

ATPM

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About This Particular Macintosh: About the [personal](#) computing experience™

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Welcome

Welcome to the April 2002 issue of *About This Particular Macintosh!* We've dubbed this issue the official April-Don't-Be-Fooled edition of your favorite monthly Macintosh Internet magazine.

That's right, with all the funky stories abounding on the Internet, we want to be sure our readers have the benefit of the best information around!

They Like Them So Much We Raised The Price

Actually, the reason Apple announced a \$100 price hike on the iMac at Macworld Tokyo isn't because the new iMac is so popular (which it is) or because Apple is having trouble meeting demand (which they are); the reason why Apple increased the price is due to rising component cost.

That's right. Believe or not, our favorite high-tech company is subject to the same laws of supply and demand that impact most other businesses. Apple, for its part, used the same high-stakes stage it uses for major products announcements to tell the world that it was increasing prices. Other major PC manufacturers are raising prices much more quietly. Leave it to Apple to be the industry leader not only in new, push-the-envelope PCs, but also in pricing their products to actually make a profit.

He Like Them So Much It's In The State Budget

Actually, we don't know if Maine Governor Angus King is a Mac fan. But the independent governor of Maine (that's right, he's neither a Republican nor Democrat), worked hard to win approval of a \$25 million dollar initiative to put iBooks in the hands of middle schoolers throughout the picture-postcard state.

We Like You So Much, We Want To Watch You From Here

Actually, we don't know if your company is using Apple Remote Desktop because they really like you. What we do know is that workplace Internet shoppers beware! The new network enhancement product from Apple allows administrators to roll out software from anywhere on the network and keep an eye on what's on your computer screen. Designed as much for the classroom as it is for businesses, Apple Remote Desktop will enable teachers to watch student computer screens and even communicate one-on-one with a student from a remote location. Don't believe us? Check the [Apple site](http://www.apple.com/remotedesktop)¹ for details.

1. <http://www.apple.com/remotedesktop>

We Shipped So Many iMacs Last Quarter, We Actually Beat Our Own Estimates

Actually, we don't know if Apple met its original shipment estimates for the iMac. Production delays and component shortages made getting the new iMac into buyer's hands a bit of a challenge for Apple and tried the patience of even the most die-hard Apple fans. What we do know is at the end of the quarter Apple was shipping iMacs at the rate of 5,000 units per day. We will know in mid-April how the quarter ending March 31, 2002 worked out.

We Like You So Much, We'd Like You To Keep Reading

Actually, this *is* true. Please read our latest issue. It's loaded with all kinds of useful tips and information for Mac users at all levels of experience and expertise. This month's issue includes:

Beyond the Barline: Record Execs Ate My Hard Drive!

For the true and frightening story, turn to this month's *Beyond the Barline*. And be afraid...be very afraid....

The Candy Apple: A Down-Home Awards Show

Ellyn Ritterskamp takes the handoff from retiring columnist Tom Iovino. In this column, she introduces herself with some favorites from her Mac.

The Legacy Corner

Chris Lawson joins us to continue the popular *Legacy Corner* column. This month his column includes 68K Mac trivia, Color Classic resources, and tips for keeping your old Mac working like new.

Segments: We Hate When That Happens

Paul Fatula presents the conclusion of his ordeal getting AT&T cable set up. Lee Bennett suggests some broadband resources, and Gregory Tetrault offers a counterpoint—he had a great experience with Cox Cable Internet. ATPM readers share their experiences.

About This Particular Web Site

In this month's ATPW, Paul Fatula takes a look at free music, free fonts, and free literature. There's also artwork created by well-organized Rubik's Cubes and, for the more chaotically inclined, a random number generator.

Profiles in Networking: iBook

Check out the networking potential of Apple's latest portable dream, the iBook. As is now the Apple custom, headache and inconvenience take a back seat to ease of use and tangle-free wireless Web sharing.

Griffin Technology's gadget "with almost limitless potential," the PowerMate



Desktop Pictures: Travels

Reader Dalis VanderYacht contributes a series of desktop pictures from his travels in California and Massachusetts.

How To: Setting Up Wireless Network Encryption Between a Macintosh and a Non-Apple Transmitter

Preventing people from piggybacking on your wireless network is not all that complicated, but it is not as straightforward as it first appears. This How-To is a layperson's (read: *not* an expert) experience in setting up and encrypting a third-party transmitter instead of an Apple Base Station.

How To: The Mops Programming Language—Part 2

Ed Williams continues his tour of the Forthish programming language Mops. He explains the fundamentals of object-oriented programming and how it applies to Mops, and shows an example of a Tic Tac Toe program.

Review: A Tale of Two Bags—A PowerBook-Totin' Carrying Case Shootout

Contributing Editor Christopher Turner takes two notebook-toting backpacks through the wringer to tell you which bag reigns supreme as your official PowerBook packer.

Review: Click 'N Design 3D

Do you dream of creating CD or DVD labels with gradient backgrounds, clip art, photographs, and 3D text? If so, then perhaps Click 'N Design 3D is the application for you. Or is it? Read Gregory Tetrault's review to find out.

Review: Illustrator 10

Jamal Ghandour loves the latest release of Adobe Illustrator. He takes us on a tour of the new features, from symbols and slicing to CSS layers and data-driven graphics.

Review: Mailsmith 1.5

Michael Tsai reviews the first Mac OS X-native version of Bare Bones Software's e-mail client. How has Mailsmith improved, and how does it stack up to the competition? Read on to find out.

Review: PowerMate

What do you get when you cross an illuminated knob with Kensington MouseWorks-style software? Paul Fatula reviews

Slow AirPort File Sharing

I have an AirPort network set up at our office. The Internet works perfectly, but file sharing is painfully slow. Why?

—Harley

You've discovered that AirPort is drudgingly slow at upstream data transfers. It's only a little bit slower than wired 10Base-T for downstream transfers, but it's significantly slower for upstream. I am not really sure why this is from a technical point of view but I have confirmed it many times in my own systems using my own servers and clients.

Virtually every Internet connection method is slower than the AirPort's data rate, so even if you are plugged directly into a T1, you won't suffer slow downloads or uploads compared to a wired Mac. But once you start connecting clients to other clients on a LAN, you will notice that AirPort cannot keep up. Try comparing it to wired, full duplex 100Base-T, or worse yet Gigabit. It'll make you pull your hair out!

Nevertheless it's nice to be able to walk around with no AC cord or Ethernet cable hanging out the back of your laptop. Life is full of compromises I guess. —Evan Trent

Connecting a Local Network to the Internet

I've called every tech support for every piece of equipment I own but to no avail. I hope you can help me out or lead me in the right direction. I'm trying to connect to my little Mac network with a new iBook over the Internet.

This is the setup: I have a B&W G3 running Mac OS 9.1 and an old PC hooked up to a DSL modem with a Linksys 4-port DSL router. I just bought a new 14" iBook, which I successfully hooked up to the router and was able to share files between the two computers. But when I try to access my G3 from a remote location, it doesn't work. How do I figure out what the IP address for the modem is and how do I open the ports on my Mac so I can get through?

—Mike

First go [here](#)¹ on either your PC or your Mac hooked up to the router. That will tell you what the router's public IP address is. Keep in mind that if you are using DHCP to connect to your DSL line, that IP may change periodically.

Then go [here](#)² and refer to that list for mapping ports. It should tell you everything you need to know for which ports to open for which types of activities. —Evan Trent

Invisible Preferences

Help! The Preferences folder in the System Folder has become invisible. All preferences that were loaded still function, but I

don't know how to make it visible again. I don't even know how it became invisible.

Can you give me some idea how to make the folder visible again. The folder doesn't show in the System Folder, and the only way I can locate it is with Sherlock II, by requesting Show Invisible with the name preference.

I know there are applications that do this but I can't remember their names.

A loyal reader,
—Cracker1a

There are a variety of applications which can toggle the "invisible" flag of a file or folder. ResEdit is one which you may already have on your computer. If so, load it up and then go to "Get File/Folder Info" from the File menu. You will note that you can select even invisible files and folders from the resulting dialog box. Select the Preferences folder and then you can make it visible again by unchecking the "invisible" checkbox.

Another good program that will make this process simple is Greg's Browser. I use FileTyper all the time for this sort of thing, and it is useful for other purposes as well but it can sometimes be confusing to use it to work on folders because it will also work on the files contained by the folder you edit, unless you are careful in how you set the preferences. —Evan Trent

Importing QuickTime Into iMovie

I read in a serious iMovie tutorial that you could import QuickTime movies to both iMovie 1 and 2, and I certainly supposed you would be able to. But QT movies are not included in the list of file formats you can import, and the program doesn't show them in the dialog box when you select Import and Show All Importable Files; dragging and dropping doesn't do anything either, of course.

Indeed, the ReadMe says, repressively, and without explanation, "You will not be able to open the tutorial project or complete the tutorial in the online help"; but that isn't even true: you can double-click on the 1K tutorial project-file, then the tutorial DV movies are imported, and you can edit and export to QT without problem... odd that someone at Apple should want to stop people from learning how to use a program they're trying to push, and even odder that they didn't manage to do it when they said they had.

I wondered what would happen if I renamed a QT movie to look like what iMovie was expecting in the tutorial, and put it in with the others; the program showed it on the shelf, but couldn't read it, and wanted to move it to the trash.

The Swedish v. 2.0.1 won't even start up, saying "can't find the language resource file, please reinstall the application"; but there is indeed a file called "Sweden" in the folder

1. <http://www.whatismyipaddress.com/>

2. <http://www.opendoor.com/doorstop/ports.html>

Resources > Languages. Perhaps the problem is that I use the system in English.

—David Kettlewell

There was an old trick for getting iMovie to work on computers without FireWire ports, specifically the beige G3s that had video in. Basically, you'd capture the movie via analog and save it as MOV format. Then, you'd use QuickTime *Pro* to convert the movie

from MOV to DV format. Finally, you import the DV into iMovie.

I think if you have QT Pro, you'll be able to do it. Also, version 2.5 of Movie Player with QT 5 might be able to do the conversion—it seems to pick up the new format support when you change versions of the QuickTime extensions, but it didn't pick up any of the free/pro restrictions. I used this approach to convert images/movies between formats at work. —Eric Blair

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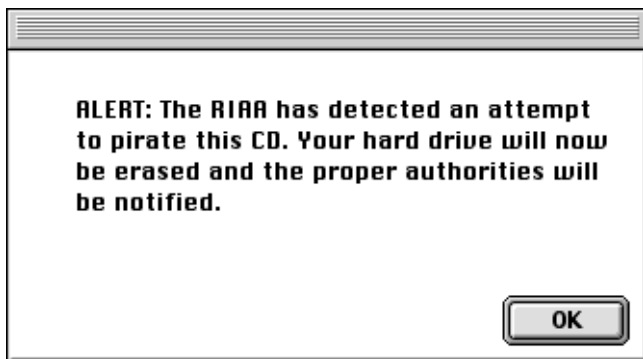


Record Execs Ate My Hard Drive!

I almost didn't make it this month. Late March was busier than usual, what with grades at the University of Oregon due the Monday after Finals Week (due to the short break). In addition, Holy Week fell during Spring Break this year, so, between the various services at my church, I didn't get much of a break at all. Still, I had allotted plenty of time to get my column done, but I hadn't accounted for one thing...

The possibility that *record execs would eat my hard drive*.

I'll start from the beginning. I came into a little spare cash recently, and decided to splurge on a few CDs. Two were classical, and the third was by a popular alternative rock band. Following Steve Jobs' recent invitation to "Rip, Mix, Burn" I promptly opened iTunes to encode them to my hard drive. The two classical CDs gave me no problem, but when I loaded the aforementioned rock CD and selected *Convert to MP3* in iTunes, the following warning appeared on my screen:



AAAAAAAAAAAA!!!!

What could I do? My only option was "OK." I tried clicking on the desktop, force quitting, and rebooting, but nothing worked. Before I finally hit return, and said goodbye to my hard drive, I could hear it spinning futilely in the background. It seemed to be saying "Save me, please," but there was nothing I could do.

At first I was angry. It took a whole day to get everything reinstalled the way I wanted it. (I keep my personal files on another disk, thankfully, so nothing important was lost.) This set me way back on getting my column written, even farther back than I already was.

I'm not angry anymore, though. Why? Because of something I read a few days later in the local paper. The Sony Disc Manufacturing Plant is in nearby Springfield, and over the last few months, they've had to lay off hundreds of

workers. The signs were clear to all who would dare look. CD piracy had cost those poor people their jobs. Well, some of those workers have since been recalled. I now know the reason why. It's because of the brave executives of the RIAA, eating hard drives across America, including my own.

So in retrospect, the data on my hard drive was a small price to pay to give hundreds of local workers their job security back. I now see the error of my ways, and pledge to never again pirate any of my own CDs. And until the plague of music piracy is lifted—until the day that talented artists can once again make pennies on the dollar, and consumers can once again spend \$18.99 for a favorite song on a CD filled with other tracks they'll play only once—until that great day happens, I say to the RIAA, in the words of the venerable Crime Dog, "take a bite out of crime." And while they're at it, I can think of something else they can "bite" as well.

I love April...ha, ha, April Fool!

But Seriously...

Some good news last month: Steinberg announced the upcoming release of Cuebase SX, a Mac OS X version of their flagship sequencing and hard disk recording application. The software is scheduled for "the end of Q2 2002," which I think translates to "summer." MSRP is \$799, with update pricing for owners of VST/32 (\$149), VST Score (\$199), and VST (\$299). I'm still debating between Cuebase and Logic for my next sequencer, and OS X compatibility is a big plus, even if I won't be upgrading for awhile. I'm still waiting on a definite release date for Emagic's long-awaited OS X version of Logic.

Elsewhere in the news: The Internet Streaming Media Alliance (ISMA) has [endorsed](#)¹ a licensing plan for the MPEG-4 Advanced Audio Coding (AAC) compression scheme. If you caught Steve Jobs' appearance at this year [Quick Time Live](#)² conference, or the subsequent coverage, you'll know that Apple has incorporated MPEG-4 video compression into QuickTime 6, but is holding back the release until MPEG LA reconsiders their [licensing terms](#)³. Hopefully, the endorsement of AAC will encourage MPEG LA to drop the per-minute rate on users that they originally proposed for MPEG-4 Video.

And finally: A court in the Netherlands recently [overturned a ruling](#)⁴ against a Swedish company called KaZaA. The

1. <http://maccentral.macworld.com/news/0203/27.mpeg4.php>
2. <http://www.apple.com/quicktime/live>
3. <http://news.com.com/2100-1023-833247.html>
4. <http://www.cnn.com/2002/TECH/Internet/03/28/entertainment.reut/index.html>

company had developed a peer-to-peer file sharing service that the Dutch music rights organization Burma Stemra had said was being used to distribute copyrighted material illegally. The ruling was based on a 1984 U.S Supreme Court decision, which absolved VCR manufacturers of any liability due to copyright violations committed by the owners of said

VCRs. Courts here in the US may now be more persuaded to see this ruling in a similar light, protecting not just peer-to-peer file sharing software, but also the manufacturers of CD burners, DVD burners, and similar technologies. So my hard drive is safe...for now.

Copyright © 2002 David Ozab, dozab@atpm.com. David Ozab is an adjunct instructor at the University of Oregon School of Architecture and Allied Arts where he teaches an introductory class in electronic music for the new Multimedia Minor. He is also a Ph.D. candidate in the University of Oregon School of Music, and is taking a year's leave-of-absence to work on his dissertation.



The Candy Apple

by Elynn Ritterskamp, eritterskamp@atpm.com

A Down-Home Awards Show

Welcome to *The Candy Apple*, my attempt to keep things light around here. We'll miss our longtime columnist Tom Iovino's [Apple Cider](#)¹ column, but we look forward to hearing his occasional Random Squeezings now and then.

Last month, the Academy Awards were handed out for films released last year. The award show ran too long, as always, but it was worth the wait. For my first venture at an ATPM column, I thought it might be fun to choose some of my own awards. Since I didn't hire an accounting firm to count the votes, feel free to presume that some tampering went on.

In case it matters, I'm using a G3 Yosemite (Blue & White tower) with Mac OS 9.1, 350 MHz, and 704 MB RAM. But I really want a new machine, so if anybody has an extra iBook or new iMac with those kinkable, dancing monitors, I'm available!

The Awards

Game I Must Play Every Night Before Going To Bed

We have a tie. Two pieces of software received this award: [Snood](#)² and [Beat the Dragon](#)³. Both of these games have been around for quite a while, and there are plenty of fresh challenges every year, but these are the ones I find myself returning to after the new wears off the others. [Burning Monkey Puzzle Lab](#)⁴ and [Alchemist](#)⁵ are great for when I need a shiny thing to look at, and [Scrabble](#)⁶ is one of my favorites, except that I resent having to load the CD to play it.

But for a daily fix that I can't do without, it's good old Klondike-based solitaire à la Beat the Dragon, and the tried-and-true angles-and-luck exhilaration of Snood.

Software That Gets Used The Most

[Outlook Express 5 for Mac](#)⁷. I know, it's a Microsoft product. It is evil and ought to be destroyed. But it seems to work. This particular piece of software never crashes my system. It gets the most use over anything else because I work at night, and do much of my communicating via e-mail. I can send notes at 3 in the morning, and dayside weenies can read them when

the sun comes up. I'll be asleep and unworried about making sure I get up in time to call them.

