

The Journal of Washington Apple Pi, Ltd.

# WASHINGTON APPLE PI

Volume 24, Number 6

**Volunteers—the heart of WAP—5**

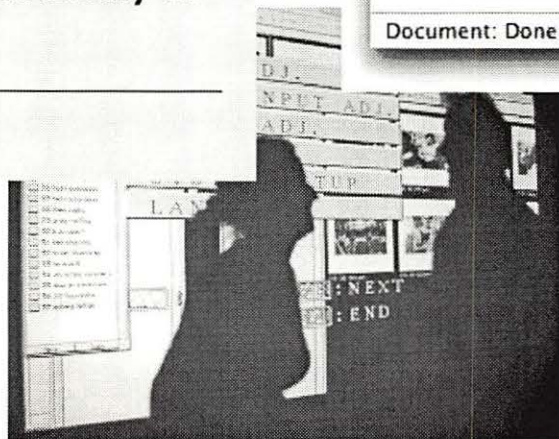
**WebMail, a new WAP service! —8**

**Life with Macs at a Photo Workshop—25**

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**OS X.2 Jaguar—Necessary or Useless?—61**

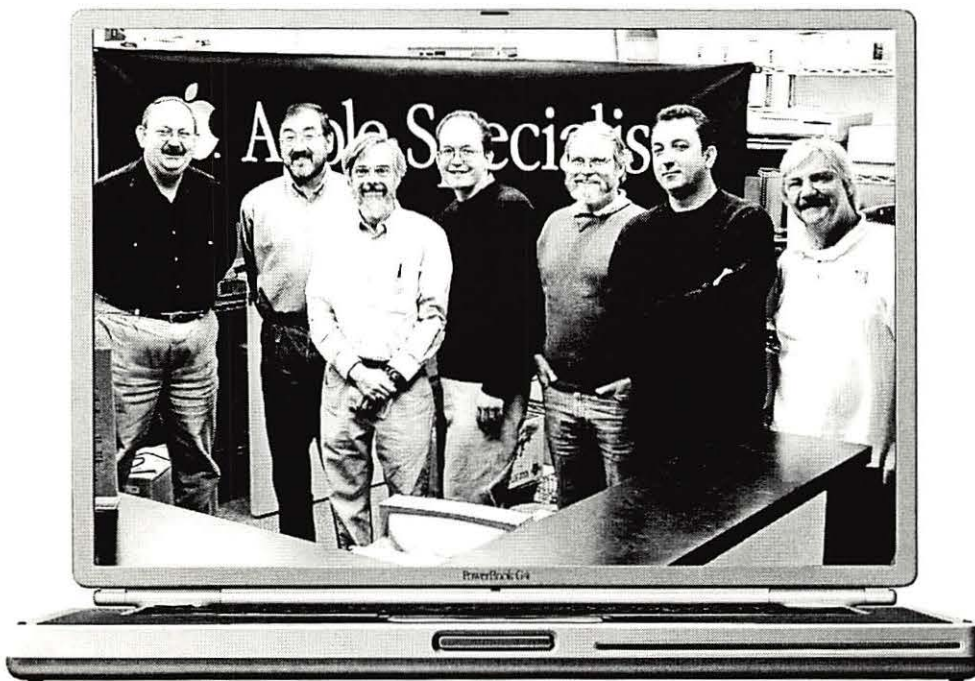
**Rendezvous—68**



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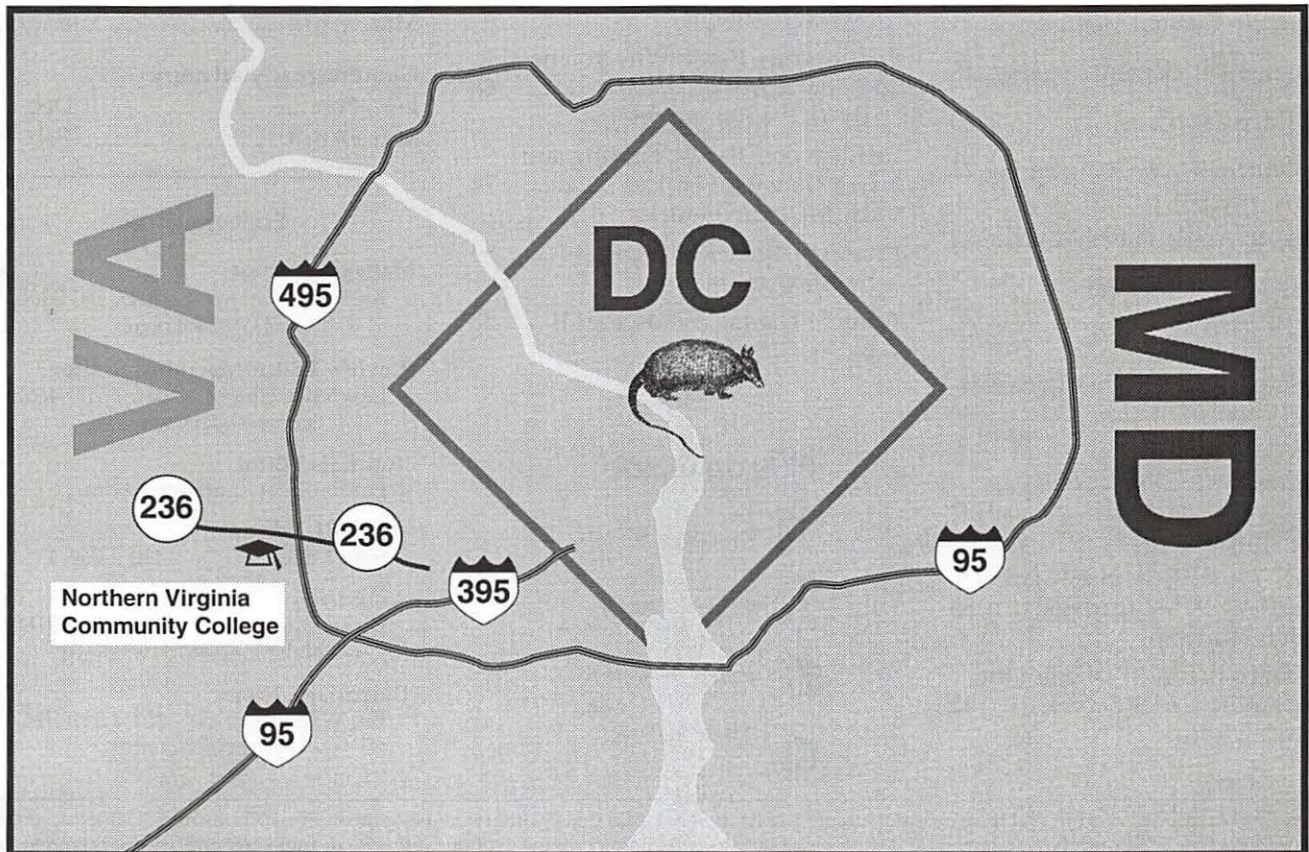
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★ See <http://www.wap.org> in Nov. for a discount admission coupon

★ **Largest Mac Show Held This Day!**  
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## Icon Guide



Macintosh



General Interest



Apple II, IIe, & IIGS



Apple III (SARA)

## Postal Information

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*Change of Address should reach us 60 days in advance of the move to ensure that your Journals continue uninterrupted.*

## Deadlines

### Writers' submissions

Jan./Feb. ....	Nov. 25
Mar./April .....	Jan. 25

### Ad space reservations

Jan./Feb. ....	Nov. 25
Mar./April .....	Jan. 25

### Camera-ready ad copy

Jan./Feb. ....	Dec. 1
Mar./April .....	Feb. 1

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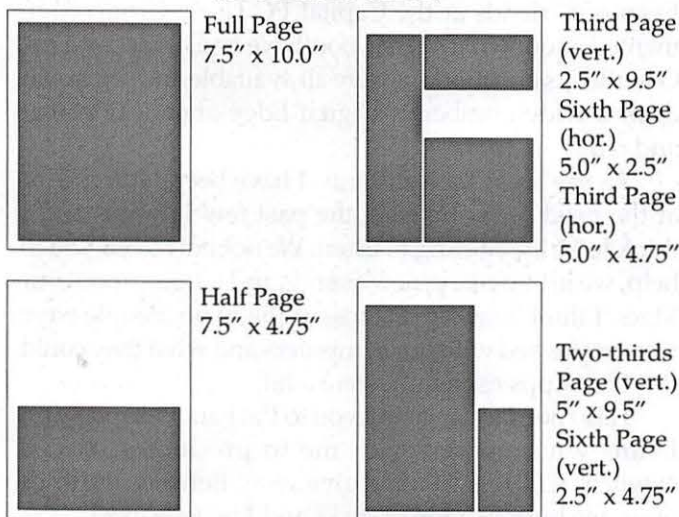
# Washington Apple Pi

This issue of the Washington Apple Pi Journal was created on a PowerMac, with proofing and final output on an HP LaserJet 5000 N.

The page layout program used was PageMaker 6.5 the word processing program was Microsoft Word 5.1; the principal typeface is Palatino (10/12) for the articles; and Avant Garde Demi for headlines, subheads, and emphasis. Charlemagne Bold for drop caps.

**Cover Design:** The WAP Journal cover design was created by Ann Aiken in collaboration with Nancy Seferian. The Capital artwork was illustrated by Carol O'Connor for One Mile Up, which donated it for use on our cover.

## Advertising in the Journal (available sizes)



No. of times ad runs	1	2-3	4-5	6+
Full Page	\$450	\$383	\$338	\$270
Covers	\$550	\$468	\$413	\$330
Two-thirds Page	\$360	\$306	\$270	\$216
Half Page	\$300	\$255	\$225	\$180
Third Page	\$225	\$191	\$169	\$135
Sixth Page	\$125	\$106	\$93	\$75

Special guaranteed positions incur a 10% surcharge

### Ad Deadlines

The Washington Apple Pi Journal is published bi-monthly. The ad copy deadlines and ad space reservations are listed below for your convenience.

Copy may be received as traditional mechanicals, rc-paper, velox prints, or film negatives. Negatives will incur an additional \$15.00 strip-in charge.

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Office Manager seeking new manager

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Tues. 7-9 pm—Clinic Night Only—  
Not Regular Office Hours

***When weather is bad, call to check if office is open.***

# Welcome to WAP!

By Dave Ottalini

I HOPE you got a chance to c o m e



down to the Washington Convention Center for WRC Channel 4's Digital Edge Expo. WAP was there in force again this year thanks to Dan White and a large number of volunteers who staffed the show both Saturday and Sunday from 9am to 5pm. It is events like this that show how the volunteer spirit of Washington Apple Pi is growing and growing.

Dan had to do a bit of cajoling to be sure and we even invited Mac groups from the region to come help. In the end, though, the booth was staffed by a large number of WAP members, and I think everyone had a great time. The best part of all was that our booth really rocked. Even our friends at the Capital PC Users Group commented about what a great booth we had. iMacs, eMacs, G4s, iBooks and TiBooks were all available and the booth drew a wide number of Digital Edge attendees young and old.

As my loyal readers know, I have been hitting hard at the need for volunteers the past few Journals and I think folks are starting to listen. We not only need you to help, we love making new friends and talking about our Macs. I think that came across at the Expo. People were very impressed with our computers and what they could do. The iApps especially were a hit.

I also need to say thank you to Pat Fauquet and Lorin Evans who worked with me to produce a special "Switch" CD that we could give away. Between the three of us, we burned a ton of disks and I believe most were given away.

Events like the Digital Edge Expo give our members - old and new - an opportunity to volunteer and make a contribution we can all feel good about. There are many more opportunities for volunteering - from writing articles for the Journal to helping out at a Tuesday Night Clinic.

I know it can be tough for new members to know what to do but the easiest thing to do is just ask and we'll take things from there.

So thanks for joining and Welcome to WAP! ■

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## Volunteers—the heart of WAP

LAST MONTH I wrote to about activities changes that are taking place at Washington Apple Pi. Our club continues to grow and your participation in our club is increasing. We put out the call for members to help man the booth at the Digital Edge Expo. I was happy to see so many members respond. We had a great time and spread the word not only about the Macintosh computer, but also about our group. We handed out hundreds of magazines, membership brochures, and class schedules. The coming months will yield the fruits of our efforts. Thank you to Dan White, the chairman and every member who helped make the weekend such a success.

The iMovie SIG met for the first time and has now been officially recognized. Look for a report of their activities elsewhere in this Journal. The Teen SIG had a second meeting and they are looking for more members also. Good work, SIG chairmen!

Our TCS crew has been busy setting up our new mail server and they are working on an upgrade of the TCS interface. If you have not signed on for a look around, please do so today and don't forget to leave a note of appreciation. They are certainly a hardworking

“Our club continues to grow and your participation in our club is increasing. We put out the call for members to help man the booth at the Digital Edge Expo.

I was happy to see so many members respond. We had a great time and spread the word not only about the Macintosh computer, but also about our group.”

group who puts in untold hours supporting the Pi. That group includes Lou Dunham, Jon Thomason, Dan White, David Harris, Nancy Seferian and others that I have probably forgotten to mention, Robert Carmen, a long time member who was elected to the board for the first time found it necessary to resign. We appreciate all that he did in his short time on the board and will miss his presence. The Board voted to have Herb Block fill his position. Herb is a long time member, but one of our newer volunteers. He saw that we needed someone to organize our office volunteers and is now in charge of scheduling and training them in addition to working in the office one half day each week. Thank you to Bob, Herb and our hard working office crew!

Dick Sanderson is our treasurer and he has done a wonderful job of keeping the money flowing. He logs each transaction and his record keeping is impeccable.



**Tele-Communications System**

**Washington Apple Pi's 24-hour General Meeting**

**<http://webtcs.wap.org>**

**Open to all Pi members**

**And view your mail over the Web at <http://mail.wap.org>**



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“Our TCS crew has been busy setting up our new mail server and they are working on an upgrade of the TCS interface. If you have not signed on for a look around, please do so today and don’t forget to leave a note of appreciation. They are certainly a hardworking group who puts in untold hours supporting the Pi.”

---

He also prepares our mailings and makes sure that the letters and notices that go out with renewal notices and membership cards are current. I am responsible for the verbiage—and he makes sure I keep on task. Kudos to Dick!

David Harris is in charge of the database and that is no small job. After Dick has done the financial work, David makes sure that your record in our database is current. Be sure to let him know about changes in your address as each Journal that is returned to us costs \$.70 in return postage. We would rather spend that money on something else! David is also a part of the TCS crew, the calendar crew, and a whole host of other activities. We all need to thank him!

As you see, it takes lots of volunteers to keep the Pi running and I have only named a few. I want to thank the Pi members who answer our phones, man our tables, work the Tuesday night clinic, and write the articles that appear in the Journal how much we appreciate the energy and efforts and I hope you will take a moment to do the same.

Of course this article would not be complete without telling you of new opportunities to get involved in Pi activities. Twice a year we hold our Computer Show and Sale, affectionately called the Garage Sale. Our next one will be held on December 14 at the Gym of NOVA Community College in Annandale. Once again we need people to help in all facets of the event. Ned Langston is our chairman again, and he will soon be putting out notices asking for volunteers. Please answer the call and lend a hand! n

---

## Board of Directors August Meeting

---

**M**EETING came to order at 7:55 pm with Len Adler acting as secretary awaiting the arrival of the elected secretary.

In attendance at that point were:

Pat Fauquet	Dave Ottalini
Jim Ritz	Herb Block
David Harris	Robert Carman
Cheryl Parker	Carole Weikert
Jim Little	Dick Sanderson
Nancy Little	Jack McCalman
Len Adler	Lou Dunham

Will Byrd and Craig Contardi arrived at 8:10 pm.

Dick Sanderson presented the Treasurer’s Report, which included an anticipated budget for the current fiscal year (6/02 – 5/03).

Jim Ritz reported that email sent to the [office@wap.org](mailto:office@wap.org) was being turned around in a more timely fashion since the new board took over. Jim also affirmed the budget estimate for Tuesday Night Clinic revenues as being accurate.

There was a report on the progress of the updated WAPi membership application, and a prototype version was distributed for review. Everyone thought it looked good. Dave Ottalini volunteered to rewrite the membership brochure verbiage.

Garage Sale – Ned Langston was not present, so Craig Contardi mentioned that Ned had previously requested volunteers for the December Garage sale be signed up immediately, with specific 2-4 hour assigned blocks of time. Craig reminded the attendees to make an announcement at the August general meeting of the need for volunteers.

Two of the three Pi office staff volunteers were on vacation this week, leaving just Herb Block to cover as many hours as he could. Herb still is looking for more people willing to volunteer time (as much as they wish) in the office. Jim Ritz asked what had been done already to recruit, and Pat said she included a plea in the larger e-mailing to everyone on the [announce@robustus.wap.org](mailto:announce@robustus.wap.org) list. Jim suggested a



standalone Robustus message distinct from the general mailing.

**Computer Reclamation** - Lorin will be setting his schedule at the end of the summer, and Pat predicts that Friday will become the scheduled day at the Pi office for reclamation work. There is a "Reclamation SIG" in the works.

Pat said that volunteering has been lost as part of the Pi culture; We need to reinvigorate this concept.

Lou Dunham - Communicate Pro, at \$3000 MSRP, has been received by TCS. Richard Sternberg negotiated on the Pi's behalf to get a discount on the cost to the Pi. This software will allow all Pi members to have web-enabled email as a benefit of membership. Jon Thomason and Dan White are starting to get their feet wet on the capabilities of the program. The TCS staff is also working on getting an upgrade to Webstar, our web software. Lou, lacking check-signing authority, asked us to buy it for him. Lou will send order form to Dick Sanderson who will insert a check and mail.

Pat said that there is a deprogrammed TCS router, needing reprogramming or possible replacement. Pat asked David Harris for firm TCS explorer figures (i.e. # of users); he said he would deliver that info.

The TCS room air conditioner was recently down, and needed chemical cleaning of coils at a cost to the Pi of \$250. Lou has placed a sticker on the AC switch door with the maintenance schedule. The cleaning will be needed every two years.

**Web** - Neither Lawrence Charters nor any other Web representative was present.

**Membership Database** - David Harris said we were a little behind in updating the database. If a batch number is on the application, that means cards have been printed.

**Tuesday Nite Clinic** - Jim Ritz reported we provide an average of \$200-\$300 worth of hardware and software support during each iteration of the clinic, so the \$14K estimate in the presented budget is pretty accurate.

Pat announced the formation of a Reclamation SIG and a Review SIG. She gave a brief description of what both entailed. The "reclamation cadre" will receive training in exchange for volunteering their time. The Review SIG members will learn tips and tricks for writing product reviews.

**Pi Fillings** - Lorin is working on a school version, Will Byrd volunteered to do the OS X disc if given some guidance.

**Store Reports** - Jim asked if beach areas are worth seeding with Journals, Pat said probably not; Frederick

to Fredericksburg is core area.

**August meeting** - likely will be Mac OS X 10.2 (Jaguar) demo. MacUpgrades will sell copies at the meeting. The Apple rep at CompUSA Alexandria (Ryan Shields) is more than happy to come to our meeting and speak on any topic we ask.

**Macworld New York bus trip** - 144 paid seats, \$10,000 gross minus \$4500 bus cost. We cleared \$4589. Jim will do it again next year, he thinks. Jim would like to see the expo fees divorced from the fee we collect, OR IDG will need to loosen the 1-1 binding of fee to a particular name. He told some stories about past experiences.

Craig Contardi asked why MD was the site of the third bus; Jim said he made decision based on the actual higher demand from north of town. It even turned out that there must have been unexpected bus hopping from MD to VA.

Minutes were reviewed and approved with some amendments.

There was a brief discussion of using the Pi webstore to start e-payments.

Re: the Pi's non-profit status, we cannot do anything until we change to an educational non-profit as opposed to a social. Pat feels this is not a top priority given other stuff on the Pi's plate and the distinct possibility it will not result in any cost savings with NVCC.

Comments on publishing the summer Pi Journal exclusively in PDF - Overall, general members strongly disliked it. TCS users liked it, but they are clearly the more savvy crowd. Pat said that unlike the printed version, she read the PDF once and never went back. Carole Weikert asked how the membership was informed of the PDF; answer was via letter in membership card mailing.

Due to only half of the members being on robustus, no email was sent to anyone announcing the PDF. Dave Ottalini said we should treat this as an educational experience. Dave wants to make a PDF version every two months, Pat prefers to have a tangible item that can be scattered in unusual places.

Pat called for vote on keeping PDF alive for future; after lengthy further discussion, issue was tabled. Kathryn Murray (the Journal editor) will be re-approached about her cost to do this on a recurring basis.

Pat mentioned that our Journal costs at present are \$15K for prep work, \$21K for the printing, and \$6K for postage at third-class rate.

**NBC4 Digital Edge Expo** - Dave Ottalini said that Dan White is looking for volunteers both Saturday 9/7 and Sunday 9/8.



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Pat announced the formation of a Reclamation SIG and a Review SIG. She gave a brief description of what both entailed. The “reclamation cadre” will receive training in exchange for volunteering their time. The Review SIG members will learn tips and tricks for writing product reviews.

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**Teen SIG** – Pat reported that they have met, and she has great hopes for it. Jim Kelly and Grant Peacock will be sponsors. It is the third Thursday of the month, 6:30-8:30.

**iMovie SIG** - 7 interested adults. No date yet set, will be held at Pi Office. Hal Cauthen is initial chair.

**Membership drive** - Pat thinks it’s feasible to get 600 new members this year. Pat will send an Appleworks file with business card template to all board members. When posting the cards on bulletin boards, where possible use a staple to keep subsequent posters from “poaching” your pushpin.

Pat discussed her “Come home to the Pi” membership drive. To be tied into our 25th anniversary celebration. Anyone over three years lapsed (before 9/1/99) can get 25% off renewal. (\$37). We need to ensure we have this information somewhere: Proof of prior membership can be an old journal, an old membership card, or if we have them in our database they qualify.

The board needs to pick a specific day for celebrating 25 years, and have a party that day! Pat asked who can/should we invite beyond Jobs and Woz? Names bandied about included Shawn King, David Pogue, Adam Engst, Andy Ihnatko, and the current editors in chief of Macworld and/or Macaddict. Dick Sanderson suggested a raffle for a great prize. Pat suggested it be no-host, so the Pi breaks even. The female board members will arrange the dinner, the chair for the program committee will be Jack McCalman. Jack thinks that between holding the banquet in March or May, March is better because less is going on.

meeting adjourned at 1023 pm.

## Board of Directors September Meeting

---

Washington Apple Pi President Pat Fauquet called the meeting to order at 7:40 pm.

Present were:

Len Adler  
Herb Block  
Will Byrd  
Craig Contardi  
Lou Dunham  
Pat Fauquet  
David Harris  
Needham Langston  
Jack McCalman  
Dan McGuinness  
Jim Little  
Nancy Little  
David Ottalini  
Cheryl Parker  
Jim Ritz  
Dick Sanderson  
Phil Shapiro

**T**HE PRIOR month’s meeting minutes were reviewed, minor amendments made, and passed as amended.

Treasurer report – Dick Sanderson presented the budget for the fiscal year-to-date. Pat expressed at this time that she was pleased with the fiscal responsibility of the current board’s policies.

Garage Sale report – Ned Langston reported that nearly half of the June Garage Sale vendors did not provide complete contact information (email or USPS address, phone number). This makes it hard to send more follow-on business their way, or to notify them of the particulars of the December Garage Sale. Also, for some reason the revenue taken in from table rentals to vendors exceeded the expected amount based on the written receipts. For December, we will have to learn from this and track the table rentals carefully. Ned indicated that he has received no volunteers yet for the December Garage Sale in response to his request at the



August 24 general meeting.

Office staff volunteer - Herb Block wants a larger pool of office staff volunteers to allow the current crew to take some time off or to fulfill other volunteer responsibilities. Will Byrd volunteered to join the pool.

Digital Edge Expo - Dave Ottalini reported our presence was a smashing success. Our booth was fantastic, even the Capital PC User's Group booth staff visited and was floored. Pat asked if any yellow applications, handed out at the show, had arrived in the mail. Dick Sanderson responded that we have started using that color for all apps at this point. Jim Ritz mentioned that one possible issue with the expo was the difficulty we had transporting our own equipment into and out of the convention center, foregoing the paid loading dock staff and its union-scale fee structure. If we participate next year, it may be necessary or advisable to either pay the 3-figure hourly rate ourselves, or ask NBC4 to help with the cost since we are a non-profit. Dan White volunteered to coordinate next year's expo again. Jack McCalman asked if we could compensate NBC with publicity if they do step up and cover our union costs, and the answer was yes.

Pat mentioned that we have been invited to the Hispanic expo, but need someone to coordinate if we participate. No one volunteered so the board authorized Pat to respectfully decline the offer.

TCS Committee - Communicate Pro is being installed and configured. This will provide all Pi members with a "wap.org" email address that can be accessed from any web browser. The board authorized the web server (Webstar 5) upgrade at a cost of \$299.

With the release of Apple's iCal a few days prior, Pat asked about starting to use iCal for the club's web events. No one present felt comfortable taking on that task yet, so the board agreed to seek a volunteer at a general meeting.

Lila Bednar has joined the TCS committee and has become an excellent volunteer asset.

Membership - Dick Sanderson reported that a new volunteer (Name?) with Filemaker experience has offered to help with maintaining the membership database. David Harris announced that Jon Thomason of the TCS committee was working on an automated solution to let users reset their passwords online, instead of having to call the office and have their passwords retrieved from the membership database manually.

Volunteer Committee - Laura Leigh Palmer was not present to give a report, and Pat has not spoken to her recently.

Publicity - Dave Ottalini has changed jobs, now with University of MD. This has and will continue to expand his media connections.

Pat announced that members should continue to staple Washington Apple Pi business cards to bulletin boards in supermarkets, break rooms, etc. She will email electronic versions in PDF and Appleworks format to all those present.

Tuesday night clinic - The number of "customers" have significantly increased over the last month. Jack said we could use a clinic marketing flyer. Dave Ottalini agreed to creating a draft flyer.

Computer Reclamation Project - continuing, machines are going out the door as we speak, on their way to deserving organizations and families.

Pi Fillings Goes to School - Will Byrd requested a co-collaborator for the next version of the CD. Jim Ritz recommended Will contact Abe Brody.

Journal - Pat asked for every board member to write at least 4 pages worth of Pi Journal content for each issue.

General Meeting schedules - By a 7-6 vote of the board, the May meeting will be held on its usual date of the 4<sup>th</sup> Sunday, 5/24. The concern was whether to have a meeting on Memorial Day weekend, or the week before/after.

SIGs - The iMovie SIG, which currently has 11 attendees, was granted permanent SIG status by vote of the board of directors. Phil Shapiro, co-sponsor of the SIG with Hal Cauthen, stated that some future meetings may take place at Fairfax County Public Access headquarters instead of the Pi offices.

Apple Ambassador account - Pat will take over the responsibility of accessing this valuable user group service.

Pat reported that Robert Carmen has resigned as an at-large director. The board voted to formally accept his resignation. Per the by-laws, Herb Block was nominated and elected by the board to replace him.

Jack McCalman requested additional leads on vendors willing to provide a product/service demo for a general meeting. The October agenda is still to-be-determined.

Pat moved to adjourn at 9:41 pm and the motion was seconded and passed. ■



## Retired SIG Meetings July through September

by John Barnes

ON 31 JULY 14 members of the WAP Retired SIG turned out at the Holiday Park Senior Center to hear about "Alternatives to iPhoto." The discussion centered primarily on iView Media Pro. This program, sold by iView Multimedia, offers a more "industrial strength" approach to building digital photo libraries and publishing photo collections than does Apple's iPhoto program. Interested persons can read Dennis Dimick's review online under WAP's Electric Pi web area (<http://www.wap.org/journal/default.html>).

The August meeting was cancelled at the last minute because there was no meeting moderator available.

The 25 September meeting filled the Pi classroom with a lively discussion on "Managing Your E-Mail." Various e-mail clients, including AOL, Netscape Messenger, Eudora, and Outlook Express were discussed. Many people mentioned difficulties with attachments. Archiving e-mail; did not prove to be much of an issue. We can expect to revisit some of these problems in the Tech Assistance portions of upcoming meetings.

The latest information on the Retired SIG is always available at <http://www.wap.org/retired>. Pi members who are not web-enabled, but who want to be part of the SIG should contact John Barnes at the number given on the Hotline page of the Journal or by leaving a message at the Pi office. Anyone who has an interest in the SIG's activities is welcome to become a member by subscribing to our mailing list. Instructions for doing this can be found on the SIG's web page, whose address is given above. The mailing list is the best way to make certain that you receive meeting notices and other information pertaining to the SIG. ■

## Power Users SIG Meetings

THE AUGUST meeting of the SIG died for lack of attendance.

The September meeting, held on the 9th, filled the Pi Classroom to overflowing. The stated topic was an overview of Jaguar, but it soon evolved into a very informal Q&A session of various Mac OS X issues with only a passing reference to OS 10.2. The questioning was lively, with Neil Laubenthal sharing a lot of his expertise with the group.

The October meeting is scheduled for the 7th. If attendance and interest remain high the SIG will petition for a proper charter. There is already an embryonic web page at <http://www.wap.org/power/> and there is an automated mailing list. It is assumed that any Power User is web-enabled enough so that subscribing to such a low traffic mailing list should not cause any problems.

Always check the web site for the latest SIG news and be sure to sign up for the automated mailing list. This will be our membership roster for the foreseeable future.

The Topic of "Backing Up for OS X" is not as trivial as it sounds. Creating a bootable copy of an OS X system requires some pretty special procedures.

See you there. ■

### iMovieSIG — meeting summary

## Now playing on a Desktop near you...iMovie!

AS IN THE 80's, with the newly released Apple Macintosh running PageMaker, most agree Apple and Aldus combined to create 'desktop publish-



ing,' which for the first time allowed documents to be created and viewed on screen as they would appear when printed, so it was with DESKTOP VIDEO when in August 2000 Apple introduced the world to iMovie. While there were other systems which allowed one to capture and edit digitally, Apple's introduction of the free, easy to use iMovie bundled with the iMac DV was a smash hit.

When soon afterwards, Apple decided to release iMovie 1.0 as a free download, more than 150,000 people went for it the first week it was available!

But sometimes the sequel surpasses the original, and, most would agree, such was the case with iMovie 2.0, which was released that fall.

iMovie 2's basic premise did not change: Connect a DV camcorder to your Mac's FireWire port, and then use iMovie to bring video into your Mac, clicking on iMovie's buttons to stop, start, and rewind your camcorder. Next, use iMovie's editing features to organize and polish scenes, adding text titles and transitions as you go. Finally, transfer your finished epic back to videotape via FireWire, or export it as a QuickTime movie for the Web. Thanks to FireWire and the all-digital DV formats (such as Digital 8), video quality remains consistent as you shuttle video from camcorder to Mac and then back to tape.

Version 2.0.1 also sported a 'new look,' inspired by Mac OS X's Aqua interface, plus a number of special effects to make your videos look more professional.

Since that time, thousand's have used iMovie creatively to turn their old footage into 'feature films', some long, most short. And they public their results in a dazzling variety of ways — back to tape from the computer to the camera; as small QT movies that they can attach to the emails or post on the web; as VCD's or even DVD's.

As this interest has grown, several of us asked about starting an iMovie SIG, which, as you might guess, led to the predictable response: 'Sure, why don't you take the lead?'

So, on the second Thursday of September, the 12th, at the WAP office's, Phil Shapiro and I arrived early to get things set up. When everyone got settled, we all introduced ourselves — in addition to Phil and I, there was Deborah Ward, Paige Counts, Herb Block, Cyrus Creveling, Arture and Harald Holland, Darlene Kranz, Vernice Christian, and Harry Ware.

We talked a little about what we wanted to do, and then Paige Counts volunteered to kick things off by showing a short video she'd made. As she explained: A teacher-friend of mine in Charlottesville wanted to



## *i Movie SIG*

*2nd Thursday/Month*

**Next Meeting: 17 Oct @ 7:30PM**

**Fairfax Public Access (FPA)  
2929 Eskridge Rd  
Fairfax, Va 22031  
703-573 1090**

**Contact: Hal Cauthen**

**703-323 8934**

**[chrgrhorse@aol.com](mailto:chrgrhorse@aol.com)**

do something a little jazzy for back-to-school night on September 17. She took a still, digital photo of each of her fourth graders and I took a picture of her, with her dog. We made a slide show using iMovie. We started with a frame we made in Kid Pix with a rolling title announcing "2002 All Stars"; we set each child's photo to appear for about 3 seconds with a cross-dissolve transition between each one. As each picture appeared, iMovie typed their name in bright green letters. My friend had a CD of the high school band concert which we used as the audio track "behind" the photos. With a little adjustment we made the applause from the concert coincide with the fading out of the teacher's picture. The whole movie was less than three minutes but the children loved it and so did their parents.

Paige did a great job; it was a perfect illustration of how iMovie can be creatively used.

Cyrus Creveling shared the story of how his supervisor asked him to stay home and do some video editing work for the postal service — rather than deliver mail in 100 degree weather!

His reaction: Please don't throw me in the briarpatch!

The moral of this story? Sometimes a hobby can prove immensely valuable — to both yourself and others.

We continued with a couple of short 'demo' iMovies which we viewed on the big TV via a VCD I'd made using Toast which ran on Phil's iBook.

Since most of us use iMovie to create 'family' or



'travel' movies, these examples focused on family, and introduced a variety of techniques. For example, one appeared to 'star' my granddaughter, Halle, at the Rainforest Cafe at Tyson's corner: actually, it was a composite from a video taken at later (I didn't have my camcorder the first time) with stills of her taken at the Smithsonian: from these, her image was 'extracted' and put into the 'stills', which were created in Photoshop from frames taken from the video of the Rainforest, and then put back into the Rainforest Cafe sequence. Several layers of sound — parrots squawking, elephants trumpeting, gorillas grunting — were added to complete the 'ambiance.'

These little demo's generated a nice discussion, with lots of questions — mostly of the 'how did you do that?' variety. Which was good, because one thing we'd hoped to do was to use the iMovie SIG to stimulate creativity, and the exchange of ideas/tips/and techniques so that we could all learn from the process.

Phil then led a discussion about VCDs, and how easy (and cheap) they are to create, via Toast, and to play on your computer, with the proper 'vcd player' — one being a free download — as well as on most of the newer DVD's. He has a nice article about video cd's at: <http://www.his.com/pshapiro/videocds.html>. In it, he points out that one video format now very attractive is the video cd format — also called mpeg-1. Popular in Asia, this format fits up to 70 minutes of video on a blank cd disk. The video can be played back on Windows computers (using Windows Media Player), on Macintosh computers (using QuickTime Player) and in most consumer DVD players. The minimum processor requirements for video cd playback are 166 MHz (with MMX) for Windows computers and G3 or better processors for Macintosh computers. (Roughly speaking, all Windows and Macintosh computers produced since 1999 - and some from 1998.)

We finished up with a discussing the next meetings — where we'd like to meet, and what we'd like to do.

The 'where' for the next meeting is planned to be at Fairfax Public Access (FPA), just past Tyson's Corner, off the beltway, near Merrifield, in Virginia. There, we'll take a tour of the facilities — two studios, master control, the editing suites, the sound studio, the Radio station, etc.; then get together for the 'what we're gong to do' — which is to focus on Sound - capture, mixing, editing, etc.

Hal Cauthen,  
iMovie SIG  
Group Leader

## WAP July General Meeting

**T**HE MEETING came to order at 8:58am with Lawrence Charters taking Q&A.

Questions asked included:

- The reasons for Single User Mode in Mac OS X.
- A comment from an attendee about conflicts between Classic mode and the Epson 820 Mac OS X drivers. Lawrence seized the opportunity to explain a couple ways to find out the status of Classic via system preferences.
- Problems with Mac OS X.1.5 losing the ability to drag and eject.
- Issues with reloading of Mac OS X to solve any chronic problems, including where to find disk utility when booting from CD.
- Problems with RAM working under versions prior to Mac OS X 10.1 but not under 10.1. Lawrence believes that Apple tightened memory specifications in the course of releasing the latter version, and that has "broken" some memory modules.
- Issues with the use of Mac OS X on a Powerbook: any Unix-based operating system relies heavily on swapping memory to disk, which is contrary to standard Mac battery-saving policies such as putting the hard drive to sleep.
- Reliability of flat-panel displays of the flat-panel iMac. When mentioning the small percentage of iMacs shipped with skewed displays, Lawrence seized the opportunity to share an anecdote about how residents of the "Left Coast" don't bother to fix crooked pictures on the wall because another earthquake will come along eventually and knock them off-kilter all over again.
- An explanation of symbolic links under Mac



OS X. Lawrence inserted a plug for the book, "Learning Unix on Mac OS X", published by O'Reilly.

Lawrence advised against the use of Belkin Keyboard-Video-Monitor switches in particular, and any KVM device in general.

A meeting attendee recommended Apple discussion boards as a source for answering almost any question. At 9:25 a.m., still awaiting the arrival of JD Mankovsky from Apple, Pi President Pat Fauquet conducted some administrative matters. She announced the place and time for the meetings of the Retired SIG, Power Users' SIG, Desktop Publishing SIG, and the inaugural meeting of the Teen SIG. The Teen Computer Camp took place from 22-26 July, and was very successful. It became, at the last minute, concentrated on 3D design using Bryce and Vue d'Esprit.

Lawrence returned to fielding questions, until JD arrived at 9:40 am. The questions in this "encore" Q&A session related to compatibility between Quicktime 6 and Mac OS 8.6 as well as with Astarte Toast. Lawrence had no advice, but an audience member suggested removing extraneous extensions.

Lawrence then gave his personal impressions of Macworld New York, starting with his impression of the Amtrak Acela as compared to Japan's Shintanze and France's TGV, both of the latter being renowned "bullet" trains. He started to mention some of the product announcements, but had not gone very far when the guest speaker arrived. JD Mankovsky of Apple took over at 9:45. He mentioned there were 150 new features in Jaguar, a.k.a. Mac OS X 10.2. Before doing a detailed demonstration, he briefly touched on the hardware announcements:

iMac: new 17" 16:10 screen size, better graphics chip than the 15" flat-panel iMac, and a larger 80GB hard drive.

iPod: Now comes in a Windows version, formatted for that OS but can easily be reformatted to HFS+ when the customer does the "switch". A 20GB version was announced, with availability in August. The price of the 5GB and 10GB models were lowered \$100 to make room for this new model. All versions will get new firmware revisions, and older iPods can be updated with the new firmware. The new firmware will add contact and calendar functions and they bring the "easter-egg" version of the game Breakout into the open as a standard menu choice. A new version of iTunes was simultaneously released that adds support for audible.com paid content, the ability to rate songs from zero to five stars, and "smart playlists" that will gener-

ate song lists based on any criteria imaginable. An audience member asked about iPod support for Advanced Audio Codec (AAC) and Ogg Vorbis; JD's answer was that there was no firm schedule for supporting either format.

JD then gave a thorough overview of some of the aforementioned 150 new Jaguar features, such as:

iCal: To be released in September, iCal is Apple's scheduling program akin to Microsoft Entourage, but completely integrated with .mac and Mac OS X 10.2. Users can publish their calendar on their .mac website for others to view, and can subscribe to other people's iCal calendars in the same way. iSync: Also scheduled for a September release, this feature claims to synchronize the most common digital devices (such as Bluetooth-enabled products, PDAs, iPods, and the content of a .mac iDisk) with each other and your Mac.

Perhaps trying to justify the \$129 retail price with no upgrade discount, JD mentioned that iCal and iSync represent completely new functionality with 10.2, not simply bug fixes. Address book: Has new functions like the option of large type, a field for a person's iChat screen name, a thumbnail picture of them, and easy merging of multiple cards for the same person that were entered on different devices (using iSync). The interface with iDisk from the Finder is now much faster for users with high-speed Internet connections. Rendezvous: This function provides a way to create an ad-hoc, seamless network of devices such as printers and other computers. JD demonstrated this by "automagically" connecting to his colleague Brian's iBook (who was sitting in the audience) using their respective Airport cards, without a base station. He then invoked an iChat session with Brian (more on iChat in a few paragraphs).

New version of Mail: It has a junk mail filter that will cull out messages it thinks are spam and put them in a separate folder. It starts with a default profile of what is junk, but is designed to be "trained" to separate the real spam from valid messages based on provided hints. Another new feature is that messages in the same topic will collectively highlight in yellow when you click on any of them. Also, if anyone in your address book is online during the time you are in Mail and has a known iChat screen name, you can be made aware of that fact and forego an email for an instant messaging session instead.

Now seems like a good time to finally explain iChat: It is Apple's own instant messaging client which is compatible with America Online's (AOL) IM architecture. In fact AOL hosts the iChat messaging servers on



Apple's behalf.

Another new feature of Mail is that it is no longer necessary to launch the separate Address Book application to manage email addresses; it is now fully integrated into the Mail application itself. Sherlock: Internet searches and local file finds are now separate applications, with the latter integrated into the Finder. Sherlock now will let you search for theatres, stocks, pictures on the net, yellow pages, eBay listings, airplane flights, a dictionary, language translation, and the Applecare tech support database. New channels will show up on the toolbar automatically as they come into being. Find File: Not only is file searching now part of the Finder (as opposed to being in Sherlock), there is now a place on the toolbar to type in your search criteria that will limit its search to the active window and its folders. JD also showed the ability to change the desktop picture every few seconds automatically (if you wanted to do that...), the return of spring-loaded folders (a staple of Mac OS 9 but heretofore missing from Mac OS X), the option of displaying file info below the file name, and numerous other Finder customizations. iTunes 3: JD mention the new version of iTunes earlier when discussing the new iPod. He now brought up the application itself and gave a brief demonstration of smart playlists and song ratings. The DVD Player will now support the G4's AltiVec instruction set if running on a G4, apparently it did not do that before. Backup: This application is actually a part of .mac but requires Jaguar as well to work. It will let you back up to iDisk or to a local optical (CD/DVD-RW) drive. In addition to having the consistent user interface of the other Apple iApps, it also provides preset groups of data you should be backing up, (iTunes playlist, user-specific OS settings, address book data, etc.)

