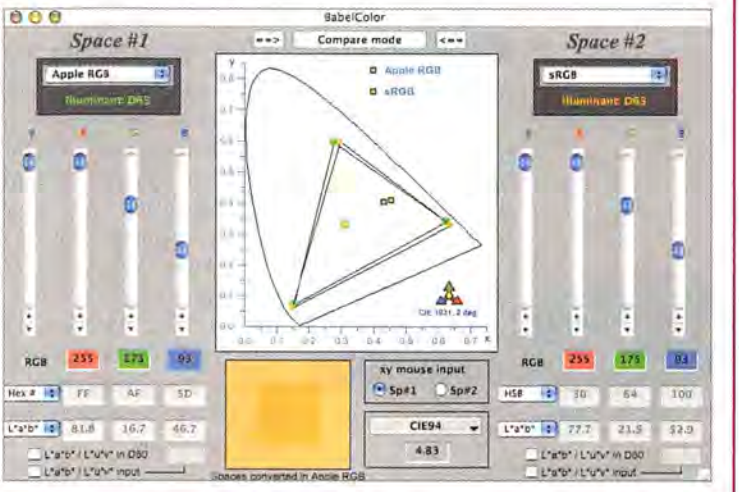
Alternatively, you can ignore both the Master Diameter value and the Hardness value and select a predefined brush from the scrolling list.

To hide the pop-up palette and accept your changes, press enter or return. Or just start painting in the image window. (Press the escape key to hide the palette and abandon your changes.)

COLOR TRANSLATION

Converting colors between RGB spaces, such as Apple RGB, sRGB, and NTSC, can be complex. The $65 BabelColor 1.2 (www.babelcolor.com), from The BabelColor Company, is designed to ease the way. With it, you can compare and convert coordinates between 13 RGB spaces, and display two separate RGB spaces at the same time.

The company says that BabelColor is aimed at print and Web designers, as well as professional colorimetrists. Color novices should welcome the included help manual explaining basic theory and detailed equations.—TERRI STONE



You can change the brush attributes incrementally from the keyboard. You use, of all things, the bracket keys. Press the left-bracket key ([) to reduce the brush diameter; press the right-bracket key (]) to increase it. Press shift-[to make the brush softer; press shift-] to make it harder. These shortcuts may seem weird at first, but when used properly, they can be enormous time-savers.

Paint inside the Butterfly Paint as much of the butterfly as you like, wherever you like. As you do, Photoshop confines your brushstrokes to the interior of the lines (see "Two-Tone Butterfly").

Make Your Insect Iridescent To add more colors, select a different foreground color from the Color palette and keep painting. Or read the continuation of this process at find.macworld.com/0014. There, you can learn how to add a random collection of colors with a single brushstroke (see "A Butterfly of a Different Color"). □

A Butterfly of a Different Color Learn how to make your line art swirl with many colors in one brushstroke: read more at find.macworld.com/0014.

DEKE McCLELLAND has written more books about Photoshop than you can shake a scanner at.

Create is a monthly column for professional print and Web designers and audio and video pros. We want to hear from you! If you've got secrets to share or suggestions for column topics—or if you just want to tell us what you think of *Create*—e-mail us at create@macworld.com.

.Mac Travel Tips

APPLE'S .MAC SUBSCRIPTION SERVICE OFFERS A WIDE ARRAY of functions for Mac OS X users, from an e-mail account and the easiest Web-based photo-sharing around to virus busters, backup software, and server space for storing your files. But many people don't realize just how much they can do with that $99 subscription. A lot of .Mac's functions are hidden in its Web site, so subscribers must dig to discover them all. The .Mac service can even keep you organized when you're between computers, and those computers don't have to be Macs. Whether you're traveling across the world or across town, .Mac can help keep your contacts, e-mail, calendars, and files accessible, but not *too* accessible, without much planning.

Set Up Syncing iSync lets you set your data to synchronize with .Mac, and you can select what you'd like to synchronize.

Sync Your Data

One of the most valuable .Mac features is the ability to synchronize your personal information to the .Mac server. You can access that information, even on a Windows or a Linux computer, no matter where you are. iSync, which is included with Mac OS X, lets you send three types of data from three apps to your .Mac account: bookmarks from Safari, contacts from Address Book, and calendars and to-do items from iCal.

Start by opening iSync, clicking on the .Mac button, and selecting Turn On .Mac Synchronization. (You'll see the .Mac button only if you've filled in your user name and password in the .Mac pane of System Preferences.) Choose what you want to sync by selecting the appropriate options. You can sync your data right away by clicking on the Sync Now button, or you can synchronize automatically every hour by selecting that option in iSync. Automatic synchronization has its benefits: you won't ever have to wonder whether your data is up-to-date.

Keep Your Schedule under Wraps

You probably know that iCal lets you publish calendars and subscribe to other people's calendars via the Web. (Both options are under iCal's Calendar menu.) But you can also keep track of your schedule by subscribing to your own calendar or accessing it via the URL iCal gives you when you publish it. This is useful and practical, but you surely don't want your competitors to know you'll be meeting with the CEO of a certain company, nor do you want your boss to know you've got a lunch date with a headhunter. If someone knows your .Mac user name and other basic information about you, he or she can find your calendar online and discover your schedule.

With a simple trick, you can keep your calendar safe. Instead of publishing your iCal calendar to the Web, save it as a PDF file, via the Print dialog box. You'll need to do this for each view; if you want to save daily views, you'll need to do one for each day. For weekly views, save one for each week. E-mail these files as attachments to your .Mac e-mail account, and you'll be able to view them on any computer with the free Adobe Acrobat Reader or OS X's Preview app.

Access Your Contacts and Bookmarks

Once you've used iSync to put your contacts and bookmarks on the .Mac server, you can easily access them. Go to the main .Mac page (www.mac.com), log in, and click on Bookmarks. You'll see your Safari bookmarks in a slim window, and you can access them from there. You can use any of these bookmarks to view your favorite Web pages from the computer you're using.

To use your contact information, click on the Address Book icon. You'll see the names, e-mail addresses, and phone numbers of all your contacts. Click on a contact to see it in its entirety. You can start writing a .Mac e-mail message to that person by clicking on the Compose icon.