Coollest Apple Peripheral

[iPod](#)⁸. No competition.

Best New Investment

[HP Deskjet 920C printer](#)⁹. It's an inkjet printer, but the stuff looks nearly as good as a laser printer. For my purposes, it's surely close enough, and a billion times better than the older model inkjet that came with my computer, just two short years ago.

Software I Often Forget I Have

- [Norton AntiVirus](#)¹⁰. Runs every day, sometimes when I wish it wouldn't, but that's my own fault for setting up the preferences goofy.
- [IconDropper](#). I've individualized many icons just for fun, and others to help me keep order.
- [Kaleidoscope](#)¹¹. Change is good. Changing the way things look is fun, now and then. This program makes it easy.

Best Animated Movie

The best movie I have saved on the hard drive is still that [Aliensong](#)¹² thing that came out in 1999. I read later that the guy who made this short got a job at Pixar, so for once, the universe properly rewarded someone.

Best Live-Action Movie

The best non-animated movie on my hard drive is an ad for a concert/comedy show last year. It opens with nice piano music, and a shot of a woman ooching (yes, ooching) on the top of a piano, like those lounge singers sometimes do. She's wearing a red dress and has very nice legs, but we only see her from the waist down. The announcer talks about a show coming to town that has one of the biggest names in entertainment. The legs are slinky. The shoes are red. The gown is sequined. After several seconds of this tease, straight out of *The Fabulous Baker Boys*, the camera pans up to the

1. <http://www.atpm.com/Back/cider.shtml>
2. <http://atpm.com/3.07/page16.shtml>
3. <http://www.graphicaindustria.com/BeatTheDragon.html>
4. <http://atpm.com/6.10/bmpl.shtml>
5. <http://www.atpm.com/6.08/alchemist.shtml>
6. <http://www.wizworks.com/macosoft/?page=products/scrabble>
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11. http://www.kaleidoscope.net/What_is_Kaleidoscope.html
12. <http://home.quicknet.nl/qn/prive/sc.deering/MoviePages/Alien.html>

lady's face. Surprise! It's my hero, Bea Arthur! She says, "What, you were expecting Michelle Pfeiffer?"



Still makes me snicker. I'm bummed to report that the Web site which hosted this clip is no longer up. It was a promotional site for Bea's US tour last year that ended with her triumphant return to Broadway. After a nearly 40-year absence from the New York stage, she opened in February to strong reviews and an extended run. I got to see the show in Ft. Lauderdale in August. At one point she did hop up onto the top of the piano, but I have to say that she didn't really ooch.

So there you have this year's awards. We have no statuettes to hand out, so we don't have to worry about them getting lost or stolen. Our award show never runs over the time limit. The host isn't famous—but at least I didn't do a medley praising my nominees! Hmmm...maybe I'll sing at next year's awards....

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The Legacy Corner

by Chris Lawson, clawson@atpm.com

Allow me, dear readers, the benefit of a brief introduction. Some of you will probably recognize my name from visits to [Low End Mac](#)¹ or elsewhere on the Web, but many of you probably don't.

Since cutting my teeth on an SE back in 1988, I've had the pleasure of using (and owning) nearly every 68K Macintosh made. While I find them all a joy to use, the Color Classic and Quadra 950 have emerged as my personal favorites.

In the PowerPC-based arena, I've used virtually everything, but only one of the older PPCs really sticks out in my mind: the biggest, baddest Mac Apple ever shipped, better known as the Workgroup Server 9150/120. More about that in a minute. Since few of the early PPCs greatly interest me, most of my writing will probably focus on 68Ks, although I welcome suggestions for first-generation Power Macs as well.

I'd like to keep this column in much the same vein as Ed Goss' [previous column](#)² of the same name, although I'm sure my own unique style will eventually develop the column into something more of my own creation. That said, I also welcome any trivia contributions. I'll get the ball rolling with these two (answers at the end):

Q1: What was the only Macintosh to support three floppy drives without add-in cards?

Q2: Name the three desktop Macs whose ROMs were 32-bit "dirty," and the code name for the "clean" versions of their ROMs that never shipped.

I said that Color Classics were one of my favorite 68K Macs. Sure, everybody loves the CC form factor, but that's not why I love them so much. I find the wealth of upgrade options amazing. Granted, many of the upgrades are, to quote my favorite British pastor Stuart Bell, "decidedly non-trivial," but they're incredibly cool nonetheless. Here are the must-see sites for would-be Color Classic upgraders:

- [The Color Classic Forum](#)³
- [The Color Classic Upgrade Mega-FAQ](#)⁴

1. <http://www.lowendmac.net/>
2. <http://www.atpm.com/Back/legacy-corner.shtml>
3. <http://voy.com/24978/>

- [Stuart Bell's Color Classic Compendium](#)⁵
- [The Club for Creating the Strongest Color Classic \(CCSCC\)](#)⁶

If you can read Japanese, and *especially* if you can translate Japanese fluently, we English-speaking folk could use your help with many of the Japanese pages listed at [MISUTHIKU's Links page](#)⁷.

Tip of the Month #1

[TechTool Lite](#)⁸ is your friend. Rebuild your desktop with it at least once a month if the Mac gets regular use. It's also very handy if you ever need to zap or test your PRAM.

Tip of the Month #2

Leave your Mac plugged in even if it's turned off, and don't turn off power strips to the Mac if at all possible. By doing so, your PRAM battery will last much longer. My first SE's battery lasted 13 years because it was plugged in even while powered off. I've had friends whose Classics' batteries lasted less than a year because they were always unplugged.

Next Month

More on my favorite Macs, more tips, more trivia...heck, I dunno. That's what readers are for. :) E-mail me and suggest something. I can't promise t-shirts, but I can promise a thank-you. :)

Trivia Answers

A1: The Macintosh SE, with room for two internal floppies and an external floppy port.

A2: The SE/30, IIfx, and IIfx are the three. "Mr. Clean" was the 32-bit clean ROM's code name, at least according to popular Apple legend.

4. <http://colourclassicfaq.com/>
5. message URL <http://homepages.tesco.net/%7Emacaddict/PowerCC.html>
6. <http://homepage2.nifty.com/Kan-chan/>
7. <http://homepage.mac.com/wtnb/links.htm>
8. http://www.micromat.com/techTool_Lite/index_techTool.html

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Segments: Slices from the Macintosh Life

by Paul Fatula, pfatula@atpm.com

We Hate When That Happens

My [segment](#)¹ on AT&T Cable Internet last month ended with a sort of a cliffhanger, and has earned a number interesting reader responses. I'm glad to say my experience has finally landed on a happy ending, which I'll share before turning the article over to reader comments.

Three cheers for Ray! When I received my bill for Internet service, it did not, as expected, reflect any credits; but when I phoned in to AT&T to check my bill, the promised credits had been made to my account. So it took nearly two months, but I'm finally square with AT&T.

What's more, the whole motivation for going to broadband, for me, was cost: Ameritech had suddenly, without notice, decided that all my local calls were to be billed as "local long distance." Literally, that meant it cost more to call the next town than it did to call halfway across the country. Complaints to Ameritech fell on uncaring and uninterested ears. But my recent local phone bill reflected a massive credit; apparently someone at Ameritech realized the error and corrected it. I called Ameritech, spoke briefly to Paul, and was told a check in the amount of my credit would be mailed to me in 3-4 weeks. That's great news—I'd long since given up on ever seeing that money again.

AT&T, some division of which is apparently still unaware I even have cable Internet with them, recently sent me yet another flyer begging me to sign up for cable Internet, this time offering six months (rather than three) for \$19.95, and professional installation for \$49.95 (rather than \$9.95). Sounds good, assuming they keep up their end of the bargain.

So would I sign up again, given the chance? Yeah, I think I would. At the end of all the installation and billing headaches, I did finally wind up paying what I expected (not counting the value of my time), and I'm happy with the speed I'm getting. (I transferred an 11 MB TIFF file in just under 15 minutes; I don't know how long that would have taken with my dialup, but I doubt my dialup connection would have lasted long enough to get the file through.) I've only experienced downtime once in two months, and it lasted for about half an hour. Not bad at all.

Web Sites

One reader suggested a Web site called [Broadbandreports](#)², which has user experience reports in three categories

("Smooth ride," "Mixed," and "Horror stories"), broadband news, polls, and forums. Though a lot of the site is geared towards DSL users, there's certainly enough there to keep Cable users happy.

ATPM staffer Lee Bennett passed on a tip about an OS X program called [Broadband Optimizer](#)³, which can significantly speed up cable Internet connections. It's well worth checking out if you use Mac OS X.

An [interesting article](#)⁴ was posted mid-March about ISPs (in this case, AT&T) deliberately limiting speed of cable Internet access. Matthew Hallacy, having gotten nowhere with AT&T support on the problem of near-dialup speeds through his cable line, hacked the cable modem, and was able to fix the problem. (He then reverted the settings.) The article links to the original SecurityFocus.com posting where he divulged how he did this.

Reader Responses

ATPM Staffer Gregory Tetrault offers a counterpoint to my article; he had a great experience with Cox Cable Internet:

Cox Cable brought digital cable and high speed Internet service to my neighborhood (in Chesapeake, Virginia) in August of 1999. Cox Cable offered free installation, \$30 per month unlimited Internet service with a free Web page and up to four e-mail address, and cable modem rentals for \$15 a month. I called Cox Cable on the Friday afternoon before Labor Day weekend and asked to add both services to my existing cable TV service. The customer service representative said they could send someone out "tomorrow afternoon." I replied, "You're doing installations on Labor Day Weekend?" and she said "Yes." I was told that two cable installers would come first. They would install a completely new cable from the curbside box to my house. Then they would hook up the digital cable system and run the cable to my computer for the modem. Later, an installer would come to connect the cable modem to my computer, install the required software, and enter the appropriate settings.

Cox Cable gives you a two-hour service window. The cable installers were due between 1 and 3 PM. They arrived around 1:30 pm. They quickly surveyed my house, TVs, computer, and yard. They ran a temporary cable to my house and wired up the TVs and my office. They showed us how to use the

1. <http://www.atpm.com/8.03/segments.shtml>

2. <http://www.dslreports.com>

3. <http://www.enigmarelle.com/sw/BroadbandOptimizer/>

4. <http://www.newsbytes.com/news/02/175201.html>

digital cable system. When they were nearly finished, they placed a phone call to the cable modem installer. He was running late and wouldn't make it at the scheduled time of 4 PM. I said that coming later was no problem. The first crew finished, cleaned up, and left. The digital cable picture quality was fantastic.

The cable modem installer arrived around 5:30 PM. He said that difficult PC installations (IRQ conflicts, problematic Ethernet cards, and assorted Wintel woes) made him late. He said that mine was his first Macintosh installation. I thought, "Uh, oh!" He asked if I had configured my Macintosh to use a DHCP server. I told him no, because I wanted a fixed IP address to make it easier to use Virtual PC with the cable modem. He said that wouldn't be a problem. He installed some files from a CD and entered some settings in my TCP/IP control panel. We connected to the Internet minutes later. He entered e-mail settings and got Outlook Express working, too. He was done in 20 minutes and said it was the easiest installation he had performed for Cox Cable. (Hurrah for the Mac!) I got the cable modem to work with Windows 95 via Virtual PC the same evening.

My Internet access speed went from 28 Kbps to more than 500 Kbps just 26 hours after I called Cox Cable. *I love it when that happens!* A subcontractor crew buried a permanent cable two weeks later. My Cox Cable service has been excellent. I have never waited more than 24 hours for in-home service, and I have experienced few periods of down time.

Cable modem prices have fallen since 1999, and last year I decided to buy instead of rent. Cox Cable lists compatible cable modems on their Web site, and I found a highly rated Toshiba at a good price. After the new modem arrived, I swapped it for the rented Motorola cable mode, called Cox Cable, gave them the Toshiba's MAC number and serial number, and was online again 45 minutes later. I brought my rented modem to a local Cox Cable customer service center and was credited for the few days remaining in my rental month! Altogether, a much better experience than Paul's.

Reader Matt Fosberg commented:

As a former employee of a company that provides both cable and DSL services, I can say that this situation is not that atypical, and that the company I worked for is one of the better examples of customer service. I would definitely find a tech at whatever company you use who understands the Mac. Most ISP's have a "Mac guy." They should be able to walk you through any installation problems. Then watch the billing carefully. Most errors are simply that. Billing systems can be incredibly complex, and both human and computer errors compound this complexity. Know what you were supposed to be charged and, if you can, get a copy of it in writing. I wouldn't change back to analog phone Internet connections for any reason, but I still watch my bill and monitor my connection carefully.

Reader Pete Ruksakiati commented:

I had a better experience with my AT&T cable install. Though the tech wasn't Mac-savvy, we were able to muddle through (IE only—not just for the initial installation but also to access your account online). Still tinkering with Eudora to get e-mail (Outlook Express-only).

If you'd like to tweak your settings and don't have OS X, try [IPNetTuner](#)¹ from Sustworks Software. It's a control panel that's a bit complicated, but their tech support is very good.

I've had no trouble getting [Mailsmith](#)² to check and send mail through my AT&T account, though so far, the only mail that's come in there is spam from AT&T. IE is long since banished from my computer, and I'm doing all my browsing with [iCab](#), and having no trouble at all. —Paul Fatula

Finally, reader Jeff commented:

I had a fun experience with AT&T Broadband turned AT&T@home turned MediaOne Express. It's a long story, but it's all true:

One of the reasons I chose the apartment I now live in is that I was assured that cable modem service was available. So after I was settled, I ordered MediaOne Cable Modem service.

A couple of weeks later, two guys show up, one to test the line and one to install the modem. I took it as a bad sign that the line tester had an "FTW" tattoo, but it takes all kinds, right? So he hooks up his equipment to the jack in the bedroom upstairs, and announces that he's got a "zero signal," which according to him was right where it should be. So he packs up and leaves.

Then the modem guy starts—he's never done a Mac before, so after the standard "Yes, it has on-board Ethernet," and "The TCP/IP control panel is simple to configure," the modem is set-up, plugged-in and turned-on. So he calls the office to tell them we're ready, I configure TCP/IP and reboot, and we wait for the connection light to come on. It doesn't. So he calls his office again, and says that it'll take 10 minutes to negotiate a connection. Well, after two hours, five calls, and with a growing sense of frustration, it's still not up. So the modem guy decides that he can't do anything, and they'll send out a technician in a week or two.

About a week later, the technician comes in and heads straight to the wall jack. I tell him what the FTW-guy said, at which point he begins to shake his head. He hooks up the same equipment, and gets a zero signal. He explains that this means that the jack is connected to the building's TV antenna, not the cable line. He also makes a comment under his breath about stupid people. So he tells me that there's

1. http://www.sustworks.com/site/prod_ottuner.html

2. <http://www.barebones.com/products/mailsmith.html>

nothing he can do. I'll have to wait for another installer to show up—in about three weeks.

Three weeks later, an installer shows up and can't understand why I have no access to the building's attic, where he's sure the cable line is located. He tells me that he'll have to send someone else out once they figure out where the line comes in to the building.

In another two weeks, MediaOne talks to the building management about getting into the attic. They find that there is an entrance a few doors down, so I ask my neighbor if MediaOne can come over and get into the building attic through her apartment. She says fine, so I call back MediaOne, and schedule an appointment for a week from that day. The appointed day comes, and guess what? No cable in that side of the attic! But, there is a firebreak wall separating her section of the building from mine, so maybe it's on my side. So we have to find a neighbor on my side who will let them in to check the attic.

Someone in the building management office finally realizes that the cable doesn't come in through the attic. He says he'll check the plans and get back to me with its location. He calls back a few days later and sheepishly explains that not only does he have no idea where it comes in, neither do the maintenance people or MediaOne themselves! At this point, I was convinced that I'd never get a cable modem, but I'd continue with the farce and hope for the best.

So I call MediaOne and tell them the bad news. They say, no problem, we'll just use a splitter off the existing line downstairs. This was something I had suggested to one of the previous visitors to my house, but I had been told that a splitter introduces too much noise into the line to be able to use it with a cable modem. Whoever I was talking to on the phone said no, a splitter will work fine. So we set up another appointment, for another couple of weeks.

This time, two installers come in, we move the furniture, and they hook up the splitter. Now the problem is how to get it upstairs. One guy goes upstairs, drills a hole in the wall, and starts feeding a wire down to where the existing jack is.

Suddenly, the line is yanked through his hands, cutting his palm badly, and there is a terrible pounding on my front door. Turns out, the installer had drilled through the wall into my neighbor's apartment! Now, my neighbor didn't take kindly to drywall dust falling into his several-thousand-dollar stereo, and was threatening to kick someone's butt—and he didn't care whose.

So the installers beat a hasty retreat, saying they'll send someone else in a week or two, and I apologize to my neighbor, telling him to talk to MediaOne about the damage, which mollified him somewhat.

Still With Me? Good.

So about a week and a half later, two new installers show up, and this time drill carefully up from downstairs, without incident. They install a jack, and are on their merry way. At this point, another modem guy shows up and—guess what? I still had no connection light. Turns out the modem was bad. Arrrggghhh! He promises that someone will be over the next day with a new modem.

