May / June 2002

$4.95

The Journal of Washington Apple Pi, Ltd.

WASHINGTON APPLE PI

Volume 24, Number 3

Election issue—be sure to *VOTE*!!

C-3 Rations—Just Add Members—5

Preview in Review: Creating Acrobat Files in OS X —8

Jedi vs. the Borg: Mac OS X in a Microsoft World—11

What Condition are Your Windows In?—15

Bitwise Operator: The Plain Truth About Piracy—39

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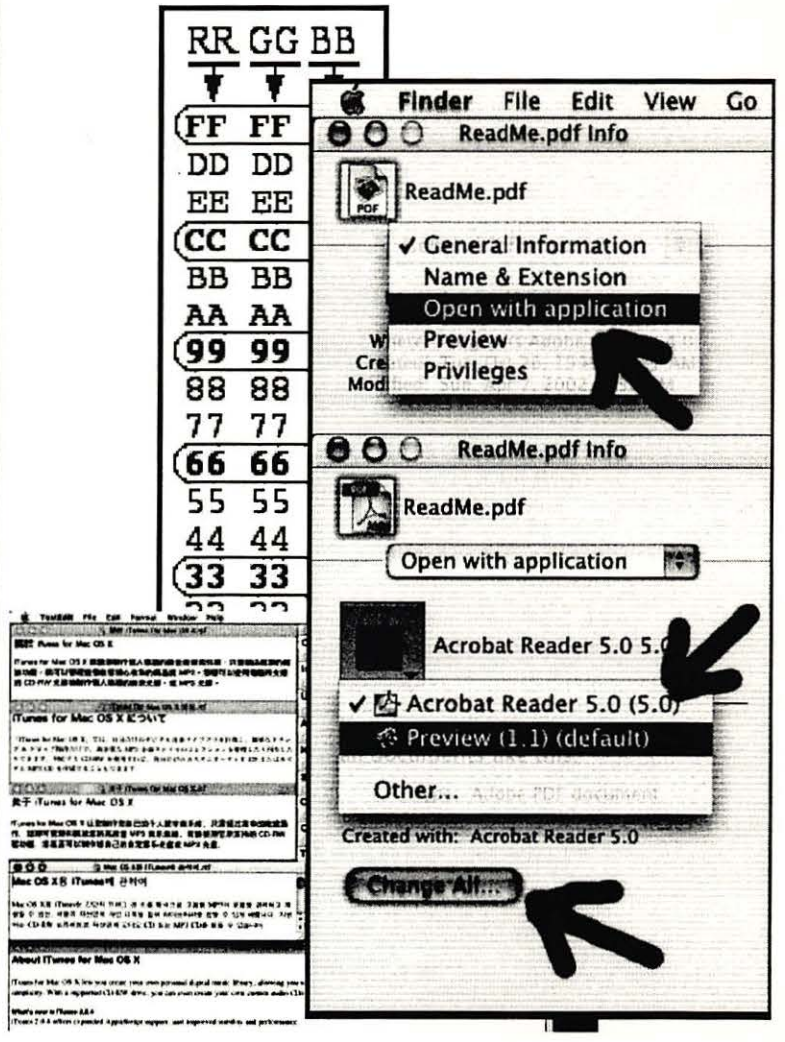

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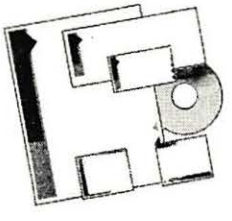

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Postal Information

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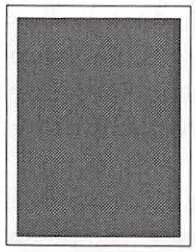
Washington Apple Pi

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)



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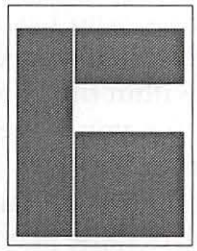

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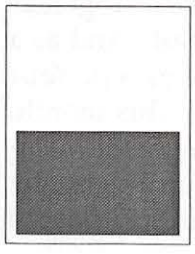

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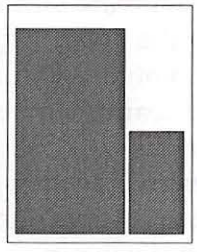

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Welcome to WAP!

By Dave Ottalini

AS I was watching Maryland advance in the NCAA Basketball Tournament, it hit me how imporant teamwork is. The Terps, and other teams, find success because everyone on the court, and everyone on the bench, are all working towards the same goals. They are selfless even as they are individuals willing to step up when it is necessary. Juan Dixon and Steve Blake hitting late 2nd half goals to secure a victory won through excellent inside play by Lonnie Baxter and Keith Wilcox for example.

Washington Apple Pi is no different. We have a core group of "heavy hitters" who have agreed to step up to a higher level of play for the membership as a whole. You'll see who has agreed to do that in this election issue. Even if someone doesn't win, there are many places within the Pi for them, just as there are many places for you—even though you might be "just" a new member.

A club like WAP succeeds only if there is a broad coalition of those playing on the floor, and those ready to help who are sitting on the bench. Together they make up the "team" that is your club. And as a new member, you are joining that elite group. Your job as a "new team member" is to vote this month, join a SIG and take a class. Get to know other members at the General Meeting or come by on almost any Tuesday night to observe our volunteers in action at the Clinic—or help if you can.

The bottom line is we need you as part of our team. By casting your vote for our elected officers and board members, you'll be on your way to becoming a real part of Washington Apple Pi and a valued one at that!

Oh, and by the way, *Welcome To WAP!* ■

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C-3 Rations—Just Add Members

ONE OF the long-timers in the user group business sent me e-mail lamenting the disappearance of user groups. According to his count, 125 groups on a list he maintains have disappeared from the web in the last year. What is going on I was asked.

I know of no one who is "The Recorder of User Groups." Several organizations claim to maintain the "Very Bestest Macintosh User Group Locator," but a quick comparison returns too many anomalies. Inquiring into the criteria used by the list maker returns a higher correlation than any other measure I could find. Thus, I can't say whether the list I was sent is a lot of poofs or well within the nature of the process.

Nevertheless, I began to wonder what there is about the care and feeding of a user group that causes one to take root, while another fares less well. Three ingredients are about all you need: folks who gather around a common interest; things for that group to do; and, people who make it happen. All else is commentary.

Almost forgot what time it is. It's time for my annual appeal for help from you, oh faithful member. It is sort of like a Pi version of the public begging that your Public Broadcasting System station does with what seems like greater frequency these days.

Besides trying your patience with the stuff I put in this column each magazine, I can be counted on to make two other requests. First, that you find the services and support we provide to you useful and renew your membership. The second is that you vote in our annual election for officers and directors. I have other fantasies, but will save those for another column.

For those who have put up with me all these years, you know that I dream of raising the percentage of participating voters from the four percent at which it currently hovers. Our webmaster keeps trying to convince me that a little technology cures all. Sure says I, no punch card or ScanTron ballots. Most of my voting has been done by absentee ballot. There is something ennobling about handling all that paper, then folding all of it into double envelopes and mailing it back to my hometown clerk. Lawrence our webmaster, thought for a moment about the word ennobling; well actually he giggled. Get thee to the web, dummy, he huffed. I am sorry, I don't buy it.

One Trick Pony

Back to our story. There are several models to emulate when trying to decide the interests to which you will cater in a user group. There are hardware-specific groups [Atari; Wintel; Apple]; application-specific groups [AppleWorks, FinalCutPro,

ReadySetGo]; and project-specific groups [amateur radio; recycling; vintage]. There are successful examples of each whose longevity attests to the validity of its chosen direction. Surely that can't be the long pole in the tent.

Make Me Smarter

When it comes to things for the group to do, I was taught to work from the core out. Whatever it is that brought the group together is supported via meetings, a newsletter, website, tutorials, and intergroup activities. It is my style to add tangentials that provide an enrichment to the main focus of the group. The leadership that keeps in touch with the interests of its members should have a feel for what the group has a hankering to learn, and the learning style of the group that makes acquiring information both friendly and informative. Groups that recognize the diversity of the membership and celebrate it hold existing members and attract new ones. What I just described should not be done as a snapshot. The interests of user group members are a moving target. This could be a source of the malaise; after all, I watched more exalted functionaries lose sight of from whence they came.

The Front Office

The Pi has been blessed with a management team that never lost sight of where the core of the organization is located. You have known continuity and stability over a longer period of time than most groups have history. Solid office support has meant that the Pi was able to sustain the neat new programs you have come to enjoy. Our managerial continuity had an unintended consequence: it resulted in a blurring of roles and missions between the front office and the elected leadership. The new group of directors whom you get to select this election and our new front office staff will need your understanding and patience as they refine their tasks in the new order of things.

Elected Leadership

It is here that you want directors who understand the difference between knowing what to do in the abstract and actually accomplishing something. Members who willingly take on the responsibilities of leadership in a user group need to know that they are not there to be advisors. Each signs on to be the custodian of a living, breathing entity. Sweat equity comes with the job. Obviously, it is desirable that each officer/director bring all acquired skills to their elected position—cerebral as well as physical. Typically, there are many more projects that could be undertaken than there are doers. The leadership must keep tabs on the avenues members wish to explore and always keep in mind that: (1) each member is a volunteer; (2) there are only 24 hours in a day/7 days in a week; (3) Wheel spinning is an anathema. Ignoring any one of these creates problems.

The trick here is to understand clearly that the officer/director leads the way. It is not that any one of them has to 'do it,' but that the individual be one who knows the membership well enough such that (s)he can find others who have the skills, or who are willing, with assistance, to acquire the skills to accomplish a task. Thus, any one officer/director becomes a force multiplier within the group. More members feel more of a connection to the group and its activities, which results in more people willing to step forward to do deeds on behalf of the group, etc.

Here's the pitch again. So, can you do me a big favor.? I have a neat idea to raise the percentage of participants in our election this year while not making it necessary for you to commit to a slate of individuals to run this place. Why, it almost sounds like an election being run in Arizona, which offers a "none of the above" option on its ballot. Here is your part of the deal:

• *vote. Now that is the right thing to do! You should be impressed with the number of first time candidates who have come forth and said that each is willing to help move the Pi forward during the coming year! You have a super rich slate of Pi members, like yourself, who are willing to contribute some of their time to produce another year of great membership services. I really don't care who or for how many you vote.* ***That*** *you vote is my wish. Unfortunately, only about four percent of you will do that. So,*

• *will you at least remove the ballot and envelope located in the center of this magazine and write something — anything — on it — and then mail it. Humor me. Let me know that you are alive and well. Scribble a nice "hello" to Nancy Seferian who is our chief web graphics*

and penguin designer. All she ever gets is grief over the placement of lips and feet on the little critters she draws. You could write a "Hello Kathryn"; she is the editor of our magazine and gets no fan mail at all.

Isn't this a great win-win story? You get that ennobling feeling by sending an envelope back either with a completed ballot and/or a nice note enclosed to one of us. I get to tally ballot envelopes and declare victory over our tyrannical webmaster. The election committee gets the innards to count, and the Pi gets great new leaders for the coming year. Name me a state run election in which you can write assorted notes on the ballot that someone will actually read, vice some hanging chad bureaucrat who will dismiss you as a retro-Floridian? You can't.

Now, having done all that, don't forget to mail it to the address printed on the envelope. Just think of how much your 34 cents will mean to the Post Office as it tries to reduce it debt load.

Please, go to the centerfold of this Journal. Do it! I will wait at the mailbox for your ballot to arrive. Lawrence went home for supper.

—Lorin

Remember, we have twenty-three years of solid service to the Macintosh community. This transition is going to have a few glitches —but nothing serious. Help the transition—stick your oar in the water and vote!

"The trick here is to understand clearly that the officer/director leads the way. It is not that any one of them has to 'do it,' but that the individual be one who knows the membership well enough such that (s)he can find others who have the skills, or who are willing, with assistance, to acquire the skills to accomplish a task. Thus, any one officer/director becomes a force multiplier within the group."

π

Preview in Review

Creating Acrobat Files in OS X

By Dennis Dimick

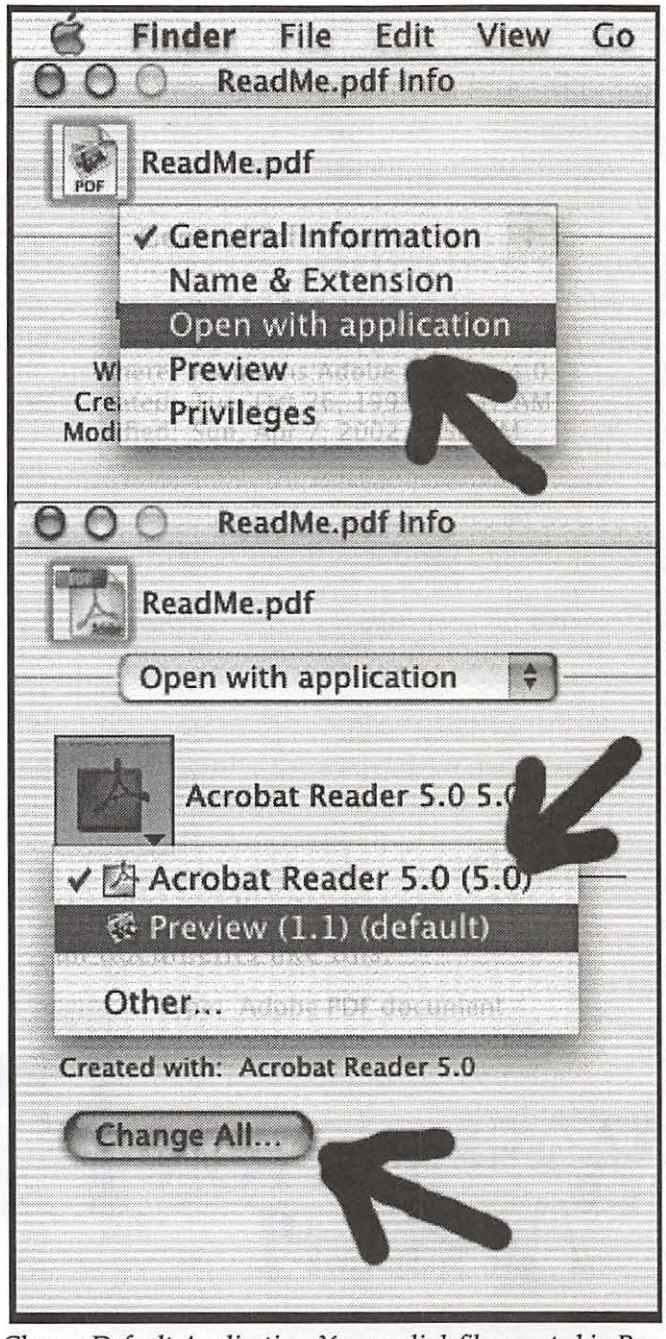
FOR SEVERAL years I've used Adobe Acrobat to convert web pages to text-searchable files that have graphics intact. Acrobat also has let me create sharable files for colleagues who don't use my programs, or who may have computers other than a Mac. These "What-You-See-Is-What-You-Get" kinds of files from Acrobat are called Portable Document Format (PDF), which explains their ".pdf" filename extension.

If you are using Apple's new Mac OS X or plan to upgrade, no longer must you buy Acrobat to create basic PDF files from any program that allows printing. Mac OS X now offers this ability via a built-in tool called "Preview," a small utility and a new option available when you print.

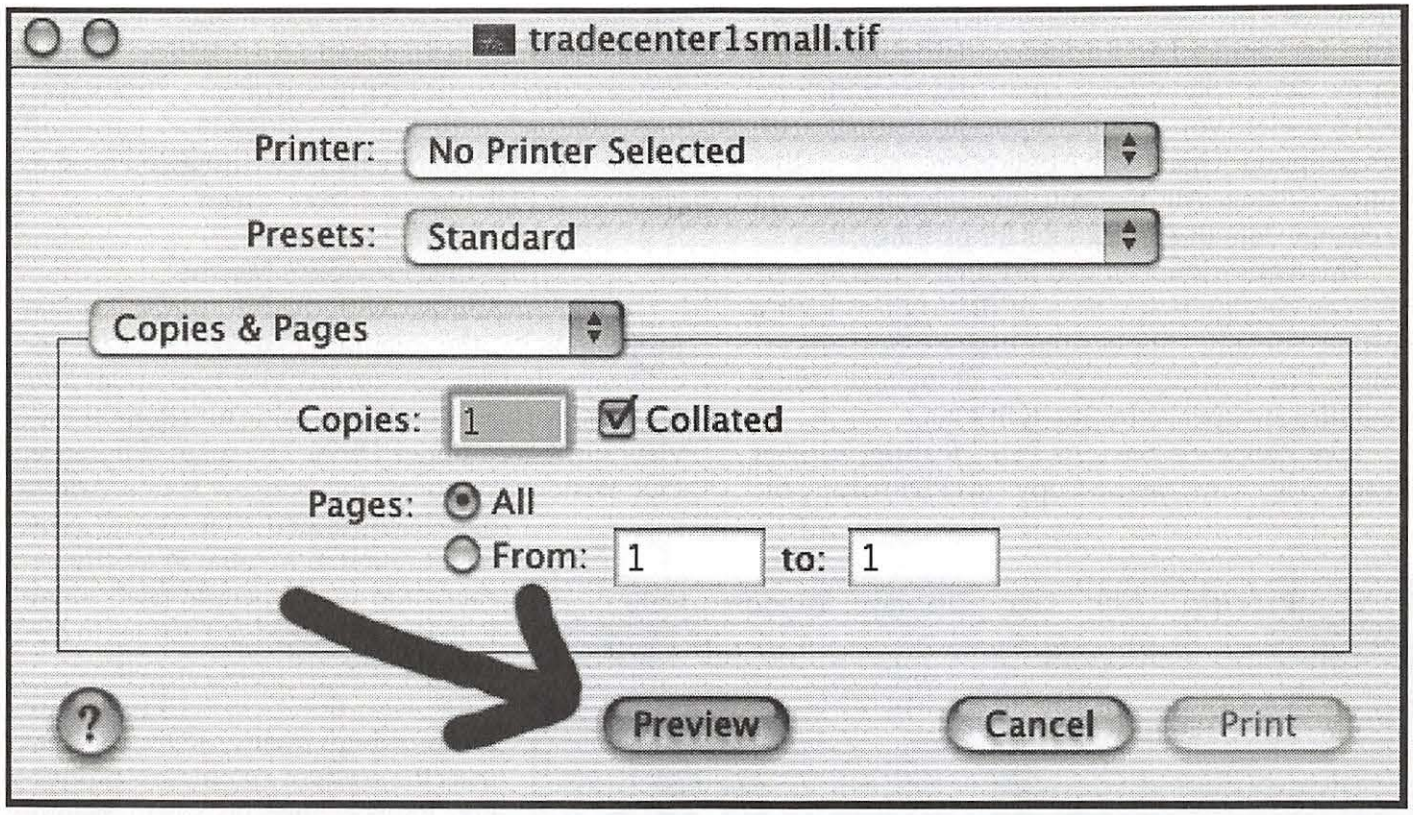
Designed as a way to help you see how any document looks when printed, Preview's printing option becomes much more useful when combined with the utility program's PDF file-saving ability. As a standalone program, Preview also lets you convert and save image files into a number of other graphics file formats like Photoshop, TIFF, JPEG and QuickTime. By combining Preview the utility program and the "Preview" function of printing, you can also convert existing graphics files to the PDF file format.

Preview in OS X Only

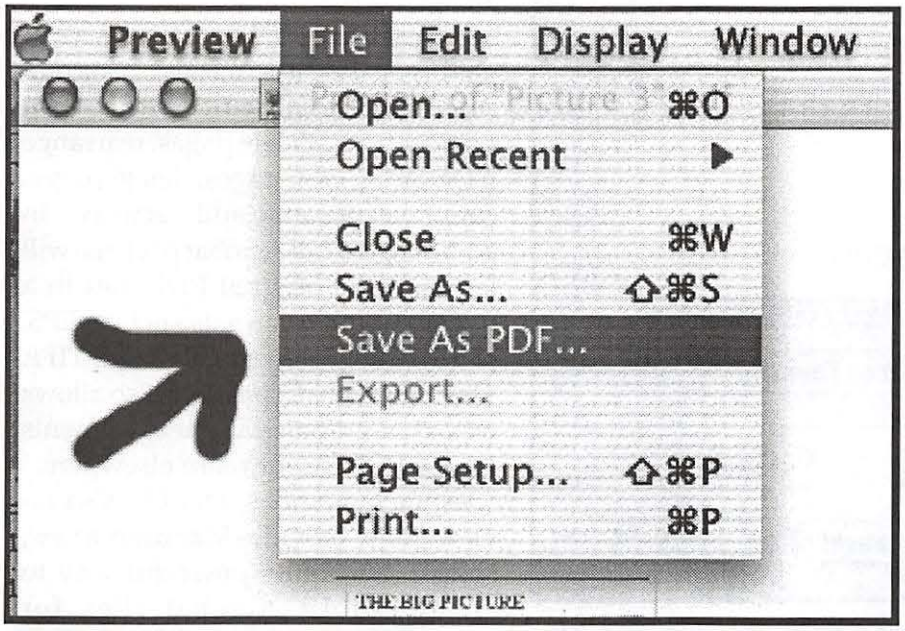
Preview works only with native OS X applications and is not available for older programs running in Classic mode. If you need to create finely-tuned PDF files with fonts, color profiles, and precisely compressed graphics, you still must use Adobe's Acrobat Distiller program, which comes as part of the Acrobat program suite.



Change Default Application: You can link files created in Preview to Acrobat Reader that also comes with Mac OS X. (Follow arrows in this composite image.) First, select a (PDF) file already saved to disk by Preview. Use the "Show Info" command to reveal a box with a pop-up menu that includes "Open With Application." (Top Arrow.) Then pop up a list of available applications on your Mac that can open PDF files. (Center arrow.) Once you select which program you want to open PDF files, click the "Change All..." button. (Bottom arrow.) If you have Illustrator or the full Acrobat program on your Mac, you can use this same technique to select one as default to open PDF files created by Preview.



Print Preview: The "Preview" button on Mac OS X Print Dialog box opens up new possibilities not available to Mac users running older operating systems. Mac OS X will create a "Preview' of your file that can be saved in the Adobe Acrobat "PDF" format.



Save As PDF: Once a previewed file opens in "Preview," the utility, you can use the "File Menu> Save As PDF" command to preserve your file in Adobe Acrobat format.

Late last year Adobe released an Acrobat 5.05 updater that makes most of the Acrobat 5 suite Mac OS X native, yet the integral Distiller program still runs only under Mac OS 9 or Classic mode. That said, Adobe already has released Mac OS X native versions of Illustrator and its new page layout program InDesign; both programs have robust PDF creation tools under OS X.

Preview and Acrobat Reader

Even without the full version of Acrobat 5, you can still take advantage of a neat feature on Mac OS X that automatically hands off files created by (Print) Preview to the free Acrobat Reader that comes as part of the Mac OS X installation.

You can configure your Mac so Reader (or Preview) opens all PDF

files when a file's icon is double-clicked. (See accompanying graphics.) Access this configuration feature via the OS X "Show Info" command on a PDF (or any) file. Here you will find a pop-up menu that offers an option "Open With Application," and another button "Change All" that you must select if you want to change default applications for opening files.

This feature is not limited to Preview and Reader. You can configure any type of file to open with a specific "default" application under OS X. For example, I have set up my Mac so all my text-format mail files are opened by Tex-Edit Plus.)

Like Preview's 'Save As PDF" feature, Acrobat Reader 5 lets you "Save a Copy" (as PDF) of any file handed it by Preview. The two programs can work in concert to create, view, and save PDF files. Though Reader cannot create PDF files, it offers a "full-screen presentation" mode that provides a black surround for viewing. This handy tool is useful if you need to show your PDF files on a large screen.

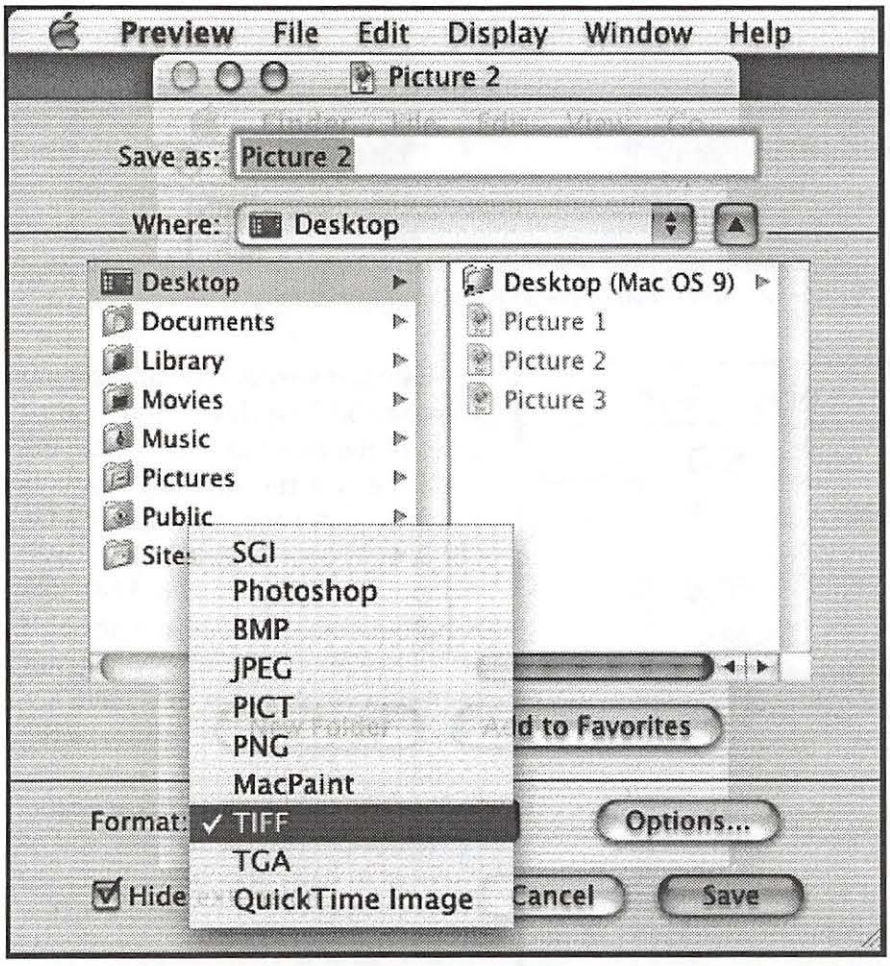
Beyond Preview's Means

If you are familiar with the full Adobe Acrobat program suite, the integral "PDF Writer" Chooser extension that lets you "print" PDF files under Mac OS 9 and earlier provides the same functions as Preview now does under OS X. The main difference: PDF Writer cost money and Preview is free. Adobe has discontinued PDF Writer (you won't find it in Acrobat 5) mostly because too many people tried using PDF Writer instead of Distiller to create PDF files for print production.

That said, don't expect Preview to produce high-quality PDF files that meet the needs of graphic arts production. Preview offers no way to customize image resolution or compression in a PDF file, or how or whether fonts are included.

If serious PDF creation is your goal, get the full Acrobat program suite. It will let you edit PDF files: you can insert and delete pages, rearrange page order, crop pages, delete pages, combine files and add security. In addition, the full Acrobat package will let you save original PDF files in a variety of other formats such as EPS, JPEG, PNG, Postscript, RTF and TIFF. The full Acrobat 5 package also allows export of graphics and text elements from a PDF file for reuse elsewhere.

Despite limitations, Mac OS X's Preview utility provides Mac users a new, simple, and quite powerful way to create Adobe Acrobat files for archiving and sharing. ■



Preview's File Saving: Beside letting you save print preview files as Adobe Acrobat PDF, the Preview utility also lets you convert graphics files to other file types such as SGI, Photoshop, JPEG, TIFF, and QuickTime. If you want to convert any graphics file to PDF just print to Preview using Preview's print command, and save the file as PDF.

Pi Member Dennis Dimick can be reached via email: ddimick@aol.com.

Jedi versus the Borg: Mac OS X in a Microsoft World

By Lawrence I. Charters

Grumble, grumble

ONE OF THE great ironies of the past year is the success of Mac OS X. This might not be immediately obvious. Many long-time Mac fanatics have yet to succumb to the charms of the new, cutting-edge operating system, complaining loudly that Mac OS X isn't very Mac-like. Some noteworthy luminaries, including a few former high priests of the Macintosh user interface, have buttressed this claim, suggesting that there is nothing to the Macintosh *except* the interface, and that Mac OS X doesn't faithfully preserve it. Therefore, presumably, Mac OS X is nothing.

Moving away from the high priests to the world of the "average user," there are lots of raucous gripes about the number of applications available. "It has been almost a year; why haven't they ported Landfill Management 7.2 to Mac OS X? The entire landfill management industry will abandon the Mac for Windows if this isn't available on Mac OS X by Wednesday!" Apparently Apple, and the entire Mac vendor community, is criminally irresponsible for failing to duplicate in one year the wealth of applications developed for "classic" Mac OS over nearly twenty years. It would be a *shame* to have landfills run with Windows...

And yet – Mac OS X *is* a hit. There really are thousands of applications available, ranging from old mainstays such as ClarisWorks and Microsoft Office to spectacular brand new ones such as OmniWeb, StoneStudio and Maya. Combined with the wealth of applications still available through Mac OS Classic, the range of choices and possibilities has never been greater.

"Lapsed Microsoftics: these tend to be users who were raised in Microsoft families, attended Microsoft schools, but found the Microsoft faith to be ethically, morally or digitally lacking, and are looking for salvation elsewhere."

Don't believe me? Then take a look:

http://www.apple.com/downloads/macosx/

http://www.versiontracker.com/macosx/

http://hyperarchive.lcs.mit.edu/HyperArchive/

http://download.cnet.com/

http://guide.apple.com/

If the traditionalists seem to have colic, where are these ardent Mac OS X fans coming from? After all, in the "real world," Windows won, so if the Mac faithful have lost faith, who is left? Is there anybody?

Elsewhere...

Despite the headlines, the world has not been totally consumed by Microsoft. True, Windows (all flavors) and Mac OS (all flavors) do account for somewhere around 95% of those roaming the Internet (one of the easiest things to measure), but there are lots of other strange beasts out there. If you administer a Web server, you'll see the occasional visits from WebTV users (no computer at all, really), BeOS stalwarts, UNIX gurus in various guises, Linux fanatics, and even an occasional Atari user. The universe of the Internet is rich and varied, though a few

areas – the vast wastelands of MSN (Microsoft Network), for example – are devoid of diversity, having fallen victim to digital ethnic cleansing.

Microsoft intends to rid the computing world of chaos by making it one homogenous offshoot of – surprise! – Microsoft. Web designers and program writers, in the forthcoming Brave New World, will no longer have to worry if people are using a Mac or a PC or a UNIX machine, or are using Microsoft Internet Explorer or Netscape or Opera or OmniWeb. The clamorous din of the rabble will give way to the nice, melodious major and minor chords of the Microsoft opera, with an all-Microsoft cast playing all major, minor and supporting roles.

Or not. There is no question a large ABM (Anybody But Microsoft) movement is active in the digital world. The rebels seem to be divided into three main camps:

1) Linux and UNIX users: these tend to be technically savvy users who want more control over their digital lives than Microsoft offers.
2) Apple users: these tend to be users who see computers as both a tool and an esthetic, and find the Microsoft world too confining and confounding.
3) Lapsed Microsoftics: these tend to be users who were raised in Microsoft families, attended Microsoft schools, but found the Microsoft faith to be ethically, morally or digitally lacking, and are looking for salvation elsewhere.

These camps, until recently, had almost nothing in common. The Linux/UNIX zealots were considered throwbacks to an earlier, more complex era in computing; the Apple/Mac users were not *really* computer users at all, but coddled, pampered members of an odd cult; and the lapsed Microsoftics were no different than any group bordering on apostasy – more noted for their anger and discontent than for anything else.

Until recently, the ABM forces seemed to be nothing but annoying footnotes. Microsoft's libretto, composed with Microsoft software and printed on Microsoft Partner-approved equipment, seemed to be the only show in town. Until recently –

So what happened recently? Mac OS X happened. Combining something old (UNIX) with something new (powerful desktop and laptop machines) and something not quite new (traditional, "Classic" Mac OS), Mac OS X has created a sensation in the UNIX and Linux communities. Apple's "free" programs – iTunes, iMovie, iPhoto – have seduced countless thousands of Windows users into "trying out" Macs. Now, if the Macintosh grumps would only get on the bandwagon...

What does UNIX offer that Windows doesn't? The answer: freedom. Since 1969, UNIX has had an odd life, growing up in research labs and universities. These environments put a premium on getting things done, and assume the user is halfway intelligent. How something looks is irrelevant – unless, of course, "look" is important to a task – so ease of use, and even consistency, are not as important as function. Even more striking is the reward system: researchers and scholars are rewarded with recognition for getting something done, rather than (ahem) money, so there is a long history of free exchange of programs, techniques and discoveries in the UNIX world. As long as the source is credited, everyone is happy.

On the other hand, all attempts to make UNIX a "commercial" operating system have failed. In fact, about the same time Apple introduced the Macintosh, a company called Fortune introduced a UNIX-based desktop machine with a nice graphical front end; Fortune vanished without trace, as have countless other attempts. The university and professional UNIX fans split into two competing camps, with the West Coast factions favoring BSD (Berkeley Software Distribution) UNIX and the East Coast factions favoring AT&T UNIX, both of which rarely left the campus or research park.