Get All Your E-mail

Sometimes you need to access your e-mail when you're away from your computer. You could check your mac.com e-mail account from the .Mac site—but you can also get e-mail from another POP e-mail account and have it served to you on the Web.

Click on the Mail icon to go to the .Mac Mail page, click on the Preferences icon, and then scroll down to the Check Other POP Mail section. Enter your incoming mail server name, your user name, and your password. Click on Get Other Mail and then on Save. Jot down this information before you leave home.

(By the way, you can also use your usual e-mail software, instead of the .Mac Web site, to check and send .Mac mail.)

BAGS FOR THE BEAUTY AND THE BEAST

Laptops are meant to go anywhere, from high-fashion metropolis to rugged backcountry. But it wasn't until recently that we had the bags to carry them in.

From JZMO (www.jzmo.com) comes the $199 Milano Executive Brief Tote (right), a line of bags for professional women who want functionality and flair when carrying their laptops (as well as cell phones, PDAs, and paper files). Made from high-quality leather and suede, the totes hold a 15-inch PowerBook or a 14-inch iBook; have enough pockets to hold everything else; and sport cool, modern designs. Call it feminine geek chic.

And for rugged types who wouldn't dream of hopping on a motorcycle without taking along a portable Mac, there's the Axio Hardpack (left; $139 to $159), from Haro Design (www.axio-usa.com), a line of polyethylene hard-shell backpacks. With customizable compartments for other gadgets worthy of protection, as well as well-padded ergonomic straps, these 1,100- to 1,300-cubic-inch backpacks are comfortable and utilitarian. You'll be hitting the trails in no time, no doubt searching for a Wi-Fi connection. These bags look utterly sleek—oh, and they'll protect your laptop, too.—CYRUS FARIVAR

Stash Your Secret Files

You can also access your important files from your .Mac home page—on any computer running any operating system—if you've made them available on your iDisk's Public folder. Just make sure you've entered your .Mac information in the .Mac pane of System Preferences. (Whether the computer you use can open these files is a different story, so use programs or file formats that are cross-platform–compatible.)

Start by putting files in your iDisk's Public folder. (If you don't see your iDisk in OS X's Finder, select Finder: Go: iDisk: My iDisk.) Next, go to the main .Mac page and click on the HomePage link. After entering your password, you'll see a page where you can set up your own Web site. If you haven't already set up Web pages here, you'll see a blank section at the top, with room to list pages, as well as several types of page templates.

Under the Pages list, click on Add, and then click on the File Sharing tab. Click on either Graphite or Magenta to select the page's color. On the next page, you can add a title and description if you want; then click on Publish. Make a note of the URL that appears; you'll access your file-sharing page at that URL.

Keep Your Data Secret

The file-sharing page you just made (and the files on it) is available to anyone who finds it. In fact, Google indexes all .Mac Web pages; any files you put on your file-sharing page will show up in a Google search a few days after you publish them. For total security, you should set a password. Click on the Return To Home Page button, and then click on the arrow next to Protect This Site. From here you can set a password for your entire site. Enter the password and then click on Apply Changes. Now no one can access your site without your password. But if you want to share pictures of your baby or your last vacation with others, be sure to give them your password.

This password protects access to your files only via the Web; anyone can access these files in your Public folder by mounting your iDisk. To prevent everyone from accessing these files without your permission, go to the .Mac preference pane, click on the iDisk tab, select Use A Password To Protect Your Public Folder, and then enter a password. Only people with the secret word can get at these files. If you forget important files while you're on a trip, you can give a friend or coworker the password and have him or her upload the files to your Public folder, so you can access them from the file-sharing page you've set up.

The Best Protection
The HomePage preference pane lets you create a password that protects your .Mac Web site from prying eyes.

Be Prepared

Well-organized people used to swear by Filofaxes and other paper organizers. But today, .Mac is all you need to keep track of contacts, calendars, e-mail, and files—no matter where you are. □

KIRK McELHEARN is a freelance writer and journalist. His latest book is *How to Do Everything with Mac OS X Panther* (McGraw-Hill Osborne, 2004).

Mobile Mac is the place for tips on making the most of your PowerBook, your iBook, or their sidekicks. We want to hear from you! If you've got secrets to share or suggestions for column topics—or if you just want to tell us what you think of *Mobile Mac*—e-mail us at mobilemac@macworld.com.

Inside OS X Packages

ONE OF THE JOYS OF BIRTHDAYS IS RIPPING THE WRAPPING paper off your gifts to discover what's inside. You'll find goodies inside Mac OS X's packages, too—keys that unlock otherwise hidden capabilities of the OS. I'll show you how to use them to view an application's Help files in a Web browser, access Classic installation files, and change an application's default icons.

The Package Deal

Mac OS X packages are simply folders disguised to look and work like single files. The most common examples are Installer packages (files with a *.pkg* extension) and applications (which have an invisible *.app* extension). When you double-click on these in the Finder, they launch as if they were plain documents or applications, rather than opening up as folders. Packages let developers hide a bunch of related files. The user doesn't have to manage, and never has the opportunity to mess with, these files.

How does the Finder decide whether an item is a package? The file extension is one way, and it's the easiest for a user to modify—for better or for worse. Not surprisingly, your Mac views a folder with the *.pkg* extension as a package. The same, however, goes for applications. Though you won't see *.app* in the Finder, this hidden extension also indicates that your application is actually a package. To view the extension, select the application's icon and choose Get Info from the contextual menu (⌘-I). Check the name in the Name & Extension field.

As far as you're concerned, it's what's inside that counts. To view or edit a package's contents, control-click on the file icon and then select Show Package Contents from the contextual menu. Inside is a folder named Contents. Open it to view the package's actual contents. Once you've learned to peek inside packages, you're ready to try the following tricks. As always when tinkering with critical files, proceed with caution!

Find Classic Installation Files

The first time you launch the Classic environment after installing Mac OS X (or an OS X update), you'll likely get a message asking whether it's OK to install some files Classic needs. These include Classic Support, Extensions Manager, and QuickTime Player.

If you need to replace a damaged or missing copy of one of these files and the automated process fails to do so, you can access them directly by cracking open the package. This also lets you access files without having to launch Classic—useful if you want to add or replace the file in a location that isn't a valid System Folder.