Surprisingly enough, the next day an installer did show up with a new modem which he plugged in. I twiddled the control panel, and voila! I now had huge bandwidth! And it only took six months! The ironic thing was, they had been charging me for my (nonexistent) cable modem service for the whole six months. I had been refusing to pay (and telling them about it), which led to my cable being shut off about a week later!

Finally, I got someone in billing to sympathize with (and understand) my dilemma, which she cleared up with about five keystrokes. And I got two week's credit to my account!

How's That For A Story?

By the way, no, the service hasn't gotten any better with the switch to AT&T; in fact, after the @home debacle, my bandwidth has been about halved! Once I win the lottery, I'm just going to get a dedicated T1 and be done with it!

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About This Particular Web Site

by Paul Fatula, pfatula@atpm.com

[Epitonic](#)¹

This is one of the few sites that I'm genuinely excited about. It bills itself as "your source for cutting edge music," and that's just what it is, hosting music from a great number of artists (most of whom I've never heard of) from every genre you can think of—from house to folk to classical to neo-dada. Unlike your local record store, Epitonic lists an artist under multiple genres where appropriate. Each group gets a lengthy discussion of its style, along with links to download a few sample songs in .wma or .mp3 format. There are also extensive lists of similar artists and other suggestions, many of whom are listed on epitonic. If you like discovering new music, this may become one of your favorite Web sites.

[Rubik's Cube Art](#)²

Have a couple dozen Rubik's Cubes lying around the house and a whole lot of time on your hands? This site displays artwork including mazes, Pac-Man, and the Apple logo, all created by working dozens of cubes so they fit together just right.

[Fontosaurus Text](#)³

Want a fancy font but find yourself low on cash? This site offers a horde of great fonts, all free for the downloading. You can browse fonts by name if you know what you're looking

for, or, more usefully, you can list them by category: beyond the typical Serif and Sans Serif, you can choose among Handwriting, Gothic, and Grunge fonts, to name a few. Previews of each font are available so you'll know just what you're downloading.

[Random.org](#)⁴

Just when you thought everything you could possibly need was available by Internet, here's one more thing you absolutely cannot live without: random numbers. This site will generate up to 10,000 random numbers for you, in the range you specify. There are also links to show who uses these random numbers and for what purposes, and an essay about randomness. Those who prefer the safety of non-random numbers are directed to try [this site](#)⁵.

[Eldritch Press](#)⁶

I'm a big fan of free availability of public domain literature; Eldritch Press is just one of many sites that contributes to the cause, hosting works of literature free for the taking. But they're contributing another, bigger way as well, appealing all the way to the Supreme Court in an attempt to overturn the Sonny Bono Copyright Term Extension Act (1998), which significantly delays the entrance of books into the public domain.

1. <http://www.epitonic.com>
2. <http://www.wunderland.com/WTS/Jake/CubeArt>
3. <http://www.fontosaurus.com>

4. <http://random.org>
5. <http://www.noentropy.net>
6. <http://www.eldritchpress.org>

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Profiles in Networking

by Matthew Glidden, mglidden@atpm.com

iBook

What is the face of sexy computing? Many would agree on Apple's iBook—so silky smooth, it's likely to make you feel like Gollum and retreat into your cave rambling about “my precious.” As of this writing, the baseline 12-inch, 500 MHz model will set you back a trim \$1,199 from the Apple Store.

Higher priced models (up to \$1,799) benefit from extra CPU speed, RAM, storage space, and a 14-inch screen. Add 256 MB of RAM to the baseline model, and you're ready for just about anything. Connecting your iBook to a network is virtually a snap, as it comes with built-in Ethernet and an available AirPort (wireless) slot.

Network Options

The iBook has two network options: one built-in 10/100BaseT Ethernet port and one AirPort card slot for wireless use. The potential of two network connections introduces the possibility of using iBook as a software router for shared Internet connections, with some limitations; see the setups below. Most people will use one connection or the other.

Typical Setups

As with other new Macs, the built-in 10/100BaseT Ethernet port provides the most convenient network option. For new iBook owners, your first network connection will probably be the transfer of files that signifies the passing of the torch from one “primary” Mac to the next. A crossover cable is your cheapest option here, priced around \$10–15 in most computer stores.

Provided the necessary File Sharing software is already installed and running on each Mac, you just need to connect their Ethernet ports with the cable and you're ready. More information on crossover-based networks can be found [here](#)¹.

If you want to use an Ethernet hub or switch instead of a crossover cable, networking is just as easy. Use a single straight-through Ethernet cable to connect the iBook's Ethernet port to a port on the hub or switch (more info [here](#)²). You'll need a hub or switch to network three or more

1. http://atpm.com/network/setup/Ethernet_crossover.html

Macs, since a crossover cable only works to connect two together.

If you'd prefer the tangle-free world of [wireless networking](#)³, you can spend \$99 at the Apple Store on an AirPort card, then connect to any local wireless network (such as that provided by the AirPort Base Station). If you only have two wireless Macs, they can communicate with each other using the Computer-to-Computer wireless option, with each computer using its AirPort card as the connection.

For more on sharing files, see the Threemac.com [Mac file sharing](#)⁴ page.

iBook as a Software Router

For [security reasons](#)⁵ you should only share an Internet connection using two network connections. To do this with an iBook, you need to install an AirPort card and use the Software Base Station program (free from Apple), which allows you to share the wireless network connection with another AirPort-capable computer.

Note that because wireless bandwidth is limited, this is probably only practical for sharing with one other Mac. You can also use a software router such as Sustainable Softworks' [IPNetRouter](#)⁶ or Vicom Tech [SurfDoublor](#)⁷, although they are not free like Software Base Station.

To set up this shared connection, connect to the Internet connection using iBook's Ethernet port (for cable or DSL) or modem port (for dial-up) and use the Software Base Station to share the Internet connection with another wireless Mac. If you plan to share a wireless connection with more than one wireless-capable Mac, the hardware AirPort Base Station is a better option since it can share a wireless Internet connection with any number of AirPort-enabled Macs without the limitations of a software router.

2. http://atpm.com/network/setup/Ethernet_switch.html

3. <http://atpm.com/network/setup/airport.html>

4. http://atpm.com/network/files/file_sharing.htm

5. <http://www.atpm.com/5.11/networking.shtml>

6. http://www.sustworks.com/site/prod_ipr_overview.html

7. <http://www.vicomtech.com/surfdoublor/surf.main.html>

Copyright © 2002 Matthew Glidden, mglidden@atpm.com. Matthew Glidden is the webmaster of Threemac.com, a guide to constructing and maintaining home and small-office Macintosh networks. He can also tango and juggle, not necessarily at the same time.



How To

by Lee Bennett, lbennett@atpm.com

Setting Up Wireless Network Encryption Between a Macintosh and a Non-Apple Transmitter

So, you've decided (as I did last month) to dive into wireless networking, frequently referred to as wireless fidelity or Wi-Fi. I confess, hearing about half-price Apple AirPort cards on sale at a few (and I do mean a *few*) Circuit City stores was the clincher for me. My initial plan was not to spend money on a transmitter to go wireless at home, but rather to make use of my office's Wi-Fi network when I occasionally brought my laptop with me. It didn't take more than a few times of doing this before I just had to have a transmitter of my own!

AirPort Base Station or Non-Apple Transmitter?

I could spend a couple of paragraphs arguing the pros and cons of buying and using a third-party transmitter instead of the Apple Base Station, but this article is about the encryption, so I'll be brief. A third-party transmitter with a built-in multi-port switched router will usually suit your current and future needs better than the Apple Base Station, and cost half as much. Read more about this in *Macworld's* April 2002 [Base Station review](#)¹. Also, be sure to choose a device that is configured via a local Web interface and not by Wintel software. Linksys is one such brand, and happens to be the brand I bought.

Important Note: At first, you'll have to physically connect an Ethernet cable from your computer to the transmitter in order to access its setup screens. This is one of the few drawbacks of using a third-party device; the Base Station software supplied with all new Macs will immediately communicate with a Base Station, meaning you can configure it to access the Internet without ever physically connecting your computer.

Providing Free Broadband Without Even Trying

At this point, we'll assume you're happily (and wirelessly) surfing the Net. I bet you weren't surfing quite so happily however when you stumbled upon the [knowledge from the New York Times](#)² that there are people out there who run around sniffing out unencrypted Wi-Fi networks and posting their existence to [Wi-Fi databases](#)³ so that they, or anyone else, can camp within range of those transmitters. Voilà! Free wireless broadband! If you want to [comment](#)⁴ on the ethics

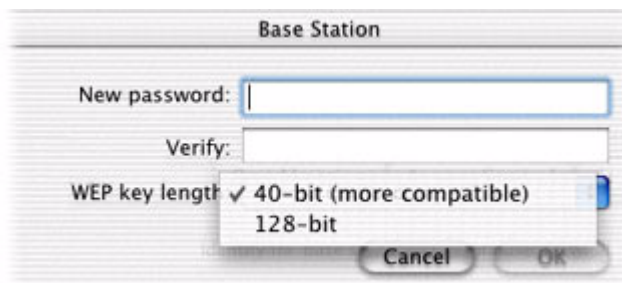
and legalities of this, be my guest. I'm not touching that one, but I do want to prevent people from using *my* bandwidth. As fodder for such a debate, here's a quote from the aforementioned *Times* article:

Those who use cable theft as an analogy point to federal law, which prohibits anyone from receiving communications offered over a cable system unless authorized by the cable operator.

But how the law will apply to Wi-Fi technology has not yet been tested. Some legal experts say using stray Wi-Fi signals is like trespassing. Others say the burden of securing the network may lie with its owner, as it does with satellite broadcasters. It is not a crime to tune in to unscrambled satellite programs, but it is illegal to crack the encryption of scrambled broadcasts.

Encryption: AirPort Base Station vs. Other Devices

With Apple's Base Station, encryption is easily accomplished by setting a passphrase and using that phrase each time your computer's AirPort card goes to work (or letting your Keychain handle the passphrase for you). An algorithm converts the passphrase into a series of hexadecimal digits to make up a key.



Assigning an Apple Base Station Password

The process is essentially the same for non-Apple computers and transmitters where a protocol known as Wired Equivalent Privacy (WEP) is used. Technically, Apple's process is also called WEP, although Apple doesn't seem to use the term as freely as others. Regardless of what you call it, Apple's algorithm for generating a key from the passphrase is different from the algorithm used by most other transmitters.

1. <http://www.macworld.com/2002/04/reviews/airport.html>
2. <http://www.nytimes.com/2002/03/04/technology/04WIRE.html>
3. <http://www.netstumbler.com/>
4. <http://www.atpm.com/8.04/wifi.shtml#comments>

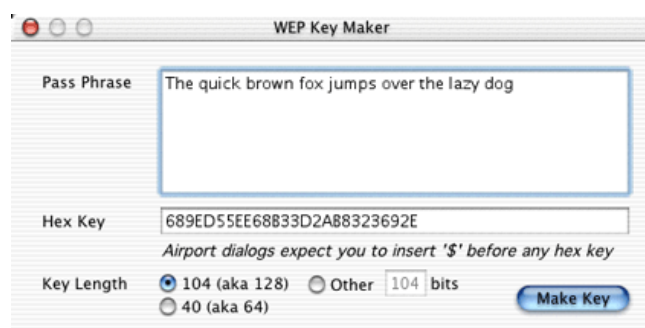
Consequently, if you use “The quick brown fox jumps over the lazy dog” as a passphrase on a non-Apple transmitter, using the exact same phrase on your Mac will not get you connected. To solve this, you must use an actual key to decrypt the connection instead of a passphrase. There are free utilities to generate hexadecimal keys from passphrases, such as [WEP Key Maker](#)¹. This allows you to memorize a phrase instead of a long hexadecimal key.

At this point, I find myself asking, “Why use a utility? Why not simply type a passphrase in the transmitter’s WEP configuration screen, let it generate the key, then copy that key to use on the Macintosh?” By way of a response, when I experimented with the *exact same* passphrase typed into WEP Key Maker and my Linksys transmitter, they generated different keys. So much for that theory.

So now I’m asking myself, “Why not just make up a random 10-digit (for 64-bit) or 26-digit (for 128-bit) hexadecimal code, type it into the transmitter’s key field, then also type it in as the password (and save it to the Keychain) when AirPort attempts to connect?” My answer quickly spawned from the unsuccessful experiment from the first question. If it were that easy, someone probably wouldn’t have bothered to write the WEP utility, and since I finally got my encrypted wireless connection running, I’m not going to mess around with it! If you know something about this, by all means, [tell us about it](#)².

Encryption Steps

So, unless someone identifies a way to decrypt the connection without using the utility, here’s what you need to do. First, launch the WEP utility and type a passphrase into the space provided. Choose between 64-bit or 128-bit encryption, then click the Make Key button. Highlight and copy the Hex Key, and you’re done with the WEP utility.

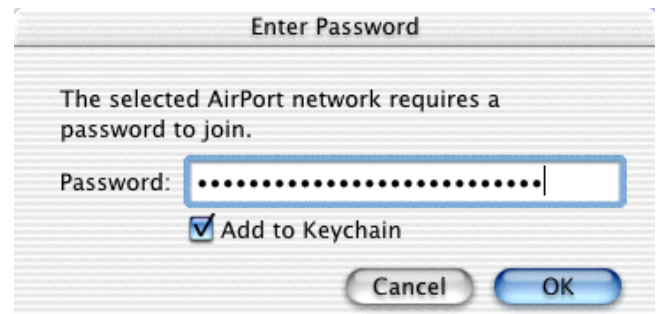


Generating a Hex Key with WEP Key Maker

Open the configuration screen of your transmitter and go to the WEP settings. Remember, you’ll have to be physically connected with an Ethernet cable for this step, or using another computer that is physically connected. Ignore the

field where you would type a passphrase. Select the same level of encryption that you chose in the WEP utility and paste the key into the WEP Key field. If you see multiple key fields, use the first one and make sure it’s selected. Confirm that encrypted connections are enabled, then save/apply your settings. You’re now done with the transmitter configuration page.

Finally (assuming your network settings are correct—probably simply set for DHCP), turn on your Mac’s AirPort connection and select the name of the network you want to use. This name is defined in your transmitter’s setup screens and is probably labeled ESSID. You should then be asked for a password, where there’ll be an option to add the password to your Keychain. Use the same hex key for the password, except prefixed by a \$ symbol. The dollar sign apparently tells your Mac to not generate a key from what you type since you’re manually entering the key itself. Note that you will not likely be able to paste the hex key from your clipboard into the password field. If not, just paste it into a text window where you can see both it and the AirPort password field, and type it in manually.



Remember to precede the WEP key with a dollar sign, and consider using your Keychain so you won’t have to type this in again.

One Last Consideration

As a postscript to all of this, allow me to share one other tidbit that I learned while gathering information for this article. I was informed that using encryption will cut the bandwidth of your wireless connection by roughly half. At first, I thought, “That’s impossible. I’m using encryption and I get the same speeds as when I still ran an Ethernet cable.” But then I realized that broadband bandwidth (generally between 512 Kbps and 2 Mbps) is vastly slower than the throughput Wi-Fi transmitters are capable of (usually around 11 Mbps under ideal conditions). So, if you’re only using Wi-Fi for Internet access, this slowdown won’t affect you in the least. However, if you intend to transfer large chunks of data between local

1. <http://www.chally.net/>

2. <http://www.atpm.com/8.04/wifi.shtml#comments>

computers over a Wi-Fi network, you may want to consider an alternate form of security.

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The Mops Programming Language—Part 2

Part 1 of this article, which appeared in last month's issue, described the Forth aspect of Mops, including stack usage, postfix notation (RPN), and the definition of new Mops words. Unless you are already familiar with a Forth language, it is likely you will benefit from [reading Part 1](#)¹ first.

Mops' Object Orientation

Now we come to the unique object-oriented nature of Mops, a feature not found in many other freeware languages to my knowledge. According to Mike Hore, sole proprietor of Mops, Object-Oriented Programming (OOP) "is the language's real power," and also, I would add, its main appeal. Since object orientation has become so popular nowadays, whether in full or partial form, there is no need to sell its benefits and virtues in this article.

The following three subsections present a somewhat abstract description of the ideas underlying OOP. If you are already familiar with OOP concepts you can skip down to the section entitled "[Example of a Class Declaration](#)." The concept description follows the view of Adele Goldberg, sometime member of Xerox PARC and developer of Smalltalk, who, if anyone, can be called OOP's inventor. In any case she was certainly one of the PARC staff members who "dealt lightning with both hands," in the memorable words of Alan Kay.

Objective

The primary objective of OOP is better management of program complexity. An OOP implementation contributes to the initial reliability of a program or system but also, of equal importance, enhances the maintainability of the code.

Model

The model for OOP is that of independent communicating objects. According to this model, an object sends a message to another object requesting an operation which the receiving object knows how to handle. The receiving object alone decides how this operation is carried out; the sender expects only the result to be satisfactory. Thus, "computing is viewed as an intrinsic capability of objects that can be uniformly invoked by sending messages." (A. Goldberg.)

The above quotation implies a programming paradigm of a higher level than those provided by Forth, Modula, Algol, and Pascal—one that is able to accommodate the lesser

paradigms without distortion, as witnessed by the seamless combination of Forth and OOP in Mops.

Basic Concepts

The object oriented approach requires only five well-defined concepts: Object, Message, Class, Method, and Instance.