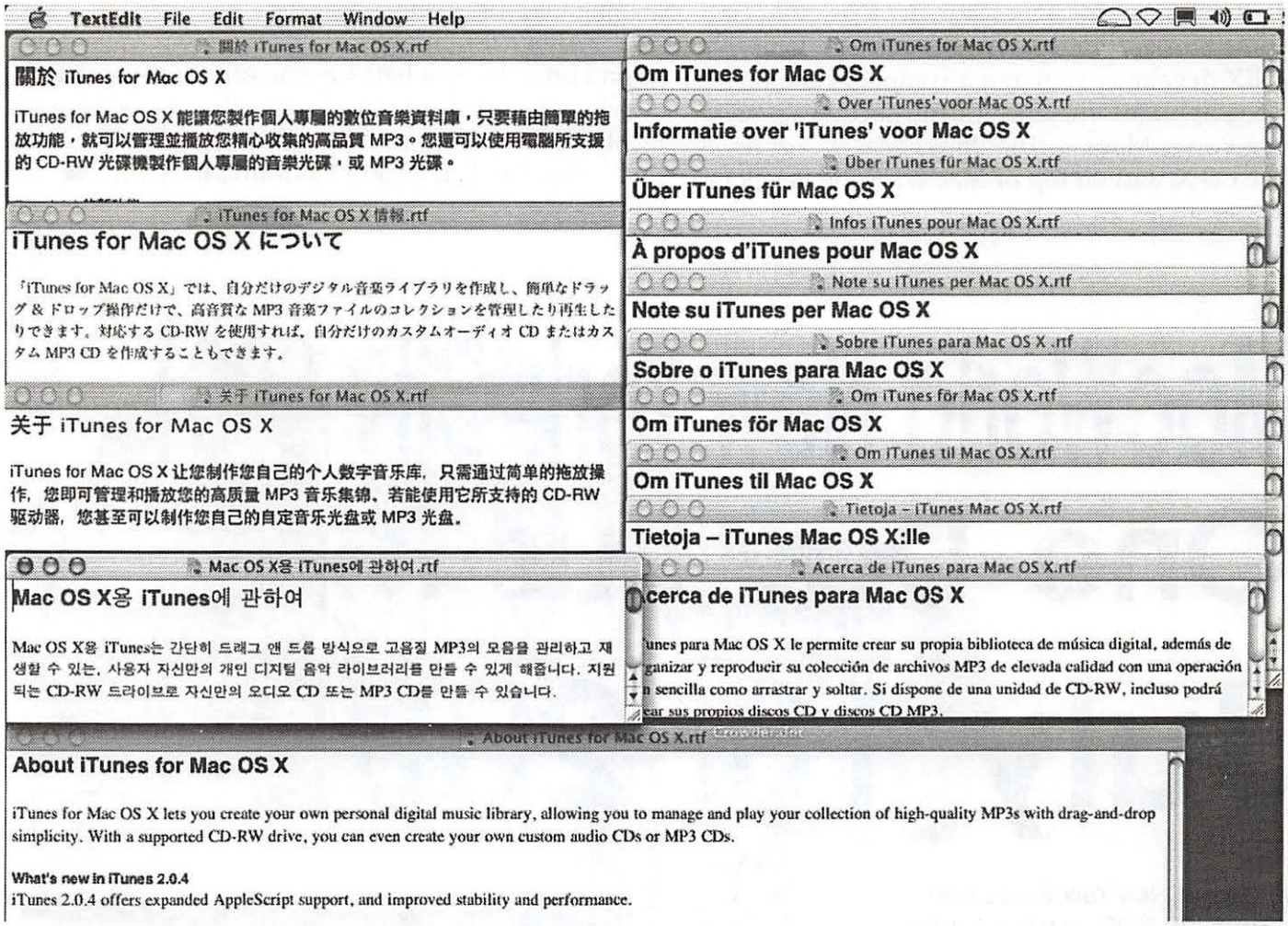
In the 1990s, Hewlett-Packard (H-P), Silicon Graphics (SGI) and Sun all managed to make UNIX popular for high-end scientific workstations, but SGI has since left the UNIX fold, and H-P is now concentrating on consumer-level Windows computers. Meanwhile, Linux, an open source UNIX work-alike, burst on the scene, running on inexpensive Intel-based computers and gradually creeping into the "professional" UNIX bastions. The grass-roots popularity of Linux inspired investors to sink billions of dollars in companies that would "bring Linux to the desktop," competing with Windows. It didn't happen.

Mixed movie metaphors

Instead, Mac OS X happened. Apple, the only survivor of the "original" personal computer companies (Apple, Atari, Commodore and Radio Shack), took BSD UNIX, wrapped it in an attractive Aqua shell, and – amazing! – successfully sold it to the masses. When 2002 dawned, Apple, of all things, was the largest manufacturer of UNIX workstations in the world.

And, unlike Sun or H-P UNIX, or Linux, Mac OS X is easy to install, easy to update, easy to configure, and easy to use. Most revolutionary, of course, is that you can use Mac OS X and never bother to learn much, if anything, about UNIX. The original Mac OS X 10.0 release wasn't particularly Mac-like, but it certainly wasn't much like UNIX, either. The current version (as of this writing, Mac OS X 10.1.3) looks and acts very Mac-like indeed. No, it isn't the same as Mac OS 9 – but that's not all bad, either.

For Linux zealots, Mac OS X offers the power of UNIX (which is what attracted them to Linux in the first place) coupled with the ease of use of a Macintosh. For Windows apostates, Mac OS X offers a new-found freedom from the dictates of Redmond, and a chance to see if the grass really is greener on the other side of the fence. For open-source software authors, Mac OS X offers an inexpensive, widely supported, and stunningly attractive platform for showing off their wares. For all of



The multi-language support in Mac OS X, including support of non-Roman languages, is nothing less than astonishing. Opening up all the Read-Me files for iTunes is a trivial, but spectacular, demonstration of Apple's low-key campaign to win converts through, literally, speaking their own language.

them, there are those marvelous toys: iMovie, iDVD, iPhoto, iTunes, iPod...

Apple has stumbled on an interesting strategy for expanding its market share. While Microsoft tries to assimilate everyone and everything into the Microsoft way (their headquarters address, not surprisingly, is One Microsoft Way), Apple gently promotes a more accommodating style, in tune with the fabric of the universe rather than in opposition to it.

Apple claims it is not at war with Microsoft – and that is true. The Apple Jedi Knights are not interested in battle; instead, they are showing an alternate, very attractive path. They do not oppose the Microsoft Borg Collective, but they don't want to be part of it, either. And that freedom from the Collective is quickly gathering converts from the other digital disciplines.

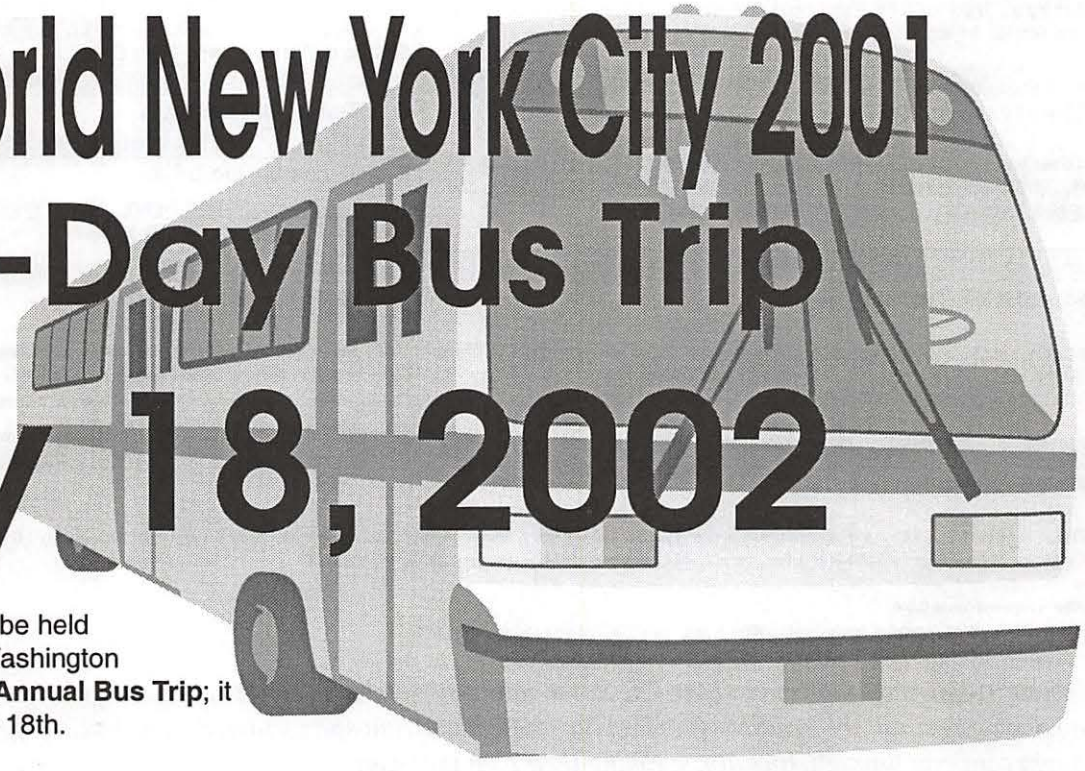
At a recent trade show, I found one long-time UNIX developer showing a complex suite of GIS (Geographic Information System) packages running on a Power Mac G4. The Power Mac was running Mac OS X, and on top of Mac OS X the developer was running X11 (X Window), the classic UNIX graphical user interface. On top of X11, he was running the suite of GIS packages.

> "Apparently Apple, and the entire Mac vendor community, is criminally irresponsible for failing to duplicate in one year the wealth of applications developed for "classic" Mac OS over nearly twenty years."

After a few minutes, he closed down X Window, and brought up a beta-version of the GIS packages which he'd rewritten to take explicit advantage of Mac OS X and Aqua. "This will be much better."

Another Jedi Knight has found the path. ■

MacWorld New York City 2001
One-Day Bus Trip
July 18, 2002



MacWorld New York will be held July 16-19, 2002. Join Washington Apple Pi for this **Fourth Annual Bus Trip**; it will be on Thursday, July 18th. Start making plans now!

What Conditon Are Your Windows In?

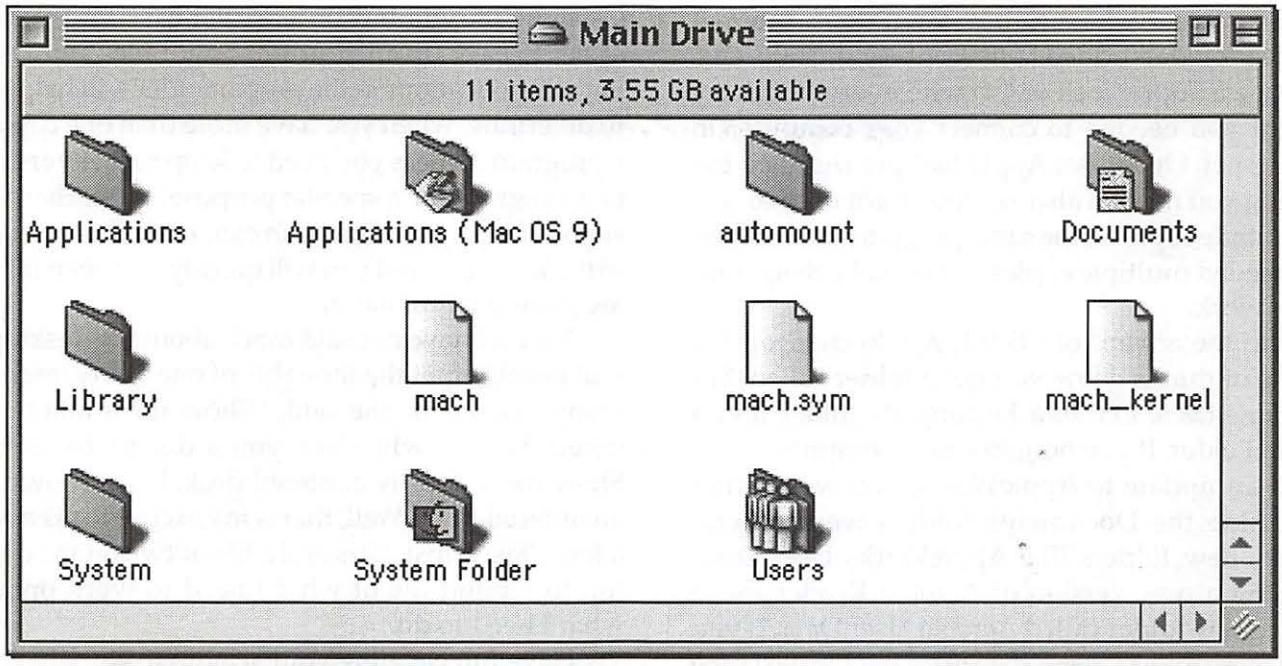
By Pat Fauquet

IN MY WORK I get to see a lot of computers and I get to open many hard drives. Over the years, I have learned many things about people by the way the that first window looks. Too often I see the window in a list view. As soon as I see that, I can tell you a lot about the personal habits of the owner. Although the desktop or finder may be in utter disarray, he thinks he has the rest of his computer well under control. You see, you can see everything on the hard drive, just by clicking on a few of those disclosure triangles. Of course, the fact that you must often scroll until the end of time to see the things at the bottom, the owner thinks he has everything under control.

WRONG. Using the list view means that the owner probably has multiple copies of multiple programs and NOTHING is where it belongs. So, what does that mean? Well, applications (programs) belong in the Applications folder. Documents belong in the Documents folder, and on the first level of your hard drive, there should only be a few items.

Over the years, Apple has modernized their thinking as to where things belong. Before OS 7.5, computer hard drives were small and a box or two of floppies could be used to back up an entire hard drive—so you could store everything anywhere and it did not really matter. During the Performa years, Apple came to recognize that hard drives were getting bigger and that computer users were getting messier, so they came up with an addition to the General control panel. If you clicked the correct radio button, the System made a pretty little file folder with a document on the front of it and placed it on the desktop. If you kept the radio button clicked, everything you saved found its way to that folder. The only problem was that every time you tried to open a preexisting item, you were unceremoniously thrown back to the Documents folder. Apple put aliases of things like AppleWorks clip art in the documents folder, but most people never caught on that they were supposed to add lots of aliases to the Documents folder to lead you to the places where files like clip art and templates were stored.

I spent lots of time teaching classes at WAP and



was able to explain just how to use the Documents folder, but there were great unwashed masses left who never caught on. With later versions of the operating system, the documents folder moved from the desktop to the hard drive. I still have lots of people tell me that if something is on the desktop, its not on their hard drive. Think about it. Your computer stores everything on the hard drive. If it is not on the hard drive, it is not on your computer. Behind the scenes, there is an invisible folder called Desktop. Inside that invisible folder are all the things that you think are on the desktop, but not on the hard drive. So, yes, they really are on the hard drive.

As people began to add more and more programs to their computer, Apple instituted the Applications folder. When you bought a new Mac, everything was neatly arranged with all the programs that came with your computer residing in the correct folder, but as soon as you installed a new application, the system began to break down. People did not move the new programs to the Applications folder, but instead left them in the first window of their hard drive. As that window became cluttered, it became easier to simply view everything in a list view. Of course, Apple did not help things along. Besides the Application folder, there was another folder labeled Internet, and yet another folder labeled Utilities. That led to all sorts of confusion. All three folders contained applications, but there were three separate folders, so it was never clear where to put new things. Internet Service Providers added to the confusion. They gave everyone a floppy disk or CD with everything they thought you needed to connect your computer to the Internet. Of course, Apple had pre-installed everything you needed also, so people got used to seeing multiple copies of the same program and thought they needed multiple copies just to make their computers work.

With the advent of OS 9.1, Apple changed the scheme of things. Now you got a folder called Applications (Mac OS 9), a Documents folder and a System Folder. If you bought a new computer or installed an update to AppleWorks, you would find that inside the Documents folders were several strange, new folders like AppleWorks User Data. Installing a new version of Acrobat Reader made another new folder called Acrobat User Data. If you throw these folders away, they reappear the next time you start their program.

"You see, you can see everything on the hard drive, just by clicking on a few of those disclosure triangles. Of course, the fact that you must often scroll until the end of time to see the things at the bottom, the owner thinks he has everything under control."

Installing OS X adds a few more folders, and you better LEAVE THEM ALONE!
Now you see an Applications folder, another one labeled Library, and another one labeled System. If you are booted into OS 9, you may see some strange, blank documents labeled mach, mach sym and mach_kernel. A file folder labeled automount is also visible. If you do not recognize a file in the window, don't assume it is just junk. Throwing it away may make OS X unusable and if you do not know how to reload the system software, you may find yourself visiting the WAP Tuesday Night Clinic.

If your first level window of your hard drive has documents and applications, log files and old installers, take a few minutes and clean up after yourself. Cleaning the window on a regular basis will make it easier to back up all your important files and keeping all applications in the proper folder will help you to determine when you have more than one copy of a program. Unless you need to keep earlier versions of a program for a specific purpose, the earlier versions need to go to the trash can. Keep this window in the icon view and you will quickly see when things are getting out of hand.

Notice I have not said much about the desktop. I will never forget the thoughts of one of my teachers many years ago. She said, "Show me a totally ordered desk, I will show you a disordered mind. Show me a slightly cluttered desk, I will show you an ordered mind Well, that is my excuse for keeping a few aliases, installers and a file or two on the desktop to remind me of what I need to work on and what I need to do.

Have fun cleaning your window! ■

Digital Video on the Cheap! (kind of)

by Guy Serle

IN THESE DAYS of iMovie and CD/DVD burners included with G4 iMacs, you would think the at home Digital Video revolution has just begun. You would be wrong. It actually started some time ago and it should come as no surprise to find out that Apple was, as they are now, at the forefront. Going back farther than the Windows 3.1 days, it was possible to get video into your Mac and do something with it. Just what you were going to do besides look at it on your computer monitor was beside the point. The door had opened a crack and wannabe Spielbergs everywhere were rejoicing. On machines as old as pre-PowerPC 040 based Performas, you could take a VCR, plug it in, and have jerky, 5 to 10 frames a second video captured on your Mac. We've come a long way since those days. Now your iMacs and G4 towers can create movies that rival what many Hollywood studios can produce. But there is a catch.

Money, Money, Money

I'm a father of two young boys, a mortgage holder, possessor of various credit cards, and a SUV that my bank still owns a significant portion of. As such, it is impossible to purchase all the tools that would be needed for a set-up capable of having me walking down that red carpet at Oscar time after directing the film adaptation of the Maltese Cube (Inflicted on you fine folks by yours truly and I won't apologize for it anymore).

Let's begin at the beginning. A MiniDV camera ($500-600 to start). A PowerMac G3/G4 (iMacDV, a G4 iMac, or Quicksilver tower, $800-2900). Minimum investment is $1300. No extra charges if you output to a CD Burner as most Macs these days come standard with a CD-R/RW burner. CDs however have a maximum storage capability of around 700 Megs. If your masterpiece is larger than that, you need to be able to burn to DVD ($600 for a FireWire DVD-RW drive, $1900 for the G4 iMac or $2300 for the Quicksilver Tower with a SuperDrive). Plus if your raw video is on VHS or Hi-8 videotape, a FireWire based analog to Digital Video (DV) converter ($250-400). Now our total is $1600-2600. That's quite a pile of cash for an occasional wedding or vacation video.

The next thing to consider is who is going to watch what you have created. Most homemade videos are created with a small number of spectators in mind. DVDs are great, but many older models may not be able to play discs burned with your Mac. This is not the fault of your computer, just a built in limitation to many first generation DVD players. A VCR is the obvious choice depending on your audience. If you plan on sending your Magnus Opus to all your friends and relatives, they might not have DVD players, but you can pretty much assume they will all have VCRs. With that in mind, you still need the aforementioned digital to analog video converter. Throw in another $250-400. I haven't begun to talk about software yet. That can range from the free iMovie, a more professional package like Apple's Final Cut Pro ($999), or OH MY LORD, YOU'VE GOT TO BE KIDDING!

Add up the numbers yourself. Apple has done a fine job in getting the necessary apparatus into the hands of us true believers. But they never said it would be cheap.

There is another way

If you are willing to make certain sacrifices, Digital Video can be had for a fraction of the cost listed above. You may have to search the deepest, darkest corners of the world to do it, but it can be achieved.

First off, let's talk about a Mac. It should be at least a G3, although some 604 based machines may also be capable enough. We're at the point now that used Beige G3 desktops and mini-towers are quite reasonable. Most of these beige G3 models also have a slot (not PCI/AGP, but yet another proprietary Apple slot) for an A/V module even if one was not included when originally purchased. You can search your local papers and swap meets, but there is no guarantee you'll find anything like what you'll need. There are other sources. Check the back of the ma-

jor Macintosh magazines (MacWorld, MacAddict, or MacHome) and resellers abound with used Macs and peripherals. Most of these machines were formally owned in the corporate world, and were well taken care of. Be advised however, that this is also probably the most expensive way to go. SOMEONE has to pay for all that ad space and guess who it is.

On the local front, there are several computer resellers that have Macs for sale. Since they don't advertise with the WAP Journal, I won't mention any by name, but there is an excellent reseller in the Tyson's Corner area that usually has a good selection of used iMacs, Blue and White G3 towers, and some Grey and White G4 towers as well. I know of another one that exists in Springfield, Virginia. Just don't expect a lot in the way of information on all things Mac from most resellers as their focus is usually on the PC side.

Another place to check are the Internet auction sites. I have been using eBay for many Macintosh related purchases for a couple of years now and I have had pretty good luck with the majority of my transactions. As with most things having to do with Internet sales though, buyers beware. If you purchase an item from someone say in California, and it doesn't meet your expectations, generally you're out of luck. It would cost more than item is probably worth to pursue it very far. There are things you can do to minimize your risks. First, know what it is you're looking for. Do a little research. If the seller doesn't describe the item for sale with very much detail, this can mean two things. Either he doesn't know very much about what he's selling, or he doesn't want to detail in print what's wrong with it. Be apprehensive of ads touting an unbelievable price with "As is". Another way to protect yourself is to limit the number of sellers you look at to only those that reside within the region you live. This can also save you some shipping costs if the seller allows you to pick it personally.

Ebay breaks down it's auctions into categories and Apple has one of its very own. Make your way to the computer auctions and select "Apple". Once you're there, it's a good idea to bookmark the page if you think you might go there often. Ebay also allows you to search for specific items based on keywords. You might enter in "beige" if you're looking for an older G3 model or "A/V" for computers with that kind of feature.

Last but not least, there is the twice a year Apple Pi garage sale. You can find some unbelievable bargains there and occasionally dealers will haggle to make a sale. Best of all, for a small donation, you can take your possible purchase to the Apple Pi table and have their team of experts check out your machine for you. Try that at CompUSA.

Let me use myself as an example. At a previous Apple Pi garage sale, I found a 300Mhz G3 desktop with 64 megs of RAM and a 6 gig hard drive for $275. I had Apple Pi check it out and it was all good. KACHING! One very capable Mac bought. Next I went to another dealer and got three 256 SDRAM modules for about $100. KACHING! Maxed out the memory. Lastly I had to deal with the inadequate hard drive. Remember that Digital Video takes up a LOT of room. Another dealer and KACHING! $100 for a 40 gig IDE internal drive. Now I had almost everything I needed (or so I thought). The last piece of the hardware puzzle was acquiring an A/V module. The A/V module I wanted has multiple in/out RCA (standard audio/video connectors found on every VCR and stereo component) jacks and S-Video plugs. I didn't find any at the sale, so it was off to eBay. I was stunned to find out that while plenty of these modules were available, they were much more expensive than I had anticipated. Most were selling in the $300 range. YIKES! More than I paid for my new/used Mac! Perseverance and timing can be everything in on-line auctions. Some weeks later, I got one for around $200. Installed it and got ready to rumble!

I found an older copy of Strata VideoShop 4.01 for about $30. No manual. Lots of trial and error in figuring out what settings to use. What I discovered was that this is a very powerful program packed with features that iMovie doesn't have. Harder to use and the learning curve was higher, but the end result was worth it. Experimenting with small movies by adding transitions (smooth cuts from one scene to another), titles, and separate music tracks, I came up with about 5 minutes of video, ready to be transferred to videotape. Except when I hit the "Print to Video" menu selection, nothing transferred to the TV through the A/V module. DOH!

CAPTAIN! She dinna can take anymore!

What I eventually figured out was that while the beige G3 model came with a very nice Rage 128 graphics chip, they maxed out at 6 megs of video ram. There wasn't enough OOMPH for what I was trying to do. Once again, fortune smiled on me as I had also been on the lookout for another PCI based video card. I lucked into an early ATI Radeon Board with 32 Megs of video ram for $100. After getting the card, I went to ATI's web site and downloaded the driver. Everything went perfect. The card was installed, I had the horsepower needed for multiple displays. I took my little 5 minute movie and output it to my TV/VCR. A happy ending? Nope.

The video indeed transferred through the A/V module out to my VCR. The result was unfortunately not what I expected. Many lost frames and the audio was not in sync with the video. Full screen video at 30 frames per second (fps) was not going to be possible with this machine in its present configuration. There are solutions to these difficulties, but they entail more money spent on hardware without a guarantee. I could eBay around and find a replacement faster G3/G4 processor (another $150-250), but that wouldn't solve the big problem. My G3 300AV beige desktop bus speed tops out at 66MHZ. This was a bottleneck that no amount of money was going to solve. What to do, what to do?

Lowered Expectations

As with most obstacles, there was a solution. I had recorded the video for my little movie at 640 by 480 resolution at 30 fps. Checking the recording preferences, I found that I had choices at lower resolutions. 320 by 240 was too small. It only filled half the screen and that was unexceptable. The next one up was 384 by 288. This got me up to 60 percent screen size. Still small, but I could live with it. I also can experiment with reducing the number of frames a second, but the point here was to have full 30 fps. Mission accomplished. A lot of digging, hard work, and lost sleep, but it works.

One other thing that is significant. It you really want to, you can input analog video and convert it to the type of file format (.dv) that is accepted by iMovie. On older machines (pre-DV iMacs) this requires two more pieces of software, both available

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"If you are willing to make certain sacrifices, Digital Video can be had for a fraction of the cost listed above. You may have to search the deepest, darkest corners of the world to do it, but it can be achieved."

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at low cost from Apple. First off, you need iMovie. If you don't own an Apple DV equipped computer (where it was included), iMovie is obtainable through the Apple web site as a 9.2 Mb download for $49. Secondly, you need QuickTime Pro (version 5 is the latest). You can also get this as a download for $29 from Apple. If like me, you only have a 56k connection to the internet from your ISP of choice, this will take a looooong time. If you don't have the time or patience to wait, go to your nearest Apple Store with a blank CD-R. They all have super fast T-1 connections and will connect you and your credit card to Apple. After the download, insert your blank CD-R, format it (Apple reps at the store will help you with all of this), and transfer your files to the disk. Install, restart, and you're ready for the next step.

First, input your video through whatever program works for this task. Strata VideoShop or iRez Reeleyes are the ones I use. You'll need to experiment to find your highest resolution and frame rate. Save your raw unedited video as QuickTime files. Now open QuickTime Pro. Open the one of files you just created. Under the File menu, select export. When the dialog box opens, select DV streaming (rename the file if you wish) and hit OK. Now go get a cup of coffee and finish that patchwork quilt you've been working on for so long because depending on how big the original file was, this might take some time. Once the conversion process is complete, drag and drop your newly created .dv file into iMovie's media folder. The next time you open iMovie, it will tell you that new files are available and ask if you want it in the video bin. Answer yes and your once

analog video is now ready to be used digitally in iMovie.

You say you want a resolution...

I wish I could tell you that the results look great, but I hate to lie. Most analog video camcorders are going to record video at 300 to 400 lines of resolution, while digital camcorders are typically much higher in the 500 to 600 range. More lines of resolution are better. Now add in that your 320 by 240 (or slightly higher) original analog video is expanded by iMovie to 768 by 576 and what you are left with is messy. If you absolutely have to use iMovie, you're going to be better off getting an analog to digital FireWire converter.

One last odd thing. While I used VideoShop to input and edit my video, I have begun using QuickTime Pro to output it through my A/V card. For some reason I can't explain, QuickTime Pro increased the size of the video on my TV monitor as compared to VideoShop without any decrease in quality and frames per second. Why? I have no idea, but that alone made the $29 bucks I spent for QuickTime Pro worth it all by itself.

Total costs for my video set-up? Around $800 (300MHZ G3/AV beige desktop with 768 megs of SDRAM, a 40 gig hard drive, an ATI Radeon with 32 megs of video RAM, and video editing software). Keep in mind that for this same amount, you could have a new DV ready G3 iMac. It would have a faster processor and bus speed, but less RAM, a less capable video card, a smaller hard drive, and you would still need a digital to analog converter to output to a VCR. An older iBook with FireWire using a converter would work too. You could also buy a used DV capable iMac for $500 or less and not have to go through all the hassle of scavenging around for parts. But where's the fun in that? ■

*The author currently owns five different Macs. A Performa 575, a PowerBook 180, an APS M*Power 200 (StarMax 604 clone), a UMAX C600 (Tanzania motherboard upgraded to a G3), and the beige desktop G3 mentioned in this article. His wife has promised to divorce him if he brings one more computer into the house and he again apologizes for the Maltese Cube story.*

Review: AppleCare Protection Plan

by Paul Gerstenbluth
(www.gerstenbluth.com)

AppleCare by the Numbers

I SAW A flash of light coming from the face of my iMac monitor. Not good, I thought. When my old television monitor did that the picture tube no longer worked and I had to replace the TV. Fortunately, when I restarted my iMac, the monitor reset itself.

Applecare Sounds Better

The next day, I received another call from Apple to extend my AppleCare Protection Plan. It sounded better and I was reminded that Apple was going to give me a three (3) year extension on my iMac for $142 and also send me a Micromat TechTool Deluxe CD.

Prior to that they send me AppleCare Protection Plan hardcopy to purchase the plan for $147. Wow, I was going to save $5 by talking directly with the AppleCare Protection Plan Rep. Now, if they would give me three years instead of two (2) mentioned on the hardcopy-I would be extremely happy.

Studying the Specs

First, I studied the AppleCare Protection Plan forms Apple previously send me. I noted the following "Lawyer Talk" provisions:

Coverage—for a period of three years from your date of purchase. Have the qualifying Apple product or products, Apple (a) covers defects in materials and workmanship for the Apple-branded equipment ("Covered Equipment") listed on the Plan Confirmation, and (b) provides you with access to telephone and web site technical support.

Does Not Cover—Repair arising from damage due to accident, abuse, neglect, misuse (including faulty installation, repair, or maintenance by anyone other than Apple or an Apple authorized Service Provider), unauthorized modification, improper environment (including lack of proper temperature or humidity), unusual physical or electrical stress orinterference, failure or fluctuation of electrical power, lightning, static electricity, fire, or acts of God.

Obtaining Technical Support under this Plan

You may obtain telephone technical support by calling the telephone number provided in the AppleCare Protection Plan User Guide. Information about Apple's hours of service is available at this telephone number (Apple reserves the r' 'ht to change its hours of service atany time). You may obtain technical support by pointing your browser to the web site URL provided in the AppleCare Protection Plan User Guide.

Transfer of Plan

You may transfer your entitlement under this Plan to a new owner of the Covered Equipment by calling Apple at the telephone number in the User Guide.

A Marriage Made in Heaven

After I said, "I do to Apple," I purchased the AppleCare Protection Plan. When I received my invoice receipt from Apple Computer, I discovered that the 3 Year iMac apply to the originial date of purchase plus three years or in the real world two years beyond the Apple hardware warranty.

I called Apple for confirmation on the two years beyond the Apple hardware warranty since I thought it was three years. The Apple Rep informed me that two vs. three years confusion was typical observation. The big PLUS was that I would receive telephone tech support from Apple for the two years beyond the Apple hardware warranty. If you had the standard one-year purchase plan I would have only received 90 days telephone tech support.

Micromat TechTool Deluxe CD for Help

AppleCare Protection Plan CD Quick Reference Card informed me that Micromat TechTool Deluxe CD is a powerful diagnostic tool. TechTool Deluxe tests for major hardware components and can repair certain system conflicts.

The impressions I receive from Apple is to first run Micromat TechTool Deluxe CD then follow the prompts to fix the software problems. Second, if you have further problems on your computer contact Apple with a list that Micromat TechTool Deluxe cannot repair.

TechTool Deluxe is a "lite" version of Micromat's TechTool Pro product. It offers users the ability to isolate and repair problems with data written to disk drives, and also checks a variety of operational characteristics of your Mac, including RAM, ROM, drive mechanism, and much more. The new version of TechTool Deluxe, 2.5.6, includes support for newer Macintosh models and new operating system versions. The new version also contains new drive repair routines, according to Micromat.

Visit the website at <http://www.micromat.com/deluxe/main_techTool_Deluxe.html> for futher information. Note: You upgrade from TechTool Deluxe to TechTool Pro by contacting Micromat directly. The price is $49.95.

Final Reactions

If you own Norton Utilities and you are lucky enough to live in a perfect "Candide World" and have the direct help from Washington Apple Pi, then save your money.

For the rest of our Macintosh Users, I recommend AppleCare Protection Plan with the Micromat TechTool Deluxe CD.