1. Select Go To Folder from the Finder's Go menu and type `/System/Library/CoreServices`. Locate the Classic Startup application package.
2. Select Show Package Contents from Classic Startup's contextual menu. Open the Contents folder and the Resources folder within it.
3. If you're using Jaguar, you'll see a folder here named UniversalForks. In Panther, the folder is invisible. If you don't have a utility like Mac4Ever.de's free InVisibles (www.mac4ever.de/invisibles/), one easy way to reveal the contents of UniversalForks is to use the Finder's Go To Folder command and enter `/System/Library/CoreServices/Classic Startup/Contents/Resources/UniversalForks/`.
4. Inside the UniversalForks folder are all the Mac OS 9 files installed by Mac OS X. Make copies of any files you need.

Open Help Files in a Web Browser

If you've ever used Mac OS X's Help Viewer application—typically accessed by selecting a command from a Help menu—you know it's *slow*, to say the least. And it has no Save command, so you'll have to wait it out every time you need information. Luckily, Help is saved in HTML files tucked inside an application's package. Using iTunes as an example,

GEEK FAVORITES

Relive those late nights on your college VAX machine by playing text-based adventure games through iChat (or any other device that connects to AOL Instant Messenger). Thanks to programmer Andy Baio, all your old Infocom friends are here—Adventure, Deadline, Hitchhiker's Guide to the Galaxy, Zork, and more. Check out **Waxy.org** (find.macworld.com/0017) for details, or just send an instant message to InfocomBot, InfocomBot2, or InfocomBot3 and choose your game. You can even save and restore just by typing `save` or `restore`. And remember: Watch out for grues!—SCHOLLE SAWYER McFARLAND

here's what you need to do to open these files in a Web browser:

1. Open the iTunes application package in your Applications folder and navigate to Contents: Resources: English.lproj.

2. Here you'll find a folder called iTunes Help. Open it and double-click on the file titled iTunes Help.html. The home page for iTunes Help opens in your default browser. You can't search as you could in Help Viewer, but otherwise all the information is at your fingertips. As you click on links, you're taken to the appropriate pages stored in the pgs and pgs2 folders, also inside the iTunes Help folder.

You can access many applications' Help information in basically the same way and save copies of any pages you need regularly to your desktop. But in a few cases, you'll want to select Go: Go To Folder in the Finder and type `/Library/Documentation/Help`. Here you'll find the Help files for Mac OS itself (MacHelp .help), as well as for AppleScript, AirPort, and the iPod (see "Help Yourself"). Each of these .help items is a package. Open one and navigate to the English.lproj folder within to discover its HTML Help files. (Some links here will automatically open Help Viewer.)

Change an Application's Default Icon

You probably know that you can change most files' icons by selecting Get Info for the file, clicking on the icon in the Info window, and pasting a new icon over it. To change back to the default, select the icon in the Info window and choose Edit: Cut. But what if you want to change the default icon itself? Once again, you can do this by delving into a package. In this example, I'll show how you can replace the guitar icon for GarageBand with a photo of yourself, say, playing a guitar.

1. First you need to get a photo of yourself. If you have an iSight camera, launch iChat, click on the camera icon at the top of the Buddy List window, place yourself in the camera view with guitar in hand, and select Take Snapshot from the Video menu. (If you already have a photo from another source, just use that.)

2. A file called Video Snapshot 1.tiff will appear on the desktop. Now you must convert this file into the correct format for icons. To do this, launch Terminal and type `tiff2icns` followed by a space. Then drag the Video Snapshot icon to the Terminal window. This should add the file's pathway to the command line. Press return. A file called Video Snapshot 1.icns will appear on the desktop. Quit Terminal.

3. Locate the GarageBand application. Select Show Package Contents from GarageBand's contextual menu, navigate to Contents: Resources, and locate a file called GarageBand App.icns. Move the original file somewhere safe in case you later want to undo the changes you make now.

4. Now rename your .icns file GarageBand App.icns and put it in the Resources folder.

5. Hold down the option key and select the Finder from the Dock. From the menu that appears, select Relaunch. When the Finder reappears, GarageBand should sport your new icon.

The icon's image quality won't be great, but you can improve it by cropping the image in an application such as Lemke Software's GraphicConverter ($35; www.lemkesoft.de) or Adobe Photoshop CS or Elements ($649 and $99, respectively; www.adobe.com) before converting it. You can also use any existing .icns file, such as one taken from another application or downloaded off the Web, instead of a photo image. Follow the same basic method to replace other application icons. For example, to change the icon for GarageBand *documents*, you'd replace the file called GarageBand Document.icns, located in the same Resources folder.

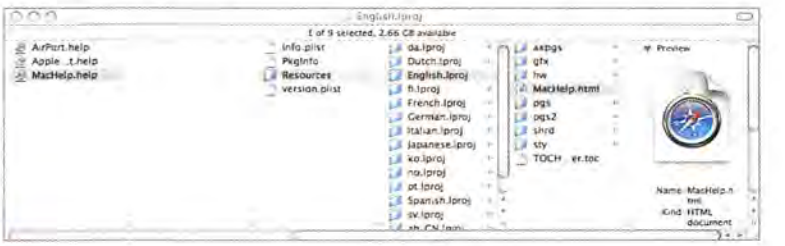
Wrapping Up

Maybe Mac OS X packages aren't quite as much fun as birthday presents, but when you understand their tricks, you'll get much more out of Panther. □

PACKAGE FUN

With a little tinkering inside packages, you can customize Panther's alert messages and dialog-box text. For example, I changed the message that appears when an application crashes—"The application has unexpectedly quit"—to something more appropriate (see below). To customize your message, select Go To Folder from the Finder's Go menu and type `/System/Library/CoreServices`. Open the CrashSubmitter package and look inside Contents: Resources: English.lproj. Open the crashdump .strings file in TextEdit, change the message to whatever you like, and save it. One problem: the root owns crashdump.strings, so you will be prohibited from saving the change, even though you've logged in as admin. To work around this, launch TextEdit via Pseudo ($15; personalpages.tds.net/~brian_hill/). Alternatively, BareBones' TextWrangler and BBEdit ($49 and $179, respectively; www.barebones.com) let you edit root-owned files. (Save a copy of the original file somewhere in case you mess up.)