Let's start out with a practical distinction: A class can be thought of as a source-program entity by which an object, a runtime entity, is created. A class definition describes a class of objects. One or many identical objects can be created from one class definition, although their data values will normally differ during execution. Static objects, compiled into the dictionary, must be uniquely named. Individual objects are said to be instances of their class.

An object consists of some amount of reserved memory used for data and a set of operations, or methods. The nature of the data and operations depends on what the object represents, which may range from an elementary data object to an on-screen window, up to a complex model of some entity in the problem space. (The Mops demo program, for example, produces fascinating patterns that model a set of mathematical expressions.) The object's data is logically packaged together with its methods, i.e. with the code that implements the necessary operations on the data. This is known as logical data-code encapsulation.

Another object can request that a particular datum be stored, retrieved, modified, etc., by sending a message to the object containing the relevant data structure, which in this context is called the receiver. The receiver recognizes only those messages that correspond to its set of methods. The *crucial property* of an object is that its memory can only be accessed by its own methods. The *crucial property* of messages is that they are the only way to invoke an object's methods.

The combination of these two properties ensures that the implementation of one object cannot depend on any feature of the implementation of any other object. This is not only a fundamental gain but it is also of practical benefit during program development and especially in program maintenance. While developing even a small program, the freedom to try different implementations of one class of object without affecting the others is a joy.

Note that a Mops object is in general a composite structure, in that it contains one or many lower-level objects that make up its data structure and, implicitly, add to its methods. Thus according to OOP rules, a composite object can and always

1. <http://www.atpm.com/8.03/mops.shtml>

does send “internal” messages to its contained objects. This internal messaging may occur to a number of levels. Thus in respect to methods, a high-level object may be thought of as a cascade of operations flowing from many objects in addition to the object itself. This is a quite significant point, however informal its description.

The sending of internal messages can be thought of as a chain that ultimately reaches back to methods formulated in primitive operations that are close to machine code. Internal messaging combined with inheritance provides a very high degree of information hiding. The programmer never sees the definitions for most of the methods invoked by his program; he need only understand and know the names of the methods he calls upon.

Finally, in Mops a message may be sent to an object from code that itself is not part of an object, that is, from an ordinary Mops word.

```
:class SCOREKEEPER super{ Object } \ Defines the class name
                                     \ and superclass

9  wArray      BOARD_ARR           \ Declares a 9-cell word-array Ivar

:m CLEAR_BOARD: ( -- )
  clearX: board_Arr                \ For use by the post-game cleanup word
;m

(* ----- Elementary methods of the class ----- *)

:m FINDZCELL: ( -- idx | t )        \ Locate first empty (zero) cell.
  9 0 DO i at: board_Arr           \ Loop thru the array and, if a
    0= IF i UNLOOP EXIT           \ zero cell is found, push index or
    THEN LOOP true                 \ return a true flag for none found.
;m

:m CHKZCELL: ( -- b )               \ Check cell location (celLoc) for
  celLoc at: board_Arr            \ zero content. Return true if zero;
  0= IF true ELSE false THEN     \ false otherwise.
;m

:m PUTOMK: ( -- )                  \ Update state value of board array.
  Omark celLoc to: board_Arr      \ Store O-mark value in cell celLoc.
;m

:m PUTXMK: ( -- )                  \ Update state value of board array.
  Xmark celLoc to: board_Arr      \ Store X-mark value in cell celLoc.
;m

:m @CELLVAL: ( idx -- n )          \ Fetch value at passed-in cell index
  at: board_Arr                  \ (idx) and return value on the stack.
;m

(* A number of lengthy methods and words have been omitted. *)

;class ( scoreKeeper )

scoreKeeper BOARDRECORD          \ Instantiate scoreKeeper-class object
```

The second line is very significant. It declares a data object, a data structure of class wArray, of size 9. We need not define that class since, like so many others, the definition already exists and only the object declaration is required. (As you will see, methods specific to that object come along “for free” also.) So our instance variable, or ivar, is a 9-cell indexible word array.

The first method definition defines itself in terms of “clearX: board_Arr” which is actually a message to the internal data object board_Arr for which the method clearX:

Example of a Class Declaration

Suppose that we are writing a Tic Tac Toe game, and we decide we need a sort of “gofer” object that keeps a running record of what is happening on the screen. The object needs a data record that models the playing field. It must be able to mark each cell with a “who played it” code (-1, 0, or +1) when requested. Beyond that, the object needs to supply all the information required by the high-level game playing, or decision, code. Examples of such information include, “Is there an unplayed space in a given path (row, column, or diagonal) on the board?” and “What is the arithmetic state (-1, 0, or +1) of a given path on the board?”

The following is an abbreviated version of a class definition used in an actual game implementation.

is already defined. (The “X” in “clearX:” has nothing to do with the X player in Tic Tac Toe; it’s just part of the built-in Mops method name.)

Note that method names must end in a colon (:), the only, if not one of the very few arbitrary lexical rules in Mops.

The next method definition, FINDZCELL:, shows a combination of “code” and an internal message to board_Arr. Objects of its class know how to execute an “at:” method, which takes an index value, supplied by the DO loop as input.

The PUTOMK: method, used when the computer makes a move, is a bit interesting in that it takes nothing off the stack but pushes the O-mark code value and the (global) cell location, cellLoc, on the stack to accompany the to: message. The to: method in every wArray-class object's repertoire requires these two values; what to store and where to store it. PUTXMK: is called when the player clicks on a square. (A different object, which owns the playing field, writes the corresponding X and O marks on the screen.)

The “;class” word terminates the definition (just as “;” terminates a word definition, and “;m” terminates a method definition). Thus the final line in the example is not part of the definition at all but is a sample declaration of an object instance of the scorekeeper class with the name BoardRecord. An object so created, i.e. by declaration, is static and is compiled into the Mops dictionary of the program it is part of. (Most, and often all, of the objects in a Mops program are static. Dynamic objects require a little extra work.)

Mops Pre-Defined Classes

Mops provides a very large number of pre-defined classes, defining objects ranging from a simple byte/word data object up to a Macintosh window, menu bar, or dialog. The latter kinds of object are of prime interest to the programmer of course since most programs need one or more windows, menus and dialogs; and such things are “horrendous” to program from scratch, so to speak. To create a window, say, through direct use of the Mac Toolbox interface is a torturous and error-prone business indeed. Worse, it also requires considerable internal Mac knowledge which doesn't appeal to most people if they can avoid it.

Mops' pre-defined classes for graphical user interface (GUI) objects hide the grimy, low-level coding required, largely by virtue of the OOP inheritance mechanism. The commonly used WINDOW+ class, for example, could be said to reach back to many other, simpler class definitions for parts of the complex data structures and the methods it needs. That is to say, an instance of the WINDOW+ class is a highly composite object. The programmer can however write a fairly simple WINDOW+ subclass definition (which inherits all of the WINDOW+ data and methods) in order to override, or modify, one or more features of its superclass.

It is often possible, however, to simply declare an object to be of the WINDOW+ class, for instance, and then send a few messages to it, for example one that causes it to become “alive” in the Toolbox. The class definitions for pre-defined objects need not appear in the source program since the definitions in question are normally pre-loaded transparently before the source program is read in. (Some are part of the core group in the dictionary and are always there.) The programmer must, however, be very familiar with the pre-defined class definitions for the objects he uses in order to understand the functionality provided and to know how to send proper messages.

Standard Macintosh window behavior, such as dragging, growing, and updating, is handled automatically by Mops' window classes, freeing the programmer to focus on application-level problems rather than constantly rewriting system-level code. To an extent the same can be said of all the Mops Toolbox classes.

Mops also supports a View object that is widely used in conjunction with WINDOW+ class objects. A view basically defines a rectangular area within a window in which drawing can take place. A view can have child views and has other interesting properties. The View construct is supported also by most Macintosh APIs and frameworks, such as MacApp, TCL, PowerPlant, and Cocoa.

So, how are objects created in general? As we've seen, every object is an instance of a class of objects defined in the source program by a class definition. When it is appropriate that an object be statically allocated it can be created by a simple object declaration that we've seen above (BOARDRECORD) the declaration is said to instantiate an object of its class. The benefit of a static object is that everything about it is simple and trouble-free (relative to dynamic objects). Also, message-to-object binding is always early (fast). The potential downside is that it is compiled into the dictionary (“locked in”) and continues to occupy program space even though it may have outstayed its welcome, a possible concern for big programs.

The alternative is a dynamic object, which is created at runtime on the program's heap. The picture here is a little mixed. The recent version of PowerMops (V. 4.0) provides very simple mechanisms called References to create and manage dynamic objects, with most interactions handled transparently. In Mops (68K) however the program must obtain a object handle from the Toolbox for the object-to-be (an objHandle declaration) and then issue an object creation statement (a newObj: message to the handle object). Objects so created are referenced by their handle name or index. In the latter, “traditional” case a good bit of care is needed in managing the relocatable blocks of heap storage normally allocated for dynamic objects.

Examples of Mops Pre-Defined Classes

The following is an example of an elementary data class definition for a 32-bit integer variable with class name VAR. It is not the most “primitive” in its lineage, however, as we shall see. Like all of the elementary data definitions, its methods are not defined in normal, high-level Mops words but in low-level words designed for efficiency. The reason for this is that

the methods for elementary data objects are by far the most frequently executed methods in a program.

```
:class VAR super{ longword }

:m +:      inline{ obj +!} ^base +! ;m
:m -:      inline{ obj -!} ^base -! ;m

;class
```

Note that there is no data-object declaration for the object's ivar. It is not needed because the superclass Longword supplies it. The +: and -: methods, for incrementing and decrementing respectively, seem an insufficient repertoire of operations on a variable. Again, like the Lone Ranger, the superclass Longword comes to the rescue. Longword has already defined Get:, Put:, and Clear: among a few others. So VAR implicitly has those methods (inheritance). Longword is

```
:class MENU super{ x-array }
68k_record
{   int RESID           \ Resource ID of this menu
   var MHNDL           \ Handle to menu-heap storage
}

:m ID:      inline{ get: resID} ;m
:m PUTRESID: inline{ put: resID} ;m

:m INIT:    ( xtl ... xtn N resID -- )
            put: resID put: super ;m

:m NEW:     ( addr len -- ) \ Create menu with title. Nonresource based.
            str255 get: resID swap NewMenu
            put: Mhndl ;m

:m GETNEW:          \ Resource-based menu
            get: resid GetMenu dup 0= ?error 127
            put: mHndl ;m

:m INSERT:         \ Inserts the menu in the menu bar.
            get: Mhndl 0 InsertMenu ;m

:m GETITEM:        ( item# -- addr len ) \ Gets string for item n
            get: mhndl swap 1+
            buf255 GetMenuItemText buf255 count ;m

:m PUTITEM:        { item# addr len -- } \ Replaces menu item string
            get: mhndl item# 1+ addr len str255
            SetMenuItemText ;m

:m CHECK:          ( item# -- ) \ Checkmark an item.
            get: Mhndl swap 1+ -1 CheckItem ;m

:m UNCHECK:        ( item# -- ) \ Remove checkmark.
            get: Mhndl swap 1+ 0 CheckItem ;m

;class
```

The superclass x-Array (array of execution tokens) implies that the class definition inherits an x-Array in its data structure, but the class definition need not fix the size of that array. The size specification can be, and usually is, deferred to the object declaration that instantiates an object of the menu class. (This is not an intuitive feature of the array-type classes.) The size specification will determine the number of menu items for a given menu object, so the program obviously needs to set that value itself.

In normal practice, all programs will send a message to the Init: method. It associates actions with all items in a menu object—for example the program's response to the user's

the generic superclass for many other elementary data classes and thus defines all of the methods common to those subclasses. The VAR class definition is characteristic of many of Mops' basic classes in its reliance on inheritance from a "generic" superclass.

Near the other end of the spectrum is the Menu class definition. For practicality only a few of the 25 or so methods are shown below, including a few universally used ones.

selection of the New item in the File menu. Also, the program will always call either New: for a non-resource-based menu or getNew: for a resource-based menu. Both methods pass a menu record to the Toolbox. Both methods are fully supported.

For a resource-based menu, the programmer literally draws pictures of each menu, as a 'menu' resource, using a resource editor such as Apple's freeware ResEdit. It's dead easy, and I can't draw my way out of a paper bag. The resource-based approach is much simpler to program and is pretty generally used. The average Mops program will need a

couple of other resources anyway, so adding the menu resources is no pain.

The `getItem:` and `putItem:` methods lets you play with menu item names on the fly, so to speak (and may completely disconcert your user).

Many programs will call the `Check:` and `unCheck:` methods; the former puts that neat little checkmark against the name of a clicked item and the latter undoes it. The “1+” word is a shorthand for adding 1 to the number at the top of the stack.

Note that the intelligible names in upper and lower case, such as `GetMenu`, `InsertMenu`, `SetMenuItemText`, and `CheckItem` are all system calls, or `Syscalls`. They invoke a Mac Toolbox service. It is important to know that, unlike names in the Mops domain, `Syscall` names *are* case sensitive. (Very much so. The Toolbox is quite particular.)

Subclasses and Superclasses

While all class definitions define one class of object, every such definition is at the same time a subclass of another class definition which, unless it is the proto-class `Object`, is itself also a subclass. That is to say, every user-defined and pre-defined class has an immediate superclass except for class `Object`. (For the moment, we are ignoring the possibility of multiple inheritance, wherein a class may have more than one immediate superclass.)

Thus, every user-defined class inherits both ivars and methods from its chain of superclasses. (See *Inheritance and Overriding* below.) This is particularly true of a user-defined class that interacts with the operating system (through the toolbox or otherwise) and typically has several Mops pre-defined Toolbox classes in its lineage. Such a class would normally be referred to as a subclass, but that is strictly a matter of viewpoint.

Inheritance and Overriding

A class definition inherits both the instance variables and methods of its superclass (and of *its* superclass, on up the line). A class definition must override the name of its superclass. A class definition cannot override the instance variables of its superclass; it inherits those unconditionally. A class definition may add methods to those of its superclass, and may override some methods of the superclass by defining methods with the same names as those of the superclass. (Note that class `Object` uniquely has no ivars so none are inherited from it.)

On a practical note, the greater the number of methods that are inherited rather than defined at the subclass level the smaller the resulting program (all else being equal).

Multiple Inheritance

In common with a few other object-oriented languages, Mops provides for multiple inheritance, wherein a class can have more than one immediate superclass and thus, two or more different lines of descent, much as a person has both a mother and a father and inherits characteristics from both. The possibility of multiple inheritance allows for a blending of functionality from two or more existing classes in a new class. (Cut your teeth on single-inheritance classes first.) When needed it is a very powerful feature and is often considered the touchstone of a fully object-oriented implementation. Several of Mops’ pre-defined classes employ multiple inheritance, primarily to obtain hybrid data structures.

Message Binding

Mops offers a variety of ways to achieve early or late message-to-object binding. Early vs. late binding is essentially a tradeoff between speed and programing flexibility. In late binding the receiver of a message is not known (or decided on) until runtime. It is a complex and somewhat esoteric subject and it is sufficient to say that Mops provides extensive support for the possible binding modes. Note that the well-known Smalltalk system provides only late binding in all cases.

Conclusions

Being a one-man effort, Mops is not the most stable of programming systems; on the other hand, Mops’ “tech support staff” is very knowledgeable indeed. Mike Hore, the developer, is known as being receptive to real problem reports and usually will get back to you quickly with either a fix or workaround. Beyond that there are a goodly number of expert Mops users who are pleased to offer advice and explanations of this or that obscure bit of the system. The big Mops Manual could do with a lot more organization, but for the diligent reader there is sufficient information there, clearly expressed for the most part.

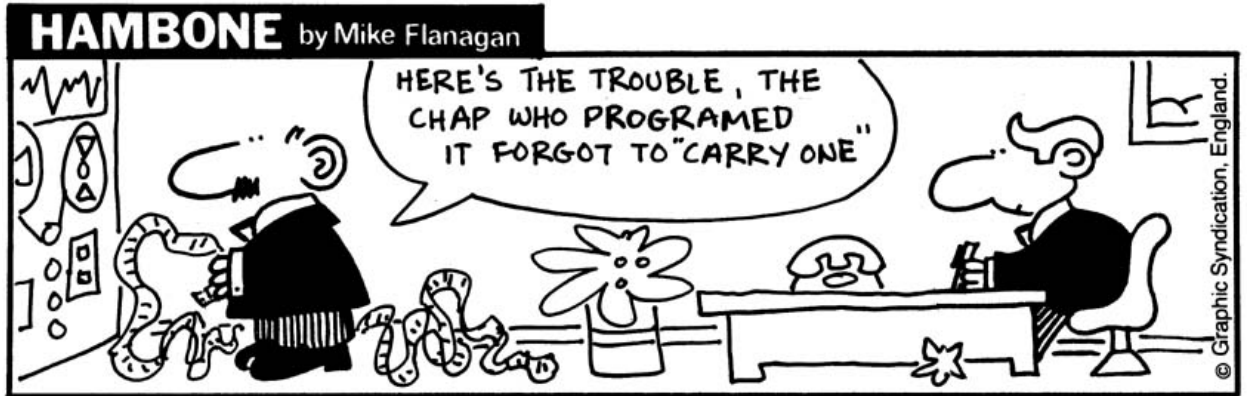
When I first encountered Mops, the “backward” notation of its Forth heritage was an annoyance to say the least; I got over that fairly soon. The stack programming aspect, once I was pretty well acquainted with it, struck me as very economical, efficient, and so on. I remain however a fan of object-oriented programming, and that is where Mops appealed to me. I liked the clean way that OOP is implemented in Mops. Much of it is intuitive.