Point: To receive the best deal, I recommend AppleCare Protection Plan when you first buy your iMac. You receive the full three (3) years from Apple.

Counter Point: If you don't disconnect your modem during an electrical storm or have a good surge protector and you fry your computer; you just invalidated your AppleCare Protection Plan. ■

Paul Gerstenbluth is President of the ARIE Foundation. The ARIE Foundation's mission is to provide VA hospitalized patients with hobby materials and computers that helps in their stay and recovery.

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AppleWorks and Page Layout

By Christopher Nye

PARAGRAPHS! (YAWN!) Who cares? We think of the words, we type the words, we see the words. What else is there to word processing? Lots that is hidden from the naked eye.

Invisible characters, formatting features, baselines and kerning controls. Hey, Chris, stop speaking Greek and give me the stuff I can understand. Okay, I'll cave.

All these elements control how your text looks on the displayed and printed page. When things appear to be wrong in the way you want things to look, an understanding of text formatting elements can help you quickly give your project desirable results. Here's the inside scoop.

Formatting refers to several different classes of page layout elements—character, which refers to individual letters; paragraph, which refers to the space between hits of the Return key; and section, which allows you to divide a document into different adjustable chunks.

Character formatting is pretty easy to understand because it is so visible and the choices so simple. Font face which is the shape of the letters; font size which is the height of the letter, usually in points; style, which may be bold, underline, italic, etc; color (do I really have to explain this one?) kerning, which is the closeness of one letter to another; subscript and superscript which are characters that are raised slightly above or below a characters base level.

Paragraph formatting is much more sophisticated, and, mostly invisible, so it is a bit harder to grasp. To understand it better just fire up ole ClarisWorks and hit the Command-semicolon key combination and this will turn on the Show Invisibles feature which allows you to see the strange world of page formatting symbols. You could think of the invisibles as the equivalent to the rests in music—the silence between the notes. They are the open space on the page. The most basic type of open space is the, uh, well, uh, space. A simple tap of the space bar is represented by a small dot hovering in between two letters and is actually a character and not a format. Words are defined by the spaces between them. Next up is the paragraph itself, represented by a bent down and to the left arrow. This shows that a new line has been added and the cursor returned to the left side of the page. Clever, huh? Text as it is typed is automatically wrapped down to the next line by the computer so you don't need to hit the Return at the end of the line as in the olden days (that is, the time of Lincoln.) The material typed in front of a Return is a paragraph. There is important information "stored" in that Return such as the current character formatting, paragraph alignment, line spacing or baseline control, margin settings and tab settings.

Alignment is usually left, centered, right or "justified" between the margin settings (justified means the ends of the text line is aligned flush with the margins so the margins are neat and tidy.) Margins are adjustable in the ruler and you can find controls for setting the alignment there as well.

Line spacing is the amount of room between the lines of text and once set is fixed for the whole paragraph. To adjust it double click on the Line Adjustment widget in the ruler. There you will also see adjustments for the indentation of the line, which is similar to the margin setting except margin is more global, i.e. controls the whole space around the edge of the printable area. You can also elect to have your lines spaced in different measurements such as points or picas which can allow you to fine tune document layout for when you need that tight squeeze.

Tabs can be set two ways. Easy—drag the tab stop of your choice from the tab bar onto the ruler at the spot you choose. Tricky—double click the tab stop of your choice and make adjustments there which also give you a "fill" option—the ability to have the blank space filled in with dots or underlining for legibility. Tabs are represented invisibly by small right pointing black arrows where each hit of the Tab key is made.

Lastly we come to the Section format. Examples of section formatting are columns, page breaks, col-

umn breaks, footnotes, headers and footers. A page break (chosen from the Format menu) allows you to start a new page in a document to add information without first having to fill in the whole first page. Not used often but occasionally handy.

Columns are added or removed by clicking on the column control. A page is, by default, one column. Once additional columns are created you can jump to the beginning of a new one by hitting Shift-Enter so you don't need to fill in the whole previous column with information first. Good deal. This can be useful for creating side by side lists. Double clicking the column tool brings up the Section dialog box where you can make all the adjustments for the section at one time. Here you can make custom adjustments for your columns.

Headers and footers are special space at the top and bottom of the page, respectively, where you can include information that will repeat identically on each page of the section. (You can elect to have the information be different for each section.) Footnotes on the other hand are a special space at the bottom of the page before the footer where information for the footnotes is stored, or you can elect to have all your footnotes appear at the end of the section.)

A few last words. There are also special invisible characters for Insert Date and Insert Time though you cannot see them. What you see instead is the date or time. Once they are set you cannot change them. But if you close your document and open it tomorrow you will see the elements updated to the current values.

Selection. We all know that to select characters you must click and drag across them before you can make any changes. To select a paragraph or section, though, is frightfully easy. You simply have to click in the paragraph or section so the blinking cursor is there and then apply your changes.

Tweaking layout elements into place can be a royal pain in the tuchus. But the results can be beautiful. And like anything else, once mastered they can be applied quickly, easily without too much discomfort. I wish you success in employing the features I have described here. Adieu. ■ —Christopher Nye

From the June 2001 ***MLMUG Journal***, newsletter of the Main Line MUG (PA).

Graphics File Formats Explained

by Tim Thomas

MAC USERS HAVE always had it easy where file formats are concerned. That is, at least compared to users of other computer types.

For the most part, on the Macintosh you just double-click on a file, and the operating system is smart enough to find the application that created the file, launch it for you, and then open the file.

But things can be a little more complicated, especially for folks using digital cameras, scanners, or any of the multitude of graphics applications out there today. The problem is, there are a lot of ways to skin that graphics cat and you need to use the right method for the right kind of cat.

Sometimes you might want to make a picture file as small as possible, such as when you want to attach it to an email or upload it to your web site. Other times you might want to retain as much detail as possible, such as when you want to make a large print. And there are lots of possibilities in between.

Most digital cameras, scanners, and graphic applications give you plenty of options for saving files, but how do you know which one to use for each situation?

Here's a short primer to help get you going in the right direction.

The Formats

This is a list of the most common graphics file formats you will run into. While the list covers most of the familiar ones, there are perhaps a hundred more that are more esoteric you may never see. Also, this discussion relates to 2D formats only, not 3D or Multimedia formats. We'll save those for another time.

Let's begin with the bitmap (or raster) formats, which are most commonly used for photography and 'paint' programs.

PICT Picture

The oldest Macintosh graphics file format. PICT is strictly for the Mac, and is becoming rare. It's a simple bitmap format, supports RGB images, and can retain a single alpha channel. But don't use PICT, there are much better choices, and it's not cross-platform.

BMP Bitmap

If you exchange pictures with Windows users, you may see files with this format come from them. It's another simple bitmap format, and can use RLE compression. It's designated by Microsoft to be their native file format. You would be unlikely to need to choose this format for a file that you create.

PSD

This is the native Photoshop file format, and the only one that can save all of Photoshop's proprietary information. Although Photoshop offers you a multitude of format options in its Save dialog box, this is the format you'll want if you have created an image with layers, alpha channels, spot channels, or guides associated with it, if you want to have access to those things in the future. However, an image saved in this format can be quite large, and not something you'd want to send attached to an email.

Photoshop EPS Encapsulated PostScript

EPS is commonly used to save vector-based images, but it is also an option in Photoshop. It is useful if you have created an image that includes clipping paths when you want to use that image and its associated clipping path in a DTP application.

TIFF Tagged-Image-File-Format

It's hard to go wrong with TIFF if you want to select a format that retains high image quality and is very widely supported. Almost every graphics application can open a TIFF file, both on the Mac and other platforms. This is a good choice when scanning an image or when selecting a format on your digital camera. It's also the best choice for desktop publishing. TIFF does use a mild form of compression, but files can still be big.

RAW

This is a very basic image format that contains only a stream of the bits, on and off. It does not include any of the information about width and height, color mode, and so on. It was originally used by mainframe computers, and still might be useful if you needed to send a file for use on a mainframe.

It is also an option on some high-end digital cameras, and allows saving a huge amount of image data. But the file must be converted to something else before using on the Mac.

JPEG Joint-Photographic-Experts-Group.

This is the most widely used image format today. JPEG uses variable 'lossy' compression to reduce image size. The variable part is that you can select the amount of compression that you want. The lossy part refers to the way the compression works; it loses data, and that data can never be reclaimed. However, it is pretty smart about choosing the data that it loses.

Let's say that you have a photo taken outdoors on a nice day, and the sky is a pretty even shade of blue. Essentially, JPEG looks at all that sky and says, "Well, why save all those individual pixels when all we need to do is save one pixel of the color, and apply it to all that area of sky, since it's all the same." That scheme can save a lot of space.

Of course, there's a catch. There's always a catch. First of all, even in a sky that looks pretty smooth in color and shade, there are a lot of subtle differences. But JPEG figures that you'd rather lose some of that subtle difference in favor of a smaller file size.

And for the most part, it works pretty well, unless you get carried away and try to use too much compression. Then you begin to lose some not-so-subtle differences in color and shading, and you end up with an odd look to your picture. Better to try a less-aggressive use of this tool and make your image files a little larger than lose so much information that the image becomes a shadow of its former self.

When saving a file in the JPEG format, you decide how much compression to apply. In Photoshop, selecting 'Maximum' in this window applies almost no compression, hence the highest image quality. Selecting 'Low' results in a very small file, but at the expense of quality.

Oh, and if you are working on an original image, one for which you have no backup, always save the original as a TIFF or higher resolution JPEG file first. Then do a Save as... and save the image again as a more compressed file. Remember, you cannot go backwards; once that information is lost, it cannot be restored.

CompuServe GIF Graphics Information Format

This is a format that can be used for photos, but shouldn't. It was designed for other kinds of graphics and only includes 256 colors. Not for photos.

Vector Image Formats

Vector images are created by applications like Adobe Illustrator, Corel Draw, MacDraw (remember that one?), the Draw module in AppleWorks, and other applications that usually include the word "draw" in their titles.

Vector-based applications use mathematical formulas and logarithms to describe objects. In particular, these applications use PostScript, a code developed by Adobe, to describe an object. Once created, these objects remain discrete, meaning that no matter how many individual objects you create on a page, each of those objects can be individually selected and further manipulated, even if covered up by other objects.

In essence, all vector file formats are a variation of EPS. But they may well be proprietary and so only openable by the application that created them. So when saving a vector graphic to pass along to someone else or to use in another application, save it as an EPS. ■

From the March 2002 issue of *Communiqué*, newsletter of the Alaskan Apple User's Group.

I Made The Leap

By Bill Diffley

RECENTLY I upgraded to OS X. I t hought a review of the process might be encouraging to those that haven't. I'll start with my reasoning, continue with the preparation, onward to the process, results, and a few thoughts. The point of this story is not so much instructional as it is meant to be encouraging for those of you still sitting on the fence. If your time is limited feel free to scan the middle part. Most of those steps, while interesting and relevant to the final thoughts, were applicable to me.

My delay in switching to OS X, like many others, was due to the lack of OS X applications. Without applications there was no reason to switch. I waited, they came, and I switched. My needs are fairly simple and straightforward. I need Internet capability, web access and email. Having two teenage children made AOL access a necessity. I track the family finances. I write letters, use spreadsheets and database for a variety of tasks. I listen to music. And I am learning the ropes of movie editing. The two teenagers are in high school and must exchange a variety of documents with classmates for school projects. Guess what program that would mean. Along came Office X, Internet Explorer, AppleWorks, Quicken, AOL, iTunes, and iMovie. All were native to OS X. I need Windows for a couple of programs for work. Virtual PC was imminent for OS X. The time had come. And the preparation began.

The computer in question is an iMacDV, 400mhz, 128k ram, 13 GB hard drive. I could not make the processor faster without much effort. I could and should increase the memory. It was/is cheap. I bought 512 MB more and I now have 640 MB of RAM. I could not increase the size of the hard drive without much effort. It was fine until the movie editing began. I could, however, buy a big external drive. Some time before, as the iMac has a DVD-ROM internal drive, I had purchased a LaCie FireWire CD-RW drive. So I matched with it an 80 GB LaCie FireWire hard drive. I got a mac.com [iTools] account. I transferred data to Zip disks and to the new external drive. I purchased the aforementioned programs I had wanted/needed, including Mac OS X, of course.

It was an expensive process without a doubt. To a large extent the items I purchased are all items that would be of assistance with any future computers so I justified the cost to some extent. Certainly such purchases would not be necessary to all. I then put aside a day to make the change. One more note. I wanted to make the leap to Mac OS X without looking back to OS 9. Here we go.

I insured my data backups one more time. I made notes of my Internet setting (RoadRunner cable). I put in the Mac OS X CD and opened the installer. I read the latest Read Me file and, naturally, accepted the agreement involved. A couple of steps later I was given the choice of reformatting the hard drive as part of the installation process. My finger lingered over the mouse

button for some amount of time. Click! And the installation began and finished. I forget the time exactly. Seems like 15 to 30 min for the whole process. Restart and I was up and running with Mac OS X.

The Internet set up guide came up and I answered the questions. Internet Explorer was part of the installation. I launched it and was online. This was good. I had, though, forgotten to copy my favorites. However a lot of bad was left behind with the good so it was not a complete loss. So I continued. I launched the Mail program. I have Earthlink for when I travel (constantly). I insured the Earthlink account was activated in the Mail program. I entered my mac.com account. I cannot remember the exact details but I do remember it was not too tough. The help menu was sufficient. I do remember there is an extra setting in the set up for the mac.com account to send mail. That took a second trip to the help menu. I was thereafter able to check and send mail. This, too, was good. So I continued.

Next came the applications. AppleWorks came first. It is near and dear to my heart and held the place of honor. It installed easily and worked. So next I tried Office X. It installed easily and worked. On a side note: I have tested its compatibility with Windows Office files from friends, including PowerPoint. The files open flawlessly. My compliments of Microsoft. Up to this time I had been using Palm Desktop (and before that Claris Organizer). I had saved that database. I imported it into Entourage. It was all there. Again, my compliments to Microsoft. I set up my email accounts in Entourage. It was easier after my recent experience with the Mail program. Entourage worked as advertised. I installed Quicken 2002 and imported my 2001 data. It was all there. I put in a Zip disk and it showed up on the desktop. I turned on the hard drive and it showed up on the desktop. In effect everything was working in a grand manner. This was very good.

I then downloaded AOL for Mac OS X, installed it, and launched it. It worked. I downloaded a beta version of Palm Desktop. The beta aspect made me a little leery. It worked pretty well. And so it essentially lived up to the beta name. I think there will be a finished version available now so that will be a near term project. In summary, so far so good. Everything works: applications, Internet, peripherals. Excellent!

So I tried a couple more items. My daughter and I both had AirPort cards installed earlier. That's another story. I bought the new AirPort base station. I plugged it in and installed the software. I answered the questions in the setup and bingo I'm on the wireless Internet. I then made a couple of minor adjustments on my daughter's iBook and bingo she's on the wireless Internet. I will now cancel our second phone line and pay for the base station in less than a year. I bought a new cable modem (after receiving instructions from RoadRunner on preferred modems). With a very simple call to RoadRunner I was up and running with the new modem. I will turn in the rented modem and pay for the new one in ten month's time. Excellent!

> "My delay in switching to OS X, like many others, was due to the lack of OS X applications. Without applications there was no reason to switch. I waited, they came, and I switched."

The next step was the first falter. I ordered Virtual PC with Windows XP. Running Windows XP on top of Mac OS X was just too much for my 400 MHz G3. XP ran like molasses or quit or froze. I returned that version and bought Virtual PC with Windows 98. It is stable but quite, almost painfully, slow. But it works and will do the trick. As a comparison I run Virtual PC with Windows 95 on my trusty 266mhz PowerBook with 68 MB of RAM and get better results.

Finally, my thoughts. My 400mhz G3 must be near the low end of processors capable of running Mac OS X. I think Mac OS X is optimized for the G4 and future processors. I would hate to even think of running it with less than 256 MB of RAM. A graphics oriented application like Photoshop would likely be, again, painfully slow. But the good news is that the native programs I run work just fine. They seem to run at just about the same speed that they did under Mac OS 9. I am sure the extra memory helps. All the peripherals worked. The Internet connection worked even with the extra complications of a cable modem hooked up to an AirPort base station. Everything worked. I am up and running Mac OS X. I do not even have Mac OS 9 installed. I am ready for the now and the future. My compliments to Apple. ■

washington Apple pi general meetings

9 a.m.-noon

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

May General Meeting

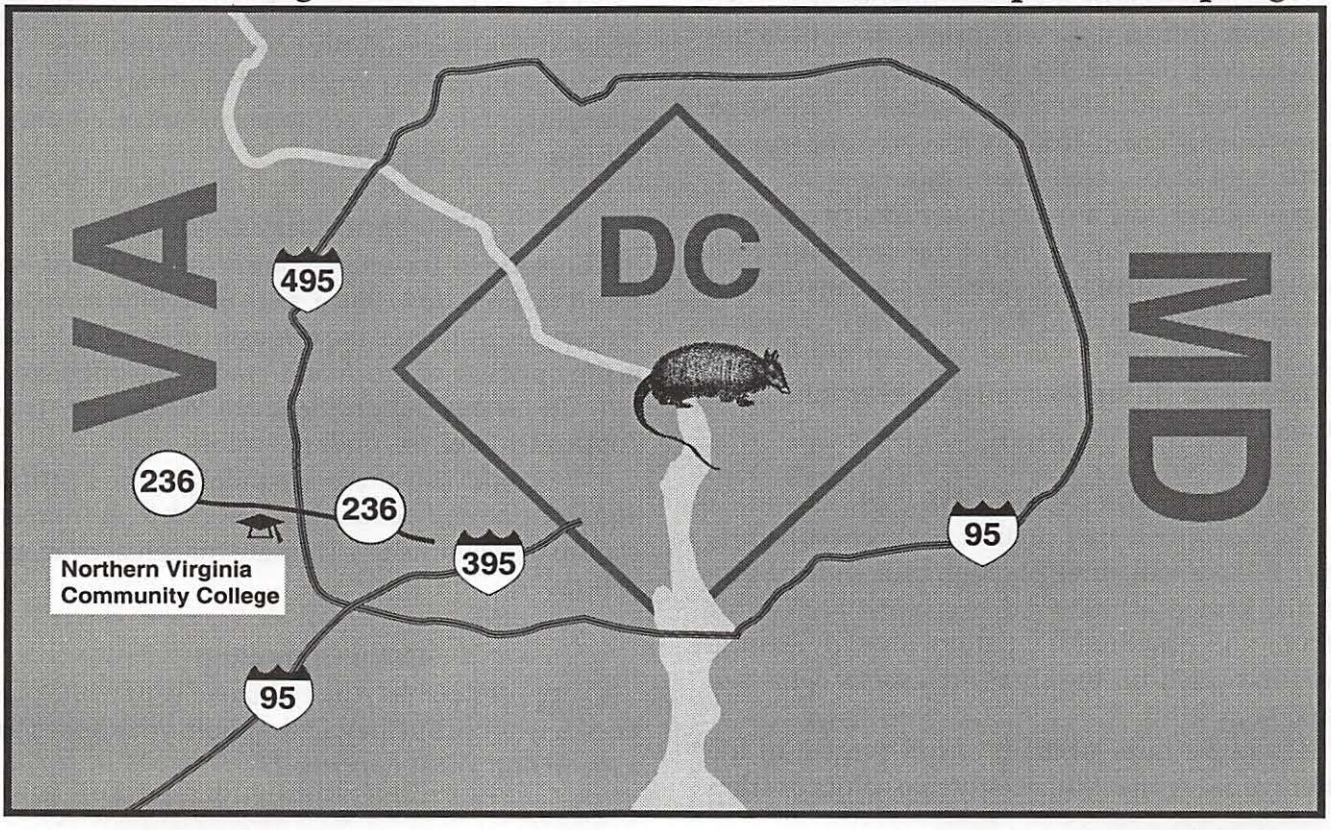
May 18, 2002
Armadillo Appreciation Day

June Garage Sale

June 15, 2002

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

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



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Understanding Color

By Bob Mulligan

This article explains how to understand and use color with your computer. It should help when you are creating a specific color, correcting a color graphic or photograph or writing HTML. You will learn how colors interact with each other by writing some HTML colors and viewing them on your Mac.

The Primary Colors

IF YOU STUDIED art, watercolors or oils, even crayons in grade school, you learned the primary colors were red, blue and yellow.

However, if you have worked with color in photography, lithography or computers you know the primary colors are red, green and blue. Which theory is correct? They both are!

There is a difference in eye response to color. Red, blue and yellow are the primaries when we view colors from a reflected surface, an artist's paper or canvas, flowers, the world around us.

Red, green and blue are the primary colors when we are viewing colors from their source, the sun, an electric light bulb, a computer's monitor.
Red, green and blue are the three primary colors of the sun. Also, they are the only three colors our eyes are sensitive to. All other colors are made up of combinations of these three, a divinely designed, amazingly simple system.

But as you will see, we mortals have made it complicated.

The Color Chart

You have seen this circular color chart before, *Figure 1*. If we took three photographic slide projectors and placed primary red, green and blue slides in them and projected the pattern shown here the colors indicated on the chart are exactly what we would see.

Where the three primary colors overlap in the center we see white. Where only two colors overlap

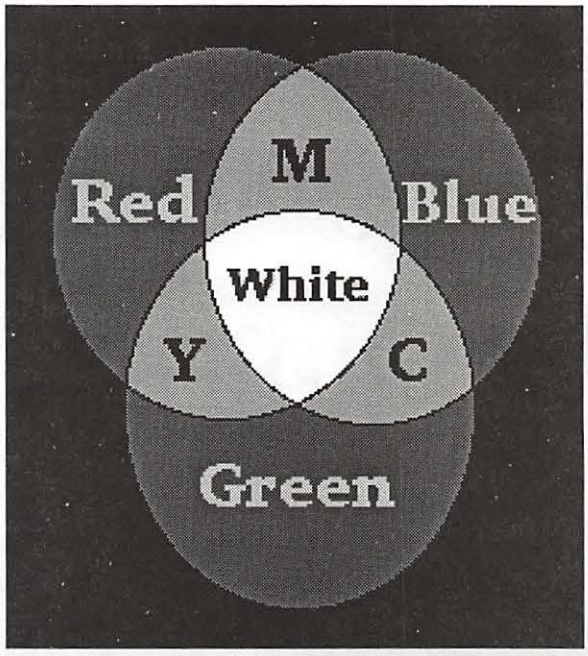

Figure 1. A color chart. The three primary colors combined make white. Any two primaries make a secondary color, magenta, cyan or yellow. Absence of color is black.

we see another color. Where no colors strike the movie screen, we see nothing, black. At least that would be so if we were in a darkened room. We can make a countless variety of colors by adding or subtracting others. This article will give you an understanding of how to combine primary colors to achieve a specific color.

The Secondary Colors

Looking at the chart you can see how red and green make yellow. Since there is no blue in yellow we can say yellow is the opposite of blue. Magenta is the opposite of green and cyan is the opposite of red. Check this out on the chart. We can say these "opposites" are "secondary" colors.

We could call these secondary colors purple, aqua marine and yellow, but lets stick to the nomenclature of the industry. They are magenta, cyan and yellow.

Color Correcting

Suppose you had a nice photo of your white plastic-sided house but, hey, in the photo your house has a green tint. What happened?

Don't get mad at your camera, that color shift was there when you took the picture. The house is reflecting green from nearby trees and grass. That is difficult to spot with your eye. These color-shift problems pop up all the time. Tungsten light bulbs are reddish. The sun in bluish. Fluorescent lights are greenish. The film could be poorly developed or your digital camera may be improperly color balanced.

Again, look at the chart. Too much green? You need more magenta. Too much red? You need more cyan. However, seldom will you be making a correction of just pure red, green or blue. We usually have to correct two colors mixed together. Blue with a little red, yellow with more green than red. Sometimes we have to make two corrections.

Understanding how colors mix with each other will help you use a color balance dialog box that is found in most graphics software. See *Figure 2*. Open this dialog box on the monitor next to a picture or photograph. Then move a color slider while watching the color correction progress on that picture.

Note the graphics dialog box has primary colors opposite their secondary colors. To correct the too-green house you would move the slider toward magenta until the siding was white again. Move it too far and your house will become magenta. If that happens, just slide it back toward green. All the colors work in this manner.

Browser HTML Colors

The billion plus Web sites on the Internet are all written with HTML text, including colors. It is a text language based on English and you can type these colors with your keyboard. This is not an HTML lesson but we will have to get into this language just a bit so you can write one very simple HTML "document" that will enable you to view on your monitor the colors you are going to make. Also, after reading this, you should know how to change colors on a Web site that was written with an automatic HTML "editor."

For the newbie, a "browser" is the software you use to view the Internet with, usually Netscape or Internet Explorer. You can simply type an HTML document and spell a color's name – red, violet, yellow or whatever and that will usually work. But then you will have no control of the lightness, darkness or "value" of that color. Red is going to be a fire-engine red. Period. Green will be Kelly green. Period. Also, not all browsers will display written colors.

To put color in your Web site, graphics, background or text, you should use the hexadecimal numbering color system. It is more versatile, accurate and is recognized by (just about) all browsers.

Hexadecimal Colors

"Hexadecimal?" Don't be scared, boys and girls, this is a piece of cake. Hexadecimal is Greek for the number 16. Here is how the sixteen numbers work and we promise not to use any math. But there will be a test.

The wise inventors of this system decided they needed sixteen single digit numbers. That meant they would have a problem with numbers 10 and larger. So, not wanting to count on their toes, they used the alphabet, 10 is A, 11 is B ending with 15 which is F. And the zero at the other end makes sixteen numbers. Got it? Zero through F. Sixteen single-digit hexadecimal numbers.

However, sixteen colors were not enough so they elaborated on the system. They assigned two sixteen single-digit numbers to each primary color. Since there are three primary colors this means every HTML color, or gradation of a color, has six numbers. Shake them up in a jar and out would come more than 16 million colors and gradation of colors. I told you we have made this complicated.

This is too much for any browser to "see." Heck, it is too much for the human eye to see. However, I did read somewhere that sometime there will be future systems where this numbering system will be useful. But for now they had to pare it down. Browsers are limited because computer monitors have a finite number of pixels to work with. So here is what they did.

Dithered and Non-Dithered Colors

They wrote the browser codes to recognize certain six-digit color numbers by default. However, browsers have to guess at what the heck color the other number combinations are. They do not always do this successfully and when that happens the color appears grainy or pebbly. We say those colors are dithered. That is a nice country word. Grandma used

to say she was dithered when she was unsteady and trembly. That is what can happen to a non-default color.

Those 216 colors the browser does reproduce faithfully by default are called "non-dithering colors."

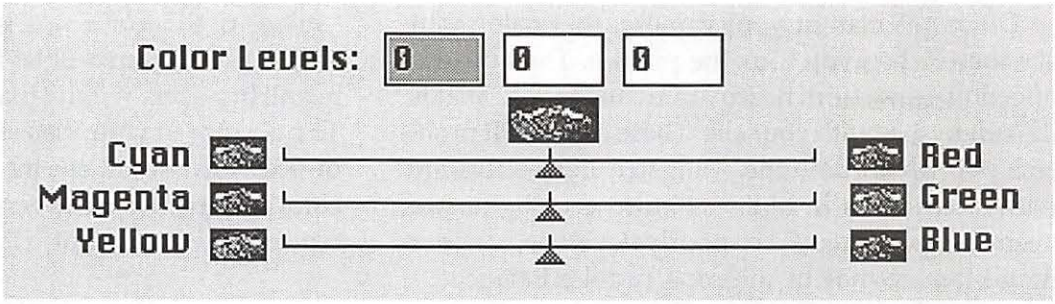

Figure 2. A Color Balance Dialog box. Slider controls can be moved to correct the color of a picture or graphic. Note the primary and secondary colors are opposite each other.This dialog box is from the Adobe PhotoDeluxe software.

You can write a hexadecimal color not using non-dithering numbers any which way you want but you stand the chance they will dither. Also, these off colors may look fine on your computer/browser but others could be seeing a badly dithered color because they probably have a different browser on a different computer. Stick with the 216 non-dithering colors.

The Six Digit Color Number.

The designers chose every third six-digit number as a non-dithering default number. See *Figure 3.* The non-dithering numbers are in boldface and circled. Remember, A, B, C, D, E and F are numbers.

The first double column of two numbers represent red. The second double column represent green and the last is blue, like this: "RRGGBB". Always. FF is the brightest number of any color. Again, three primaries combined make white. In HTML white is "#FFFFFF". And yes, "#000000" is black.

Notice the style. The HTML code for colors has no spacing. If you put in a space all the browsers in the world will choke on that, they will not know what to do with such a mess. Also, the pound sign precedes the hex number when you are writing basic HTML, and everything has to be bracketed in straight, not curley, double quotation marks (you will be using SimpleText and it does this automatically). Warning. Do these things. HTML is simple but unforgiving.

If you combine all three colors in equal amounts, such as "#999999" you will get a solid gray. The higher the numbers, the lighter the gray. Many a Web site out there has a light gray background made with <BODY BGCOLOR="#CCCCCC">.

The Colors

Write a color with the brightest number, FF, and the other two primaries at zero and you will have made a pure primary color. Primary red is "#FF0000". Fire engine red. Primary green is "#00FF00". Kelly green. Primary blue is "#0000FF". Sky blue.

Add some gray, equal amounts of the other two primary colors, to a primary and that will make a lighter color. It is like pouring white paint into some colored paint. A good example is "#FFCCCC", a feminine pink. A darker pink is "#FF9999".

Write a color with a lower number and write the other two primaries at zero. This will make a darker shade of a primary, "#000033" is midnight blue. You can lighten up midnight blue by using "#000066" or "#000099".

Using non-dithering numbers, add unequal amounts of the other two colors and you will make some interesting hues. One of my favorites is "#FFCC99". A nice shade of peach. Notice how these non-dithering color numbers always use the same number twice for each primary. A number like "#e62b48" also is a color but it just might dither.

The Test

Refer to the color chart and see if you can understand this hexadecimal system. Remember, the first two numbers are red, the second two green and the last two are blue.

What is the code for a light blue? A dark green? Here is a toughie, write a yellow.

What color is "# FF00FF"? How about "#00FFFF". Another toughie, "#66FF66".

An HTML Document

Below is a very simple HTML document that you can type into a blank SimpleText word processor window. Use the classic OS 9 or older OS. You may have to query Sherlock to find where SimpleText (one word) is hiding. When it tells you where it is, your Mac computer has to have it, just double click on the icon in Sherlock and that word processor will open. Do not use a sophisticated word processor like AppleWorks or Microsoft Word. They are too complicated for a browser. It has to be an ASCII processor like SimpleText or TextEdit on a Mac or NotePad on a PC. This is what you will type. There is only one space in the entire line.

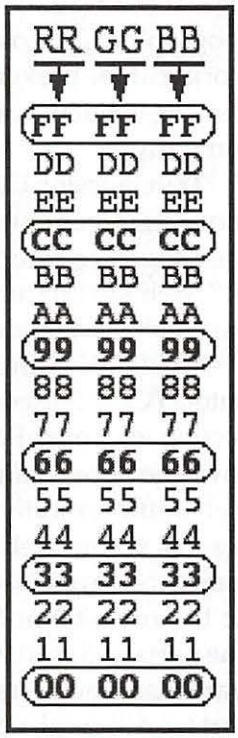

Figure 3. Each primary color has two columns of sixteen hexadecimal numbers. Every third row of numbers, bold and circled, are recognized by most browsers to be "non dithering" numbers by default.

```
< H T M L > < B O D Y
BGCOLOR="#00FF00"></
BODY></HTML>
```

This will fill your browser with Kelly green. The <HTML> tag tells your browser this is an HTML document. The <BODY> tag fills the open browser window. BGCOLOR="#RRGGBB" is the background color for that window. The tags with forward slashes are closing tags. Now close and save the document and give it a name like "color.html." Drag the document's icon to the far right of your desktop.

Next open a browser, go to the file menu and click on *Work Offline* so the browser does not dial up the Internet. If it gets away from you and it goes on line anyway, that's OK. You can do this while on line, right on top of whatever is displayed. It will not hurt a thing.

You may have to go to the bottom right of the open browser window and drag the right margin to the left a half inch if it is covering the *color.html* icon. Now drag and drop the icon into the browser's window. Wow! You have a screen full of your color.

> "Don't get mad at your camera, that color shift was there when you took the picture. The house is reflecting green from nearby trees and grass. That is difficult to spot with your eye."

Now double click on your working HTML document's icon to open it again. It will open right on top of the browser window. Delete that color number and write another in its place within the quotation marks. No spacing. The rest of the line stays the same. Anticipate the color you are going to make by referring to the color chart. Follow the style, keep the pound sign "#" and hexadecimal numbers inside of straight "", not curley quotation marks. Close and Save. Drag and drop that color on top of the previous color in the browser window or simply click on the browser's *Refresh* button.

Practice the hexadecimal color code and learn how red, green and blue interact with each other to make all the colors you see on the Internet, in the world! Learn and have fun! ■

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Sentimental Journey Down Router 66

by Tim Kelly, CEO & President of Dialectronics, Inc. in Columbia, SC
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SO YOU WANT to set up a LAN to share your Internet connection but you don't know what the pieces are? Well, pop the top and buckle up, we're about to take a fast ride down Router 66.