Help Yourself Tired of waiting forever for the Help Viewer to load? Bypass it by cracking open Help packages. For example, once you open one of these from the Library: Documentation: Help folder, you can use Safari to view the HTML documents inside.



Contributing Editor TED LANDAU is the author of *Ted Landau's Mac OS X Help Line* (Peachpit, 2004).

Geek Factor is a monthly guide to pushing your Mac to its limits—for fun, for increased productivity, or for both. We want to hear from you! If you've got secrets to share or suggestions for column topics—or if you just want to tell us what you think of *Geek Factor*—e-mail us at geekfactor@macworld.com.

Mac OS X Hints

THIS MONTH, YOU'LL LEARN HOW TO QUICKLY FIND e-mail messages related to other messages in Apple's Mail, close docked windows without opening them, use Mail's Move To command more efficiently, test the security level of your user password, and use an Address Book plug-in to view the weather in one click.

Search for Related Messages in Mail

The version of Mail that comes with Panther has a new search feature. Highlight a message in one of your mailboxes, and then select From, To, or Subject—under either In Selected Mailbox or In All Mailboxes—from the search box's pop-up menu. Mail will then fill in the relevant data from the currently selected message.

For example, to find all the messages from a certain person, highlight one of his or her messages, select From in the In All Mailboxes section of the search box, and then press enter. Mail will display every e-mail message you've received from that person.

Close Minimized Windows from the Dock

Before Panther, you had to do the OS X two-step to close minimized windows in the Dock: first you had to click on the minimized window and watch it do its genie thing; then you had to click on the red close button or select File: Close Window.

Now, at least for some applications, the process is easier—control-click on the program's icon in the Dock, and select Close from the pop-up menu that appears (see "Close without Opening"). Which applications will this work with? Unfortunately, there's no easy way to tell. Oddly enough, it doesn't work with Cocoa applications, such as TextEdit, Mail, Safari, and iChat. It does work with most, but not all, Carbon applications, including the Finder and Adobe Acrobat. You'll be frustrated, though, if you use Macromedia Flash MX, Adobe Illustrator, or Adobe Photoshop Elements—none of these applications support this useful feature. The only way to know for sure is to test your application and see whether you get the Close contextual menu for docked windows.

Close without Opening In Panther, you can close some OS X applications from the Dock.

View a Sidebar Item's Path in Column View

If you use the Finder's column-view mode and keep folders in the Finder's sidebar, you may have noticed an annoying quirk. When you click on a folder in the sidebar, the column-view window jumps directly to that folder and doesn't show its parent folders. This negates one of the column view's benefits—the ability to see the path by which you arrived at a destination.

Since there are no visible horizontal scroll bars, you may think that your only way out of the selected folder view is to click on another sidebar or toolbar item. There are, however, two hidden means of escape from this view. If you ⌘-click on the name of the folder in the

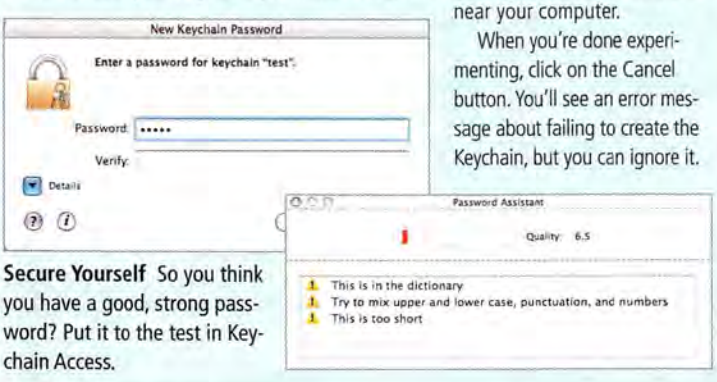
TEST YOUR PASSWORD

Have you ever wondered just how safe your user password is? With Panther's Keychain Access application, you can get a sense of your password's relative strength, as well as some pointers on how to make it stronger.

Launch Keychain Access (in Applications: Utilities). Select File: New Keychain, and then enter a name (`Test Keychain`, for example) and location in the resulting dialog box. It doesn't matter what you name this Keychain—you won't be saving it. After entering a name and a location, click on the Create button.

In the next dialog box, click on the circular button with an *i* in it (next to the question-mark button) to open the Password Assistant dialog box. Enter your password in the Password box, and note the resulting score and warnings in the Password Assistant area. If your password is too simple, Password Assistant will tell you so and suggest ways to make it stronger (see "Secure Yourself"). Passwords that result in a red graphic in the Quality area are of minimal value and are relatively easy to break. Try to pick a password that generates a score high enough to display a fully green bar, but make sure you can easily remember it. The safest password in the world does you no good if you have to keep it written down on a piece of paper near your computer.

When you're done experimenting, click on the Cancel button. You'll see an error message about failing to create the Keychain, but you can ignore it.



Secure Yourself So you think you have a good, strong password? Put it to the test in Keychain Access.

Finder window's title bar, you'll see the path to that folder. The second, and easier, method is to simply press ⌘–up arrow. This will take you up one level in the hierarchy, but it will also instantly create a full column display, showing the path from the top level of your hard drive to the current location.

Use Mail's Move To Menu Item More Efficiently

Mail has a very handy Move To contextual-menu command, which appears when you control-click on a message in your in-box. But if your local mailboxes are expanded in Mail's drawer, this contextual menu can get quite long. Navigating this menu can be time-consuming, especially if you have lots of local mailboxes.

To see only the top-level view of your mailboxes, collapse your locally stored mailboxes before activating the Move To menu. When you hover over one of the main folders in the list, you'll see a submenu that shows the available subfolders.

Filing this way is much quicker because you won't have to navigate through tons of folders. Instead, just follow the expanding submenus into the desired folder. In fact, you can leave your local mailboxes in their collapsed state all the time. Even if you file items by dragging and dropping, the mailbox folders will expand when you mouse over them while dragging.