All in all, for someone who likes or would like to try OOP (or Forth for that matter), I think that Mops is a good “buy.”



Extras: Cartoon

by Mike Flanagan, sensible@sensible.screaming.net



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Extras: Desktop Pictures

Travels¹

This month's desktop pictures were taken by longtime ATPM reader [Dalis VanderYacht](http://members.aol.com/DrTekNik/)² (a.k.a DrTekNik), between November 2000 and September 2001.

All pictures were taken with a Canon Sure Shot 76 Zoom and 35 mm color negative film. Some film was 200 ASA, and some was 400 ASA, mixed between Kodak Gold and Fuji Color.

Although I prefer manual settings at least some of the time, this camera has none, as there were no cameras available with manual-anything in this price range.

I use Photoshop version 2.5.1 (it was really cheap) and these are the actions I took, in sequence, to edit the original files from my CDs:

- Open the file (at 1536 x 1024) and, using the zoom magnifying glass, inspect the original for defects (hairs, developing spots, etc.).
- Retouch those using the stamp tool and/or the smudge tool.
- Adjust the Saturation to +20.
- Change the image size to 1152 x 768.
- Apply the Unsharp Mask, set to 150–175%, 0.5 pixels, 2 levels.
- Apply my copyright.
- Save as JPEG, set to a high value of picture quality and a low value of compression (7 out of 9).

California

CorteMaderaCreek: I took this from a bridge crossing the creek near Marin General Hospital, looking West. On the right there is a path following the shoreline.

DirtRoad: This road is out in the salt marshes and pastures adjoining the local sewage treatment plant's extensive flood pans, in the middle of nowhere. You can see my bicycle leaning against a fence post. Mount Tamalpais is in the background to the right.

HouseFloat: This house is along the canal that drains the Santa Venetia Marshlands. It's one of a few that are located along this particular canal. Note the Cormorant sitting on the piling to the right of the house.

MudCracks: These mudcracks were along a dirt path that runs along the top of the levees that keep the Santa Venetia Marsh from flooding Santa Venetia, an unincorporated area east of Marin Civic Center.

ShadyLane: This road is a side road that parallels Sir Francis Drake Boulevard, a busy two-lane highway that is the main artery from near the Larkspur Ferry Building all the way out to West Marin. Shady Lane is its real name.

Wood: This was taken of a wooden table top in San Francisco's Golden Gate park.

CaliforniaStreetsSF: This was taken on the famous California Street of San Francisco, California, looking up and West from downtown. I used to bicycle up this hill at least once a day during the course of my job as a bicycle courier back in the 80s.

BirdsSA: This was taken in downtown San Anselmo, Marin County, California. I thought it was unusual to see pigeons roosting on wires.

CenturyPlant: This Century Plant was way out towards San Pedro Bay, far from populated areas, and was in full bloom at the time, which, if I remember correctly, was around July.

68KSetup: This is my 68K Mac setup. The Quadra 650 is on the right, with an Apple Multiscan 15" AV Display. The middle unit is my Performa 460 with an Apple Performa Plus 14" monitor, and on the lower left, you can see my Macintosh IICI, which serves as my Ethernet file server and runs 'headless' (without a monitor) most of the time. Above the IICI is my AppleTalk ImageWriter II and the Apple Extended keyboard for the IICI. To the immediate right of the Quadra 650 is my External Apple 300e CD ROM, and an external case for a 20 MB PowerBook 2.5" HD, which serves as my backup startup disk (when things go wrong with the Quadra). In between the 650 and 460 is my Ethernet Hub, my EZ-135 External drive, and two Global Village 33.6 modems, one for the Quadra and one for the Performa 460. Since it gets very warm where I live, I keep the table fan blowing on the equipment to moderate the heat build-up. You'll notice an aquarium thermometer sitting on the Quadra's case to keep an eye on the temp.

South Coast Massachusetts (Winter 2000–2001)

Dartmouth: Dartmouth is a semi-rural town, west of New Bedford.

LampPostNB: A lamp post near downtown New Bedford.

SnowScene1: Right after a snow, near Fort Phoenix, looking towards the New Bedford fishing fleet.

SnowScene2: Another snowy scene near Fort Phoenix, this time looking North.

StandardTimesNB: Downtown New Bedford, looking toward the Standard Times building. You can see the Library with its statue of the harpooner in the bow of a whaleboat to the right. New Bedford at its peak was the Whaling Capital of

1. <http://www.atpm.com/8.04/travels/>
2. <http://members.aol.com/DrTekNik/>

the World. *Moby Dick* was written about a New Bedford whaling ship.

FortPhoenix: This is the stone marker to the entrance of Fort Phoenix, a seaside fort equipped with muzzle-loading cannon (now inoperative) to fend off attacks from the sea.

CoffinBldgNB: During the extensive renovation of downtown New Bedford, Massachusetts, I happened to see this doorway.

FairhavenBeach: This beach is on the East coast of Fairhaven overlooking the Atlantic Ocean. This shot was taken near Fort Phoenix.

Travelling

DarkClouds: These clouds were taken from a moving car somewhere in Oklahoma.

StormClouds: These clouds were taken from a moving car, and soon burst into a heavy rain.

Route66Museum: This shot was taken across Highway I-40/US 66 in Clinton, Oklahoma. This is the Oklahoma [Route 66 Museum](#)¹, to distinguish it from the National Route 66 Museum, which is located in Elk City, down the road apiece.

Previous Months' Desktop Pictures

Pictures from previous months are listed in the [desktop pictures archives](#)².

Downloading all the Pictures at Once

iCab and Interarchy (formerly Anarchie) can download an entire set of desktop pictures at once. In iCab, use the Download command to download "Get all files in same path." In Interarchy, use HTTP Mirror feature.

Contributing Your Own Desktop Pictures

If you have a picture, whether a small series or just one fabulous or funny shot, feel free to send it to editor@atpm.com and we'll consider publishing it in next month's issue. Have a regular print but no scanner? Don't worry. E-mail us, and we tell you where to send it so we can scan it for you. Note that we cannot return the original print, so send us a copy.

Placing Desktop Pictures

Mac OS X 10.1.x

Choose "System Preferences..." from the Apple menu and click the Desktop button. With the popup menu, select the desktop pictures folder you want to use.

You can also use the pictures with Mac OS X's built-in screen saver. Choose "System Preferences..." from the Apple menu. Click the screen saver button. Then click on Custom Slide Show in the list of screen savers. If you put the ATPM

pictures in your Pictures folder, you're all set. Otherwise, click Configure to tell the screen saver which pictures to use.

Mac OS X 10.0.x

Switch to the Finder. Choose "Preferences..." from the "Finder" menu. Click on the "Select Picture..." button on the right. In the Open Panel, select the desktop picture you want to use. The panel defaults to your "~/Library/Desktop Pictures" folder. Close the "Finder Preferences" window when you are done.

Mac OS 8.5-9.x

Go to the Appearance control panel. Click on the "Desktop" tab at the top of the window. Press the "Place Picture..." button in the bottom right corner, then select the desired image. By default, it will show you the images in the "Desktop Pictures" subfolder of your "Appearance" folder in the System Folder, however you can select images from anywhere on your hard disk.

After you select the desired image file and press "Choose," a preview will appear in the Appearance window. The "Position Automatically" selection is usually fine. You can play with the settings to see if you like the others better. You will see the result in the little preview screen.

Once you are satisfied with the selection, click on "Set Desktop" in the lower right corner of the window. That's it! Should you ever want to get rid of it, just go to the desktop settings again and press "Remove Picture."

Mac OS 8.0 and 8.1

Go to the "Desktop Patterns" control panel. Click on "Desktop Pictures" in the list on the left of the window, and follow steps similar to the ones above.

Random Desktop Pictures

If you drag a folder of pictures onto the miniature desktop in the Appearance or Desktop Pictures control panel, your Mac will choose one from the folder at random when it starts up.

DeskPicture

An alternative to Mac OS's Appearance control panel is Pierce Software's DeskPicture, [reviewed](#)³ in issue 5.10 and available for [download](#)⁴.



1. <http://www.route66.org>

2. <http://www.atpm.com/Back/desktop-pictures.shtml>

3. <http://www.atpm.com/5.10/roundup.shtml>

4. <http://www.peircesw.com/DeskPicture.html>

Review: A Tale of Two Bags—A PowerBook-Totin' Carrying Case Shootout

by Christopher Turner, cturner@atpm.com

Brain Bag/G4 Brain Cell

Developer: [Tom Bihn](#)¹

Price: \$130/\$50 (\$180 total)

Requirements: The G4 Brain Cell is designed to accommodate the Titanium PowerBook G4. Brain Cells for other notebooks are available.

Trial: None



Icon

Developer: [Spire USA](#)²

Price: \$130

Requirements: The Icon's boot is specially designed for the Titanium PowerBook G4 and the latest iBooks.

Trial: None



As soon as my [review of the TiBag](#)³ was complete, I put that particular PowerBook case aside to live with two other bags: the Icon, from Spire USA; and the G4 Brain Cell/Brain Bag combo from Tom Bihn. The Brain Cell/Brain Bag combination has been a Tom Bihn staple for quite a while, and many a reviewer has lavished well-deserved praises upon it. The Icon is a relative newcomer, Spire's challenger for PowerBook-carrying dominance.

Early Problems, Awesome Service

I first received Spire USA's Icon, and decided to live with it for a couple of weeks. But when I opened the box and removed the pack, I found that the zipper on the front pocket was off the track, so to speak. It would not seal properly and was therefore useless. I promptly contacted Spire's customer service department, and was reached via e-mail in less than 24 hours by customer service rep Cory Barnes. Normally, Spire would simply ship out a replacement bag to you, and you would ship the defective bag back in the same box. Unfortunately for me, the Icon is so popular that Spire didn't have any in its current inventory to send me! I was able to ship them my bag at their expense, it was repaired and shipped back to me, all within 48 hours. I would have to say that Cory and the gang at Spire did everything they could under the circumstances to correct my problem.

Brain Baggin' It

So, while I procrastinated about getting the Icon back to Spire, and during the quick turnaround thereafter, I decided to turn my attention to the Brain Bag/G4 Brain Cell combo. Let's just get this out of the way up front: if you are a hard-core mobile computing user, you can't beat the Brain Bag



3. <http://www.atpm.com/7.09/tibag.shtml>

1. <http://www.tombihn.com>
2. <http://www.spireusa.com>

with a Brain Cell. This bag can do just about anything and go just about anywhere.



The first major difference between the Brain Bag and the Icon is that the Brain Cell in the Brain Bag is an extra feature, and costs extra—\$50 extra, to be exact, on top of the Brain Bag's \$130. Spire's Icon, on the other hand, includes a Brain Cell—equivalent “boot,” as they've termed it, for your 'Book to reside in. Spire's boot slides into the Icon vertically (more on this in a bit), while your PowerBook slides into the Brain Cell horizontally. This accounts for the Brain Bag's greater width, compared to the Icon.



One thing I do like about the Brain Cell, compared to the Icon's boot, is that the Brain Cell snaps into place inside the Brain Bag. All Tom Bihn bags are designed this way, which is handy if you own more than one type of his bags. It's a simple matter to unstrap your Brain Cell from your Brain Bag, then snap it into your Messenger-style bag for security. Both Spire's boot and the Brain Cell are padded and have a

carrying handle, so you can slide out the Brain Cell or boot and just take that with you if you desire.



The Brain Bag has pockets. And more pockets. And still more pockets. Every place you look on this bag, there is some sort of pocket, most of which feature nice, large zipper pulls that are easy to work. I can pack everything I could think of to have on the road with my PowerBook and still have room for more. As a matter of fact, the Brain Bag is designed to hold two—yes, two—notebooks.



The Brain Bag features not one main compartment, like most computer bags, but rather two identical compartments where a Brain Cell can be snapped in. Which brings me to the G4 Brain Cell and its use in conjunction with the Brain Bag. The Brain Cell can essentially stand on its own as a PowerBook hauler, if all you require is a case for the 'Book itself and nothing more. You can even purchase a shoulder strap for the Brain Cell from Tom Bihn. This setup would work well for someone who hauls their Brain Bag to a central locale, then uses the Brain Cell to go from place to place, such as meetings, as we are wont to do around my place of biz. The

Brain Cell features a Velcro flap on top to seal in your PowerBook, as well as dual carrying handles if you go shoulder strap-less.



The 2d compartment without a Brain Cell taking up space.

While I like the idea of using the Brain Cell to transport my TiBook from meeting to meeting after arriving at the office, I would rather use some sort of wraparound case that opens with the PowerBook, much like the neoprene cases that Silicon Sports & Kensington used to retail. (Madsonline has a line of neoprene cases for Apple 'Books, but that's another review for another time.) Not to say that this is a slam on the Brain Cell: far from it. The Icon's boot functions the same way, though your PowerBook is mounted vertically in the boot, as well as in the Icon.

I Think Icon, I Think Icon...

I found that Tom Bihn's Brain Bag and Brain Cell combination more than suited my mobile computing needs. I made a trip from Dallas to New Orleans with this combo, and squeezed my digital camera, in its own case, a CompactFlash card reader, an extra battery, the AC adapter, multiple Ethernet cables, and a host of magazines and CDs into the Brain Bag. It is simply amazing the amount of stuff you can squeeze into it.

So when I turned my attention again to Spire's Icon, I was skeptical that it would be able to keep up with the Brain Bag. On first glance, the Icon appears to be smaller than the Brain

Bag, and one would assume that it would not hold nearly as much as Bihn's bag. This is nearly true, though just barely.



While the Brain Bag is designed to expand outward, the Icon is designed with more vertical expansion in mind. This accounts for the vertical orientation of the boot and the PowerBook therein. Like the Brain Bag, the Icon is also replete with pockets of various shapes and sizes, and these were quickly filled with the items removed from the Brain Bag. The Icon lacks the extra compartment the Brain Bag features, so there's no getting a second notebook into the Icon, unless you feel like cramming it in next to your 'Book-filled boot and straining the fabric and zippers themselves.

It was quite surprising, however, to find that everything I had in the Brain Bag transferred to the Icon, with the exception of my digital camera pack. Granted, for day-to-day transport, the digital camera is not part of my load. The fact that I could get everything else from the Brain Bag into the Icon was welcome news indeed, since for me, the Icon simply feels better on my back.



This is everything that I carry in the Icon. It all fits in the Brain Bag, plus my digital camera pack.

There and Back Again: an Icon's Adventure to Macworld Expo

After toting the Brain Bag on numerous holiday trips, I decided to give the Icon the hauling job for my recent trip to San Francisco for Macworld Expo. Using it while at the Expo meant leaving behind, locked in the hotel room, my iPod and audio accessories, to make room for my Nikon 950 digital camera, extra batteries, and extra CompactFlash cards, sans camera bag. The Icon performed like a champ, taking it on the chin in the crowded aisles of the show floor, and getting my gear from conference to conference and meeting to meeting.



The Icon's boot in place.

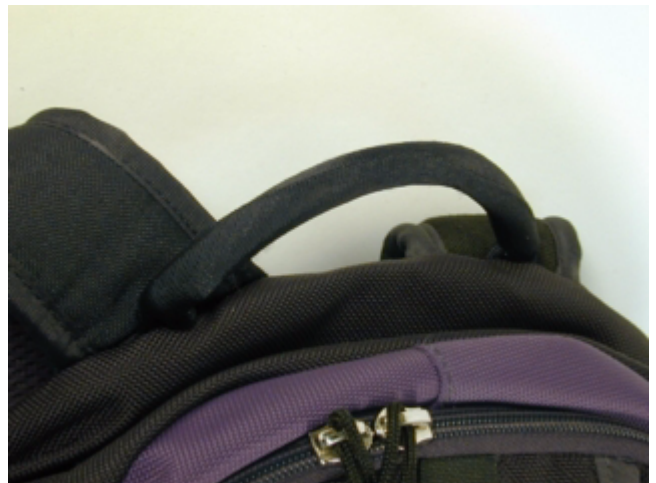
On the last day of the Expo, however, I noticed my Icon was beginning to fail: the rubber-covered handle on the top of the back was tearing out of the backpack on one side. Continued use of the handle would eventually rip it out completely, so I did my best to avoid using the handle until after I arrived back home. An e-mail to Spire the week after yielded an answer from super customer service rep Cory Barnes: the rubber handles have not been performing to Spire's expectations and are being phased out. If I sent my Icon in, they would replace it with the new tubular style Spire hopes will solve the problem. One week after returning from Macworld Expo, my Icon was on its way back to Spire for the second time for a repair.

The first week of February saw the Icon back in my hands, with a brand new handle. I have been very pleased with its

performance thus far, and while it doesn't feel as hefty as the old rubber handle, I feel it is easier on the hand.



The old-style handle that began to tear on me.



The new-style handle that Spire is using.

The Verdict

So which bag wins? Which bag wins the vaunted ATPM rating of Excellent? Each bag was used for roughly the same amount of time. Each bag went through at least one cross-country airline trip. Each bag went back and forth from home to office for weeks on end. Each held all of the items I like to have on hand for mobile computing. Neither one really looks like a computer bag, which is a big plus in keeping laptop thieves at bay.