First up is a discussion of the Internet Protocol (IP). This protocol uses IP addresses to uniquely identify computers on the network and determine the route between two computers. Networks that carry IP traffic, including but not limited to the Internet, use IP addresses. An IP address is like a phone number. Every phone in the world has its own, unique number. Sometimes phones have the same root number, but differ in area codes. The same is with IP addresses. Portions of the IP address may be the same, but the network portion of the IP address is different, or the network portion is the same, but the node portion is different. IP addresses are in the form of four "octets," or numbers between 0 and 255. For example, 64.243.24.140 is a valid IP address. 64.243.24.560 is not. It is called an octet because the number is between 0 and 2 to the 8th minus 1 (256-1=255), or the maximum value that can be expressed by a byte (8 bits, a bit is either a zero or a one and is the smallest digital value possible, and a Megabit is little more than a million bits). The structure of the IP address is hierarchical. The first octet is the same as the area code, and the second octet refines that a bit. The last two octets generally define the node, or computer, on the network. Like the phone company and area codes, the Internet is not geographically organized. For example, two networks that begin with 129.x.x.x may not be anywhere close to each other, as in the case of 129.252 (the University of South Carolina) and 129.2 (the University of Maryland) (the 129 network is generally educational institutions). Normally two nodes that differ only in the last octet (i.e. 129.252.33.10 and 129.252.33.15) are geographically close, but not always because networks can be broken up and distributed. In general, it's a mess, but it works for now, sort of like the phone company.

Transmission Control Protocol (TCP) adds some connection guarantees to IP traffic and the two are used together, which is why one often sees "TCP/IP." Web surfing uses TCP/IP to connect between the web browser and the web server.

To identify different services on the same computer, TCP/IP uses ports. A "port" is simply a connection in or out of your computer. A business might have one phone number but hundreds of extensions. Web traffic typically uses port 80, although when going to a secure web site you will often use 443, and sometimes high load web servers will redirect traffic to port 8000 or 8080. Timbuktoo uses port 407. The ports under 10,000 are in general reserved to software manufacturers and are known as "well known ports." Although some networks accept port numbers above 64,000, in general one should avoid this for compatibility purposes.

The subnet mask is a filter that determines whether the traffic is local or needs to be routed. It's like determining if a phone call is local or long distance. A typical subnet mask will be something like 255.255.255.0. In the case of a subnet mask of 255.255.255.0, all traffic that has both the source and destination IP addresses between 192.168.1.0 and 192.168.1.255 is considered local traffic (the first three octets match, as specified by the subnet mask). Any IP addresses outside of that range are considered external to the Local Area Network (LAN). A LAN is simply a collection of computers that are all considered through their subnet and IP addresses to be peers. By convention, there are no Internet IP addresses in the 192.*.*.* range, as this range has been set aside for LANs. LANs do not have to use the 192.*.*.* range and may use valid Internet IP addresses. However, often a company has more computers than IP addresses, and must use this range internally in order to allow each computer to have access to the Internet.

A lot of Internet Service Providers (ISPs) use Dynamic Host Connection Protocol (DHCP). This is a dynamic method of providing an IP address to a computer from a pool of IP addresses maintained

by the ISP. It is very useful in networks that have a large number of computers or have transient participants, such as with a dialup ISP. One reason DHCP is so popular is that all of the information required for a computer to join an IP network can be provided during the connection negotiation process between the client computer and the DHCP server. DHCP is not an appropriate method to assign IP addresses to computers that are not transient and are connected to by users regularly. For these computers one would want to assign a static IP address.

A Domain Name Server (DNS) is used to translate human recognizable names into computer recognizable numbers. Similar to how a phone can't call "Mom" but it can call 867-5309, a computer can't go to http://www.apple.com but it can go to 17.254.0.91:80 (note the specification of both the IP address and the port). The DNS provides the translation of the name into the IP address for your computer. The software is responsible for determining the port to connect to.

Fundamental to a network connected to the Internet is the router. In a strict sense, a router takes two dissimilar networks and routes signals (network traffic) between the two.

One common example is the cable modem. It takes the digital signal on coaxial cable from the cable company and translates it to a format that either an Ethernet card or hub, or a USB adapter can understand, and vice-versa.

In a business environment, typically a router will take a frame relay or DSL connection from a telephone company and route it to the company Ethernet-based IP network. Digitally, Ethernet and frame relay are unalike and use incompatible transmission media (wires). Therefore the router must translate between the two. When a source or destination has been determined to have an IP address that is not local, the router communicates with the computer that is local and accepts the traffic on behalf of the remote computer. It then transmits that traffic upstream to the ISP, which then further routes it, and so on, until the remote computer is reached. A network typically only has one router, but a router may handle more than one network, and routers don't always have two dissimilar networks to route between. Sometimes routers will route between two Ethernet networks, but be used to limit cross-traffic. Routers are capable of being hacked. The recent spate of Code Red and NIMDA worms exploited a hole in Cisco's operating system to further wreak havoc. Nokia makes cost- competitive routers that outperform Cisco routers and do not have the same security issues that Cisco routers do. Additionally, some software-based solutions like IPNetRouter rely on the inherently secure MacOS and are cost-effective solutions for small home/small office networks.

More and more often routers are shipping with an integrated firewall. A firewall analyzes network traffic and makes decisions about what traffic to allow in either direction. Incorrect application of firewall rules can lead to interruptions in network traffic or worse, a network that is insecure but believed to be protected. In practice, for an all Mac network such as a home LAN or for an individual using a Mac connected to a cable modem, a firewall is not essential due to the secure nature of the pre-OS X MacOS operating system (being vulnerable to password guessing only, and not able to be hijacked remotely). Don't let vendor scare tactics convince you otherwise. OS X is vulnerable to the same security issues that any Unix operating system is, and on networks with OS X Macs or any other operating system, a firewall is recommended to protect those computers. Firewalls can be used to accept connections from approved IP addresses while rejecting connections from non-approved IP addresses, even for the same services. If an external PC infected with the NIMDA worm is clogging up your web server, refusing connections from the IP address of the PC at the firewall will relieve the traffic to the web server (but that traffic will still exist at your router, although at a reduced level since the two-way connection will never be established). Firewalls will not protect against password guessing or against an inherently insecure operating system being compromised, if services to that computer are available.

For example, http://defaced.alldas.de/defaced.php?xid=2&xtra=mirror/2001/02/23/www.acro.ca shows a compromised IIS web server that used Apple's Airport for its Internet connection. The Airport acted as a firewall and made only port 80 (web traffic) available to the outside world (http://defaced.alldas.de/?did=77898&xid=1). It was not compromised—but the IIS server was compromised via the Web. Firewalls can be compromised them-

selves, and are vulnerable to Denial of Service (DoS) attacks, which is when a host is targeted with too much network traffic for it to discern valid traffic from invalid traffic.

Another concept is network address translation, or NAT. NAT is the process where one IP address is translated into another one. In the case of a LAN, a lot of times the internal IP addresses are not compatible with the Internet. In order for the LAN computers to connect to the Internet, NAT must change their IP address to a different IP address, typically that of the router that the traffic goes through. This has a security advantage in that the outside world does not know the exact location of the internal computer, it knows only the router the traffic came from (which should be the most secure point on your network). A disadvantage is that it takes some extra steps to connect from the outside world to computers on the internal LAN. It is possible for two networks to have the same IP addresses internally (i.e. both use 192.168.1.* numbers) but the use of NAT will prevent the two networks from being identical relative to the Internet. NAT will also solve the problem of where there are not enough valid Internet IP addresses for each network computer to have one.

A complementary concept to NAT is port mapping. Port mapping says to the router that all connections that come in Port A to the router, send them to Port B on Computer C. Since in a NAT environment often only one IP address is presented to the Internet, it is necessary to use port mapping to direct incoming traffic to internal computers. For example, the router may not be the same computer running the company web server (it rarely is). Since web traffic will come in on port 80 (http), the router will use port mapping to direct traffic on port 80 to the internal computer running the web server. This is transparent to the web browser. If the router presents multiple IP addresses to the Internet, port mapping can be used to differentiate the destination by sending port 80 traffic on one IP address to one destination internally and port 80 traffic on another IP address to a different internal destination. Port mapping has to be done in conjunction with the firewall because the firewall has to allow those ports to be open to the outside world, but the router handles the actual traffic. One can see the benefit of an integrated firewall/router package.

Additionally, port mapping can be used to hide what services are presented to the Internet. If an outside computer is known to have a changing IP address, as in the case where one is using a nationwide dial-up ISP from multiple locations, screening based on the IP address is ineffective. A better approach is to port map a normally unused port to an internal IP address. For example, you may have an AppleShare IP server on your internal network that you want to make available to mobile users on the outside world, but only to users you trust. You know that an early version of ASIP has had one bug in it already that allowed it to be compromised, so you don't want to advertise that you are using this, just in case (and password guessing beats any security system). The normal connection port for ASIP is 548. At the firewall, you would want to block traffic to port 548, but allow traffic at 8450 (or another randomly chosen legal port number). At the router, map traffic coming in on port 8450 to port 548 on the internal computer that is running ASIP. When connecting in Chooser on the remote Mac, add :8450 to the end of the address of the IP address presented to the Internet (i.e. the router). Chooser will automatically use that port instead of 548 to negotiate connections with the ASIP server. Port mapping works best with static IP addresses and ports. When port mapping is used in conjunction with firewall software that "black holes" traffic going to closed ports, the footprint you present to the Internet will be exceptionally small and very difficult for undesirables to penetrate, but trusted individuals know the correct places to look and can access the resources.

Well, we've hit the end of Router 66 with a screech of neuronic firing. Hopefully you've made it to this point in one piece and didn't suffer any blowouts along the way. Congratulations, you now know enough to be dangerous and to annoy your company IT person (because if they are a Cisco or MS-certified tech, you might know more about how the Internet really works than they do). ■

From the January (and last hard-copy) issue of ***MacIntouch***, newsletter of the San Diego MUG.

A Simpler Way to Share 'Net Connections

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WITH MORE and more households owning two, three, or even four (or more!) computers, the question of how to share Internet connections is rapidly becoming a more common question than "Would you get off the phone so I can check my email?" The solution to the problem requires a working knowledge of a few concepts in networking, but once these concepts are grasped, the steps necessary to implement the solution are easily achieved. If any of the following article is outside your current range of knowledge, consult the accompanying article (which immediately precedes), "A Sentimental Journey Down Router 66," and refer to the diagram for a visual of the network described (the IP address used is a typical Road Runner IP address).

The solution, of course, is to have a small Local Area Network, or LAN, in your home and use a router to share the Internet connection. By having your computers on the LAN, each one will have a connection to the router, and through that router the LAN will have Internet access. The router will also be connected to your ISP, either through a phone line or via cable or DSL modem. You won't even need to get extra IP addresses, as routers come with Network Address Translation to make all outgoing Internet traffic come from the same IP address. Add some entries in the port mapping functionality and you'll be able to connect to your home computers from the outside world.

The LAN is easy to establish—buy a 10 Megabit per second (Mbs) or a 10/100Mbs "hub" with more than enough ports to handle all of your computers (think growth) plus one extra port for the router (available at most electronics-oriented stores and most certainly at your local Apple Store), and enough "Cat5e" Ethernet cables to connect each computer, including the router, to the hub. A hub creates a common connection point and shares network traffic among the computers connected to it. One step up from a hub is a "switch," which directs traffic only between the two computers talking to each other, rather than broadcasting the traffic to everyone as a hub does. For a home LAN a hub is sufficient and can be purchased for less than $50 in many cases. In a business environment the security offered by a switch is worth the small extra cost. The hubs and switches that are 10Mbs only are quite cheap, often in the $30 range, and unless you are going to do a lot of file sharing between computers on your LAN and both computers have 10/100Mbs Ethernet, 10Mbs will suffice for your LAN. It will be much faster than your connection to the Internet, regardless.

The router must be considered next. Most commonly the routing of Internet traffic is done by hardware and an article in the December 2001 issue of MacAddict discusses some that are appropriate for a home or small business LAN. Apple's Airport can be used directly as a router and hub. It has the advantage of allowing computers to roam and not have lots of cables running through the house. Since it is based on Lucent technology, there are PC solutions as well. One down side is that by the time you've bought the Airport ($299) and the Airport cards ($99) for each computer that didn't come with one, you've spent a fair amount of money, maybe several hundreds of dollars.

Although numerous hardware routers exist, an excellent software-based alternative is to use a Mac with 8.0 or higher (but not OS X) and an application called IPNetRouter from the developer Sustainable Software (http://www.sustworks.com). The software is $89, but is offered with a couple of software bundles that are worth purchasing, so budget $150 for this part if your Internet connection is dial-up. Besides the lower cost, an additional advantage to this approach is that it is capable of sharing a dial-up connection, while a low end hardware router won't do this (Apple's Airport will). If you have a DSL or cable modem and are using the Ethernet interface and not the USB interface, you'll need a second Ethernet card in the Mac, but that's only another $40 or so. This combination hardware/software

router is an exceptional performer both in the consumer and professional environments, and can be set up for less than $300, including the cost of the hub and cables. If all of the computers on your LAN are Airport ready now, go with the Airport solution. If you have to purchase one or more Airport cards, consider the IPNetRouter solution as a low cost, high performing Internet sharing solution.

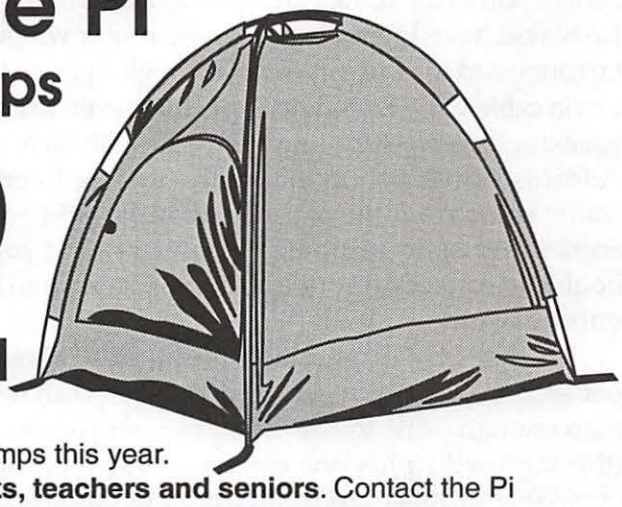
Configuring your LAN

On a network that is using NAT, the typical LAN router IP address is 192.168.1.1. Although sometimes the IP address 192.168.0.1 is used or suggested, the TCP/IP standard recommends against the use of zero in any of the network octets. A typical computer on a LAN with NAT will have an address between 192.168.1.4 and 192.168.1.253. Some IP addresses are reserved and not available for normal use. The IP address 192.168.1.0 has a zero for one of the octets and is not used, 192.168.1.1 is often the router, 192.168.1.2 and 192.168.1.3 are commonly used as the Domain Name Server (DNS) IP addresses, and 192.168.1.255 is reserved for broadcasting messages on the network. The reserved IP addresses above are in the case of networks with a subnet mask of 255.255.255.0 and are different on networks with other subnet masks (which is beyond the scope of this article). When configuring a computer to connect to an IP network, several parameters must be entered. As we go through each step, keep in mind our choices for IP addresses, the subnet mask, the router IP address, and the IP address for the DNS. While this article will focus primarily on using IPNR, the same concepts and suggestions apply to setting up a LAN with Airport.

You'll want to use your fastest Mac for running IPNR. It doesn't take up much CPU time, and you won't notice any loss of performance on that Mac when being used for both network access and workstation activity, like writing reports. As was mentioned earlier, if you are using a cable or DSL modem, and you are using your Ethernet port for this, you will need to install a second Ethernet card, so iMacs won't work in this arrangement. If you are using the USB port for the cable or DSL modem, or are dialing up Internet access, you can use the built-in Ethernet to connect to your LAN. An iMac using the USB port to access the cable modem is a great way to share your Internet connection on your LAN.

IPNR's set up is quick and easy. There are two interfaces (connections to a network) that have to be configured. The primary interface is the connection to your ISP. IPNR will use NAT to translate the internal computer IP addresses to the IP address provided to you by your ISP. The secondary interface is the connection to your LAN. If you are using a dial-up connection or the USB port for your cable or DSL modem, you'll use the built-in Ethernet as the interface to your LAN. Connect your modem as you would if you were dialing up with a single computer

Washington Apple Pi
Summer Computer Camps
2002



Washington Apple Pi will be doing several different Camps this year. Depending on interest, there will be camps for **students, teachers and seniors**. Contact the Pi tutorial program for details, tutorials@wap.org.

and connect the Ethernet to your hub. When connecting to your cable or DSL modem by Ethernet and sharing that connection, you will use the built-in Ethernet as the primary interface. Go ahead and connect the built-in Ethernet jack to your cable or DSL modem just as you would if you had just a single computer connecting to the Internet. The extra Ethernet card will connect to your hub. Although IPNR can support using a single Ethernet card (with an iMac, for example) and a cable or DSL modem connected by Ethernet, this is not a recommended approach and the inexpensive nature of a second Ethernet card really doesn't make this method worthwhile.

Launch IPNR. The first window of interest is the "Interfaces" window. You should see same network interface that you have configured in your TCP/IP Control panel. Click on that interface and check "Bring Up," "IP Masquerading," and "DHCP Aware," then click on "Add." These choices mean that the interface will be active, it will be providing the IP address for outgoing network traffic, and that the IP address provided by the ISP may change dynamically. You won't need to change the IP address or mask settings for this interface. IPNR will think for a moment or two, and then add that interface and display a green up arrow next to it. In the case of PPP, it may automatically add "Unnumbered." That's ok. If you are using PPP, make sure that you set it to automatically connect when there is TCP/IP activity (it's an option in the PPP control panel).

Now you'll want to add the second interface. Click below the primary interface and select from the pop-up menu the network interface that will be connecting to the LAN hub. The only option you'll need to check will be "Bring Up." However, for this interface you'll need to enter an IP address and a "mask" in the boxes below the appropriate column. This IP address will be the IP address the computers on the LAN use as a router, so you will need to adhere to some conventions and remember this address. Use the typical LAN router IP address of 192.168.1.1.

For the mask (actually, the subnet mask), use 255.255.255.0. Once you've entered those values, click "Add."

The last step is to go to the menu bar and under "Window" go to "Gateway." Select the "DNS Forwarding" option. This will allow the Mac acting as the router to also act as a Domain Name Server, which is important for translating web locations like http://www.macintouch.com into a location that a computer can understand. If you're using PPP, check the "Dial On Demand" option and the other PPP options that you like. If you're going to be file sharing over TCP/IP or running a local web server on the same Mac that you are running IPNR, select the "Enable Local NAT" option as well. Save the document just like any other file, and you're now ready to configure your other computers for Internet connection sharing.

> "...how to share Internet connections is rapidly becoming a more common question than 'Would you get off the phone so I can check my email?' The solution to the problem requires a working knowledge of a few concepts in networking, but once these concepts are grasped, the steps necessary to implement the solution are easily achieved. "

As in any project, it is a good idea to test each step. To test the steps so far, fire up Netscape or the Carbon version of Opera or whatever browser you're using (are there any others?) and connect. If you do have problems at this point, quit IPNR and try connecting again. You haven't done anything to change your default network connection, so most likely your problem is elsewhere. Assuming everything works just fine, go to the nearest computer on your LAN. Although IPNR supports DHCP for the LAN computers, for this article we'll use static IP addresses because later we'll use the IPNR feature of port mapping. For this discussion we'll assume that your other computer is a Mac, but the directions apply for Linux and OS X boxes, too (that should cover the relevant operating systems in use today). After connecting your LAN computer's Ethernet jack to your hub, open TCP/IP and set the "Connect via" to Ethernet. Configure "Manually," set the IP address to 192.168.1.10, set the subnet mask to 255.255.255.0,

and very importantly, set the router address to 192.168.1.1—the same IP address you set in IPNR for the IP address of the secondary interface. Set the Name Server Address to 192.168.1.1 as well. Close it and save changes. Believe it or not, you should be ready to make an Internet connection.

Fire up your web browser on this LAN computer and go to your favorite site. If you've followed these instructions and nothing was lost during the editing process, you should have a connection to the Internet. If you don't, make sure that there is a green arrow pointing up beside each interface in IPNR. If there are no red down arrows, consult the Log (under Window) to see if there are any errors. Also connect from the Mac with IPNR on it to the Internet to make sure that isn't the problem. When all else fails, consult the documentation that comes with IPNR. You really shouldn't have any problems. For the power and flexibility that comes with IPNR, it is very easy to use and set up.

To add more computers, follow the same directions, but you will need to change the IP address so that it does not conflict with other computers on the LAN. Your next computer might have the IP address of 192.168.1.20, for example. As long as it falls between the range that your subnet allows, and is not 192.168.1.0 (a reserved address), 192.168.1.1 (the router), or 192.168.1.255 (the network broadcast address), it should be acceptable. With the subnet mask 255.255.255.0, you can have up to 252 computers on your LAN. If you need more than that, you should probably read a book or something.

The Port Mapping function of IPNR allows you to take incoming Internet connections and route them to LAN computers. If you need to connect to your computer remotely, you'll need to add some entries to the "Port Mapping" Window, and you'll need to either obtain a static IP address from your ISP or check the primary interface IP address in IPNR each time you log on to the Internet.

For example, say you want to be able to connect to an internal computer via Timbuktu (the networking software application) from an outside computer. Choose "Any" in the protocol pop-up menu, under the "Apparent Endpoint" enter the IP address from the primary interface (not the 192.168.1.1 address), choose "Timbuktu" from the port pop-up menu (it'll come up 407). Under the "Actual Endpoint," enter the destination IP address (the computer you would want to connect to on your LAN, i.e. 192.168.1.10), and choose "timbuktu" again in the port pop-up menu. Select both Permanent and Static, but leave the Age entry blank. Click "Add" and you now have an entry that will allow you to connect to your LAN computer via Timbuktu.

Here's a security tip: don't use the default Timbuktu port on the Apparent Endpoint. Manually enter something else, like 5150 (leave the Actual Endpoint port as 407). Then when you connect from the outside computer, enter the IP address of your IPNR Mac, but add the port.

For example, you might have an IP address of 66.77.88.99 from your ISP. To connect, you would enter 66.77.88.99:5150 in the Timbuktu New Connection window. The same technique can be applied for 4D databases, FTP (except Passive Mode), Apple File Sharing over TCP/IP, and any other hosting software you may wish to run on your LAN. If you add Sustainable Software's IPNetSentry, you can prevent port scanning of your IPNR router and have an extremely small footprint on the Internet. This lets you have backdoors into your network without making it easy for undesirable individuals to determine this. IPNS can be used in conjunction with IPNR for a very high level of configurability and security.

This approach is equally functional in a professional environment. The University of South Carolina's Astronomy Center uses IPNR on a dedicated Mac to act as a firewall and router to allow students to access an internal Mac web server as part of their academic responsibilities for Astronomy classes.

In the fall semester of 2001, the web server, through IPNR, routed 2.6 million web hits without a single failure. Additionally, IPNR was used to tie the Internet and a separate internal secure network to a third, bridge network that hosts databases and web servers in a manner that prevents the Internet from seeing the secure LAN and the secure LAN from seeing the Internet, but both can see the bridge network. Verification tests showed absolutely no breaches of security. Not bad for a $150 router! ■

From the January (and last hard-copy) issue of ***MacIntouch***, newsletter of the San Diego MUG.

Bitwise Operator: The Plain Truth About Piracy

by Matt Slot <fprefect@ambrosiasw.com>

[Matt is a programmer at Ambrosia Software. What follows is an insightful and interesting piece on software piracy from the perspective of a software publisher.]

IT'S A RARE day when a shareware programmer gets firm statistics on the extent of software piracy, but just recently, I got that chance.

You see, the company I work for writes and publishes *shareware* — software that encourages users to make lots of copies and share them with friends. It works like this: we write a game or utility and make it available for download and on low cost CD, so that anyone can install it and try it out for a while — kick the tires and drive it around the block a few times, so to speak. If they like it, they can buy the product; if not, they just delete it or pass the CD on to someone else.

We make money, and stay in business, by selling software that competes with commercial products for quality and entertainment value, yet priced so that it doesn't stretch the pizza-and-beer budget of the average college student. There's no bait-and-switch going on, you get a fair chance to try out the product and consider if your $25 could be better spent elsewhere. Consider that amount will cover a burger run and movie ticket for about 3 hours entertainment, but a good game can entertain you for days or weeks — and we won't make you watch Jar Jar Binks.

Just a few years back, Ambrosia's software was distributed on the honor system. You could download the software and use it forever, scot free except for the friendly reminders that you had the software for 1500 days and still hadn't beaten level 6. Now, obviously this was a pretty big leap of faith on our part, but it also built up an almost cult following among Mac users. What we lost in sales, we made up in good will. It wasn't ideal, but it was certainly idealistic, and helped put the founder Andrew Welch through college and kept all of the employees supplied with pizza and beer. (I think there's a law of conservation at work there.)

And as things go, this was all fine and good — except that eventually Andrew graduated and everyone else got sick of pizza and beer. Ambrosia grew from an interesting sideline into a full time place of employment. The company became an entity with its own purpose, its own office space, and its own gravitational pull. It also had an insatiable appetite for cash, because as any MBA will tell you, the lifeblood of business is green.

This period of growth and rampant consumption was constrained only by the limited diet afforded by the generosity and honesty of others. Basically, money was tight. Perhaps it was the success of Captain Hector in encouraging players to register Escape Velocity that planted the seed, but it was apparent that either pizza and beer had become a lot more expensive or that people weren't quite as honest as we'd been led to believe.

Locking The Front Door

Shortly after I joined the Ambrosia team, Andrew forwarded me an article that illustrated the benefits of crippling software <http://hackvan.com/pub/stig/articles/why-do-people-register-shareware.html>. In short, the author of a shareware program found that people were 5 times more likely to register and unlock a crippled version of his software than they were to register software that came fully functional from the outset. It was the final straw in our camel-breaking, decision-making process. We would still make shareware, but we would no longer stand there waiting for handouts on the street — we'd charge admission.

Well, let me tell you, we heard about it. Many who had praised us for our idealism were now calling us sellouts. It didn't matter that little changed for our paying customers — they still got their codes quickly, and had unlimited access to the game — it

was the principle of the thing. Well, okay, it was a little inconvenient if you'd lost your code or wanted to install it on your new PowerMac 7500, but we were staffed by people who could resolve that with just a phone call or an email.

I mean, we like being cool and fair, but even a cult-following can get tiresome (cultists don't shower, they track in mud, and they leave you to pick up the check). Besides, the mantra kept repeating in our heads: *5 times as many registrations, 5 times, 5 times*. I don't think it ever was quite that good for us, but there was definitely an increase in sales that helped us weather some tough times. (No, we never actually ran out of pizza, but there were times when we had to mop up spilled beer with borrowed rolls of toilet paper.) It was a hard decision, but it was a business decision and it turned out to be the right one.

Time passed. Our staff continued to grow and evolve, and my wife and I begat our son Luke. Now, let me tell you, nothing brings home how untenable your professional and financial situation is like having a family. When it was just my wife and I, we could fool ourselves into thinking that we were just coed roommates living on a college budget — but no more. Pizza and beer had given way to diapers and life insurance.

Diapers and Life Insurance

So, I'm working for this shareware company, and I want to make sure that my job is secure. You have to understand that even a 10% variance in our registrations means that someone may need to start checking the classifieds. At the same time, it's becoming more evident that people aren't just not paying for our software — they are actually going out of their way to share license codes with others over the Internet. Some ingenious folks have even reverse engineered our software and figured out how to generate their own license codes.

Now, we don't live with our heads in the sand. We knew what was happening. The Internet was the great facilitator of homework assignments and world peace, but it had also become a way for people to get codes for any software they wanted. We felt action was required, but we remembered the trauma of our last change in policy when we required people to register the software instead of just asking nicely.

"We make money, and stay in business, by selling software that competes with commercial products for quality and entertainment value, yet priced so that it doesn't stretch the pizza-and-beer budget of the average college student."

So over the course of many lunches (many of which didn't include pizza or beer, but did involve some yummy sandwiches from Arby's), we discussed various ways for improving the whole registration system from our standpoint without making the process onerous for our loyal customers. Simplicity was the keyword. The final piece of the technical puzzle fell into place one weekend as I drove through Canada, when I recalled a bit of algebra that would make our license code algorithm quite secure without violating any treaties or munitions bans.

When I finally contacted Andrew, I said to him one word: "Polynomials".

The blank look on his face continued for a long time as I explained how we could factor the serial numbers, secure our products, and even distribute codes that would expire and stop working when exposed to prolonged sunlight. With his grudging consent, we sketched out and implemented the first pass at the "new Ambrosia registration system."

The fundamental change we made was to place the date a license code was generated into the code itself. That timestamp is then used at just one point in the process: it forces the user to activate the product within 30 days, or the code expires and won't activate anything, Now, and this is important, the timestamp has absolutely no effect on the operation of the software after the code has been entered. Once personalized for the user's computer, it remains fully functional forever (unless someone wipes the system clean).

Snapz Pro X

We first shipped the new features in the latest version of our flagship utility, Snapz Pro X starting

in June 2001. Over the course of the summer, the system silently and steadfastly worked as intended. Most people didn't care that the license codes were now 12 digits instead of 8, and registrations continued apace. It wasn't until September that we received any negative feedback.

You see, Apple had upgraded the operating system and most people were paranoid enough to perform a clean install. This meant that the data file containing the software registration was lost as well, and most of them needed to reenter their license codes. It also meant that anyone whose serial number was generated before August needed to contact us (by phone or email) to get an updated code. Of course, these people had paid already, so we renewed their codes quickly and free of charge.

Now it's been our experience that people are often too busy or forgetful to store their license codes in a safe place, so it's inevitable that every major system release is followed by a barrage of requests for missing codes.

To handle the tremendous load of people who had misplaced their codes, as well as those who saved them only to find they had expired, we created a email address dedicated to generating new codes. When the user entered the code, he was prompted to send us an email (it required only a click), and someone would respond to the request as soon as possible. Yet we were constrained by the laws of time, space, and the New York State Department of Labor, so our staff was only available to answer requests during regular business hours.

We decided to remedy this problem, after several customer complaints, by automating the process of renewing an expired code. When an expired code is entered for Snapz Pro X, the user is encouraged to request a new license code from our automated server — right then and there! Renewing the code code only takes 2 extra clicks, maybe an extra 30 seconds overall, but it puts the power back in the hands of the user. He can decide when to update his system, install software, and renew his license code at his leisure. Even at midnight just before a 4 day weekend.

So you are probably curious about the benefits of expiring codes — I mean, why would anyone even want this hassle? Let's look at the 3 categories. For our paying customers with an Internet connection, the extra work is minimal: an email sent to Ambrosia that's answered within 1 business day. For those organized enough to save their original codes codes, there isn't even a wait: they get the code on the spot.

Participate: Vote!

The only inconvenience comes to those people trying to enter a pirated code.

Which brings us back to the question, "how many people are using pirated codes?" Well, the plain fact is that most people are honest unless given a chance to be dishonest. If they stumble across a working license code for software, or maybe do a quick Internet search, then they can quickly enter the code and cover their self-loathing with the adrenaline rush of blasting aliens and squishing fish. It's only the most hardcore computer user who will try to reverse engineer the software and crack the copy protection — and I'll be honest, there's isn't much a programmer can do to stop them. Crackers enjoy the challenge itself, the tougher the better, so that if they want it badly enough, they'll find a way.

While historically it's been difficult to measure piracy, our experience is that the vast majority of computer users don't have the time or inclination to modify the software to bypass any license checks. Here's the rub: these users might actually buy the software if it weren't so easy to find pirated codes. Thus, expiring codes are a good way to defeat (or at least hamper) this kind of casual piracy — the serial numbers stored in databases and posted to the Internet are only viable for a short while before they must be renewed.

Ironically, it's these casual pirates that are helping me measure the impact of piracy on our sales.

You see, in order to renew their stolen codes they must contact a computer in our office. Of course, there's nothing nefarious about it — they send us the user name and expired code and get back a new license code, or a suitable error message. We don't encrypt the data, we don't grab any personal information, and we don't even open a connection without the user's explicit permission. But when he clicks that bright shiny "Renew" button, our server records the product, user name, and the Internet address he came from.

And for the last 2 days, starting right after we posted the latest update to Snapz Pro X, our server has been very busy. Out of the 194 different hosts that tried to renew a license code, 107 of them sent in pirated codes. Incredibly, more than 50% of the people installing the update are entering one or both of the pirated codes we've known about for months. Some of these people even tried several different variants on the names when the server refused them access ("maybe I misspelled it"), and one guy got so frustrated he pounded the Renew button over and over every 4 seconds ("WHY <click> IS <click> THIS <click> NOT <click> WORKING???") until our server blacklisted him for flooding.

Now, you don't have to remind us that the sample isn't statistically valid. Nevertheless we think that it's a reasonable approximation of the truth — if not a little conservative. It certainly reinforces our perception that casual piracy is both significant and widespread.

So, maybe I didn't look these people in the eye, but they know I'm watching them. They indicated a real interest in our software when they thought they could use it for free, and this gives me hope that someone may yet decide that registering is easier and more satisfying than stealing our hard work. If not, then either they were forced to stop using the software or they'll likely encounter me again, somewhere down the road. And next time, I'll bring Captain Hector.

I also hope that this article explains to our customers (and other computer users out there) the impact that piracy has on small software firms like ours. I hope that they can appreciate our decisions regarding the registration system, and agree that the extra 30 seconds and 2 clicks are a minor inconvenience. If everyone pays for the products they like and use, companies like Ambrosia can stay in business and continue making cool products for everyone to enjoy.