A member of the audience asked how to keep Classic from loading when linking on a URL in an email or document, and was told to access System Preferences/Internet and choose Mac OS X-native applications for Email and Web instead of older Mac OS 9 versions that will force you into Classic mode.

Pat Fauquet and Lawrence closed the meeting by conducting the traditional prize drawing. The names of the winners will remain anonymous, as this was the new Pi Secretary's first general meeting and he did not make the necessary prior arrangements with Pat and Lawrence to track who won what. You all know who you were, and if you really want to find out who wins, the best way is to attend the general meetings [Grin].

The meeting adjourned at approximately 1145.

## WAP August General Meeting

**L**AURENCE Charters opened the meeting at 0852 with the traditional Q&A session. Questions included:

- Advice on migrating browser favorites from one machine to another, which then expanded into all kinds of user data. For Mac OS X, which has a strict format for each user's folder, Lawrence cautioned against inadvertently nesting the old folder completely inside the new: only the individual folders (Documents, Pictures, Movies, etc.)
- Whether Mac OS 9 apps work in 10.2. If "Carbonized", then yes; otherwise they will probably run in Classic mode.



*Ryan Shields, an Apple Solutions Consultant working at the CompUSA in Alexandria, talked about how Apple came to place some of its employees at CompUSA stores. But most of the time he talked about Mac OS X 10.2, code named Jaguar, and his experiences installing it on his 500 MHz iBook. (Photo by Lawrence I. Charters, taken with a Canon PowerShot S300 digital camera)*



- Problems with Norton SpeedDisk - Lawrence's answer hits the nail on the head talking about the danger of obsolete versions of Norton. He gave the Disk First Aid/Norton Disk Doctor/Norton SpeedDisk regimen that has proven so tried and true.
- A question about putting a TiBook on other people's networks. The answer is to utilize the ability under both Mac OS 9 and Mac OS X to have multiple network settings beyond default. An attendee in the audience mentioned LocationX.
- An attendee had heard talk of modems that can suspend their connection for an incoming voice call. Lawrence said that current Macs have modems that can do that. An attendee said that the user's ISP must support this feature for it to work.
- A question about picking the right kind of memory. Lawrence quipped that a "lifetime guarantee" is not worth much (lifetime of their company). He recommended buying from a company that has been around a while, and knows the Mac.
- When asked about printer inks and the importance of using the manufacturer's brand, Lawrence said opinions are divided but if you want authentic results/color, pay the premium.

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"An attendee mentioned that the Fairfax County school system was making it very difficult for Macs to continue to be part of future IT purchases. Perhaps this is a good time for the Pi to offer individual schools their own 'ambassadors' ...

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An attendee mentioned that the Fairfax County school system was making it very difficult for Macs to continue to be part of future IT purchases. Perhaps this is a good time for the Pi to offer individual schools their own "ambassadors" to reinforce the advantages of being a Mac-rich system. Interested members should send an email to [tberens@mac.com](mailto:tberens@mac.com) with a subject line of "Macs and Schools."

Ryan Shields, the Apple representative in the Alexandria CompUSA, took the floor at 0933. He read a humorous article about "Microsoft's market share" from crazyapplurumors.com. The premise was that the tables were turned and Apple was found to be a monopoly.

Ryan briefly discussed the Apple/CompUSA relationship. There are ~200 people like Ryan nationwide, assigned to CompUSA stores. He credited the "Switch"

ad campaign for bringing in 75% of the traffic to the Apple section. He has complete support from the store management to succeed.

Ryan came to the defense of Apple's .mac business decision to charge for the service. He asked the audience to remember that part of the big picture is that iTools used to be free so YES it hurts more. Had Apple just launched .mac from nothing the press would have been positive. He reviewed the number of features included and stressed it is a good value. He said that the price will NOT drop, but features will be added every 30-60 days to further increase value.

He then moved on to a demo of Mac OS X 10.2 (Jaguar). Right from the beginning, Ryan mentioned that the "Happy Mac", around since the very first Mac in 1984, is gone, replaced with a solid gray apple silhouette. Ryan said that boot times were faster than prior versions of Mac OS X, and it showed (in the opinion of



*Ryan answers questions in front of a giant image of his desktop. (Photo by David Harris, taken with a Minolta DiMAGE X digital camera)*



this writer).

As far as the new feature set, numbering 150 according to Apple, Ryan started out by mentioning the power of Rendezvous as bringing zero-config networking to the Mac. Even more than 10.1, Jaguar reaps the benefits of its Unix underpinnings.

Some other new features include: Quartz Extreme for machines with 16MB or more of VRAM, new Mail.app w/spam filter, Sherlock 3, spring-loaded folders, and a fuller-function calculator with "paper tape" and currency/pressure/power conversions. He compared Microsoft Entourage to the combined iCal and Mail.app. and stated that he needs the calendar functionality and hopes that iCal fills the gap when it is released.

iChat, the new Instant Messaging client compatible with AOL IM, is tightly integrated with Mac OS X.

Ryan showed universal access in action, with its zoom and black/white features. He closed the formal part of his presentation by showing the Apple-created parody of their "Switch" ad campaign: Saturday Night Live celebrity Will Ferrell comparing computers to parfaits and turning the series' common coda ("My name is... and I'm a...") into a punchline. (for those not yet having seen the ad, at the end he says he's a "\_orn actor" with the 16<sup>th</sup> letter of the alphabet filling in the blank.)

He then opened the floor to questions.

*How many pages is the user's manual?* Nineteen, according to someone in the audience.

*Advice on the best way to upgrade?* 3 ways: clean install, archive and install, and upgrade. All worked pretty much the same for Ryan.

*Support for Mac OS 9?* Yes, but a version of Mac OS 9 does not come in the retail Jaguar box.

*Minimum version of Mac OS 9 required?* Ryan thinks that it is 9.1 but he wasn't sure.

*How well does Jaguar work on Macs without the necessary hardware to support Quartz Extreme?* Better than 10.1.

*Is there integrated support for musical notation?* No, that's a 3rd-party product.

*What hardware is officially supported?* All factory-installed G3-based Macs except the original PowerBook G3.

*What things are broken in 10.2 that work in 10.1?* Mostly drivers, HP multifunction devices in particular.

*How long does an install take?* It varies by CD speed, but Ryan's experience was 1 hour with a full install of all optional pieces.

"Lawrence Charters took the stage again at 1053. Taking a deeper look at Jaguar's enhancements, he demonstrated how file permissions are better handled in 10.2 than prior versions. Users can now adjust permissions from within the Get Info window, if they have the administrator password for their computer. It is also now possible to have more than one Get Info window open..."

Ryan left at 1015 in order to get back to his store, as it was the first day Jaguar was for sale.

Pi President Pat Fauquet took over and briefly talked about her new iMac 17". She especially likes that she can put two documents side-by-side on the wide screen. She also appreciated the Firewire target disk mode to move all her data from the iMac 15" bound for college with one of her children, to the new machine.

Moving to administrative matters, she announced the planned presence of Washington Apple Pi at the NBC4 Digital Edge Expo on September 7<sup>th</sup> and 8<sup>th</sup> at the D.C. Convention Center. Volunteers were needed to staff the booth.

The iMovie SIG will start meeting on the second Thursday of each month at 7 p.m., in the Pi offices in Rockville.

The Pi slate of classes was being "re-invigorated", and members should check the new Pi Journal (the online-only version) or the website (<http://www.wap.org>).

Pat announced that in honor of the 25<sup>th</sup> anniversary of the founding of Washington Apple Pi, that there would be a special incentive offered to long-lapsed members to re-join. Dubbed "Come Back to the Pi," it is a 25% savings on an annual membership for any former member having lapsed more than three years ago (September 1999). An expired membership card, a Pi Journal older than September 1999 with the former member's address label, or any other proof of prior membership dating back three years will be accepted. The Pi will also send invitations to the last address of



record of every lapsed member for whom we still have one.

Ned Langston was called upon by Pat to speak about the December Washington Apple Pi Garage Sale. He announced the date of the sale (14 December) and asked for volunteers to assist him on the day of the sale, for security and customer relations.

At 1040 Pat began another demo of 10.2. She mentioned that currently shipping machines have 10.1 installed with an upgrade CD bundled in the package. Highlights of her demo included: showing off the new desktop picture features that include using movie clips; the new capabilities of the Address Book and iTunes, and a live demo of iChat with an Airport-equipped laptop user in the audience. She said that scanner support is strong for models released since early 2001, and that if your scanner is older, the cost of upgrading it is low.

Lawrence Charters took the stage again at 1053. Taking a deeper look at Jaguar's enhancements, he demonstrated how file permissions are better handled in 10.2 than prior versions. Users can now adjust permissions from within the Get Info window, if they have the administrator password for their computer. It is also now possible to have more than one Get Info window open at a time, which was not available in earlier versions of Mac OS X. He then brought up the system preferences pane and showed the granularity of what the system can be told to do in response to the insertion of a CD or DVD. Next, he highlighted the embedded search field present in Finder windows. On audi-

ence prompting, he opened up a terminal window and went through some of the preferences as well as explaining the way Unix handles permissions. For fun, he demonstrated the "Easter egg" of the missing 11 days in the calendar back in September 1752. This was caused by a royal proclamation switching the official calendar from Julian to Gregorian, and the solution to synchronize the two was eliminating those 11 days (For those of you running Mac OS X, the command from Terminal is 'cal 9 1752').

A member of the audience mentioned that Apple was offering a 5-machine "Family" license for Mac OS X costing \$199 through the online Apple store.

Pat brought the morning's activities to a close by announcing that September's general meeting topic would be the Pi's TCS service (<http://webtcs.wap.org>).

In the drawing, the following people won Ambrosia CDs: Richard Allen, Lila Bednar, Matthew Christian, Ken Franklin, Esta Gladstone, Bob Ketchel, Eugene Lemick, Neil Laubenthal, Joe Maris, Bart Trawick, and Jack Upper.

Rich Whiffen won a Mac business Solutions T-Shirt, Bud Uyeda a Jaguar T-shirt, Tom Berens a .Mac T-shirt, and Dick Sanderson an unspecified Apple-logo shirt.

Paige Counts won a Jaguar Mousepad; Anson (Bill) Geiger a Frisbee; Hal Cauthen a Xerox travel mug and Betty Snow an issue of MacAddict. The Grand Prize, a copy of Mac OS X 10.2 (Jaguar), donated by MacUpgrades, was won by Cheryl Parker.

Pat thanked everyone for attending, and the meeting ended at 1145. ■



*Pi President Pat Fauquet showed off her new 17" flat-panel iMac with a freshly installed copy of Mac OS X. Note the not-quite-jaguar-but-close-feline-relative scarf. (Photo by Lawrence I. Charters, taken with a Canon PowerShot S300 digital camera)*



*A large number of Canadian visitors came to the meeting. (Photo by David Harris, taken with a Minolta DiMAGE X digital camera)*



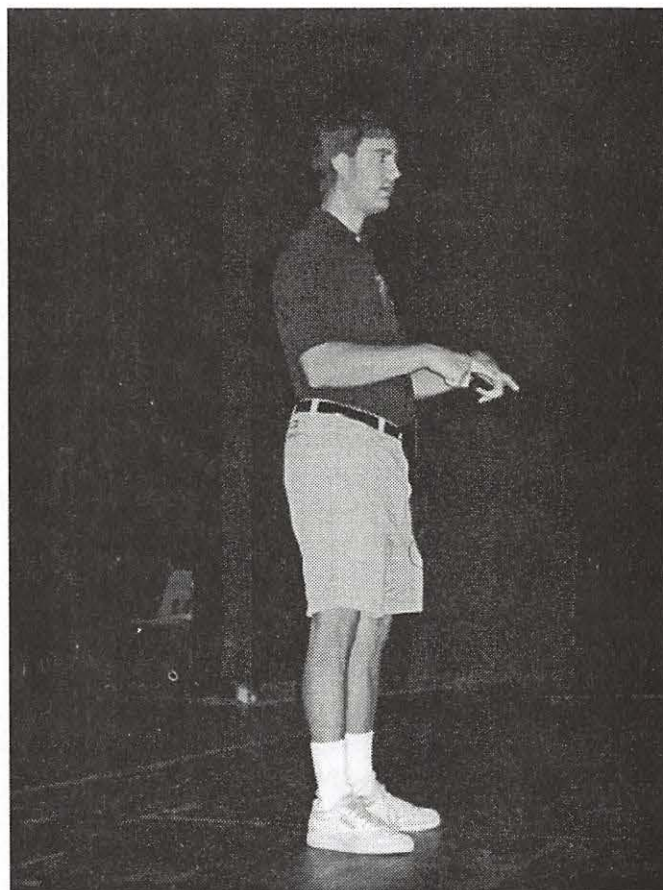
## Pi Telecommunications: September General Meeting

THERE WAS something old and something new at the Pi's September 2002 General Meeting. For two decades, the Pi's famed computer bulletin board, the TCS, has been hosted on Apple II computers. In the beginning, these were Apple II+ computers running a commercial bulletin board package allowing one caller at a time to dial in via the bulletin board's blazing-fast 1200 bps modem and post messages. Later, this evolved into a room full of Apple IIGS computers sharing a bank of modems and a massive 100 megabytes or so (sometimes less, sometimes more) of shared messages and files.

But by the end of 2002 the Apple IIs will be retired. All the work formerly done by as many as 18 Apple IIs will be handled by a single Macintosh Mac OS X 10.2 machine running a custom-written WebObjects bulletin-board application written by Jon Thomason, the Pi's telecommunications architect.

The September meeting was a public demonstration of the new bulletin board system (which has actually been in operation for many months) as well as the Pi's new, expanded E-mail system. The meeting began with a little history, talking about the early days of the TCS when "multi-user" meant dialing two different phone numbers to reach different parts of the bulletin board. A few years later Pi volunteers figured out a way to use a shared hard drive originally intended for classrooms as the basis of a shared storage for a multi-line TCS, with an Apple II computer and a modem dedicated to every phone line.

By coincidence, the 100,000<sup>th</sup> caller to the TCS was a 14 year old Bethesda boy with an interest in programming. The TCS Committee offered him a tour of the bulletin board as a prize for this momentous event, and Jon Thomason (now somewhat older than 14) has been part of the TCS family ever since. Within a few years Jon had rewritten the TCS software in a mix of AppleSoft BASIC and 6502 machine language, greatly expanding the number of topic areas offered, the speed of supported mo-



*The meeting opened with Craig Contardi, Pi Secretary, fielding general questions from the audience on all things Macintosh. (Photo by Lawrence I. Charters)*

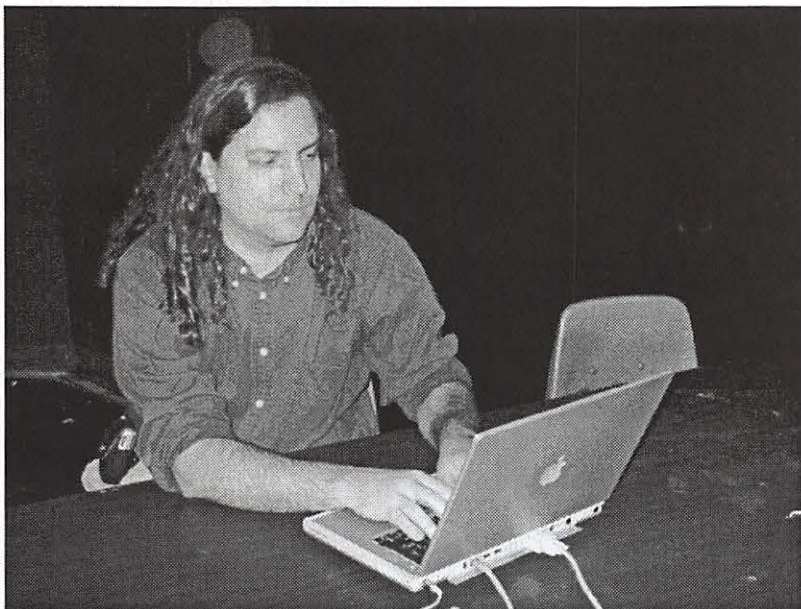
dem (up to 14,400 bps!), and the general robustness of the system.

Hosting the tour of the "new" TCS was the 500,000<sup>th</sup> caller, Lawrence Charters. Lawrence has served as the Pi's Webmaster since the Pi first put up a Web server, and has been actively involved in the TCS since moving to the East Coast in 1991. It isn't entirely clear how many calls have come in since then, but Jon Thomason estimates we've had *well* over a million calls on the Apple II-based system.

Among the TCS firsts:

- First multi-line, multi-user Apple II-based bulletin board
- First Internet-accessible Apple II-based bulletin board
- First Telnet-accessible Apple II-based bulletin board
- First Web-accessible Apple II-based bulletin board
- First Sherlock-indexed Apple II-based bulletin board





Jon Thomason, telecommunications architect for Washington Apple Pi, "drove" a PowerBook G4 attached to a digital projector to demonstrate the TCS. (Photo by Lawrence I. Charters)

■ Only multi-user Apple II-based bulletin board that is terrified of vacuum cleaners...

Most of the meeting was devoted to demonstrating how to log into the TCS, how to get help (you can view the online help, without logging in, by going to <http://www.wap.org/tcs/>), how to set preferences, how to read and respond to messages, and other common activities. The older, text-based version of the TCS tended to intimidate new users, but the audience seemed nothing less than delighted with the new, Web-based graphical user interface.

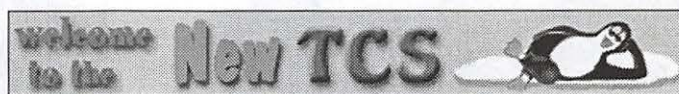
The last portion of the meeting was devoted to a demonstration of the Pi's new E-mail system, in operation not quite a week. The old system, while quite reliable, was showing definite signs of age: it was based on freeware software, hosted on a surplus Power Mac running Mac OS 9, with all files stored on a single, overcrowded 4 gigabyte drive. Maintaining E-mail accounts was an awkward process involving too many people, and some services, such as Web-based mail checking, were not

possible.

In contrast, the new server is a model of modernity, robustness and flexibility. Based on Stalker Software's near-legendary Communicate Pro package (see <http://www.stalker.com>), it supports SMTP, http, https, POP3, IMAP, and many other combinations of letters and numbers. For the first time, Pi members can now go into a public library or cyber café, or a friend's home, and using just a simple Web browser can check their E-mail.

Much of the presentation was devoted to Apple's Mail application, bundled with Mac OS X 10.2. While the Mail application was demonstrated at both the July and August General Meetings, this time around the demonstration featured a live Internet connection, and live mail. The audience got to see Mail's Spam filter in action, as well as see how it handles HTML-based "enhanced" mail, PDF files, JPEG graphics, and various other odd

things. Sadly, Mail is not "virus enabled," so it lacks any native capability to send virus-infected E-mail to everyone in your address book. You'll have to look elsewhere... ■



**tcs sign in**

Mailbox Name:   
 TCS Password:

**want a peek?**

(If you're a Pi member without a TCS subscription, click on the Guest Pass for instructions on how to get a tempting sneak preview)



A word about [cookies](#) and signing in

For more [information](#), or to [join](#) in the fun, visit [www.wap.org](http://www.wap.org)

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*The Pi's Web-enabled computer bulletin board, the TCS, is available to all current Pi members. Log in and be part of the Pi's 24-hour "General Meeting," with round-the-clock discussions on computers, politics, jokes, and countless other topics.*



# Digital Edge Expo 2002

Photos by Dave Ottalini

**W**ASHINGTON Apple Pi emerged as one of the main attractions at Digital Edge Expo on September 7 and 8. Held at the Washington, DC, Convention Center, Digital Edge Expo is sponsored by the DC area NBC television station (broadcast on Channel 4). The Digital Edge Expo started life as an offshoot of the station's regular technology reporting, and differs from most technology fairs in that it is focused on individuals and families, rather than businesses, and also extends beyond computer technology to include television, telephone, and even automobile and transportation technology.



*WAP's Booth at the Digital Edge Expo Rocked!*



*Another view of the WAP Booth at the Digital Edge Expo. Notice all the smiles.*



*There were lots of volunteers this year at the Digital Edge's WAP Booth. Maybe we'll see you next year!*



## Out of Retirement...and Going Strong

by Sally Keyes

**O**UT OF retirement. Yes, I'm out of retirement. I came back to teaching because I discovered I was filling my time but not feeling fulfilled. But, I am actually writing to make the point that I brought some Apple II GS machines into my classroom. And they are "out of retirement and going strong."

An active, enthusiastic group of first and second graders greeted me on my return last fall. I had great memories of the Apple IIe computers we had in our classrooms with all the MECC software. The students eagerly waited their turns to use the machines on "drill and practice" software. I have always been a proponent of drill and practice and this was another avenue to help students master grade level materials as well as offering new challenges and extension activities to other students.

After asking around I was referred to Washington Apple Pi as a place where I might be able to get a few computers to put in my classroom as the Arlington Public School system had "retired" all their Apple IIe and Apple II GS machines.

What a thrill to arrive in Maryland and find a stack of machines waiting for a good home!

I am back again this year teaching second and third graders and they are every bit as eager to use these machines when they finish their work. I also have 3 old higher-end Macs but the students only use them when the others have all been claimed.

As we are studying maps and the compass rose the students use "Jenny's Journeys" which requires them to move throughout a town going north, south, east or

west. Those who are still weak in phonics get practice on "Word Munchers." Those who are ready for some challenge try out the various choices in "Number Munchers," or "Number Jumpers," or Measure Works."

I can tell that this gives some students more confidence as well as improving their skill levels. It provides opportunities for cooperative learning, student mentoring, and learning to take turns. I am so appreciative for the opportunity to have these machines in my classroom. Several of the newer teachers have asked me where I got these. How did I get so lucky! I refer them to Washington Apple Pi.

And a bonus is that when I have a problem with the hard drive or monitor I can take the parts back for repair or replacement!

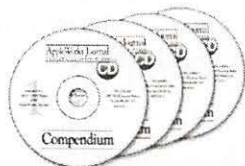
Thank you for such a wonderful extension to my teaching repertoire! Attached are some pictures to show the computers in use! Please, oh please, keep up the much appreciated work you do! ■



*Washington Apple Pi's Apple IIs are back in use in Sally Keyes classroom.*

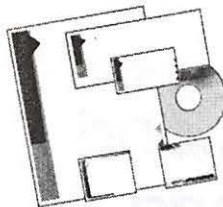


## AppleWorks Journal CD Compendium



There's no question about it – the *AppleWorks Journal* is the best source of information about AppleWorks. Between February 1992 and December 2001, the *AppleWorks Journal* published more than 1,200 easy-to-read, "How to..." articles filled with tips and hints to help you use AppleWorks. Now you can get all 1,200+ articles on four convenient, easy-to-use, fully-indexed CD-ROMs. The included electronic index makes it easy to find the article you want – and it's there for you to read or print right from the CD. List: \$159. AWUG Special: \$59.95 (includes all four CDs).

## Paper Designs for AppleWorks



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Order from: AppleWorks Users Group, Box 701010, Plymouth, MI 48170; (888) 781-AWUG; Fax: (734) 454-1965; email: <orders@awug.org>

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washington **Apple** pi

Saturday, 9 to 2

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Admission:

\$7 non-member

\$6 member

\$30 table & power

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★ **Largest Mac Show Held This Day!**  
(that we know about)



# Washington Apple Pi WebMail

**A**S A BENEFIT of membership, all members of Washington Apple Pi are given an e-mail account. Some of us use this account as our primary e-mail account. There are several reasons why this account can be very valuable. E-mail addresses that are tied to your Internet Service Provider can change if the ISP is bought by someone else or if they decide to change the name of their mail server. Some of us have used e-mail services that have gone out of business. Others of us have changed our ISPs and lost our e-mail addresses when we closed that account.

Your Washington Apple Pi e-mail account will remain with you as long as you are a Pi member. Of course, it would be nice to be able to read your email from any computer that has Internet access around the world. This is the service that has recently been added to our WAP email accounts.

Using a web browser, enter the address <http://mail.wap.org>. That will lead you to the login page. Enter the account name and password that were on the new membership card mailed to you this past summer. Press the Return key. You will then see the messages that are in your mailbox. To read a message, click on the name of the person who sent you the message. On each screen you will see icons that allow you to perform the usual email tasks.

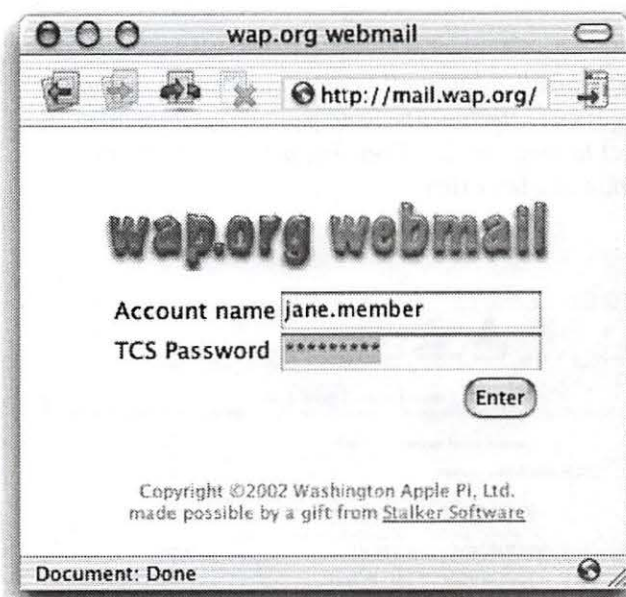
One of the most important things to do is to remove email messages that you no longer need. Put an x in the delete box and then click the Purge Button near the top of the window.

There are still a few bugs left in the program. Some web browsers work better than others, but all of them will give you access to your WAP mailbox. To report bugs, thank the hard-working volunteers who make this all possible or to offer suggestions, log on to the TCS (<http://webtcs.wap.org/>) using the same account name and password and leave a message on the TCS Comments & Suggestions board in the General Conference area.

Happy E-mailing

—Pat Fauquet

“Your Washington Apple Pi e-mail account will remain with you as long as you are a Pi member. Of course, it would be nice to be able to read your email from any computer that has Internet access around the world. This is the service that has recently been added to our WAP email accounts.”



*A web browser is now all you need to access your wap.org e-mail from anywhere in the world.*

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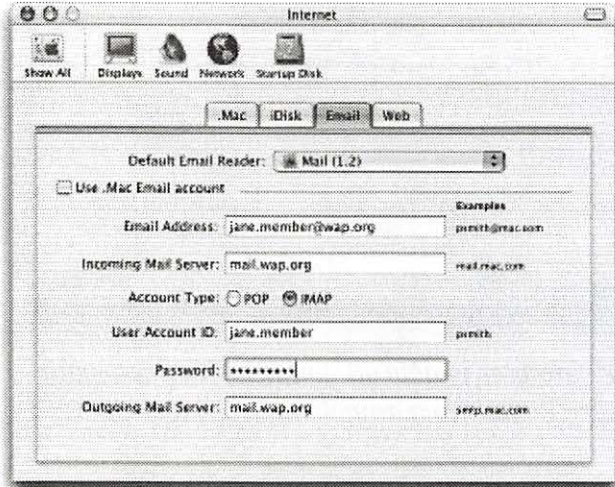




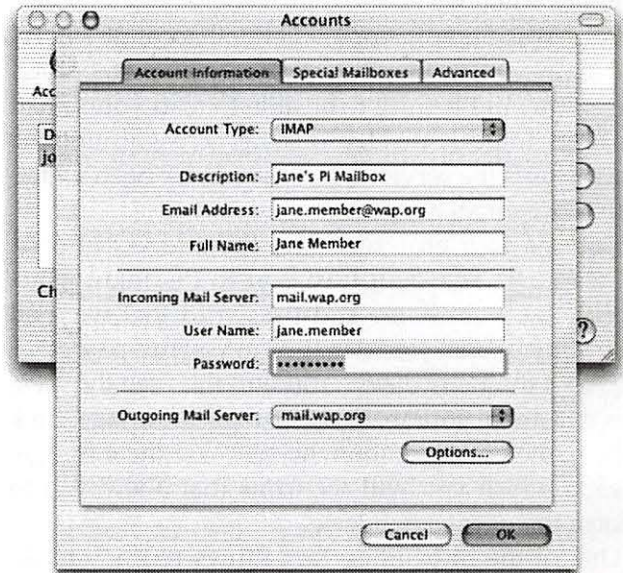
Use webmail to view all your pending mail, including images and attachments. Send mail, reply, forward or re-direct to someone else. Even flag messages for further attention at a later time.

### E-mail software

A quick straw poll of members online reveals the following partial list of e-mail software being successfully used every day with the new server. Apple Mail 1.2, Claris EMailer 2.0v3, Eudora 5.1, Microsoft Entourage, XNetscape Communicator 4 is said to work well when using TCS Explorer as an ISP. Due to a bug involving password windows, members find it annoying to use from an outside ISP reaching in. Reports say that Netscape Communicator 7 does not have this problem.

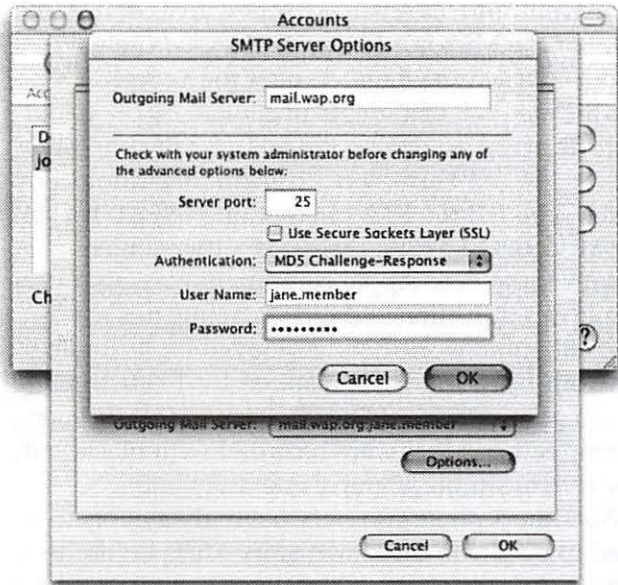


System settings are the same for offline (POP) or online (IMAP) mail access. The server address is always simply "mail.wap.org".



Apple's Mac OS X Mail application can use the IMAP mail protocol to view messages directly on the server. The POP mail protocol, in contrast, downloads and relocates mail to your machine for safe keeping.





*SMTP authentication allows you to deliver e-mail even if you're accessing wap.org from an outside ISP.*

### Want some help?

Need help with your wap.org e-mail? The TCS E-Mail FAQ covers everything from price to policy, philosophy and setup. <<http://www.wap.org/tcs/email.html>> The TCS Configuration Station has tips for configuring specific software. <<http://www.wap.org/config/>> The discussion boards are your best source of 24-hour expert help. <<http://webtcs.wap.org/topics?c=1&b=13>> When all else fails, turn to the middle of this Journal for a list of Hotline numbers: volunteers willing to help by telephone.

## A Week of 20,000 Pictures

# Life with Macs at a Photo Workshop

By Dennis Dimick

**N**INE NEW IMACS with their bright-white domes and hovering flat screens array around the perimeter of a sunny conference room in late September here at William Woods University in Fulton, Missouri.

All networked via Apple's wireless AirPort technology, these nifty computers form one aspect of a Macintosh-only network of no fewer than 26 computers assembled in less than two days. These Macs have been serving as the technological heart of the 2002 Missouri Photo Workshop.

For the first time in its 54-year history, this University of Missouri-sponsored workshop has abandoned 35-mm film and fully embraced digital imaging as palette to teach the practice of documentary photojournalism. Macs have been used here for perhaps a decade to scan film, and process and print pictures, but now for the first time all workshop computers are Macs, and all pictures have been created without film by using pro-level digital cameras from Nikon, Fuji, and others.



*Prowling Fulton Streets: Our goal at the Missouri Photo Workshop was to document in a week the life of Fulton, a small central Missouri town. We found the cameras turned on us early on, as we were trailed for a day by this reporter from the NBC television station in Columbia, MO.*





*In Your iMac: John Lee of the Chicago Tribune, foreground, and George Olson of Sunset Magazine were deep into picture editing by computer. Apple Computer loaned the workshop nine brand new flat screen iMacs for the week.*

Workshop staff and faculty call on these Macs to generate a full array of creative output that Macs excel in producing: capturing images from digital camera memory cards, editing photographers' work, presenting edited images for nightly review on screen, and printing a 300-picture exhibition of large prints for the community at week's end.

We also use the Macs for other media tasks where Macintosh computers excel: capturing and editing digital video shot of workshop participants for end-of-week presentations, building a website that shows off the workshop's progress and picture stories, editing and designing a photo book of the week's work, and production of a daily workshop newsletter for all participants.

PowerBooks brought by students and faculty members also tap into the wireless Airport network (or via Ethernet cable) throughout the week to keep tabs on personal and work email, write photo captions and story notes, and to stay in touch with the news.

### A History in Transition

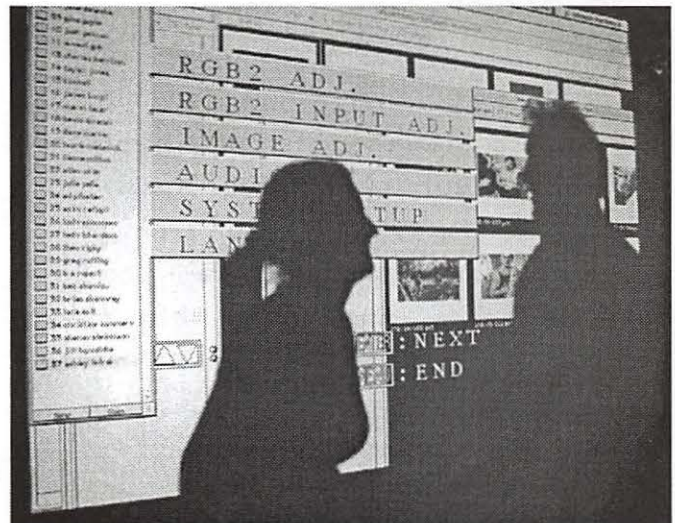
In recent years newspapers and many magazines have abandoned 35-mm film for still photographs in favor of new digital cameras, but the Missouri Workshop adopted color film only three years ago. That recent innovation (for the workshop, anyway) has now been replaced by cameras using "compact flash" memory cards and the advantages and challenges that come with computer-based (and dependent) digital photography.

Each autumn for seven years now I've been on the faculty of the Missouri Photo Workshop, a seven-day immersion teach-in where we offer to news photographers the methods of in-depth documentary photojournalism as practiced during the 1930s by the photographers of the old Farm Security Administration. Roy Stryker, who led the FSA photography effort, was an early Missouri Photo Workshop faculty member.

With these new Apple computers playing a pivotal role in a transition to digital imaging, this modern all-digital photo workshop has moved far technologically from historical roots inspired by 1930s Depression-era photographs of Dust Bowl migrants, farmers, and crop failures that were recorded with black-and-white film in simple 35 mm cameras.

Workshop photographers have always been required to originate their own story ideas before they can begin taking pictures. Many news photographers of today, who must complete three or four or more assignments a day, rarely are given the chance to spend more than an hour with someone before taking their picture. Our workshop goal is to make photographers be with and observe their subject almost constantly for several days. What results from this "time investment" are real, un-posed pictures of people's lives as they happen.

Our goal is to teach photographers to think originally, come up with ideas on their own that speak to



*The Shadows Know: Student shadows add a human form to the digital projection screen we used each night for picture review sessions. An Apple iBook was the hardware and Extensis Portfolio was the software for projecting each student's pictures onto the screen for evening critique sessions.*



life in a small Missouri town, to do the necessary discovery and fact-finding, and to craft a visual narrative using journalistic photos that show real life in action. These techniques give students tools to use later when pursuing other in-depth journalistic projects.

**Staff, Tools, and Techniques**

The workshop lives on now with the kindness of corporate sponsorship, donated faculty time, and ample labor from university journalism students.

Workshop enrollees pay \$500 tuition for the week, but it's the equipment loans and student support that make things work. Besides nine iMacs from Apple, Nikon donated use of about 25 pro-level D1x and D1h cameras, and Fuji loaned several of their Finepix S2 cameras and dye-transfer digital photo printers.

Quite a few of the nearly 40 workshop photographers come from small newspapers without enough money to buy digital cameras, so the transition to digital has been for them as much a learning experience as it has been for workshop staff and faculty.

Faculty members are photo editors, photographers, and art directors from major media organizations such as TIME Magazine, National Geographic, The Washington Post, San Jose Mercury News, Seattle Times, Chicago Tribune, and others. Each faculty member donates a week of time and energy to keep alive this spirit of documentary photojournalism by passing along the vision and method of this work to a new generation of story-tellers who wield cameras.

Ian Malkasian, an editor for the Portland Oregonian newspaper, has for several years served as the network setup and maintenance guru, and overseer of digital presentations. Ian uses Extensis Portfolio as his core application for the nightly "slide shows," presenting the workshop work via his iBook.

Ian's colleague, Randy Cox, the Oregonian's head of visuals, presented lectures on photo editing, spent the week producing a digital film about the workshop, and oversaw production of a future book that will include the week's photo stories. Cox achieved all this using stock programs like Quark Xpress, iMovie and Adobe Acrobat via Mac laptop and desktop computers.

**Into the Details**

Once workshop photographers begin shooting their picture stories, a couple of times a day they drop off filled camera memory cards so university students can transfer pictures to the Macintosh network via USB card readers attached to new 17-inch iMacs. Image cop-



*Leaving Film Behind: Geri Miglicz of the San Jose Mercury News was among the dozen workshop faculty members who edited student work digitally using a flat-screen iMac and software called FotoStation. This year for the first time we used digital cameras and edited all images with computers.*



*Nikons in Rows: Carol Fisher of Nikon readies to pack up about 25 Nikon D1x and D1h digital cameras and lenses after their week at the Missouri Photo Workshop. Nikon's generous equipment loan made transition to all digital imaging possible this year for the first time.*

ies are down-sampled to screen resolution for viewing and review, and renamed to link with a photographer via automated Photoshop scripts.

The original source images (in this case all about 2.7 megapixels in size) are then moved to the production side of the network where archiving, printing, and color-correction and preparation for presentations and a book begin.

Low-resolution copies of images are moved via AirPort from the input stations to an "In Box" on each editing team's desktop iMac, where we use a program



called FotoStation for making preliminary selects of each photographer's work.

Once faculty members select images from a photographer's "take," we move them to an "Out Box" on the desktop where administrators copy selected images to another zone of the multi-Mac network in the basement. Here, the cumulative images of a photographer's work are aggregated into an Extensis Portfolio catalog and sequenced by Mr. Malkasian and assistants for nightly review and critique sessions.

We standardized on 2.7 megapixel source files for consistency's sake. Technical Representative Carol Fisher of Nikon set all the Nikon loaner digital cameras to this same resolution, even though newer D1x model available to some workshop participants can produce nearly 6 megapixel images. (The less expensive D1h produces about a 2.7 megapixel image maximum.) This standard image file size keeps all photographers' quality equal, and it allows (most) photographers to take home all their source files on one CD-R at the end of the workshop.

Photographers were asked to take no more than 400 pictures during the week, this in an attempt to make them think about their story and how a potential picture related to their story before they pushed the shutter. Until this year of "no film," workshop participants were limited to 10 rolls of 36-exposure 35mm film.

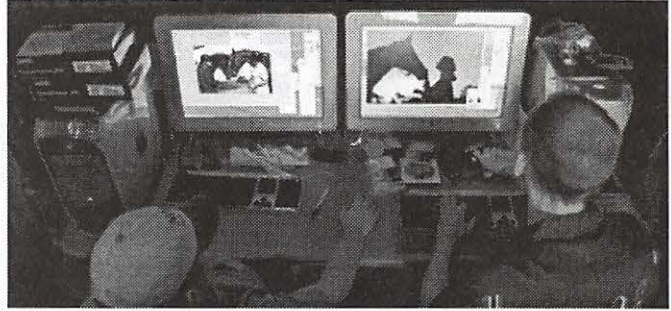
Early on we found some photographers wanting to erase images from their memory cards to make a day's work look better as a whole. A few just disregarded the 400-image limit completely. This would never been a problem with film, as when it's gone, it's gone.

Besides eventually archiving original image files to CD-R, some of the lab crew also has spent days, and nights, in front of a pair of new Apple flat-screen Cinema screens as they prepare a photo exhibit.

Here they use Adobe Photoshop on adjacent G4 desktop Macs to color-correct, sharpen, and prepare photographers' images files for printing to new dye-transfer "Fujifilm Pictography 3500" digital photo printers. Images are printed to A4 paper, actual images on paper were about 14x17 inches. Nearly 300 pictures were later shown to the community at week's end in the local high school. This gave residents a chance to see how we saw them, and to meet people in their own town they never had known before.

### How We Fared

The workshop proceeded smoother and faster than



*Widescreen Views: Among other equipment, Apple also loaned the workshop two new Apple Cinema flat-screen monitors. They were used on a pair of G4 Macs to produce a 300 print photo exhibition that was shown to townspeople at week's end.*

any year we used film. Because no time was needed for film processing, drying, and later film scanning, hours each day were saved. Photographers could shoot closer to the time of the evening projection critique and still see their day's work that night.