I would have to say that the Brain Bag/Brain Cell combo is the current champ of TiBook toters. It can carry pretty much anything you can think to lug around with your PowerBook—even a second PowerBook! Top-notch construction and reliability make it a winner, quite simply the best all-around laptop-toting bag on the market.

The Icon is no slouch, however. While not as all-encompassing as the Brain Bag, it will more than fill many

users' needs. The Icon did suffer from construction and reliability issues, however, and was outlasted by the Brain Bag in these areas. Spire's outstanding customer service is to be

recognized in dealing with these, and special thanks once again to rep Cory Barnes.

So there you have it. The Brain Bag reigns supreme, but the Icon is waiting in the wings, should the king ever fall.

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Review: Click 'N Design 3D CD/DVD Labeling Software

by Gregory Tetrault, gtetrault@atpm.com

Developer: [Stomp, Inc.](http://www.stompinc.com)¹

Price: \$14.95 (download); \$27.17 (CD + shipping)

Requirements: PowerPC-based Mac with Mac OS 8.6 or Mac OS X, 30 MB free disk space (320 MB for all the clip art), 800x600 display, printer that can handle label stock.

Recommended: 64 MB application RAM, QuickTime 5.

Trial: [Fully-featured](#)² (30 days).



Overview

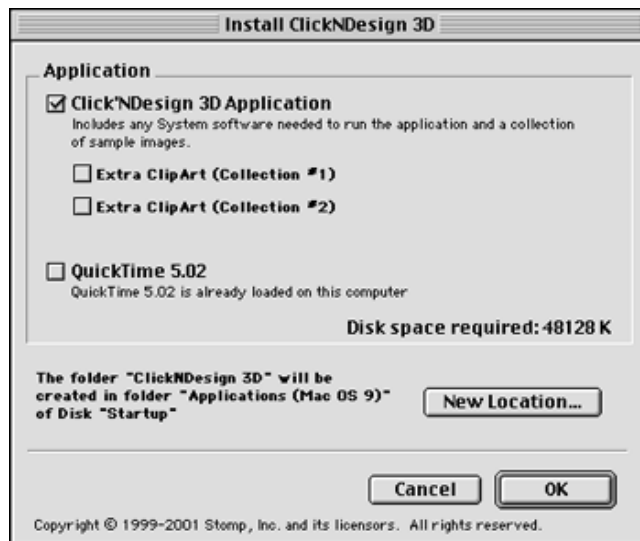
Click 'N Design 3D lets you create fancy disc labels and jewel case liners and inserts. It supports label sheets from many vendors. It has a large clip art and photo collection for creating backgrounds and foreground art. It also includes tools for creating and modifying text with 3D effects.

Installation

Double-click on the "Install Click 'N Design 3D.app" icon to launch the installer. Click the Agree button after reading or ignoring the lengthy license agreement. You have options for installing the application (48 MB) and two clip art collections (100 MB and 253 MB). If QuickTime 5.02 is not installed, you may select that option, too. The application and clip art files can be installed in any folder on any hard drive.



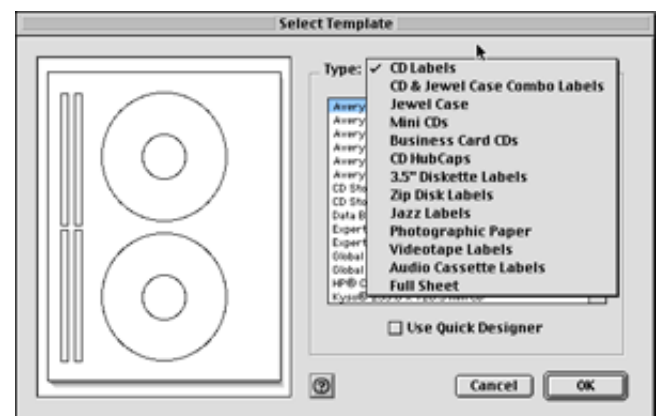
Click 'N Design Folder with Clip Art Installed



Installer Options Window

Using Click 'N Design 3D

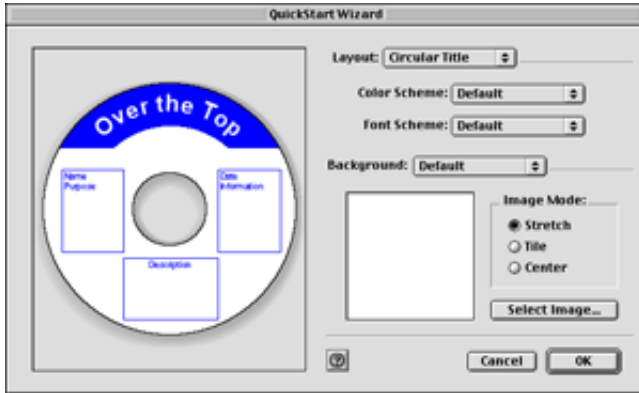
Each time you launch the application, you encounter a window that forces you to select a label type from the popup menu and label vendor from the scrolling list.



Window for Selecting Label Type and Vendor

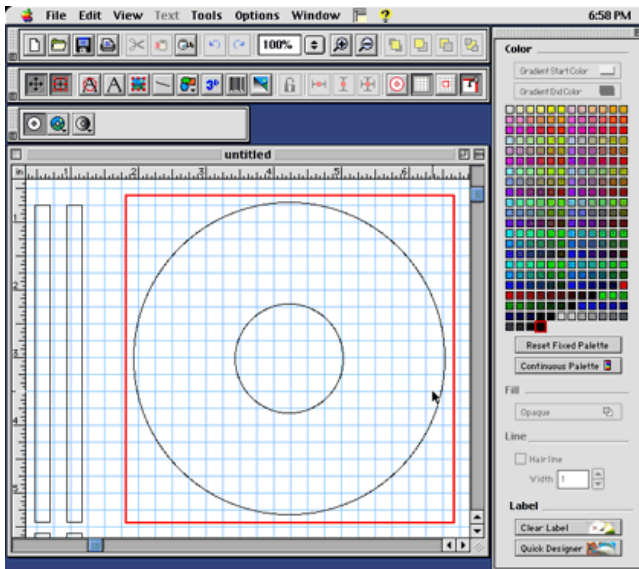
1. http://www.stompinc.com/cnd3d/cnd3d_retail.phtml?stp
2. http://downloads.stompinc.com/files/clickndesign3d_30day.sit

The program does not remember your last selection, and you cannot establish default options. If you check the “Use Quick Designer” box, the program switches to the QuickStart Wizard. (I don’t know why Stomp uses Quick Designer and QuickStart Wizard interchangeably.)



QuickStart Wizard for CD Label

The main application consists of a label creation window beneath three collapsible tool bars: an unnamed toolbar (containing file option, view option, and image stacking buttons), a Layout toolbar, and an Object toolbar (with variable contents depending on label type and current task).

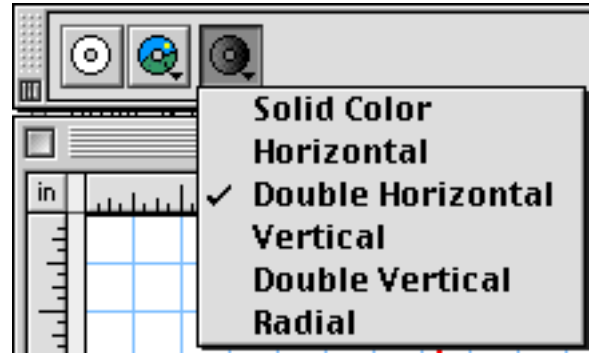


Application Window, Toolbars, and Palettes

The main window shows the chosen template with the default grid setting (blue lines 0.25" apart). The active area for editing is surrounded by a red rectangle. You can add three types of backgrounds: solid fill, gradient fill, or image. Six types of gradient fills are available. Gradient starting and ending colors are selected using the color palette to the right.

Selector,” then your “Select Image” window will contain three

There are two color palette options: fixed and continuous. The fixed palette contains 256 colors and cannot be altered.

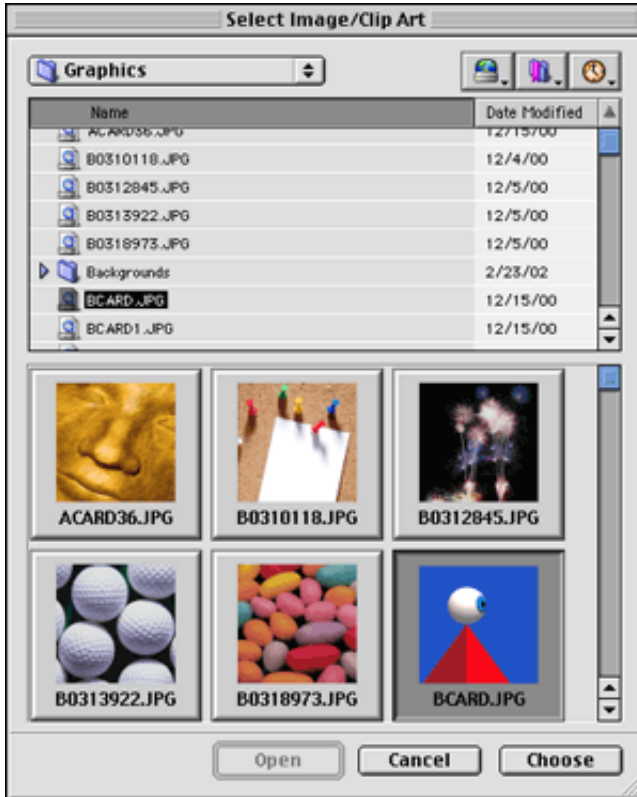


Gradient Fill Options

Click 'N Design comes with a large assortment of background photos, computer art, and textures. Fifty images are uncategorized and are found in the Graphics folder. The Backgrounds folder contains 33 folders of images. Two folders contain textures. The others contain photographs. Themes vary from Architecture to Dog Sledding. Unfortunately, all images, textures, and clip art contain non-descriptive names such as “B0311772.JPG.” Click 'N Design does not include an image catalog program and does not have a printed (or printable) catalog. The only way to identify images or clip art is to preview them in the “Select Image” or “Select Background Image” windows. The default window contains a file list and a button to show or hide a preview window to the right.

The preview changes almost instantly as you highlight different image files by clicking on the file name with the mouse or by navigating through the list with the arrow keys. If you go to the Preferences window and choose “Thumbnail

or six thumbnail images below the file list.



Default Image Selection Window with Thumbnail Selector

Unless you have an incredibly fast Macintosh, do not use this option. The Thumbnail Selector initially loads the first six images of the chosen folder. This takes quite a few seconds. As you scroll down the list of image names, more image previews load (slowly). If you change folders, the process begins again. If you go back to the previous folder, those images must reload. This process is not speeded up by giving Click 'N Design more memory, or by putting the images on your hard drive. Images can be used as background or as foreground art. Background images can be resized to fit the label, and small images can be tiled.

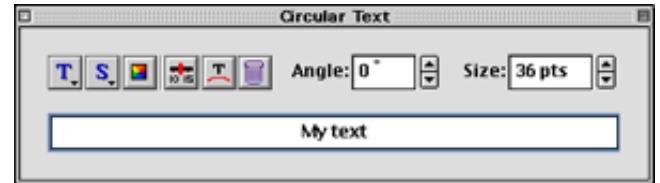
You can add three types of text to your labels: plain text, circular text, and 3D text. The plain text tool requires you to create a text box within the active portion of the label template. The text box cannot extend beyond the red bounds. The object toolbar contains text editing tools when the text box is selected.



Object Toolbar with Text Editing Tools

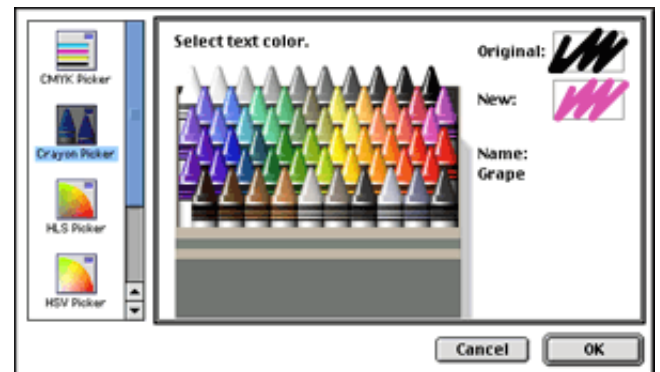
The “T” and “S” icons are popup menus for choosing fonts and font styles. Font size can be adjusted with the up and

down arrows or by typing a point size into the text size field. The next two toolbar icons are pull-down menus to set text alignment (left, center, right, full) and orientation (normal, up, down, and other [text on a specified angle]). The next two buttons are for setting margins around the text and for editing text contents. When the text box is highlighted, the top rectangular button in the Color palette reads “Text Color.” When that button is active, the text color matches the one chosen in the Color palette.



Circular Text Creation and Editing Window

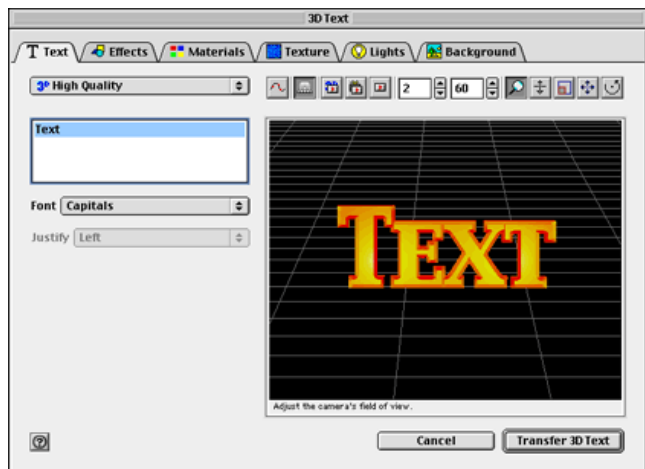
When you click the “Circular Text” button, a new window appears. Text entered into the field immediately appears in the active portion of the label template. Some icons are the same as those in the plain text toolbar. The text color button (to the right of the Style pull-down icon) pops up a standard Macintosh window for choosing colors.



Color Picker Window

You can use any available method for generating text color (CMYK, Crayon, HLS, HSV, HTML, or RGB Picker). However, if you wish to exactly match the color of plain text, then you should use one of the 256 fixed colors from the Color palette. The button to the right of the color icon toggles “Center Text” on and off. When “Center Text” is off, you can shift the circular text within the active label. When “Center Text” is on, you can only change the diameter of the circular text (the center point is fixed). The button with the letter “T” over an arc toggles convex and concave text. The Trash Can button deletes the circular text from the active label area. The

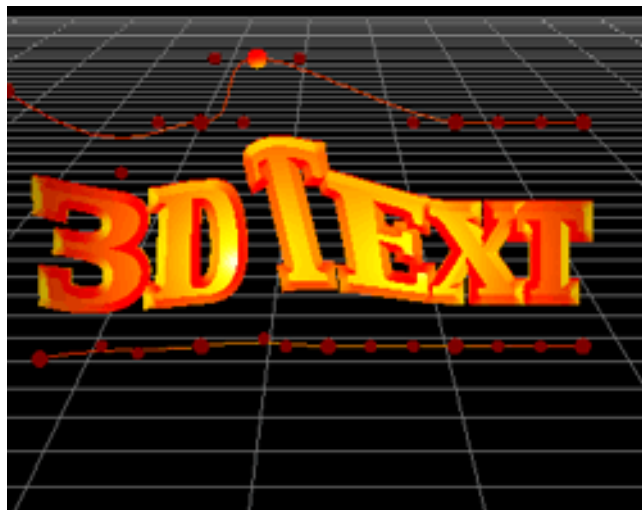
orientation point for the text can vary between 0 and 360 degrees.



Window for Creating and Editing 3D Text

3D text creation is done in a separate modal window with six tabs. The upper part of the window contains buttons and numeric fields for entering zoom factor and camera distance. Tab-specific items appear on the left, and the 3D text appears on a grid to the right. With the Text tab active, you enter text into the field on the left. You can choose a font and a justification, but you cannot choose a font style (such as bold or italic). You also cannot adjust kerning, a major omission when working with 3D text. Otherwise, Click 'N Draw 3D gives you complete control over your 3D text. You can apply a variety of effects (arc, arch, bow, bubble, circle, curve, perspective, slant, and wave). You can change extrusion and bevel settings, adjust curvature of circles and arcs, apply and position one to four light sources, use a variety of materials such as gold or chrome, apply textures (including the use of images as textures), and select from solid, gradient, or image

backgrounds. In addition, you can edit 3D text blocks or individual characters via Bézier curve handles.



Editing 3D Text Using Bézier Curve Handles

You can also edit the shape and 3D orientation of individual font characters and have those changes apply to every instance of the character in your text. Editing via Bézier curves and X, Y, Z position settings requires time and some trial and error (thankfully, there is a reset button), but it isn't difficult. When you have finished editing your text and adjusting camera position (which also controls the overall size of the 3D text object), clicking on the "Transfer 3D Text" button places the text block onto the active label.

Problems, Bugs, and Omissions

Other than the quirky interface and slow thumbnail image browser, I encountered no problems with Click 'N Design 3D. An obvious omission is the lack of support for drag and drop. (The program does support cut and paste.)