Finally, I hope that these changes give me a little more job security, so that I can continue doing what I love to do with some of the coolest folks I have ever met. Because I plan on working here as long as I possibly can, making great software, and saving enough money so that my kids can eventually go to college. And enjoy their share of beer and pizza. ■

Reprint courtesy of Ambrosia Times, the newsletter from the folks at Ambrosia Software. You will find their games, utilities, and newsletters on line at <http://www.AmbrosiaSW.com/>.

Conclusion to the Maltese Cube

Chapter 12

Do you smile when things go wrong? You must have someone else to blame.

THE FIRST ONE to the office was also the closest. Lisa walked in glancing back and forth. She probably expected to see Pindler or Gassly sitting in one of my office chairs and seemed relieved to find me alone. I didn't fill her in on the guests soon to arrive. She walked over to the small bar and poured herself a scotch...neat. As she sipped her drink, she casually looked around the office searching for some sign of the package I had picked up. Her eyes looked across the wall where I had hidden the Cube and didn't stop at the now covered alcove. She strolled over to the small sofa on the other side of the room and sat down. I could tell she was carefully considering what to say next. I decided to speak first.

"Any sign of Pindler or Gassly on your way here?" I asked carelessly.

Her drink was to her lips, but she didn't take a sip as she gazed at me over her glass.

"No, no sign of either of them." She said "Are you expecting them?"

"Absolutely." I checked my watch. It was almost one o'clock and Pindler had said he would be here in the afternoon. While he had never said what time exactly he would arrive, considering his nature I figured he would arrive right as the afternoon began. Sure enough, just then my intercom buzzed.

"Boss?" Maxine[1] asked.

"Yes? What is it Maxie?"

"Your.....clients have arrived."

"Have them come on back. Finish that filing I gave you earlier and then you can go home for the day."

"Gee, a whole half a day off. You're a prince boss."

"I do try Maxie."

As I turned off the intercom, the office door swung open and in stepped Pindler and Gassly. Pindler walked across the room toward my desk with the swagger of a man who thinks everything has gone his way. Before this day was done I hoped to remove some of that self confidence. As he sat down in front of my desk, he looked over at Lisa. She refused to look back and he chuckled to himself. Gassly stood in the center of the room and carefully inspected its contents. I saw his eyes rest momentarily at the paneling behind me. He had probably spotted the cut on the wall that concealed the alcove. While that was unfortunate, I didn't think it would matter for long. These two were going to get everything they wanted and a few things they didn't.

"Hello Mr. Tosh. How nice it is to see you again. I hope your search was successful." Said Pindler.

"I found what you wanted Pindler. Before I hand it over though, I want to talk about a few things."

"Really. What could we possibly have to talk about? I want to conclude our business and take my leave. This entire episode has been very trying and I wish to remove myself to more hospitable surroundings."

"Palm fronds and Mai Tai's?" I said with some contempt. "A guy as clever as you I expected more from."

Gassly stirred at that and his eyes closed to slits. Apparently he didn't like it when people made fun of his boss. Pindler, on the other hand, refused to be baited.

"Therein lies the difference between you and me Mr. Tosh. Usually the brighter you are, the more you can appreciate the simpler things in life. I do not expect someone of your caliber to understand. Suffice to say that by this time tomorrow, I will be jetting off someplace warm while you scrape by looking for more deadbeat clients.

"Maybe you will at that Pindler." I said. "Or maybe you'll be looking at those sunny beaches through worn out travel brochures behind bars."

"Prison? For me?" Pindler laughed out loud at the prospect. "On what possible charge Mr. Tosh?"

"Let's start with breaking and entering. Grand theft. Assault and battery. Attempted murder. If I throw out enough charges, I might make some stick."

" It would be an inconvenience at best. It would also mean you would not be paid Mr. Tosh. Worst of all,

you would make some powerful enemies. I do not just simply mean myself. Others who would be far less forgiving for not getting what they expect. Is this really a path you wish to take? I think not."

In our little verbal poker game, Pindler had just made a mistake. I saw my opening and decided to take it. Maybe he would make another.

"So then you admit you work for someone else? That you're just a stooge for bigger fish?"

His face turned red and I imagined I could hear his blood pressure rise. Pindler was not the type of man to easily admit that he was not his own manager, not even to himself.

"I am no one's stooge Tosh! Never make the mistake that I do not operate independently. I make the rules and change them as I see fit. At no time assume I can't destroy your pathetic existence and never touch a hair on your head!"

"Goodness gracious! Aren't we testy?" I said with a smile. "Your moods change faster than Windows Service Patches[2]."

Without taking his eyes off me, Gassly picked that moment to walk towards Pindler. He bent over and whispered something into his ear. Pindler nodded brusquely and took a moment to compose himself. I think he suddenly realized that he had said too much.

"Well done sir. You've irritated me into carelessness. While it is true that I'm acting with less independence than I am accustomed to, this does not change our fundamental arrangement. I do not see the Maltese Cube in your office as I was lead to expect. Mr. Gassly however, informs me that there is a hidden panel behind you. I would wager that you are keeping the item within its enclosure. Would that be correct?"

"It could be there. I said. "It might also be where I keep my good Scotch. So far, I haven't seen anything resembling what you have to trade for it"

"Fair enough." Pindler snapped his fingers and Gassly pulled an envelope out of his jacket pocket. "I think this will cover your usual fee."

I looked inside the envelope. Normally this would be fair compensation for this type of assignment. Newton however was dead. Not everyone in this office had pulled the trigger, but we were all somewhat responsible. While Newton and I had not been what I would call close, he had still been a friend. He had come to me hoping for a resolution and had gotten a bullet in the back. No amount of money could change that. Pindler was not going to walk away from this cheaply.

"I think this is a little short Pindler. We need to add at least one more zero."

"Ten thousand dollars for a little leg work? I think you value your time too dearly"

"There was a lot more involved than shoe leather and you know it. If you could have found it on your own, you wouldn't have needed me."

Pindler thought about that for a moment. "This is true. You did save me a lot of time and time is money." He pulled another envelope from his jacket and began to count out the necessary amount. He placed it in front of me on my desk and I pocketed it.

"Not going to count it?" He asked.

"No need. If it isn't all there, I bet I could find you."

This returned him to his former good mood. "You probably could indeed Mr. Tosh. My opinion of your abilities increases by the minute."

At that moment, the intercom buzzed again.

"Yes Maxie?"

"Boss, your next visitor is here."

"Thanks. Send him in."

"He's on the way. I'm just finishing that filing job and I'm leaving."

"That's fine. I'll see you tomorrow."

After clicking the intercom off, Pindler began to speak. "I'm paying for your time. Why are you excepting other appointments?"

Before I could answer, the office door opened and in walked Dell. The moment Dell and Pindler laid eyes on one another, I could tell that Pindler knew him. Chances were that he was working for him also. I had a hunch things were about to get hairy.

"What are you doing here?" Said Dell to Pindler.

"Preparing to complete our agreement." replied Pindler. "You wanted the Maltese Cube and Mr. Tosh here was kind enough to procure it for me. Things became complicated when you went behind my back and hired his services without telling me."

"I don't have to explain myself to you or your hired gun. I get the people I think I need to do what needs to be done. End of story. Tosh found the Mal-

tese Cube for ME, not you. I've already paid you half up front, more than you deserve, so why do you care?"

I expected Pindler to explode over Dell's tirade. I was to be disappointed. He sat back in his chair and coolly looked at Dell.

"Quite right sir. I apologize for my outburst. I expect you to pay me the other half in the usual way. Mr. Tosh will of course also be paid by you."

Dell opened his briefcase and handed Pindler a note with a large number printed on it. Nothing was said, but I assumed it was an account number of some overseas bank out of reach from the IRS. After securing it, Pindler looked back at me.

"A bit of advice Mac. When dealing with people like this, make sure you're paid up front."

I was surprised by Pindler suggesting that Dell pay me for services that he had already compensated me for. It was the first decent thing he had done in the short time that I had known him. Although I suspect he did it just to see Dell shell out more money.

Dell on the other hand, seemed indignant at the suggestion that he would not pay his bills. He opened his briefcase and removed stacks of wrapped 100 dollar bills. He placed 5 of these stacks on my desk. Between Dell and Pindler, I certainly won't need to worry about money for awhile.

"Okay you got your money." Said Dell. "Now let's see the Cube."

"Not so fast." I said. "I have a few things to get off my chest and I want some questions answered."

"Why should I answer anything?" said Dell. "You've been well paid. Who cares what you think?"

I ignored him. He had no explanations for me. I doubt he even knew the details of all that happened over the last 24 hours and even if he did, I suspect he wouldn't care.

"How many of you knew who last possessed the Maltese Cube?"

Lisa looked up for the first time since Pindler and Gassly entered the office. Her eyes were puffy and bloodshot. She was scared and for good reason. There was no telling what Pindler and Gassly would do once I exposed the murderer. What neither she nor the others knew was that I never walk blindly into danger when I can help it. I could be careless and at times reckless, but I'm not a fool. My actions are determined by the circumstances I find myself in and when I can stack the deck, I do so.

"Do not waste my time." Pindler said impatiently. "You told us that Newton had the Maltese Cube back in your apartment yesterday."

I turned my attention to Pindler. "So I did. I wasn't telling you something you didn't already know though was I? It was your men that had Newton's apartment staked out. It was your men that had searched and trashed the place. It was only because of their incompetence that Newton was able to sneak away."

Pindler was one cool customer. He didn't show surprise or anger at what I had deduced.

"I will neither confirm nor deny what you say." He said. "What possible difference does it make now?"

"What's the difference? I'll tell you. Newton is dead and he was murdered by someone in your hire."

Pindler glanced back at Gassly with some surprise. It looked genuine, but it could have been a front. Pindler was capable of ordering someone killed, of that I had no doubt, but I don't believe he took it lightly. If someone he had in his employ had committed murder without his permission or knowledge, things could get quickly out of his control. If there was one thing he had a fondness for, it was control. All things considered, I don't think Pindler had foresight of Newton's death and his murder had been thought out and planned before the act had been committed.

For the first time since I met him, Pindler seemed at a loss for words.

"You...have proof of this?"

Dell spoke up for the first time since my revelation.

"Hold on. Hold on! I have nothing to do with this! I make computers. This has nothing to do with me!" He said nervously.

"It has everything to do with you." I said contemptuously. "The whole ball of wax started when you hired Pindler to get the Maltese Cube. You didn't pull the trigger, but you aimed the gun with your greed and short-sightedness."

Dell pulled back into himself, a shell of the man who had walked through my door. I looked back at

Pindler.

"No, I have nothing that proves any of this. I'm a detective though. How much do you want to bet I could find something?"

"That is not a wager I would care to make." Said Pindler "So what now?"

"That part's easy enough." I replied. "We find someone who fits the profile and give him to the police. They just want the murder solved."

"Who were you thinking about turning over to them?" Pindler uttered.

"Let's discuss that. Who among us here would the police believe was capable of murder?"

Gassly stepped forward. He obviously didn't care for the way this conversation was going.

"YOU ARE NOT GOING TO PIN ZIS ON ME![3]"

Before he could do anything else, I punched him in the jaw. He went down like a ton of bricks. Dell gasped and shrank away, while Pindler, oddly enough, did nothing. At that moment, the office door sprang open and Lieutenant B. H. Astronomer and two of the cities finest stood at the door.

"What's going on in here? Why is that man unconscious?" B. H. asked.

"It's O.K. Barry. He just fell"

"He fell eh? That wouldn't knock him out."

"He fell a lot."

"I see. Let's not have anymore people falling or we all go downtown to answer some questions."

"Not a problem Barry. We're almost done."

Barry glared at me and closed the door. Pindler looked at Gassly lying on the floor almost sadly.

"Why are the police here Mr. Tosh?"

"Because my secretary called them before she left. Her "filing" was actually making the phone calls to Dell to get him here and then to the police after he arrived."

"You have thought this through carefully. Admirable. So it is to be Gassly who takes the fall. That is regrettable. We made a good team"

I stooped down and searched Gassly for any possible hidden weapons. Finding none, I picked him up under his arms. As I dragged him towards the couch, Lisa got up and moved away.

"How much do you know about Gassly? I asked Pindler as I not so gently tossed his partner on the couch.

"Quite a lot I think." He replied. "We have worked together for about five years."

"Five years. Do you know anything about him prior to that?

Pindler shook his head no.

"Did you know that fifteen years ago he was in the French Army? He was a marksman. In the Special Forces. After that, he joined the French equivalent to the FBI. He was released after a prisoner died in his custody during an interrogation. The papers reported it as a suicide."

Pindler looked up from Gassly. "I was not aware of these things. I did know he was rather well connected with some unusual resources."

"And you never asked him? Never wanted to know?"

"I admit to some curiosity. However, he didn't inquire about my dealings before I met him and I accorded him the same courtesy."

"That's too bad Pindler. You might have saved yourself some headaches if you had."

While I had more information to reveal, I decided to let it wait for a bit. It was time to show these people what they had been striving so hard to attain. I walked back around my desk towards the alcove where I had hidden the Maltese Cube. I removed the panel covering and took out the small suitcase within and opened it to unveil its contents. Piece by piece, I placed the Maltese Cube and its various components on my desk. Dell leaned forward and greedily looked over the small computer. Pindler, true to form, disclosed little of what he was thinking. Dell ran his hands over the seventeen inch flat screen display, clearly impressed with its light weight and small stature. The screen alone was a marvel to look at. Barely larger than the viewing area, it was leaps and bounds ahead of its CRT cousins. Putting that aside, he picked up the one button round mouse and sneered at it. He was obviously unimpressed and in the case of the mouse, I didn't blame him. It resembled a hockey puck more than a pointing device. The keyboard, except for its color co-ordination with the rest of the system was equally undistinguished. Finally getting to the heart of the matter, he picked up the Cube. He seemed puzzled at its size and once he looked at the connection ports on the bottom, he realized that this was all there was to it. He turned it

over and over in his hands, trying to grasp whatever concept it had been intended for. By the look of anger across his face, I could tell that Apple's philosophy for designing this machine eluded him. He reached into his pocket and pulled out one of those cheap throwaway screwdrivers that vendors are always pawning off at their demos. He began to scratch at the acrylic surface marring its clear coating.

"What the heck is this?" he screamed. "There's a crack across the top of it![4] No PCI or AGP slots? Nowhere to replace or upgrade the cheap graphics and sound cards we put in our top of the line machines?[5] Where's the aftermarket? Everyone knows our margins are razor thin! Our REAL profits are in soaking the gullible users into buying add-ons.[6] This is useless! USELESS!

Dell fell to the floor sobbing. The Maltese Cube falling from his trembling fingers. He got up and stumbled towards the door, a broken man. As he left, I could hear Barry stopping him in the outer office, probably getting his name and address if needed for further questioning.

A low moan sounded from Gassly. Looking over, I saw him scowling at me as he worked his jaw back and forth. He no doubt now expected me to turn him over to the police as Newton's killer.

"Hey there Gassly." I said. "How's your head? Now we're even for the book to the noggin at my place."

"I suppose that is it then." Said Pindler. "Everything wrapped up."

"Not yet." I replied. "One more thing and then we're quits."

"What else could there be?" Pindler asked. "The Cube is found. Dell has paid both us for our time and trouble, and it seems that Mr. Gassly killed Newton."

I stared for a moment at Gassly. It would be so easy to pin this on him. His background and reputation would assure that the police, even if unable to secure a conviction for Newton's murder, could keep him ice for a long time. But Newton deserved better than that. He deserved nothing less than the truth.

"It looks like he did, doesn't it. He had the time and the lack of morals. I have no doubt that he was capable of it. But there's one thing missing."

I paused before speaking again.

"Motivation. Why would he kill Newton? I still didn't have the Maltese Cube and at that point, Newton hadn't told me where it was. Shooting Newton would have been counterproductive to your goal. That act almost assured that no one outside of Apple would ever have seen the Cube before its general release to the public. No, only one person had that incentive. Isn't that right Lisa?"

"Motivation. Why would he kill Newton? I still didn't have the Maltese Cube and at that point, Newton hadn't told me where it was. Shooting Newton would have been counterproductive to your goal. That act almost assured that no one outside of Apple would ever have seen the Cube before its general release to the public. No, only one person had that incentive. Isn't that right Lisa?"

Lisa's eyes were as big as dinner plates.

"Mac...I..."

"There's one other thing you didn't know about Gassly Mr. Pindler. About 10 years ago he got married to a formerly famous woman. It didn't last long. Gassly doesn't look like the type to stay in one place with one woman for long and it ended in divorce. Apparently they kept in touch though. My guess is that when you were contracted by Dell to get the Cube, Gassly recruited Lisa to help find it. Probably after your men botched getting it in California. Newton by this time was scared. He was moving from place to place. Never staying for long. Always on the go. Lisa was fortunate enough to find him first."

I looked over at Lisa and spoke to her directly.

"You lied to me when you said you had been staying at Newt's place. You had probably just met him. Tried to gain his trust. While he never confided in you about the location of the Maltese Cube, he did trust you enough to send you to me. Before look-

ing me up, you had a phone call to make didn't you? You called Gassly and told him that Newton wanted to reveal it to me. To tell me where the Cube was and return it to Apple."

I turned back to Pindler.

"Why did you decide to hire me Pindler? You didn't know me or my former dealings with Newton."

Pindler looked from Lisa to Gassly. These disclosures were unsettling to him I could tell.

"It was suggested to me by Gassly. He told me you had a good reputation for finding lost items. He said nothing about Newton and the first time I heard his name was at your apartment."

I didn't believe that, but it truly no longer mattered. This whole affair had me heartsick and the sooner it was over the better.

"Not that it's any of my concern Pindler, but I think Gassly and Lisa were going to try and get the Cube and shut you out of the payoff. Maybe you better rethink your partnership with him."

I began to walk towards Lisa.

"Once I found out about your relationship with Gassly, it all fell into place. You followed me to his new digs and waited in the shadows. I was looking out for Pindler or Gassly, not you. You saw me go in and out of his fire escape and pursued me to the park. Somehow you got close enough to listen in to the conversation between Newton and me. You were in a panic because eventually, your name was going to come up and you would be exposed for the liar that you are. You chose your moment, and shot him. You took quite a chance in that. Newton may not have had the chance to tell me where the Cube was and I might have been able to catch you."

Lisa spoke up finally. Tears were strolling down her cheeks.

"I knew you wouldn't leave Newton behind. Gassly taught me how to shoot during our short marriage. I aimed carefully."

"Why did Dell come to me? He didn't pull my name out of a hat."

Lisa refused to look at me as she answered. "Gassly contacted him after Newton got away from Pindler's men at his apartment. He had called some of his old intelligence sources and found out that Newton used to work for you. It was Gassly that actually found Newton a few days ago. He sent me to him. He knew you could catch flies easier with honey than vinegar. Unfortunately I wasn't able to get him to tell me where it was. Gassly figured he might tell you though. He suggested to Dell that he hire you. He also had Pindler go to you thinking that one way or another, the Maltese Cube would be found."

"But why? Why did you get involved with this?" I asked

Lisa smiled and a shiver ran down my back.

"You don't know what it's like to be distinguished. To have everyone know your name and speak of you. To be in magazines and to have your picture taken. And then to have it all gone. To be a footnote, a where are they now."

I walked to the inner office door and rapped on the frosted glass. Barry came in looking at our motley crew.

"I think Miss Lisa would like to accompany you to the station Barry. She has quite the tale to tell."

Barry nodded his head and took Lisa by the arm. She turned to me one last time.

"Will you wait for me Mac?"

"Lisa, by the time you get out, we'll both be old and gray. They're going to bury you deep in that desert prison they now have[7].

As Barry led Lisa out of the office, Pindler stood up. He took one last look at the Maltese Cube and then snapped his fingers at Gassly. Without a word, Gassly rose from the sofa and made his way out.

"I think I'll be going now Mr. Tosh. I do not believe I wish to be in town when Lisa finishes speaking to the police."

"What about the Maltese Cube Pindler?"

Pindler who was now by the door spoke without turning.

"Keep it. It is of no use to me now."

Pindler closed the door behind him and was gone. I looked at the Cube lying on the floor. So much trouble over such a little thing. I picked it up and placed it on my desk. I pulled the few needed cables out of the suitcase and connected all the pieces. After a brief inspection, I found the power button and turned it on. A deep boooong resounded from within and a picture of a monitor with a happy face and the caption "Welcome to Mac OS" appeared on the LCD

screen[8]. After it finished its booting up process, I began to play with it to see what it could do. It was remarkably easy and intuitive to operate. Within a short amount of time, I had the basics covered. I sat back and gave due consideration to my new acquisition.

"You know Cubie? This could be the start of a beautiful friendship[9]."

THE END

Notes for Chapter 12

[1] Maxie - Maxine is short for Umax Seeceries. She is Mac's secretary and all around Girl Friday. She is named after the Mac Clones made by the UMAX Corporation. I currently own a C600.

[2] Windows Service Patches – They certainly have to release a lot of those, don't they? Not much choice when your operating systems are filled with bugs and security hole.

[3] "YOU ARE NOT GOING TO PIN ZIS ON ME!" – Last call for making light fun of the French and typically bad movie accents.

[4] "There's a crack across the top of it!" – When the Cube first came out, many people complained about an apparent crack across the top of the machine. This actually was not a flaw (or a feature), it was a left over from the manufacturing process in the molds used. While not pretty, I think way too much was made of it by the PC press.

[5] "No where to replace our cheap graphics and sound cards" – I think the one big issue that PC buyers have with Macs is price comparison. They look at some E-Machines or Dell PC and say "Look how much more Macs cost!" when no other lame comparison can be found. If they looked a little harder, they might find that their "cheap" PC is just that. Cheap. Upgrading to the same specs as a comparable Mac would cost them hundreds more. Macs are still more expensive, but you get more out of the box.

[6] "Our REAL profits are in soaking the gullible users into buying add-ons." – This is so beyond true, it almost goes beyond saying (but I did anyway).

[7] "They're going to bury you deep in that desert prison they now have." – After the marketing debacle of the Lisa (which cost Apple millions), rumor has it that Steve Jobs took back the remaining inventory and buried them in the Arizona (or some other southwestern state) desert.

[8] Welcome to Mac OS" appeared on the LCD screen – This is obviously pre-OS X.

[9] "You know Cubie? This could be the start of a beautiful friendship" – Yes I know that this line was not in "The Maltese Falcon". But I liked it and Bogart DID say it (Casablanca).

Author's Notes

There were times during the writing of this story that I wished I hadn't started it (Funny, many others told me the same thing). My time to spend writing it was becoming more and more difficult to find (especially after the tragic events of 9/11). I knew generally how it was going to end (I had the last line in mind before I had even started Chapter one), but I wasn't sure how to get there. After re-reading the first 4 to 7 chapters, I realized I had locked myself in a corner with several plot points and I had no idea to reconcile them. I hope I managed to answer any and all questions in Chapter 12. If not, you're welcome to send any criticism to my home email address floridakid@aol.com.

I would also like to thank Beth and Kathryn (Apple PI office managers extrodinaire!) for their patience and help in getting this done. I could not have done it without them. Also to the WAP Journal editors for correcting my many grammar and spelling mistakes. Also for allowing a frustrated bad fiction writer space in this fine publication.

Lastly, I would like to say that Michael Dell of Dell Computers is probably not the design stealing whining weasel as I have portrayed him in this story. I'm also reasonably sure that Michael Splindler and Jean Louis Gassllee are not like 40's era movie toughs and rarely if ever threaten people for computer designs. This is a work of fiction solely made for the enjoyment of myself and WAP Journal readers.

π

A First Look at Photoshop 7

AN 800-POUND rock makes an impact no matter where it lands, though, and Photoshop is that, with good reason. Version 7 introduces new features that are making the experts open their eyes wider. Topping the list is the "Healing Brush," a new tool that almost miraculously "heals" wrinkles and blemishes in photographs of people, or dust and scratches in any picture. Photoshop wizards have long used the clone stamp tool for that—copying similar parts of a picture over any blemishes—but the new Healing Brush automatically preserves the lighting, shading, and texture of the pixels where you're painting. People who have seen it working have reported asking to see it again, it was that unbelievable.

If brushing isn't your thing, the "Patch" tool works similarly, but on any pixels you've selected through any Photoshop method (direct manipulation, channels, magic wand, whatever). Apply the Patch tool and the selection is healed in the same way as with the healing brush. Scott Kelby of *Photoshop User* magazine says of the healing features, "This tool is nothing short of a retoucher's dream, and if you retouch photos, this tool will pay for itself the first time you use it."

That's not the only new visual tool in Photoshop 7. Taking direct aim at Procreate's Painter (now that it's owned by Corel), Photoshop 7 adds a new "painting engine" that simulates traditional painting techniques including charcoal and pastels. The brushes capability is much expanded (including the return of the floating brushes palette), with control over aspects like shape, tilt, scatter, spacing, jitter, diameter, texture, shading, and apparently lots more.

Photoshop 7 ships with dozens of new brushes that mimic natural media brushes, and it supports Wacom graphic tablet tilt and airbrush controls as well. You can now adjust the diameter of any brush; Kelby points out this makes traditional brushes useful again on high-resolution photos. What's more, the "Airbrush" tool is gone, because now any brush can be an airbrush. There are five new blending modes as well.

The new "Stroke Thumbnail" tab in the Brushes palette shows not only the tip of the brush but also a preview of its stroke. Photoshop 7 also includes a set of natural media canvases, or you can scan in your own media to use as the painting canvas. It's too early to know if Photoshop 7 is a "Painter killer," but if you buy Painter just for its natural media painting abilities, Adobe clearly wants you to try Photoshop 7 first and see if that little extra Procreate expenditure is *really* necessary.

A new Pattern Maker plug-in takes your selection and makes a seamless tiling pattern based upon it, complete with a Pattern History that lets you view your previous attempts (though no easy way to edit the patterns it produces). Got a small section of grass that you like in a landscape? Make a pattern and create as much pasture as you like. The "Liquify" tool is also reworked, allowing you to zoom, pan, add distortion (like for smoke or wind), view other layers, and even undo multiple steps. Best of all, you can save custom distortion meshes and then reapply them later to other files. Kelby loves that, noting you can perfect a distortion on a low-resolution preview image, save the mesh, and reapply it to the high-resolution original later for much faster work.

Lastly for now, a new "Auto Color" command analyzes the highlights, midtones, and shadows of an image and tries to remove color casts in those areas, unlike Auto Levels (which affects dynamic range as well as color) and Auto Contrast (which affects dynamic range but not color).

Web wonders

On the Web side, Photoshop 7 ships with ImageReady 7, getting a version number bump to align it with its big brother. Though Adobe is not exactly clear which Web features are in ImageReady and which are in Photoshop, the

combination adds some new heft. A new "Rollovers" palette manages all rollovers in all slices, instead of slice-by-slice in previous versions of the program dyad, and you can add a layer-based roll-over by clicking a single button. A new "selected" state for rollovers "allows you to create more visually compelling Web pages without hand coding JavaScript," says Adobe, but the company isn't clear exactly what it does (it seems to be a new rollover state for when you're actually clicking on an image section, but don't hold us to that).

Web imaging is improved as well. The "Save for Web" dialog box now allows you to remove any colors in the image, replacing them with transparency. This even works in dithers, so you can create complex backgrounds that don't require mattes to render properly on the Web (just blend a background into transparency along the edges). Even more helpful to our text-oriented eyes is a new feature that lets ImageReady automatically assign higher quality ratings to areas of vector art and text so they compress less while photographic areas compress more. It's unclear if that works only for slices or for monolithic image files, but either way, it's a good feature.

ImageReady also includes the same "variables" feature found in Illustrator 10 and GoLive 6. Use Photoshop and ImageReady to create templates for graphics you want on the Web, but replace any data you want to be dynamic (like the current price, or the picture of a product, or today's special) with a variable. GoLive or Adobe Altercast can then replace the variables with information from a database, either when rendering pages statically (in GoLive) or dynamically (in AlterCast).

Lest we be remiss, we also note that the Web Gallery feature adds more templates for making quick photo-album-like Web pages. Photoshop 7 can also label images with their embedded copyright information and put your own watermark on each image as it saves the Web page for added intellectual property good feelings.

Interface insights

If you spend all day in Photoshop, the interface improvements in Photoshop 7 likely will prompt you to pre-order your upgrade as soon as you can. The phrase "customizable workspaces" doesn't mean much at first, but it's incredibly useful. Arrange all your palettes the way you want (dock the tabs how you like, put the palettes on the screen exactly where you want them), and save a custom workspace. From that point on, picking that workspace from the menus restores all the palettes to exactly that configuration, in one easy mouse movement. Make several workspaces for your image processing needs: Kelby says he made one for retouching, one for making collages, and one for Web work. A new "palette well" in the upper right portion of the menu bar lets you "dock" palettes instead of closing them and reopening them from standard menu items.

You can make your own tool presets as well: open a tool, configure it how you want (text in New Baskerville 36 with 30 point leading in a superintelligent shade of blue), then save that "tool preset" as a new tool. After that, you can select your own custom Superintelligent Baskerville tool and just start typing. It's manna for corporate graphic departments that must follow the same style guidelines in every piece of art, or even for illustrators who just use the same settings every

"Photoshop 7's text tool has a multilingual spelling checker, smart enough to recognize words of other languages in the middle of English sentences (or, presumably, any language combination you care to inflict upon viewers). The Layers palette replaces several checkboxes for locking with simple roll-over buttons— in fact, throughout Photoshop 7, tool palette buttons have color rollovers to provide subtle feedback as you mouse around."

day. A new "presets" palette provides access to all of your saved presets in addition to saving them as new tools. These two changes (tools and custom workspaces) go a long way towards making Photoshop work your way instead of the other way around.

The "File Browser" tool isn't exactly new—something like it was already in the $99 Photoshop Elements—but the Photoshop 7 version is vastly expanded and adds a welcome sense of depth to selecting images in Photoshop. Open the browser and you see a hierarchical folder view along with thumbnails (of your chosen size) for every image in the folder, complete with meta-information about the file and the image within it (resolution, dimensions, color palette, and more, including EXIF information in images that have it). You also see a larger preview image for the currently selected document. Sort the images by just about any criteria, including "rankings" you provide on any scale you want (from "worst" to "best," or "proof" to "final", or "ugly" to "beautiful"— whatever you like). You can even create and rename folders, rename or open or delete files, or rotate images from within the browser.

Photoshop 7's text tool has a multilingual spelling checker, smart enough to recognize words of other languages in the middle of English sentences (or, presumably, any language combination you care to inflict upon viewers). The Layers palette replaces several checkboxes for locking with simple roll-over buttons— in fact, throughout Photoshop 7, tool palette buttons have color rollovers to provide subtle feedback as you mouse around. The preview image for filter operations is much larger than in previous versions, an acknowledgment that very few people use Photoshop on 640 X 480 displays anymore.

Photoshop's "Picture Packages" feature is enhanced. In previous versions, it was intended to help digital photographers easily assemble the kind of print packages you expect from portrait studios or school photos (big prints and small prints all put together so the customer can cut them apart). In version 7, Picture Packages lets you print multiple images on the same page, not just repetitions of a single image. You can choose different page sizes and add labels to pictures, either data-driven from file metadata or from custom text you supply. Since the feature is intended to help photographers print high-resolution images on high-quality image printers, allowing more images per page with more customized features helps save on those expensive photographic papers.

The Tao of workflow

Photoshop 7 adds support for Adobe's other new technologies, including the Extensible Metadata Platform (XMP), adding metadata to images in XML format (technically in RDF format, an application of XML) that other Adobe applications can use in a professional workflow. InDesign 2, Illustrator 10, and AlterCast all support XMP, as does Acrobat 5, and a software development kit is available for integrating the data (including keywords) into other products. Photoshop 7 makes it more practical than ever to adopt a PDF workflow, too. All of Adobe's products have created PDF for some time, but now almost all of them can open PDF files created by the others (for example, before Illustrator 10, Illustrator had difficulty opening some Photoshop-created PDF images). That's all in the past, and Photoshop 7 ups the ante with full support for Acrobat 5 security features. Save a Photoshop PDF in PDF 1.4 format and include passwords and security protections if you like—prevent people from viewing, printing, or annotating the image unless they have the right password. There is "improved" scripting support, but no word yet on how comprehensive it is (such as whether it approaches the level of Main Event's PhotoScripter), but you can use either AppleScript or JavaScript to develop and debug scripts directly within Photoshop. It also supports WebDAV for checking out and editing files on servers, perhaps including an iDisk (since iTools supports WebDAV as well).

And, of course, Photoshop 7 is Mac OS X native. Drag-and-drop images from native Illustrator 10 right into Photoshop 7 or vice-versa, forget about issues with partition size and memory management (just buy lots of RAM), and minimize windows into the Dock to your heart's content. The native version does mean plug-ins must be updated to work na-

tively, so you'll need upgrades to any plug-ins that are critical to your Photoshop work (until they are native, you can run Photoshop in Classic for those plug-ins, as long as they don't access hardware directly). Even so, you get the robustness of Photoshop on the admitted stability of Mac OS X with no Classic overhead—a decidedly good thing.