That the Macs we use have also become more reliable and faster, with bigger hard drives, has been a boon for timely handling and editing of images. The new flat-screen iMacs were great to use, and their small desk footprint offered special appeal. In years past we have edited off enlarged contact sheets of roll film, and often had to suffer delays due to film processing backlogs, failed hard drives, or buggy presentation software. This year we suffered none of those maladies.

My only real complaint is lack of maturity and intuitiveness in the image selection software we use. Programs I've used such as Extensis Portfolio or iView MediaPro aren't really designed for quick image selection from a group of unedited images. I wish they were more optimized for this, as the FotoStation program I used has been less than simple to master; pictures we selected would somehow unselect themselves, or when I tried to select all images, sometimes only some of the images in the "workbox" would get included.

That said, despite camera vendor sales pitches, digital images are not a panacea. In our case, a laboratory workshop, the ultimate quality of images isn't paramount. We have been judging general editorial qualities of relevance and appropriateness to story line, and whether a picture is a bit grainy (noisy) or not optimally exposed isn't our main concern. In this case digital images work fine and enhance our productivity.

Yet, the quality of digital images is not up to that of film. Each has their different advantages. Digital images are great for timeliness, and if you take a lot of pictures of family and friends they are a great way to



“Each autumn for seven years now I’ve been on the faculty of the Missouri Photo Workshop, a seven-day immersion teach-in where we offer to news photographers the methods of in-depth documentary photojournalism as practiced during the 1930s by the photographers of the old Farm Security Administration. Roy Stryker, who led the FSA photography effort, was an early Missouri Photo Workshop faculty member.”

save loads of money on film and processing. But it must be said, in my view, digital pictures are not in the same league with fine color transparencies or with low-speed color negative film.

(No doubt someone will disagree with this. Sure, if money is little object, and you can spend \$20,000 to \$30,000 on a large-format digital back for a Hasselblad or Mamiya, you too can have awesome digital images



*Minute by Minute: Faculty member Randy Cox of the Portland Oregonian interviewed workshop attendees all week on the most important photographic moment they captured, missed, or remember. At week’s end he presented a digital movie of his findings, all produced using Apple’s iMovie on a Mac G4 laptop.*



*In the Round: At week’s end we showed about 300 large color prints of pictures taken through the week. The photo show was held in the Fulton, MO high school cafeteria, and several hundred local residents came to see how we saw them.*

that may trump film.)

But beyond the discussion of digital images vs. film, it has been the Macintosh computers that serve as the constant-beating heart of our workshop. Without this network of flexible and reliable Macintosh computers, the Missouri Photo Workshop of 2002 would have been impossible to pull off. ■

*Dennis Dimick, a Washington Apple Pi member since 1990, has been a photo editor for the National Geographic Society since 1980. A selection of his other writings for the Pi Journal can be found at: <http://www.wap.org/journal>.*

**Related Websites:**

Missouri Photo Workshop: <http://www.mophotoworkshop.org>

Photojournalism at University of Missouri School of Journalism: <http://www.photojournalism.missouri.edu/>

Supplier of workshop cameras, Nikon USA: <http://www.nikonusa.com>

Supplier of workshop color printers, Fuji: <http://www.fujifilm.com>



# The Future of Macintoshes in Fairfax County Schools

by Thomas Berens

SEVERAL WEEKS ago, I heard rumors that the Fairfax County School System was no longer buying Macintosh computers for its schools. This school system is, according to its web site, the 12<sup>th</sup> largest in the nation. As a taxpayer, I was concerned as to whether or not this was a wise use of taxpayers' money. As a Macintosh advocate, I was also concerned about the impact of this decision on future Macintosh home purchases throughout the county, since many parents base their computer purchases on what platforms their children are using in school. Finally, as a parent of two boys who are attending these schools, I wondered why the school system had not made a better effort to inform parents of this decision.

I brought up this topic at the August General Meeting of Washington Apple Pi, and subsequently heard anecdotal evidence that these rumors were true. Although I volunteered to be a point of contact for anyone interested in pursuing this issue, I received no further information from any Pi members with firsthand knowledge of the situation.

So I decided to go to the source. I posted the following message on the Fairfax County Public School web site ([www.fcps.k12.va.us/](http://www.fcps.k12.va.us/)):

I heard recently that Fairfax County schools will no longer be purchasing Macintosh computers. Is this true? If so, was this announced to the public at all? Many parents purchase home computers based on which computers are being used in the schools. Information like this should be made available to parents well in advance of classes starting.

I've heard that \$1800 computers are being purchased, when \$900 Macintoshes are available which could meet the same requirements. This seems like a waste of taxpayers' money.

Was some sort of cost-benefits analysis done prior to making this decision? If so, could it be made available to the public?

Thank you for your time.

Within a few days, I received the following reply from Maribeth Luftglass, the Chief Information Officer, FCPS:

Several years ago our school system concluded that standardizing on a single desktop computer platform would provide greater benefit to our students in all grades. Because PCs are the most widely used platform in colleges and the business world, as well as in all FCPS high schools, and many elementary schools, it was decided that FCPS would only purchase PCs as either new or replacement equipment. At that time, all school system program managers and principals were made aware of this decision and were instructed to plan accordingly.

In June 2002, Dr. Domenech further implemented this decision based on current budget constraints and the positive impact support of one platform would provide to the overall school district. This transition to a single platform will not happen overnight. Both hardware and software support for the Macintosh will continue for the life of the Macintosh computers currently in our schools. We are reviewing our plans and guidelines to assist schools who choose to make the transition sooner rather than later. Currently, our educational contract pricing for our Hewlett Packard PC system configuration is \$950 with warranty and maintenance, which is comparable to a similarly equipped Apple iMac.

Thank you for your interest in Fairfax County Public Schools. If you have any



further questions, please let us know.

I decided to take her up on her offer to ask further questions. Below are my follow-up questions and her replies:

Q. Was a cost-benefit analysis made by the school system prior to arriving at the conclusion to standardize? If so, can it be made available to the public?

A. The Superintendent's decision several years ago to migrate to a single platform standard was made and supported by the FCPS Leadership Team (consisting of the leaders for instructional and administrative departments within FCPS) based on data supported and accepted by industry studies concluding that regardless of platform, standardizing on a single platform benefits an organization through increased economies of scale and consolidation of time, effort, and resources required for key operational components of the support and training organizations. The RFP and the award made in 1999 for the Hewlett Packard PC's are public records and available at the Fairfax County Purchasing and Supply Management Agency.

Q. Was any effort made to inform the parents of this plan? Don't you think parents should be informed of this fact so that they can purchase compatible computers for home use? At a minimum, shouldn't this be a topic for the "Back to School" orientations?

A. While our plan and strategy is to migrate to single platform, with over 65,000 existing computers in our schools, that vision will take many years. Each school has a different installed base of hardware. Therefore, we suggest that parents contact their individual school for information on their particular technology. Our school principals are our most valuable resource when communicating issues of this type to their parent organizations and communities. We rely on their expertise for communicating their school specific technology plans to their constituent communities as they feel is appropriate.

Q. By continuing hardware support, does that

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"I heard rumors that the Fairfax County School System was no longer buying Macintosh computers for its schools. This school system is, according to its web site, the 12<sup>th</sup> largest in the nation. As a taxpayer, I was concerned as to whether or not this was a wise use of taxpayers' money."

---

mean that RAM and/or hard drives will be purchased and replaced in the Macintoshes as needed? Will current software be upgraded?

A. Macintosh hardware support will continue on all models provided that the cost to repair does not exceed 80% of the total replacement value. Specifically, this would include failed or malfunctioning hardware such as the type you mention—hard drives and memory with one caveat. The schools themselves are responsible for any memory or hard drive "upgrades." The amount of upgrades will be contingent on available local school funds. Macintosh software will continue to be supported including upgrades provided that schools follow normal purchasing procedures for ensuring proper licensing.

So there you have it. I won't bother critiquing the CIO's responses here; most of us have already heard these arguments and formed our own opinions, so I won't preach to the choir.

The good news is that the transition will not happen overnight. The bad news is that it will happen eventually, unless concerned parents and taxpayers get involved. If you are interested in helping with this issue, please email me at [tberens@mac.com](mailto:tberens@mac.com). If you think that the Pi should become more involved, then voice your concerns to the Pi officers. Finally, let your school officials know how you feel about this.

On the other hand, if you are a parent and you agree with the CIO's comments, then I suggest you start budgeting for a home PC.

Don't say you weren't warned. ■



# From Eunuchs to UNIX: How Popeye Gets his Spinach

by Sheri German

**A**DMIT IT: As much as we love our Macs, as much as we believe in their superiority for graphics, video editing, and ease of use, there is one area in which our beloved computer has been a wimp. As Web servers, personal Macs have not been, uh, the biggest studs on the Net. Home PC users could use their Personal Web Server (PWS) to run Active Server Pages. They could learn a little VB script, ASP, and a database system, and soon they were testing and running dynamic (aka database-driven) Web pages and Web applications. The Mac user could only drool in envy.

That has all changed in Mac OS X. Because the Mac now comes with the Apache Web server, the PHP scripting language, and the ability to run the MySQL server, we have joined forces with the power that runs much of the Internet: UNIX. We're in the game! We no longer have to capitulate to the bullying of Bluto in the guise of Microsoft.

How do we set it all up? It's not quite out-of-box, and you'll have to do a couple of things that may make you want to revert to Wimpy with your hamburger. Most notably, you're going to have to enter a few commands in the Terminal. Well, sew a big "S" for Spinach on your shirt, and follow the directions carefully. I hope to help you prepare your computer to take advantage of what has to be the most powerful feature in Mac OS X. The steps are primarily written for Jaguar, but I make note of the differences for versions of 10.1.

## Starting the Apache Web server

The first thing you have to do is start your Apache Web server. The new OS has a "System Preference" to make this blissfully easy. Open the "Sharing" panel, select and check the "Personal Web Sharing" preference, and click the "Start" button on the right. That's it! You have begun your Web server.

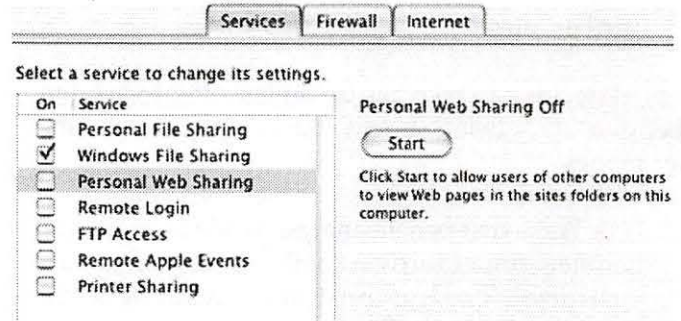


Figure 1.

To test it out, open your browser and type the URL `http://127.0.0.1/` and press your enter key. You'll see a generic page that you'll want to replace right away. For now, let's do something simple. Open up BBedit (or your favorite plain text editor) and type out an HTML document. Save it as `index.html`.

```
<html>
<head><title>Sheri's Spinach Factory</title></head>
<body bgcolor="#FFFFFF">
<h1>You gotta eat your spinach, baby! </h1>
</body>
</html>
```

You can type anything you like between the `</h1>` and `</body>` tags. We're going to place this file in the `Library/Webserver/Documents` folder. (You may want to save the default index page and all of the translations of the page in various languages to a backup folder.) Now when you type in `http://127.0.0.1/` you'll see your new page.

## Backing up the `httpd.conf` file

We are now going to type in the Terminal, and directly alter the Apache configuration file. If you think this sounds dangerous, it is. Still, you have a backup configuration file that you can use to replace the working one if you make any egregious errors. (If you would like to verify the location of the configuration file as well as its backup, you can use "Sherlock" with the invisible file option selected to take a look. Just type "`httpd.conf`" without the quotes.) If you have hopelessly destroyed the original (one way to tell is that the Web server no longer starts up), use the `cp` command to copy and rename a file all at once. Type as follows:



```
cp httpd.conf.bak httpd.conf
```

What this will do is give you two identical files, the original uncorrupted backup file, and the returned-to-pristine httpd.conf file.

### Enabling PHP

PHP is a scripting language that provides, among other things, the “middleware” that connects the “frontend” (the user’s browser) to the “backend” (the database). As one example, suppose you have a contact page for a business on your Web site. The actual contact information resides in a database on the server. The browser may offer a page with a search field to allow users to look up a contact based on specified criteria. When the user enters a name or job function, the PHP scripts are what connect the search to the database and return the information to the browser. PHP is a server-side scripting language as opposed to a client-side or browser interpreted scripting language such as JavaScript. Your scripts are hidden from the user, and only HTML is returned to the browser. Best of all, your code is not dependent upon the browser flavor and version of the user.

Mac OS X comes with PHP already installed. We do have to enable the scripting language in the Apache configuration file, however. This file is called httpd.conf., and is located in a hidden folder inside the path:

```
/etc/httpd/httpd.conf
```

Go into your Applications folder and open the Utilities folder. Find and launch the Terminal. You will be presented with a prompt that includes your user name. Type the following command exactly as you see it here:

```
sudo pico /etc/httpd/httpd.conf
```

```
Last login: Tue Sep 17 07:06:35 on console
Welcome to Darwin!
[Sheri-Germans-Computer:~] sherigerman% sudo pico /etc/httpd/httpd.conf
Password:[]
```

Figure 2.

Let’s break down the meaning of what you have just typed. Sudo stands for “Substitute User Do” and gives

you the power of the “Super User” of the computer. Believe it or not, this is not you. (Warning! Fail to treat the Super User with the respect it demands, and you can totally mess up the Mac OS X.) Next you typed Pico to call forth one of the UNIX text editors. You are going to use it to edit the Apache configuration file, the path to which we are pointing in the last part of the command. Press the return key, and you will be asked for the administrative password. Enter it, and then you will find yourself transported to Pico.

Now we are going to use some of Pico’s commands to move around the httpd.conf file. We use the control key with various letters to carry out commands. Let’s start with the control and “w” keys. These will bring up a search field. We want to find the LoadModule and AddModule for PHP in the config file. In the black search area, type LoadModule. Hit return and you will be taken to where the LoadModule section of the configuration file begins. Press your down arrow key a couple of times to progress down to the LoadModule list. You will see all kinds of modules, most of which will have the # character next to them. This means they are commented out, or disabled. To enable a module you must remove the # character. Keep pressing your down arrow key till you get to the end of the LoadModule list. You should see the following module for php:

```
#LoadModule php4_module      libexec/
httpd/libphp4.so
```

Use your left arrow key till you are over the # sign. Use the control and d keys to delete it.

(See Figure 3, page 34)

After you do this, press your arrow key a few times more till you see the AddModule list. Again, in Jaguar you need to key down till you get to the end of the list.

You will see the AddModule for php. Again, remove the # character:

```
# A d d M o d u l e
m o d _ p h p 4 . c
```

(Note: For those of you who have earlier versions of Mac OS X, be aware that the Load and Add modules for php do not exist in



```
#LoadModule usertrack_module      libexec/httpd/mod_usertrack
#LoadModule unique_id_module      libexec/httpd/mod_unique_id
LoadModule setenvif_module        libexec/httpd/mod_setenvif.so
#LoadModule dav_module            libexec/httpd/libdav.so
#LoadModule ssl_module            libexec/httpd/libssl.so
#LoadModule perl_module           libexec/httpd/libperl.so
LoadModule php4_module            libexec/httpd/libphp4.so
```

Figure 3.

the httpd.config file. You're the Super User now, right? Go ahead and add them yourselves. Add the LoadModule and AddModule to the end of each respective list exactly as you see them listed in the above paragraphs.)

Let's save what we just did. To save, we "write out" the file, or choose the control and "O" (letter) keys. You will be presented the name of the file to write out (the httpd.conf file.) Press enter to save your work.

There's one last thing to do, and then you can test that you successfully enabled PHP. We have to add the MIME type. So go ahead and use your control and "w" keys again. Type in "AddType application" without the quotes and press enter. You should now see the line that says "AddType application/x-tar .tgz" Under that line type in the following two lines: AddType application/x-httpd-php .php and AddType application/x-httpd-php-source .phps (Note: If you are using earlier versions of Mac OSX, these lines will already be there. You will just need to take off the comment mark.)

```
#
# AddType allows you to tweak mime.types without actually editing it, or to
# make certain files to be certain types.
#
AddType application/x-tar .tgz
AddType application/x-httpd-php .php
AddType application/x-httpd-php-source .phps
..
```

Figure 4.

Now you're ready to "write out" or save the configuration file again. After you save it, exit the configuration file by choosing the control and "x" keys. Once you exit Pico, you will then need to exit Terminal. Type "exit," then close the Terminal window. You also need

to go into the "Sharing" panel and stop and restart your Web server so that the new settings apply.

Now we have reached the moment you were waiting for. Let's check to see that we have successfully enabled PHP by creating a little test PHP page. Go into a text editor (BBedit is good) and type the following lines:

```
<HTML>
<HEAD><TITLE>PHP Test</TITLE></
HEAD>
<BODY>
<?
phpinfo()
?>
</BODY>
</HTML>
```

Now save this as test.php. Drop it in the root directory of your Web server (Library>Webserver>Documents) Open your browser and type this URL:

<http://127.0.0.1/test.php>

If everything went smoothly, you should see a page with all kinds of information about PHP Version 4.1.2.

(See Figure 5, page 35.)


## Installing mySQL

Ready for the next step? Let's install mySQL. Go to the following Web site:

<http://www.entropy.ch/software/macosx/mysql/>



PHP Version 4.1.2



<b>System</b>	Darwin fisheye 6.0 Darwin Kernel Version 5.2: Mon Jun 17 09:55:14 PDT 2002; root:xnu-201-14.root/xnu-201-14.obj/RELEASE_PPC Power Macintosh powerpc
<b>Build Date</b>	Jul 27 2002
<b>Configure Command</b>	'/SourceCache/apache_mod_php/apache_mod_php-7/php/configure' --prefix=/usr --mandir=/usr/share/man --infodir=/usr/share/info --with-apxs'
<b>Server API</b>	Apache
<b>Virtual Directory Support</b>	disabled
<b>Configuration File (php.ini) Path</b>	/usr/lib
<b>ZEND_DEBUG</b>	disabled
<b>Thread Safety</b>	disabled

This program makes use of the Zend Scripting Language Engine:  
 Zend Engine v1.1.1, Copyright (c) 1998-2001 Zend Technologies




Figure 5

to download the appropriate version of MySQL for your version of Mac OSX. Note that there are two sets of directions! One is exclusively for Jaguar, and the other is for earlier versions of Mac OS X. You need to create your own MySQL user in earlier versions of the OS, but there is a default MySQL user already installed in Jaguar.

This tutorial assumes that you have never installed MySQL before. If you do have an earlier version on your computer that you wish to remove, you need to very carefully follow Marc Liyanage's directions for cleaning up. For those of you installing for the first time, here are the steps as listed on Marc Liyanage's amazing Web site. Type accurately, and check for typos before pressing the return key between each command.

1. Download the package `mysql-3.23.51-jaguar.pkg.tar.gz` to your desktop. Unpack it and then double-click on the `.pkg` file to install it. Open a terminal window and type in the following commands (without the double quotes):
2. type `"cd /usr/local/mysql"`
3. type `"sudo ./scripts/mysql_install_db"`, enter administrator password when asked
4. type `"sudo chown -R mysql /usr/local/mysql/*"`

5. type `"sudo ./bin/safe_mysqld --user=mysql &"`
6. Use it with `"/usr/local/bin/mysql test"`
7. If you do not want to have to type `"/usr/local/bin"` in front of every command, you have to add the `/usr/local/bin` directory to your PATH environment variable in your login script. For the default tcsh shell, you can do this by running this command once: `"echo 'setenv PATH /usr/local/bin:$PATH' >> ~/.tcshrc"`
8. After performing the above steps, read section 4.3 of the manual carefully, it explains how to set up permissions etc.
9. Important: You

should at least run this command in order to secure the open master account in the default installation: `mysqladmin -u root password new_password_here`

Note that you actually type the word "password" and then the password of your choice. Marc also provides an automatic MySQL startup script you can put in the start up items folder of the main "Library" folder so that the MySQL server starts whenever you boot your computer.

We have some choices for interacting with MySQL. Of course, there is the Terminal for typing directly into the MySQL monitor. To access it, let's first "cd" (change directories) at the prompt to get into the MySQL directory: `cd /usr/local/bin/.` Next we need to gain entry to the MySQL monitor: `mysql -uroot -p[your_password_here]` After pressing enter, the MySQL monitor welcome screen appears. At the prompt (`mysql>`) type `SHOW DATABASES;` (Don't forget the semi-colon after each command.) After pressing enter, a list of the databases on the MySQL server pops up.



```

Last login: Tue Sep 17 08:56:29 on tttyp1
Welcome to Darwin!
[Sheri-Germans-Computer:~] sherigerman% cd /usr/local/bin/
[Sheri-Germans-Computer:/usr/local/bin] sherigerman% mysql -uroot -pda
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 1 to server version: 3.23.51-entropy.ch

Type 'help;' or '\h' for help. Type '\c' to clear the buffer.

mysql> SHOW DATABASES;
+-----+
| Database |
+-----+
| balletacademy_net |
| golive_samples |
| mysql |
| swanilda_com |
| test |
+-----+

```

Figure 6.

### Download and Configure phpMyAdmin

Finally, we are going to install a GUI for MySQL. Why push our luck with the terminal, eh? Go to <http://phpmyadmin.sourceforge.net/> and download the latest release of phpMyAdmin. Unpack phpMyAdmin and place the folder in your Web server's document root (Library>Webserver>Documents.) Let's look at the following directions from documentation.txt:

Open the file config.inc.php3 in your favorite editor and change the values for host, user, password and authentication mode to fit your environment. Also insert the correct value for \$cfgPmaAbsoluteUri.

So let's launch TextEdit, navigate to the phpMyAdmin folder, and open the config.inc.php file to see where we add the URI, user name, and password. Scroll down just a little bit into the file. It won't be long before you

```

*
* If the auto-detection code does work properly, you can set to TRUE the
* $cfg['PmaAbsoluteUri_DisableWarning'] variable below.
*/
$cfg['PmaAbsoluteUri'] = 'http://127.0.0.1/phpMyAdmin-2.3.0/';

```

Figure 7.

will see something like what is at the bottom line in this screen shot. Where you see the variable \$cfgPmaAbsoluteUri, you will see a null value with just single quotes: ' '. Add the value for your computer and phpMyAdmin version. (See Figure 7.)

Take note of the URL, because you will access myPhpAdmin with it from within your browser. For instance, I type in <http://127.0.0.1/phpMyAdmin-2.3.0/index.php>. (I add index.php.) to access the default start page of the program.) You may want

to bookmark the page the first time you find it successfully.

Now let's add your user name and password. Remember that the user will be the administrator of the machine, but the password of the MySQL user! So you will probably enter "root" as the user, and the password you entered when you set up MySQL in the terminal. (You did set up a password for your MySQL user, didn't you?) Scroll down till you see the variables for the user name and password. Enter them between the single quotes. Let's look at a screen shot: (See Figure 8.)

### PHP/MySQL Resources

That's it! You have all the pieces in place to now start creating "Web applications." You may be saying, "OK, I am all dressed up in my Super Spinach costume, but I have no place to go." Using this new power may

be the subject of future articles. If you can't wait, check out the URLs below:



```
read-only
$cfg['Servers'][$i]['controlpass'] = ''; // access to the
"mysql/user" // and "mysql/db"

tables)
$cfg['Servers'][$i]['auth_type'] = 'config'; // Authentication
method (config, http or cookie based)?
$cfg['Servers'][$i]['user'] = 'root'; // MySQL user
$cfg['Servers'][$i]['password'] = ''; // MySQL password (only
needed
```

Figure 8.

- Learn how to use the Structured Query Language that is used in MySQL. There is even an online interpreter so you can practice: <http://www.sqlcourse.com/>
- Marc's MySQL pages: <http://www.entropy.ch/software/macosx/mysql/>
- PHP Tutorials: [http://www.devshed.com/Server\\_Side/PHP/PHP101/PHP101\\_1/page1.html](http://www.devshed.com/Server_Side/PHP/PHP101/PHP101_1/page1.html)
- A little PHP tutorial to get you started is located at the site of yours truly. This tutorial will walk you through creating an upload file script: <http://swanilda.com/unix2.html>
- If you own *Golive 6*, there is a preconfigured server you can choose to install instead. The directions are available in both PDF and HTML format at the following site: <http://www.golivein24.com/tips/>
- Further, there is a chapter in the *GoLive 6 Magic* book that is by Rob Keniger that takes you through a tutorial to set up a (CMS) Content Management System. Read about the book at <http://noendpress.com/golivemagic/>
- If you use *Dreamweaver MX*, check out the Designer and Developers pages to get started creating various PHP pages: [http://www.macromedia.com/support/dreamweaver/building/master\\_detail\\_php/](http://www.macromedia.com/support/dreamweaver/building/master_detail_php/)
- To learn more about using the Terminal in Mac OS X, check out the following URL: [http://www.macdevcenter.com/pub/a/mac/2001/12/14/terminal\\_one.html](http://www.macdevcenter.com/pub/a/mac/2001/12/14/terminal_one.html)
- There is also a wonderful series that will guide you through learning all about your Apache Web server: <http://www.macdevcenter.com/pub/a/mac/2001/12/07/apache.html>(Please note that many of the directions at the site only work in earlier versions of Mac OS X.)
- If you would like a great (and cheap) PHP/MySQL host, I would like to recommend <http://www.golivehost.com/> The technical support is outstanding. I don't think those guys ever sleep.

And once you learn how to do this stuff, you may never sleep, or find time to eat, either. It's definitely more fun than eating your spinach, baby. ■

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“... there is one area in which our beloved computer has been a wimp. As Web servers, personal Macs have not been, uh, the biggest studs on the Net. Home PC users could use their Personal Web Server (PWS) to run...”

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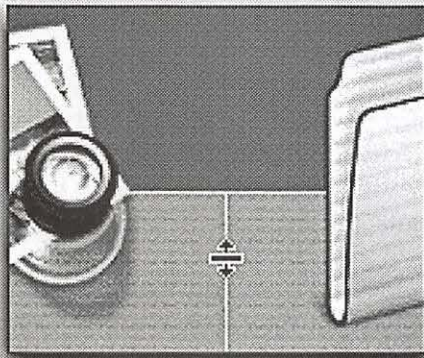


# Using OS 10 1, 2, 3... How I Got Going With OS 10 Using Magic!

By Bob Mulligan

**OK**, your Mac now has OS 10 point something, You have finished struggling with User Accounts, Internet settings and passwords. Now, how do you use this new pinstriped Aqua-like fancy schmancy operating system?

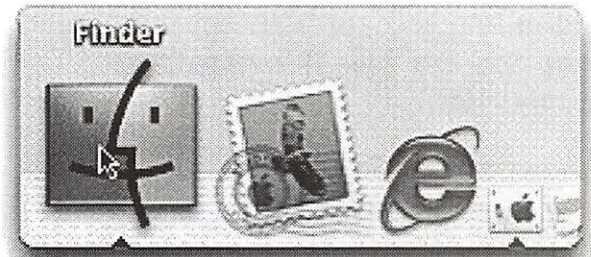
If, like me, you are used to the Mac "Classic" operating system, 10 is different. It took time getting used to this new system but now it is a piece of cake. There are three things to know and do to get comfortable with 10.



Picture A

Now, I am not a Mac engineer, geek or even a repair guy, I am only a user. But I did learn how to get organized with OS 10. I spell this out 1, 2, 3... and illustrate it with screen shots (made with second party software called Snapz Pro X).

This is by no means a complete tutorial for OS 10. Big books about OS 10 are out there for the buying. I kept resisting the temptation to go on and on about any one subject. This is only an outline of those three things to get you started. You will still have a lot to learn but you will be moving on. One. What's up, Doc? The Dock is, Doc! This replaces the Launcher you may have used in your "Classic" Mac system. The strip of icons jump up when you run the mouse arrow over them. It works like magic and is very useful. Click on an icon in the Dock and that item opens. Here is what

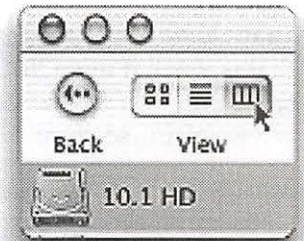


Picture B

you should know about it.

Dock Facts One. This Dock can be adjusted every which way by going to the Dock Preferences in the Preferences panel. Among other things you can place it on the left or right portion of your screen as well as at the bottom.

2. With the Dock at the bottom, all the icons on the left are applications. 2. The icons on the right are folders, documents, whatever,



Picture C

that you have created. There is a faint white dividing line separating the two sections, see Picture A. Place the mouse arrow on this line, it changes to a double arrow. Hold a click and nudge the mouse up and down and the dock will grow and shrink. Magic again! OK, you did not place the trash basket here but learn to live with it.

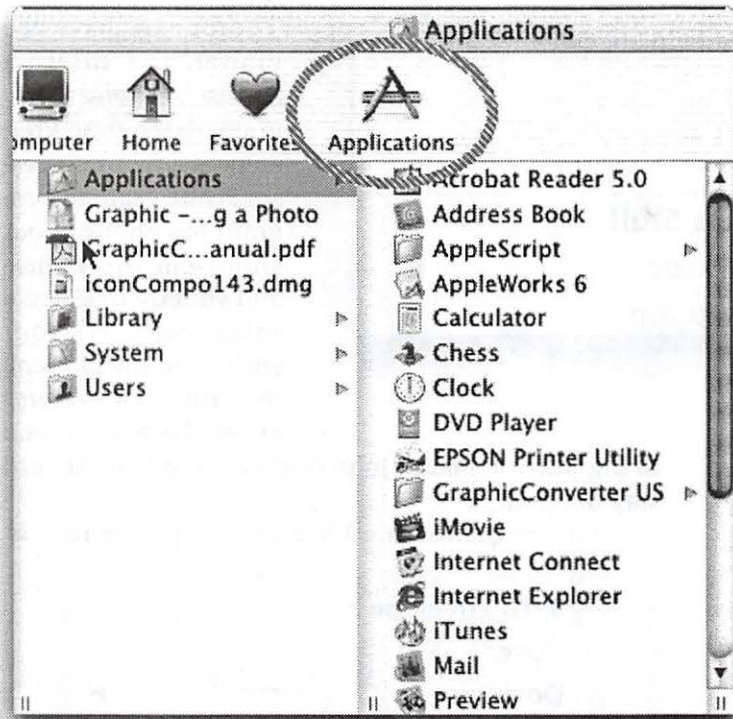
Two. The Finder. Your OS 10 lives in here. However, for this exercise it will be necessary to fuss with the Finder only two times, then you are finished with it! Well, almost, but day in and day out you will not have think about it.

Find the Applications 1. Click on the Finder in the Dock. See Picture B. 2. A window opens, select the List button in the View palette. See Picture C. Experiment with the other two buttons another time. 3. Click the Applications icon. It lives in the Finder Toolbar at the top of the window. See Picture D.

A long list of applications is now displayed in the next column. If you haven't customized your OS 10 as yet you'll have applications nested here that you'll be needing but are not yet in the Dock. There is no need to dig into the Finder every time you want to go on line, open a picture or play a tune.

Lets Dock 'em 1. Select an application you want, see Picture E, and drag its icon to the Dock. With the Dock on the bottom of the screen, the application goes



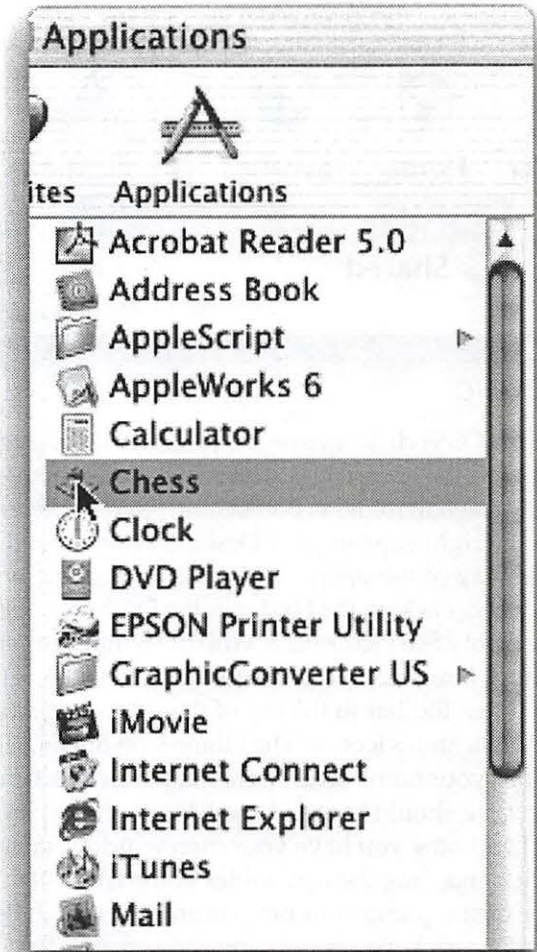


Picture D

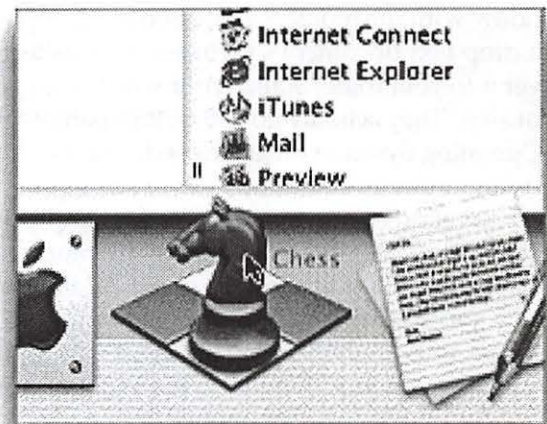
to the left of the dividing line. I chose the dandy chess game for this screen shot. The Dock icons will jump away from the application you are dragging as if it had bad icon odor. Pick an opening and let go of the click. The application will deposit a nice large alias in the dock, see Picture F, and then snap back to the list. A magic trick! That is all there is to it. Incidentally, all the icons in the Dock are aliases. 2. Choose others you may need or want such as the Explorer browser, iMovie, the Preferences Panel, to name just a few. Drag them down one at a time to your end of the Dock. Don't close the window yet. The best magic is yet to come.

Three. The Home Folder. I was laboring with extra motions while working in 10 until I learned this next bit of OS 10 logic. You can make a folder to hold all your work and it will be easy to get at. It will live in your end of the Dock. Drag and drop your work into that folder. Dump it all in there. When you need something it will pop-up a neat alphabetical menu for you to choose from.

I take a lot of photos so I have a second folder in the Dock to hold all of those. You can make as many folders as your dock will hold but one or two should be sufficient.



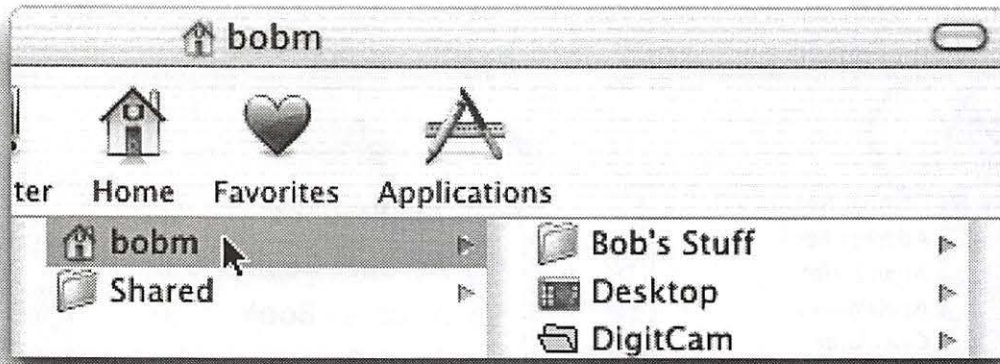
Picture E



Picture F

Dock Your Own Folder 1. Go to File menu, click on New Folder. The title should be highlighted and ready for typing. Give it a cool name. If it isn't (this is differ-





Picture G

ent than OS 9) click once on the folder, it will darken, and then press the Return key. Start typing. The creative name for my catchall folder is Bob's Stuff. Aren't I clever? Park it on the right edge of your Desktop where it will be out of the way of the open window. 2. In case the window got closed, click on the Finder in the Dock, select the List button only. See Picture C. 3. With the window open, click on the "Home" icon. It looks like a little house. It lives in the Finder Toolbar in the top of the window, along with the Applications icon. 4. The Home icon opens a column that has your name on it! More magic! (See Picture G.) 5. Your name should be preselected, highlighted (if not, click on it) and now you have your own window, or column. 6. Click and drag the new folder you parked at the edge of the desktop into your new column. Let go. 7. Perform the magic trick the same as you did before. Click on that folder again, only this time drag it to the other side of the Dock, your side of the dividing line. Let go and your folder's alias is ready for action. 8. When finished, close the window with the red gel-like button at the top left. As you drop text documents, pictures, spreadsheets or whatever into your folder's alias your work is not going into that alias. They actually go to the alias' parent folder in the Operating System you just closed. Another magic trick!

You can get rid of an unwanted alias by simply dragging it onto the desktop and releasing the mouse. The alias blows up in a puff of cartoon smoke. Again, magic!

And if you accidentally blow up your new personal folder into a puff of virtual smoke, and it was holding your valuable contents, there is no harm done. Just repeat the 1 through 8 sequence, above, and make a new alias. Your work magically went to the parent folder, remember?

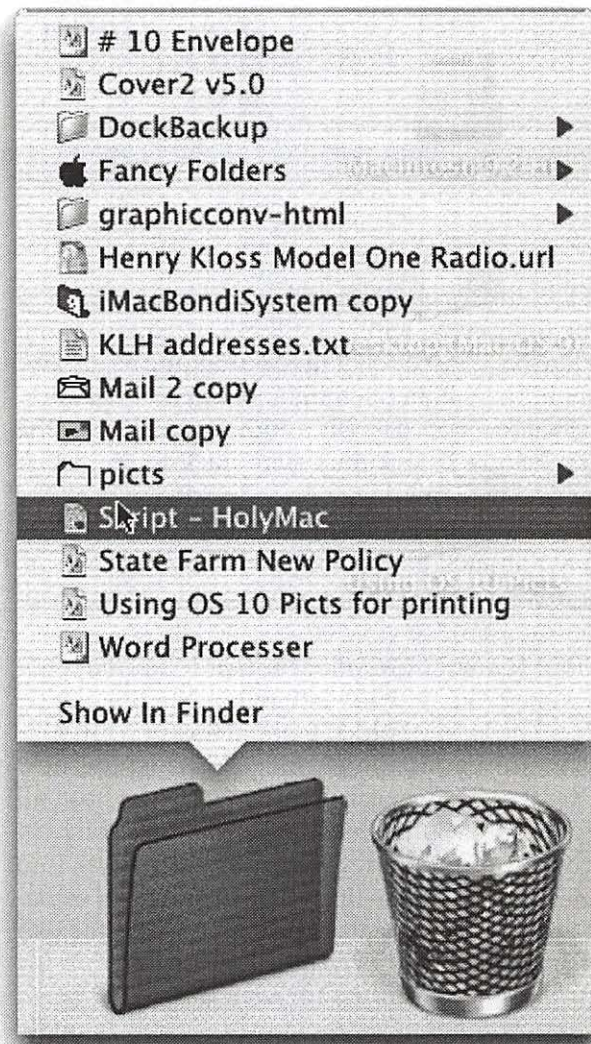
Click your new alias and the folder opens. Better yet, hold the click for two seconds and up pops a neat clickable alphabetical menu of the contents. (See Pic-

ture H)

You now have, the Finder, the Internet browser, the email program, the System Preferences a word processor, your graphic program for photos, your shoot-em-up games and your own personal folder with all your stuff all in the Dock all in a row. All systems are go. There is no need

to dig into the Finder to perform everyday work, just stay dockside.