Documentation

The CD comes with a two-page "Quick Start Guide for Macintosh." On the CD is a PDF file for a 20-page (6" by 9") "QuickStart Guide." Both manuals are solely for the Macintosh version, a welcome feature for a product ported from a Windows-based predecessor. The manual begins with brief descriptions of how to create disc labels and jewel case inserts using the QuickStart Wizard. Then there is a series of "Did you know...?" tips covering image and text manipulations. I disliked this approach in a manual, especially when many of the menu and toolbar items were not even described. However, these items are described (very briefly) in the online help screens. Although the Help guide is being used in place of a more detailed manual, it doesn't function like a manual. You cannot move sequentially

through the help screens and must keep returning to main topic or subtopic screens to switch topics.



Help Viewer Window with Topic List

Technical Support

Stomp maintains a Web site listing of [frequently asked questions](#)¹ about Click 'N Design. However, only ten questions are answered. Written support requests via Stomp's online Web form are free. Telephone support is free for 30 days starting with the first call. After 30 days, telephone support is \$20 per incident.

Strengths

- Supports labels and templates from many vendors.
- Large image and clip art collection.
- Ability to create and edit 3D text with advanced features such as light placement, textures, and Bézier curve adjustment of letters and text blocks.

Weaknesses

- No label type and vendor preferences.
- No printed or printable image catalog and non-descriptive image file names.

1. http://www.stompinc.com/support/cnd3d_faq.phtml?stp

- Incredibly slow thumbnail image browser, even when images are on hard drive.
- Non-standard interface that is inconsistent and somewhat difficult to use.
- QuickStart Wizard offers very few choices.
- Fragmented documentation with no unified owner's manual.

Alternatives

[Discus 2](#)² from Magic Mouse Productions is another dedicated disc labeling application. An OEM version (with less clip art and no minidisc templates) is bundled with [Toast 5 Titanium](#)³ from Roxio (see [ATPM review](#)⁴). Although it has its own interface quirks, Discus allows faster creation of disc labels and jewel case liners and book inserts. It can import audio CD track names from Toast. Discus costs \$39 (\$20 if upgrading from the Roxio OEM version).

Most drawing programs, such as Deneba's Canvas, Adobe Illustrator, and CorelDraw, support label templates. With one of those programs and some clip art collections, you can create disc labels and jewel case liners almost as readily as with Click 'N Design 3D.

Another alternative is Nova Development's [Print Explosion Deluxe](#)⁵ (\$60). It has CD label templates and an extensive clip art and image collection. This program helps you create greeting cards, stationery, envelopes, banners, signs, labels, certificates, paper airplanes, etc.

Summary

Click 'N Design 3D subjects users to an awkward and inconsistent interface. The program would have received a "Rotten" rating if usability were my main criterion. However, the program is very inexpensive (\$27.17 with shipping). The clip art and 3D text creation capabilities alone might be worth that much to some users, so I give the program an "Okay" rating.

2. http://www.magicmouse.com/_discus.html

3. <http://www.roxio.com/en/products/toast/>

4. <http://www.atpm.com/7.07/toast.shtml>

5. <http://www.novadevelopment.com/mainus/products/pdm/index.htm>

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Review: Illustrator 10

by Jamal Ghandour, jghandour@atpm.com

Developer: [Adobe Systems](http://www.adobe.com)¹

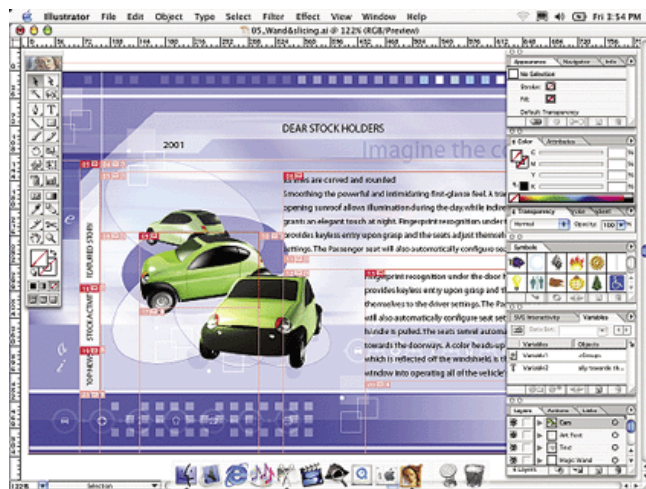
Price: \$399 (street); \$139.95 (upgrade)

Requirements: G3-based Mac with Mac OS 9.1 or Mac OS X 10.1, 128 MB RAM, 180 MB disk space.

Trial: [Feature-limited](#)² (cannot save, export, or print)



The industry-standard vector graphics software Adobe Illustrator has just gone 10. Intended for cross-media design professionals, Web designers, and Web developers, it can produce graphics that can be published with ease anywhere. Before we go any further, let me admit that I love Macromedia Freehand, and somehow this love is becoming mutual for Illustrator. If anything, Adobe is showing its commitment to listen to its customers with each new version. This is particularly evident with Adobe recognizing the ever-growing need for artwork on Web pages, and making this package more Web savvy than ever.



Adobe Illustrator 10 provides tighter integration with other Adobe products, is optimized for OS X (although it also runs on Mac OS 9.1 and 9.2), and delivers exciting new creative options that enhance productivity. For example, you can now create a master graphic and then save it as a symbol; every instance of the symbol that appears in the file references a single definition, keeping file sizes small while making it easy to manage change. New slicing options offer the ability to create object-based slices and to custom-optimize different slices in a Web layout. Slices update automatically if you make changes later, enabling a more flexible workflow. You can even specify CSS layer options when you export sliced HTML

pages. And when a site uses large numbers of similarly formatted graphics—such as charts, graphs, or elements in a banner—you can harness the power of dynamic data-driven graphics, to automatically produce unique variations on an Illustrator template design. Illustrator 10 also supports industry standards such as SVG, HTML, XML, and Macromedia Flash (SWF) format.

A closer look at the goodies:

Symbols

Anyone that uses Macromedia Flash will be familiar with this concept. Whether you use Illustrator as a Web design tool or as a source for creating elements used in animations, ensuring small file sizes is one of your biggest production concerns. If your work takes too long to download, visitors may click away. With new support for symbols, Illustrator 10 provides an easy way for you to keep your file sizes small—even in complex designs. Each symbol instance in a drawing references the original symbol, which keeps file sizes small while making it easy to manage change: if you redefine a symbol, all child instances update automatically. For designs destined for the Web as well as for complex artwork such as technical drawings and maps, this powerful feature helps ensure consistency while improving performance.



1. <http://www.adobe.com/illustrator>

2. <http://www.adobe.com/products/tryadobe/main.html#illustrator>

Defining and working with symbols is a breeze. Any artwork you create in Illustrator can be saved as a symbol—whether it includes drawn elements, text, images, or a combination. The results can be especially dramatic when you export animations. Without symbols, each element in every frame is represented, resulting in bulky file sizes. Animations that take advantage of symbols result in lighter, leaner files that work better online.

Slicing Artwork

Slicing a design into small, independent pieces makes a Web page appear to load more quickly, while making it possible to assign special behaviors to discrete sections of a page, such as links or rollover behavior. Using slices adds interactivity and improves the experience of a visitor to a site, making them essential for Web design. Illustrator 10 delivers slicing options that offer unprecedented control and flexibility to designers and developers alike, so it's easier than ever to turn designs into quick-loading Web pages without needing to switch from program to program. As you'd expect, slices you define in Illustrator can be edited using familiar tools in either Adobe Photoshop or Adobe ImageReady, and are also recognized in Adobe GoLive.



Support for CSS Layers

When one slice overlaps another, CSS (Cascading Style Sheet) Layers provide a standard way to maintain the transparency of the front layer without affecting the back layer; they're also convenient for hiding or making layers visible in different contexts. With Illustrator 10, you can export the top-level layers in your illustration as CSS layers in an HTML table. This lets you take advantage of these CSS features, and streamline the production of Web graphics. For example, a navigation bar might use a different layer for each set of localized buttons. When you export that file using CSS layers, you can make the layer that matches the user's browser language visible and hide all others, so that users in France see the French-language buttons while those in the States see the English versions.

Dynamic Data-Driven Graphics for the Web

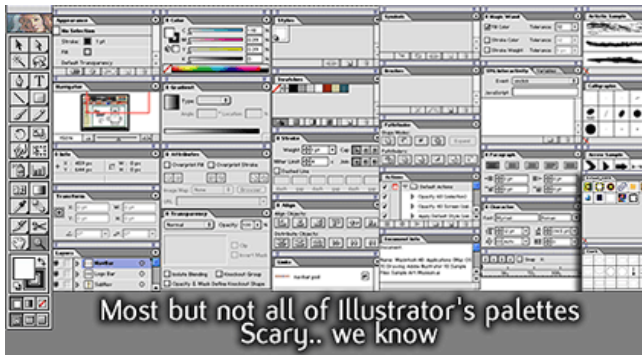
The ability to separate the design and the content of artwork by creating dynamic data-driven graphics is one of the most innovative features introduced in Illustrator 10. Today's sophisticated Web sites use powerful databases to serve customized content to visitors, and that content is increasingly visual. By providing tools that enable users to link graphic templates to ODBC-compliant data sources, Illustrator 10 enables new workflow. Using dynamic data-driven graphics, designers and developers can now work together to streamline the production of graphics that use highly formatted designs.

How would this be used? Imagine a Web site with sales and information reports that are updated weekly; each product is paired with sales data and an image to identify it. A designer would begin by creating a template that includes formatted placeholder text for a product name, a placeholder graph format, and a place-holder image, then define each one as a variable using the new Variables palette. Using sample data, the designer would then create several data sets that show how the product names and images would appear in the context of a page on the site. Once the template design has been finalized and approved, it's handed off to the developer. Whether a simple script or a dynamic image server is used, the developer links variables in the template to fields in a database in order to automatically create a unique graphic for each data combination. Adding new products or making changes to existing products (for example, replacing an image or changing a product's name) becomes a simple data management task, rather than a project that spans departments and requires additional resources. Designers can use the Preview In Browser plug-in to preview how artwork will look, prior to being generated by image servers such as AlterCast, without needing to have a copy of the server product installed.

Creative Freedom

In the Freehand war, Adobe always was one step ahead when it came to fancy, good looking effects. And now Illustrator 10 builds more on Illustrator 9's fame to expand your creative options with new features. New live distortion options make it possible to bend, twist, warp, and otherwise distort design elements while retaining their editability. Any path—including mesh objects—can be used as an envelope, within which other objects can be manipulated, which is useful for everything from simulating package designs to creating stylized logos. Warp settings can be saved as styles, so you can distort different objects consistently. With interactive liquify tools, you can bloat, pucker, twirl, and otherwise manipulate any artwork—images, drawn objects, and text—to create a variety of effects. Draw lines, arcs, and grids with point-and-click ease when you use flexible new drawing tools, and create editable photo-realistic lens flare effects with the new Flare tool. And because compound

shapes are an essential building block for many designs, new enhancements make creating them faster and easier than ever.



The Big Finale

What can I say, Illustrator is getting better and better by the day. At this rate this tool is becoming so powerful that I imagine a day not so far ahead where Illustrator, Photoshop, and ImageReady are merged into one single product that delivers a one-stop application for any design need. The only downside is that these products are becoming more and more resource hungry. Forget the projected requirements; this baby can easily eat any hard disk space, RAM, or processor that you might have. Suffice to say if you just open all of Illustrator's palettes you'd need one full screen.

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Review: Mailsmith 1.5

by Michael Tsai, mtsai@atpm.com

Developer: [Bare Bones Software, Inc.](http://www.barebones.com)¹

Price: \$99 (list); \$69 (from BBSW, until 2002-05-31); \$39 (upgrade); \$79 (cross-upgrade and academic)

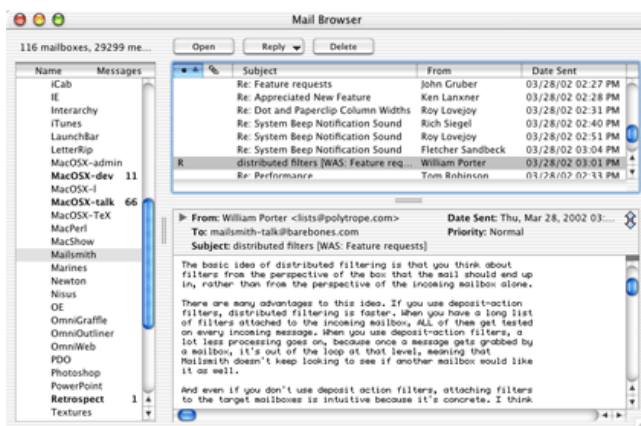
Requirements: Mac OS 9 (with CarbonLib 1.4) or Mac OS X 10.1, 16 MB of application RAM.

Recommended: More RAM if you have a lot of mail.

Trial: [Fully-featured](#)² (24 launches)



Mailsmith 1.5 is the latest version of Bare Bones Software's professional e-mail application, and the first major update of the product since 1998. As I described in my [review of Mailsmith 1.1.2](#)³, Mailsmith distinguishes itself with [BBEdit-style](#)⁴ text editing, powerful filtering and searching, and a clean interface. This review will focus mostly on what's new in version 1.5.



Mailsmith's Three-Pane Browser. The message preview is optional, and the address bar can be expanded to show more information.

Mac OS X

The most notable new feature in 1.5 is that Mailsmith runs natively on Mac OS X. As a full-time OS X user since version 10.1, I've been longing for the day when I could stop relying on Classic for my everyday work. Some people waited for Office to go native, others for Photoshop. For me, it was Mailsmith and Palm Desktop, both of which went native this week. Mailsmith is probably my most-used application, so I went from using Classic all the time to only firing it up now and then for FrameMaker and some seldom used Adobe software that I haven't upgraded. Mailsmith 1.5 ships with a single application file that runs on both OS 9 and OS X. I consider this a big advantage over Apple Mail and Entourage

v.X, which are OS X-only. Meanwhile, Eudora for OS X is still in beta.

Composing Messages

Most e-mail clients have rudimentary support for text editing. You're lucky if they can even Find and Replace. Mailsmith packs a variant of BBEdit 6.5's text engine. Subtract BBEdit's programming- and Web-specific features, and you're left with a powerful editor that supports unlimited undoes, multiple clipboards, split window editing, and great control over line breaks and quoted text. A few people send me mail in all capital letters, and Mailsmith's Change Case feature makes it easy to convert these to a more readable format.

Version 1.5 adds support for finding and replacing using Perl-compatible [regular expressions](#)⁵; and, as in BBEdit, you can edit your regular expressions with the benefit of syntax coloring. BBEdit's Glossary feature, which lets you manage and insert text snippets, has been added to Mailsmith. Glossary items can include a variety of special placeholders (such as the current selection or date), and Mailsmith can automatically switch to a different glossary based on the account used to send a message.

Previous versions of Mailsmith were AppleScriptable, and 1.5 adds support for the Text Suite so that your scripts can manipulate individual lines and words, as well as the insertion point. Most BBEdit scripts are easily adaptable for use in Mailsmith. This increased scriptability is probably my second favorite part of 1.5 (after Carbonization), and I'm happy to be able to use my [BBAutoComplete](#)⁶ utility when writing e-mails.

Skeptics may wonder why such high-powered editing features are desirable in an e-mail client. After all, isn't that what text editors are for? All I can say is that using BBEdit in conjunction with another e-mail client (as I once did with Emler) is nowhere near as convenient as having the editing

3. <http://www.atpm.com/5.01/page8.shtml>

4. <http://www.atpm.com/6.10/bbedit.shtml>

5. <http://www.oreilly.com/catalog/regex/>

6. <http://www.c-command.com/bbautocomplete>

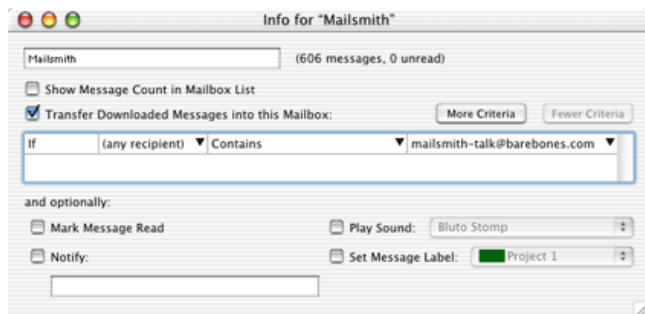
1. <http://www.barebones.com/products/mailsmith.html>

2. <http://www.barebones.com/products/mailsmith/mailsmith-demo.html>

features built-in, especially since Mailsmith can now store draft messages in its database.

Filtering

Mailsmith's advanced filtering features are barely changed from previous versions. There are still no criteria for checking whether a message's sender is in a particular group, has a particular label, or is in the address book at all. Nevertheless, Mailsmith's filters still set the standard for flexibility and power. Previous versions forced you to understand Mailsmith's intuitive but non-standard distributed filtering system. 1.5 adds a simple way to create basic filters—just Get Info on a mailbox and add criteria in the info window to make that mailbox attract matching messages. With the settings specified directly on the mailbox, there's no need to name the filter and remember the name when you need to look it up later.



Basic filtering made easy—just Get Info on a mailbox.