And now, the details

Photoshop 7 is to ship before the end of the second quarter. It is a full Carbonized application and requires Mac OS 9.1 or later to run in the pre-X world, or Mac OS X 10.1.3 to run natively, plus at least 128MB of RAM (get more) and an 800 X 600 or larger color display with at least thousands of colors. The estimated street price is US$609, with upgrades from any earlier version going for US$149. Upgrades from Photoshop LE or Photoshop Elements are US$499. If you purchase the full version of Photoshop 6 after 2002.02.24, you're entitled to a free upgrade, as long as you ask for it no later than 60 days after Photoshop 7 ships. Adobe expects to take pre-orders in mid-March.

Many of the big names got advance looks at Photoshop 7, so there's lots to read if you want more information. Most useful of the batch are the eight-page *Macworld* article by Deke McClelland and Kelly Lunsford, with more coming in the April 2002 printed issue, and Scott Kelby's abbreviated online article from *Photoshop User*, with a much fuller treatment coming in that magazine's next printed issue. MacCentral's overview has lots of pictures to assist the text, and OSXFAQ has Andrew Shalat's first look at the program.

The transition to Mac OS X won't finish instantly once Photoshop 7 ships, and it *will* almost certainly miss Apple's one-year deadline that passes in just under a month. Plug-ins and ancillary products still need to make the move, and people will complain that filters and other operations are slower under Mac OS X. They have to be slower—the system forces all processors to give up more time to other applications and keep them running smoothly in Mac OS X, where Photoshop 6 and earlier could monopolize all processors for faster filtering and image adjustment. It may not make much difference to imaging pros that they can smoothly browse the Web while

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"The phrase 'customizable workspaces' doesn't mean much at first, but it's incredibly useful. Arrange all your palettes the way you want (dock the tabs how you like, put the palettes on the screen exactly where you want them), and save a custom workspace. From that point on, picking that workspace from the menus restores all the palettes to exactly that configuration, in one easy mouse movement."

Photoshop applies a Gaussian blur to a movie poster at full resolution, but that's how the OS is designed and Photoshop has to live within it. On the bright side, you can also keep Photoshop working on something in the background while working in Illustrator or Dreamweaver in the foreground without going crazy.

People have complained that Photoshop 7 has taken a long time to arrive, almost exactly eighteen months since Photoshop 6 was announced. Yet this is the upgrade they've wanted—no one would feel good about paying for a Mac OS X upgrade that offered no new features over Photoshop 6, but it would have taken engineering time and effort to produce. Adobe chose the right path by starting Mac OS X work after Photoshop 6 shipped and including it as new features developed, not trying to glue its existing code into the new world for a quickie product. It's a solid upgrade that every Photoshop user—even the ones not immediately switching to Mac OS X—will want in the graphics toolbox. ■

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Microsoft Looks at Macintosh

Kevin Browne is the General Manager of the Microsoft Macintosh Business Unit (MacBU). On April 10th he spoke to a gathering at the Silicon Valley Speaker Series on the Microsoft camput in Mountain Valley, California. Kevin addressed issues concerning Microsoft/Apple business relations, ongoing developments with the Macintosh versions of Microsoft products, and discussed outyear ideas which his group is looking to develop.

We have exerpted sections from Kevin's presentation which will help you understand current thinking at Microsoft. There is a whole section concerning Microsoft's overall strategy, called <Microsoft.NET>, which we could not include because of space constraints. If you would like to read Kevin's entire speech and the questions and answer session that followed, point your browser to: <http://www.microsoft.com/presspass/events/svspeaker/04-10browne.asp>

Kevin's biography can be found at the end of this exerpt. We would like to thank Microsoft for making Kevin's remarks available.

Apple/Microsoft Technology Agreement

THE ASSUMPTION has been that without an agreement in place, there's no way Microsoft would be doing this business, and what I hope to convince you of today is the relationship . . . between Microsoft and Apple, really just has nothing to do with the technology agreement [signed August, 1977; expires August, 2002]. The technology agreement never has and never will define what it is that we do on the Mac, or how we do it.

Microsoft, began life as an applications company on the Mac. Microsoft Excel first shipped on the Mac back in April 1985. Microsoft Word first shipped on the Mac back in 1986. Microsoft PowerPoint, Microsoft Office as a suite was born on the Mac in 1989. We have been a company that has been dedicated to providing great software for Macintosh users for a long, long time, most of our company's history.

. . . I want to be clear about it today, that we would absolutely welcome an agreement with Apple to advance the strategic interests of both companies. There's work ongoing about that. There's no anxiety on my side, and I think no anxiety on Apple's side . . . If you're thinking about the technology agreement, you're thinking about the wrong set of things.

Microsoft's approach to the Mac . . .[has] always been about doing the right thing for customers. . . . We've released three major releases of Office in four-and-a-half years. That's pretty extraordinary for the amount of code, the amount of complexity that's required in putting that product together.

We did Mac OS 10 versions of Internet Explorer and Office here in the last couple of years. The technology agreement never said anything about that. We built world class email clients on the Mac, including Outlook Express and Entourage, never was talked about in the technology agreement.

We've imbued our products with true Mac-like appearance and behavior. We've introduced features in our products that are not found in the Windows versions of our products. We provide great support for Apple technologies that are critical to our customers. In some cases, we provide better support for Apple technology than to similar Microsoft technologies, witness our support in the Office suite for QuickTime, which is actually better than our support for Windows Media.

. . . What do you hang your hat on if you're a Mac customer and you're worried about Microsoft? One, Microsoft is going to try and do the right thing for both customers and the P&L. We're going to try and run a great business. We'll continue this business as long as the business case makes sense to do it. It's pure and simple, we've got to make a profit. We're a profitable company today. . . . The last 18 months has been the worst PC market probably in the history of the PC, and yet we've continued to make a good business out of this, as has Apple, Apple has maintained profitability through most of this dark period. . . .

We are going to take one version at a time. We'll do a version, we'll see how that thing sells. If we think that the business case still makes sense, we'll start planning the next one. That's what we're doing right now. We're definitely approaching this thing, though, by taking the long-term view. . . .

The base of our business is to build great versions of Office and IE for our Mac customers. . . . Again, the criteria for us, it has to be a modest resource cost, and a good return on investment, or we won't do it. MSN Messenger is a product that we've recently really picked up our investment in. It's something that was done by a handful of people outside of our business unit. The MacBU has now adopted MSN Messenger, because we believe it's a great foundation for helping Mac users work together. As we talk to customers, we're finding more and more cases where individual Mac users want to collaborate on documents, or want to work together in ways that they're maybe not able to do easily today. And we see MSN Messenger as a great foundation for doing that.

Porting Other Products

People have said. . . if you want to make us believe you're dedicated to this platform, you need to port these following products to the Mac. Well, it turns out that Project and Access both are great products, there probably is a market here, but it would take my entire team two-and-a-half to three years to port either of these products, during which time we wouldn't be working on Word, Excel, PowerPoint and Entourage and IE. And if we were to port Access, for example, we'd be going head to head with FileMaker, which is a great database, it's serving our customers well, and we just don't see a great ROI promise there. . . .

Measure Microsoft Support

I'd actually like to give a replacement definition for support. . . .we have the Mac Business Unit, about 150 people. We still think it's the largest dedicated Mac team outside of Apple. I know there are a lot of other companies doing Mac work, typically they have their Mac and Windows people, their people doing Mac and Windows work at the same time. The people that work for me do only Mac products. They have no responsibility for Windows, Xbox, or anything else. . .

> "So where is Office 10 today. I'd hoped by now to be able to say, here's how we're doing, and here's how we're doing against our goals. It's still a little bit too early to tell. Anecdotally I'll tell you that we've had very, very good results working with Apple to sell OS 10, or to sell Office 10, along with OS 10 and machines through the Apple retail stores."

Mac OS X Support

Does it mean you believe? Does it mean that you support? Microsoft, the Mac Business Unit has been among the earliest and most vocal supporters of Mac OS 10, back when it didn't make any sense to stand up on a stage and say we believe in this because we just didn't know anything about it, we were up there to try and say we think Apple is going in the right direction. We are waiting to see what they do. Back in the fall of 2000, when we were launching Office 2001, which didn't support Mac OS 10, we said we'd move very quickly to support Mac OS 10, and thereby cut into our business, our own upgrade business. We have believed even where it didn't make sense to believe.

Does it mean you make a bet? All right, well, today we're going to make a big bet. We're going to say, Mac OS 10 is our whole future. We're not going to do another product on Mac OS 9. We'll do a little maintenance work as required for quality and security issues as we need to do. But every major release that my business unit does from now on will be based on Mac OS 10. If Apple is betting its business on Mac OS 10, it makes sense for us to do so, and my personal belief, as I stand here today, is that the only reason you'll see us go away is because Apple's going away, too.

Do you plan for the future? Well, absolutely, stay tuned. That's what the rest of this whole talk is about. We feel like the best way to show you that we're committed, that we're planning to be here for the long-term is to tell you what it is that we plan to do.

Current Mac BU Projects

...Office Version 10 for Mac was a product that we released, a native OS 10 version of our suite for the Mac OS 10 platform. We released it in November of 2001. Our intent with this product was to make really the poster child app for Mac OS 10. Apple came out with OS 10 and they said, here's what the whole promise of this platform is all about. And we went right down the list and tried to say, what is it they're promising, let's deliver on that in our products so people can see it.

For instance, the AQUA user interface is beautiful, easy to use, easy to discover. We completely ripped the entire face off of our Office 2001 product, put a whole new AQUA-fied face on it, so that is just personifies what Apple means by the AQUA user interface. Apple put this new 2D graphics layer in called Quartz, that allows for beautiful, high resolution graphics right on your desktop. We integrated that in our charts, in our entire drawing layer, every graphic you use is beautifully drawn, with rich fills, full support for transparency. We greatly improved Entourage 10, Entourage 10 in this is a real version 2 product. We redesigned the product based on feedback from our customers from Entourage 2001, and provided much tighter integration with the rest of the Office applications, and we took the opportunity to go and address some feature requests that we heard from customers in the other applications. So in Word sees the addition of multiple selections, you select multiple sets of text and you can apply the same formatting commands to all of those simultaneously for a much higher productivity. . . .

So where is Office 10 today. I'd hoped by now to be able to say, here's how we're doing, and here's how we're doing against our goals. It's still a little bit too early to tell. Anecdotally I'll tell you that we've had very, very good results working with Apple to sell OS 10, or to sell Office 10, along with OS 10 and machines through the Apple retail stores. This appears to be everything that Apple is trying to achieve with the Apple retail stores, to create a platform for Mac software developers, for Mac hardware developers, to reach the Mac customer, they appear to be doing that.

. . . One of the things that we chose to do was something called the Office 10 Test Drive. The test drive is a 30 day free evaluation product that you can get, you download it from us. It's a 123 megabyte file. We've had over 90,000 downloads to date of that file. So there's a bunch of people who are just trying to figure out what OS 10 is about, and hopefully we're helping them see how compelling it is. . .

What's Next

The first thing that's coming, late May or early June, is a service release for Office. We released Office in the end of 2001, and we've been working very hard to make sure hat it is the experience that our customers need. We've gotten a lot of feedback from people, a lot of great feedback. Apple has also been working very hard on Mac OS 10 with updates like 10.12, 10.13, that address a lot of issues, and we're trying to keep pace. We're releasing it all in one major service release. This will include over 1,000 behavioral tweaks, bug fixes, performance improvements. Some things are dramatically better, dramatically more stable. We're pleased to actually provide, finally, the full support for anti-aliased text throughout the suite, this is something that some of our customers had dinged us on. Entourage looked absolutely beautiful, and is so much easier to sit in front of for eight hours a day with this anti-aliased text support. We'll be providing ODBC, which allows our products to talk to these large Oracle, or SQL Server databases, in this SR.

We're also extending our support today with Office 2001, and Office 2001 and Office 10, we're able to talk directly to the desktop copy of FileMaker Pro that might be on your desktop, in order to bring data from FileMaker Pro databases into Excel for analysis, or into Word for mail merges. . . .

I list this separately, although it may come into this service release. We're just really not sure at this point. We're working very hard on our Palm Sync conduit. . . .

We're also working on a new version of MSN

messenger. This is going to be available probably at the same time as the SR. This provides a greatly enhanced Mac experience, a greatly enhanced international experience, and a couple of nice things people have been asking for. . . .

The Mac Way

The next versions of the products that we're working on, for the last five years we've worked on the fundamental value proposition that you should buy this latest thing from us, because it's more Mac-like than the last one. This is much in reaction to customers concerns that Microsoft had neither the skill nor the desire to build good Macintosh applications. So this is what we've focused on. Even in work where we've done — like in Excel 2001, where we've built a whole new way for managing lists of data, very simple flat lists, they're kind of at the very lowest end of database usage, this was a good category enhancement overall, but we talked about it in terms of Mac first, because we knew customers were just that sensitive to the notion that Microsoft didn't get the Mac.

Hopefully, with Office 10 we've put all that to rest. We get it, I hope we showed it with Office 10. We'll continue to do that work to stay at the level we've achieved, but fundamentally we need a new value proposition. And we're kind of feeling our way towards this one, as well. I want to try this one out and just see what sticks. The latest thing that we're trying to thing about is, empowering the Mac. There are all kinds of places where it's difficult to be a Mac user today, or where the Mac itself doesn't lend to doing some of the same things that the PC does. And we're going to try and attack those things to solve them for people.

We think there's great compatibility today, but it can be better. There's work that we can do, there's work that Apple can do. We're going to try and work together to deliver that much better compatibility, so that no one has to know you're using a Mac, it's just that things just work. We talked about the case of the individual's personal network of devices, how do you keep that in sync, how do you make it work for you to make you more productive. We think Microsoft can add a ton of value here. As I said before, we're seeing more and more cases where Mac

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Performance is a specific area of concern. A lot of people say it's not as fast as they'd like it to be. We agree, there's a lot of work going in there. Security and privacy are going to mean totally different things two or three years from now than they do today. The infrastructure that we have in Internet Explorer is adequate for today's use, but not where we want it to be for the future, for this great connected world that we're driving toward, so we'll redesign that completely.

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users actually want to work together, and there hasn't been defined a way that you do that very well. We've done some features, but we haven't put a lot of focus on it. We think we can make this much, much easier to facilitate teamwork, not only between two Mac users, but between a mixed group that uses Mac and PC.

And then access to organizational resources is something that we haven't put a ton of effort into. We think we can do a lot there that makes a big impact for people. Access to the network, access to the databases, these are all concerns that people have today. And it's a place where we feel the Mac Business Unit can add a lot of value. We typically release our major versions 18 to 24 months apart. So if you know when we released the last one you get the general time frame of when we'll be talking about the next one. I'm very excited about some of the early work that we're seeing going into there.

Internet Explorer is also an application that we intend to work a lot more on. Today I would say it's the best of the OS 10 browsers out there, it's the most complete. It allows you to do the most things. But, it

isn't the product that we want it to be yet. And we're putting a lot of time, effort, and ingenuity into getting it to the place where we want it to be. It can be a lot better Mac OS 10. In part we can solve that by my earlier announcement that we're going to do OS 10 work only. We have straddled OS 9 and OS 10, and had to make tradeoffs accordingly. We're discarding the OS 9 work from now on, and we're going to be an OS 10 browser, and the best damn OS 10 browser you could ever dream of.

Performance is a specific area of concern. A lot of people say it's not as fast as they'd like it to be. We agree, there's a lot of work going in there. Security and privacy are going to mean totally different things two or three years from now than they do today. The infrastructure that we have in Internet Explorer is adequate for today's use, but not where we want it to be for the future, for this great connected world that we're driving toward, so we'll redesign that completely. HTML and XML rendering, we've got compliance to standards today, great forgiveness for pages that aren't written to standards, but the area where we somewhat fall down is in the way web designers perceive designing for Win IE versus Mac IE. You definitely have to account for some differences and there's work that we can do to make that easier. So we'll do that.

Again, Mac OS 10 only is the direction that we're making. If OS 10 doesn't succeed, neither will we, but we don't see straddling the line as a way to get there successfully. So we're committing to OS 10 only in the future.

In Summary

. . .The agreement is ending, our business is absolutely continuing. As I said before, we'd be happy to sign a new agreement with Apple if it represented the strategic interests of both companies. We're not just going to renew the old one just because people are worried about whether we're going to be around, because the old agreement doesn't represent today's realities. And the old agreement was fundamentally oriented at laying to rest business issues between the two companies. Today our relationship is great, we're working better than every together, and on a business basis I think we can help each other be successful, even without an agreement in place.

Our future development will be on Mac OS 10 only . . . We're planning today for the next major versions of Office and IE. We've got this new value proposition that's centered on places where we think Microsoft can add value to the Mac experience, and that is to empower it. I hope that empower the Mac doesn't sound arrogant, it's not intended to be, it's purely there are places where we haven't done the work that we can do, and we're going to reinvest there.

As one of the founding members of MacBU, which was formed in 1997, Kevin spent three years as the group product planner where he helped to define the early MacBU products, including Office 98 Macintosh Edition, and Internet Explorer 4.5 for Mac. Since being named head of MacBU, Kevin has overseen the successful completion and launch of the award winning Office 2001 for Mac, Internet Explorer 5 for Mac, and Outlook Express 5 for Mac, as well as the resent release Office 10 for the Mac.

Kevin brings more than 10 years of experience at Microsoft to the role of general manager. Before joining the MacBU, Kevin spent seven years as a reseller channel representative, systems engineer, product marketer and product planner for Microsoft Excel, where he assisted in shipping every version from Microsoft Excel forward.

Prior to working at Microsoft, Kevin spent four years in the U.S. Army, where he was a tank commander of the Fourth Mechanized Infantry Division. Kevin also holds a BA in history from the University of Notre Dame.

A DC column to hold on to...

Genealogist looking for photo solutions

QUESTION: I have PhotoDeluxe 1.1, which came with my Umax Astra 1220S scanner and a G3 Mac, OS9. I do not understand how to use PhotoDeluxe - it did not include a manual - so what I have done has been trial and error. It also is very SLOW.

I am a genealogist, so I want to scan printed newspaper articles, download and modify/enhance the legibility of early land grants and original Census pages, etc. I also would like to do some work on old photos and newer 35mm color photos, placing them in my database and eventually on family trees, etc.

I have read some reviews on Adobe's Photoshop Elements that are somewhat contradictory. Some imply that it is easier and more instructive than PhotoDeluxe and others say it's a step beyond PhotoDeluxe.

It also seems to concentrate on photos. I don't know how helpful it would be in enhancing and editing borders of old deeds, etc., or newspaper obituaries.

There is a 30-day free demo that I downloaded, but apparently something went wrong with the download. It doesn't open, and there is a message saying the whole version didn't convey. So I was not able to install it.

During this search, I noticed that there is a 2.0 version of PhotoDeluxe, but didn't see any description of it. I thought the upgrade may be better for me, since I am somewhat familiar with is.

If there were some instructions. ...

Please advise me in simple terms how to improve the quality of my work on old papers and photos, as well as newer color photos. I do not want to spend a lot of time guessing and learning something time-consuming and complicated.

Thanks. I really enjoy your column. - *Rita*

Dave: Rita, the answers to the questions you are asking could fill up any number of books.
Luckily, you only get a few paragraphs from Derek and me, so let's make them worth your time.

You are involved in a wonderful hobby that helps bring a family's history to life. A computer with Internet access can be a great tool in helping you do a lot of the work you need to do.

I've used both PhotoDeluxe and Photoshop Elements. My suggestion would be to spend the money and buy Elements. It is a great program that you should be able to start using right out of the box. The program automates many of the chores you would have to do in higher-end products (such as Photoshop). But it also gives you a lot of control if you want.

It allows direct scans as well. Plus, it comes with a manual - which I have yet to open!

That said, if you want to stick with PhotoDeluxe, head your browser over to www.activeshare.com/US/products/photodeluxe/tips/index.html and you'll have a wealth of information about the program and how to use it.

Although Adobe no longer really supports the Macintosh version, you can still buy it - it's $39 for the upgrade to 2.0.

As a PhotoDeluxe owner, you can upgrade to Elements for $69. If you don't want to do that, I would strongly suggest you get the 2.0 version, as it has a number of enhancements.

For more information go to www.adobe.com:80/store/products/photodeluxe20.html. For more information on Photoshop Elements, head your browser to: pshopelementssupport.adobe.com.

These programs can help enhance photos and other scans or papers, etc. If you are looking to just grab the text from those newspapers, however, you'll also need to find an optical character recognition program that can do that. For more information on that (Mac or PC) take a look at desktoppub.about.com/library/weekly/aa040699.htm.

In reading over your comments, one of the things that hit me is your need to really learn how to use your scanner and programs such as PhotoDeluxe or Elements. As a Washington Apple Pi member, you also know that the club offers a number of classes that can help you become more comfortable with your hardware and software so you can do what you want quickly and easily. PC users have similar options with the Capital PC Users Group (and other local user groups).

One last comment. You didn't mention if you were

using one, but there are a number of genealogy programs out there for Mac and PC users that may actually do a better job of accomplishing what you need in one complete package. Apple's software guide is a great place to check what's available at guide.apple.com. For links to genealogy sites, try genealogy.about.com/

By the way, Rita, Derek has done extensive genealogical research on his family and, although he is rather shy in talking about it, he can trace his ancestry back to Eniac, Babbage and even some Greek guy who used an abacus on occasion.

Derek: Eniac? Let's get this straight. While I've been in the computer business since 1982, I am in no way, shape or form older than you, Dave!

Anyway, Rita, I think you are unfortunately in for a tough time. Your desire to edit these old photos, add graphics, scan words and the like are all items that require time to learn.

There are no magic polls to take to learn this stuff easily. Dave's suggestion about getting with a user group is a great idea. You probably won't find a training program that would teach you what you want to know. You could learn it all on your own, but that would take even more time.

As great as computers are, sometimes they require lots of time on your part to get the results you want. Working with photo imaging and editing is one of those things. Let us know how it turns out.

Question: I have a Microsoft ME operating system. Please send me step-by-step instructions for setting up additional files and folders to classify my e-mail messages. I have Outlook Express. -Robert

Dave: Robert, the instructions are similar for both Mac and PC users of Outlook Express - and really quite simple.

Open up OE and take a look at the menu bar across the top. To the left is an icon that says "new" and a triangle pointing down. Mac folks would just click and hold it. PC folks right click and hold. A new window opens that gives you a number of choices to do something new. At the bottom you'll see two choices - "Folder" and "Subfolder." If you want to make a new folder, scroll down and highlight that selection before unclicking. A new folder appears under the Folders list on the left of the program. Type in the new name and you're set.

If you want to create a new subfolder, simply highlight the folder you want to have a subfolder in, go to New and scroll down to "Subfolder." OE will place a new subfolder right where you want it. Rename and you're off.

By the way, you can drag and drop folders into other ones or delete them simply by dragging them to the trash.

Derek, do you have any other suggestions for Robert?

Derek: Robert, as you've obviously found out, folders are a great way to organize your work. In the office, I have a "Customer" folder. Under this I have alphabet ranges (A-E, F-H, etc.). And under those I have the actual customer names. In those folders, I put all of the correspondence, both incoming mail and outgoing mail.

I have thousands of e-mail messages in these folders. And believe me, I don't save everything! But having these folders of information makes it easy to file new items as well as search and find old items.
I also have a large folder with many subfolders for personal items. Remember, though, that the downside to relying on the computer to store information is that you must be prepared in case it is lost. That means you should backup your information. ■

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For questions about home computer hardware, software or operation (no question is too simple or geeky), Dave and Derek can be reached by e-mail at doubleclick@jrnl.com; by snail mail in care of The Journal, 6408 Edsall Road, Alexandria, VA 22312; or by fax at (703) 846-8366.

While all questions and comments are welcome, they cannot promise individual responses.

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New Mac Website Debutes

http://members.aol.com/visitmacland/index.html

By Dave Ottalini

MAC LAND is an new all-Mac website that debuted in early February. It frankly isn't much to look at right now, but webmaster Tony LaFemina (remacs@optonline.net) seems less concerned about the look than about trying to make Mac Land easy to use - especially for the novice Mac owner.

I conducted a quick email interview with Tony and here's what he had to say about Mac Land:

Dave: Why another Mac Website?

Tony: The purpose of Mac Land is to give you an idea of some of the amazing things you can do with a basic Mac. It has an assortment of easy-to-use programs and documents that are free for the taking.

Dave: Give me some more specifics:

Tony: My web site has two purposes. First, I provide training and assistance for the Macintosh computer and spreadsheets. Before I set up the web site, I was lugging my iMac to peoples houses, giving free demonstrations on how they can get the most from their computer without spending a fortune for software. Now I can just give them the web address. If they like what they see, they can hire me. Hopefully it's going to save me and my car a lot of wear-and-tear.

The second purpose for my web site is, since it's up, why not give other Mac users some idea of what can be done with an unappreciated program like AppleWorks. It bothers me when I see people who know little or nothing about computers with over $2,000 dollars in software on their hard drives. You know some salesman made out like a bandit on that sale. And, why someone with no knowledge of spreadsheets would have a program like Microsoft Excel is beyond me. Yet, there's loads of them, and they usually have Microsoft Office too. Why bother getting a Mac? They would have been better off buying a PC. You get more for your money.

Dave: In looking at the website, you emphasize simplicity and an attempt to help newer users.

Tony: I tried to put a little of everything on my web site to appeal to the majority of visitors. Of course there's a whole bunch of stuff that can't be shown on the internet. I belong to the SSMUG in Long Island, New York. I don't think there's one person in the group that ever made a macro, and I know none of them have used Publish & Subscribe. I don't think half of them even know what software was included in their OS, or how to use it. The sad part is, some of them have been using desktop computers a lot longer than I have.

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Here are some of the files available for download:

HyperCard Programs : Three handy applications that are easy to learn and free to try.

Simple Spreadsheets: An assortment of easy-to-use spreadsheets designed to show their versatility and creativity.

Graphic Techniques : A sampling of the various forms of graphics editing AppleWorks can perform.

Text Editing : Shows a variety of text styles you can achieve when you use AppleWorks in conjunction with the Mac OS.

Fun Documents : A couple of AppleWorks documents that are anything but ordinary. They show a side of the program that very few users know exists. ■

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DC Column

efrag drive for optimum performance

QUESTION: In trying to optimize the hard drive on my iMac 500 (OS 9.1) with TechTool Pro 3, I got a message toward the end that stated optimization had been interrupted and to check my volume structure. My volume structure tested fine, but the optimization graph still showed a small number of defragmented files - apparently part of the directory -were trapped in free space. Is this a problem to worry about, and if so is there a fix available? Thanks for your help. *-Paul*

Dave: Optimizing is a subject we've discussed a number of times here in DoubleClick land. Paul's objective is to defragment his hard drive and essentially make it work better. A highly fragmented drive can be a prescription for disaster.

Unlike Windows, the Mac OS doesn't offer a defrag option within the OS. Norton Utilities, Techtool Pro and PlusOptimizer are third-party programs that can do the same thing (along with other repair functions). Optimizing is part of a general program of repair work that probably should be done every month or so, depending on how much you are using your computer.

Apple will tell you that the Mac OS can easily handle fragmented drives. But I will also tell you that Paul was doing the right thing, taking a little time to fine-tune his iMac.

The three utility programs I mentioned are good at what they do, but they all deal with problems in different ways. Norton Utilities has a basic set of programs (DiskDoctor) that run through the structure of your drive and the software on it. Optimization is handled by another application in the suite called Speed Disk. As far as I'm concerned, Norton is the must-have utility for Mac and PC owners. The latest Mac version is 6.03.

Micromat's Techtool Pro is more robust because it also runs tests on your hardware - RAM, ROM, the monitor and more. The software offers a choice of interfaces - from beginners to power users -and you can do as little or as much testing and repair work as you like.

Paul has the latest version - Techtool 3, which also works with OS X. But he should get the latest update, version 3.05.

Alsoft's DiskWarrior looks at the directory file of your Mac and fixes any problems, basically by creating a new directory. Its sister application, PlusOptimizer, is like Norton's Speed Disk application because it is a disk optimizer. The latest version here is 2.1. Note that the DiskWarrior extension won't load if it finds you have a system newer than what it can repair.

I have all three programs and have used them on my Macs and have never had the same kinds of problems Paul has had. He said there have been times when he had to start from the iMac Software Install disk to run Apple's Disk First Aid program - which seemed to help.

In thinking about your problem and doing some research on the Internet at Macfixit.com, I'm wondering if there are some conflicts that are causing you trouble. Try opening your Extensions Manager Control Panel and selecting OS 9.1 all or base configurations. Reboot and see if everything boots properly.

Turn off the Techtool and then the DiskWarrior extensions to see if that makes any difference.

Get rid of Norton's Volume Saver extension - it can and has caused problems on the Mac side for years.

Also, check to see how full your hard drive is - as things fill up, you are open to more and more problems. If you have the room, you might even try a clean install of OS 9 and see if that doesn't take care of your problem. You could use a neat program called Clean Install Assistant to help grab all the third party extensions and control panels in your old System Folder for transfer to your new one.

And since your Mac continues to run, I suspect you don't need to worry about those stray free space files. You can use Norton to wipe any unused space

on your drive, which might help.

Derek, in all my Internet searching, I could not find folks having a problem similar to Paul's. But I think it points out that, just like each one of us, our computers are unique and sometimes ready, willing and able to wreak havoc on our lives at the drop of a hat.

Derek: No doubt. Computers are a finicky thing for sure. They can be lots of fun, though, when they do work, so I guess that's why we put up with them! Windows' users are no strangers to problems, of course. Defragmenting is something that all of us should be doing. As Dave wrote, it's a great way to provide a simple tune-up of your computer. As computers get used, there are tons of files that are created. Some of these are ones you've downloaded or receive through e-mail. Others are from when your computer creates temporary files. Still more are created by Windows itself to manage your computer. Whatever the cause, these files are created and then deleted.

For example, suppose you write two files. The first one is 10 blocks in size. (I'm using the term block here to provide a sense of relative size and to illustrate the problem.) Next, you create another file that is 20 blocks in size. Now you've used 30 blocks of the disk space, right? Delete the first file, which was 10 blocks in size. Now the disk has a gap in it 10 blocks long. If the next file you write is 30 blocks long, the system will put 10 of the 30 blocks of that file into the space where the old file was, and put the remaining 20 blocks AFTER the second file. When you want to read this 30-block file, the computer will read the first 10 blocks, then move the heads of the hard drive and let it spin to the right place in order to read the other 20 blocks.

Doesn't seem like a real problem, until you consider all the other files that are fragmented all over the place. The computer does a lot of work searching and getting to that data. Defragmentation takes all of those files and lines them up in contiguous blocks, so when you want to read a file, it gets it all without having to move all over the place. This greatly speeds up your computer compared to one that was badly fragmented. It also is one of the reasons (not the only one, of course) computers slow as they age.

"Unlike Windows, the Mac OS doesn't offer a defrag option within the OS. Norton Utilities, Techtool Pro and PlusOptimizer are third-party programs that can do the same thing (along with other repair functions). Optimizing is part of a general program of repair work that probably should be done every month or so, depending on how much you are using your computer."

We can help our older computer family members get faster with some care, such as disk defragmentation. ■

Dave Ottalini is on the board of directors of Washington Apple Pi (www.wap.org), the Apple/ac user group based in Rockville, Md. He is employed as a senior producer for CNN Newsource, the affiliate service of Cable News Network.

Derek Rowan is president of HLP Associates Inc. (www.hlp.net), a full-service computer, network and Internet firm serving businesses, headquartered in Falls Church, Va., and with offices in Washington, Baltimore and New York City.

For questions about home computer hardware, software or operation (no question is too simple or geeky), Dave and Derek can be reached by e-mail at doubleclick@jrnl.com; by snail mail in care of The Journal, 6408 Edsall Road, Alexandria, VA 22312; or by fax at (703) 846-8366.

While all questions and comments are welcome, they cannot promise individual responses.efrag drive for optimum performance.

WAP thanks The Journal Papers for their permission to reprint this article.

DC Column

Scanner useless while manual still missing

QUESTION: I have a Mustek 600 III EP Plus scanner that my son gave me when he got a new one. (He got this one secondhand, so it is now thirdhand.) I don't have a hard copy manual for it - it is supposed to be installed on the computer, but it isn't there.

The software manual - iPhoto Plus - is there. My son installed the scanner for me, and he thought that he installed both manuals. He said I should insert the installation disc and see if both are checked, and if not, to check the scanner manual and it will be installed.

Other people have told me that I must first uninstall the scanner and then re-install it. I am afraid to do that because I am not very experienced with computers and I am afraid of messing something up. I need to know how to use this scanner. My son only used it to scan photos for his Web site, so he is very little help and lives about two hours away.

Can you tell me - in words of one syllable - how to take care of this situation?

A second problem occurs when I try to scan an item into an e-mail. It goes through the scanning process, but when it tries to put it into the e-mail, most of the time I get bounced off the Internet and have to re-connect and start over. Then I go through the whole thing again. It does sometimes work, although I can't see that I am doing anything different. I use American Online as my ISP.

If I knew how to do it - which I don't without the manual - I suppose I could scan a photo into a file (or folder, I don't know which is which) and then attach it to the e-mail. I am getting very frustrated with this. It seems ridiculous to have something and not know how to use it. I could buy a copy of the scanner manual from Mustek, but it would cost $10 -$5 for the manual and $5 for postage. It seems silly to spend that much money for something that I should already have. Thanks for any help you can give me. - *Sue*

Dave: There's a lot on your plate, so let's see what we can do for you. First, this out-of-production Mustek scanner is a parallel device that plugs into the printer port of your PC. It has a "pass through" connection for a printer as well.