With magic like this, life is easy. Enjoy OS 10! ■



Picture H



# washington **A**pple pi general meetings

## 9 a.m.-noon

Northern Virginia Comm. College  
Community & Cultural Center Aud.  
8333 Little River Turnpike  
Annandale, VA

### November

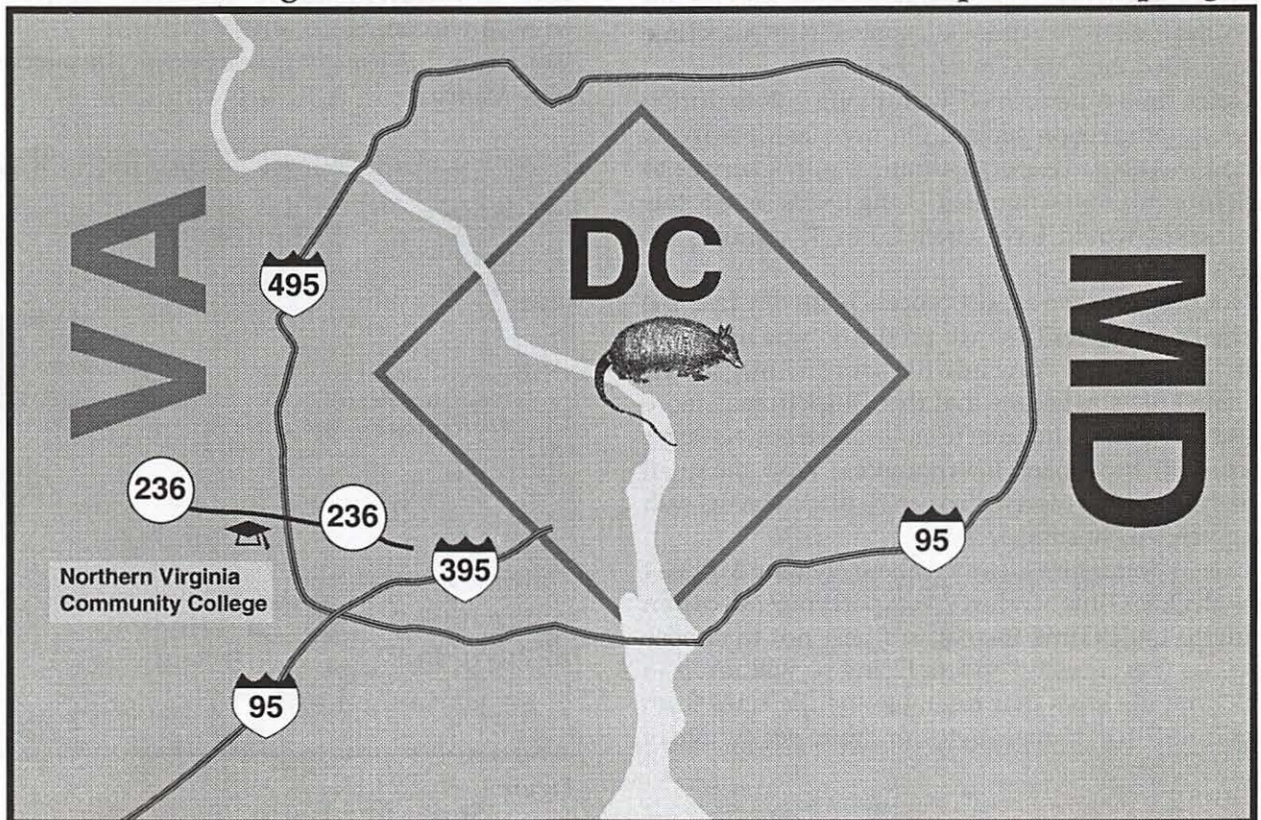
Nov. 16, 2002  
A week earlier than usual

### December

Dec. 14, 2002  
Garage Sale

Getting to NoVa:  
take Exit 52 West  
onto VA 236  
(Little River Turnpike)  
SW of the armadillo

For schedule changes check the TCS or the Pi's Website at <http://www.wap.org/>





# QuickTime 6 Rocks and Validates the Value of Apple's .Mac Service

APPLE COMPUTER'S QuickTime 6, released in mid-June 2002, is a significant jump forward for multimedia and video producers. Contained within QuickTime 6 is the open-standards MPEG-4 (Motion Picture Expert Group) video codec, which allows for the creation of video files that are small in file size, but still look quite nice. MPEG-4 video files are ideal for placing on the web — or viewing on future portable video viewing devices.

The power of MPEG-4 became apparent to me earlier this month when I taught a "Video Basics" workshop to adult literacy organizations in Washington DC. As part of this workshop we shot a public service announcement, edited it in iMovie, exported it to QuickTime and uploaded the QuickTime to the web.

QuickTime 6 performed with flying colors during this video production project. On my 700-MHz iBook laptop I was able to export a 4-minute public service to QuickTime in about 6 minutes. Using QuickTime 5, this same export would have taken 20 to 30 minutes (or longer).

Not only was the export process relatively fast, the file size of the QuickTime we produced was relatively small. This 4-minute PSA had a file size of 3.7 megabytes. This small file size means that this QuickTime is more accessible to dial-up Internet users — and transfers faster to those with broadband Internet access. Also, the small file size means that more video can be placed on the web for a given web hosting account.

One important tip I learned about creating MPEG-4 files with QuickTime 6. When you export your video from iMovie to QuickTime format, it's best not to choose "high" or "best quality" video. Doing so will result in QuickTime file sizes that resemble the file sizes from QuickTime 5. (i.e. 10 megabytes, or more, per minute of video.)

It's better to choose "Medium" quality video for your QuickTime files, which will then give you nice small file sizes without compromising too much on the quality of the video. This trade-off is similar to the trade-off in putting JPEG graphics on the web. The best compromise between quality of graphics and file size happens in a sweet spot between 50 percent and 65 percent.

*(See Figure 1 MPEG-4 Compression Settings One of the "sweet spots" for creating good looking, small file size MPEG-4 files is in between Medium and High on the Quality slider.)*

During the above-mentioned workshop we uploaded and viewed the public service announcement that we had shot and edited. The workshop participants were surprised at the short span of time between when we started shooting the video to when we were viewing the video on the web. The entire project, from start to finish, took less than 30 minutes.

After the workshop, I decided to upload this same nonprofit PSA to Apple's .Mac service (formerly the free iTools service). .Mac provides a very attractive "red stage curtain" that surrounds QuickTime movies uploaded to the iDisk section of .Mac. You can view this nonprofit PSA at <http://homepage.mac.com/pshapiro101/iMovieTheater2.html>

(QuickTime 6 is required to view this QuickTime. If you don't have this on your Mac or Windows computer, you can download it for free from <http://www.apple.com/quicktime>)

*(See Figure 2. Nonprofit Public Service Announcement for Hope Manna.)*

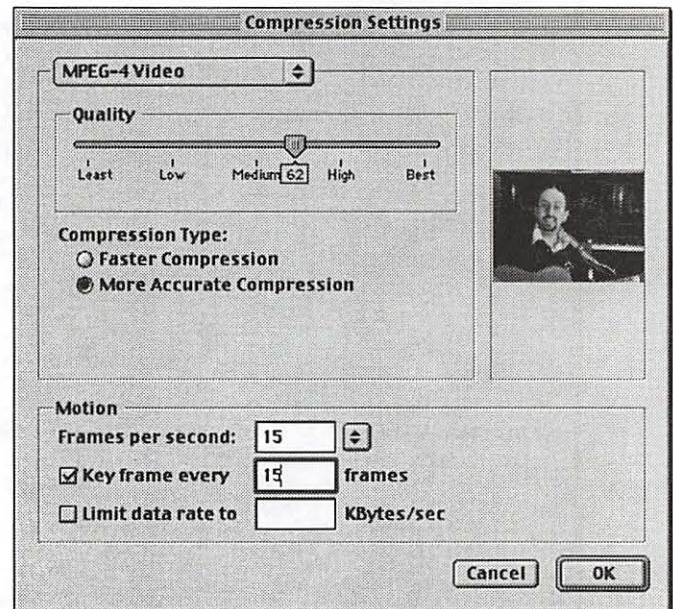


Figure 1.



Shortly after uploading this MPEG-4 QuickTime to .Mac, it occurred to me that I could place more than 1.5 hours of similar MPEG-4 video in the 100 megabytes of space given to .Mac accounts. For me, that more than justifies the value of a .Mac account — which costs \$100/year. So I converted my former iTools account to a .Mac account. The value to me was just plain and evident. I'm also excited that over the years Apple might be adding new features and capabilities to .Mac. I'll be there to go along for the ride.

Interestingly, I might not have signed up for a .Mac account were I not so overwhelmingly impressed by QuickTime 6. Kudos to all the programmers and engineers on the QuickTime 6 team at Apple. They have created a tool of great worth to Apple users — and a tool of great worth to Apple Computer. Windows users, too, benefit from this freely distributed software that opens up new possibilities for multimedia on the web.

The icing on the cake? MPEG-4 files can be created small enough that dial-up users can view video on the web without waiting for hours. More folks can be seated at the table, so to speak. Even people with donated computers could be included within the audience of an MPEG-4 QuickTime file.

The processor and system software requirements for QuickTime 6 are not that steep, either. Any PowerPC computer with Mac OS 8.6 (or higher) and 32 megs of RAM can view MPEG-4 files. Any Pentium computer with Windows 98 (or higher) and 32 megs of RAM can view MPEG-4 files.

Wouldn't it be cool if someone down the street from a family who received a donated computer created an interesting video that was viewed over the web by the recipients of the donated computer? Social fabric can be woven in this way. People can connect with each other's creativity and storytelling in this way — much in the same way as social fabric can be woven via public access television.

Speaking of public access television, the new facility for DCTV - the Public Access Corporation of DC, is simply amazing. This recently built state-of-the-art television station is one of the best in the country. All editing equipment in the facility is Mac-based — with both Final Cut Pro 3 and iMovie 2 in the editing rooms. Further info at <http://www.dctvonline.org> You can meet some of the staff and producers at DCTV in a QuickTime slideshow a friend and I made of the grand-opening, back in April, 2002. This QuickTime slideshow (accessible to dial-up and broadband users) is at <http://storymakers.net/dctvgrandopening.mov> Annual dues

in DCTV are \$30/year. You do not have to be a DC resident to join. There are some differential usage fees for non-residents.

Now that Apple has created QuickTime 6, I have just one small request: Kindly throw a small color LCD screen onto the iPod, put QuickTime 6 in the iPod's ROM, and let me walk around with over 100 hours of MPEG-4 video I download from the web. Listening to music is cool. Watching portable video is even cooler. How much would I be willing to pay for an iPod with an LCD screen and QuickTime 6 in ROM? I'd gladly pay \$750 — knowing that the price would drop to \$500 (or less) in the next few years.

Folks without broadband at home could get downloaded MPEG-4 video from video servers at their local public library. These video servers would connect via Firewire to portable video viewing devices and could dispense 10 hours of video for 25 cents, for example. Video servers at public libraries could download MPEG-4 files at night, when nobody else is using the network. Transfer time for an hour of MPEG-4 video? 20 seconds or less via Firewire. Excuse me a moment while I refill my VIPod (Video iPod). ■

*Phil Shapiro is an educator, writer and freelance Macintosh trainer in Arlington, Virginia. He can be reached at [pshapiro@his.com](mailto:pshapiro@his.com) and <http://www.his.com/pshapiro/>*

*A web site with his multimedia explorations can be found at <http://storymakers.net>*

*— Phil Shapiro [pshapiro@his.com](mailto:pshapiro@his.com) <http://www.his.com/pshapiro/> (personal) <http://www.mp3.com/philshapiro/> (guitar fingerpicking) <http://storymakers.net> (multimedia explorations)*

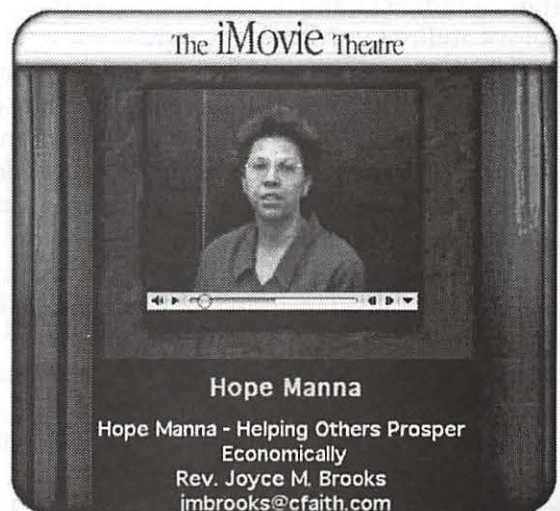


Figure 2.



## VideoClix— interactive videos for the web & beyond

by David Ottalini

**I**MAGINE WATCHING a streaming video online—it could be a commercial like an Apple advertisement, or a home video or an educational presentation of some kind. As you watch, wouldn't it be great if you could just click on an item - a hat, a car, an actor, a book and get more information about it. Or if it were a product, buy it? That's the idea behind VideoClix, a program it's developer, eLine Technologies (eLineTech) describes as "Interactive video authoring software."

I recently had a chance to try out VideoClix, now available in its 2.0 version. The program is in many ways an extension of iMovie, Final Cut Pro or other digital editing software. You take the work you've done in one program and then add interactivity with VideoClix. The saved product is aimed for the web, but could also be used on CDs and DVDs, kiosks in Malls and more. I could imagine it providing some interesting interactivity for tests takers as well.

The company claims the product has uses in the education, commercial and military markets simply because of it's ability to allow interaction.

eLineTech also says that VideoClix videos "can be served from any HTTP or RTSP server, tie into any database and does not require an additional plug-in or component to play." VideoClix enabled content can provide accurate viewer statistics and vital marketing data as well." More on that in the interview below.

The 2.0 version takes up about 1.9 MB of hard drive space and the download included a manual in PDF format. When you open the program, you are presented with a set of windows that are similar to most video editing software packages - a set of tools, a monitor window for your movie, a timeline and an Inspector with tabs for Object, Text, Action and Chapter.

Much like web design programs offer the ability to select "Hotspots" for hyperlinking, the VideoClix

tools offer the ability to select objects with squares, circles or with a polygon with four free points. It's that simple. Go to the frame you want, highlight an object upon which you want to give the viewer some action and define what that action is. That could include just providing more information or give you the opportunity to buy the product. Neat!

To find out more about VideoClix, I talked with Amy Barnes, the Business Development Manager for eLineTech.

**Dave:** You call VideoClix "the next generation interactive video authoring software." What does that mean?

Well there have been many authoring programs like Electrifier Pro, Live Stage Pro, etc. that are very hard to use and a little clumsy. They were mostly designed with programmers in mind.

Programmers aren't too creative when it comes to interactive content. So it required a special breed of multifaceted people who could even get close to such tasks with those tools.

VideoClix can be used by anyone, even someone with minimal multimedia knowledge and there is no scripting or programming involved.

It's all click and drag and very easy to understand.

**Dave:** Where does Videoclix fit in with Final Cut Pro, iMovie or MovieWorks?

One would edit, add effects, encode the video to make it web or CD-ROM ready in iMovie and Final Cut Pro, then import that into VideoClix in order to add interactivity. Like Dynamic Hotspots, Actions, Chapters and Hot Text, or create multi-node movies.

Here's an example: You could tape a wedding, edit and clean the video in iMovie then take the video in VideoClix and make every guest clickable, so when they're clicked on, their picture, contact info, what they gave as a gift would simply pop on the screen.

**Dave:** Along with Videoclix, what else is eLine Technologies developing right now?

As you know, we announced VideoClix 2.0 at NAB. We're also working on 2 other modules for enterprise that allows manufacturers and advertisers to find out what consumers want before manufacturing their products.

Let's say a fashion show is streamed. As soon as the show is over, the designers know how many people clicked on what outfit, hence what to manufacture and what to omit from the production line. This can be applied to any other product as well. It makes for a



much more efficient use of our resources and yields higher profits.

We're also negotiating a co-bundling agreement with other complimentary applications such as Pro bundles (Live Channel, iSHell, VR toolBox.. more)

**Dave:** Who are are primary customers?

They're consumers and Pro-sumers. To fully take advantage of the application one would have to use a WYSIWYG HTML editor (like Dreamweaver). This makes it more of a Pro-sumer software than consumer products. Most of our sales are to businesses but there are hobbyists that also purchase our products.

**Finally**

VideoClix 2.0 offers full Mac OS and OS X compatilby and at this writing was still priced at the MacWorld-NY price of \$399.00. One of the program's best features, by the way, is that it needs no plugins to work. So once you've added the interactivity and saved your project, anyone on any platform can make use of it. For more information, check out [www.VideoClix.com](http://www.VideoClix.com). You can interact with the new 2.0 version of the program at [www.VideoClix.tv](http://www.VideoClix.tv) or see what it can do at <http://www.videoclix.com/showcase.html>.

For most home users, there is little need for this kind of program. But if you have a web business, are looking for increased interactivity, and want to make it easy to buy, then VideoClix may be what you've been looking for. And if you're looking for an easy way to add interactivity to a kiosk or other public information system, VideoClix could help turn something merely interesting into something interesting and exciting.

**Here are the OS requirements:** A PowerPC processor based Macintosh computer. At least 64 MB of RAM Mac OS 8.6 or later QuickTime 4 or later Dialup 56K connection (DSL, Cable or T1 preferred). ■

**VideoClix— a late breaking update**

Even as the WAP Journal was going to press, eline Technologies announced an updated version of VideoClix. The new version 2.4 now supports Quicktime 6 with MPEG 4 and includes other features and bug fixes. Check eline's website for more information about their "Dynamic Video Hotspot" system and the latest pricing.

# Random URLs 6

by David L. Harris

ON THE Pi's TCS bulletin board system I post URLs (addresses of Web sites) that intrigue me. If you have an Internet connection and a Web browser, you can go to any of these places yourself. Random URLs are posted on the "Explorer Service & Internet" board of the General Conference of the TCS (by the time you read this the board lineup may have changed). The TCS is at <http://webtcs.wap.org/>. Some people post lists of useful URLs. Mine are sometimes useful, sometimes only entertaining. Or not.

**Fine print:** Here are some more URLs I've posted. They are all working at the time this article was written (you might have to try different Web browsers), but by the time you read it, who knows?

Due to the limitations of printing them, some may wrap to a second line. Make sure you get the entire URL—they are surrounded by < and >. (Don't use the brackets when you put the URLs in your browser's address space.)

Some of the descriptions are taken from the sources where I get the URLs.

Here's the latest edition:

**How Do Cohabiting Couples With Children Spend Their Money?**

<http://www.harrisschool.uchicago.edu/wp/02-04.html>

This working paper by Thomas DeLeire and Ariel Kalil of the University of Chicago examines the question of how cohabiting couples with children spend their income. Over the course of the 60-page work, they use the Consumer Expenditure Survey to see if cohabiting couples with children spend their money on different goods than either married parents or single parents. Some of their initial findings conclude that cohabiting couples spend a substantially larger share of their total expenditure on alcohol and tobacco than either married-parent families or single parents. Additionally, DeLeire and Kalil conclude that cohabiting couples with children also spend less on health care and education than married parents.



**Things that make you go Hmmm...**

Over 1200 scientific facts, including things such as Astronauts cannot belch (there is no gravity to separate liquid from gas in their stomachs); the largest ever hailstone weighed over 1kg and fell in Bangladesh in 1986.

<[http://links.userfriendly.org/lotd/http://www.firstscience.com/SITE/factfile/factfile1\\_20.asp](http://links.userfriendly.org/lotd/http://www.firstscience.com/SITE/factfile/factfile1_20.asp)>

**A Routine Trip to the Dentist for a Root Canal**

<<http://www.kaethler.com/tiger/tiger.htm>>

**Gang Research.Net**

<<http://www.uic.edu/orgs/kbc/>>

Hosted and maintained by John Hagedorn, a professor of criminal justice at the University of Illinois at Chicago, this site provides information about the nature of gangs around the United States, with a particular emphasis on gangs in Chicago. The prime objective of the site is "to dispel stereotypes and present research, original documents, and helpful links."

**The American 1950's**

<<http://www.english.upenn.edu/~afilreis/50s/home.html>>

The literature and culture of the 1950's. (That's before our time, isn't it?)

**Floating Flame Balls**

<[http://science.nasa.gov/headlines/y2002/21aug\\_flameballs.htm?list63210](http://science.nasa.gov/headlines/y2002/21aug_flameballs.htm?list63210)>

**The Moon Trees**

<[http://nssdc.gsfc.nasa.gov/planetary/lunar/moon\\_tree.html](http://nssdc.gsfc.nasa.gov/planetary/lunar/moon_tree.html)>

"Apollo 14 launched in the late afternoon of January 31, 1971 on what was to be our third trip to the lunar surface. Five days later Alan Shepard and Edgar Mitchell walked on the Moon while Stuart Roosa, a former U.S. Forest Service smoke jumper, orbited above in the command module. Packed in small containers in Roosa's personal kit were hundreds of tree seeds, part of a joint NASA/USFS project. Upon return to Earth, the seeds were germinated by the Forest Service. Known as the "Moon Trees," the resulting seedlings were planted throughout the United States (often as part of the nation's bicentennial in 1976) and the world. They stand as a tribute to astronaut Roosa and the Apollo program."

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"Some people post lists of useful URLs. Mine are sometimes useful, sometimes only entertaining. Or not."

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**Chewing Gum and Bubble Gum**

<<http://inventors.about.com/library/inventors/blgum.htm>>

Learn about the history of gum. Find resources and links to learning more about chewing and bubble gum.

**LEGOLAND - California**

<<http://www.lego.com/eng/legoland/california/default.asp>>

All about LEGOLAND park in California.

**Did you ever wonder what it would be like to pop a water balloon in space?**

<<http://microgravity.grc.nasa.gov/balloon/blob.htm>>

**The Surgery Channel**

<<http://www.surgerychannel.com/>>

"Your source for information on appendectomy, mastectomy, hernia repair, nissen fundoplication surgery, and more."

**Find a Death**

<<http://www.findadeath.com/>>

Find the death reports of celebrities, as well as some very irreverent and revealing comments from the author of this site.

**Enter the Mummy Tombs**

<<http://www.mummytombs.com/>>

"Information about mummies around the world for readers, writers, and learners of all ages."

**Free restrooms around the world**

When nature calls, even intrepid travelers prefer to make a comfortable reply. The bathroom diaries.com locates clean, free restrooms around the world.

<<http://www.thebathroomdiaries.com/>> ■



**Hotline**—The hotline service is only for members of WAP. Please do not call after 9:00 pm or before 8:00 am.

Name	Telephone	Heading	Subjects
<b>Apple General</b>			
Bob Sherman	305-944-2111	Communications	DBMaster
Ron Evry	703-490-1534	Hypermedia	Hyperstudio
Bernie Benson	301-951-5294	Miscellaneous	Ile Card for the LC
Harvey Levin	301-299-9380	Programming	Apple Script
Eric Sheard	908-782-6492	Spreadsheets	Advanced Visicalc (eves) 908-782-6492 (days) -2242
Allan Griff	301-654-1515	Spreadsheets	Apple Works
Eric Sheard	908-782-6492	Spreadsheets	Visicalc (eves) 908-782-6492 (days) -2242
Ken DeVito	703-960-0786	Telecomm	
<b>Apple //</b>			
Bernie Benson	301-951-5294	Accounting	Apple SSC (Super Serial Card)
Neil Laubenthal	703-691-1360	Apple IIGS	General
Allan Griff	301-654-1515	Apple Works	General
Ken DeVito	703-960-0786	Apple Works	General
Paul Campbell	313-255-6497	Apple Works	General
Ray Settle	410-647-9192	Apple Works	General
Allan Griff	301-654-1515	AppleWorks	General
Ken DeVito	703-960-0786	Beagle Buddies	
W. T. Cook	410-995-0352	Beagle Buddies	
Don Avery	202-362-1783	Beagle Buddies	
Dale Smith	301-294-2287	Communications	
Allan Griff	301-654-1515	Database	Apple Works
Morgan Jopling	410-721-7874	Database	Apple Works
Milt Goldsamt	301-649-2768	Database	Apple Works
Guy Durant	202-575-0414	Epson Printers	
Ron Evry	703-490-1534	General	
Harold Polk	301-662-6399	General	
Ken DeVito	703-960-0786	General	
Guy Durant	202-575-0414	Hard Drives	
Guy Durant	202-575-0414	Hardware	
Ron Evry	703-490-1534	Hypermedia	Hyperstudio
Bob Sherman	305-944-2111	Laser Printing	
Ron Evry	703-490-1534	Word Processing	AppleWriter
Allan Griff	301-654-1515	Word Processing	
<b>Apple // e</b>			
Morgan Jopling	410-721-7874	Upgrade	
<b>Apple // GS</b>			
Rich Sanders	703-450-4371	Drawing/Graphics	Deluxe Paint II
Dick Grosbier	301-898-5461	General	
Eric Grupp	410-315-8331	General	
Seth Mize	410-766-1154	General	
Rich Sanders	703-450-4371	Word Processing	Multiscribe GS
<b>Apple // GS</b>			
Ken Carter	301-834-6516	General	
<b>Apple ///</b>			
Dave Ottalini	301-681-6136	General	
Paul Campbell	313-255-6497	General	
Seth Mize	410-766-1154	General	
Robert Sambolin	203-853-2512	General Repair	
Steve Truax	304-263-5749	Integ. Packages	3 Easy Pieces
Dave Jernigan	540-822-5137	Integ. Packages	3 Easy Pieces
Paul Campbell	313-255-6497	Repairs	
Dave Jernigan	540-822-5137		3.5" Super Drive
Dave Jernigan	540-822-5137		SCSI Drives
Steve Truax	304-263-5749		Stemspeller
Dave Jernigan	540-822-5137		Stemspeller (before 9 PM)
Carey McGleish	313-332-8836		Word Juggler (evenings)

Name	Telephone	Heading	Subjects
<b>Cross Platform</b>			
Ken DeVito	703-960-0786	Transfers	MS/DOS-Apple-Mac
<b>IBM/Compatibles</b>			
Etana Finkler	301-891-2821	Illustration	General Can call until midnight
Tom Cavanaugh	301-627-8889	Printers	General
<b>Internet</b>			
Dan White	301-843-3287	General	
Walt Francis	703-278-0041	General	
Will DeKrone	410-626-7716	General	
Curt Harpold	301-762-0887	Programming	JAVA
Craig Contardi	410-796-4562	World Wide Web	Netscape Navigator
Seth Mize	410-766-1154	World Wide Web	Sailor
Jaque Davison	703-644-7354	World Wide Web	Web Site Builder
<b>Macintosh</b>			
Robert Sambolin	203-853-2512		General
John Engberg	301-262-9347 or 301-604-8348		Basics
Tho. Snowberger	410-757-4656	Contact Managers	Now Contact/UTD
Bill Waring	410-647-5605	Database	Filemaker Pro
Bob Wilbur	703-426-0556	Database	Filemaker Pro
Rick Shaddock	202-321-2110	Database	FoxPro
Harvey Levin	301-299-9380	Database	Helix
Bob Wilbur	703-426-0556	Database	Helix Express
Dick Nugent	703-425-1056	Database	FileMaker Pro
Elizabeth Mangan	703-750-2710	Database	Pro-Cite
Bob Wilbur	703-426-0556	Database	General
Blake Lange	301-942-9180	Desk Top Pub.	PageMaker
Eric Grupp	410-315-8331	Desk Top Pub.	Quark Xpress
Paul Schlosser	301-831-9166	Desk Top Pub.	Quark Xpress
Ron Johnson	410-315-8764	Drawing/Graphics	Adobe Illustrator 3.0
Nancy Seferian	202-333-0126	Drawing/Graphics	Aldus Freehand
Bob Wilbur	703-426-0556	Drawing/Graphics	Canvas
Lloyd Olson	410-544-1087	Drawing/Graphics	ClarisDraw
Etana Finkler	301-891-2821	Drawing/Graphics	Freehand Can call until midnight
Nancy Seferian	202-333-0126	Drawing/Graphics	General
Neil Laubenthal	703-691-1360	Drawing/Graphics	General
Etana Finkler	301-891-2821	Drawing/Graphics	General Can call until midnight
Bob Wilbur	703-426-0556	Drawing	General
Blake Lange	301-942-9180	Drawing/Graphics	Illustrator
Etana Finkler	301-891-2821	Drawing/Graphics	Illustrator Can call until midnight
Blake Lange	301-942-9180	Drawing/Graphics	Photoshop
Dave Jernigan	540-822-5137	Foreign Languages	FlashWorks
Dave Jernigan	540-822-5137	Foreign Languages	Greek Tutor
Dave Jernigan	540-822-5137	Foreign Languages	Hebrew Tutor
Dave Jernigan	540-822-5137	General	

Telecommunications			
John Barnes	301-652-0667	Telecomm.	AOL
Dale Smith	301-294-2287	Telecomm.	TCS
Nancy Seferian	202-333-0126	Telecomm.	TCS
Paul Schlosser	301-831-9166	Telecomm.	TCS
David Harris	703-845-1331	Telecomm.	TCS



# November 2002

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 Power User SIG	Clinic 5	6	7 Columbia Slice	8	9 Graphics SIG Frederick Slice
10	11	Clinic 12	13 WAP BoD	14 i Movier SIG	15	16 Nov/8 WAP General Meet- ing
17	18	Clinic 19	20 Excel SIG	21 Teen SIG	22	23 Annapolis Slice
24	25	Clinic 26	27 Retired SIG	28	29	30

Web address: [www.wap.org](http://www.wap.org)  
 e-mail address: [info@tcs.wap.org](mailto:info@tcs.wap.org)

WAP Office Phone: 301- 984-0300  
 TCS 2400 bps: 301-984-4066;  
 TCS 14400 bps: 301-984-4070

# December 2002

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2 Power User SIG	Clinic 3	4	5 Columbia Slice	6	7
8	9	Clinic 10	11 WAP BoD	12 i Movier SIG	13 Graphics SIG Frederick Slice	14 Nov/8 WAP Computer Show/ Sale
15	16	Clinic 17	18 Excel SIG	19 Teen SIG	20	21 Annapolis Slice
22	23	Clinic 24	25 Retired SIG	26	27	28
29	30	Clinic 31				



# Meeting Notices

## **Annapolis Slice**

3rd Saturday; 9:30 AM; Severna Park Library on McKinsey Rd. (off Rt. 2), Severna Park, MD  
Answering Machine: (410) 647-5605

**AOL SIG**, contact John Barnes at JDBarnes@aol.com or in the evening at 301 / 652-0667.

## **Apple III SIG**

Quarterly on 2nd Saturday; 10:00 AM; WAP Office.

## **Columbia Slice**

1st Thursday; 7:00 PM. Call for location BBS (410) 964-3706

## **DataBases (Mac) SIG**

Volunteers needed to restart this SIG

## **Delmarva Slice**

At the campus of Salisbury State University, but will rotate throughout Delmarva area when appropriate. Email Shelly Wetzel form more information. <sawetzel@ssu.edu>

## **Excel SIG**

3rd Wednesday; 7:30 PM; WAP office.

## **FileMaker Pro SIG**

3rd Thursday; 7:30 PM; WAP office.

## **Frederick Slice**

General meeting time, 2nd Saturday; 10:00 AM; United Methodist Church; 22 Main Street in Walkersville.

## **Game SIG**

1st Thursday; 7:30 PM; Call for location.

## **Genealogy SIG**

Volunteer needed.

## **Graphic Arts SIG**

2nd Saturday of the month

## **Mac Programmers' SIG**

Volunteers needed to restart this SIG

## **Newton Developers' SIG**

Volunteer needed

## **NoVa Education (Ed) SIG**

Call SIG chair for times & locations.

## **QuickTime SIG**

2nd Tuesday of each month; 7:30 PM; WAP office.

## **Retired SIG**

4th Wednesday of each month; 11 AM to 2 PM; each meeting will have a topic, but be run informally. WAP office.

## **Stock SIG**

2nd Thursday; 7:30 PM; WAP Office. (Morris Pelham who chairs StockSIG is Sysop of the Investment/StockSIG board on the TCS. Contact him on that board.)

## **Telecomm SIG**

Call SIG chair for times & locations.

## **WAP Garage Sale— June and December**

## **WAP General Meeting**

4th Saturday; 9:00 AM; Northern Virginia Community College, Annandale Campus, Community Cultural Center Auditorium.

## **Women's SIG**

At the Pi Office at 6:00 PM dinner (\$2) followed by 7:00 PM meeting/presentation. Call SIG chair or office for next meeting.

**Notice:** Plans change! Anyone with calendar information please call the Calendar Editor, Bill Wydro (301) 299-5267 or Beth Medlin at the WAP Office (301) 984-0300.



**Hotline**—The hotline service is only for members of WAP. Please do not call after 9:00 pm or before 8:00 am.

Name	Telephone	Heading	Subjects
Joan Jernigan	540-822-5137	General	
Dan White	301-843-3287	General	
Dick Grosbier	301-898-5461	General	
Russell Robinson	301-739-6030	General	
Eric Seidel	540-667-5289	General	Networking
Eric Seidel	540-667-5289	General	Hardware
Robert Sambolin	203-853-2512	General Repairs	Older Mac through SE30
Neil Laubenthal	703-691-1360	General	
Tom Cavanaugh	301-627-8889	General	
Tom Witte	703-683-5871	General	
Bob Wilbur	703-426-0556	General	
Jim Kelly	301-926-2949	General	Applescript
Henry Miller-Jones	703-478-3721	Answering Syst.	Mac Commcenter, FAXcillate, GV
Henry Miller-Jones	703-478-3721	General	Fax Software
Joan Jernigan	540-822-5137	Hypermedia	HyperStudio
Jerry Iler	410-987-5432	Ilisi	General
Bill Geiger	703-237-3614	Integ. Packages	ClarisWorks
Sandy Kowalczyk	410-268-3149	Integ. Packages	ClarisWorks
Ray Settle	410-647-9192	Integ. Packages	Clarisworks
Henry Miller-Jones	703-478-3721	Integ. Packages	ClarisWorks
Joan Jernigan	540-822-5137	Integ. Packages	ClarisWorks
Jim Ritz	301-770-1405	Integ. Packages	MSWorks
Ray Settle	410-647-9192	Integ. Packages	MSWorks
Tim Childers	410-997-0066	Integ. Packages	MSWorks
Dave Jernigan	540-822-5137	Mail List Manager	My Mail List Manager
Sandy Kowalczyk	410-268-3149	Miscellaneous	HyperCard
Blake Lange	301-942-9180	Miscellaneous	Hypercard
Tom Witte	703-683-5871	Miscellaneous	Hypertalk
Jeff Dillon	301-434-0405	Miscellaneous	MX-80
Dave Jernigan	540-822-5137	Miscellaneous	Online Bible Mac
Dave Jernigan	540-822-5137	Miscellaneous	Soft Windows Mac
Rick Chapman	301-989-9708	Miscellaneous	Hypercard
Tom Witte	703-683-5871	Miscellaneous	Hypercard
Peter Combes	301-445-3930	Multi Media	Director
Peter Combes	301-445-3930	Multi Media	Language
Stuart Bonwit	301-598-2510	Multimedia	Quicktime
Tom Witte	703-683-5871	Multimedia	Quicktime
Joan Jernigan	540-822-5137	Multimedia	HyperStudio
Frank PappaJohn	703-922-3851	Music Notation	Finale
Henry Miller-Jones	703-478-3721	Networking	AppleTalk
Jerry Iler	410-987-5432	Older Claris	Genera
Henry Miller-Jones	703-478-3721	Online Services	AOL, CISI
Jerry Iler	410-987-5432	PB180C	General
Lester Morcerf	410-987-0685	Performa 550	General
Tho. Snowberger	410-757-4656	Performa System	General
Rick Shaddock	202-321-2110	Pers.Contact Mgr.	ACT
Bill Geiger	703-237-3614	Personal Finance	Manage Your Money
Clarence Goldberg	410-263-5189	Personal Finance	Quicken
Henry Miller-Jones	703-478-3721	Personal Finance	Quicken
Bob Wilbur	703-426-0556	Personal Finance	Quicken
Tom Cavanaugh	301-627-8889	Printers	General
Walt Francis	703-278-0041	Printers	General
Michael Hartman	301-942-3717	Programming	C
Michael Hartman	301-942-3717	Programming	General
Harry Erwin	703-758-9660	Programming	General (e-mail at herwin@gmu.edu)
Joshua Juran	301-231-8622	Programming	Perl, C, C++, Pascal
Michael Hartman	301-942-3717	Programming	Pascal
Charles Schindler	410-437-4624	Spreadsheets	Excel
Lloyd Olson	410-544-1087	Spreadsheets	Excel
Walt Francis	703-278-0041	Spreadsheets	General
Roger Burt	301-424-6927	Spreadsheet/Chart	ClarisWorks
Bob Wilbur	703-426-0556	Spreadsheet	ClarisWorks
Dave Jernigan	540-822-5137	Spreadsheet	ClarisWorks

Name	Telephone	Heading	Subjects
Mark Pankin	703-524-0937	Spreadsheet/Chart	Excel
Dick Byrd	703-978-3440	Spreadsheet/Chart	Excel
Rick Shaddock	202-321-2110	Spreadsheet/Chart	Excel
Tom Cavanaugh	301-627-8889	Spreadsheet/Chart	Excel
Bill Waring	410-647-5605	System	General Mac Help
Lloyd Olson	410-544-1087	System	Mac OS
Neil Laubenthal	703-691-1360	System	Mac OS Modems General
Henry Miller-Jones	703-478-3721	System	Mac OS
Bernie Benson	301-951-5294	Telecomm.	Modems Hayes Smartmodem
Henry Miller-Jones	703-478-3721	Telecomm.	ProTerm
Henry Miller-Jones	703-478-3721	Telecomm.	General
Henry Miller-Jones	703-478-3721	Telecomm.	MacTCP, Free PPP
Dave Jernigan	540-822-5137	Utilities	Conflict Catcher, Retrospect, Stuffit Deluxe, Tech Tools
Henry Miller-Jones	703-478-3721	Utilities	General
Jaquie Davison	703-644-7354	Virtual Reality	Alien Skin Texture Shop
Jaquie Davison	703-644-7354	Virtual Reality	Bryce 2
Jaquie Davison	703-644-7354	Virtual Reality	Specular Logomotion
Jaquie Davison	703-644-7354	Virtual Reality	Virtus - 3-D
Jaquie Davison	703-644-7354	Virtual Reality	Virtus Walkthrough Pro
Dave Jernigan	540-822-5137	Word Processing	Word Perfect
Charles Schindler	410-437-4624	Word Processing	WordPerfect
Eric Grupp	410-315-8331	Word Processing	WordPerfect
Bob Wilbur	703-426-0556	Word Processing	WordPerfect
Walt Francis	703-278-0041	Word Processing	General
Tim Childers	410-997-0066	Word Processing	Hebrew
Tom Cavanaugh	301-627-8889	Word Processing	MS Word
Joan Jernigan	540-822-5137	Word Processors	Claris Works
Dave Jernigan	540-822-5137	Word Processors	Word Perfect
Henry Miller-Jones	703-478-3721	WWW	Netscape Navigator
Craig Contardi	410-796-4562		WWW Netscape Navigator

#### Macintosh & Apple

Ginny Spevak	202-244-8644	Miscellaneous	Dvorak Keyboard
Mike Spevak	202-244-8644	Miscellaneous	Dvorak Keyboard
Bob Sherman	305-944-2111	Telecomm.	General
Dale Smith	301-294-2287	Telecomm.	General
John Barnes	301-652-0667	Telecom	AOL
Dale Smith	301-294-2287	Telecomm.	TCS
Nancy Seferian	202-333-0126	Telecomm.	TCS
Paul Schlosser	301-831-9166	Telecomm.	TCS
David Harris	703-845-1331	Telecomm.	TCS

#### Networking

Douglas Ferris	301-924-4180	Networking	Novel
Douglas Ferris	301-924-4180	Networking	Windows

### *We're updating the hotline!!*

To have any changes or additions made, simply call the office during normal business hours or send the information via e-mail to Jim Ritz at <jim.ritz@tcs.wap.org>.

Let us know if any of this information is incorrect. Thanks.



# iChat, you chat

## Applications

### testing by

## MDJ Laboratories

APPLE COMPUTER calls iChat "The best way to IM," saying that Mac OS X 10.2's built-in instant messaging program "takes finding and chatting with your online friends to whole new levels of easy and powerful." That's probably an exaggeration in addition to stretching the grammatical concept of "Think Different" past the breaking point: iChat is a cool Cocoa-inspired take on instant messaging, but lacks the power and flexibility of America Online's own AOL Instant Messenger (AIM) client.

#### Making messaging fun

Even if you've never used AOL Instant Messenger, iChat's interface is easy to understand, at least at the top level. AIM maintains a "buddy list" of people you select for each AIM screen name, and once you configure iChat to use an existing AIM screen name, any online "buddies" show up in iChat's buddy list window. Double-click on any name to open an instant messaging session with that <person>. Close the window to end the session. AIM supports an online "status" that's usually either "available" or "away" with a customized message describing why you're not at the computer. In iChat, you set that status at the top of the "Buddy List" window: click on the word "Available" and you get a pop-up menu with all the away messages you've ever used, provided you tell iChat to save them as you create them. (Your AIM "Away" messages don't transfer, because your local client maintains them; your buddy list transfers to iChat because it's maintained by the AIM servers, not by your local computer.)

While the fundamentals are similar, iChat's interface is simultaneously more polished and less powerful. Windows use the QuickTime and iTunes "brushed metal" appearance, one that's now built into Mac OS X 10.2 so any application can use it (and so all of Apple's programs no longer have to include all of the code in each pro-

"Even if you've never used AOL Instant Messenger, iChat's interface is easy to understand, at least at the top level. AIM maintains a 'buddy list' of people you select for each AIM screen name, and once you configure iChat to use an existing AIM screen name, any online 'buddies' show up in iChat's buddy list window."

gram). iChat is inextricably linked with Mac OS X 10.2's Address Book: although iChat maintains its own list of buddies and information about them, you can also associate any buddy with any card in your Address Book. If you just enter first and last name information for a buddy in iChat, the program creates a new Address Book card for that person and associates it with him.

Once you've associated buddies with Address Book entries, your AIM buddies are listed by their Address Book names and not by screen names, sorted by your choice of first name or last name. iChat uses each buddy's picture from his Address Book card as his AIM "buddy icon," and optionally allows you not to accept overriding icons from AIM. You can add multiple AIM addresses to any Address Book card and iChat recognizes them all as the same person. The downside is that once you associate a buddy with an Address Book card, you have no option to view your buddy list by AIM screen name – the only way to see the screen name again is to delete that person's first and last name in iChat, and therefore in the Address Book, a less than savory solution.