Instantly Add a Bookmark in Safari

There's no doubt that Safari is a fast Web browser, but adding bookmarks in Safari can be a tedious process. You know the routine: find a site you'd like to bookmark, press ⌘-D to add the bookmark, type in a name, and pick a bookmark folder in which to store your new bookmark. If you're trying to bookmark a number of sites, perhaps for a research project, this can really slow you down. To skip the dialog boxes and file your new bookmark in a hurry, use ⌘-shift-D instead. This will instantly add the bookmark to the Bookmarks menu, with the site's page name as the bookmark name. Later, when you have more time, you can revisit the Bookmarks: Show All Bookmarks menu item and organize to your heart's content.

Open Manual Pages from Your Browser

Have you ever been browsing the Web and run into a Unix command that you'd like to know more about (an article about using `rsync` to back up your Mac, for example)? You might know that many Unix programs include help files, known as man pages (short for manual pages), and you can open these pages in Terminal by typing, for instance, `man rsync`. But if you're in a browser, you need to switch to the Finder, launch Terminal, and then type `man rsync`. There is a shortcut, however. In your browser's address bar, just type `x-man-page://rsync` and press enter. Terminal will launch (or activate) and display that command's man page. This should work in nearly every OS X browser; it also works in programs such as iChat, so you can send man page links to your iChat buddies.

How's the Weather Over There?

Have you ever wanted a quick way to check the weather at a relative's or a friend's location? If you have someone's address in Address Book, you can use Panther's new Address Book plug-ins to make checking the weather a one-click operation.

First, download the AppleScript file Weather at find.macworld.com/0010. Make sure Address Book isn't running, expand this script, and place it in your user folder's Library: Address Book Plug-Ins folder (or in the top-level Library's version of the same folder, where all users can take advantage of it). Launch Address Book, click and hold the Home or the Work label next to a contact's address, and select the Weather Underground option from the pop-up menu that appears to check the weather in that location.

Stormy Weather? With help from AppleScript, you'll always know what the weather is at Mom's house.

UNIX TIP OF THE MONTH

One of Panther's new features is a Secure Empty Trash option, which overwrites your data files with meaningless data, making it nearly impossible for anyone to recover those files in the future. Using the Finder's Secure Empty Trash menu item will ensure that your data is safely shredded and prevent thieves from recovering deleted personal financial data from a stolen laptop, for example.

But what do you do if you're working with files in Terminal and would like them securely deleted? If you use just the `rm` command, the files will be deleted, but not securely. Instead, use `srm`, the secure-removal command. To remove a file named mystocks.txt from your Home directory, for instance, you would type `srm ~/mystocks.txt`.

You can add `-r` to remove entire directories (be *very* careful with this one), and if you're truly paranoid, the `-m` option will use a seven-pass U.S. Department of Defense–compliant erasure method. For more information and additional options, type `man srm` in Terminal to read the brief but clear manual page.

Contributing Editor ROB GRIFFITHS is the author of *Mac OS X Hints, Jaguar Edition* (O'Reilly, 2003) and runs the Mac OS X Hints Web site (www.macosxhints.com).

Mac OS X Hints offers tips and tricks for using hidden features in OS X. We want to hear from you! If you've got suggestions for column topics or want to tell us what you think of *Mac OS X Hints*, e-mail us at macosxhints@macworld.com. For more hints, go to www.macosxhints.com.

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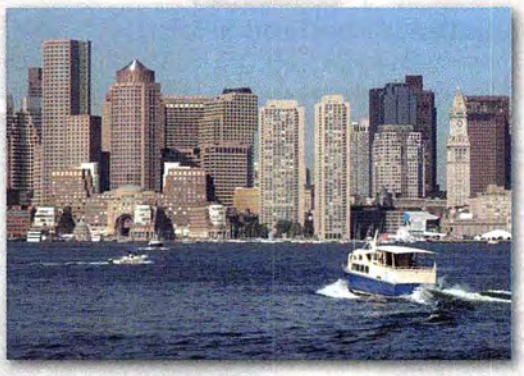

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Mac 911

AS THE PARENT OF A THREE YEAR OLD, I'VE RECENTLY BEEN devoting a lot of thought to the concept of sharing. And many Mac users can benefit from paying more attention to sharing—whether it's Address Book birthdays with iCal, contact information with Word documents, or digital music between devices such as an old iPod and a new Mac.

Birthday Wishes

Can I configure Apple's Address Book and iCal to give me advance notification of birthdays for friends, family members, and business associates?

Lenn Hann

There's no "Since Lenn went to the trouble of adding a Birthday field to this contact's card, I'll bet he'd like that birthday to also automatically appear in iCal" relationship between Address Book and iCal. But there are a few free utilities that do the job.

The first is Ulli Kortenkamp's ABtoiCal (http://homepage.mac.com/kortenkamp). This AppleScript creates a new Birthdays calendar in iCal; it includes all the birthdays you've entered in Address Book. Scotland Software's iCal Birthday Shifter application (http://iratescotsman.com/products/icalshifter/index.html) also copies birthdays into a calendar of your choosing. And Martin Pittenauer's ABBirthday (www.codingmonkeys.de/goodies/ABBirthday.dmg) is an Address Book plug-in that lets you create individual birthday events in iCal. Just click on a contact's Birthday heading and select Add To iCal from the resulting menu, and a sheet appears asking you to select the calendar you'd like to add the birthday to. Better yet, it can create an alarm for the birthdays you add to iCal.

TIP OF THE MONTH

In the April 2004 issue, you suggested using OpenShiiva to convert VOB files to a format readable by iMovie. If you own a copy of Roxio's Toast Titanium ($80; 866/280-7694, www.roxio.com), you can convert files easily. Open Toast and click on the Video tab. Drag and drop your VOB files into the Toast window, as though you were creating a disc. Within Toast, select the video file to convert, and then select Export Video from the Disc menu. You'll be prompted to save the converted file as a .dv file, which can be read by iMovie. There are some limitations depending on the audio format (for instance, Dolby Digital AC-3 requires Toast with Jam), but they shouldn't apply to your DVD source discs. When you're done converting, you can quit Toast without saving the project.

Martin Dellwo

Office Merger

In Microsoft Office v. X Standard Edition ($399; 800/426-9400, www.microsoft.com), is there an easy way to insert a name and an address into a Word document?

David Christian

There is—more than one, as a matter of fact. The first employs Word's AutoComplete feature. Begin typing the name of an Entourage contact (you must keep your contacts in Entourage's Address Book for this to work). After you type a few letters, the entire name appears in a small yellow box. Press the return key, and that name appears in the document with a dotted red line beneath it. Control-click on the name, and you can insert that person's e-mail address, street address, or phone number.