I don't think you'll need to worry about uninstalling anything. You should have a CD marked "Scanner Solutions" that has the green Mustek logo on it. Jodie Bass, a tech support specialist and user of the same scanner out in Glendale, Ariz., tells me all you need to do is go to cd_drive:600IIIEPPCMANUALSCEPP and open the file for reading or printing. It's a PDF file, so you'll need the free Acrobat reader program found at adobe.com.

If that still isn't an option, head over to Mustek's Web site at www.mustek.com. I did a search to find out what support was offered for the 600 III EP Plus scanner.

At www.mustek.com/support/6003epfaq.html, you'll find the "Frequently Asked Questions" page. From there, I clicked on the "Classroom" icon and was presented with a list of user manuals, including one for the "600 CP," which I downloaded. Again, this is in Adobe's PDF format. This is a "Scanner Users Guide" and will likely answer many of your questions.

In any case, this site also offers a "scanner classroom" to look at and learn even more about the unit and its capabilities. You will especially want to go to www.mustek.com/Class/firstscan.html##5 for information about using the scan-to-e-mail function.

Unfortunately, Sue, I could not find any specific reference to using AOL with your scanner. But there was an extensive general description about using the scan-to-e-mail function at www.mustek.com/Imaging/support/tutorials/doc7220.htm##basics and with AOL 4.0/5.0 at www.mustek.com/Imaging/support/tutorials/doc7222.htm##aol40.

Take a look and see if this doesn't help you. It is possible that, because you are (I would assume) running an older version of Windows and (most likely) an older version of AOL, that there are some incom-

patibilities.

I will also tell you that the "Scanner Users Guide" I downloaded did not mention either e-mail or AOL, so there are likely some problems that are not readily solveable with your current configuration.

If your son was able to use this feature with a different ISP, then there are some incompatibilities with the scanner software and AOL that may not be fixable.

Derek, any other suggestions for Sue? Once again, although the information appears to be available, it can be overwhelming for folks to FIND it. Most company Web sites have search functions and fairly extensive help files, but you have to be willing to wade though so much chaff it can be frustrating. The Mustek site had two mirror locations for much of its information, one graphical and one text-based.

Derek: Wow, Dave. Great job! That was great information! You're right, though - it really is hard to find the information that is out there. In Sue's case, the manual may or may not help her, since she really needs information on the software. And we aren't sure which software program is controlling the connections between her e-mail program and her scanner. Hopefully, Dave's suggestions will help. I would consider upgrading your AOL. We have seen reports of AOL conflicting with lots of different programs.
Comment: We love it when our readers find something that really works for them. Earl Lane needed a moderately priced slide scanner and found a standalone unit by Pacific Image Electronics to his liking. I checked Pacific Image's Web page and all its Primefilm products work with both Macs and PCs, since they are USB devices. Here's what Earl had to say:

I have a bunch of 35mm slides going back over 40 years. I wanted to transfer them to disk. At the time, I checked out several stores for a 35mm scanner.

Most are jury-rigged regular flat bed scanners (the cheapest). A full-fledged 35mm scanner was quoted upwards of $400 or more.

One day at BJs, I spotted a full-fledged scanner for around $150. It was the Primefilm 1800 scanner made by Pacific Image Electronics. I took a chance and got one and am glad I did. It has all kinds of

"A second problem occurs when I try to scan an item into an e-mail. It goes through the scanning process, but when it tries to put it into the e-mail, most of the time I get bounced off the Internet and have to re-connect and start over. Then I go through the whole thing again."

features on it to let you tweak your pictures, stick them in an album and transfer then to disk for slide shows (using Ezphoto). Quality is first rate. It's simple to operate. I recommend it. Check it out at www.scanace.com. ■

Dave Ottalini is on the board of directors of Washington Apple Pi (www.wap.org), the Apple/Mac user group based in Rockville, Md. He is employed as a senior producer for CNN Newsource, the affiliate service of Cable News Network.

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While all questions and comments are welcome, they cannot promise individual responses.

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Washington Apple Pi Tutorials—Getting Better and Better

by Pat Fauquet

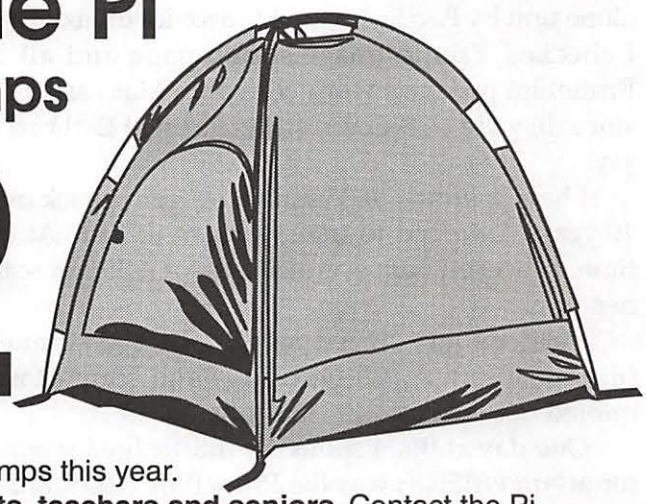
AFTER AN UNSUCCESSFUL attempt at a new scheduling scheme that did not work, we are now trying to schedule tutorials at least a month in advance. You can check the calendar at http://calendar.wap.org/ for class dates. Click on the name of the class for full details. Please check it frequently as we add classes several times each week. You can also reach the calendar from the link on the main page of the WAP web site. Our problem lies in trying to determine when there is sufficient demand to schedule a class and then get enough members to commit to a time and date so that the class will be held. If the class you want does not appear on the schedule, please send an e-mail to tutorials@wap.org. Be sure to include your name, email address, phone number, home address and the name of the class you want. Also, let us know if there are any dates that would not work for you.

Since Beth is no longer our office manager (but thankfully she is still a member) and since we still do not have a new office manager, Jim Ritz and I have been scheduling classes, signing people up, finding students and while trying to develop new classes and teach the old ones. If you receive an e-mail or phone call about a class, please respond and let us know if you can or cannot come. If we do not have three responses, we must cancel classes (even at the last moment). The tutorial program profits help to defray the expenses of running our club.

OS X

OS X is now the primary operating system on all new Macintoshes and has been installed on all Macs sold since late last spring, so we now have enough interest and knowledge to begin classes. There is now a separate Four Part New User Series. We will also begin scheduling a class for experienced users who want to move up to OS X. There will be a separate class for people who do not have it installed on their computers and later there will be a Troubleshooting OS X class. Digital Video Classes Rick Feldman will be our new Final Cut Pro teacher. For the moment we will continue with the old course description, but we expect to offer new courses as demand increases. Pi member, Grant Peacock, presented a session on lighting video scenes last spring. He has agreed to begin teaching three classes on various aspects of video camera work. Much of this information can be applied to digital cameras.

Washington Apple Pi
Summer Computer Camps
2002



Washington Apple Pi will be doing several different Camps this year. Depending on interest, there will be camps for **students, teachers and seniors**. Contact the Pi tutorial program for details, tutorials@wap.org.

Check the course listings for more details.

iPhoto This great free application from Apple was introduced at MacWorld San Francisco. Some info about it has been added to the "Improving Digital Photos and Scans" course, but there is a class devoted just to it also. (See page 80 for description.)

Evening Classes Are Now Available

Any number of people have expressed an interest in having more classes in the evening. Both John Barnes and Jim Ritz have been kind enough to offer to teach evening sessions of their classes.

On the Road with Your Mac
Microsoft Word for Office 2001
Spreadsheet - Why Do I need to Use One?
Microsoft Excel for Office 2001
Brush Up Your Mac Skills
Microsoft PowerPoint
Exploring AppleWorks
E-mail with Netscape Communicator
Ride the Internet Wave
E-mail with Microsoft Outlook Express
Web Pages with Apple's iTools
E-mail with America Online
The Mac—Digging a Little Deeper
Using Shareware and Freeware that no Mac should be Without
Beginning AppleScript - Teaching your Mac to "Stay" and "Sit"
Intermediate AppleScript - Teaching your Mac to Fetch the Newspaper

Teachers Key

—**John Barnes** teaches on Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays either in the Morning or Afternoon AND Monday, Wednesday, Thursday and Friday Evenings
—**Mahmoud El-Darwish** teaches only in the evenings
—**Pat Fauquet** teachers on Mondays, Wednesdays, and Fridays either in the Morning or Afternoon.
—**Blake Lange** teaches only in the evenings
—**Jim Ritz** teaches on Tuesdays or Thursday either in the Morning or Afternoon AND Wednesday and Thursday Evening
—**Paul Schlosser** teaches only in the evening
—**Barrett Thomson** teaches only in the evening

Price Key for Single Session 3 hour Tutorials

(G) General Level: Standard Members: $35.00, Associate Members and Non-Members: $50.00
(M) Middle Level: Standard Members: $50.00, Associate Members and Non-Members: $75.00.
(H) Higher Level: Standard Members: $75.00, Associate Members and Non-Members: $125.00
** Multiple Session classes are double or triple the fees depending on the number of sessions.

Teachers

Washington Apple Pi is always on the lookout for new tutorial instructors, however there are certain qualities we look for in our instructors. We do not want people who need a specific outline to follow each class, we do not want people who are uncomfortable about coming from behind a teacher's desk or podium and teaching in the middle of a circle, we do not want teachers who have a limited knowledge base.

What makes tutorials at WAP special is that they are taught by computer instructors who know are knowledgeable about a broad range of computer related topics while also being extremely knowledgeable about the Mac operating system and the course which they are teaching. They are flexible in their approach to a topic and can adjust the class to fit the needs of the six or fewer students they are working with. They are ultimately patient, can adapt to their surroundings and can bring information from a broad array of computer topics to the subject at hand. They can also troubleshoot problems. If you think of yourself as being that type of teacher, whether you have formal educational training or not, please send an e-mail to Pat Fauquet at tutorials@wap.org. All applicants will be asked to teach a class or two to make sure they can fit into the tutorial program philosophy before they will be considered as permanent instructors. We are particularly in need of teachers for evening classes. Our instructors are paid only for contact time with Pi students. Time spent in developing course materials, books needed by the instructor, and other materials are provided by instructor.

CLASS DESCRIPTIONS
NEW OS X CLASSES

Four Part New User Series: Write It! Save It! Print It! for OS X Finding Your Way around the Finder for OS X Surfing 10 for OS X Simplify Your Computer Life for OS X

See the regular class descriptions for what will be covered. There are no prerequisites for these classes. It is suggested that student enroll in all four sessions in order to have a complete overview of basic Macintosh operation.
Instructors: Pat Fauquet
Prerequisites: None
Cost: Current Members: $35 per session for a total of $140, Others: $50.00 per session for a total of $200.

Let's Install OS X

The most trouble-free way to move up to OS X is to back up all important documents, reformat the hard drive and then do fresh installs of OS 9.2.1 and OS X. Back up your data and bring your computer and OS 9 and X system disks and leave class with your new operating system installed! Bring your data files to begin adding them back to your computer. This class is intended for machines that meet the requirements set out in the ReadMe file included on the OS X install disk. Please make sure your computer meets those requirements before signing up for this class. If you do not feel comfortable performing these operations, we have our Tuesday night clinic. Members using the clinic are reminded that it is customary to make a donation to Washington Apple Pi to help run our club.
Instructors: Pat Fauquet and Jim Ritz
Prerequisites: Brush Up Your Mac Skills or Permission of the Instructor
Cost: Current Members: $50, Others: $75

Movin' On Up to OS X

This one session class is for experienced users of OS 9 who have OS X installed on their computer. Instruction will include an introduction to the Finder, the Print Center and Software Update. This class is required or permission of the instructor must be obtained before taking other OS X classes. Instructors: Pat Fauquet and Jim Ritz Prerequisites: Brush Up Your Mac Skills or Permission of the Instructor Cost: Current Members: $50, Others: $75

Multiple Users, Networking, AirPorts and OS X

If you have multiple computers in your home or small office and want to use OS X, this class will help you set up your network. Both ethernet and AirPort networking will be discussed. We will set up both network types in class. Instructors: Pat Fauquet and Jim Ritz Prerequisites: Movin' on up to OS X or Permission of the Instructor Cost: Current Members: $50, Others: $75

OS X: I Am Having System Problems, Now What?

This is an introductory course is troubleshooting system problems in OS X. It does not include issues dealing with UNIX and Root account access. Learn how to troubleshoot common system problems and what to back up when it is time to reinstall the OS X. Instructors: Pat Fauquet and Jim Ritz Prerequisites: Movin' on up to OS X or Permission of the Instructor Cost: Current Members: $50, Others: $75

iPhoto—So Easy!

Apple has made a digital photo applicaion for the rest of us! Come learn how to organize and edit your photos in this great free application available only to OS X users. Learn uplooad your photos to web pages, make photo scrapbooks and order prints online. Instructor: Pat Fauquet Prerequisites: Four Part New User Series or Permission of the Instructor Cost: Current Members: $50, Others: $75

Digital Video Camera Topics

Video Camera Fundamentals Irrespective of the camera you use, the basic skills needed to get great footage are the same. Bring your camera along if you have one. We will begin by discussing the needs of the two different components of successful video - the image and the sound to go with it. This is an overview course that will get you a good understanding for : framing a shot, shooting for the edit, lighting principles (available light and supplied light), microphone choice and placement. The instructor will be using a standard broadcast television camera to demonstrate these principles, but you will find the information translates easily to the equipment that you decide to use for your next shoot. If there is sufficient interest from the class members, we will look at how a story is built with a sequence of shots. You will be supplied with a recommended reading list to take you to the next level by way of self-development exercises. This class will be taught in the evenings. Instructor: Grant Peacock Prerequisites: None Cost: Current Members: $50, Others: $75

Inspiring Lighting

We will quickly review the very basic lighting concepts introduced in Camera fundamentals' and then move straight into setting up lighting exercises. Think of this as a problem solving clinic, and one where you

will begin to develop a good relationship between what your eye (brain) reads and what the lens (video camera) interprets the scene to be. You will be surprised how simple it can be to create beautiful and interesting images with your video camera. The course assumes that you will want to make at least a small investment in some basic lighting tools - you will learn what you can achieve with both minimal and intermediate expenditures. For the upcoming professional, we will provide some ideas for assembling an excellent basic lighting kit. Bring along any magazine samples or even your own sketches of lighting scenes that you have enjoyed and would like to replicate. We will delve into indoor lighting, outdoor lighting, lighting faces (interview lighting), high contrast shots, dealing with windows, background lighting, key and fill lights, and finally backlights. There are now some excellent books available to help keep the momentum going - a reading list will be offered to you. This class will be taught in the evenings. Instructor: Grant Peacock Prerequisites: None Cost: Current Members: $50, Others: $75

Sounds Great

The best video images in the world won't hold interest unless excellent sound goes with them (NASA still has an excuse, maybe). We will start with a brief overview of the vital importance of crisp clean sound. Most of the workshop is going to focus on learning some basic techniques in the use of microphones - how to choose the right mic for the task, how to place it near the sound source, gathering sound for tight vs.. wide shots, wireless sound ('radio mics') vs. cabled microphones, correct techniques for recording the sound. We will also study the different categories of sound - 'natural' vs 'dialog' and how our techniques will adjust for them both. You will be given recommendations for a basic equipment list to take you one step beyond relying on the camera microphone as your only source of recorded sound. Bring along whatever equipment you have - camera included - and we will record and play back some samples. You will also leave the workshop with a reading list to help keep you on the learning curve. This class will be taught in the evenings.
Instructor: Grant Peacock
Prerequisites: None
Cost: Current Members: $50, Others: $75

JUST NEAT

Lets Burn Some CD's - (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.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

Lets Go Wireless - Network Your Macs - (M)

Do you dream of surfing the web without wires from your lawn chair, printing to that printer downstairs without plugging into it, sharing one internet account on all your computers? That's called networking! In this three hour class we will cut through the technobabble, show you examples of hardware, cables and software that make all your computers work together and share resources.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00.
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

My Crafty Mac - (G)

Computers and printers are great for more than letters, web surfing and e-mail! Come spend the day with the Washington Apple Pi folks and let's do a few projects. Our crafting days will be held once each month and Pat promises to have ideas and techniques to get your creative energy flowing. Each month a variety of new materials, software and media will be available for your use in making items to take home for decorating and gifts. Below is a schedule of coming craft days:
September—Back to School and Halloween
October—Fall and Thanksgiving
November—Christmas and Hanukkah
December—Holiday Gifts and Calendars
January—President's Day, Valentine's Day, Martin Luther King Day
February—Scrapbooking, St. Patrick's Day
March—Easter, Passover, Spring

April —Graduation and Patriotic Projects
May—Summer Fun
There will be a $5.00 material fee in addition to the class fee for each session. Bring money and we will order in from one of the area restaurants or bring a sack lunch.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills
Number of Sessions: Full Day
Price: Standard Members: -Standard Members: $70.00, Associate Members: $100.00, Non-Members: $100.00
Instructor: Pat Fauquet
Scheduling: M-W-F Full Day

On the Road with Your Mac - (G)

The recent introduction of highly portable, highly capable, and economical laptop computers makes it more of a pleasure than ever before to enjoy the company of your favorite computer when traveling. This course discusses the things one needs to think about before packing the computer to go to some exotic (or not so exotic) destination. Electricity supplies, modem and IP connections, Internet Cafes, file backup, multimedia adapters for use with digital still and video cameras, and physical security are some of the issues that will be discussed.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills
Sessions: 1
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00.
Instructor: John Barnes
Scheduling: M-T-W-TR-F either Morning or Afternoon AND Evenings

Have iBook (or PowerBook), Will Travel - (G)

There are a lot of things to think about before you take your favorite "toy" on the road—power, Internet connections, file backups, critical software, adapters, cases and computer security are just a few. Apple's Location Manager will also make trips easier. Come learn how to make your trip a "computing success."
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills
Number of Sessions: One
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00.
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

NEW USERS SET

Mouse Mousse - (Intro to New User Set) - (G)

Your new pet needs care and training. This two hour class with one hour lab session will teach you how to tame the little beast! Tricks such as clicking, double clicking, pointing and dragging will be taught along with hints for care and feeding. If you own an iBook and would like to use that during the class, please bring it to class with you. This class may be retaken for free by members if further training is needed.
Prerequisite: None.
Number of Sessions: One (2 hours of class time and 1 hour of lab time)
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00
Instructor: Pat Fauquet
Note: Since most members can use the mouse effectively, this class is not required before taking Write It! - Save It! - Print It! and is only run when the office has enough students to schedule a class.

Write It!- Save It! - Print It! - (Part 1 of 4 Part New User Set)- (G)

This introductory class will focus on using AppleWorks to write, print, and save your first computer documents. Write It! will include elementary text formatting skills. Save It! will help you learn to save documents in a central location and then find them again. Print It! will help you set up your printer, preview your document, make choices about color, and paper quality.
Prerequisite: None.
Number of Sessions: One (2 hours of class time and 1 hour of lab time)
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

Finding Your Way Around the Finder - (Part 2 of 4 Part New User Set)- (G)

Your computer desktop fills with windows and icons quickly! Learn the secrets of the Finder to deal with them!
Prerequisite: None.
Number of Sessions: One (2 hours of class time and 1 hour of lab time)
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00

Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

Surfing 101 - (Part 3 of 4 Part New User Set)- (G)

Learn how to catch your first Internet wave! This class will give an introduction to the browser window, show you some great Internet sites, teach you how to make bookmarks to find your way back and send your first e-mail messages.
Prerequisite: None.
Number of Sessions: One (2 hours of class time and 1 hour of lab time)
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

Simplify Your Computer Life - (Part 4 of 4 Part New User Set)- (G)

Are you tired of having to open so many folders to get to AppleWorks or the Internet? Do you save things only to lose them? Can you throw something away when the trash can is covered? This class will teach you how to make your computer easier to use!
Prerequisite: None.
Number of Sessions: One (2 hours of class time and 1 hour of lab time)
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

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. The office does not have an answering machine - only an announcement machine.

Office Information

Washington Apple Pi
12022 Parklawn Drive
Rockville, MD 208522
www.wap.org
email: office@wap.org
Office Hours:
Monday - Wednesday - Friday (10 am - 6 pm)

UNDERSTANDING THE MAC

Brush Up Your Mac Skills- (G)

This class is meant for the new user as well as the user who has just upgraded to a new computer and wants to learn more about the basic operation of the Macintosh. This class is also recommended for Macintosh owners who are new to Mac OS 8.0 and above or those who have never really learned all the things that the Mac OS has to offer to the computer user. In addition to start up, sleep and shutdown procedures, the student will learn how a computer works and common Macintosh terminology. The Finder and its basic operation will be fully covered. This discussion will include the menu bar, Apple menu and the Application Switcher. Students will learn how to access and use the built-in help application on the Macintosh. Error messages, dialog boxes, icons, folders, and view options will be discussed. You will learn the basics of word processing and text formatting. Copying, cutting, pasting, dragging and dropping will also be covered. Basic system and mouse maintenance will be included. The fundamentals of searching for files will also be covered.
Prerequisite: 4 part New Users Set or a good general understanding of the Mac OS.
Number of Sessions: Two.
Price: Standard Members: $70.00, Associate Members: $100.00, Non-Members: $100.00
Instructor: Jim Ritz
Scheduling: T-TR either Morning or Afternoon AND Evenings

The Mac-—Digging a Little Deeper- (M)

The Mac—Digging a Little Deeper will follow up on the concepts taught in Brush Up Your Mac Skills. You will learn more advanced Macintosh skills and terminology including contextual menus and advanced Finder options, the custom installation of software and updating software applications. Students will learn about memory error messages and how to deal with them. Hard drive organization, archiving and backup strategies will be discussed. An introduction to managing system extensions and control panels will be covered along with virus protection, system enhancements and Macintosh "housekeeping" philosophies. Students will learn how to use Disk First Aid, how to deal with system crashes and what causes them. They will also learn to use Sherlock to find files on the computer, to find text phrases in saved data, and to find items on the Internet.
Prerequisite: Brush Up Your Mac Skills
Number of Sessions: Two
Price: Standard Members: $100.00, Associate Members: $150.00, Non-Members: $150.00
Instructor: Jim Ritz
Scheduling: T-TR either Morning or Afternoon AND Evenings

Making your Mac Sing- (M)

Making your Mac Sing will follow up on the concepts taught in The Mac—Digging a Little Deeper. In this hands-on class students will learn how to back up the essential data and settings files, then how to install, update and upgrade system software. They will learn the difference between clean and dirty system installations and when to use them. They will learn how to remove installed software, manage system conflicts, and troubleshoot crashes. Software such as Norton Utilities, Tech Tool Pro, Conflict Catcher, Spring Cleaning, and Disk Warrior will be demonstrated and used to fix computer problems. Hard drive initialization, partitioning, defragmentation and optimization will be discussed and demonstrated. Students are encouraged to bring their Macs to use in class to actually troubleshoot and update their own computers. iMac owners should bring their computer, keyboard and mouse. All others should bring only their CPU and modem. If students own Zip drives or Super Drives they should also bring those to back up important data.
Prerequisite: The Mac—Digging a Little Deeper
Number of Sessions: Two
Price: Standard Members: $100.00 Associate Members: $150.00, Non-Members: $150.00
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

Hanging Ten

Now that Apple's state-of-the-art operating system is pretty much ready for prime time, OS X is the place to be. With its outstanding stability, robust software, seamless multitasking, clean program development environment, and many other features, X is the way to go if your computer can support it. This class provides tips gathered from experienced OS X users and "hands on" experience with the new environment and applications that live within it. Learn the distinctions between Cocoa, Carbon, and Classic. Learn how to set up OS X and Classic on your own (qualifying) machine. Tour some of the new and upgraded applications.
Prerequisite: Digging Deeper

Sessions: 1
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00.
Handout Fee: $5.00
Instructor: John Barnes
Scheduling: M-T-W-TR-F either Morning or Afternoon AND Evenings

Using Shareware and Freeware that no Mac should be Without- (M)

What is shareware and freeware and why do you need to know about it? What are all the neat files and programs that make your Mac more user friendly? Learn how to find these files and software on the Internet, how download them, how to install and use them. How susceptible is the Mac to viruses, and how do you combat them? This one session class is for students who want to learn more about the various software resources such as graphic reader/converter software, fonts, plug-ins, Applescripts, and system resources.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00
Instructor: Jim Ritz
Scheduling: T-TR either Morning or Afternoon AND Evenings

WHY APPLEWORKS

Exploring AppleWorks- (G)

Now that you can type a report or letter, learn more about margins, indents, tabs, dictionaries, sections and columns. Learn how to add graphics, tables, graphs and spreadsheets to your basic AppleWorks document. Learn how to use the templates and assistants included in the program.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00
Instructor: Jim Ritz
Scheduling: T-TR either Morning or Afternoon AND Evenings

AppleWorks Can Do That?- (M)

In addition to word processing functions AppleWorks contains presentation, database and spreadsheet modules. Learn to use these tools for slideshows, mail merging, certificates, and labels in this three hour class.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00.
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

AppleWorks and Newsletters- (M)

Learn how to use the newsletter assistant in AppleWorks to easily produce newsletters for a variety of audiences. In this class participants will produce a basic newsletter, then learn how to use the Mac OS stationery pad function to speed the production of future newsletters. Basics of graphic design, layout, typography, writing style and suggestions for economical reproduction will also be covered. This class is not an introduction to AppleWorks.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills. In addition Exploring AppleWorks class or a good working knowledge of another word processing application is suggested before attending this class.
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

GENERAL GRAPHICS

We Need a Picture Here- (M)

Calling all people who don't want to be graphic professionals, but who would like to be able to put Photos, Clip Art, Draw, Paint, Vector, and Bitmap into an e-mail, flyer or newsletter. In this three hour class students will be introduced the secrets of drawing and paint programs for the computer. They will learn how to use graphics from computer programs, clip art CDs and the Web to enhance their documents. They will learn how to re-size and re-color graphics that are "just about right" to make them "just right." Elementary retouching of photos will also be covered.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00

Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

Fun with Your Scanner- (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!
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

USING THE INTERNET

Ride the Internet Wave- (G)

This three hour class, intended for users of all Internet browsers, will introduce you to the World Wide Web. Learn what the various buttons on the browser window do. Learn to customize the browser window to meet your visual needs. Learn how an Internet address works and how to deal with error messages that appear. You will learn how to use Sherlock, search engines, directories and metasearch sites to find the information you seek. Learn how to capture pictures and text from the Internet and how it print web pages. This class is appropriate for all users of the Internet including America Online customers. It is suggested that all participants enroll in one of the e-mail courses to complete their introduction to the Internet.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00
Instructor: Jim Ritz
Scheduling: T-TR either Morning or Afternoon AND Evenings

E-mail with Netscape Communicator- (G)

Anyone can send and receive e-mail, but some would like to do more like attach and download files, send documents that anyone can read, import their Palm data into their address book or perhaps export their address book to their Palm. Some would like to know how archive e-mail, search it, and perhaps even dress it up. Are you one of those people? Come learn how to really use Netscape for e-mail!
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills
Number of Sessions: One
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00.
Instructor: Jim Ritz
Scheduling: T-TR either Morning or Afternoon AND Evenings

E-mail with Microsoft Outlook Express- (G)

Anyone can send and receive e-mail, but some would like to do more like attach and download files, send documents that anyone can read, import their Palm data into their address book or perhaps export their address book to their Palm. Some would like to know how archive e-mail, search it, and perhaps even dress it up. Are you one of those people? Come learn how to really use Outlook Express for e-mail!
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills
Number of Sessions: One
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00.
Instructor: Jim Ritz
Scheduling: T-TR either Morning or Afternoon AND Evenings

E-mail with America Online- (G)

Anyone can send and receive e-mail, but some would like to do more like attach and download files, send documents that anyone can read. Some would like to know how archive e-mail, search it, and perhaps even dress it up. Are you one of those people? Come learn how to really use AOL for e-mail!
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills
Number of Sessions: One
Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00.
Instructor: Jim Ritz
Scheduling: T-TR either Morning or Afternoon AND Evenings

WEB PAGE CREATION AND DESIGN

Web Pages with Apple's iTools- (G)

Want a web page, but don't want to have to buy

new software, learn HTML, learn about FTP, and find a page host? Let Apple do it for you! In this three hour class you can make a web page and publish it on the web! Use that page to show off family pictures or items you want to sell on eBay, post a family newsletter, put your resume online for all to see, post an invitation to a party or even make a place to share files with other people. The techniques used in this class require Mac OS 9 OR X if you plan to continue your pages at home. Bring a few photos to scan and leave with your pages on the Web!

Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills

Number of Sessions: One

Price: Standard Members: $35.00, Associate Members: $50.00, Non-Members: $50.00.

Instructor: Jim Ritz

Scheduling: T-TR either Morning or Afternoon AND Evenings

Web Pages-The How To Dos- (M)

When your web page grows to more than two pages, its time to get organized!

Learn how web pages differ from printed documents, what you can and can't control in web page design. Learn how to organize your files to make it easier to update your pages. Learn how to register a domain, upload pages to a web server and how to get people to visit your site. Learn about graphic types and when to use them. This class replaces Web Page Workshop and is the prerequisite for all other web page classes at Washington Apple Pi.

Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.

Number of Sessions: One

Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00

Instructor: Pat Fauquet

Scheduling: M-W-F either Morning or Afternoon

Making Web Pages with Free or Inexpensive Software- (M)

Learn how to make web pages, format the text, add pictures and link pages together. Learn about tables and how to and use them. Learn about the site management features of these programs and how to upload your pages to the web server.

Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills along with Web Pages-The How To Dos or the permission of the instructor.

Number of Sessions: Full Day

Price: Standard Members: $100.00, Associate Members: $150.00, Non-Members: $150.00.

Instructor: Pat Fauquet

Scheduling: M-W-F Full Day

*This class has a break for lunch. Please either bring your lunch or money for take out.

Web Page Decoration- (M)

In this all-day workshop students will learn how to make and prepare backgrounds, headlines, clip art,

Washington Apple Pi
Tutorial Registration Form
www.wap.org

Washington Apple Pi
12022 Parklawn Drive
Rockville, MD 20852
301-984-0300 Office@wap.org

Name _____

Address _____

City/State/Zip _____

Phone (day) _____ (Evening) _____

Member Number _____ Non-member _____

Email address _____

Times when your are available for classes _____

_____

Type of class wanted _____

Please fill in the name(s) of the class(es) that you wish to attend.

Class #1 _____

Class #2 _____

Class #3 _____

Class #4 _____

Class #5 _____

Class #6 _____

Mail registration and payment to the above address.

buttons, rules, dividers and animation's for web pages. They will also learn how to construct graphic sets. Students will learn about the GIF, JPEG and PNG formats and when to use them. If you want to use these projects in an actual web page, please sign up for a web page class in addition to this class.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills along with Web Pages-The How To Dos or the permission of the instructor.
Number of Sessions: Full Day
Price: Standard Members: $100.00, Associate Members: $150.00, Non-Members: $150.00.
Instructor: Pat Fauquet
Scheduling: M-W-F Full Day
*This class has a break for lunch. Please either bring your lunch or money for take out.

Adobe GoLive 1: Introduction- (H)

This class will cover the first three lessons in the Adobe GoLive Classroom in a Book. Students will learn to start a page, add and format text and pictures, use tables, and link pages together. They will learn about dynamic components, templates, and image maps. They will also learn elementary site management.
Prerequisite: Web Pages-The How To Dos OR Making Web Pages with Free or Inexpensive Software OR the permission of the instructor.
Number of Sessions: Full Day
Price: Standard Members: $150.00, Associate Members: $250.00, Non-Members: $250.00
Book Price: $10.00 to be paid with class registration.
Instructor: Pat Fauquet
Scheduling: M-W-F Full Day
*This class has a break for lunch. Please either bring your lunch or money for take out.

Adobe GoLive 2:, Frames, Animation and Site Management- (H)

This class will cover lessons four, five and eight in the Adobe GoLive Classroom in a Book. Students will learn how to build a web page using frames. They will learn how to use rollovers and floating boxes to add interest to their web pages. They will also learn how to use the site management tools in Adobe GoLive to convert old site and update sites easily.
Prerequisite: Adobe GoLive 1: An Introduction OR the permission of the instructor.
Number of Sessions: Full Day
Price: Standard Members: $150.00, Associate Members: $250.00, Non-Members: $250.00
Book Price: same book as for Adobe Go Live 1.
Instructor: Pat Fauquet
Scheduling: M-W-F Full Day
*This class has a break for lunch. Please either bring your lunch or money for take out.

Adobe GoLive 3: Editing QuickTime Content- (H)

Adobe GoLive has a great QuickTime editor built into the program. This class will cover its use in making and editing QuickTime movies. Instruction will also be given for how to add QuickTime VR scenes, panoramas, and objects to web pages
Prerequisite: Adobe GoLive 1: Introduction OR the permission of the instructor.
Number of Sessions: Full Day
Price: Standard Members: $150.00, Associate Members: $250.00, Non-Members: $250.00
Book Price: same book as for Adobe Go Live 1.
Instructor: Pat Fauquet
Scheduling: M-W-F Full Day
*This class has a break for lunch. Please either bring your lunch or money for take out.