The pictures are important because in its default interface, iChat shows all instant messages as conversations in speech balloons. Your buddy's picture "speaks" his words from the left side of the window, and you respond from the right side. The "View" menu lets you pick "View as Text" (instead of "View as Balloons") to see each message in tabular form as text next to the buddy icon, but either way, the icons or pictures are more important than in AIM, where they're simply part of the



decoration at the top of the window. AIM supports animated GIF images for buddy icons, but iChat does not seem to match that; animation for every instance of an icon in a message window would be rather distracting.

iChat has other unique features. AIM only shows custom text as an “away” message, but iChat shows custom text even on “available” messages if you like, though only other iChat users can see them. The program normally sorts the buddy list by availability, and when a buddy’s status changes, iChat animates shuffling buddy list positions (you can disable animation as well as change list sort order if you want). By default, iChat uses red, yellow, and green circles with 3D highlights to represent away, idle, and available status; you can choose to use shapes instead (a red triangle, a yellow square, and a green circle, respectively), but those don’t have 3D highlights. (Ten months of development and no one had time to run the “Aqua 3D highlights” Photoshop action on the triangle and the square? Actually, the default indicators are slightly smaller versions of the three window action buttons – close, minimize, and zoom – perhaps accounting for their highlights.)

iChat distinguishes between “instant message” and multi-person “chat” sessions more smoothly than AIM; click the human silhouette icon in any iChat message window to open a drawer that shows how many people are involved in the conversation and invite more to participate. Unfortunately, you can only add people to AIM instant messages – iChat doesn’t support multi-user chat over Rendezvous.

Because iChat is a Cocoa application, it gets many of the standard Cocoa features for free: on-the-fly spell checking (though you must turn it on in the “Edit” menu), the Cocoa font selection panel, and Cocoa’s own color picker, smaller and slightly more confusing than the Carbon one derived from Mac OS 9. iChat’s preferences use standard Cocoa toolbars, even though the message windows themselves don’t (they use platinum buttons near the bottom, including “bold” and “italic” but not “underline” for some strange reason). It also includes the odd Cocoa menu commands to copy or paste a font without any associated text.

And, as previously noted, iChat comes with its own Menu Extra that manages to defy just about every human interface rule Apple can invent. When you’re offline, the menu’s icon is disabled (grayed out), even though the menu and its items are enabled. You can set your choice of “available” or “away” messages even when iChat isn’t running, because a hidden application called “iChatAgent” [found at “/System/Library/

PrivateFrameworks/

InstantMessage.framework/iChatAgent.app “] is running in the background, ready to launch iChat if you’re “available” and a new message arrives. You can also choose to stay online when quitting iChat. All this is possible through the Menu Extra, an interface element Apple says applications shouldn’t try to implement.

### iChat weaknesses

As much fun as iChat’s conversational interface is, the program has serious weaknesses compared to the latest AOL Instant Messenger client, particularly for heavy AIM users. For starters, AIM allows “groups” in the buddy list so you can organize large lists of people into more manageable chunks. iChat doesn’t support groups at all, displaying all buddies in a flat list and adding all new buddies to AIM’s top-level “Buddies” group.

AIM is pervasively scriptable, but iChat doesn’t even have a scripting dictionary, more evidence of Apple’s schizophrenic attitude towards AppleScript, particularly in Cocoa applications. iChat can play a sound, speak text, or bounce the Dock icon when someone logs in, logs out, changes status, or sends you a new or reply message; AIM can duplicate each of those actions (except bouncing the Dock icon) but can also open a new instant message and send it, write to a log file, or run an arbitrary AppleScript. AIM has a “warning” facility that marks a user as a pest with a warning percentage level that decreases about 2% per hour; warned users can’t send messages as quickly to help rein in their actions. iChat tells you when you’ve been warned, but it has no facility to warn another user, nor to see that users have been warned.

AIM has features like news and stock reports that iChat doesn’t offer. AIM is not tied to the Address Book, and that’s both a good and a bad thing: iChat objects if you try to use multiple AIM addresses for the same person, even though many people have multiple valid instant message accounts (for example, a .Mac account and an AIM account). If you put multiple AIM addresses on your own Address Book card, iChat refuses to see any of your other screen names when they’re online, a definite bug. If you put multiple AIM addresses on any other card, that person only shows up once in the list, with iChat preferring AIM names over .Mac accounts. (If one of the instances logs off, the other one takes its place in the list, with the buddy icon changing if appropriate.) AIM has none of these limits because it doesn’t tie screen names to people through an address book of any kind.

AIM uses a far more boring instant message format



that includes a screen name before the text, but it has the advantage of making sense if you copy text from a message window and paste it elsewhere. Try pasting text you copied from iChat and you'll be sorely disappointed: no identifying labels, just globs of text with individual messages separated only by linefeed characters. AIM shows a user's "away" message in his "Get Info" window, but iChat only shows it in the buddy list. If the message is too wide to fit, you have to hover the cursor over it and see it in a "tool tip" for about 10 seconds, then it fades away. Sometimes the tool tips don't show at all, though, leaving no way to see the entire message. And, as mentioned, iChat's alternate "available" messages only show up for other iChat users.

Second-most annoying of all, iChat seems incapable of distinguishing between idle users that are available and idle users who have explicitly marked themselves as "away." After setting an "away" message, most people walk away from their computers. Once you've been gone for 10 minutes, iChat changes your status from "away" (with a red indicator) to "idle" (with a yellow one). If someone sends you a message, he'll get back your "away" message in response, but the buddy list should have told the sender you were away. AIM can tell the difference, but iChat can't. Topping the list of iChat problems, however, is a glitch with AIM's servers. When you're logged into AIM with iChat using a .Mac account—one of Apple's big sales points for both iChat and .Mac itself—you cannot see anyone else who is logged in using third-party AIM software such as Adium or Fire. Apple acknowledges that you need the latest version of AIM software to see .Mac users, but America Online only allows third-party clients to log into older servers that apparently cannot handle the difference. If you want to use your .Mac account and be sure that third-party AIM software sees you online, you either have to use AIM's own client or use an AIM screen name with iChat.

### Use it or not?

Despite a list of 1.0-level problems, we've been using iChat for more than a month. It's got a fun and subtle interface, it doesn't have the garish, blinking advertisements of the AIM client, and it works well enough for light instant message duty. However, if you're any kind of serious IM user, you'll want the full AOL-branded client on your hard drive at the ready. If more than ten of your buddies are online at once, you'll want to use AIM's groups to keep things organized. If you have a long buddy list, or friends with multiple AIM accounts, AOL's client works better. And if you need to automate your instant messaging, iChat isn't even an option.

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"iChat distinguishes between "instant message" and multi-person 'chat' sessions more smoothly than AIM; click the human silhouette icon in any iChat message window to open a drawer that shows how many people are involved in the conversation and invite more to participate. Unfortunately, you can only add people to AIM instant messages — iChat doesn't support multi-user chat over Rendezvous."

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And yet iChat is a program you'll want to use, especially if you are on a local network other iChat users, for it really shines with Rendezvous — a networking technology that's more than Apple originally implied. There's no buddy list, no multi-user chats, no buddy icons — just instant local messaging for anyone else running iChat. You may be thinking that Rendezvous doesn't apply to you because you have a configured IP network. That's what we thought, and that's what we said based on Apple's preliminary documentation. Now that it's here, though, we know that's not the case. ■

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# Mac OS X 10.2.1— How Fast Is It?

by Bill Fox [MacsOnly.com](http://MacsOnly.com)

**WE** BEGAN benchmarking the speed of Mac OS X with the initial 10.0 release because the biggest complaint in addition to the lack of customary Mac OS features and OS X native applications was its speed or lack of it to be exact.

The speed of launching applications increased with version 10.0.3 and again with 10.1. Since then, applications take just a few seconds to launch and there have been virtually no changes through 10.2 and none would be expected.

What still takes a long time in Mac OS X through 10.2 is a cold boot, i.e. starting up, and launching the Classic mode. In addition, 2D graphics have been much slower in OS X than OS 9. The latter is most troubling since starting up and launching Classic mode are rare events these days. Part of the lack of speed is due to 2D graphics being processed by the CPU rather than the graphics chip (GPU) as is done in Mac OS 9 and earlier.

During his keynote at Macworld NYC 2002, Apple CEO Steve Jobs announced that version 10.2, code-named Jaguar, would enable Quartz Extreme, a special implementation of OpenGL drivers to offload some of the graphics processing from the CPU to the GPU to speed things up significantly. He stated, and the Jaguar web site noted, that a graphics card with at least 32 MB of video RAM would be needed to take advantage of Quartz Extreme. Basically any ATI Radeon or GeForce2 MX based graphics card or later is needed or so it was claimed. This set off a flurry of activity among Mac owners, particularly us Cube owners, to replace the aging but excellent Rage 128 and Rage 128 Pro graphics cards that have only 8 or 16 MB of video RAM. As we have noted before, the Rage 128 Pro is excellent in 2D graphics but is toasted by a Radeon or GeForce2 MX in 3D.

We noted our disappointment with Quartz Extreme in our August speed test of Jaguar. While 10.2 sure seemed snappier, our graphics benchmarks showed

little improvement in our standard computer, a 450 MHz G4 Cube. We had even replaced the Rage 128 Pro graphics card with a GeForce2 MX in anticipation of better graphics speed from Quartz Extreme, seemingly in vain.

For our test runs of the 10.2.1 update we decided to see how much better our 450 MHz Cube did with the 32 MB GeForce2 MX than with the stock Rage 128 Pro. We were surprised. The Rage Pro scored as well or better than the GeForce2 MX on our graphics benchmarks.

Jaguar was faster than previous versions at starting up and 10.2.1 improved the startup time even further. Login and shutdown, slower in Jaguar, are twice as fast in 10.2.1.

Launching Classic mode is even faster in 10.2.1 than in Jaguar. We skipped repeating the other application launches which have remained very fast since 10.1. Scrolling in Acrobat Reader 5.0.5 is one 2D video test that we have used for almost every version of OS X except Jaguar. For some reason, the scrolling arrows do not work in the mode that we use to conduct the test. Gene Steinberg pointed out to us that the page up and page down keys work for Acrobat Reader scrolling in Jaguar but our tests using the keys rather than the arrows resulted in a very slow 102 seconds, very unlikely to be consistent with previous tests using the arrows. Curiously, in 10.2.1 the arrows work intermittently. We were able to conduct the test and the time to scroll the entire Virtual PC 4.0 Manual PDF file decreased markedly from previous versions of OS X. The page down key produced the same slow scroll of 102 seconds confirming our concern for consistency using them. We suspect that Jaguar's performance in this test using the arrows would be comparable to 10.2.1 if the arrows worked.

Scrolling a 100-page document in AppleWorks was the same in 10.2.1 and 10.2, both a nice improvement over previous versions.

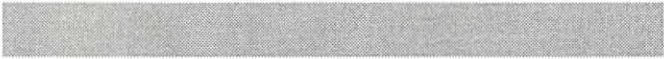
Let1kWindowsBloom, an application that opens and closes 1000 windows in the Finder, was slightly faster in 10.2.1.

Two other recently released OS X benchmarks, CocoaBench and Speed Run, gave virtually identical graphics scores for 10.2.1 and 10.2.

In summary, 10.2.1 speeds some things up: startup, login, shutdown and launching. There are no significant changes in our graphics benchmarks between 10.2 and 10.2.1 but they show a better improvement over previous OS X versions than our previous Jaguar test. Curiously, the graphics benchmarks are SLOWER for



the GeForce2 MX card with the 32 MB video RAM required, according to Apple, for optimum Quartz Extreme performance than for the original Rage 128 Pro. The GeForce2 MX took 15 vs 11 seconds to scroll the AppleWorks document, 73 vs 56 seconds in Let1kWindowsBloom and received a lower score (higher is better) of 238 vs 334 in Speed Run 1.1.3. We can't fully explain this but it is likely to be one reason why we did not see much of an improvement from Quartz Extreme when we originally tested Jaguar. Perhaps this means that we are yet to see the full potential of Quartz Extreme. ■



## Hands-On Review— Adobe GoLive 6.0 for Mac OS X

By Bill Fox [MacsOnly.com](http://MacsOnly.com)

**G**OLIVE 6.0 is Adobe's carbonized version of its popular professional WYSIWYG web site authoring and management application. It has been the main competitor of Macromedia's Dreamweaver among web-authoring professionals. With the release of GoLive 6.0, Adobe has beaten Macromedia to OS X. So when GoLive 6.0 first appeared, we picked up a copy of the upgrade version to get out of having to constantly use OS X's Classic mode. The upgrade version for \$99.95 at the Tysons Corner, VA, Apple Store works with GoLive 4 and 5.

As background for the review, GoLive has been our web authoring tool since it was called CyberStudio 3.x and sold by a company called GoLive, a company that Adobe subsequently purchased. Before that we wrote HTML code in a word processor. We have been using GoLive 4.0.1 since we did not see any significant benefit to us in upgrading GoLive 5 for managing a single web site. So our comparisons will be with the features of 4.0.1, not 5.x. We are not power users of GoLive so we don't use all of its features, even in v4.0.1. GoLive 4.0.1 runs fine in Classic mode but it is extremely slow to launch, to open files and to save.

GoLive 6.0 comes with several new features along with being carbonized for OS X. The web workgroup server and authoring for wireless devices are the major new capabilities touted by Adobe along with seamless integration with QuickTime 5. The Adobe press release states:

"The Workgroup server included in GoLive 6.0 enables teams to collaborate on projects and effectively manage Web and cross-media assets. New Dynamic Content authoring capabilities and native support for ASP, JSP and PHP lets designers easily configure a Web site to support data-driven transactions for e-commerce."

These tools are beyond the sophistication currently used for our web site. Still, its nice to know that they are available for future use. There are many other features as well. For example, v4.0.1 has only six simple floating windows while v6.0 has ten that are more complex.

The minimum system requirements for GoLive 6 are a Mac running OS 9.1+ or 10.1+, 96 MB RAM (128 MB recommended) and 90 MB disk space. The Web Workgroup Server only works with Mac OS 10.1+ and needs 150 MB of hard disk space. We recommend much more RAM for OS X, at least 256 MB. Our PowerBook G4 has 512 MB and it almost runs out of free memory with Internet Explorer, Entourage and PhotoDeluxe open at the same time as GoLive but not Classic mode.

### What You Get

In the GoLive 6.0 box is the GoLive CD, Web Workgroup Server CD, GoLive User Guide, Web Workgroup Server User Guide, Wireless Authoring User Guide, Quick Reference Card, two support and registration pamphlets and a Video Workshop CD. The GoLive CD has the installer plus a product demo folder (Illustrator 10, Photoshop 6 and After Effects 5.5), a myriad of information files in PDF format, a LassoStudio172 evaluation extension, and several extras (Acrobat Reader 5.0.5, QuickTime 5.0.2, RealPlayer 8 and SVG 3.0).

The GoLive User Guide is a high quality 462+ page paperback book. It is nice to have a complete paper manual again since we bought the download edition of GoLive 4 which did not include a paper manual. While we are ardent supporters of going paperless, we still find that locating information is much faster and easier with a paper book than a PDF file, i.e. provided of course that one doesn't have to search for the book. The Web Workgroup Server User Guide seems com-



plete. Its 51+ pages covers the topic very well. Groups working together on web sites will really like this new feature of 6.0.

The Wireless Authoring User Guide covers creating web pages for wireless devices like cell phones with internet capability. GoLive 6 authors pages in special languages for these devices. Unfortunately, the preview pane that allows a web author to view the pages as one using a Nokia or Access phone browser is Windows-only, grrr....

The Video Workshop CD has a hyperCD link that installs a plugin into any Classic mode browser that is on your hard disk. Unfortunately, the CD does not have a plugin compatible with Mac OS X. Doing so requires Classic mode to launch as well as the browser, in our case Internet Explorer 5.1. The web browser navigates to a Total Training HyperCD web site where four lessons as stacks of QuickTime movies are offered:

1. Creating Layered Images in Photoshop
2. Working with Transparency and Symbols in Illustrator 10
3. Designing Interactive Animation in LiveMotion
4. Tying it All Together in GoLive 6

The lessons are given by Steve Holmes and are quite instructive.

### Installation and Use

GoLive 6.0 installed without a hitch, with one exception, on our PowerBook. The problem that we encountered, which also set off more than a moment of panic, is that we had to manually enter the serial number of our copy of v4.0.1 during 6.0's installation as well the new 6.0 serial number. This is because we bought the upgrade version. We had thought that the installer would simply look on our drive and confirm that we had a legitimate copy of v4.0.1 installed and continue on but we were wrong. To make matters worse, one can not get GoLive 4.0.1's complete serial number from the installed application and we didn't have a CD or documentation since we had downloaded 4.0 and its 4.0.1 update. It took quite a search for us to find the three-year-old email with the full serial number. This experience reminded us once again of the benefits of carefully archiving email and maintaining an updated list of software serial numbers and unlock codes.

We have used Adobe GoLive 6.0 under Mac OS X 10.1.3 for a week updating Macs Only! on our 500 MHz PowerBook G4. Here is what the new interface looks like:



Fortunately for us, it is very similar to 4.0.1 but with a much nicer Aqua look with very detailed icons, 3-D shadowing and all. In 4.0.1 we normally worked with three floating windows open: color, objects and inspector. In 6.0, the object and color floaters are combined into a single window with a tab to choose between them. We like this and now work with just two floaters open. Another thing we like is that one does not need to confirm an entry in the floaters' fields with the extra step of clicking a check mark button.

Using v4.0.1 in OS X's Classic mode is slow. Version 6.0 is much faster in OS X. We measured the time to launch the application, open the current Macs Only! html file and to save it after making a change.

Aside from the speed improvements, v6.0 also does a better job of opening a file's window to the size it was when it was closed. This saves us a lot of time resizing windows. We also like the new ability to color the background of individual cells differently [Update—Ian Price wrote that this could be also done in 4. "You can also shift-click (on a Mac, anyway) multiple cells, after one is selected, and change the color for all of them." Thanks-ed.]

We noted only two problems in 6.0 in a week's use. First, the "Increase/Decrease list level" buttons on the tool bar only work with ordered lists. We used the same buttons in v4.0.1 to create instantly indented paragraphs like the text quoted from Adobe's press release above. In 6.0 we have to select "Type->Alignment->Increase Block Size" from the menu bar to accomplish the same task. We do not know if this is intended to be a feature or a bug but it's an inconvenience to us. Second, when we first tried to create the table above, the Table Inspector was blank with the table selected,



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i.e. none of the table controls were visible. We had to quit and relaunch GoLive to get the Table Inspector to work again. This has happened only once so far.

### Conclusions

We’re very happy with Adobe GoLive 6.0 and look forward to learning and using some of its many new features. We are not sure if any or all of the improvements that we’ve noted while using v6.0 were previously made in v5.0 since we have not used that version. However, we are pleased to have them. Certainly the improvement in speed over using Classic mode alone is worth the upgrade to us.

Several features that we would like to have added involve tables. First, it is difficult to select a table by clicking on its edge, especially when the cell padding and border have been set to zero. A key sequence may exist but we haven’t found it. We still can not find a way to globally change the text font type, size or characteristics within a table. The text in each cell has to be changed individually even if it is all the same changes in every cell. There may be ways to do some of this by creating a table style with the new special table palette and then saving and reusing it. But most of our tables are different from the others that we’ve created and those that aren’t we just cut and paste them, then change the entries. [Update from Ian Price, “Select a cell and then shift-click (on a Mac, anyway) on the other cells (clicking inside them is fine...it doesn’t have to be by the edge) you want to format...then go to town. You can format font, alignment, text size...almost anything you can think of.” Thanks-ed.]

Adobe GoLive v6.0 runs native in Mac OS X, the first major web authoring and site management application to do so. Its MSRP is \$399 for the full version or a very reasonable \$99 for an upgrade from versions 4.x or 5.x. ■

## Hands-On Report: Mac OS X 10.2 New and Improved Applications

By Bill Fox

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**A**PPLE CLAIMS that there are 150 or more new features in Jaguar, Mac OS X 10.2. In the last WAP Journal, we covered its installation, niceties and speed. This article covers some of the applications that come with Mac OS X 10.2. There are three brand new applications, so far, and several significantly updated ones.

iChat: This application is a real blast! (Oops our age is showing.) Believe it or not, but we have never used any on line instant messaging or chat application before testing iChat. So, perhaps, our neophyte enthusiasm should be tempered a bit. We used to exchange emails among editors and reporters to put together each day’s edition of Macs Only! but no longer. iChat has revolutionized our communication. It’s fast, more like talking on the phone or radio, really, since communication is not fully duplexed. But it’s so much better than trading emails across the country when discussing things for the next day’s edition. A little warning though, it’s also addicting. Chatting away with someone far away and can consume a lot of time.

iChat is simple to set up although not as intuitive as it could be for first time chatters. First, you and those with whom you wish to communicate over iChat need a .mac email address, \$99 or \$10 if coupled to another .mac account, or a free AOLAIM (AOL Instant Messaging) address. When iChat is first launched the setup for yourself is fairly easy to follow. Just be sure that if you use a .mac email address instead of an AIM



address that you select mac.com in the popup window and not AIM. If there are others on the local network that you want to iChat with, you can also enable Apple's Rendezvous. However, this is unlikely unless you are on a network in a large organization on several floors. iChatting with your significant other across the room seems like the ultimate geeky relationship and you both may want to seek counseling.

After setting up iChat, a dialog balloon icon appears in the menu bar that allows you to select whether you are available to chat, away temporarily or offline. If you are on line and have selected available, then your .mac or AIM name is highlighted to others who may have you listed on their Buddy List. iChat also launches Buddy List and, if selected and set up, Rendezvous List windows. "Buddies" that you wish to chat with are added by clicking the "+" at the bottom of the Buddy List window if you are on line. The dialog box that pops up allows you to select from those in your Address Book or a new person not in your Book. Don't fill in the AIM field unless the person has an AIM address. The names on your Buddy List are dark if the people are on line and available, otherwise they are grayed out.

Sending messages is simple. Just click on the name of a Buddy who is on line and available and click on the "!" icon at the bottom of the window to open a chat window. Click on the typing entry field at the bottom, type a message in it and hit return.

One problem is that the typing field is very small, just one line. It's too easy to type several lines before looking up to check what you've done only to find them already hidden. Too bad the field isn't expandable.

TIP: While the typing entry field is quite small, you can scroll through your message to correct it before sending it by using the "Page Up" and "Page Down" keys on your keyboard. Make sure the typing field is selected because the page keys also work on the balloon message field if it is selected.

iChat can be customized in many ways in its preference pane and Custom Buddy Lists can be created. iChat is not as flexible (complicated?) as other chat applications but play with it. We think you will enjoy the experience.

Inkwell: Or is it just "Ink"? We've seen both monikers and both are used on Apple's Inkwell page. The preference panel is named "Ink" so that is what we will call Apple's new handwriting recognition application.

A supported tablet plugged into a USB port is

needed for Ink to first appear as a preference panel in Jaguar's System Preferences application. All USB Wacom tablets are supported. We're not professional graphics artists but we bought a Wacom Graphire2 tablet in steel color on line from Page Computers for \$77 to test Ink. We've become fascinated with the tablet as a general input device but that is another story.

Ink's preferences allow handwriting to be turned on or off. A pop up menu allows one to enable writing Anywhere or just to Ink's special writing pad, InkPad. "Anywhere" means any application that accepts text input. Writing to Ink is not too difficult but it takes some practice. Both the writer and Ink seem to learn with experience. We had more success writing to TextEdit or to other applications that accept text than Ink's Inkpad. When writing to an application other than InkPad a lined yellow pad section appears on the screen showing your handwriting. It disappears transferring the text to the application when you pause. Reasonably careful printing results in perfect word recognition. Rapid cursive writing generally gets poor results although recognition does improve markedly with use if one is fairly consistent. There is a list of pen gestures that can be used to edit text without using the keyboard and they work very well.

There are a variety of settings in the preference pane that can be used to improve Ink's performance. But this is one application that takes practice to use with facility.

Rendezvous is a hidden application, working behind the scenes with networking to easily configure a connection automatically. There's no preference pane or other means to control it. The only experience we've had with Rendezvous is through other Macs on our network that are also running Jaguar. iChat and File Sharing work automatically between two Macs run-

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ning Jaguar when either is turned on in both computers. It works so there's not much else to write except to hope that Bluetooth devices will connect up this easily in the future.

Mail 1.2: We have really liked OS X's Mail application from the beginning despite its limitations and quirks. So much so that we have continuously used the 10.0 and 10.1 versions on our desktop Mac, a Cube, where our mail is "permanently" stored on a IMAP server. In January we began using Mail 1.1 on our PowerBook G4 but we switched to Microsoft Entourage X in April. Why? Because we primarily use POP mail accounts on our PowerBook and Mail occasionally lost and munged some of our email, email with html and images sometimes took forever to resolve which kept us from doing anything else with Mail, a rule filter could not have multiple conditions and actions which too severely limited filtering and, lastly, because Mail lacked decent contacts and calendaring applications.

Setting up Mail 1.2 was a snap. It did take right at an hour and a half on our 800 MHz PowerBook G4 to import all of our email messages from Entourage because we carry a huge number of unarchived but backed up messages, over 15,000. If you have a lot of messages be sure to set Mail up when you have enough time for the automated import feature to finish. We only had to add a few filters as rules, mostly ones to color the backgrounds of various classes of important messages. We love being able to color the backgrounds of messages with rules to set critically important email messages apart from the others in the list window. The other rules sort some incoming mail into special mailboxes.

Mailboxes are organized differently in Mail 1.2's sidebar. Previously, mailboxes were organized by separate account. With Mail 1.2 there are common In, Out, Drafts, Sent and Trash mail boxes with sub-boxes under each for each account that can be displayed or not using the clickable arrowhead. Additionally created mailboxes show up as folders under a general heading of "On My Mac". Imported mailboxes end up as separate folders in an "Imported" folder under On My Mac. We like this new organization very much.

In 10.2, everything appears to have changed for the better based on almost 2 weeks experience. So far we have not lost any email nor have any of our mailboxes become corrupt. It's a short test but we have our fingers crossed. Emails laden with html and images take no longer to resolve than with M\$ Entourage and, best

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of all, Mail is not locked from further use while waiting for such email to appear. Each Rule can now have multiple conditions and multiple actions for excellent filtering of email messages. The upcoming iCal application will soon free us completely from our need for Entourage.

Another major improvement is that Mail now connects with our Windows NT LDAP address servers. We could never get previous versions of Mail to search our LDAP server but Mail 1.2 does. This is probably due to improved Windows networking in Jaguar rather than a change in Mail 1.2. It was certainly a pleasant surprise for us in any case.

The new Junk mail filtering system works marvelously. We used 21 filters in Entourage to get about 65 per cent of the spam that we received at our main email address. And we get a lot of spam, hundreds a day, such that it is 70-80 per cent of our mail at that address. Right out of the box with no other rules or training, Mail's Junk filter identified 95 per cent of our spam and misidentified only a few spam-like notifications that we actually signed up to receive. After 3 days in training, Mail's Junk filter was nearly perfect and no longer misidentified the wanted spam-like messages. So we set it to automatic and it has been doing a superb job since.

Our only dislike is the vertical lines marking received text in message replies or forwards. Their implementation looks really cool but the lines make editing the content a little more difficult than with the standard arrows.

The main feature that we would like to see added to Mail is a clickable direct link to forwards of or replies to messages. It is nice to have messages marked with replied or forwarded icons in Mail but finding



the replies and forwards would be so much easier with a clickable dynamic link. This is the only feature in Entourage that we will miss.

Mail 1.2 is now as excellent functionally as it has been visually and simple to use. We believe that we have switched back to Mail permanently.

Address Book is more of an all-new application than a revision even though the interface has not changed much. Address Book finally has a preference file that can be opened from application menu but there's not much too it at present. It can be connected to an LDAP server like Mail and it works for us just like Mail.

Address Book doesn't do well, or maybe at all, at importing data other than VCF "cards" and LDIF. We had a hard time figuring out how to get our Entourage contacts into Address Book. Finally, we remembered that when an Entourage contact entry is dragged and dropped onto the finder it becomes a VCF file or "card". So we highlighted the whole bunch in Entourage's contacts window and dragged and dropped them into a folder. Then we used Address Book's import function under the file menu and navigated to the folder containing the dragged and dropped Entourage VCF "cards" to import them. There may be some around for importing contacts from a variety of email clients but we haven't looked. iSync should provide an easy way of doing this if contacts are on a PDA or digital phone.

[Update] Joe Sacco provided this Apple KBase article on an unsupported import script:

"You may import addresses into Address Book from Microsoft Outlook Express, Eudora, Microsoft Entourage, Claris Mailer, Netscape, or Palm Desktop using the "Import Addresses.scpt". Follow these steps:

1. Open ImportAddresses.scpt (/Library/Scripts/Mail Scripts).
2. Script Editor opens. Click Run.
3. Follow the on-screen prompts to choose the source of the addresses that you are importing. The script will import addresses automatically once you answer the prompts."

The importation worked perfectly for our contacts. All data for a contact in our Entourage contacts ended up in our Address Book, including birthdays and other special occasions or personal data. The latter ended up with the appropriate custom label. One can edit an entry and add whatever data one wants and give it a custom label.

Address Book works great in integration with Sherlock 3 and Mail. Click on an address and you can

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get a map of how to get there. Click on an email address and Mail opens a blank email page to fill out and send. If it is a mac.com address you can use iChat or go to the public folder of their iDisk. All of this functionality worked perfectly for us.

Sherlock 3 no longer is the search engine for your hard drive(s). That task has been relegated to the search field on each finder window. Sherlock 3 searches the internet as never before. It has a number of channels: Internet, Pictures, Movies, Yellow Pages, eBay, Flights, AppleCare, etc. If you click on the icon of one of the channels, Sherlock 3's window custom configures its panes for that channel.

We've mostly used Yellow Pages, eBay and AppleCare. If you enter a place of business in Yellow Pages, you get panes that display a map of the location and directions on how to get there. The eBay channel has panes that lists the items for sale, displays the auction page of the item selected and its image, if any. One can page through the items for sale and see their auction pages all in Sherlock 3 without having to go to a browser.

Our favorite channel so far is AppleCare. Enter words into the search field and a list of relevant documents is displayed in the upper pane along with the AppleCare page of the selected document in the lower pane. If the page contains a download, just click on it and your web browser will open and the download will commence.

The new Sherlock 3 is a great information gathering tool. ■



# OS X 10.2 Jaguar— Necessary or Useless?

by Pat Fauquet

**A**PPLE IS continuing down the path to an OS X world. Many people have started down the road and never looked back. Some have made a half-hearted attempt to delve into this new world and have pulled back before even giving Mac OS X a try. Still others are so upset that Apple has pulled the rug from beneath their feet that they swear to never buy another Apple computer.

Apple is sealing our fate by telling us that beginning in January, the new machines will no longer be able to boot into Mac OS 9. I have had more than one person ask me if they should buy a new computer just to preserve this ability. So where do we stand and what should you do?

I was an early adopter. I installed the OS X beta on my computer and gave it a try. My computer at the time was a beige G3 with lots of extra RAM, extra cards and hard drives and even printers that would never work under OS X of any flavor. Needless to say, my beta experiences were less than satisfactory, but I was intrigued by what I could see. When I bought my new white iBook, OS X 10.1 was on it. I booted into it and found that OS X is not that different from OS 9 on the surface. Some menus had changed, the Chooser was gone, but then I was using Desktop Printing in OS 9 so keeping out of the Chooser was “natural” to me. As for the Unix underpinnings of Mac OS X, I really have no desire to delve into a command line interface and I have been able to completely avoid it. In OS X 10 and 10.1, there were a few times when I wanted to do things like empty a recalcitrant trash can. I was able to download OS X utilities that put a nice graphical interface on standard Unix style tools.

After a month or two, I began dreading having to boot back to OS 9. I even began dreading having to use OS 9 Classic. With the release of OS X 10.2, I don't even miss the old world. If my next computer cannot boot

in Mac OS 9, it won't bother me at all.

I cannot say my experience has been shared by everyone. I have one friend who is most comfortable in Mac OS 7.6 or some variant of Mac OS 8. He does not really like Mac OS 9 and turns off most of the newer Apple technologies such as Desktop Printing. He enjoys his older machines, revels in his understanding of what makes them tick and loves a good afternoon of solving problems without resorting to reinstalling the system software. When it becomes necessary to replace the system, he prefers to move extensions, control panels and preference files by hand. He is an artist and his tools are a deep and extensive knowledge of what functions are performed by each file in the System Folder.

As for myself, having to spend an afternoon fixing my computer to get on with my latest project is not fun but the price I must pay for living on the bleeding edge.

My friend is a poor candidate for OS X. He enjoys working ON his computer. I am an excellent candidate. I like to work WITH my computer. Since the operating system that underlies OS X is Unix, instead of the good old Mac OS, most Mac users have little to no experience in fixing its problems. The old software such as Norton Utilities, TechTool and Disk Warrior which are used to fix disk catalog problems must be updated. Tools to defragment disks are useless because Unix stores files in a different manner and in different orders. Conflict Catcher is not needed because there are no extensions or control panels. Spring Cleaning is useless because it does not know where to look for preference files.

Our experts in OS 9 are often not experts in OS X. They must put aside all they have learned in the past and begin again. The hardest part is that even the standard answers do not apply. They must relearn the system and learn about new tools to fix problems. Even worse, Unix experts may not understand the implications of putting Mac OS X on top of a Unix base. OS X is a moving target. It is constantly changing and evolving, so things that could be considered as written in stone for OS X 10 may have changed and evolved so much by OS X 10.2 that the advice the experts gave even a few months ago could be all wrong.

What Kind of Install? The expert OS 9 user often prides himself in custom installations. He will do any and everything to save a few MB (megabytes) of disk space. He wants his system to be as mean and lean as possible. He would rather give up features than have a general purpose operating system on his computer. Many of our experts cut their teeth on the early



Macintosh operating systems. Four MB of RAM was an expensive luxury and a 40 MB hard drive was enormous. Today my computer has 768 MB of RAM and a 20 GB hard drive is small. I have plenty of room for the whole operating system. There is no reason not to do a standard install. While I know that it includes languages I will never use and printers I will never see, it makes keeping things up to date much easier. The same thing goes for Airport and iPod updates. These things may not be on your horizon today, but tomorrow could change all of that. It all goes back to do you want to work on your computer or do you want to work with your computer? If you do not have the time or knowledge to read the daily changes to the the Apple Knowledge Base, a standard installation is the smart way to go.

### One or More Partitions?

The idea that OS 9 belongs on one partition and OS X belongs on a different one comes from the days of the OS X beta. I tried it then and it seemed safe. I then talked to a number of Apple Engineers, spent time on the Apple discussion boards and read lots of the knowledge base. With the release of OS X 10.1, all were recommending that OS 9 and OS X be on the same partition. Since I have two computers, I tried it both ways. My new iMac would have the separate partitions, my iBook would have both on the same partition. I quickly found that my iBook was far easier to maintain. With everything on the same partition, I did not have to try to reason out where things should be installed. I moved all my documents to the new Documents Folder inside the Users folder. Backups became much easier because all the things that make the computer "mine" were inside the Users folder.

On my iMac, I was beginning to see signs of instability. I found myself with applications being installed everywhere, documents were never where I wanted them and frankly, staying organized was terrible. I also found that the partition I had set aside for OS X quickly became too small as more and more software became available for OS X. The OS 9 partition was then too large because I was deleting more and more of those applications. My OS X documents folder needed more room. Storing documents all over the place defeats the ease of backing up your files that OS X provides. The experiment was over! Now OS 9 and OS X are on the same partition on both computer. Things are organized, easy to keep track of, and I let Apple keep its applications and my System Files up to date. I spend my spare time trying out new software rather than trying to

troubleshoot the latest problem.

### Who Should Leap?

**Hardware Issues** —So who should move to Mac OS X and who should remain in Mac OS 9? From a hardware standpoint, almost anyone with a G3 or G4 processor in any machine that was produced since the first slot-loading iMac should make the leap. This would include anyone with a bronze keyboard PowerBook onward and owners of the original colored iBook line that have a firewire port. Owners of the earliest slot-loading iMacs, the beige G3 line, and early iBooks might be a little more wary. While the processor might handle the load, some of the machines have hard drives that are too small, or not enough RAM available or Mac OS X needs to be loaded in a special place. If you have a machine that runs faster than 350 mhz, your machine will be faster and more stable in OS X.

Of course, at this point we have not looked at what might not work in OS X. Printers and scanners are the first thing that comes to mind. If you are using a laser printer and it includes Postscript 2, has an ethernet port and can use the Apple LaserWriter 8 driver you will find that your printer works at the basic level. However, if you have extra trays and do specialize printing, the manufacturer must write a new driver for all the printer's features to work in OS X. If you are using an ink jet printer, some of them are still not supported under OS X, however, there is something called GIMP that should take care of many of those problems. For older Epson printers, there is a gentleman who is writing unofficial drivers for their all-in-one units and various other printers. Go to [versiontracker.com](http://versiontracker.com), click on the OS X tab and enter the name and number of your printer in the search window at the top of the screen. Those \$400 ink jet printers of a few years ago have been replaced by even better printers and they often cost less than \$100, so a new printer may be an inexpensive option.

As for scanners, I was speaking with a member last week. He has a 10 year old scanner that cost almost \$1000. That crummy old scanner was keeping him from buying a new computer. A new scanner with a much higher dot resolution and color bit depth will cost him less than \$100. It will be smaller and lighter also.

The only thing that has given me trouble in OS X 10.2 has been card readers for cameras. My solution was to buy a \$29.00 card reader that does work and when the drivers come out for my older card readers, I



will simply have one to leave in my camera bag for when I want to download photos away from home.

**Software Issues**— From a software standpoint, look at the applications you use on a daily basis. Any version of AppleWorks 6 can run in both Mac OS 9 and X, but some free updates will be needed. Netscape, Internet Explorer, and even America Online have OS X versions. As for e-mail, Outlook Express is not being upgraded to run in OS X, but the Mail application that is a part of OS X is a wonderful replacement.

Microsoft Office has an OS X version, as does Quicken. Photoshop and Illustrator are available for OS X also. However, I have my doubts about some applications. Will PrintShop ever make the transition? What about Avery MacLabel pro? Some programs will never make the leap. They are no longer being actively produced or their share in the Mac marketplace is so small that it will not be worth the effort to rewrite them. As a longtime Mac user, I have a lot of them, as an Apple II user, I left a lot behind when I moved to the Mac. Do I miss them? Yes, probably one or two, but if I went back to them today, I am sure I would find them out of date and I would want the newer features being written in more modern software.

**Games and kids software is another issue.** I have games that my children played as they grew up. I never played them then, and I cannot imagine that I would play them now, even if they would play on my computer! They are still on the shelf and in my CD cases, but then I have many other things in my basement I should send off to Goodwill. They are there, but I no longer have a real need for them.

New iMacs, eMacs, and iBooks come with a wide variety of software. All of it runs well in OS X and will replace much of what you already have. Most include Appleworks, Quicken, web browsers, encyclopedias, and e-mail software, so the move to OS X will not be so expensive.

### **Tweakers, Keep Away**

The last issue that comes up is trying to fix a computer that has OS X installed. In OS 9 and earlier versions of the Mac OS we relied on tools written by third party software developers to add missing features and improve the user experience. Since these were often handled by control panels and system extensions, their use could cause real problems for the user. These various "enhancements" frequently caused crashes, freezes and unexplained problems. In response to this, software developers wrote tools like Conflict Catcher and Spring Cleaning. While these applications are fine in

the hands of knowledgeable users, the novice or intermediate frequently found themselves in a real mess. Printers and scanners stop working, logging on to the Internet is impossible, and preferred settings disappeared. With the advent of OS X, some developers have written small programs called "haxies" to bring back things that are moved or missing. Fortunately, these applications are not added to the basic OS, so they cannot cause as many problems. However, one has to wonder if haxies add or detract to the OS X experience. With the advent of the dock, is the Application Switcher necessary or even desirable? Why have program icons in the Apple menu when there is a toolbar on every window, an easy to use Favorites area and icons for frequently used applications can be stored in the ever-expanding dock.

Mac OS 9 users also have a wide variety of tools to fix directory problems, defragment disks and replace missing icons. Any self-respecting intermediate users began his collection with the purchase of Norton Utilities. More experienced users debate the relative merits of TechTool Pro and Disk Warrior. True geeks have all three. The problem comes in keeping the tools up to date. Each one costs around \$130. Each upgrade costs \$60 or more. Each one needs to be checked for updates with each update of the system software and an upgrade in system software cost the end user about \$180 in addition to the cost of the OS upgrade from Apple.

Updating and upgrading becomes a nightmare. Using old software on a new system is a sure recipe for disaster. Using the tools in the wrong order can cause even more havoc. People forget about the simple tools provided by Apple to repair the small problems before they get out of control. They use a sledge hammer to fix a problem best handled by a jeweler's hammer.

The best thing to do for OS X is LEAVE IT ALONE. There are few freezes. Crashes happen once every few months at most, and most problems can be fixed by a simple restart. More serious repairs should start with the use of Disk Utility that is included with OS X. That will repair most directory issues. It is all I have needed so far, and I am a heavy user. If other problems crop up, simply restarting the computer with the latest OS X install disk you own and then beginning an install will begin a diagnostic routine that will look for damaged files. If the problem is still more serious, simply backing up the Users Folder and doing a complete re-install is the quickest and easiest way to go. You do not have to try to fix what is wrong, instead the new software will fix anything but a hardware issue. If this sounds daunting, a call to Apple Care will get you free



help if you have purchased Apple's extended warranty option. If you have not, a trip to the WAP Tuesday night clinic might be in order. However, this level of repair is very infrequent for the OS X user.

To successfully run OS X, you need to keep current with the updates because they are usually bug fixes. You need to stop trying to tweak it, and you need to avoid booting your computer in OS 9 because it likes to stamp all over the OS X file permissions. Make the change and make a pact with yourself not to run back to OS 9 for its comfort level. Upgrade your most frequently used software to OS X, check on the plans for software that has not been upgraded. Find a replacement. Buy it, learn it, and never look back.