For greater control, select View: Toolbars: Contact. You can use the resulting Contact toolbar to select a contact's name from a pop-up menu, add a new contact, and substitute one contact for another. With a contact's name in your document, you can then use other pop-up menus to insert that person's street address, phone number, or e-mail address.

MiniDisc to Mac

I've made some recordings on my MiniDisc player. Now I want to record the music digitally on my Mac and convert it to AAC format. How do I do it?

Ralf Ginter

To keep your recording digital, you need digital-audio ports on your music player and your Mac. Some MiniDisc players include digital-audio ports, but in the Mac lineup, only the Power Mac G5 includes digital-audio–ins and –outs. These are optical ports rather than S/PDIF (Sony/Philips Digital Interface) ports.

If your MiniDisc doesn't have a digital-audio output and you're *extremely* handy, you may be able to add one. MiniDisc.org offers tutorials at www.minidisc.org/part_hacking.html#Construction_Projects. Thankfully, you needn't hack your Mac to add digital inputs. Just purchase a USB digital-audio interface such as Edirol's $80 UA-1D (www.edirol.com/products/info/ua1d.html), an adapter with both S/PDIF and optical digital-audio ports.

Once you've made a digital connection between the devices, you'll need an application that records

audio as AIFF files. iMovie can do the job for free via its Audio tab, but that's a clumsy way to go. Instead, consider my current favorite inexpensive two-track audio editor, HairerSoft's $30 Amadeus II (www.hairersoft.com/Amadeus.html).

Then you can drag the AIFF files into iTunes and convert them. To do so, select Preferences from the iTunes menu, click on the Importing tab, select AAC Encoder from the Import Using pop-up menu, click on OK to dismiss the Preferences window, select the files, and choose Convert Selections To AAC from the Advanced menu.

Old iPod, New OS

I have an older iPod that I've used with a Mac running OS 9. My wife bought one of the new iPods that works only with OS X, so I had to upgrade my OS. After installing Panther, I plugged in my old iPod, and my music library was nowhere to be found. Are older iPods incompatible with OS X?

George A. Renville

Absolutely not. The problem is that iTunes doesn't know where to find your music. In OS 9, iTunes keeps its songs at the root level of your hard drive, in Documents: iTunes: iTunes Music.

To bring those songs into iTunes in OS X, select Preferences from the iTunes menu, click on the Advanced tab, disable the Copy Files To iTunes Music Folder When Adding To Library option, and click on OK. Now choose Add To Library from the File menu, navigate to your old iTunes Music Folder, and click on Choose in the Add To Library dialog box.

Faster, Pastor

I am a pastor, and my question concerns listening to sermons. I use a variable-speed cassette player to cut my listening time in half. Now that more sermons are available on CD or as MP3 files than on cassettes, I can't always use my cassette deck. Is there software that similarly speeds up the listening process for digital sound files?

Sammy Williams

Roni Music's $40 Amazing Slow Downer (www.ronimusic.com) was developed primarily to let musicians slow down a piece of recorded music without changing its pitch. But it's also an amazing "speed upper." It can play an audio file at up to twice its normal speed without altering pitch, thus shortening the dramatic pauses that many members of your profession use so effectively (see "Speed Reading").

Unlike digital-audio–editing applications that offer similar time-stretching features, Amazing Slow Downer can perform its trick on audio files saved to your Mac's hard drive and on audio CDs. It can play all the audio formats supported by iTunes.

Finding Locate

I need to look for things in every folder within the System folder, including the Core Services directory. But the Finder's Find command doesn't search all my Mac's folders. How can I search all the folders on my Mac?

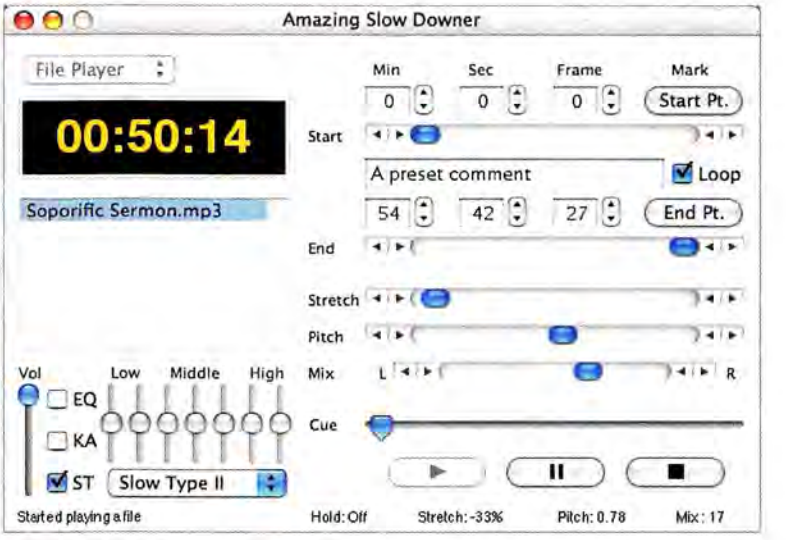
Nicholas White

Abandon the Finder's Find command, and use a tool that exploits Unix's Locate command—which sniffs through the hidden database that contains a listing of *all* your Mac's files and directories. If you're allergic to the command line, have no fear: I'm not sending you to Terminal. Instead, travel to www.sebastian-krauss.de/software and download Sebastian Krauss's free Locator, a utility that slaps a friendly interface on the Locate command. □

UNSOLICITED ADVICE

The ability to create QuickTime slide shows with iPhoto's Export command is a boon, but iPhoto still won't cut a slide show to fit the length of an accompanying soundtrack. Sure, you could get close by doing the math and dividing the length of the soundtrack by the number of slides you intend to display. But unless you're lucky, you'll *only* get close. iPhoto doesn't let you display slides for fractions of seconds (8 seconds is acceptable, for example, but 8.13 isn't).

If you have a copy of Roxio's Toast Titanium 6, you can solve this problem by opening a copy of the bundled Motion Pictures application. Motion Pictures can perform the "pan and scan" Ken Burns effect and, unlike iPhoto, create a QuickTime slide show that matches the length of a soundtrack. It will also send that slide show directly to Toast, where you can burn it to a DVD or a Video CD.