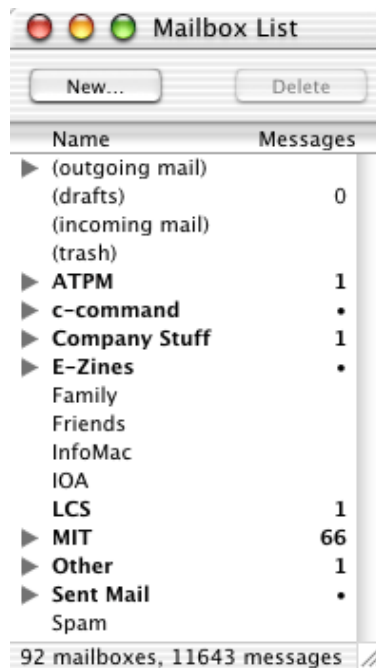
Searching

As before, there are both simple and advanced interfaces for finding messages in your mailboxes. Mailsmith still has the most powerful search criteria, including approximate and regular expression matches, but it's not as flexible as Entourage and Eudora when it comes to letting you specify which mailboxes to search. A nice addition is that if you cancel a search, Mailsmith displays the results it's found so far, rather than discarding them. Unfortunately, Mailsmith can't display search results as they are found, as some of its competitors can. And there is no incremental search as in Apple Mail and Entourage.

The Database

Mailsmith maintains one database for each mailbox. This is great for reliability; you can't lose all your mail because of one corrupt file. It's also nice for backups; individual mailbox files can be kept small, and Retrospect will only backup the ones that have changed. For these reasons, I much prefer Mailsmith's approach to that of Entourage and PowerMail, which maintain a single message database for each user. The main downside to the Mailsmith approach is that moving messages between mailboxes is slower.

Mailsmith 1.5 makes it easier to rebuild and compact mailboxes. You simply hold down Command and Option when starting Mailsmith, and select the mailboxes to rebuild. It's just like rebuilding the desktop on OS 9. You can follow the rebuilding progress by watching the progress bar in Mailsmith's dock icon. In my experience, the database is very reliable and it is seldom necessary to rebuild a mailbox because of corruption.



The Mailbox List compactly shows all your mailboxes; you can open a window for each one, Eudora-style.

Unfortunately, despite some improvements in 1.5, Mailsmith's databases seem as slow to me as ever. Although each mailbox can handle tens of thousands of messages (I didn't try more) without trouble, after a thousand or so messages it is noticeably slower to add new messages. This is most noticeable when downloading mail. Mailsmith is reasonably quick communicating with mail servers, as you can see if you use a POP Monitor to download messages to a text file. However, downloading messages to the database is sluggish. It took more than eleven minutes on a DSL connection to download 559 messages into a collection of mailboxes that contained just under 20,000 messages all together. The good news is that you can still work with Mailsmith while it is downloading mail; however, the application is less responsive while it is filtering incoming messages.

Mailsmith databases are significantly larger than those of other clients. One of my mailboxes is 9.8 MB in Mailsmith, 2.1 MB in Entourage, 1.7 MB in Apple Mail, and 1.4 MB in mbox format.

Database operations like searching, deleting messages, and moving them between mailboxes are still modal—Mailsmith won't let you do anything else while the operations are in progress. As such, it can feel a lot more restrictive than Apple Mail. On the other hand, Apple Mail often crashes when I try this feat.

Though Mailsmith is slow when searching a mailbox or adding messages to it, the interface for actually viewing a mailbox is snappy. Unlike Apple Mail, once Mailsmith starts up you can quickly click from mailbox to mailbox and instantly see a list of all their messages. When reading through a mailbox, you can arrow-key from message to message without any delay. Despite Eudora's reputation as a speedy e-mail client, there is a slight delay—and disk access—between each message when I try this task in it.

Customizability

Professional-level products adapt to their users, and Mailsmith is no exception. Most features are available from both the keyboard and the mouse. The keyboard shortcuts for the menu commands are fully customizable. The new Glossary, Stationery, and Scripts palettes provide quick access to these features, and you can assign keyboard shortcuts to items on the palettes.



Set your own keyboard shortcuts for Mailsmith's menu commands.

In addition to the above-described Text Suite support, nearly all mail and account aspects of Mailsmith are AppleScriptable. (Filters are a notable exception—all you can do with AppleScript is re-apply them.) Mailsmith is *recordable*, so you can quickly build up scripts without poring over its dictionary. You can even replace built-in menu commands with AppleScripts. For example, you might

modify the Send Now command to set your signature or sending account based on the message's recipient before sending.



The New Scripts Palette

An e-mail client is a very personal choice, and no matter which one you pick it's bound to lack a few features that you want. The great thing about using a scriptable mail client is that you can often add these features yourself. Mailsmith has no built-in keyboard shortcut for moving a message from one mailbox to another, but with a little AppleScript I can use Command-Control-S to move the selected messages to my Spam mailbox, and mark them as read. Apple Mail and Eudora let you hide messages that you've already read. Mailsmith can't do this out of the box, but a short AppleScript makes it easy to open a new window containing the current mailbox's unread messages. Even if you aren't a scripter, you can take advantage of Mailsmith's scripting by downloading scripts that others ([1](#), [2](#)) have written.

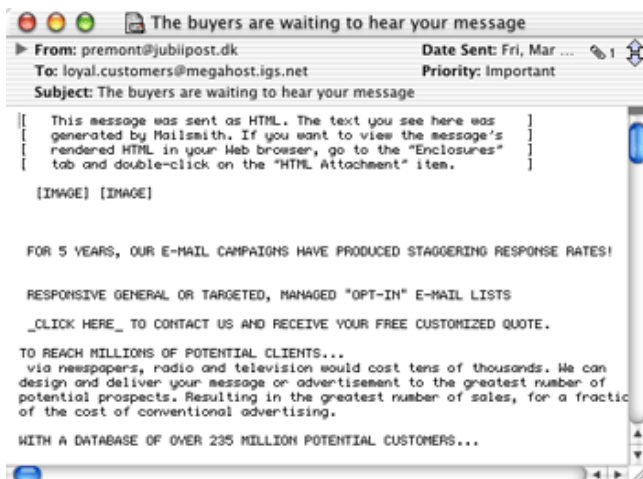
Other Improvements

Lots of improvements in 1.5 didn't really fit into the above sections, so I'll list some of the rest here:

- Mailsmith doesn't display HTML messages in their full glory; instead it displays the text part of multi-part messages. I consider this a feature. A nice improvement is that if a message only has an HTML

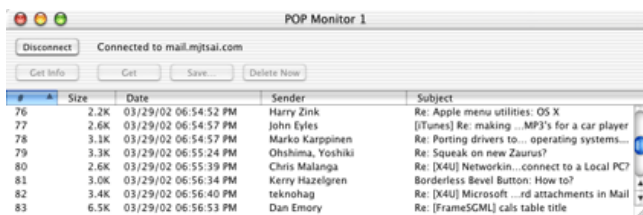
1. <http://www.mostrom.pp.se/info/ms/scripts/index.html>
 2. <http://www.xs4all.nl/%7Erbrouwer/mailsmith/>

version, Mailsmith will display a text-only rendition of it. This often saves a trip to your Web browser.



Mailsmith can render HTML-only messages as text.

- Can display images attached to messages.
- Integration with PGP for encryption and decryption of messages. This only works on Mac OS 9, since PGP is not yet available on Mac OS X.
- Direct importing of mail from EMailer, Apple Mail, and Eudora (no AppleScripts required).
- Support for multiple users—user data is now stored in the user's Documents folder.
- You can now open multiple POP Monitor windows, to view the contents of more than one mail account at a time.



The POP Monitor lets you manipulate messages on your mail server.

- Randomized signatures.
- Report to SpamCop command (and filter action) is the easiest way to send reports to spammers' administrators.

- The columns in the mail browser are now reorderable, and you can control which ones are displayed.
- Passwords can be stored in the system keychain.

Conclusion

Mailsmith is arguably the best e-mail client for Mac OS X. It's full of professional features, and includes an excellent 184-page manual to help you get the most of them. Despite this power, the interface is uncluttered and approachable for novices. The price is a bit high compared to its competitors, but if you use e-mail professionally it is well worth it. It's also worth noting that the previous 10 updates were free and added a substantial number of new features. Mailsmith 1.5 is not exactly the killer upgrade I was hoping for—in particular, the database still leaves a lot to be desired. Nevertheless, this is an excellent upgrade that's a must for all Mailsmith users and will likely win many converts.

Strengths

- Runs natively on Mac OS X and Mac OS 9.
- BBEdit-style text editing.
- Powerful distributed filters.
- Best-of-class AppleScript support.
- Excellent searching.
- Clean, polished interface.
- Very customizable.
- Excellent documentation and technical support.

Weaknesses

- Slow and resource-hungry.
- No IMAP support.
- No LDAP support.
- No Kerberos support.
- Minimal address book.
- No address book filter or search criteria.
- Message list doesn't show which account received each message.
- Mailbox and message list fonts aren't configurable; they're always anti-aliased on OS X, and the bold and plain fonts are too similar.

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Review: PowerMate

by Paul Fatula, pfatula@atpm.com

Developer: [Griffin Technology](#)¹

Price: \$45

Requirements: Mac with USB

Trial: None



The first line of the PowerMate's PDF manual declares it "a new genre of computer peripheral, one with almost limitless potential." While not especially new (does anyone else remember having "paddle" controllers for their Atari 2600?), it does have the potential to be far more than the volume control knob it's generally presented as.



What Is It?

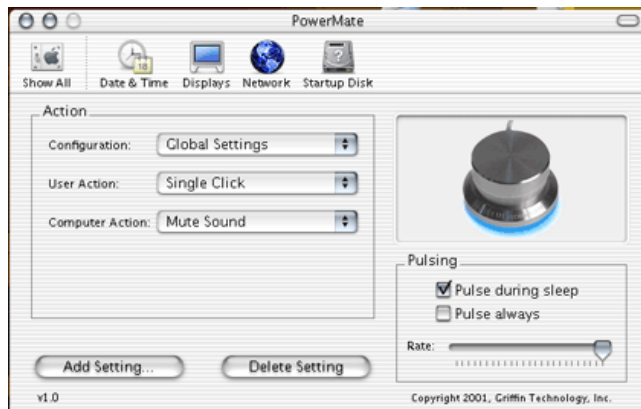
Physically, the PowerMate is a small (smaller than I expected from pictures I'd seen, but that's not a bad thing), elegant aluminum knob. The knob is also a button. The base of the PowerMate is illuminated in a very nice shade of blue, which dims or brightens in correspondence with the volume on your computer, and pulses when the Mac is sleeping. The bottom of the PowerMate is made of some sort of anti-slipping material, to make it less likely to move around when you're using it. (I wish my trackball had that!) In sum, the only way the PowerMate could be more attractive would be to make it wireless. It's physically well-designed, and if you're the sort of person who likes having nifty gadgets attached to your computer, the PowerMate is for you. If you just get the PowerMate for its looks, however, you'll be missing out. It can be programmed to perform actions on six different maneuvers: rotate left, rotate right, click, double-click (OS X only), hold-and-rotate left, and hold-and-rotate right. Specific actions can be programmed for a particular

application, and if the frontmost application doesn't have its own set of actions set up, a default set will be used. If you're familiar with Kensington MouseWorks, you'll have a general idea of what this is about.

What's It For?

At its simplest, the PowerMate is a Power On button (for Macs that support one) and a volume control knob. It can raise, lower, or mute the volume regardless of which application is foremost. If you don't have volume control keys on your keyboard, and play music on your computer, that functionality alone may be worth paying for.

However, the PowerMate can also be configured to do other things, dependent on the frontmost application. If Amadeus II is running, the PowerMate can let you horizontally scroll through the piece of music you're editing. Or you could change the general preferences so instead of changing the volume, it switches you to the next application. You get the idea; there are lots of potential uses.



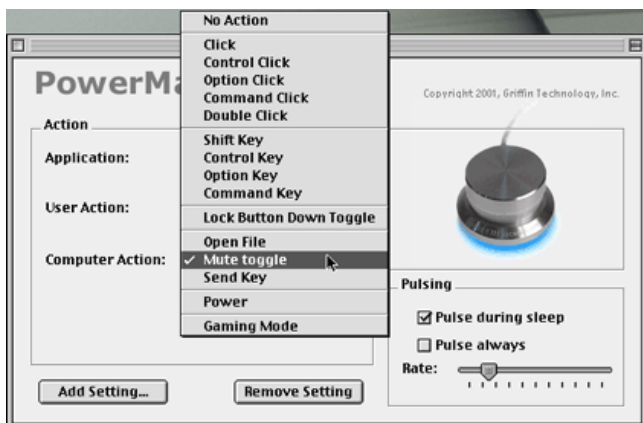
The thing you want to keep in mind is that you want to pick keystrokes that you repeat lots of times consecutively. It's not useful to make your PowerMate create a new folder on rotate left, or quit an application on rotate right. Think arrow keys. Clicking the button is another story: you might use double-click to hide the frontmost window, for example. Depending

1. <http://www.griffintechology.com/audio/pwrmate.html>

on how you think, you might find it confusing to have the PowerMate change system volume in some programs, go to the next/previous record in FileMaker, look side to side in Black & White, scroll horizontally in Amadeus II, change application volume in iTunes, scroll vertically in iCab, etc. I find I'm happy if I make sure that in all applications, hold and rotate changes the system volume, double-click mutes, and regular rotate is application-specific. After playing around with it for a few days, you'll find what works best for you.

The Catch

As it stands, unfortunately, the PowerMate's software really doesn't allow it to live up to its potential. In OS X, your options for what a turn of the knob or a press of the button can do are very limited. Other than changing the volume, all the PowerMate can do is enter a keystroke (or key combination). By contrast, OS 9's options allow you to send a mouse click (alone or modified by a key), move the cursor in the four cardinal directions, or open an application, among other things.



This screenshot shows actions available on click; the options for rotate are different, and include changing the system volume.

Particularly in OS X, though, if there isn't a keyboard command for the action you want to perform with the PowerMate, you're stuck. You can't fast forward or reverse through a song in iTunes, for example. Nor can the PowerMate serve as a scroll wheel in many applications. You can map the PowerMate to the up and down arrow keys, but in many applications, that's not the same as scrolling. Also, the PowerMate can only change the volume of iTunes if it's the frontmost application; use the PowerMate to change the volume from another application, and you'll change the system volume. That said, if consistency is an issue for you, you can set the PowerMate so it always changes the system volume, even if iTunes is frontmost. In OS X, changing the system volume with the PowerMate does not change the menu bar icon indicating volume, nor will you find the slider adjusted if you click on the icon to readjust the volume with your mouse. Similarly, if you change the system volume with

your mouse, the base of the PowerMate will not dim or brighten accordingly.

Some of these complaints may be things not easily within Griffin Technology's ability to fix. Others would be relatively easy to take care of, and would make a big difference in helping the PowerMate live up to its potential. A huge improvement would be to give OS X users all the options which OS 9 users already enjoy. A "scroll wheel" option would also be welcome. As for things like fast forwarding through a song in iTunes, or real integration with OS X's software volume controller, giving the PowerMate those abilities would probably require changes by Apple to integrate the software with the PowerMate's abilities.

In some ways, the PowerMate reminds me of the first time I got a mouse. It was attached to a PC running, if memory serves, DOS 3.1. Many programs, including DOS itself, simply ignored the mouse, requiring you to arrow-key your way all over the screen. Programs that used the mouse were much more pleasant to use. Point being, the PowerMate's abilities are to a great extent limited by what programs allow it to do. Someday, perhaps, programs (and OS X) will be written with the PowerMate in mind; until then, keyboard mapping is probably about the best Griffin can do.

Bugs

The only major bug with the PowerMate's software is this: in addition to performing an action on rotate right or rotate left, the PowerMate can perform a different action if you rotate right or left while holding it (the button) down. So in Amadeus II, I could set up the PowerMate to change system volume if I hold and turn. Nifty. Unfortunately, if I've programmed the PowerMate to do something when the button is pressed (like Play the music in Amadeus II, or mute volume), that action is performed when you hold the button, effectively disabling the whole hold-and-turn capability. Note that this bug only exists in OS X; while I spent only minimal time testing the PowerMate in OS9, I checked for this bug, and it doesn't seem to be present.

Under OS 9 on a Wallstreet PowerBook equipped with a USB PC card, I managed to freeze up my computer by setting the PowerMate to up/down arrow on rotate, and using it to move among my list of e-mail accounts in Mailsmith. There are other cases in which "rotate" actions provoked a freeze on this configuration. I'd suggest avoiding the PowerMate if you don't have built-in USB, but I had no problems under OS 9 on a computer with built-in USB.

Conclusion

Not only is the PowerMate pretty to look at and comfortable to use, it's actually quite useful. When the phone rings, or someone walks into my office, a quick tap on the PowerMate mutes the computer. In FileMaker Pro, rotating the PowerMate is far more convenient than the awkward control-up and control-down to move among records. While usually

I stick to the scroll wheel on my mouse, I sometimes use the PowerMate to scroll through windows (by keying in an up or down arrow), as I find the rotate action physically more comfortable than the constant thumb movements required

by a scroll wheel. Once Griffin soups up the software, the PowerMate will be deserving of an Excellent; as it stands, it's Very Nice.

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