### Some Words of Caution

\* Do not boot into OS 9 to fix things. \*If you find yourself in OS 9, do not throw away files you do not recognize. They are hidden files in OS X that cannot be made invisible in OS 9. Leave them alone. If you do not heed this advice, you will be reinstalling OS X. \*Do not use utility programs designed for OS 9 on your computer, even if they say they work in OS X unless you have just updated the program, could pass a college-style final exam on the contents of the manual and have backed up everything. \* Stay out of System and Library unless you are sure you know what you are doing. \* Forget anything you read about logging in as "root." This is only for the most experienced Unix geek. Anything that you do while logged in as "root" will surely come back to haunt you. Make one wrong move and your computer will fail to work! \*If you want to become an expert in OS X, make sure you are reading current books and articles from experts who are really up to date. Spend your time reading the discussions in Apple's support area instead of MacFixIt and MacInTouch. Just because someone professes to be an expert, that does not make them one!

The most amazing thing about OS X is that I have yet to meet a user who would ever willingly return to OS 9 for regular computer use after using it for about two weeks. Besides being remarkably stable, the clean lines and lack of clutter make it a visually clean interface. If you like doing work with your computer, if it relatively new, and if you can resist the urge to make great even better OS X is for you. If you delight in tweaking things, don't have time to re-earn your expert status, and are suspicious of anything you can't take apart, and love those good old Macs, stay with OS 9. ■

## Let's Play a Game in OS X

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AS A 50 something woman, I am not supposed to like computer games. To tell the truth, there are many that I do not like, but there are certain games that intrigue me and that I have found that I enjoy playing. I have also found that computer games are a great way to get the new computer user to practice their mouse skills. I have also found that playing games helps keep my mind functioning at a higher level. Last year an older friend of mine went to a lecture on memory for the senior citizen and the speaker extolled the virtues of computer games to keep memory skills honed.

While there are many classic games in for OS 9 and earlier operating systems, the games for OS X have really caught my eye. Their graphics are often beautiful and because many have been created by veteran programmers, they often have great features that make them fun to play.

Most of us know about the classic solitaire applications. My favorite for operating systems earlier than OS X has always been Solitaire Till Dawn (Figure 1) (<http://www.semicolon.com>). The OS X beta has now been released and it is even nicer than the previous versions. While the OS 9 version has over 40 different games, the beta has about a dozen at this point and each update of the program adds a few more. The cards are beautifully drawn and the rules for each game are easy to follow. I particularly like the toolbar at the top of the screen with buttons to click for frequently-used commands. It contains all the usual games such as Klondike, Free Cell and Forty Thieves and some unusual games like Grandma's Game that are a real challenge. While there are sample games included so that you can see how to win a game, it is worth visiting their web site to read their strategy pages for several of the more popular games. Since the game is in beta testing and is not expected to be finished until February 2003, you can enjoy it for free for a while. I have not found any serious bugs in the program.



While I was waiting for Solitaire Till Dawn for OS X to be released, I downloaded and tried a number of different OSX solitaire card games. My favorite has been Mike's Cards (<http://www.mikesedore.com>). It contains over 150 different games and includes games like Cribbage, Euchre, BlackJack, several variations of Poker, kid's games like Old Maid and Go Fish in addition to a large number of solitaire games. When you first start playing Mike's Cards you are met with various annoying special effects like sounds, trails that follow your mouse and "sparkles." While those things might appeal to some players, they can be turned off to make the games simply play. Many of the included games have several variations that can be chosen to slightly change the rules. There is also an option for "Easy Play" where the most impossible games can occasionally be won. Once again there are many different backgrounds, card faces and card styles available. Mike's Cards, at \$25.00 is one of the more expensive solitaire collections, but remember that it plays a wide variety of other games. There is also a freeware version that plays only 7 different games. Check the web site for details.

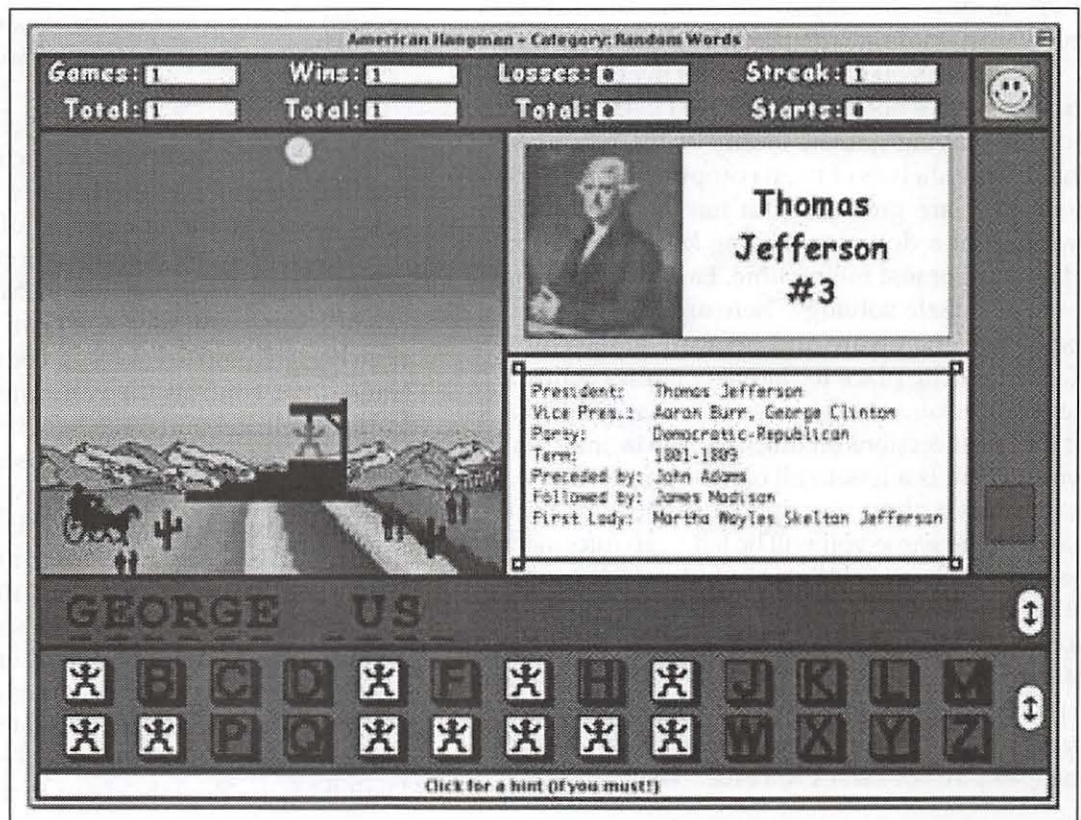
I have found that word games are always fun. The classic hangman is available in several variations with Hang3000 (<http://www.winograd.com>) being the most feature-filled version. It includes dozens of built-in word categories and the ability to add your own word lists. At \$25.00, once again it is fairly expensive for a shareware application, but it has enough features to keep you guessing for a long time. There is also a version called American Hangman that includes categories such as Presidents, all 50 states, state birds, capitals, flowers, nicknames, and trees.)

My favorite word game is Scramble (<http://www.spherasoft.com>). The player is presented with five or

more letters. You then work against the clock to form as many different words from the letters before the time runs out. If you reach the target score, you continue with another set of letters. There are several different word lengths and difficulty levels available. Unfortunately, the built-in dictionary does not always agree with the words I make. However, my vocabulary has grown and my Scrabble playing has improved since playing the game. Scramble costs \$6.95

Shawn Henry, Scramble's programmer recently released Nomia, another devilish game patterned after word search puzzles. There are several variations of the game. In some the tiles disappear as you find words. In others, the tiles remain and you cannot make a the same word twice, even if it involves different tiles. The path of a word can go in any direction, make turns and even cross itself. Nomia costs \$9.95 to register.

Several years Tetris was the rage in computer games. Today the most popular game involves a grid of gems that load from the top of the board and disappear from the bottom when you select a gem to trade places with another to form group of three or more matching gems in either a row or column. The game is played with a clock. Each time you make a row or column, the clock advances. If you spend too long look-





ing for the next gem to move, the clock moves backward. Each time the clock is filled, you add a multiple to the points that are earned for making rows or columns. The clock also decreases more quickly each time you achieve a new multiple. The game ends when the clock gets to the zero point. This game goes by a number of names and can be played on the computer, on Palm devices, or even directly on the internet. I have played versions that are called Bejeweled Deluxe (<http://www.popcap.com/macmain.php>), \$19.95) or JewelToy (<http://www.aegidian.org/>), freeware. This game is simple enough to be played by a kindergartner, but complex enough to keep teens and adults playing for hours.

While living on Guam a number of years ago I was introduced to Mah Jongg, an Oriental tile game similar to Rummy. I brought home several sets of tiles and we have taught friends and family this wonderful game. I have seen computer games of that use the tiles stacked into intricate piles in a matching game. Over the years I have spent many hours playing the game, but have always been disappointed in the look of the tiles. FarmersMahJongg (<http://objectfarm.com>) is a version of the game with beautiful tiles. Although there is only one layout and one tile set, this freeware game is sure to provide hours of pleasure.

I am sure you have notice that my list of favorite games does not include any first person shooter, no role-playing games, or any of the other types that fill the shelves of most computer stores. However, they are great to fill a few moments while waiting for a download, being kept on hold on a phone call or just killing time. Each involves some level of puzzle solving. There are many other inexpensive shareware and freeware games for OS X. My favorite place to find new games is <http://versiontracker.com>. This is a site that keeps track of the latest versions on much of the Macintosh software. There is a link to all of their games. They are listed with a short description. If you click on the name of the game you will be led to an information page that tells you a little more and includes reviews other users. I know if a game has a rating of 4 or above, it will probably be worth a look. Since most of the software listed is shareware, after giving it a try, don't forget to pay the fee if you continue to the program. Shareware authors only get paid when you, the user pay your shareware fee. ■

## Hands-On Review Keyspan Presentation Remote

By Bill Fox [Macsonly.com](http://Macsonly.com)

ONE ACCESSORY that has graced our PowerBook's carry case since it came out over two years ago has been Keyspan's Digital Media Remote (see our review). Simple and inexpensive, we've used the infra-red based DMR to run our PowerBook during PowerPoint or other presentations. Now Keyspan has come up with an even better idea, the Presentation Remote.



Keyspan's Presentation Remote at \$79 is perfect for PowerPoint presentations or any other presentation for that matter since it works just like a mouse. The Presentation Remote consists of a small handheld transmitter with a red laser light pointer and a small USB receiver that plugs into any USB port. Also in the box is a lithium "button" battery (#2450), a folding leather carry case and an instruction card. The Presentation Remote, after installing the battery small side down, is true plug and use. There is no driver nor AC adapter so the receiver is plugged into a USB port and it just works. The laser pointer is activated by simultaneously holding down the mode and pointer buttons. It automatically deactivates after a period of inactivity.

The transmitter is about 4" long, 1/2" thick and an inch or less wide. It works via 900 MHz radio frequency like many cordless phones. One can assign IDs so that multiple Presentation Remotes can be used simultaneously. The transmitter controls the computer's cursor with a thumb button, a clicker and a shift-clicker to control the Finder or any application just like a mouse.

The Presentation Remote works perfectly, just like a cordless 2-button mouse. But it is handheld and has a laser pointer. We were able to control the cursor on our PowerBook running Mac OS X 10.2.1 from a distance of at least 50 feet. The laser pointer's red dot was clear at that distance as well. Keyspan conservatively claims the Presentation Remote's performance distance as up to 40 feet. It works with Mac OS 9.1 and later or Mac OS X 10.1.3 and later. Keyspan's Presentation Remote has replaced their Digital Media Remote in our carry case. ■



# Eye TV: An Interview with... Victor Nemechek Director of Marketing El Gato Software

By Dave Ottalini

**T**HIS ARTICLE continues a series of interviews done during MacWorld in New York City this past July. As usual, I was looking for software and hardware that was not only a bit different but also perhaps on the cutting edge. El Gato's booth was brimming with people every time I walked by. The reason was EyeTV, a product that turns your Macintosh into a "PVR" - a Personal Video Recorder like TiVO - so you can record TV shows real time on your Mac's hard drive and then play it back, burn it on a CD, etc. Manufacturer's price is \$199.00 but I read where it was purchased on sale for \$176.00. To get more information, I grabbed Marketing Director Victor Nemechek for a quick interview to see what all the fuss was about. Santa Cruz, California based El Gato, by the way, is also the developer of Roxio's Toast application.

**Dave:** What all can you do with EyeTV?

**Victor:** It allows you to watch TV on your Mac or record programs to your Mac's hard disk and do fun things like pausing live TV, skipping commercials, instant replay, slow motion. You can watch multiple TV programs at the same time. You can save programs out onto video CDs that are playable on DVD players. There are a lot of fun, interesting features in there too.

**Dave:** It would be great for archiving too since it lets you record VHS or camcorder video too.

**Victor:** That's right. Any type of video source. It can even be an analog video camcorder, VCR or similar and digitize it into MPEG 1 format and send it over to your Mac over USB.

**Dave:** How about a Firewire version?

**Victor:** This product was very successful. We'll probably do a follow-up product next year that will include DVD quality over Firewire.

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"As usual, I was looking for software and hardware that was not only a bit different but also perhaps on the cutting edge. El Gato's booth was brimming with people every time I walked by. The reason was EyeTV, a product that turns your Macintosh into a 'PVR' - a Personal Video Recorder like TiVO - so you can record TV shows real time on your Mac's hard drive and then play it back, burn it on a CD, etc."

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**Dave:** Where can you get more information?

**Victor:** You can check out our web page at [www.elgato.com](http://www.elgato.com). ■

**PostScript:** EyeTV created quite a stir. If you'd like to read a review check out <http://www.macintoshdigitalhub.com/reviews/eyetv/>. As one user said at another site I was scanning, "It isn't a replacement for a TV, but it is a great way to record shows that you miss." There were mixed reviews. People were unhappy that they couldn't edit recordings (as in take out commercials). It's apparently a problem with the MPEG 1 format that is to blame. I am excited by this product, but will wait and see if they can come up with a version that really will work with Firewire and DVDs. And while I was searching around on the web, I found out that those of you with digital camcorders already have the ability to do some of the things EyeTV can (tho they do not have TV tuners inside):

"With all the talk about TiVO and eyetv, I thought it might be a good time to remind folks that if they have a digital camcorder they can "pass through" cable or dish signals straight into the Mac using a digital video camera and imovie. You don't have to record to camera and then re-record to computer. Just use a firewire cable to go from camera to Mac and audio/video cables to go to the camera from the set top box. If you just want to record tv onto the Mac, this is a fast and inexpensive way (if of course you already own the digital camera)." - Jim Stelljes (at <http://www.xlr8yourmac.com/archives/jul02/072202.html>)



# Rendezvous

## Part 1: Why you need it and how it works

**W**RITERS AND experts trying to explain Rendezvous, Apple's new networking technology, are comparing it to AppleTalk in perhaps record numbers. It's not that the two have much in common: AppleTalk is a complicated set of networking software encompassing at least ten high-level to medium-level protocols, all interacting with each other in ways that make developers and network administrators want to cry. Rendezvous is Apple's new self-configuring TCP/IP network technology based on the open ZeroConf standard. It barely adds any protocols to the known universe, and even if you argue that it does add some, they're so similar to existing protocols that they are like brain candy.

So why the tortured comparisons? Because both AppleTalk and Rendezvous have the same effect: plug in a network cable and your net works. Without typing in node addresses, finding servers, or begging for the indulgence of your network administrator, you're suddenly able to see services from every other Rendezvous-capable device on your network: iChat users, file sharing, printer sharing, Web sharing, remote Apple events, and who knows what else – all over standard TCP/IP networks without a hint of proprietary problems.

All this happens with zero configuration, hence the open-standard name ZeroConf. Yet that name is misleading, at least as far as Rendezvous in Mac OS X 10.2 is concerned. Rendezvous is not just about configuration but also about really using a network. In earlier coverage, we took the name "ZeroConf" too literally, pointing out that it wouldn't be of any use to automatically configure IP addresses and DNS services if your machine is already on the Internet. If you have an IP address, why would you need the OS to find one for you?

But experience shows something more is going on here. Steve Jobs has demonstrated a "future" version of iTunes that broadcasts tunes over a local network: add a new machine to the network and this theoretical iTunes instantly sees a broadcast source and can play those tunes. That has nothing to do with finding an IP address, it's finding a service – but the Mac OS has been

able to find networked services since version 8.5 and iTunes still can't do this without Rendezvous. Why? Networking tools can find an IP address for your machine's Rendezvous name, even though it's not on any DNS server and even though those machines are using a DNS server. Why?

To answer that, we first need to look behind the AppleTalk curtain just a bit to see what was going on back there, why TCP/IP is different, and how Rendezvous bridges the gap. It's not AppleTalk over TCP, but it's AppleTalk-easy over TCP, and that's an even better trick.

### Self-configuring networks

Anyone who has dealt with TCP/IP networks beyond adding a dial-up Internet account is familiar with the pain of configuration. Since every computer on an IP network must have a unique four-byte (IPv4) or sixteen-byte (IPv6, also known as IP next generation) address, you've got configuration to do. If you do it yourself, you have to know about the subnetwork (or subnet) on your side of the nearest router, for that determines what range of IP addresses are available. You also have to know which of those addresses isn't in use by some other device on the network, known as a node. Alternately, you can let a DHCP or BootP server assign your node an IP address, but then an administrator somewhere has to configure that server so it knows about your subnetwork. Either way, someone has to map out the network and assign numbers.

AppleTalk, on the other hand, has never required such configuration. Just as IP addresses number nodes on an IP network, AppleTalk nodes have their own numbers for addresses. However, the AppleTalk software takes care of assigning node numbers unless you manually override it. Check the "AppleTalk" control panel in Mac OS 9: there's your AppleTalk node number and, in "Advanced" or "Administrator" modes, the opportunity to change it to whatever you want.

For simplicity's sake, we'll discuss an AppleTalk network composed of computers connected via "LocalTalk" – that is, via networking cables that connect to a classic serial port, such as Apple's old LocalTalk cables, or via telephone wire such as PhoneNET® or its clones. The LocalTalk driver for each node picks a node number between 1 and 253, broadcasting its number on the network. Any other node using it must respond and say, in effect, "Hey, that's my address, get your own." Each time it comes online, a node tries to use the last node number it had, promoting network stability, but it picks a new node number if necessary.

LocalTalk networks merge into big internetworks by connecting these small networks. Each network gets



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“AppleTalk is a complicated set of networking software encompassing at least ten high-level to medium-level protocols, all interacting with each other in ways that make developers and network administrators want to cry. Rendezvous is Apple’s new self-configuring TCP/IP network technology based on the open ZeroConf standard.”

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assigned a 16-bit network number, and each node’s full address then becomes its network number plus its node number. Some person may have to assign network numbers manually, but that’s a task for the people who set up the routers that connect individual networks, not an everyday occurrence. Individual nodes pick up their network numbers from their nearest router, or alternately, via static assignment in the AppleTalk control panel.

The same concepts apply to any large network, even though they may be expressed differently. TCP/IP doesn’t have separate network numbers and node numbers; your IP address is your complete node specifier on the largest network to which you connect. Your nearest router administers a small section of the IP address space, and your local software knows what addresses are handled by the local router – that is, on your local network – via the subnet mask .

These masks seem like arbitrary numbers usually including “255,” but it’s actually a binary math thing. Take your IP address in binary and perform a logical AND with the subnet mask in binary. A logical AND operation in binary produces a “1” where both the IP address “and” the subnet mask have a “1”, and a “0” if either source operator has a “0” in that position. If you do this, you’ll find that the resulting binary number, expressed in familiar “dotted quad” IP address form, is the IP address of the first node on your subnet.

For example, if your IP address is 192.168.1.5 and your subnet mask is 255.255.0.0, the AND operation returns 192.168.0.0, the first node number available in your subnet (typically, the first number is reserved and the second number is used by the router itself ). There are sixteen “0” bits in the subnet mask, so this particu-

lar subnetwork can accommodate 2<sup>16</sup> nodes. If you’d like to play with IP addresses and their calculations, a good starting place is the [Sparkman Networks Calculators](#) page, including multiple ways to calculate masks or interpret what they mean.

It’s a lot of work to figure out your role on an IP network. It’s worth it to connect to the Internet, but what if you just have three computers that want to share a printer? If one of the three connects to the Internet via modem, it gets an IP address from your ISP, but you don’t want all three computers to have to dial into the Internet as well to share a network. In Mac OS 9, you could share printers over AppleTalk while using a modem-based TCP/IP connection, and in Mac OS X 10.0 and 10.1 you could use connection-sharing software, but that still requires figuring out each of the three computers’ IP addresses if you wanted them to talk to each other. And you didn’t really want to do that: you don’t want three computers in the same house communicating over modem-based IP because it’s ridiculously slow. You want Ethernet.

### AppleTalk advantages

People demanded AppleTalk in Mac OS X even though Apple wanted to kill it. Apple wanted to move past AppleTalk because it’s a set of slower and more network-intense protocols; TCP/IP moves data faster with less network traffic, and is far more standard. Apple never fully documented all the AppleTalk protocols, nor did it encourage companies aside from printer manufacturers to build AppleTalk implementations, so AppleTalk-capable devices are far more rare than IP-capable devices. But AppleTalk works well for local networks even as people may be forced to use slower IP connections to the larger world. Gamers, specifically, liked using AppleTalk for easy multiple-Macintosh connections in homes, schools and other places that would never have a high-speed Internet connection. Setting up a TCP/IP connection between a few machines – what the geeks now call an ad hoc network – requires configuring IP addresses and subnet masks for all the machines. You don’t need a DNS server as long as no software tries to find a service on the network by name, but any software that insists on doing so may have problems. You don’t technically need a router as long as no software tries to access any IP addresses that don’t exist, and no software is likely to do that since there’s no DNS server providing any IP addresses to try, that is, no software is going to try to connect to 17.254.0.91 because no DNS server is around to say that’s the address of <www.apple.com>.

Even conquering these problems, AppleTalk is still easier to use. When you want to find another gamer, or a printer, or a file server on an AppleTalk network, you don’t have to find the machine’s name and type it



in, or type its node number, or anything remotely similar. Most of the time you get a nice list box populated with all of the AppleTalk nodes providing the service you want. For printers and file servers, it's the Chooser (or Network Browser); for other services, you see similar dialog boxes listing just the machines you want. For IP-based networks, you have to type the IP address of another node, or if everything is very nicely configured, a domain name. Usually it's an IP address, though, most homes and small businesses don't have their own local domains and DNS servers, so your printer isn't available as "printer.mycompany.com".

Behind the scenes, AppleTalk's user-level ease happens through a layer known as the Name Binding Protocol, or NBP. Any software on an AppleTalk node that wants to advertise itself on the network registers an NBP "trio" of a service type, a name, and a zone. Each service broadcasts this information at regular intervals so any new node can find it, leading to some of AppleTalk's reputation as a "chatty" bandwidth-using protocol stack. For example, a Tektronix Phaser 850DP printer in the "Marketing" zone with the name "Huge Box of Hues" would register the NBP name "LaserWriter:Huge Box of Hues@Marketing". The service is named "LaserWriter" for historical reasons: all PostScript printers call themselves "LaserWriter" so the LaserWriter driver will find them. Print spoolers that "capture" printers change their service type to something else, like "LaserSpooled", so the LaserWriter driver won't see them. NBP automatically checks the entire network for duplicate names unless a program tells it not to.

When a program wants to find a service, it asks NBP to return a list of all nodes with that service type: for example, all names of LaserWriter printers, or "AFPServer" devices (AppleShare file servers), or, in days of yore, "ImageWriter" for networked ImageWriter printers. (In this day of USB-based printer sharing over Ethernet, it may be hard to imagine paying extra money for a network card for a dot-matrix printer, but thousands of people did, and it worked well at the time.)

IP-based networks, again, don't have this luxury. Since Mac OS 8.5, Apple has supported the Service Location Protocol (SLP), an IETF standard for finding devices on a network the way AppleTalk does. SLP is a good standard, and it's starting to grow some support, but for some reason it hasn't caught on the way Apple and others expected four years ago. It also assumes that it's running on a fully-configured IP network – SLP agents return URLs that point to services, such as service: <printer:lpr://printer.mycompany.com/>. If your printer isn't assigned a full name like "<printer.mycompany.com>", SLP can't help locate it.

### Reinventing self-configuration

As we now see, making TCP/IP as easy to use as AppleTalk has at least three separate and important elements. The network has to configure itself without requiring any kind of DHCP or BootP server. It must have a way of locating local services without SLP, since most ad hoc networks don't have domain name services. Finally, and somewhat subtly, it must work in addition to any existing TCP/IP network. Just as gamers and small offices use AppleTalk for the local network while not disturbing slower Internet connections via modem or DSL, any IP-based replacement must not interfere with Internet access. In other words, you should be able to access all local machines via TCP/IP over Ethernet even if one of those machines is connected to the Internet via a modem. In that last case, your computer would need to support two different IP addresses at the same time, and perhaps even on the same interface. If one computer connects to the Internet via modem and two other computers share that connection, then the AppleTalk replacement needs to work over Ethernet or AirPort without interfering with the real Internet connection over the same wired or wireless link.

Running multiple network configurations on the same computer or interface is called multihoming. So far, most Mac OS X users know multihoming as the operating system's ability to automatically pick the best network interface available, and that's a great benefit, but the core Darwin OS can do more. That's multiple-link multihoming, where the OS supports the same kind of network connection on multiple interfaces. Open Transport can do that as well. Single-link multihoming, as supported in Open Transport 1.3 and later, including Mac OS X, supports multiple instances of any networking protocol on a single interface. That means any AppleTalk replacement can run a local IP network over Ethernet while simultaneously connecting to the IP-based Internet on the same Ethernet interface. Since Mac OS X supports multihoming over single or multiple links, all the pieces are now in place for a new networking technology to do AppleTalk's work over IP, provided it can locate services as well as configure itself. Now we know what Rendezvous has to do.

### Living without DHCP

You may not know it, but the Mac OS has been assigning dynamic IP addresses on its own since Mac OS 8.5, but Microsoft started it. If a PC running Windows 98 or later is configured to get IP configuration information from a DHCP server, but no DHCP server is available, the operating system randomly assigns it an IP address in a Class B address space between 169.254.0.0 and 169.254.254.255, with a subnet mask of 255.255.0.0. It then puts that address out on the local



network to see if any other node is using it. If it is, it picks another one and tries again; if not, the assignment is made. Every five minutes, the operating system looks for a DHCP server to get a "real" IP address, but as long as one's not available, the 169.254.x.x address holds.

An address that starts with 169.254 and ends with any other valid digits is said to be in the "169.254/16" block of IP addresses; the notation says that the block is defined by its first 16 bits, and that those bits form the first two quads "169.254". Similarly, a home network might use the "192.168.1.192/24" block that ranges from 192.168.1.192 through 192.168.1.255, or the much larger "10/8" block that ranges from 10.0.0.0 through 10.255.255.255. The number after the slash is the number of "1"s in the binary expression of the subnet mask, starting with the most significant bit. If that number is n, the number of nodes available on such a subnetwork is  $2^{32-n}$ .) One of these 169.254/16 addresses may not seem too useful, but all machines having one can communicate with each other over TCP/IP. The operating system can't invent domain name services, so the computers can only talk to each other if you enter the raw IP addresses – that is: machine 169.254.13.87 can talk to 169.254.39.225, as long as the software on both ends uses those addresses and not names. Microsoft more or less appropriated the 169.254 Class B address space for Windows 98's use, but starting in Mac OS 8.5, Open Transport follows the same configuration sequence so that Macintosh and Windows machines on the same network could still talk to each other even if the DHCP server went on vacation.

This proved to be such a useful concept that the Internet community not only forgave Microsoft for stealing all 65,536 addresses in a Class B address space, the entire scheme is now an IETF draft recommendation. Computers with these dynamically assigned addresses can communicate with each other as long as they're on the link-local network, also known as the local link, more or less defined as on one side of an IP router. Traffic using these addresses can't cross routers.

A DHCP server provides not only an IP address but also the addresses of DNS servers, and the operating system can't make those up on the fly. There is statistically no chance that an operating system could chance upon a DNS server by trying random IP addresses, and if the DNS server had to live at a specific section of the IP range, well, that's configuration, isn't it? Configuration is incompatible with zero-configuration networking. Besides, someone would have to set up and manage the DNS server, and that's even more configuration. Ick.

This is a point that's sometimes lost on the founding fathers of the Internet. Stuart Cheshire, an Apple

"Running multiple network configurations on the same computer or interface is called multihoming. So far, most Mac OS X users know multihoming as the operating system's ability to automatically pick the best network interface available, and that's a great benefit, but the core Darwin OS can do more."

engineer who's pioneered much of the work on Rendezvous, wrote strongly about the need for regular users to manage their own system's names: "It is easy for those of us in the IETF community who run our own name servers at home to forget that the majority of computer users do not run their own name server and have no easy way to create their own host names. When these users wish to transfer files between two laptop computers, they are frequently reduced to typing in dotted-decimal IP addresses because they simply have no other way for one host to refer to the other by name. This is a sorry state of affairs." Indeed.

AppleTalk networks don't have this problem. Since System 7, your computer has had a name that serves as its identifier for things like file sharing and printer sharing over AppleTalk; by default, it is "Your Name's Computer." Now, in Rendezvous, your computer has a separate Rendezvous name, also assigned in the "Sharing" pane of System Preferences. Why two separate names? Since Rendezvous is IP-based networking, the node's name cannot contain spaces, periods, or other characters about which AppleTalk never cared. (It's back to that Unix heritage: AppleTalk names can contain just about any character you want because you always pick them from a list; IP names can't contain spaces or other delimiters because they were all originally typed on a command line where delimiters separate options.) Your Rendezvous name defaults to your Computer name, converted to meet IP rules, such as "your-names-computer", so it's easy to find and understand.

### Multicast DNS

Here the Rendezvous engineers came to a critical point. AppleTalk needs no name servers of any kind because its Name Binding Protocol broadcasts all name announcements to the network. When the LaserWriter



driver looks for LaserWriter printers, it asks all nodes with type "LaserWriter " to respond, populating the Chooser's list as the answers arrive.

The Chooser regularly re-issues the request for "LaserWriter " nodes, and the printers all respond again, explaining why the answers jump around in a zone with lots of printers (or file servers, or whatever type of device you seek).

Unfortunately, although this plan works with no configuration, it eats up lots of network bandwidth. To AppleTalk's designers, it was more important that plugging in a printer made it show up immediately than to save a few bytes of network traffic, but today's huge networks make that a bad trade-off. Apple Computer itself once had an internal network that shared both TCP/IP and AppleTalk traffic across dozens of sites around the world, and slowing down other network traffic so printers can say "I'm still here" every ten seconds. [It] was unpleasant. As [Apple's Stuart] Cheshire wrote, "A user who goes home for the weekend leaving the Chooser window open places a non-trivial burden on the network."

The only reasonable way for nodes to talk to each other by name is by broadcasting each request to all nodes on the link-local network, but AppleTalk does exactly that and creates problems Rendezvous wants to solve. The solution comes in the design of Multicast DNS, an IETF draft from Apple's Stuart Cheshire that's implemented in Rendezvous.

The basic principles are easy enough: every time a Rendezvous node wants to look up a name, it broadcasts the request to every node on the link-local network via the multicast address 224.0.0.251, an address that all nodes always monitor. Although Multicast DNS can respond to conventional DNS queries (as if you entered "224.0.0.251" as the address of your DNS server), it has several additions that make it more powerful in self-configured networks. Specifically, each request may contain an "answer" section that says what the requesting node already knows about its request.

That probably sounds weird, but stick with it for a moment. Rendezvous defines every computer on the link-local network as living in the top-level domain ".local", as seen at the the Rendezvous name in the "Sharing" pane of System Preferences. If your computer's Rendezvous name is "algae", its full name is "algae.local". You can see this in some Mac OS X networking tools, such as the included Network Utility and the third-party IPNetMonitorX, by tracing the route to "algae.local". Don't try a normal name lookup – the DNS clients in those programs don't know how to deal with Multicast DNS yet, so they'll send it to a regular DNS server (if you have one) and you'll get back "unknown domain." If you just try to use the name, such as by tracing the route, these programs ask

Mac OS X to resolve the ".local" name and you'll get the right answer.

DNS supports multiple answers for any query: look up <www.whitehouse.gov> and you'll get back more than one IP address. Your client is supposed to pick one of those based on weight and priority and other values internal to the DNS record that most tools don't show you. Any number of DNS records can exist for a given name, and that's true in Multicast DNS as well. There's more to DNS than looking up one name and getting back one address – a client may want to look up a generic name and see how many clients on the link-local network reply to it. For the moment, presume that any Multicast DNS request could have many answers. This will make sense shortly, we promise.

This situation could quickly degenerate into what AppleTalk faces: a client issuing a Multicast DNS request over and over, with every client responding over and over, until the requestor is satisfied that it has all the responses it's going to get. To avoid that, Cheshire and his colleagues designed Multicast DNS to avoid network traffic. No two Multicast DNS queries can be less than one second apart, and each subsequent request must be an interval at least twice as long as the previous one. A client that issues a Multicast DNS request can reissue it in one second, then again after two seconds, then again after four seconds, and so on. The tenth request can come no sooner than 512 seconds after the ninth request (that's eight minutes and thirty-two seconds), and the eleventh request no sooner than 1024 seconds (17 minutes, 4 seconds) after the tenth. That alone vastly reduces network traffic, but it might still cause every node on the link-local network to reply every few minutes. To reduce that, Multicast DNS requires that each request include an "answer" section that lists all valid answers the requesting node has already received. In essence, a request is phrased, "I want everyone who responds to this name to answer, but I already know about these answers and their expiration times so don't bother responding again if I already know about you." Some nodes in the "answer" section will reply anyway if the "time to live" value on the answers is close to expiring, so the requestor will realize that particular answer is still valid, but the majority of answers provoke no further response.

If a new node comes online, Multicast DNS politeness rules recommend that the node send a "gratuitous" Multicast DNS response to the network whose answer section declares what names it supports. If another node has an outstanding Multicast DNS request for a name that the new node supports, the requestor will see it immediately instead of waiting eight or seventeen minutes for its next request window. This nifty bit of thinking lets new nodes pop up in Chooser-like lists almost immediately without the list-displaying



code issuing the same request every few seconds – a nice bit of work. Everyone works together Dynamic IP address assignment (in the 169.254/16 block) and Multicast DNS are both part of Rendezvous, but one does not depend upon the other. Multicast DNS works even if you have a fully-configured IP address, and even if you have real DNS servers available and configured. That's why the earlier example works as long as any machine on your link-local network has the Rendezvous name "algae". Mac OS X 10.2 sends all requests for ".local" names to Multicast DNS, and it returns that machine's link-local IP address.

If you're running behind a firewall or router, you may have locally-assigned IP addresses. Some ranges of IP addresses are reserved for private networks that don't connect to the Internet. Apple's AirPort Base Station uses the 10/8 block to assign IP addresses to DHCP clients; other routers, like those by Linksys, use the 192.168/16 block. By IANA definition, those addresses aren't valid outside your local network, but they're valid to Rendezvous, and Multicast DNS lookups will return those addresses.

So, for example, if you're trying to open a Timbuktu connection between two local machines, you no longer have to remember and type IP addresses: under Mac OS X 10.2 and later, you can type Rendezvous names like "algae.local" or "production.local". Even if you do have your own DNS server configured, and your machine has a valid IP address accessible anywhere in the world, the machine's Rendezvous name in the ".local" domain still works on the link-local network.

ZeroConf and Rendezvous also change one way that Open Transport used dynamic IP addressing, and now we understand why. In Mac OS 9, any 169.254/16 address that your system picks is discarded if a DHCP server becomes available, and you get a "real" IP address instead. ZeroConf recommended that implementations not discard the 169.254/16 address, keeping it active in addition to any later IP address a configuration server might provide. That's so that anyone who has already connected to your machine locally can keep doing so after a server becomes available.

Suppose you have Printer Sharing enabled on your machine "algae.local", and someone else in the building is printing a high-resolution image on your printer with photo-quality paper in an attempt to further the causes of truth, justice and peace. Further suppose that your machine has a 169.254/16 address because your DHCP server and router weren't working – you can't connect to the Internet, but local machines can connect to each other thanks to Rendezvous. When the router comes back online and the DHCP server starts working, your machine gets a "real" IP address and can connect to the outside world. However, if it drops the 169.254/16 address, the Printer Sharing connection

breaks, disconnecting all clients and stopping printing in mid-image, hindering the causes of truth, justice, and peace. Sure, the other guy can reconnect using real IP addresses and start over, but that might not be practical, and you've still wasted a lot of time and some photo-quality media.

Thanks to multihoming in Mac OS X, you don't have to worry about it: the computer can keep a local Rendezvous network active even after establishing a link to the outside world with a separate IP address. Mac OS X 10.2 doesn't require a separate 169.254/16 address in addition to a fully-configured IP address; Rendezvous works whether or not it has to assign you an IP address. It also works if it had to assign you an IP address and you got a better one later. It just works – just like AppleTalk.

### The missing piece

Dynamic IP assignment and Multicast DNS take care of everything DHCP would normally provide: a way to get local computers talking to each other by IP address or by name. That's not enough to replace AppleTalk, as already noted: AppleTalk's Name Binding Protocol makes it trivial for clients to discover all services of a given type on the network. A printer might be named "<printer.local>" and available via Multicast DNS, but that's not enough to duplicate something like the Chooser. Every printer can't have the same Rendezvous name, so telling everyone to look for a device named "printer" wouldn't work anyway. Nor should you have to name printers according to a scheme to make them visible on the network. That's configuration, remember? Configuration is icky.

IETF's recommended Service Locator Protocol doesn't work very well in Rendezvous networks. Since it returns URLs, you wouldn't see a name like "Algae's Shared Files," you'd get something like <afp://algae.local> – better than <afp://192.168.1.3>, but not by much. If it can't populate something like the Chooser, it's not good enough to convince people to stop using AppleTalk.

Would it surprise you to learn that Stuart Cheshire was thinking about this as well? He wrote an entire paper on what it would take to replace AppleTalk's NBP with an IP-based service. The solution Cheshire and his colleagues eventually settled on is based on Multicast DNS – since every Rendezvous implementation already needs Multicast DNS, it made sense to use that instead of building on an entirely new protocol.

The answer, called **DNS Service Discovery**, is straightforward but not obvious. It builds on the concepts we've already seen, such as multiple DNS responses for a single machine, using existing mechanisms to register and store names not only of machines but also of services. We'll look at it in the final part of our rendezvous with Rendezvous. ■



## Part II: Finding and Using Network Services

**I**N PART I, we explored why Apple wanted a new IP-based networking technology that was as easy to configure and use as AppleTalk, as well as how self-assigned IP addresses and multicast DNS let self-configured machines find and talk to each other. That answers the “why” and “how” of network configuration, but it’s still not as easy as AppleTalk.

AppleTalk’s Name Binding Protocol (NBP) performs lots of magic on behalf of users who don’t even know it’s there. By registering each service in a standard “Service:Name@Zone” and allowing simple wildcards in searching, AppleTalk clients can easily find all nodes supporting a given service in a specified zone and report a list of those names to you.

Although it works well, it’s still limited in a few frustrating respects. Programs like the Chooser must browse for a specific type of service, such as LaserWriter or StyleWriter. There is no way to browse for all services of a broader type like “printer” or “file server.” That, by the way, is why you have to pick the printer driver in the Chooser before you see a list of printers: if you don’t first select the LaserWriter driver, the Chooser has no way to know what service to search for. It’s also why you have to pick “AppleShare” (or another third-party Chooser module, like DAVE or Novell NetWare) before you see any file servers: the Chooser can’t browse for “file server” and get back a list of all kinds of file servers in a given zone. Obviously, that ability would be pretty darned nice. What would be even nicer is doing it over an IP-based network, so any IP-capable device could publish its services and make them as easy to find as AppleTalk printers, but without the slower, complicated, and less-standard AppleTalk network stack. For a link-local network like Rendezvous’ “.local” domain, you might suspect that Multicast DNS is the solution: a way for individual network nodes to broadcast information that all other nodes can see. You’re right – to a point.

Multicast DNS is a good start, but it’s not the complete answer to self-configuring service discovery (a buzzword-filled phrase that hopefully makes sense by now). For starters, nodes on an IP network have no inherent service type, unlike NBP nodes on an AppleTalk network. There are ways to associate extra data with a name – for example, through TXT records associated with a given fully-qualified domain name – but they require

that a caller first know the domain name in question. In other words, a TXT record associated with <colortrip.yourcompany.com> could easily describe that node as a PostScript printer with capabilities such as LPR and IPP (the Internet Printing Protocol), but no browser would ever see it without first knowing to look for records associated with <colortrip.yourcompany.com>.

Browsing needs the reverse of that service: finding names based on service type, not finding services once you already know the names. DNS was designed to return IP addresses for specific fully-qualified domain names (or FQDNs, as the geeks call them), answering queries quickly and efficiently. It wasn’t supposed to be a database for all kinds of information about a node, just a mapping between names and IP addresses necessary for domain names to work at all. The protocols and data structures simply weren’t designed for complex queries – DNS works best when you ask for a FQDN and get back a specific result, like an IP address, though other results are possible as we’ll see shortly.