Speed Reading Roni Music's Amazing Slow Downer can pick up the pace of a sluggish sermon.

Contributing Editor CHRISTOPHER BREEN is the author of *Secrets of the iPod*, fourth edition (Peachpit Press, 2004). In video form, he is also the host of *Macworld*'s Breen's Bungalow.

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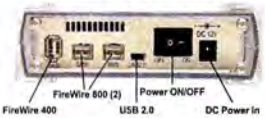

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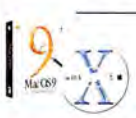

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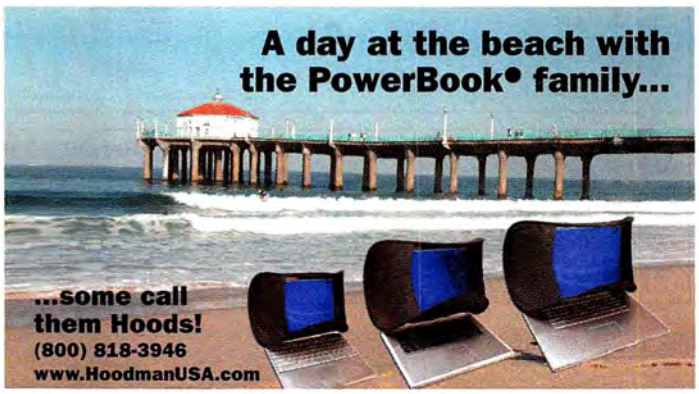

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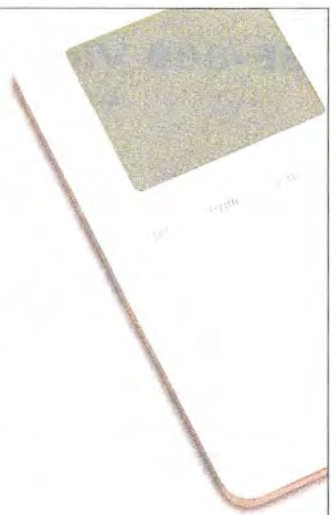

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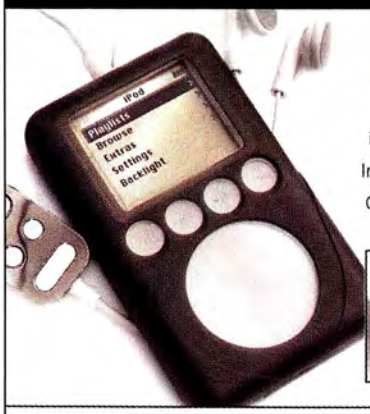

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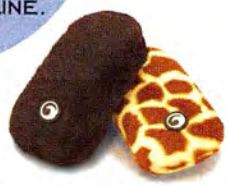

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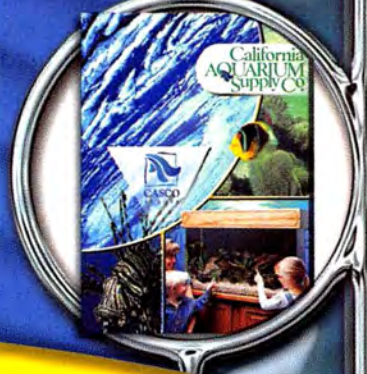

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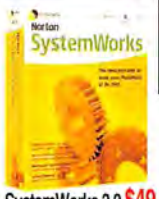

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Hot Stuff

The Month's Coolest Developments

FROM THE EDITORS OF MACWORLD

PETER BELANGER

EPSON P-1000 PHOTO VIEWER

The viewing screens on most digital cameras are too small to reveal important details such as sharpness and lighting. For a more illustrative view of digital images outside of the studio, photography pros can turn to Epson's $600 P-1000 Photo Viewer. This 10GB hard drive has a gorgeous 3.8-inch LCD that displays images in vivid detail. You can download pictures from a CompactFlash card or a Microdrive, view slide shows, and delete unwanted images before downloading images to your Mac (www.epson.com).

JunkMatcher

JunkMatcher 1.06 is the latest antispam measure to catch our eye. Benjamin Han's OS X 10.3–compatible freeware program works with Apple Mail's built-in spam filters; it uses IP-based filtering and flexible regular expressions to give junk mail the bum's rush (to reach the JunkMatcher home page, go to http://junkmatcher.sourceforge.net).

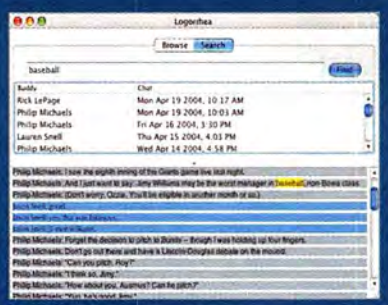
Loopy for Loops

If the song running through your head belongs in a big-screen Indian musical spectacular, Advanced Media Group has the samples package for you—Bollywood Dreams, a collection of 327 loops with a distinctive subcontinental flavor. Other $54 collections include Norman Cook: Skip to My Loops, which features the DJ stylings of the artist known as Fatboy Slim, and Vince Clarke: Lucky Bastard, with synths created by the Depeche Mode founding member (www.samples4.com).

What's Next? OS X-Men?

No, Apple hasn't started soliciting celebrity endorsements from mutants. This flawless iPod ad parody comes from the May 2004 issue of *Wizard: The Comics Magazine*. The "ad" for the iBro features the rocking-out silhouette of Wolverine and touts the device's ability to download music, locate mutants, and work with the Mac or the PC.

IBRO IMAGE COURTESY OF *WIZARD: THE COMICS MAGAZINE*



LOGORRHEA

It's defined as "excessive and often incoherent talkativeness," but to Mac users, Logorrhea (; *Mac Gems*, October 2003) has become the last word on searching saved iChat transcripts. Equipped with a Browse tab, for finding chats by user name, date, and time, *and* a Search tab, for finding specific words or phrases, Logorrhea turns idle chatter into a viable business communication tool. The utility is free—though Spiny Software won't object to your donation, even if you're prone to excessive and often incoherent talkativeness yourself (www.spiny.com/logorrhea).