OFFICE AND HOME PRODUCTIVITY SOLUTIONS

The Enterprise Mac (M)

Many mom and pop businesses, craft workers, one-person consultancies, or small offices use Macintosh computers to support their income-producing activities. This tutorial is designed to provide such users with a basic overview of Macintosh applications and hardware suitable for such business uses. The tutorial will also present security procedures and disaster recovery methods so that enterprise users will have access to their valuable data whenever and wherever they need it. The knowledge gained in this course will help save money on service calls and help users to build integrated IT strategies for their small businesses.
Prerequisite: Brush Up Your Mac Skills
Sessions: 1
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00.
Handout Fee: $10.00
Instructor: John Barnes
Scheduling: M-T-W-TR-F either Morning or Afternoon AND Evenings

Microsoft Word for Office 2001- (M)

This class will introduce the student to the funda-

mentals of the Microsoft Word software package. The course is designed for those with very limited or no previous knowledge of Word. Topics that will be covered include: reviewing the screen elements of a basic new Word document (the standard and formatting toolbars and the menu bar); setting default options such as spell checking and document editing choices, paragraph formatting (fonts, type styles, etc.); creating, editing, saving and deleting a simple Word document; using the on line help function; simple formatting using tabs and setting margins; creating a simple table; and reviewing predefined templates such as the letter template that are included in Word.

The classroom emphasis will be on Word 2001. Differences between Word 2001 and Word 98 may be discussed if students' needs warrant.

Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills
Number of Sessions: 1
Textbook: To Be Determined by Instructor
Price: Standard Members: $50.00, Associate Members: $100.00, Non-Members: $100.00.
Instructor: John Barnes
Scheduling: M-T-W-TR-F either Morning or Afternoon AND Evenings

Microsoft Excel for Office 2001- (M)

This class will introduce the student to the fundamentals of the Microsoft Excel software package. The course is designed for those with limited or nonexistent knowledge of spreadsheet software. Topics that will be covered include: an overview of spreadsheet applications, designing and creating a new worksheet, calculations; editing, saving and deleting a simple Excel document; using the on line help function; creating a simple table; adapting predefined templates, and data importing and exporting.

Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills and
Access to Microsoft Excel application on an office or home computer
Number of Sessions: One (2 hrs class time, 1 hr lab time)
Textbook: To Be Determined by Instructor
Price: Standard Members: $50.00, Associate Members: $100.00, Non-Members: $100.00.
Instructor: John Barnes
Scheduling: M-T-W-TR-F either Morning or Afternoon AND Evenings

Microsoft PowerPoint- (M)

This class will introduce the student to the fundamentals of the Microsoft PowerPoint software package. The course is designed for those with very limited or no previous knowledge of presentation software. Topics that will be covered include: designing a presentation using the outline, slide viewer and slide show modes, the use of page masters (title and slide masters), importing pictures and charts. Transitions, timing, and control of presentations will also be covered. Design assistants and predefined themes will be discussed as aids to effective design. Preparation of transparencies,
notes, and handouts will also be discussed.

Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills and
Access to Microsoft PowerPoint Application on an office or home computer
Number of Sessions: One (2 hrs class time, 1 hr lab time)
Textbook: To Be Determined by Instructor
Price: Standard Members: $50.00, Associate Members: $100.00, Non-Members: $100.00.
Instructor: John Barnes
Scheduling: M-T-W-TR-F either Morning or Afternoon AND Evenings

Spreadsheet - Why Do I need to Use One?- (M)

While optimizing the use of a Spreadsheet can make our work life less stressful and more productive, Spreadsheets aren't just for work anymore. Come learn the different parts of our lives that can be made more productive through the use of spreadsheets. From learning the basic spreadsheet concepts, to setting up a spreadsheet, entering and editing numbers and words, entering basic formulas and make basic charts and graphs. Come find out how to sort data and how to print the whole spread sheet or only a portion of it. Class will show concepts that can be used in either the spreadsheet module of AppleWorks (ClarisWorks) or Excel. This class is not meant for persons who are intermediate or advanced users.

Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00
Instructor: Jim Ritz
Scheduling: T-TR either Morning or Afternoon AND Evenings

Introduction to FileMaker Pro- (M)

This course covers what a database is, database terms, how to plan a database, and create database fields and layouts. Searching, sorting, printing and

editing information in a database will also be covered.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

Advanced FileMaker Pro and Clinic- (M)

This class is for those who have some experience with FileMaker Pro and need to learn more for specific projects. Questions are welcome and students specific problems will be discussed. The class will be explanations with a strong questions and answer format. You should bring along on floppy/zip a sample of things you would like help.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

CAMERAS AND VIDEO

Digital Video Cameras and iMovie- (M)

Join with other Pi members as we explore the world of digital video cameras. Learn shooting, composition and lighting techniques. Learn how to upload footage to your computer, how to edit it, add music tracks from CDs, MP3s or midi files, how to add narration, still clips and special effects. The class will conclude with uploading the edited video to the camera or rendering. Bring your camera, music, video and still images you might like to include in your project
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills
Number of Sessions: Full Day
Price: Standard Members: $100.00, Associate Members: $150.00, Non-Members: $150.00
Instructor: Pat Fauquet
Scheduling: M-W-F Full Day
*This class has a break for lunch. Please either bring your lunch or money for take out.

Fun with Your Digital Camera- (M)

Bring your digital camera and accessories to class and learn how to use it. Learn about media types, batteries, card readers, flash units, accessory filters and lenses and tripods. Learn shooting, lighting and manipulation tips, how to print photos, how to attach them to e-mail, and how to put them on web pages. If you do not have a digital camera, come anyway and learn how to choose one. Several digital cameras will be available for student use during class.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

Using Photo Elements to Improving Digital Photos and Scans- (M)

Now that you have scanned that photo, taken a picture with a digital camera, or had photo disks made, learn how to improve your photos using inexpensive programs like Adobe PhotoShop Elements and GraphicConverter. Learn to lighten, darken, crop, and combine pictures to make them ready for printing, emailing and putting them in web pages.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $50.00, Associate Members: $75.00, Non-Members: $75.00
Instructor: Pat Fauquet
Scheduling: M-W-F either Morning or Afternoon

QuickTime VR—Making a Panorama- (H)

They're showing up everywhere—tours of homes, museums, businesses and scenic spots. Learn how to shoot a panorama, how to stitch one together, and what software and equipment is needed. This class will include the use of freeware shareware and commercial software. Students will use a range of digital cameras to produce several panoramas that will be stitched into tour with nodes linking the panoramas. Pan heads and leveling devices will be used and discussed. Adding panoramas to web pages will complete the day.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills along with Web Pages-The How To Dos or the permission of the instructor.

Number of Sessions: Full Day
Price: Standard Members: $150.00, Associate Members: $250.00, Non-Members: $250.00
Instructor: Pat Fauquet
Scheduling: M-W-F Full Day
*This class has a break for lunch. Please either bring your lunch or money for take out.

QuickTime VR—Making a Virtual Object— (H)

Imagine being able to manipulate a picture of a three dimensional object! Rotate it, turn it, bring it closer. Learn to produce object movies that can be placed on web pages. This class will include the use of freeware shareware and commercial software. Students will use a range of digital cameras to produce several VR objects. Adding these object movies to a web page will complete the class. This is a three hour class. -suggest it is offered at higher price level.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills along with Web Pages-The How To Dos or the permission of the instructor.
Number of Sessions: Full Day
Price: Standard Members: $150.00, Associate Members: $250.00, Non-Members: $250.00
Instructor: Pat Fauquet
Scheduling: M-W-F Full Day
*This class has a break for lunch. Please either bring your lunch or money for take out.

Beginner Final Cut Pro - (H)

This three hour beginning Final Cut Pro class is the jump off point for people who would like to start using this powerful program for making videos. Topic to be covered are listed below.
Hardware and Software Setup: System/Memory settings; Camera/Deck/Monitor connections; Scratch Disk setup; Final Cut Pro preferences.
Final Cut Pro — The Interface: Browser; Viewer; Timeline; Toolbar.
Logging and Capturing: Setting the log bin; Transport controls; Ins and outs of timecode; Selected capture; Handles.
Editing: Trimming clips; Keyboard shortcuts; Transitions; Dynamic previewing and rendering.
Titles: Title and action safe areas; Drop shadows.
Filters and Effects: Applying.
Audio: Importing from audio CD.
Final Output: Print to Video vs. recording from Timeline; Exporting QuickTime file.
Special Instructions: Students should bring their Digital Video Camera, cables and software with them to class.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One.
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00
Instructor: Barrett Thomson
Scheduling: Evenings

GRAPHIC DESIGN

Fast Track to Dreamweaver (H)

Fast Track to Dreamweaver is a 3-session course that teaches Intermediate Macintosh users to build websites the Macromedia way. Some of the skills you'll learn include:
Topics
· Basics of site architecture and HTML
· Working with Graphics
· Creating Links
· Elements of Page Design
· Creating Frames
· Fireworks and Dreamweaver combined
Objectives
Upon completion of this course, you should be able to:
· Use the fundamental features of Dreamweaver and the basic skills of adding text, graphics, and links to your page, along with instantly adding Flash files.
· Create simple tables, insert text or graphics, and moving or sizing the
box to get just the look you want.

Fast Track to Dreamweaver (H) Sessions 1: Learning the Basics

Organizing Your Site, Dreamweaver Basics, The Document Window, The Objects Panel, The Property Inspector, Dockable Panels, Defining a Local Site, Specifying Preview Browsers, Saving Your File, Naming an HTML File, Giving Your Page a Title, Specifying a Background Color, Specifying the Default Font Color, Specifying Link Colors, Using a Background Graphic, Placing Text on a Page, Adding Text in Dreamweaver, Indenting Text, Making Lists, Ordered Lists, Unordered Lists, Definition Lists, Nested Lists, List Tips, Character Formatting, Positioning Text, Changing Font Properties, Changing the Font Face, Changing the Font Size, Changing the Font Color, Cleaning Up Word HTML, HTML

Styles, Switching Document Views, Adding Horizontal Rules, Adding E-mail Links, Adding a Date Automatically.
Prerequisite: Digging Deeper and Experience using the World Wide Web
Sessions: 1
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00.
Instructor: Mahmoud El-Darwish
Scheduling: Evenings

Fast Track to Dreamweaver (H) Session 2: Working With Graphics
Placing Graphics on the Page, Wrapping Text Around Images, Modifying the Space and Adding a Border Around Images, Aligning Images and Text, Image Alignment Options, Adding Flash Objects.
Prerequisite: Digging Deeper and Experience using the World Wide Web
Sessions: 1
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00.
Instructor: Mahmoud El-Darwish
Scheduling: Evenings

Fast Track to Dreamweaver (H) Session 3: Creating Links
Creating Hypertext Links, Targeting a Link, Creating Image Maps, Linking to Named Anchors, Using Tables for Page Design.
Prerequisite: Digging Deeper and Experience using the World Wide Web
Sessions: 1
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00.
Instructor: Mahmoud El-Darwish
Scheduling: Evenings

Adobe Photoshop Part 1- (H)
Learn the basic fundamentals of Adobe Photoshop, the most widely used graphics program. Learn the proper way to configure the Photoshop preferences and how to use the tool, info, channel and color palettes. Also learn how to use each of Photoshop's tools, create new documents, define colors and manipulate text and images. Also covered will be the proper format to save your image in, and what compression will or won't do to your image.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00
Book Price: $10.00 to be paid with class registration.
Instructor: Paul Schlosser
Scheduling: Evenings

Adobe PhotoShop Part 2- (H)
Learn how to isolate different parts of an image or layers. Edit layers as discrete artwork with unlimited flexibility in composing and revising an image. Create more complex effects in your artwork using layer masks, clipping groups, and adjustment layers. This class includes both layer basics covered in the Photoshop tutorial and advanced layer techniques covered in the Classroom in a Book, Lesson 8.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills along with Adobe PhotoShop Part 1 or a knowledge of the topics covered in that class
Number of Sessions: One
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00
Book Price: $10.00 to be paid with class registration.
Instructor: Blake Lange
Scheduling: Evenings

Adobe InDesign 1- (H)
Work through a demonstration of Adobe InDesign providing an overview of the key features. Get to know the navigation features for using the drawing, layout, and editing capabilities. Learn the work area including the document window, the pasteboard, the toolbox, and the floating palettes. This class covers "A Quick Tour of Adobe InDesign" (the same as Chapter 1 in the User Guide) and "Lesson 1: Getting to Know the Work Area" from the Adobe Classroom in a Book.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00
Book Price: $10.00 to be paid with class registration.
Instructor: Blake Lange
Scheduling: Evenings

Adobe InDesign 2- (H)

Learn to use the tools for setting up pages to ensure a consistent page layout and to simplify your work. Learn how to set up master pages and use columns and guides. Work with frames to hold either text or graphics. Learn how InDesign gives you flexibility and control over your design. This class covers "Lesson 2: Setting Up Your Document and "Lesson 3: Working with Frames from the Adobe Classroom in a Book.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills along with Adobe InDesign 1 or a knowledge of the topics covered in that class.
Number of Sessions: One
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00
Book Price: Same book as used with Adobe InDesign 1.
Instructor: Blake Lange
Scheduling: Evenings

Adobe Illustrator: Mastering the Bezier Curve- (H)

Illustrator has become so feature laden that current tutorials are just overviews of the product; they do not present the fundamental workings of the program in depth. The Bezier curve, otherwise known as a vector graphic, is the primary building block of Illustrator (and many other drawing programs). Mastering its use will fundamentally change your view of the power of the program. The way the Bezier curve works, however, may seem alien at first with its points and vectors, an approach to illustrating many find counter-intuitive. This class will start with creating and editing the simplest lines and curves and build up to the creation of complex illustrations. By the end of the class you should feel comfortable editing any illustration based on the Bezier curve, for example, all clip art that has the eps extension in its file name. This class serves as both a good introduction to the program and as a help for the more advanced user to become adept in its use.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00
Book Price: $10.00 to be paid with class registration.
Instructor: Blake Lange
Scheduling: Evenings

Introduction to Quark XPress- (H)

Learn the basic fundamentals of Quark Xpress, the most widely used page layout program. Learn the proper way to configure the Xpress preferences and how to use the tool, measurement, color and documents palettes. You'll learn how to properly create new documents, define four-color process and spot colors, create master pages and manipulate text and graphic objects. Learn how to correctly use Xpress font and picture usage windows and how to configure the document for the laser printer or high-resolution imagesetter.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00
Instructor: Paul Schlosser
Scheduling: Evenings

Quark Xpress Clinic- (H)

This class is for those who have some experience with Quark Xpress and are interested in asking questions and having specific problems discussed. The class will be a question and answer format and you should bring along on floppy a sample of things for which you would like help. Prerequisite: Introduction to Quark XPress or a good working knowledge of QuarkXpress and its interface.
Number of Sessions: One
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00
Instructor: Paul Schlosser
Scheduling: Evenings

Introduction to PageMaker- (H)

Using the basic commands, tolls, and palettes, you will import, format, and position text and graphic elements needed to assemble a single-page, black and white flyer. This project will cover the following topics: Restoring default PageMaker settings. Changing the view of a publication. Creating a new publication. Opening an existing publication. Setting up the horizontal and vertical rulers. Displaying and hiding guides. Positioning the zero point. Using the pointer tool, the text tool, and the zoom tool. Specifying multiple columns. Locking the guides. Creating, placing formatting, and positioning text and graphic elements. Creating a drop cap. Applying a tint to text. Specifying a hanging indent. Creating ruler guides. Drawing circles, rectangles, and lines. Adjusting the stacking

order of elements on the page. Range kerning text. Using the Snap to Guides option.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills.
Number of Sessions: One
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00
Book Price: $10.00 to be paid with class registration.
Instructor: Blake Lange
Scheduling: Evenings

PageMaker Clinic- (H)

This class is for those who have some experience with PageMaker and are interested in asking questions and having specific problems discussed. The class will be a questions and answer format and you should bring along on floppy a sample of things for which you would like help.
Prerequisite: 4 Part New User Set or Brush Up Your Mac Skills along with Introduction to PageMaker or a good knowledge of the basics of PageMaker and its interface.
Number of Sessions: One
Price: Standard Members: $75.00, Associate Members: $125.00, Non-Members: $125.00
Book Price: Same book as used with Introduction to PageMaker.
Instructor: Blake Lange
Scheduling: Evenings

BEGINNING PROGRAMMING

Beginning AppleScript - Teaching your Mac to "Stay" and "Sit"- (M)

AppleScript is the Macintosh technology for automating repetitive tasks. It comes preinstalled and is available to any Mac user who wants to teach his/her Mac to do simple chores. This 1 session course starts by introducing the concepts behind AppleScript. We then use the Script Editor to explore the scripts that Apple provides. Users then create simple Finder scripts using the "record" feature of the Script Editor. Finally, students are provided with more complex scripts to use as starting points for developing their own solutions to simple system maintenance problems.
Prerequisite: Demonstrated advanced Mac OS user skills, 5-part New User Set,
or Brush Up Your Mac Skills
Number of Sessions: 1
Price: Standard Members: $50.00, Associate Members: $100.00, Non-Members: $100.00.
Instructor: John Barnes
Scheduling: M-T-W-TR-F either Morning or Afternoon AND Evenings

Intermediate AppleScript - Teaching your Mac to Fetch the Newspaper- (H)

Building on the knowledge gained in "Beginning AppleScript", this 2 session course, helps the user develop AppleScripts to automate workflow in more complex environments. We learn to exploit the scriptability of major Mac applications. Advanced AppleScript programming environments are used develop full-blown applications. Examples include AppleScript applications for system maintenance, database management, desktop publishing, and similar tasks in work environments.
Prerequisite: Beginning AppleScript
Number of Sessions: 2
Textbook: To Be Announced
Price: Standard Members: $100.00, Associate Members: $150.00, Non-Members: $150.00.
Instructor: John Barnes
Scheduling: M-T-W-TR-F either Morning or Afternoon AND Evenings ■

Other Educational Opportunities

Apple Computer Inc.
Reston, VA 703-264-5100 or
www.seminars.app.com

MacBusiness Solutions
301-330-4074 or
www.mbsdirect.com

MacUpgrades
301-907-0300

Micro Center 703-204-8400
or www.microcentereducaton.com

Piwowar & Associates 202-223-6813
or www.tjpa.com

VOTE!!

Join the group going to MacWorld. Call today for reservations!

Write for the journal. Share your computer experiences!!!

Part of a SIG? Help by sending copies of your minutes to the journal.

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

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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Employment, Labor & Civil Rights
Personal Injury & Auto Accidents
Business and Corporate Practice
Domestic Relations
Wills & Probate
Admitted DC, MD, VA &
Fed. Courts
First consultation free and discount
rates with valid Pi membership
(202) 530-0100

—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, or e-mail HR at 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.

—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. ■

Washington Apple Pi, Ltd. 12022 Parklawn Drive, Rockville, MD 20852

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.

- ☐ Apple II
- ☐ Apple II GS
- ☐ Apple III (SARA)
- ☐ Mac Plus, SE
- ☐ Mac SE30, Mac IIx
- ☐ Mac LC (series)
- ☐ Mac II
- ☐ Performa (all)
- ☐ Other _____
- ☐ IBM, PC clone
- ☐ PowerBook
- ☐ Centris (all)
- ☐ Quadra (all)
- ☐ Power PC/Mac
- ☐ G3
- ☐ iMac

WAP has many Special Interest Groups (SIGs) and Regional Groups (SLICEs). Please check each group you would be interested in.

- ☐ Annapolis Slice
- ☐ Columbia Slice
- ☐ Delmarva Slice
- ☐ Frederick Slice
- ☐ Disabled SIG
- ☐ Excel SIG
- ☐ FileMaker SIG
- ☐ Geneaology SIG
- ☐ Graphic SIG
- ☐ NOVA/Educators SIG
- ☐ Game SIG
- ☐ QuickTime SIG
- ☐ Retired SIG
- ☐ Stock SIG
- ☐ Women's SIG

☐ *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)

- ☐ Basic Membership—1 year $49
- ☐ Student rate* for 1 year $42

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 $_____

Indicate desired New Member Kit (1 only)

- ☐ Mac 400k
- ☐ Mac 800 k
- ☐ Mac 1.44 k
- ☐ Mac CD

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

*Please print or type:

*Please answer a few questions for us regarding your computer use. Check the computers/equipment that you use on a regular basis.

*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.*

(Required)

*For other options please add correct amounts

Indicate desired New Member Kit (1 only)

Please circle Yes or No for the 2 items below.

*Applicant signature and date

*Please enclose photocopy of current student ID.

** Access to the TCS is contingent on WAP having a current home telephone number for the member.

Pi Fillings: The CD, Version 9.0

Available at General Meetings for $10, or $12 via snail mail. Call the Pi office at 301-984-0300, or send an order by mail to: Washington Apple Pi, 12022 Parklawn Dr., Rockville, MD 20852

Apple Updates

AirPort 2.0
Apple DVD Player 2.7
Apple Modem Updater 2.0
Authoring Support 1.1.3
Battery Reset 2.0
CarbonLib 1.4
Disc Burner 1.0.1
DVD-ROM Firmware Update
Ethernet Update 2.0
FireWire 2.5
Font First Aid 1.0
G3 CD Update 2.0
G3 Firmware Update 1.1
G4 Cube FW Update 4.1.9
G4 FW Update 4.2.8
iBook Audio Update
iBook Battery Reset 2.0
iMac CD Update 2.0
iMac DVD-ROM Update 1.0
iMac FW Update 4.1.9
iMac Power Management Update 1.1
iMac Update 1.1
iMovie 2.1.1 Updater
iPod Updater 1.0
Mac OS ROM Update 1.0
Older Software Downloads
Open Transport 2.6 Update
OpenGL 1.2.1
PowerBook Firmware Update 2.4
PowerBook G3 DVD-ROM Updater
PowerBook G3 Series Modem 1.0.2
PowerBook G3-Which Do I Have?
PowerMacG4 AGP Update
QuickTime 5.0.2, Where Is It?
Running OS 8.6 on your iMac?
Runtime for Java 2.2.5
Sleep Memory Extension 1.0
Ultra2 SCSI Firmware 1.1
USB Card Support 1.4.1
USB Mass Storage Support 1.3.5
USB Print Sharing 1.0
Video Extension 1.0

Application Updates

Adaptec DirectCD™ 1.0.4 Update
Adaptec Toast Deluxe 4.1.2 Updater
Adaptec Toast Deluxe 4.1.3 Updater
Adaptec Toast OEM 4.1.2 Updater
Adaptec Toast OEM 4.1.3 Updater
Adaptec UDF Volume Access 1.0.4
AppleWorks 6.2 Update
AppleWorks 6.2.1 Updater
DiskWarrior 2.1.1 Extension Update
Handspring 3.5.2 v1.5 Updater
Handspring Photo Album 1.0
Handspring Updater V1.0.0
Humongous OS9 Patch
Mac Palm Doc 2.0.7
Microsoft Office 2001 Security Updater
Microsoft Office 2001 Service Release 1
Microsoft Office 98 Macintosh Edition/Mac OS 9 Updater
Microsoft Office 98 Update for Mac OS 9.0
Microsoft Office 98-PowerPoint 98 Updater
Microsoft Office 98/FileMaker® Pro Importer
Microsoft Office Combined Updater for Office 98
Microsoft Office Manager
Microsoft Office PowerPoint 98 Viewer 4.0
Microsoft PowerPoint 95 Translator for Mac PowerPoint 4.0 (68k)
Microsoft PowerPoint 95 Translator for Mac PowerPoint 4.0 (PPC)
Microsoft PowerPoint Viewer 4.0
Microsoft PowerPoint/Excel 2001 Macro Security Update
Microsoft Word 2001 Security Update
Microsoft Word 98 for Macintosh Security Update
MS Office 98-PP98 Updater
Palm OS Software 3.5 Upgrade
PhotoRelay 1.0.4
Roxio Jam 2.6.2 Updater
TechTool® Pro 2.5.4 [AppleCare]
TechTool Pro 3.0.5 Updater
Toast CD Reader 3.5.6
Toast Deluxe 4.1.2 Updater
Toast DVD 3.7.1 Updater
Toast Lite 5.0.2 Updater
Toast Titanium 5.0.2 Updater
Word 97-98 Importer (for 5.x)

Driver Updates

Apple Printer Utility Version 2.2
AsanteFast2.2
Cameraid 1.1.4
FastEtherTX-10/100+ 2.4.img
HiSpeed USB SA19w v1.8.4
HotSync 2.6.1 Updater
ImageMate USB CompactFlash I
ImageMateUSBCF I,II, SmartM, MM
iMate Driver 2.52
iMate Fiddler 1.51
Intuos (Wacom) 4.7.1-4
iPort Control 1.4
Keyspan DMR (2.0.3)
Keyspan USB 19/19Q PDA Adapter 2.4
Keyspan USB Card Assistant, v1.1
Kodak USB Card Reader
Microtech DPCM-USB Installer
Minolta - DC 10
Olympus USB Reader 1.1.7
PowerDomaim 2940U2W v1.1
PowerDomain 39160 1.0.2
PowerDomain Control 6.1.1
PowerDomain Utility 4.0
Stylus Photo 780
Stylus PRO 5500 6.7aE
Universal Reader 2.3
USB PDA Adapter SA19 v2.4
USB TelePort Modem 1.0.2 Extension
USB Twin SA28X v1.8.4
VST Flash Media Reader 1.0.1
VST Storage Device Drivers
VST USB Tri-Media_1.0
VueScan7.2.10
ZIO! CompactFl/SmartM/MultiMed
Astra MX3 VistaScan 3.7.5
Canon Printer
Castlewood ORB v1.42
Epson Stylus update 1.0cEs
FotoLook 2.09.2 Installer

HP Scanner
5300c, 5370c, 6300, 6350, 6390c
HP PrecisionScan Pro 1.4.2
HP Printer
HP 750 Series Patch 2.0.6
DeskJet 600 & 800 Series
For All USB DeskJet Printers
HP DeskJet Classic 4.3
hp deskjet installer Classic
LaserJet for Macintosh
Imation Storage Device
Iomega Storage Devices
Kensington MouseWorks 5.7
Keyspan Digital Media Remote (2.0.3)
Keyspan SX Pro (1.4)
Keyspan USA19W (1.8.4) High Speed USB Serial Adapter
Keyspan USA28 (2.1) Serial Adapter
Keyspan USA28X (1.8.4) USB Twin Adapter
Keyspan USB 4-Port SA49W v1.1 Serial Adapter
LaserWriter 8 Printer Driver Version 8.6.1
Lexmark Z22 Color Jetprinter
Lexmark Optra Color 45
Lexmark Z12 Color Jetprinter
Lexmark Z42 Color Jetprinter
Lexmark Z52 Color Jetprinter
Microtek Scanners
MouseWare [illegible]
PowerDomain [illegible]
PowerDomain SymSCSI [illegible]
PowerDomain 39160 v 1.[illegible]
SCSI Card 2906
Stylus C 980/880/6 4aA
Stylus Color 760 6.3AE
Stylus Color 800 6.6AE
Stylus Co[illegible]
Stylus C[illegible]
Stylus C[illegible]
Stylus C[illegible]
Stylus P[illegible]
UMAX Sca[illegible]
USB Overdrive
USB/1 Serial [illegible]
USB/4 Serial [illegible]
USB/4 Serial [illegible]
Xerox Docuprint 1.2 Installer
XTORM TABLET SYSTEM DRIVER VERSION 4.1.4

Data Rescue 2.0.5
Data Rescue II 1.0
Disinfectant 3.7.1
Disk Copy 6.3 Scripts
Disk Copy 6.2.3
Disk First Aid 8.6.1
Disk Tools 8.5 image
Dot What 1.5
Email Cleaner 2.1
[illegible]
[illegible]
[illegible]
GraphicC[illegible]
iCWord 2.0 demo
IPNetMonitor 2.3
IPNetRouter 1.6.2
IPNetSentry 1.5
Mac OS 8.6.1 Disk Tools
NortonFix 1.0

Oops

OTTool 1.2.1
PrintToPDF 2.3
Rosetta 1.4.2
Screen Catcher 2.2
TapGuard 2.0
TechTool 3.0.1
WormScanner 2.3
Zip It 2.1

Fun Diversions

Amazing Slow Downer 1.1.4
AMP Radio 1.6.5
BayTex Party! Pro 2.5.2
Coaster 1.1.3
eggTime 1.3.1
Gravité 2.0.2
iPod Free File Access 1.1b2
iTunes Tool 1.3
Joliet Volume Access 1.4.2
MacAmp™ 2.0.1
MP3 Title Fixer Script 1.3
Oh No! More Lemmings
Snood 2.11
Sound Studio 1.5.5
SoundApp 2.7.3
Sweet MIDI Player 1.0.4

Get Smart

A Parent's Guide To Hate On The Internet
About AirPort2
Add A PC
AirPort 1.0: About Airport
AirPort 1.1: Base Station Extras Folder Contents
AirPort 1.2: Updating Base Station Firmware
AirPort: America Online Compatibility
AirPort Base Station: Channel Selection and Overlap
AirPort Base Station: Character Limit for User Name and Password
AirPort Base Station: Description
AirPort Base Station: Enter DNS Information During Setup
AirPort Base Station: Internet Application Timeout Error Discussion
AirPort Base Station: Technical Specifications
AirPort Base Station: Troubleshooting a Dial-up connection
AirPort Base Station: X2 Modem Compatibility
AirPort Card: Disable During Air Travel
AirPort Card Not For Use in Standard PC Card Slot
AirPort: Compatibility With Older Macintosh Products
AirPort: Configuring a Base Station With a non-AirPort-Capable Computer
AirPort Setup Assistant: Steps to Complete Before Base Station Setup
AirPort: Supported Internet Service Providers
AirPort: Third Party Wireless Software and Network Password

AirPort Utility1.2-Can't Find Base Station
AirPort Version 1.2: Base Station Forced Reload
AirPortWireless FAQ 1of3 58414
AirPortWireless FAQ 2of3 58415
AirPortWireless FAQ 3of3 60422
Apple Memory Guide -- November 2000
Apple Product Software Isolation Troubleshooting
AppleSpec 10/2001
Child Safety on the Information Highway
Creating a Small Ethernet Network in Your Home or Office
Cube -- AirPort Card Replacement Instructions
Cube -- ATA Hard Drive Replacement Instructions
Cube -- Battery Replacement Instructions
Cube -- Memory (DRAM DIMM) Replacement Instructions
Designing AirPort Networks
Ethernet Network for Two Macs
Extensions Manager: Extensions Off Compared To Shift Down When You Start Up
Filtering software for children.
FireWire Ports: Specifications
Hard Drive: Options for Backing Up Contents
iBook: Installing AirPort Card
iBook-InstallAirPortCard.mov
iMac (All Models): How To Differentiate Between Models
iMac (All Models): Memory Specifications and Upgrades
iMac: Attaching an External Display
iMac: How to Install an AirPort Card
iMac: Installing Memory (1 of 2)
iMac: Installing Memory (2 of 2)
iMac: Parallel Printers Adapters
iMac (Slot Loading): Memory Specifications and Upgrades
[illegible] (Summer 2000): Theater Mode Description and Use
[illegible] Video RAM Expansion
[illegible] Keys to Install Available Updaters
[illegible] AirPort Card [illegible] iBook computer
[illegible] AirPort Card [illegible] iMac computer
[illegible] AirPort Card [illegible] Power Mac G4 computer
[illegible] Troubleshooting/Extensions Manager Features
[illegible] Error Code Messages
[illegible] Startup Issues
[illegible] Windows?
[illegible] Graphics): Installing AirPort Card
[illegible] How to Install an AirPort Card
[illegible] AirPort Card Installation
[illegible] COMPUTING FOR TODAY'S " CYBER-KIDS"
[illegible] the Internet
[illegible]
[illegible] Base Station
[illegible] Highway
[illegible]
[illegible] Discussion
[illegible] Technical Overview
[illegible]
[illegible]
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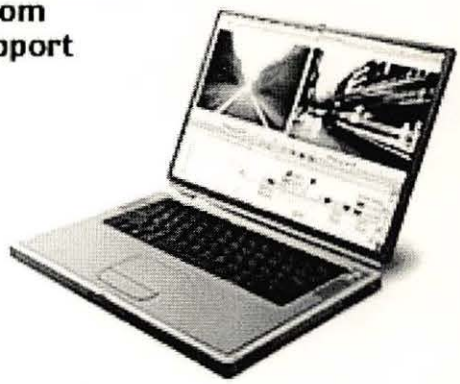

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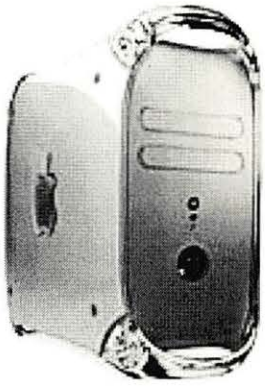
600MHz/128MB/15GB/CD-RW/56k $1,599
600MHz/128MB/20GB/DVD/CD-RW/56k $1,699

Titanium PowerBook G4
(all ship with 56k & DVD):
550MHz/120MB/20GB $2,199
667MHz/256MB/30GB/AirPort $2,999
667MHz/256MB/48GB/AirPort $3,299

IMac (all models contain 56k modem):
500MHz/64MB/20GB/CD-ROM $799
500MHz/128MB/20GB/CD-RW $999
600MHz/256MB/40GB/CD-RW $1,299
700MHz/256MB/60GB/CD-RW $1,499



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PowerMac G4 Tower:
733/128MB/40GB/CD-RW $1,699
867MHz/128MB/60GB SuperDrive (DVD-R/CD-RW) $2,499
Dual 800MHz/256MB/60GB SuperDrive $3,499

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Washington Apple Pi, Ltd
12022 Parklawn Drive
Rockville, MD 20852

May / June 2002

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