A DNS request usually asks for information about one FQDN but it can include several FQDNs, just as the answer section can return multiple IP addresses or FQDNs in return. We already explored how round-robin DNS can return several IP addresses for a single domain name like <www.apple.com>, allowing your Web browser to pick any of several identical servers to distribute the load. DNS clients can also request answers for multiple domain names, but all of the “questions” should be for the same thing. For example, if you’re Netscape and have 27 separate but identical FTP servers, a DNS client could request the IP addresses for <ftp.netscape.com>, <ftp1.netscape.com>, <ftp2.netscape.com>, and so on. The answers may all be intermingled, but since the servers are supposed to be identical, that doesn’t matter. Clients that want the IP address of <ftp15.netscape.com> can ask for that specific domain instead of asking for a list that includes 26 other possibilities. But no matter how you slice it, you have to have a name or an IP address to get something useful out of DNS – you can’t start with auxiliary information like a type of service such as “printer” or “Web server.” You may be thinking, “No problem! We’ll just name all the printers with some specific domain name, like <colortrip.printer.mycompany.com>, and then DNS can tell us all about all the printers it knows about.” That would be nice – it just doesn’t work that way. Unlike AppleTalk’s Name Binding Protocol, DNS lookups do not allow wildcards. You can’t search for everything in the “.local” domain, you can’t search for all nodes that have “printer” in the name, you can’t even get a list of all nodes.

So, once again, the problem is defined. If Rendezvous wants to use Multicast DNS to discover services, it has to find a way to let clients search for names that include



service types (like "printer"), all while accepting that DNS wants to map specific domain names to specific results. No wildcards or generic searches allowed. Requiring every printer to register as "<printer.local>" doesn't solve anything, since DNS would return an unordered list of every printer's IP address. You couldn't tell one from another, and it certainly wouldn't allow Chooser-style browsing. Clearly, some clever DNS extensions are called for.

### Piling on DNS

Whenever a technology both works well and is widely adopted, programmers try to add new technology on top of it. You've already seen that happening in Rendezvous. IP assignment is built on top of the Windows 98 method because it's widely used and it works. Multicast DNS is a broadcast version of the same DNS technology that's buttressed the Internet for decades.

DNS itself has evolved over the years. While the core function of a DNS server (that's technically a "domain name service server," so you see why most people use the acronym) has always been to return an IP address for a fully-qualified domain name, there are many other options as well. A DNS server is essentially a simple database that contains many kinds of records. The main function of mapping a name to an address returns an "A" (for address) record, but DNS servers implement lots of other records as well. A "CNAME" record says that the FQDN you asked about is really an alias for a different fully-qualified domain name, such as "<apple.com>" and "<www.apple.com>" being the same machine. Mail clients first ask for "MX" records, because if such a record exists, it returns the domain name of a machine that should be used for mail for the target domain. For example, if you ask for the "MX" records for <microsoft.com>, you get back three answers: <maila.microsoft.com>, <mailb.microsoft.com>, and <mailc.microsoft.com>, each with equal priorities. That tells a mail client to connect to one of those three machines if it wants to send mail to a <microsoft.com> address. This isn't always trivial to implement: some RFCs say that the names in MX records should never be aliases (that is, FQDNs that resolve to CNAME records), but the popular sendmail program may need extra configuration if your MX record does not point to a CNAME record. Fun, no?

There are lots of other DNS records. The best source is the O'Reilly & Associates book *DNS and Bind*, 4th Edition, but Microsoft also has an excellent online introduction. If you browse through all of the available kinds of DNS records, though, you'll notice something special about the MX records: they're the only records used to locate the name of a specific kind of <service>. That's not too surprising: before you could do anything else useful on the Internet, you could send e-mail, and the early sites

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"AppleTalk's Name Binding Protocol (NBP) performs lots of magic on behalf of users who don't even know it's there. By registering each service in a standard 'Service:Name@Zone' and allowing simple wildcards in searching, AppleTalk clients can easily find all nodes supporting a given service in a specified zone and report a list of those names to you."

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quickly figured out that offloading mail to a separate machine – and identifying it while mail clients were looking for the right IP address – was a good thing indeed.

By the time other services had been established, and the Internet expanded into the be-all of technology it is today, it was too late to add special exchanger records for other services. Sure, someone could theoretically add a "WX" record for a Web exchanger, telling you where to find the Web site for a given domain, but not a single browser or Web server out there would know how to use it. All Web clients simply try to connect to the domain name you specify on port 80 using http. Since MX records were defined early in the Internet's life, though, all mail clients know how to use them.

It would be nice if every service had its own kind of exchanger record in DNS servers, but that would make DNS itself a moving target. No, what someone should have done years ago is define one kind of DNS record that can locate any kind of service – mail, Web servers, FTP servers, telnet responders, whatever you want. And, as it turned out, someone did. It's called the Service, or SRV, record.

### To SRV with love

So how would you build a way to find a service on top of DNS? Remember the DNS nature: you get information back for a domain <name>. You can't get information for a class of domain names, just for one. That already tells you one important design restriction: the service you seek must be part of a domain name, since all you can inquire about is a domain name.



Now you have to figure out what to name each service. Is a Web server named "www", or "http", or "web", or something completely different? What about mail—should it be "pop" or "imap" if a server supports both? What about just "mail"? Registering all these services could be a full-time job, so the folks who invented the SRV record decided to build on the existing registry maintained by the Internet Assigned Numbers Authority. Since IANA maintains a list of port numbers and the tasks to which they are assigned, the DNS extenders decided to use that same list for the name of services. In case of duplicates, the first one rules, so Web services are named "http" under this scheme. There are all kinds of other names, including (ironically) "srvloc" for SLP, the Service Location Protocol that Rendezvous can't use because it requires full URLs.

Just including these names isn't necessarily enough: there are lots of existing domain names out there that have service names built in, including <ftp.apple.com> and <mail.gcsf.com>. While these nodes usually implement the services after which they're named, that's not suitable for service discovery. You want a way to find all of the FTP servers at <apple.com> (or, for Rendezvous, on your link-local network, ".local"), not just one named "<ftp.apple.com>". To get around this, the SRV designers decided to precede names with an underscore.

Before that, though, they also decided to include the communication protocol in the domain name. Typically, the protocol is either TCP or UDP, the two primary ways of communicating over IP-based networks, and usually it's TCP. However, since one can't substitute for the other, and since it's historically difficult to add this information to an existing standard after the fact, it's built in.

Now you're set. To find a service of a given type at a specific domain name, you search for a domain name that starts with the service (preceded with an underscore), followed by the protocol (also preceded by an underscore), and then the domain name. To search for a normal TCP-based Web server in your link-local domain, a DNS client would ask for a SRV record corresponding to the precise name "\_http.\_tcp.local." Similarly, a printer at the domain "yourcompany.com" would probably be "\_ipp.\_tcp.yourcompany.com." Since SRV records require searching for IANA-based names, finding a printer often means looking for "IPP", the Internet Printing Protocol, and not the more generic word "printer." There is also a service type of "printer", but it's a print spooler, using TCP and UDP port numbers 515. Since all printing in Mac OS X is background printing, that means it's spooled, so this may be a distinction without a difference, and most Rendezvous documentation uses "printer" as an example service.

There's more to the SRV record than this: each record also includes a "priority" field, just like for mail exchang-

ers, such that the client should pick the service with the lowest priority. In case multiple services have the same priority, a "weight" field prefers services with the highest weight, although clients may balance loads in other ways. Each record also returns the port number it uses, so if a client asks for "\_printer.\_tcp.local.", it will get back a record specifying TCP port number 515 and know how to contact the service. (How does it know it doesn't use UDP? Because the service domain name contained "\_tcp", you see?)

This isn't something Apple pulled out of its hat for Rendezvous, either: it's a genuine IETF RFC that's been around in other forms since at least 1996. You can read more about it and how it works from the IETF, but note once again that Rendezvous builds upon existing Internet standards where possible, including in service discovery. Even though Rendezvous can't use SLP due to its result formats, Apple didn't freelance and come up with something completely new. Any companies that support SRV records also have a head start on supporting all of Rendezvous, and that helps the vendors, Apple, and the customers.

From service to specific There's just one piece of the puzzle left: finding a specific instance of a service on the network. If you have a shared printer (a spooler) that you've named "InkJetWay", Rendezvous gives it the fully-qualified domain name "InkJetWay.\_printer.\_tcp.local." That's exactly as it should be. The top-level name "InkJetWay" is the one you're supposed to see in a services browser (like the Chooser), so it can be any human-readable text up to 63 characters long encoded in Unicode's eight-bit character set (UTF-8). But it's got the same problem: if you don't know the printer's name is "InkJetWay," how do you know to search for "InkJetWay.\_printer.\_tcp.local."? Remember, there are no wildcard searches, so you can't ask for all devices of type "\_printer.\_tcp.local."

The solution goes back to an existing DNS concept, the PTR record. These records are most commonly used for reverse DNS lookup: that is, mapping an IP address to a fully-qualified domain name. Reverse mapping turns the IP address around and pretends it's in the domain "<in-addr.arpa>." to route the request more efficiently: that way, everything in the class A address space 12/8 (assigned to AT&T) is mapped to the high-level domain "<12.in-> <addr.arpa>." Similarly, everything in the class B address space 129.15/16 assigned to the University of Oklahoma is mapped to "<15.129.in-addr.arpa>." Since domain names are hierarchical from right to left, but IP addresses are hierarchical from left to right, the switch makes sure every reverse lookup for an AT&T address is quickly routed to AT&T's servers, just as any request for an IP address starting with "12" is quickly routed to that network segment. Some sources say PTR records are only useful for reverse lookups, but more generally speaking,



a PTR record points to a fully-qualified domain name. It's different from a CNAME record. That's short for canonical name. A CNAME record defines the "real" fully-qualified domain name for an input name that might be more familiar. Want proof? Use a tool like IPNetMonitor to look up the CNAME entries for "<www.apple.com>," but be prepared for a surprise: <www.apple.com> is really a CNAME input for the true domain name <www.apple.com.akadns.net>. (Akamai, a global networking company that specializes in fast, balanced, high-bandwidth access, and in which Apple Computer was an early investor, actually hosts Apple's Web site, hence the "akadns" domain name.) Try either domain name in your browser and you get the same results at the same speed. Note, however, that the CNAME is resolved invisibly: your browser never changes "<www.apple.com>" into "<www.apple.com.akadns.net>" even if that's where the site lives.

A PTR record instead points to something different but related to the input, kind of like a DNS-based function. It can support a transformation other than reverse DNS lookup, and in Rendezvous, that's exactly what happens. Every service on Rendezvous must publish not only its specific user-friendly name in a SRV record, it must also publish a PTR record that points from the generic service to the specific one. In our previous example, printer sharing would publish two DNS records: a SRV record that resolves "<InkJetWay.\_printer.\_tcp.local>" to the machine's IP address, and publish a PTR record that maps "<\_printer.\_tcp.local>" to "InkJetWay.\_printer.\_tcp.local."

### Typing up loose ends

Unlike A or CNAME records that define exclusive names or addresses for an input fully-qualified domain name, there can be any number of PTR records for the same domain name. When a Rendezvous-savvy program wants to let you browse for a specific kind of service, it issues a Multicast DNS query for the service and protocol it wants, like "\_ipp.\_tcp.local". As explained in another segment of this paper, the program instantly gets back answers from every currently connected Rendezvous-capable printer, but it reissues the request after one second, then after two seconds, then after four, then after eight, and so on. Each time, it includes the valid responses it already has so those printers won't resend and clog up the link. Any new IPP-capable printer that comes online similarly announces itself with a "gratuitous" Multicast DNS response containing its information in the "answer" section, so any open query instantly sees the answer and adds the new printer to its list.

If a particular node needs to publish more information than this scheme allows, Rendezvous says it should publish a DNS TXT record with no more than "100 to 200 bytes" of extra textual information. Apple's given

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"Whenever a technology both works well and is widely adopted, programmers try to add new technology on top of it. You've already seen that happening in Rendezvous. IP assignment is built on top of the Windows 98 method because it's widely used and it works. Multicast DNS is a broadcast version of the same DNS technology that's buttressed the Internet for decades."

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example is that an LPR-capable printer could use such records to publish the names of print queues, since the LPR protocol requires using a specific print queue on a printer. It's also useful for chatting in Rendezvous, since the TXT record can contain your current status (such as "available" or an away message). If the service requires publishing more than about 200 bytes, though, Apple says clients should connect directly to the service and ask for it to avoid overburdening Multicast DNS.

This same system works just as well with real DNS servers, with one small catch: clients don't have any way to add information to a DNS server. Only the server administrator can add new records, be they SRV, PTR, TXT, or any other kind. There's been a proposal floating around for over five years that would allow dynamic DNS server updates, but it hasn't really caught on; a newer proposal discusses secure dynamic DNS updates, but that isn't very widespread, either. Apple says that a future version of Rendezvous may support dynamic DNS so all of these features can work across routers, not just on your link-local network, but it's not there yet. You may have noticed that sometimes domain names end in a dot, and sometimes they do not. Every fully-qualified domain name ends in a dot, just like every full Mac OS X pathname starts with a "/". If you specify a domain name like "algae" in your browser, the operating system first adds a dot to it and looks for "algae.", and that typically won't work as there is no top-level domain named "algae." It then starts looking for that domain attached to your "search domains" as specified in the Network preferences pane of System Preferences.



If your search domains were "apple.com" and "earthlink.net", the OS would first try "algae.", then "algae.apple.com.", and then "algae.earthlink.net." (Most Web browsers then go further if that fails, trying "www.algae.com." in case that's what you meant.) We mention that because Apple explicitly did not include ".local" in Mac OS X 10.2's search path, even though Rendezvous uses it exclusively for link-local networking. If you would rather type "algae" than "<algae.local>" to talk on your link-local network, you're free to add ".local" to your search domains and get that benefit. However, if Apple had done that for you, or built it into the OS, then it could have interfered with networking in shops that do have their own DNS servers. If you have "algae.mycompany.com" configured in a local DNS server and are used to connecting to "algae", automatically interpreting that first as "algae.local" would disrupt your networking, or AppleScripts, or server backups—wherever you were referencing "algae". That's why the choice is yours.

### The full Rendezvous sequence

Now that we've put all the pieces together, we can see how a demonstration like the one at Macworld Expo might work. At the show, Phil Schiller walked on stage with a PowerBook G4 computer running an "experimental" version of iTunes that published music libraries over Rendezvous. As soon as Schiller opened the PowerBook, awaking it from sleep, its music library showed up on Steve Jobs's demonstration machine on the other side of the stage. Jobs then started playing the music, streaming it over the wireless AirPort link. When Schiller closed the PowerBook, putting it to sleep again, the stream stopped and the library disappeared from the Power Macintosh. In walking through how that might happen, we'll assume that the service name is "music", even though there is no IANA service by that name at this time. We'll also arbitrarily give it a port number of 4, even though that port is unassigned and likely to stay that way.

When Schiller boots the PowerBook, it looks for an IP address. If it was configured with a manual address, it would try that, otherwise it would look for a DHCP or other kind of configuration server. If it was on a real IP network, that configuration is completed instantly. If not, Rendezvous assigns a new link-local IP address by picking one randomly from the 169.254/16 address space. We'll say that the PowerBook tried for 169.254.11.18. It broadcasts that address on the link-local network, waiting for anyone else using that IP address to respond. Getting no response, it keeps that address for itself. The Power Macintosh G4 at Jobs's station would have undergone a similar process, and we'll say it gets 169.254.08.23. Both machines get local names based on their Rendezvous names in System Preferences. We'll assume the

PowerBook is named "phil" and the Power Macintosh is named "steve", largely because they're easy to type. Each machine uses Multicast DNS to look for its own name, "<phil.local>" or "<steve.local>". If any machine responds, then one of our demo machines knows that its name is already in use, and it prompts you to pick a new Rendezvous name.

When Schiller launched iTunes on the PowerBook, or enabled the music sharing service, iTunes would have picked up the name of the playlist, something like "Phil's Tunes". It would then have used Multicast DNS to broadcast a SRV record (as a "gratuitous reply") announcing "Phil's Tunes. <\_music.\_tcp.local>", pointing to the machine "<phil.local>" and pointing to TCP port number 4. It also registers a PTR record of type "<\_music.\_tcp.local>" that points to "Phil's <tunes.\_music.\_tcp.local>". Naturally, the PowerBook can't respond to any requests for these services while it's asleep so when it wakes up, iTunes re-registers the same PTR and SRV records to notify the network that the services are once again available. At this point, the PowerBook is just waiting for someone to use its services. That's where Jobs's demo machine, the Power Macintosh G4 named "steve.local", comes into the story. When Jobs launches the "experimental" iTunes on his machine, it puts out a Multicast DNS query for PTR records for the name "\_music.\_tcp.local", the service and protocol name for its music-sharing capability. It gets back most answers instantly, but it reissues the queries according to Multicast DNS rules to catch any new iTunes services that come online. It also watches for any "gratuitous" Multicast DNS answers announcing a new music service. (In reality, iTunes most likely calls on Mac OS X 10.2 APIs in either Cocoa or Core Foundation to do this work for it, but the work still gets done.)

In our example, only one machine on the network responds to the Multicast DNS query: Phil's PowerBook. It returns the PTR record that points to "Phil's Tunes.\_music.\_tcp.local." Jobs's machine then broadcasts a Multicast DNS query for that result, and gets back a SRV record mapping "Phil's Tunes.\_music.\_tcp.local" to "phil.local" running on TCP port number 4. A final Multicast DNS query for the address of "phil.local", and the PowerBook answers with its IP address, 169.254.11.18. That's everything the programs need. Jobs's computer then opens a TCP connection on port 4 to 169.254.11.18 and starts talking to the PowerBook's music service, streaming the music and having a good old time with the tunes. When Schiller closes the PowerBook, putting it to sleep, the TCP connection closes. The Power Macintosh G4 then looks to Multicast DNS again to verify that the PowerBook is still there. Finding that it's not, it removes "Phil's Tunes" from the list of shared playlists, and that's that.



### A shared Rendezvous

The example shows how successful Rendezvous is – assigning node numbers and names, publishing names and services, and even browsing for services, all requiring little more than a standard IP stack with Multicast DNS extensions. AppleTalk used much smaller packets, broadcast them much more often, and implemented about nine layers of protocol from top to bottom. Rendezvous uses standard TCP, UDP, and Multicast DNS. There is another part to ZeroConf – acquiring a multicast IP address without a server to administer the multicast address space – but it doesn't seem to be part of Rendezvous in Mac OS X 10.2 and you're unlikely to miss it, at least for now.

Because Rendezvous is based on well-known standards, it's likely to catch on among vendors of network devices. It's open, easy to understand, and what the engineers call ROMmable (meaning it can run from read-only-memory on stand-alone devices). There's no reason network manufacturers would avoid it, especially if they want their products to work easily on Mac OS X networks. Just last week, Apple announced Rendezvous support from Philips, Canon, Xerox, Sybase, and World Book (no, World Book doesn't make devices, but the next version of the company's Mac OS X encyclopedia will use Rendezvous to let people share research and bookmarks, helping classroom collaboration).

Although iChat is not the world's best AOL Instant Messenger client, it starts to shine when you use its Rendezvous capability. If you configure iChat to go online even without launching the application, then you're instantly available to everyone on your link-local network as soon as you log in (technically, as soon as iChatAgent runs). If you get a message, iChatAgent launches iChat for <you.Mac> OS X 10.2's Mail application tells you if you're about to send E-mail to someone available in iChat, and while you probably want to send E-mail to someone far away, a quick chat to someone down the hall is often more appropriate. You don't even need simple file sharing drop boxes to send files around – drag the file onto an iChat buddy and it's sent over the link-local network at the fastest speed possible. Eliminating e-mail and file sharing means no store-and-forward problems – no e-mail or file to delete once you've copied it to your hard drive. Given the proliferation of copied bits these days, that's pretty cool to us.

Rendezvous is a true networking success story: it supercedes an easy-to-use but hard-to-implement set of proprietary protocols with ones that are easier, faster, more standard, open, and just as easy for customers to use as the AppleTalk it hopes to replace. The media seemed somewhat surprised when Apple announced it would reveal its Rendezvous code as part of the upcoming Darwin 6.0 release (to bring the open-source components in line with Mac OS X 10.2), but it's no surprise at

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“When Schiller boots the PowerBook, it looks for an IP address. If it was configured with a manual address, it would try that, otherwise it would look for a DHCP or other kind of configuration server. If it was on a real IP network, that configuration is completed instantly. If not, Rendezvous assigns a new link-local IP address by picking one randomly from the 169.254/16 address space.”

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all: Rendezvous is simple and non-proprietary. A good network programming engineer could implement it in less than a month. Apple releasing a BSD-compatible version as open source will only help the Rendezvous message spread. There's no reason it shouldn't, either.

Rendezvous and ZeroConf finally make TCP-based networking as easy to use as AppleTalk, but better – and it's available and working today in Mac OS X 10.2. Some of the “features” in Mac OS X 10.2 are just bug fixes or the return of Mac OS 9 features that Apple had left behind, but not Rendezvous. It's a true advance, and Apple deserves praise for it. These standards have been floating around for a while, but Apple sponsored the ZeroConf effort necessary to bring them together, implemented them in a major operating system, and pushed other companies to use them as well. Rendezvous simplifies IP networking for everyone – likely even for Windows users in some future release – and Apple made it happen. ■

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# Printing Digital Photos, Part 1

by Alex Hoffman <ahoffman@mac.com>

I RECENTLY bought a new Nikon Coolpix 775 digital camera for my wife. We were about to get married and I thought we'd enjoy taking lots of pictures of the wedding weekend and the honeymoon week. I was right: we took more than 1,000 pictures over nine days.

<<http://www.nikonusa.com/coolpix775/>>

Although I'm most interested in putting together a CD showing off most of our pictures (hundreds, I tell you) for our guests and friends, my wife prefers old-fashioned photo albums and wants to print some of the pictures.

This situation prompted the question of the best way to print digital photos. While we might want to print only 50 to 100 pictures now, eventually we'll have many more. Should we buy a photo printer, or should we send them out to be printed by a photo service? If the latter, which one? Since these aren't just everyday snapshots, I decided to investigate both options.

## Buying a Printer

Although I had no doubts about the quality of prints coming from digital photo labs, I wasn't so sure about the photo quality of any printer we could afford. I've used inkjet printers for years, and have never been truly happy with the quality of their photo output.

However, I've never owned a "photo printer," a printer whose quality is supposed to be good enough to approximate a photographic print. I've also never used real photo paper, which is specially coated to make such high resolution printing possible. Unfortunately, this paper is expensive: around \$0.30 for a 4" x 6" piece, and \$0.50 for an 8.5" x 11" piece. I also know that while inkjet printers are relatively cheap, ink cartridges are expensive and printing photos uses

an enormous amount of ink per page (text covers about 5 percent of a piece of paper, but photos typically cover 90 to 100 percent of the page).

Expensive ink cartridges, plus the cost of photo paper, made me rule out buying a photo printer. I didn't see any monetary savings, and I am still distrustful of the quality. This doesn't mean you can't get good results, especially if you plan to print relatively few pictures. But since we already own a black-and-white laser printer, we didn't see a compelling reason to add a photo printer.

## Digital Photography Labs

In the past, I've read about different digital photo labs, but I never paid full attention. I understood a few of their major issues and that their services cost a lot more than normal film developing. But one of the major benefits of digital photography, in my mind, is that you print only a small percentage of your pictures, which leads to overall savings. So I decided to try some of the photo labs listed in Yahoo, the most popular of which were Shutterfly, Club Photo, ImageStation, Ofoto (owned by Kodak), dotPhoto, Snapfish (owned by District Photo), PhotoAccess, eFrames, and searsphotos.com.

<[http://dir.yahoo.com/Business\\_and\\_Economy/Shopping\\_and\\_Services/Photography/Digital/Labs/](http://dir.yahoo.com/Business_and_Economy/Shopping_and_Services/Photography/Digital/Labs/)>

I added Walmart to the list, since it has such a huge retail presence, and I also added Apple's iPhoto-based service, which uses Kodak's Ofoto for prints. After a quick run through their sites, I developed some criteria for comparing the services: cost, ease of uploading, quality of the Web site, and range of products offered. I naively assumed that quality would not be an issue, thinking at the time that their output would be highly similar.

<<http://www.shutterfly.com/>>  
<<http://www.clubphoto.com/>>  
<<http://www.imagestation.com/>>  
<<http://www.ofoto.com/>>  
<<http://www.dotphoto.com/>>  
<<http://www.snapfish.com/>>  
<<http://www.photoaccess.com/>>  
<<http://www.eframes.com/>>  
<<http://www.searsphotos.com/>>  
<<http://www.walmartphotocenter.com/>>



<<http://www.apple.com/iphoto/>>

I should have known better. First, working in information technology (including supporting ad agencies) drilled into me a long time ago that color correction is a huge issue. Second, I know that traditional photo labs aren't identical (a roll of film that comes out poorly is not necessarily your fault). I knew better, but my optimism about the possibilities of digital imaging blinded me at first. I quickly learned.

### Cost

All of these services offer the same basic print sizes, 4" x 6", 5" x 7", and 8" x 10". Some offer wallet and larger sizes as well, but for price comparisons, I stuck to the three basic sizes. For the most part, the prices are roughly the same as well (most also offer 3" x 5" prints at the 4" x 6" price.)

#### Size Cost

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4" x 6" \$0.49

5" x 7" \$0.99

8" x 10" \$3.99

However, there were few standouts on price.

On the negative side, searsphotos.com charges three times as much for 4" x 6" prints if you want to do even the simplest of image manipulation (including cropping and red-eye correction). Snapfish charges 20 percent more than the others (\$0.59), and both are clearly set up for film developing. Although I did send a few samples to Snapfish to be developed, both companies failed the price test and were eliminated from competition. The searsphotos.com price was so out of line that I didn't even include them in the quality test. (The searsphotos.com service also limits files to 500K, clearly hurting their print quality, while Snapfish's ordering Web pages are horrendous.)

On the positive side were PhotoAccess (\$0.45, \$1.09, and \$2.95), Walmart (\$0.26, \$0.96, \$2.98) and dotPhoto (\$0.29, \$0.95, and \$2.95). Though Walmart also offers packages (one 8" x 10", two 5" x 7" prints, and 16 wallet-sized prints for \$9, for example), dotPhoto beats everyone on price and pricing options, offering subscription and bulk pricing. For \$5 per month, you can order up to 26 4" x 6" prints (\$0.19 per print), or you can pay \$10 per month for 60 prints.

Both plans offer lower prices on other sizes as well. Amazingly, any prints you do not use in a given month do carry over to the next month. The only downside is that dotPhoto requires one year subscriptions. dotPhoto also allows you to purchase prints in bulk, where you pay up front for many photos, and have two years to use up your credit (\$70 for 400 4" x 6" prints, \$35 for 50 5" x 7" prints, and \$50 for 25 8" x 10" prints). If price is your main criterion, no one comes close to dotPhoto.

Shipping costs vary by the size of your order and your chosen transit method. There wasn't much variation here, other than from Club Photo, which offers free standard shipping using the U.S. Postal Service. Walmart offers the option of picking up prints at a Walmart store free of shipping charges, but takes an extraordinarily long time to make them available if you do. Apple seems to be at the high end here, but not by enough to eliminate them from the running.

### Ease of Uploading

The most obnoxious part of using online digital photo labs is uploading multiple photos at once. Every site allows you to select files to upload manually, but this process involves clicking a Browse button and locating the files on your hard disk. The process gets old fast when repeated more than a few times.

Fortunately, most of these services offer alternatives. For some, a standalone application can send multiple image files. Others use a plug-in for the Windows version of Internet Explorer. Requiring easy uploading from a Mac knocked a few of the services out of the running including eFrames, Walmart, dotPhoto, and ImageStation.

The remaining services—Apple, Club Photo, Ofoto, PhotoAccess, and Shutterfly—each have a Macintosh application onto which you can drag the photos you want to upload. Apple is the only service to offer a Mac OS X-native application, but because iPhoto runs only under the new operating system, Mac OS 8 or 9 users are out of luck. Of the others, only PhotoAccess even mentions that they're working on a Mac OS X version. All four of the other companies' applications do run under Classic.



### Web Site Evaluation

Each of these sites relies on the picture album metaphor for organizing pictures. You can name photos and add new ones as often as you wish. ClubPhoto charges customers more to keep their photos accessible online, with two packages (\$25 and \$35 per year) that also include discounts on all orders. Regardless, charging to keep photos from disappearing after just 30 or 90 days seems out of line.

A great thing about digital photography is that you can edit and crop your photos before you print them. Any digital photo lab for consumers must make this process practical, especially for users who lack image editing software. The remaining contenders differentiated themselves in this round.

PhotoAccess offered the most minimal editing capabilities. Its upload application can rotate pictures, but the Web site offers no further editing possibilities, most notably no red-eye reduction. ClubPhoto also lacks red-eye correction, although its Web site can brighten or darken each picture.

Ofoto's image uploading program can fix red-eye and crop images. Their Web site offers further capabilities such as adding borders to your pictures; however, this becomes Ofoto's most distressing feature, because the border covers most the image, rather than resizing the image to fit within the border. Ofoto can also print the images in black and white, sepia tones, or sepia-like tones (in red, green, or blue). Last, it can "fix lighting," which lightens dark images and darkens washed-out images.

Shutterfly's Web site offers the most options, though its software does nothing but upload photos. At Shutterfly, you can add borders to images (which are automatically resized), fix red-eye, switch to black-and-white, change the color saturation, soften or sharpen the focus, or change the color tone. Shutterfly's site is also the easiest to navigate, especially when looking at albums with many photos in them.

Apple uses a completely different model, with iPhoto handling all the organization and editing of your photos. Its editing capabilities are limited to rotating images, performing red-eye reduction, cropping (with a nifty aspect ratio tool), and conversion to black-and-white, although all Macs now ship with Caffeine Software's free PixelNhanche, which extends

iPhoto's editing capabilities nicely. There are no tone controls (for sepia-like prints) or any of the other effects offered by the others. Although iPhoto is far easier to use than any of the Web sites, it doesn't offer as many features, and nothing at the level of Adobe PhotoDeluxe. That said, I expect that future versions will address most of my concerns in short order.

<http://www.adobe.com/products/photodeluxe/>

[http://www.caffeinesoft.com/products/pnh/pnh\\_index.html](http://www.caffeinesoft.com/products/pnh/pnh_index.html)

Finally, although I didn't test this feature, each Web site lets you share your photos so that other people can order their own copies of your prints. Apple's solution here is that iPhoto makes it extremely easy to turn photos into a Web-based photo album at homepage.mac.com, but the free space Apple provides limits the number of high resolution photos you can share. Services which remove photos after a short amount of time limit the usefulness of their sharing functionality.

### Range of Products

Most of these services don't stop at printing photos. A few also sell digital camera and digital video equipment, though not at competitive prices. Mousepads, customized greeting cards, and mugs are the rule, and most offer picture frames as well.

Shutterfly offers only the basic items that they all share. Ofoto adds a huge range of frames and photo albums, along with Archive CDs priced starting at \$10, based on the number of photos). Club Photo offers \$8 Album CDs, which contain up to 60 photos, and Archive CDs (also starting at \$10, based on the number of images), which contain all of your photos. Other products from ClubPhoto include frames, food (really!), checks, stamps, Post-It note pads, puzzles, posters, stuffed animals, aprons, t-shirts, jewelry, and even a night light. PhotoAccess extends the basics with t-shirts, sweatshirts, hats, puzzles, aprons, playing cards, canisters, tote bags, slides, and even customized wrapping paper. Most interestingly to me, PhotoAccess is the only service to offer "digital prints" whose proportions match that of most monitors, televisions and cameras.

Only Apple's service offers an impressive hard



cover book (measuring 11.5 by 9 inches). The linen cover comes in your choice of black, burgundy, light gray, or navy, and you can choose six formats when designing your book and laying out the photos. Unfortunately, the price is high (\$3 per page with a 10 page minimum and a 50 page maximum) and the paper/print quality isn't amazing (something like magazine quality). That cost quickly adds up, especially for larger books, even though you can have multiple photos per page. Although others haven't experienced the same problems, I had troubles - particularly when rearranging pages in book mode - building books larger than about 12 pages. Rearranging photos in organize mode and designing the book left-to-right worked better.

iPhoto is actually a front end to a Web service called myPublisher. Although ordering directly from myPublisher offers a few more options, including leather covers and dust jackets, iPhoto makes the process of building and ordering a book vastly easier. For all the trouble I had with iPhoto, I can't imagine trying to use myPublisher's Web site for a real project, which requires uploading photos individually from a browser.

<<http://www.mypublisher.com/>>

Shutterfly also offers a book to its customers, albeit a very different one. The Snapbook is a spiral-bound book with a translucent plastic cover containing up to 40 pages, available in a 4" x 6" or 5" x 7" size (priced at a maximum of \$25 or \$30, respectively, depending on the number of photos, up to 40). You can choose from a handful of designs, but unlike Apple's books, they offer only one picture per page. Although I like Shutterfly's Web site, I had a few problems putting my book together. Still, the Snapbook's price is compelling, especially given that the largest Snapbook costs less than buying the pages individually, and is the same price as a 10-page book from Apple.

<<http://www.shutterfly.com/snapbooks/>>

After examining all of the companies' Web sites and ordering prints from each, I couldn't name a clear winner. Different services had different strengths, whether price, variety of products, site design, or ease of use. However, as soon as I received my first set of prints, I realized that there was a lot that I hadn't considered properly. In the next installment of this article, I'll detail my mistakes and the surprising final result. ■

*[Alexander Mishra Hoffman is an IT Manager in New York City, a Red Sox and Pats fan, and a newlywed.]*

From *TidBITS* #616/11-Feb-02

## Printing Digital Photos, Part 2

by Alex Hoffman  
<[ahoffman@mac.com](mailto:ahoffman@mac.com)>

**A**FTER BUYING a new digital camera and going on my honeymoon, I have more than 1,000 pictures, about 100 of which my wife wants to put in photo albums. Therefore, I decided to investigate which online digital photo lab was the best. In part one of this article, I evaluated 11 different services in terms of cost, ease of use, and range of products. When I began this project, I thought I could look at the companies' Web sites, order some samples, and see which services were better than others. That was enough to eliminate a number of the services from the running, although I included almost all of them in the quality tests that came next.

<<http://db.tidbits.com/getbits.cgi?tbart=06717>>  
<<http://www.shutterfly.com/>>  
<<http://www.ofoto.com/>>  
<<http://www.dotphoto.com/>>  
<<http://www.photoaccess.com/>>  
<<http://www.apple.com/iphoto/>>

I initially thought the print quality from the different services would be roughly the same. Not only did that not prove to be true, examining the prints afterward revealed a few flaws that I could have corrected before sending off the files. Pay attention to the areas I failed to take into account, and you'll get better results.

### Cropping

My first mistake was to ignore the issue of cropping. Most digital photographs use an aspect ratio that matches computer monitors and televisions, featuring a 1.33:1 ratio between width and height. Standard photograph sizes, however, don't match that aspect



ratio, taking their cue instead from 35mm film, which uses a 1.5:1 ratio. Prints measuring 4" x 6" (1.5:1) and 5" x 7" (1.4:1) are wider and shorter than digital images; 8" x 10" (1.25:1) and 11" x 14" (1.27:1) are narrower and taller than their digital counterparts. Only PhotoAccess offers prints whose ratio matches that of most cameras and monitors and do not have to be cropped, but of course they may not fit properly in traditional photo albums and frames.

There are three solutions to this problem. The first is to resize the picture disproportionately, but that's unacceptable in almost all cases, as it would make people look as though they were reflected in fun-house mirrors. The second is to shrink the photo proportionately, which works fine, but means the image won't completely cover the paper. The picture ends up looking like a letterboxed movie, not using the very top and bottom of the print for narrow sizes, or putting white borders on the left and right for wider sizes. That's the safest option. Third and finally, you can crop the photo, which eliminates some of your image. That may be fine if you're doing the cropping yourself, but it can be disastrous if a service does it automatically and gets it wrong.

Naively, I assumed that the first photo service I used would be smart enough to compensate for the aspect ratio differences. But because the process is automated, the results weren't great. I should have manually cropped each photo. Most sites offer cropping tools, and I also had the option of cropping the photos before uploading them. If done on the services' Web sites or with their uploading software, as they recommend, cropping takes less than 30 seconds for each photo. Had I taken the time to do this, I would have been much happier with my initial prints.

Shutterfly and Apple stand out as having the most versatile cropping options. Customers get total control over what is printed. Other services feature less control, with Ofoto simply offering the option to print extra borders to fix the shape, or to crop the image automatically by keeping the center and cutting off the edges equally. Shutterfly's upload application and Apple's iPhoto let you crop your images to a specific aspect ratio to fit the different photo sizes perfectly. Once a photo is uploaded to Shutterfly, you can change the cropping even if you

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"My first mistake was to ignore the issue of cropping. Most digital photographs use an aspect ratio that matches computer monitors and televisions, featuring a 1.33:1 ratio between width and height. Standard photograph sizes, however, don't match that aspect ..."

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cropped earlier.

Cropping also affects how large you can have a photo printed. When you remove portions of a photo, you're reducing the image's overall number of pixels. If you crop too much of the image, there may not be enough information to make a picture look good at larger sizes. Cameras with more than two megapixels of resolution can produce decent-quality photographs at sizes up to 8" x 10", but if you crop too much, you may not be able to print at the size you want. Fortunately, all of the services I tested give some kind of warning about which images will print well at what sizes, though some are more obvious than others.

### Gamma

Digital color is tricky to do right. Different monitors display colors differently, as do different cameras, scanners, software applications, and operating systems. This happens because they all have slightly different assumptions about which combinations and intensities of red, green, and blue should be used to represent any given color for each pixel. One aspect of this situation is gamma correction, which controls the overall brightness of an image.

<http://www.bberger.net/gamma.html>  
<http://www.photo.net/photo/fixing-gamma.html>  
<http://www.cgsd.com/papers/gamma.html>

Macs are usually set to a gamma of 1.8, and PCs are set to a gamma of 2.2, which explains why an image created on the Mac will look darker and will



have more contrast when viewed in Windows, and images created in Windows may look washed out on the Mac. Since most computers run Windows, photo services seem to try to match their output to a 2.2 gamma setting to provide what most of their customers expect. Unfortunately, that meant almost all of my test prints came back looking darker than I expected, and pictures where the color was just right on my computer weren't as good in print.

Apple's ColorSync technology helps resolve the variations in colors that result when an image is reproduced using different devices, applications, materials, and printing processes (and is used by iPhoto when printing directly from your Mac), but it doesn't help with any of the photo services. I learned from the president of Ofoto that they often try to achieve a similar goal by examining a JPEG image's EXIF (Exchangeable Image File Format) information. Ironically, iPhoto strips out EXIF data whenever you modify an image, preventing Ofoto (which prints pictures for iPhoto) from using this technique when printing from iPhoto.

<<http://www.apple.com/colorsync/>>

This area is where Apple has the opportunity to stand out, and part of why Apple was wise to introduce its own photo printing service. Because Apple knows that all the photos it gets are coming from Macs, it alone has the potential to calibrate the output to match typical Macintosh monitors. Unfortunately, this isn't yet the case, although there is hope for the future: Ofoto's president seemed receptive to the idea of applying a common correction to all prints ordered through Apple. Right now, however, the only way to do this seems to be editing the images in a separate application such as Photoshop or GraphicConverter, which realistically is more than what most users want to deal with. And even using Caffeine Software's free (and utterly cool) PixelNance to edit every photo may be more trouble than most people want to take.

<<http://www.adobe.com/products/photoshop/>>  
<<http://www.graphicconverter.net/>>  
<[http://www.caffeinesoft.com/products/pnh/pnh\\_index.html](http://www.caffeinesoft.com/products/pnh/pnh_index.html)>

I've spoken with a few of the services, and none of them yet have an answer for this problem.

Shutterfly was also responsive to the issue, and is considering offering a setting for platform in the customer's profile. Unfortunately (a word that pops up a lot with this topic), they can't promise anything.

### The Most Important Test: Quality

I sent the same six files to every service so I could examine the results. It turns out that for any given picture, these different services sometimes deliver rather different results. And none of them quite match what I wanted to see, in part because of gamma issues and in part because the brightness of my PowerBook G4's beautiful screen simply cannot be duplicated on paper.

After I received the first (less than satisfying) set of prints from the services, my goal became to figure out which service delivered the best results. With all these prints, surely I would be able to compare the quality of the different services! To help, I enlisted my wife, my mom, and a few friends. I simply asked everyone to select the best version of each picture, and tallied the rankings using broad categories of good, medium, and bad.

Every service delivered prints which offered plenty of detail and were printed on glossy stock, just like the ones I've received from the drugstore all these years. The problem was always the color in the prints. In addition to being darker than what I expected, some came out a little more golden (making everyone look like Oscar statuettes), or a bit more brown (giving my palest friends a nice tan, and my Indian wife and in-laws a dark muddy complexion). One horrible set from dotPhoto (which lacks a Macintosh application for uploading, but which I've left in the competition because of its inexpensive pricing plans) made everyone green (or, to use iMac colors, a sage that's somewhere between seasick and Kermit the Frog). Still others looked washed out. In every set, details of my wife's black coat and our friend's tuxedo were lost due to color problems.

As surprising as I found this to be, there was a greater surprise in store. For the same picture, with the same digital file, prints from Ofoto, Apple, and ImageStation (all of which are actually printed by Ofoto) are often quite distinguishable from each other. It wasn't just Ofoto—I accidentally placed the same order twice at dotPhoto, and the two sets of



results couldn't have been more different. One was by far the worst set overall, while the other came close to being the best set. Why was this? Even though the original files are digital, most of the processes used by these services are chemical and analog (the same RA4 process used to develop and print conventional pictures). Plus, although at least Ofoto recalibrates its equipment multiple times each day, temperature and humidity variations lead to slight, but noticeable, differences.