WHAT'S HOT A Quick Look at the World of Macs

1. **iTunes 4.5 adds music videos to Apple's online music store.** *Future updates to iTunes will include VJs, music-news reports from Kurt Loder, and a show about seven annoying young people who live in the same house.*
2. ***Time* magazine includes Steve Jobs in its 100 Most Influential People list.** *The distinction comes as cold comfort to Jobs, who's still smarting over the snub from* People *magazine's 50 Most Beautiful People list.*
3. **Apple increases the processor speed for both its PowerBook and its iBook offerings.** *"When we said 2003 was going to be the year of the laptop," Apple executives explain, "we were looking at a metric calendar."*
4. **Mac developers gather in San Francisco for Apple's annual Developers Conference.** *Steve Jobs's keynote will devote 10 minutes to OS X 10.4's features and two hours to a detailed analysis of his favorite iTunes playlists.*

PETER BELANGER

SIGHTLIGHT

Conversations with shadowy characters belong in film noir, not iChat AV video sessions. If inadequate desk lighting is turning your smiling face into a dark countenance, Griffin Technology's SightLight can shed some light on your next video chat. The $40 halo-shaped accessory slips over the iSight, shares that camera's FireWire cable, and uses a Fresnel lens to shine a direct, diffused light that brightens up your image (www.griffintechnology.com).

Why should anyone pay $299 for headphones?

Bose® QuietComfort® 2 Acoustic Noise Cancelling® headphones. You can buy headphones for less. But we believe less is exactly what you'll get. The result of a 20-year research project, QuietComfort® 2 headphones provide your ears with a safe haven from annoying, distracting and fatiguing sounds – like the roar of aircraft engines, the din of the office, even your neighbor's lawnmower. They also deliver your favorite music with the best sound reproduction we've ever fit into headphones. Our goal was to provide a combination of noise reduction and audio performance that is unmatched in the industry. *Business Traveler Magazine* says they are "Worth every penny."

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Versatile and comfortable. You can attach QuietComfort® 2 headphones to portable CD/DVD/MP3 players, home stereos, computers and in-flight entertainment systems. They conveniently fold flat for easy portability in the slim carrying case. And their lightweight design softly cradles your ears for hours of comfortable listening. As the *News-Gazette* reports, "It's easy to forget they are on your head."

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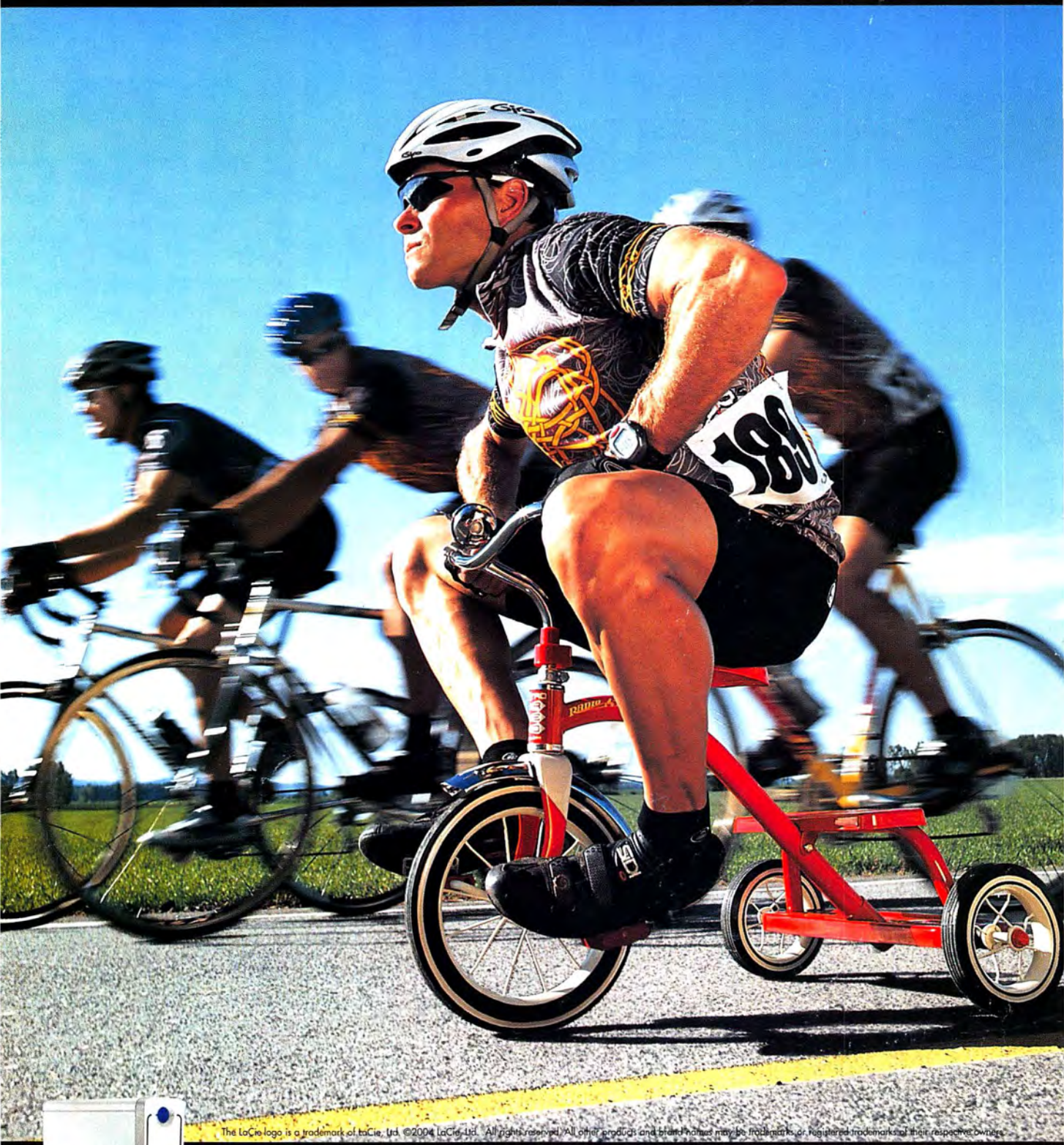

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