In fact, the big problem was that print quality from all the services varied widely. Each service had its share of good, medium, and bad results. None of the batches clearly stood out as being the best. Having finished what felt like our one millionth examination of the results, my wife asked which service I planned to use for my next order. Based on the vast range of quality, I couldn't give her an answer. No service was definitively the best.

Overall, I am rather disturbed by these results. I truly wanted someone to offer the best pictures. I even wrote a draft of this article assuming that Apple's service through Ofoto would take care of the gamma issues, but the prints did not show that. The only results that matched the color I saw on screen were in the book I printed from iPhoto (which uses a laser printing process which does not bring out the detail that the photographic process shows off so well). I wanted Shutterfly, with its beautiful Web site, to be the best, but its results were no better than the others. I was also rooting for PhotoAccess because it offered prints in sizes comparable to the images' actual ratios, but it too failed to offer consistent quality.

### No One Is Picture-Perfect

No single service stood out. Apple's iPhoto makes ordering the easiest, but offers the fewest additional products. dotPhoto offers the best price, but is a pain to use and delivered the worst results. Ofoto prints the quickest. PhotoAccess offers 1.33:1 aspect ratios and the widest range of merchandise, but its output (like the others) ends up too dark. Shutterfly has the best Web site, great customer service, and has supported Macs the longest, but they suffer the same color problems as the other services.

Almost every service offers free prints when you

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"In fact, the big problem was that print quality from all the services varied widely. Each service had its share of good, medium, and bad results. None of the batches clearly stood out as being the best. Having finished what felt like our one millionth examination of the results, my wife asked which service I planned to use for my next order. Based on the vast range of quality, I couldn't give her an answer. No service was definitively the best."

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sign up, leaving you to pay only for shipping. That certainly makes it worth trying multiple services. Due to the ease of ordering prints through iPhoto, and because I think the Apple/Ofoto combination is most likely to adjust its output for Macintosh users, I plan to order most of my prints from Apple in the future. However, when I need a product that Apple does not offer (such as mousepads, mugs, or other extras), I won't hesitate to order from Shutterfly or PhotoAccess.

Despite the uneven results I experienced, I still think it's worthwhile to use an online service to print your best digital photos. The alternative, which I touched upon in part one of this article, is to print the photos yourself on an inkjet printer. I received a lot of feedback from TidBITS readers about this topic, pointing out the cost savings for large prints plus the capability to produce comparable results in image quality. With some help from a reader who has a lot of experience printing photos at home, I intend to explore printing at home in a future article. ■

*[Alexander Mishra Hoffman is an IT Manager in New York City, a Red Sox and Pats fan, and a newlywed.]*

From *TidBITS*#617/18-Feb-02



# Washington Apple Pi Classes for November & December

**W**ITH THE holidays upon us, the tutorial program is offering classes to help you get prepared. If you are planning for a new computer, this is not the time to take a class on OS X. To gain most benefit, you will want to have the computer available to practice on between classes. If you are an OS 9 user, it is not necessary to learn more about OS 9 before beginning to use OS X. Just wait until January and begin with an OS X class. However, we have a number of interesting classes for you learn more about using your computer.

If you are a music lover, take a class in iTunes. It is available for OS 9 and OS X. If you have a digital camera but you do not have OS X, think about taking Introduction to Adobe Photoshop Elements. Leave the iPhoto class until after you have OS X. iMovie works in both OS 9 and OS X, so a class involving it is appropriate.

If you are using OS X and have not taken any classes, consider taking the New User Series or Mastering OS X. Then you will get the most out of any other classes you take.

If you work and daytime classes are difficult, we have planned special Mastering OS X classes just for you. They will be day-long and will be offered on Election Day and Veterans Day. We will be planning similar classes for the winter and spring holidays also. We are also offering four days of classes with holiday gift-giving in mind. These classes are based around iMovie, iPhoto and iTunes with a digital photography and graphics thrown in. The classes will be held the first week of December and are called iMovie Slideshows, Holiday Edition; Making iPhoto Books, Holiday Edition; Make Holiday Cards and Gifts With Your Computer and Making Holiday Mix CDs.

To sign up for a class, call the office on Monday, Wednesday or Friday from 10 to 3 or send an e-mail to [tutorials@wap.org](mailto:tutorials@wap.org). We will need your name, address,

phone number, e-mail address and payment information.

## What Class Should You Take?

If you are totally new to computers and want a class that moves slowly, the Intro courses are made for you. At the end of the course, we hope you will be comfortable with writing a letter and printing it, with beginning to surf the Internet, and with sending simple e-mails. You will have learned how to save a document and how to find it again. You will know how to use the dock and how to find applications or programs that are on your computer. While you will be ready to move on to some of our less complex classes, you will need to take the Mastering OS X series before you will be ready to take many of our other classes.

If you have been using OS 9 and feel comfortable with it, or if you are coming from the Windows platform and have had a good command of it, the Mastering OS X course series will be a good place to start. By the end of the course, we hope you will be comfortable with cutting, copying, and pasting text, images and audio content within applications and between applications. You will know how to save documents to specific locations, how to find things you have saved, and how to navigate around your computer via the finder to import various file types. You will know how to use the Print Center and how to troubleshoot Print Center errors. You will also know how to deal with the file permissions and the trash, how to do basic troubleshooting, how to burn backups of your files. how it install applications and how to keep your computer up to date. Mastering OS X will replace the Brush Up Your Mac Skills course for the OS X user. If you are an OS 9 user and do not plan to upgrade to OS X, the Brush Up Your Mac Skills course has been replaced by Mastering OS 9. It also replaces The Digging Deeper class.

## What To Do if the Course You Want Is Not on the List?

We have dropped a number of course offerings because we have not had people sign up for the course in a long time. Other courses are in the planning stages. If you do not see what you want, please send an e-mail to [tutorials@wap.org](mailto:tutorials@wap.org) to tell us what you would like to see offered.

## Do I Have to be a Member to Take Classes?

While our classes are available to anyone, we offer reduced prices for members. In fact, it is always cheaper to sign up for a course or class series if you are a mem-





ber. If you are not a member when the class begins you will be charged the nonmember rate. Membership is defined as delivery of a check to Washington Apple Pi. It takes two to three weeks for membership cards to be processed, so sending or delivering a check will count as membership. The member price applies to current members. Expired members and others must pay the higher price. If are not a member, but would like to join, please use the form at <http://store.wap.org/signup.html>. The renewal form is at <http://store.wap.org/renew.html>. The cost of membership is \$49.00 per family per year. It includes a subscription to our bimonthly magazine, the Washington Apple Pi Journal and access to our Web bulletin board, the TCS.

### **Do I have to take all of the classes in the same series?**

Our classes at WAP never have more than six students. Each class begins with everyone introducing themselves and telling the instructor what they presently know and what they hope to learn. The class sessions are then tailored to meet the needs of the students in the class. This means that the class sessions may not cover exactly the same material in exactly the same session from course set to course set. Since we must have three students in any class in order for it to be offered, having students sign up for individual sessions may mean that Pi will lose

## **Some Specifics**

**Who**—Standard members are those who have paid the standard membership dues and includes all family members living within the household of a standard member. Associate members are those who have only paid the associate membership dues.

**What**—The tutorial program of Washington Apple Pi is hands-on training for our members in the use of Macintosh computers. The tutorial room is furnished with computers so that each student has the use of a computer during class.

**When**—Classes are no longer scheduled months in advance. You need to contact the office via snail mail, email or by phone to tell the office what classes you are interested in taking and what times you are available to take the classes.

**Where**—Unless otherwise stated, all tutorials sponsored by Washington Apple Pi are given at the office located at 12022 Parklawn Drive in Rockville, Maryland. A map to the office may be found on the web site at <http://www.wap.org/info/about/officemap.html>.

**How**—After enough students have stated their interest in taking a specific class the interested students will be contacted and the class will be scheduled. If you would like to inquire about the current level of interest for a specific class please either call the office during business hours or send email with the classes you wish to know about along with a daytime phone number. The office will get back to you either by email or by telephone.

**Fees**—Class fees vary due to the level of the class. Please see the specific class description for the fee for that class. Pre-registration and Pre-Payment must be made to hold a seat.

**Class Size**—Class size is limited to 6 students per class.

**Instructor Cancellation**—If a class is canceled by the instructor, all students will be notified of the cancellation. Please check your home answering machine and email if you have not given a work number for notification.

**Student Cancellation**—A student cancellation must be received 72 hours prior to the scheduled class time. Student Cancellations may only be made via telephone during Washington Apple Pi's business hours or via email to the email address of [office@wap.org](mailto:office@wap.org). The office does not have an answering machine - only an announcement machine.

### **Office Information**

Washington Apple Pi  
12022 Parklawn Drive  
Rockville, MD 20852  
[www.wap.org](http://www.wap.org)  
email: [office@wap.org](mailto:office@wap.org)

Office Hours:

Monday - Wednesday - Friday (10 am - 6 pm)



money on a course due to insufficient registration for other classes in the set. Therefore, you must pay for all sessions in the course. If you miss a session, make ups will be at the convenience of the tutorial program and we will not add you to a different session unless there are more than three people, and less than six people signed up. It will be your responsibility to watch for future sessions and to call regarding class openings.

**Do I have to pay in advance?**

Since our office manager left, it has been difficult to prepay for classes. However, since the office is now open from at least 10 a.m. to 1 p.m. on most Mondays, Wednesdays and Fridays, please call the office to arrange payment by credit card or send a check to Washington Apple Pi, Attn. Tutorial Program: (add the name and date of the class) 12022 Parklawn Drive, Rockville MD 20852. You are not officially enrolled in the class until your payment has been received. Your check or credit card payment will not be presented until the day of the class. If you must cancel your enrollment in a class, notification must be given to Washington Apple Pi no later than 48 hours in advance. If the class is to take place in less than 48 hours, you will not receive a refund except in very unusual cases. We are returning to this policy because we have had far too many no-shows. Check the Washington Apple Pi Web site, www.wap.org for additional payment options in the coming months.

**How do I sign up for a class?**

To sign up for this class send an e-mail to tutorials@wap.org with the class name, date and time, your name, address, e-mail address, phone number and WAP membership number.

**Where are the classes held?**

Classes are held in the Tutorial Room at Washington Apple Pi, 12022 Parklawn Dr., Rockville, MD.

**Are classes ever canceled?**

Class will be canceled if there are less than 3 students signed up 2 days before the class is to be held. You will be notified via e-mail if this happens. In the case in inclement weather, classes are canceled if school is canceled. or delayed for two hours in Montgomery or Fairfax county. Classes will be rescheduled

**Let's Burn Some CDs**

Monday, November 4, 2002, 9:30 a.m. - 12:30 p.m. Learn

the finer points of making music, data and video CDs in this three hour class. Learn all about Roxio Toast and the Apple Disc Burner software. Learn how prepare data, optimize files and make labels too. This course is offered as one three hour session. Prerequisites: Mastering OS 9 Cost: Current Members: \$50 Others: \$100 Instructor: Pat Fauquet Also offered on Monday, December 9, 2002, 1 p.m. - 4 p.m.

**OS X Mail, the Address Book and iChat**

Monday, November 4, 2002, 1 p.m. - 4 p.m. Microsoft is not upgrading Outlook Express to run in OS X. Instead Apple Computer has written Mail as the suggested e-mail client for OS X users. Come learn about this simple but powerful program. Learn how to combat spam, filter your mail, use the system wide OS X Address Book and how to use iChat. Students will learn how to migrate their existing mail and address books and learn how to check e-mail via the web when they are away from home. This course is offered as one three hour session. Prerequisites: Mastering OS X Cost: Current Members: \$50 Others: \$100 Instructor: Pat Fauquet

**Mastering OS X for Working People**

Tuesday, November 5, 2002, 9:30 a.m. - 4 p.m. Join us for a day of learning about the power of Mac OS X. The Finder, Dock, Window Toolbars, and System Preferences will be covered in detail. We will also discuss the Print Center and general maintenance and organization tips. If time allows, the OS X applications will be introduced. Prerequisites: OS 9 or OS X Four Part New User Series or Permission of the Instructor Cost: Current Members: \$100 Others: \$150 Instructor: Jim Ritz Also offered on Monday, November 11, 2002, 9:30 a.m. - 4 p.m.

**AppleWorks Word Processing**

Wednesday, November 6, 2002, 9:30 a.m. - 12:30 p.m. The word processing module of AppleWorks contains many powerful features. Learn how to format documents, make lists and outlines, add pictures, use the spell checker and thesaurus, set up tabs, and make templates. This course is offered as one three hour session. Prerequisites: OS 9 or OS X Four Part New User Series or Permission of the Instructor Cost: Current Members: \$50 Others: \$100 Instructor: Pat Fauquet

**How to Open Almost Any File**

Wednesday, November 6, 2002, 1 p.m. - 4 p.m. All of us get files that we cannot open. In this course students



will learn a variety of techniques to open those files and convert them to a usable format. They will also learn how to prepare and send files so that others can read them. This course is offered as one three hour session. Prerequisites: Mastering OS 9 or Mastering OS X Cost: Current Members: \$50 Others: \$100 Instructor: Pat Fauquet or Jim Ritz Also offered on Thursday, December 19, 2002, 1 p.m. - 4 p.m.

#### **Mac OS X New User Series, Four Sessions**

Thursday, November 7, 2002, 9:30 a.m. - 12:30 p.m.  
Tuesday, November 12, 2002, 9:30 a.m. - 12:30 p.m.  
Thursday, November 14, 2002, 9:30 a.m. - 12:30 p.m.  
Tuesday, November 19, 2002, 9:30 a.m. - 12:30 p.m. This course is meant for people who have their first computer or for those people who would prefer learn about the Macintosh at a slower pace. Emphasis is given to hands-on practice, frequent reviews and a slow class pace. Topics covered include simple word processing, printing, writing e-mails with the Mail application, an introduction to the Internet and emphasis on using the Finder and the Dock. While students who complete this course will be ready to take several other courses, you will need to complete the Mastering OS X series to enroll in the majority of classes being taught at Washington Apple Pi. This course consists of a series of four three hour sessions. Students are expected to attend all four sessions in the same series. Prerequisites: None Cost: Current Members: \$140 Others: \$190 Instructor: Jim Ritz Also offered on: \* Monday, December 9, 2002, 9:30 a.m. - 12:30 p.m., Wednesday, December 11, 2002, 9:30 a.m. - 12:30 p.m., Monday, December 16, 2002, 9:30 a.m. - 12:30 p.m., Wednesday, December 18, 2002, 9:30 a.m. - 12:30 p.m.

#### **Mastering OS X, A Three Part Series**

Thursday, November 7, 2002, 1 p.m. - 4 p.m. Tuesday, November 12, 2002, 1 p.m. - 4 p.m. Thursday, November 14, 2002, 1 p.m. - 4 p.m. This course is designed for people who have prior computer experience, either on the Macintosh platform or on Windows. The sessions are taught at a faster pace than the New User Series and additional material will be presented. The sessions cover basic and intermediate skills and troubleshooting using OS X. The use of the Terminal application and Unix commands are NOT covered in these classes. This course consists of a series of three three hour sessions. Dates for this course are 11/5/2002, 11/7/2002, and 11/12/2002. Students are expected to attend all three sessions in the same series. Prerequisites: OS X

Four Part New User Series or Permission of the Instructor Cost: Current Members: \$150 Others: \$200 Instructor: Jim Ritz Also offered on: \* Tuesday, December 10, 2002, 1 p.m. - 4 p.m., Thursday, December 12, 2002, 1 p.m. - 4 p.m., Tuesday, December 17, 2002, 1 p.m. - 4 p.m.

#### **Mastering OS X for Working People**

Monday, November 11, 2002, 9:30 a.m. - 4 p.m. Join us for a day of learning about the power of Mac OS X. The Finder, Dock, Window Toolbars, and System Preferences will be covered in detail. We will also discuss the Print Center and general maintenance and organization tips. If time allows, the OS X applications will be introduced. Prerequisites: OS 9 or OS X Four Part New User Series or Permission of the Instructor Cost: Current Members: \$100 Others: \$150 Instructor: Pat Fauquet Also offered on Tuesday, November 5, 2002, 9:30 a.m. - 4 p.m.

#### **Fun With Your Scanner**

Wednesday, November 13, 2002, 9:30 a.m. - 12:30 p.m. Bring your scanner, its software, cables and power supply and explore what you can do with it. Bring a few pictures that you would like to fix, some printed material you would like to convert to text and bring a few small items you would like to have "pictures" of. We will have a "scanning" good time! Prerequisites: Brush Up Your Mac Skills Cost: Current Members: \$50 Others: \$100 Instructor: Pat Fauquet Also offered on Monday, December 16, 2002, 1 p.m. - 4 p.m.

#### **Mastering OS X, A Three Part Series**

Monday, November 18, 2002, 9:30 a.m. - 12:30 p.m.  
Wednesday, November 20, 2002, 9:30 a.m. - 12:30 p.m.  
Monday, November 25, 2002, 9:30 a.m. - 12:30 p.m.

This course is designed for people who have prior computer experience, either on the Macintosh platform or on Windows. The sessions are taught at a faster pace than the New User Series and additional material will be presented. The sessions cover basic and intermediate skills and troubleshooting using OS X. The use of the Terminal application and Unix commands are NOT covered in these classes. This course consists of a series of three three hour sessions. Students are expected to attend all three sessions in the same series.

Prerequisites: OS X Four Part New User Series or Permission of the Instructor Cost: Current Members: \$150 Others: \$200 Instructor: Pat Fauquet Also offered on: \* Tuesday, December 10, 2002, 1 p.m. - 4 p.m., Thursday,



December 12, 2002, 1 p.m. - 4 p.m., Tuesday, December 17, 2002, 1 p.m. - 4 p.m.

**Introduction to iPhoto**

Monday, November 18, 2002, 1 p.m. - 4 p.m. Users of OS X can use iPhoto to import, organize, edit and share their digital images from cameras, scanners and Picture CDs. Come learn about this simple but powerful application that can also be used to make slideshows, books and prints. Bring your digital camera full of images or a zip or CD with digital images to learn how to do these and more projects. This course is offered as one three hour session. Prerequisites: OS 9 Four Part New User Series or Permission of the Instructor Cost: Current Members: \$50 Others: \$100 Instructor: Pat Fauquet

**Mastering OS 9, A Three Part Series**

Tuesday, November 19, 2002, 1 p.m. - 4 p.m. Thursday, November 21, 2002, 9:30 a.m. - 12:30 p.m. Thursday, November 21, 2002, 1 p.m. - 4 p.m. This course is designed for people who have prior computer experience, either on the Macintosh platform or on Windows. The sessions are taught at a faster pace than the New User Series and additional material will be presented. The sessions cover basic and intermediate skills and troubleshooting using OS 9. This course replaces the Brush Up Your Mac Skills and Digging Deeper courses. The course is not designed for users who are primarily using OS X. If your primary operating system is OS X, please sign up for OS 9 for OS X Users. This course consists of a series of three three hour sessions. Students are expected to attend all three sessions in the same series. Prerequisites: Four Part New User Series or Permission of the Instructor Cost: Current Members: \$150 Others: \$200 Instructor: Jim Ritz

**Introduction to Adobe Photoshop Elements**

Wednesday, November 20, 2002, 1 p.m. - 4 p.m. Now that you are taking digital photos or scanning pictures, learn how to fix problems such as over exposed or under exposed pictures, color casts and contrast issues. This inexpensive program is often included with cameras, scanners and printers. It may be all you will ever need to edit and print your treasured photos. Come learn how to use it! This course is offered as one three hour session. Prerequisites: Mastering OS 9 or Mastering OS X Cost: Current Members: \$50 Others: \$100 Instructor: Pat Fauquet Also offered on Wednesday, December 18, 2002, 1 p.m. - 4 p.m.

**iCal, iSync, Palm PDAs and the Address Book**

Monday, November 25, 2002, 1 p.m. - 4 p.m. OS X 10.2 has made it possible to keep all the data in your life synchronized. Learn how to use these free applications to keep all of your contact data in one place and then use that one file to keep your computer, address book, PDA, e-mail application and even some cell phones using that same data. This course is offered as one three hour session. Prerequisites: Mastering OS X Cost: Current Members: \$50 Others: \$100 Instructor: Pat Fauquet iMovie Slideshows, Holiday Edition Monday, December 2, 2002, 9:30 a.m. - 4 p.m. Join us for a special holiday session. Bring your camera full of digital photos, a photo CD or photos on a portable hard drive to learn how to make a video from you them. We will edit the photos, add transitions, effects, voice and music to complete a project that friends and family will want to watch. Completed projects will be made into Video CDs or QuickTime movies ready for the web. We will finish the day by making special labels for the CDs. This course is six hours long. It will be taught as an all-day class. Prerequisites: Mastering OS 9 or Mastering OS X Cost: Current Members: \$100 Others: \$150 Instructor: Pat Fauquet and Jim Ritz

**Making iPhoto Books, Holiday Edition**

Tuesday, December 3, 2002, 9:30 a.m. - 4 p.m. Bring your favorite digital photos. You will use iPhoto's built in tools and other graphic applications to edit and organize your pictures to make an album style book that can be ordered online from Apple Computer. Use our high speed line to upload your book! Album pages can also be printed on home printers. Printing and binding tips will also be discussed. The instructor will bring holiday photos and clip art to compliment your photos. Prerequisites: OS X Four Part New User Series or Permission of the Instructor Cost: Current Members: \$100 Others: \$150 Instructor: Pat Fauquet and Jim Ritz Make Holiday Cards and Gifts With Your Computer Wednesday, December 4, 2002, 9:30 a.m. - 4 p.m. Bring your favorite digital photos and clip art to the Pi and learn how to use Print Explosion, PrintShop, AppleWorks and other programs to make holiday cards, calendars, gift boxes and other items for holiday giving. A variety of material will be available for sale to complete your projects. Prerequisites: Mastering OS 9 or Mastering OS X Cost: Current Members: \$100 Others: \$150 Instructor: Pat Fauquet and Jim Ritz Making Holiday Mix CDs Thursday, December 5, 2002,





9:30 a.m. - 4 p.m. Bring your favorite CDs and learn how to use iTunes to make Mix CDs. We will also make and print appropriate CD labels, box liners and inserts to complete your very special CD. If you would like to include digital photos in the printed materials, please bring them to class. A wide variety of media will be available for purchase for making additional label sets. Prerequisites: Mastering OS 9 or Mastering OS X Cost: Current Members: \$100 Others: \$150 Instructor: Pat Fauquet and Jim Ritz

**Mac OS X New User Series, Four Sessions**

Monday, December 9, 2002, 9:30 a.m. - 12:30 p.m.  
 Wednesday, December 11, 2002, 9:30 a.m. - 12:30 p.m.  
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 This course is meant for people who have their first computer or for those people who would prefer learn about the Macintosh at a slower pace. Emphasis is given to hands-on practice, frequent reviews and a slow class pace. Topics covered include simple word processing, printing, writing e-mails with the Mail application, an introduction to the Internet and emphasis on using the Finder and the Dock. While students who complete this course will be ready to take several other courses, you will need to complete the Mastering OS X series to enroll in the majority of classes being taught at Washington Apple Pi. This course consists of a series of four

three hour sessions. Students are expected to attend all four sessions in the same series. Prerequisites: None Cost: Current Members: \$140 Others: \$190 Instructor: Pat Fauquet Also offered on: \* Monday, December 9, 2002, 9:30 a.m. - 12:30 p.m., Wednesday, December 11, 2002, 9:30 a.m. - 12:30 p.m., Monday, December 16, 2002, 9:30 a.m. - 12:30 p.m., Wednesday, December 18, 2002, 9:30 a.m. - 12:30 p.m.

**Let's Burn Some CDs**

Monday, December 9, 2002, 1 p.m. - 4 p.m. Learn the finer points of making music, data and video CDs in this three hour class. Learn all about Roxio Toast and the Apple Disc Burner software. Learn how prepare data, optimize files and make labels too. This course is offered as one three hour session. Prerequisites: Mastering OS 9 Cost: Current Members: \$50 Others: \$100 Instructor: Pat Fauquet Also offered on Monday, November 4, 2002, 9:30 a.m. - 12:30 p.m.

**Mac OS 9 New User Series, Four Sessions**

Tuesday, December 10, 2002, 9:30 a.m. - 12:30 p.m.  
 Thursday, December 12, 2002, 9:30 a.m. - 12:30 p.m.  
 Tuesday, December 17, 2002, 9:30 a.m. - 12:30 p.m.  
 Thursday, December 19, 2002, 9:30 a.m. - 12:30 p.m. This course is meant for people who have their first computer or for those people who would prefer learn about the Macintosh at a slower pace. Emphasis is given to

<b>Washington Apple Pi          Tutorial Registration Form  <a href="http://www.wap.org">www.wap.org</a></b>		Washington Apple Pi 12022 Parklawn Drive Rockville, MD 20852 301-984-0300 Office@wap.org	
Name _____	Please fill in the name(s) of the class(es) that you wish to attend.		
Address _____	Class #1 _____		
City/State/Zip _____	Class #2 _____		
Phone (day) _____ (Evening) _____	Class #3 _____		
Member Number _____ Non-member _____	Class #4 _____		
Email address _____	Class #5 _____		
Times when your are available for classes _____	Class #6 _____		
_____			
Type of class wanted _____			
Mail registration and payment to the above address.			



hands-on practice, frequent reviews and a slow class pace. Topics covered include simple word processing, printing, writing e-mails with the Mail application, an introduction to the Internet and emphasis on using the Finder and the Dock. While students who complete this course will be ready to take several other courses, you will need to complete the Mastering OS X series to enroll in the majority of classes being taught at Washington Apple Pi. This course consists of a series of four three hour sessions. Students are expected to attend all four sessions in the same series. Prerequisites: None Cost: Current Members: \$140 Others: \$190 Instructor: Jim Ritz

**Mastering OS X, A Three Session Series**

Tuesday, December 10, 2002, 1 p.m. - 4 p.m. Thursday, December 12, 2002, 1 p.m. - 4 p.m. Tuesday, December 17, 2002, 1 p.m. - 4 p.m. This course is designed for people who have prior computer experience, either on the Macintosh platform or on Windows. The sessions are taught at a faster pace than the New User Series and additional material will be presented. The sessions cover basic and intermediate skills and troubleshooting using OS X. The use of the Terminal application and Unix commands are NOT covered in these classes. This course consists of a series of three three hour sessions. Dates for this course are 12/10/2002, 12/12/2002, and 12/17/2002. Students are expected to attend all three sessions in the same series. Prerequisites: OS X Four Part New User Series or Permission of the Instructor Cost: Current Members: \$150 Others: \$200 Instructor: Jim Ritz Also offered on: \* Thursday, November 7, 2002, 1 p.m. -4 p.m., Tuesday, November 12, 2002, 1 p.m. - 4 p.m., and Thursday, November 14, 2002, 1 p.m. - 4 p.m.

**Fun With Your Scanner Monday,**

December 16, 2002, 1 p.m. - 4 p.m. Bring your scanner, its software, cables and power supply and explore what you can do with it. Bring a few pictures that you would like to fix, some printed material you would like to convert to text and bring a few small items you would like to have "pictures" of. We will have a "scanning" good time! Prerequisites: Mastering OS 9 or Mastering OS X Cost: Current Members: \$50 Others: \$100 Instructor: Pat Fauquet Also offered on Wednesday, November 13, 2002, 9:30 a.m. - 12:30 p.m.

**Introduction to Adobe Photoshop Elements**

Wednesday, December 18, 2002, 1 p.m. - 4 p.m. Now that you are taking digital photos or scanning pictures, learn how to fix problems such as over exposed or under exposed pictures, color casts and contrast issues. This inexpensive program is often included with cameras, scanners and printers. It may be all you will ever need to edit and print your treasured photos. Come learn how to use it! This course is offered as one three hour session. Prerequisites: Mastering OS 9 or Mastering OS X Cost: Current Members: \$50 Others: \$100 Instructor: Pat Fauquet Also offered on Wednesday, November 20, 2002, 1 p.m. - 4 p.m.

**How to Open Almost Any File**

Thursday, December 19, 2002, 1 p.m. - 4 p.m. All of us get files that we cannot open. In this course students will learn a variety of techniques to open those files and convert them to a usable format. They will also learn how to prepare and send files so that others can read them. This course is offered as one three hour session. Prerequisites: Mastering OS 9 or Mastering OS X Cost: Current Members: \$50 Others: \$100 Instructor: Jim Ritz Also offered on Wednesday, November 6, 2002, 1 p.m. - 4 p.m. ■

**Other Educational Opportunities**

**Apple Computer Inc.**  
Reston, VA 703-264-5100 or  
[www.seminars.app.com](http://www.seminars.app.com)

**MacBusiness Solutions**  
301-330-4074 or  
[www.mbsdirect.com](http://www.mbsdirect.com)

**MacUpgrades**  
301-907-0300

**Micro Center 703-204-8400**  
or [www.microcentereducaton.com](http://www.microcentereducaton.com)

**Piowar & Associates 202-223-6813**  
or [www.tjpa.com](http://www.tjpa.com)



United States Postal Service

Statement of Ownership, Management, and Circulation

SEP 23 2002

1. Publication Title <i>Washington Apple Pi</i>	2. Publication Number <i>1058-7682</i>	3. Filing Date <i>9/23/2002</i>
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8. Complete Mailing Address of Headquarters or General Business Office of Publisher (Not printer)  
*same as #7*

9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor (Do not leave blank)

Publisher (Name and complete mailing address)  
*Washington Apple Pi, Ltd  
12022 Parklawn Drive, Rockville MD 20852*

Editor (Name and complete mailing address)  
*Kathryn Murray  
Washington Apple Pi, 12022 Parklawn Drive, Rockville MD 20852*

Managing Editor (Name and complete mailing address)  
*same as Editor*

10. Owner (Do not leave blank. If the publication is owned by a corporation, give the name and address of the corporation immediately followed by the names and addresses of all stockholders owning or holding 1 percent or more of the total amount of stock. If not owned by a corporation, give the names and addresses of the individual owners. If owned by a partnership or other unincorporated firm, give its name and address as well as those of each individual owner. If the publication is published by a nonprofit organization, give its name and address.)

Full Name	Complete Mailing Address
<i>Washington Apple Pi, Ltd</i>	<i>12022 Parklawn Drive, Rockville MD 20852</i>

11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities. If none, check box  None

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12. Tax Status (For completion by nonprofit organizations authorized to mail at nonprofit rates) (Check one)  
 The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes:  
 Has Not Changed During Preceding 12 Months  
 Has Changed During Preceding 12 Months (Publisher must submit explanation of change with this statement)

13. Publication Title <i>Washington Apple Pi</i>	14. Issue Date for Circulation Data Below <i>May-Jun 2002</i>	
15. Extent and Nature of Circulation	Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
a. Total Number of Copies (Net press run)	<i>2900</i>	<i>2900</i>
(1) Paid/Requested Outside-County Mail Subscriptions Stated on Form 3541 (Include advertiser's proof and exchange copies)	<i>1361</i>	<i>1409</i>
(2) Paid In-County Subscriptions Stated on Form 3541 (Include advertiser's proof and exchange copies)	<i>575</i>	<i>533</i>
(3) Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Non-USPS Paid Distribution	<i>0</i>	<i>0</i>
(4) Other Classes Mailed Through the USPS	<i>50</i>	<i>50</i>
c. Total Paid and/or Requested Circulation (Sum of 15b, (1), (2), (3), and (4))	<i>1986</i>	<i>1992</i>
d. Free Distribution by Mail (Samples, complimentary, and other free)		
(1) Outside-County as Stated on Form 3541	<i>0</i>	<i>0</i>
(2) In-County as Stated on Form 3541	<i>0</i>	<i>0</i>
(3) Other Classes Mailed Through the USPS	<i>150</i>	<i>150</i>
e. Free Distribution Outside the Mail (Carriers or other means)	<i>700</i>	<i>700</i>
f. Total Free Distribution (Sum of 15d, and 15e.)	<i>850</i>	<i>850</i>
g. Total Distribution (Sum of 15c, and 15f.)	<i>2836</i>	<i>2842</i>
h. Copies not Distributed	<i>64</i>	<i>58</i>
i. Total (Sum of 15g, and h.)	<i>2900</i>	<i>2900</i>
j. Percent Paid and/or Requested Circulation (15c, divided by 15g, times 100)	<i>68%</i>	<i>70%</i>
16. Publication of Statement of Ownership <input type="checkbox"/> Publication required. Will be printed in the <i>Nov Dec 2002</i> issue of this publication. <input type="checkbox"/> Publication not required.		
17. Signature and Title of Editor, Publisher, Business Manager, or Owner <i>Richard Sanderson Treasurer</i>		Date <i>9/23/2002</i>

Instructions to Publishers

- Complete and file one copy of this form with your postmaster annually on or before October 1. Keep a copy of the completed form for your records.
- In cases where the stockholder or security holder is a trustee, include in items 10 and 11 the name of the person or corporation for whom the trustee is acting. Also include the names and addresses of individuals who are stockholders who own or hold 1 percent or more of the total amount of bonds, mortgages, or other securities of the publishing corporation. In item 11, if none, check the box. Use blank sheets if more space is required.
- Be sure to furnish all circulation information called for in item 15. Free circulation must be shown in items 15d, e, and f.
- Item 15h, Copies not Distributed, must include (1) newsstand copies originally stated on Form 3541, and returned to the publisher; (2) estimated returns from news agents, and (3), copies for office use, leftovers, spoiled, and all other copies not distributed.
- If the publication had Periodicals authorization as a general or requester publication, this Statement of Ownership, Management, and Circulation must be published; it must be printed in any issue in October or, if the publication is not published during October, the first issue printed after October.
- In item 16, indicate the date of the issue in which this Statement of Ownership will be published.
- Item 17 must be signed.  
*Failure to file or publish a statement of ownership may lead to suspension of Periodicals authorization.*



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**WAP.**

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*your computer*  
*experiences!!!*

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*ing copies of*  
*your minutes*  
*to the journal.*

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## Classifieds

Classified advertisements can be placed by mailing copy to the business office of Washington Apple Pi, Ltd., 12022 Parklawn Drive, Rockville, MD 20852. Be sure to include your WAP membership number and indicate area codes with your phone numbers. Ads must be received by the ad copy due date listed in the calendar page for that month in order to be included in the appropriate issue. Any ads postmarked after that time will be included at the discretion of the editor. Cost is \$2.00/line (40 characters per line), maximum 12 lines. Members of Washington Apple Pi, Ltd., may place ads up to three lines at no charge. The editor reserves the right to refuse any ads deemed inappropriate.

### Services

**Mac Hardware, software, networks & training.** Apple factory trained & A+ Certified. Marchetti Associates. LLC. 301-404-2210 or philm@erols.com

### Waterfront property

—Are you interested in a second home or a retirement home on the water but not too far from DC? Within 2.5 to 4 hours of the District is the Northern Neck of Virginia. Located between the Potomac and Rappahannock Rivers this area has an extensive selection of waterfront properties either in communities with amenities or in more secluded settings. If you are interested in learning more about properties in the Northern Neck please call Kathryn Murray at 804-580-2366 or email her at KAM129@aol.com (Realtor® with Barnes Real Estate Inc.)

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—**Mac Tutoring and troubleshooting help.**  
Arlington area. \$50/hour. Phil Shapiro.  
Contact pshapiro@his.com

### For Sale

—**Computers on Demand**  
Used Macs, Powerbooks & Peripherals. We Buy, Sell, Trade, Repair & Upgrade all Mac Equipment. Call for Quotes. All Major Credit Cards Accepted (301) 718-0822

—**ClarisWorks Users Group Discount.** Loyal WAP members receive a \$5 a year discount on their CWUG (ClarisWorks User Group) membership and renewals as a benefit of their WAP membership. WAP Members must identify themselves as such and then deduct \$5 from the regular \$39 (printed ClarisWorks Journal) or \$34 (electronic ClarisWorks Journal) membership dues when they join or renew. Contact the ClarisWorks Users Group directly at Box 701010, Plymouth, MI 48170; toll-free at (888) 781-CWUG; Fax: (734) 454-1965; Email: <membership@cwug.org> or web site <http://www.cwug.org>.

### Help Wanted

—**Senior Software Engineer:** V-ONE Corporation is looking for a Senior Software Engineer for Mac Client. Please refer to our website at [www.v-one.com](http://www.v-one.com), or e-mail HR at [paige@v-one.com](mailto:paige@v-one.com)

—**Idactix, LLC Consulting** - Expert Mac solutions and troubleshooting. Services include networking, AirPort, FileMaker databases, AppleScripting, PC/Mac integration, and data backup. Prompt on-site service. 301-530-2607 or [info@idactix.com](mailto:info@idactix.com).

—**Volunteers Needed:** Recording for the Blind and Dyslexic of Metro Washington is looking for volunteers who can read technical books (currently working on data structures in c++ for example). We are located in Chevy Chase at the Friendship Heights Metro, 5225 Wisconsin Ave. NW (at Jennifer Street- across from Mazza Gallery). We need computer literate folks willing to volunteer for 2 hours a week, to help read textbooks onto tape. The tapes are used by students borrowers. Interested folks can come by on Wednesday evening, January 20th, between 6-8pm for an open house orientation. Else, they can call Laurel after 3pm at 202-244-8990 and get more info. Evening sessions start at 5:30 and 7pm, Monday-Thursday. ■



**Membership Application**

**New Member**       **Renewal**

*Please print or type:*

Name \_\_\_\_\_ Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_ Email \_\_\_\_\_

Home Phone \_\_\_\_\_ Work Phone \_\_\_\_\_

*(Must have for the TCS)*

Occupation \_\_\_\_\_

*Please answer a few questions for us regarding your computer use. Check the computers/equipment that you use on a regular basis.*

- |                                           |                                        |
|-------------------------------------------|----------------------------------------|
| <input type="checkbox"/> Apple II or III  | <input type="checkbox"/> PowerMac      |
| <input type="checkbox"/> Apple II GS      | <input type="checkbox"/> IBM, PC clone |
| <input type="checkbox"/> Apple III (SARA) | <input type="checkbox"/> PowerBook     |
| <input type="checkbox"/> Pre PowerMac     | <input type="checkbox"/> iMac          |
| <input type="checkbox"/> Other _____      | <input type="checkbox"/> G3 or G4      |

**WAP has many Special Interest Groups (SIGs) and Regional Groups (SLICEs). Please check each group you would be interested in.**

- |                                                                     |                                             |
|---------------------------------------------------------------------|---------------------------------------------|
| <input type="checkbox"/> Annapolis Slice                            | <input type="checkbox"/> Graphic SIG        |
| <input type="checkbox"/> Columbia Slice                             | <input type="checkbox"/> NOVA/Educators SIG |
| <input type="checkbox"/> Delmarva Slice                             | <input type="checkbox"/> Game SIG           |
| <input type="checkbox"/> Frederick Slice                            | <input type="checkbox"/> QuickTime SIG      |
| <input type="checkbox"/> Disabled SIG                               | <input type="checkbox"/> Retired SIG        |
| <input type="checkbox"/> Excel SIG                                  | <input type="checkbox"/> Stock SIG          |
| <input type="checkbox"/> FileMaker SIG                              | <input type="checkbox"/> Women's SIG        |
| <input type="checkbox"/> Genealogy SIG                              |                                             |
| <input type="checkbox"/> I can serve as a Hotline contact for _____ |                                             |

**Enclose check or money order payable to Washington Apple Pi, Ltd. If you are using a credit card please remember that we only accept VISA and MasterCard.**

- Check/Money Order       VISA       MasterCard

Card Number \_\_\_\_\_

Exp. Date \_\_\_\_\_ Signature \_\_\_\_\_

*(Required)*

- |                                                   |      |
|---------------------------------------------------|------|
| <input type="checkbox"/> Basic Membership—1 year  | \$49 |
| <input type="checkbox"/> Student rate* for 1 year | \$42 |

*Indicate desired New Member Kit (1 only)*

- Mac 1.44 k  
 Mac CD

**For other options please add correct amounts**

- WAP Bulletin Board System (TCS)\*\*with e-mail \$ 20
- WAP Bulletin Board System (TCS)\*\*with Internet \$ 171
- 1st class mail (U.S.) \$17
- Airmail to Canada, Mexico, West Indies or Cental America \$20
- Airmail to Europe & South America \$38
- Airmail to Asia & elsewhere \$48
- Surface to Europe, Asia & elsewhere \$18

**Total enclosed \$ \_\_\_\_\_**

\*Please enclose photocopy of current student ID.

\*\* Access to the TCS is contingent on WAP having a current home telephone number for the member.

**Please circle Yes or No for the 2 items below.**

1. Please leave my name on the Pi mailing list. (The list never leaves the office and all mailings are supervised by the Pi staff.)

Yes      No

2. My name, address & phone number may be published in the membership director.

Yes      No.

\_\_\_\_\_  
*Applicant signature and date*







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\$25 instant rebate on any Apple computer purchase!\*

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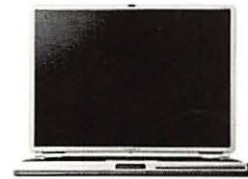
#### PowerMac G4 Tower

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Card Included



#### iBooks from \$1199

\$1199 12.1-inch/ 500MHz G3/ 128MB/15GB HD/ 56K  
\$1499 12.1-inch/ 600MHz G3/ 128MB/20GB HD/ 56K  
\$1799 14.1-inch/ 600MHz G3/ 256MB/25GB HD/ 56K

\*Rebate subtracted from price at time of purchase. Customer must present this ad at time of purchase.

\*\*Up to 512MB. \$30 installation fee required. Call for details.

#### Washington Apple Pi, Ltd.

12022 Parklawn Drive  
Rockville, MD 20852

November / December 2002

Periodical  
Postage rates  
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